



ELEMENT MATERIALS TECHNOLOGY

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RF EXPOSURE PART 1 TEST REPORT

Applicant Name:

Samsung Electronics Co., Ltd.
129, Samsung-ro, Maetan dong,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:

09/11/2024 – 10/24/2024

Test Site/Locations:

Element, Columbia, MD, USA
Element Morgan Hill, CA, USA
Element, Suwon, Korea

Document Serial No.:

1M2408260067-23.A3L (Rev2)

FCC ID:

A3LSMS938U

APPLICANT:

SAMSUNG ELECTRONICS CO., LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SM-S938U

Additional Model(s):

SM-S938U1

Equipment Name	Serial # Model	Freq. Frequency	1g (max) (W/kg)	2g (max) (W/kg)	10g (max) (W/kg)	1g (max) (W/kg)
SM-S938U	1M2408260067-23.A3L	800-900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	900-960 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	1900-1920 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	1920-1980 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2100-2170 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2170-2200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2300-2360 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2360-2400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2400-2480 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2480-2500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2500-2550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2550-2580 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2580-2600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2600-2650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2650-2700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2700-2750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2750-2800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2800-2850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2850-2900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2900-2950 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	2950-3000 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3000-3050 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3050-3100 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3100-3150 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3150-3200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3200-3250 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3250-3300 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3300-3350 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3350-3400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3400-3450 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3450-3500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3500-3550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3550-3600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3600-3650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3650-3700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3700-3750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3750-3800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3800-3850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3850-3900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3900-3950 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	3950-4000 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4000-4050 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4050-4100 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4100-4150 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4150-4200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4200-4250 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4250-4300 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4300-4350 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4350-4400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4400-4450 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4450-4500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4500-4550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4550-4600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4600-4650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4650-4700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4700-4750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4750-4800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4800-4850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4850-4900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4900-4950 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	4950-5000 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5000-5050 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5050-5100 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5100-5150 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5150-5200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5200-5250 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5250-5300 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5300-5350 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5350-5400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5400-5450 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5450-5500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5500-5550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5550-5600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5600-5650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5650-5700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5700-5750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5750-5800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5800-5850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5850-5900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5900-5950 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	5950-6000 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6000-6050 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6050-6100 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6100-6150 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6150-6200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6200-6250 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6250-6300 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6300-6350 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6350-6400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6400-6450 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6450-6500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6500-6550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6550-6600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6600-6650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6650-6700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6700-6750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6750-6800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6800-6850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6850-6900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6900-6950 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	6950-7000 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7000-7050 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7050-7100 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7100-7150 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7150-7200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7200-7250 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7250-7300 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7300-7350 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7350-7400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7400-7450 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7450-7500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7500-7550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7550-7600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7600-7650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7650-7700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7700-7750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7750-7800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7800-7850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7850-7900 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7900-7950 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	7950-8000 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8000-8050 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8050-8100 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8100-8150 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8150-8200 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8200-8250 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8250-8300 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8300-8350 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8350-8400 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8400-8450 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8450-8500 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8500-8550 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8550-8600 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8600-8650 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8650-8700 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8700-8750 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8750-8800 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260067-23.A3L	8800-8850 MHz	1.62	1.62	1.62	1.62
SM-S938U	1M2408260					

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REV 22.0
03/30/2022

1 TEST LABORATORY INFORMATION

1.1 Introduction

This test report for device subject to testing at an accredited testing laboratory has been generated by the testing laboratory that tested the device. Measurements were performed at various locations within Element Materials Technology. Detailed location and accredited information regarding the testing laboratories are provided below.

1.2 Test Laboratories Information

1.2.1 Testing Laboratory 1

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY WASHINGTON DC LLC
Test Lab Location	7185 Oakland Mills Road, Columbia, MD 21046, United States Tel. +1.410.290.6652 / Fax +1.410.290.6654
Accreditation Info.	Lab Code. (ISED): 2451B
	CAB Identifier (NIST): US0110
	ISO/IEC 17025 (A2LA): CERT #2041.01
	
Measurement system No.	C, E, G, H, J, L, O, R, S

1.2.2 Testing Laboratory 2

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY SAN JOSE, CA
Test Lab Location	18855 Adams Ct, Morgan Hill, CA 95037 USA United States Tel. +1.408.538.5600 / Fax +1.410.290.6654
Accreditation Info.	Lab Code. (ISED): 22831
	CAB Identifier (NIST): US0211
	ISO/IEC 17025 (A2LA): CERT #2041.02
	
Measurement system No.	AM1, AM4, AM7, AM8, AM13, AM14

1.2.3 Testing Laboratory 3

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY SUWON, LTD.
Test Lab Location	Yongin-si, Gyeonggi-do, 16954, South Korea Tel. +82.31.660.7391 / Fax +82)31-660-7318
Accreditation Info.	Lab Code. (ISED): 26168
	CAB Identifier (NIST): KR0169
	ISO/IEC 17025 (A2LA): CERT #2041.04
	
Measurement system No.	K2, K3, K4, K6

Note: For each test performed, the test site can be verified with the probe serial numbers specified in the table of Test System Verification and Equipment List.

FCC ID: A3LSMS938U	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
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03/30/2022

2 DEVICE UNDER TEST

2.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 26	Voice/Data	814.7 - 848.3 MHz
LTE Band 5	Voice/Data	824.7 - 848.3 MHz
LTE Band 66	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 38	Voice/Data	2572.5 - 2617.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
NR Band n71	Voice/Data	665.5 - 695.5 MHz
NR Band n12	Voice/Data	701.5 - 713.5 MHz
NR Band n14	Voice/Data	790.5 - 795.5 MHz
NR Band n26	Voice/Data	816.5 - 846.5 MHz
NR Band n5	Voice/Data	826.5 - 846.5 MHz
NR Band n70	Voice/Data	1697.5 - 1707.5 MHz
NR Band n66	Voice/Data	1712.5 - 1777.5 MHz
NR Band n25	Voice/Data	1852.5 - 1912.5 MHz
NR Band n2	Voice/Data	1852.5 - 1907.5 MHz
NR Band n30	Voice/Data	2307.5 - 2312.5 MHz
NR Band n7	Voice/Data	2502.5 - 2567.5 MHz
NR Band n41	Voice/Data	2501.01 - 2685 MHz
NR Band n38	Voice/Data	2575 - 2615 MHz
NR Band n48	Voice/Data	3555 - 3694.98 MHz
NR Band n78	Voice/Data	3455.01 - 3544.98 MHz; 3705 - 3795 MHz
NR Band n77	Voice/Data	3455.01 - 3544.98 MHz; 3705 - 3975 MHz
NTN Band 255	Data	1629 - 1658 MHz
NR Band n258	Data	24250 - 24450 MHz; 24750 - 25250 MHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz
2.4 GHz WIFI	Voice/Data	2412 - 2462 MHz
5 GHz WIFI	Voice/Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz
6 GHz WIFI	Voice/Data	U-NII-5: 5935 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
UWB	Data	6489.6 - 7987.2 MHz

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2.2 Time-Averaging Algorithm for RF Exposure Compliance

2.2.1 Time-Averaged Algorithm

This Device is enabled with the Qualcomm® Smart Transmit Gen2 feature with antenna grouping. This feature performs time-averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of Qualcomm® Smart Transmit feature (report SN could be found in Section 2.10– Bibliography).

Note that NTN operations are not enabled with Smart Transmit.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of *SAR_design_target* or *PD_design_target*, below the predefined time-averaged power limit (i.e., P_{limit} for WWAN sub-6/WLAN/BT radio, and *input.power.limit* for 5G mmW NR), for each characterized technology and band. Characterization is achieved by determining P_{limit} for WWAN sub-6/WLAN/BT that corresponds to the exposure design targets after accounting for all device design related uncertainties, i.e., *SAR_design_target* (<FCC SAR Limit) for sub-6 radio. The SAR characterization is denoted as SAR char in this report (see SAR Summary Section and Part 0 SAR Test Results for P_{limit} Calculations Appendix).

Smart Transmit allows the device to transmit at higher power instantaneously, as high as P_{max} , when needed, but enforces power limiting to maintain time-averaged transmit power to P_{limit} . Below table shows P_{limit} EFS settings and maximum tune up output power P_{max} configured for this EUT for various transmit conditions (Device State Index DSI). Note that the device uncertainty for WWAN sub-6/WLAN/BT is 1.0dB for this EUT.

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Exposure Scenario			Maximum Tune-Up Output Power*	Body-Worn, Hotspot, or Phablet	Head
Averaging Volume				1g/10g	1g
Spacing				10mm, 0mm	0mm
DSI				0	1
Technology/Band	Antenna	Antenna Group	P _{max}	P _{limit}	P _{limit}
GSM 850	A	AG0	25.3	29.7	31.5
GSM 850	E	AG1	25.3	27.7	20.3
GSM 1900	A	AG0	22.1	18.8	28.8
UMTS 850	A	AG0	24.0	25.9	29.0
UMTS 850	E	AG1	24.0	26.9	20.5
UMTS 1750	A	AG0	23.0	19.0	29.4
UMTS 1900	A	AG0	23.0	18.0	29.0
LTE Band 71	A	AG0	24.0	27.2	28.6
LTE Band 71	E	AG1	24.0	27.0	21.5
LTE Band 12	A	AG0	24.0	27.0	28.5
LTE Band 12	E	AG1	24.0	26.2	21.5
LTE Band 13	A	AG0	24.0	27.0	28.0
LTE Band 13	E	AG1	24.0	25.9	21.5
LTE Band 14	A	AG0	24.0	26.7	28.3
LTE Band 14	E	AG1	24.0	26.2	21.5
LTE Band 26/5	A	AG0	24.0	27.1	29.3
LTE Band 26/5	E	AG1	24.0	26.4	21.0
LTE Band 66/4	A	AG0	23.5	19.0	29.0
LTE Band 66/4	F	AG1	23.5	20.5	18.5
LTE Band 25/2	A	AG0	23.5	18.0	28.5
LTE Band 25/2	F	AG1	23.5	20.0	18.5
LTE Band 30	A	AG0	22.5	19.5	34.2
LTE Band 30	F	AG1	22.0	20.0	17.0
LTE Band 7	B	AG0	23.5	20.0	29.2
LTE Band 7	F	AG1	23.5	19.5	16.0
LTE Band 41/38	B	AG0	22.0	20.0	30.1
LTE Band 41/38	F	AG1	22.0	19.5	16.0
LTE Band 48	F	AG1	20.0	19.5	16.0
NR Band n71	A	AG0	24.0	26.4	29.5
NR Band n71	E	AG1	24.0	27.6	21.5
NR Band n12	A	AG0	24.0	26.2	28.2
NR Band n12	E	AG1	24.0	27.0	21.5
NR Band n14	A	AG0	24.0	26.7	29.3
NR Band n14	E	AG1	24.0	26.9	21.5
NR Band n26/n5	A	AG0	24.0	28.1	30.2
NR Band n26/n5	E	AG1	24.0	27.3	21.0
NR Band n70	A	AG0	23.5	19.0	29.0
NR Band n70	F	AG1	23.5	21.0	18.5
NR Band n66	A	AG0	23.5	19.0	29.2
NR Band n66	F	AG1	23.5	20.5	18.5
NR Band n25/n2	A	AG0	23.5	18.0	29.1
NR Band n25/n2	F	AG1	23.5	20.0	18.5
NR Band n30	A	AG0	22.5	19.5	33.9
NR Band n30	F	AG1	22.0	20.0	17.0
NR Band n7	B	AG0	23.5	20.0	28.2
NR Band n7	F	AG1	23.5	19.5	16.0
NR Band n41 PC2 (Path 1)	F	AG1	26.0	19.5	16.5
NR Band n41 PC2 (Path 1)	B	AG0	23.0	19.5	16.5
NR Band n41 PC2 (Path 1)	E	AG1	23.5	18.0	15.0
NR Band n41 PC2 (Path 1)	D	AG0	22.0	19.5	16.5
NR Band n41 PC2 (Path 2)	B	AG0	26.0	20.0	21.0
NR Band n41 PC2 (Path 2)	F	AG1	21.5	19.5	16.5
NR Band n41 PC2 (Path 2)	D	AG0	25.0	20.0	21.0
NR Band n41 PC2 (Path 2)	E	AG1	20.0	17.5	17.5
NR Band n41 PC1.5 UL-MIMO	F	AG1	26.0	19.5	16.5
NR Band n41 PC1.5 UL-MIMO	B	AG0	26.0	20.0	21.0
NR Band n41 PC1.5	E	AG1	23.5	18.0	15.0
NR Band n41 PC1.5	D	AG0	25.0	19.5	16.5
NR Band n38 (Path 1)	F	AG1	24.0	19.5	16.5
NR Band n38 (Path 2)	B	AG0	24.0	20.0	21.0
NR Band n48	F	AG1	22.0	19.5	16.0
NR Band n48	C	AG0	16.5	14.5	11.0
NR Band n48	I	AG1	21.0	19.0	15.5
NR Band n48	D	AG0	16.5	14.5	11.0
NR Band n78 PC2	F	AG1	26.0	18.0	16.0
NR Band n78 PC2	C	AG0	21.0	17.0	21.0
NR Band n78 PC2	I	AG1	25.5	18.0	15.5
NR Band n78 PC2	D	AG0	20.0	13.0	10.5
NR Band n77 PC2	F	AG1	26.0	18.0	16.0
NR Band n77 PC2	C	AG0	21.0	17.0	21.0
NR Band n77 PC2	I	AG1	25.5	18.0	15.5
NR Band n77 PC2	D	AG0	20.0	13.0	10.5
NR Band n77 PC1.5 UL-MIMO	F	AG1	26.0	18.0	16.0
NR Band n77 PC1.5 UL-MIMO	C	AG0	26.0	17.0	21.0
NR Band n77 PC1.5	I	AG1	25.5	18.0	15.5
NR Band n77 PC1.5	D	AG0	26.0	13.0	10.5
2.4 GHz WiFi	H	AG1	19.0	19.5	16.0
2.4 GHz WiFi	J	AG1	19.0	25.4	16.0
2.4 GHz WiFi	MIMO	AG1	17.0	19.4	16.0
5 GHz WiFi	H	AG1	17.0	15.0	15.0
5 GHz WiFi	E	AG1	17.0	15.0	15.0
5 GHz WiFi	MIMO	AG1	17.0	15.0	15.0
6 GHz WiFi	H	AG1	16.0	8.0	18.4
6 GHz WiFi	E	AG1	16.0	8.0	22.9
6 GHz WiFi	MIMO	AG1	16.0	8.0	17.0
2.4 GHz Bluetooth	H	AG1	17.4	21.3	18.7
2.4 GHz Bluetooth	J	AG1	17.4	25.9	20.4
2.4 GHz Bluetooth	MIMO	AG1	13.4	18.7	17.8
2.4 GHz Bluetooth LE	H	AG1	18.9	21.3	18.9
2.4 GHz Bluetooth LE	J	AG1	18.4	25.9	20.4
2.4 GHz Bluetooth LE	MIMO	AG1	13.9	18.7	17.8

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The maximum time-averaged output power (dBm) for any WWAN sub-6/WLAN/BT technology, band, and DSI is the minimum of ("P_{limit} EFS" and "Maximum tune up output power P_{max}") + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06.

2.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

Note: Targets for 802.11ax/be RU operations can be found in 802.11ax/be RU SAR Exclusion Appendix.

2.3.1 Licensed Output Power

GSM/GPRS/EDGE 850										
Antenna A										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
P _{max}	Max Allowed Power	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 1 (Head)	Max Allowed Power	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.0	22.0
GSM/GPRS/EDGE 850										
Antenna E										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
P _{max}	Max Allowed Power	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 1 (Head)	Max Allowed Power	30.5	30.5	27.5	25.7	24.5	28.0	26.0	24.0	23.0
	Nominal	29.5	29.5	26.5	24.7	23.5	27.0	25.0	23.0	22.0
GSM/GPRS/EDGE 1900										
Antenna A										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
P _{max}	Max Allowed Power	30.5	30.5	29.0	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.5	29.5	28.0	26.5	24.5	26.0	24.0	22.0	21.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	29.0	29.0	26.0	24.2	23.0	27.0	25.0	23.0	22.0
	Nominal	28.0	28.0	25.0	23.2	22.0	26.0	24.0	22.0	21.0
DSI = 1 (Head)	Max Allowed Power	30.5	30.5	29.0	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.5	29.5	28.0	26.5	24.5	26.0	24.0	22.0	21.0

For GSM, the above powers listed are GSM burst average values.

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UMTS Band 5 (850 MHz)					
Antenna A					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.0	24.0	24.0	24.0
	Nominal	24.0	23.0	23.0	23.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	25.0	24.0	24.0	24.0
	Nominal	24.0	23.0	23.0	23.0
DSI = 1 (Head)	Max Allowed Power	25.0	24.0	24.0	24.0
	Nominal	24.0	23.0	23.0	23.0
UMTS Band 5 (850 MHz)					
Antenna E					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.0	24.0	24.0	24.0
	Nominal	24.0	23.0	23.0	23.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	25.0	24.0	24.0	24.0
	Nominal	24.0	23.0	23.0	23.0
DSI = 1 (Head)	Max Allowed Power	21.5	20.5	20.5	20.5
	Nominal	20.5	19.5	19.5	19.5
UMTS Band 4 (1750 MHz)					
Antenna A					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	24.0	23.0	23.0	23.0
	Nominal	23.0	22.0	22.0	22.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	20.0	19.0	19.0	19.0
	Nominal	19.0	18.0	18.0	18.0
DSI = 1 (Head)	Max Allowed Power	24.0	23.0	23.0	23.0
	Nominal	23.0	22.0	22.0	22.0
UMTS Band 2 (1900 MHz)					
Antenna A					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	24.0	23.0	23.0	23.0
	Nominal	23.0	22.0	22.0	22.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	19.0	18.0	18.0	18.0
	Nominal	18.0	17.0	17.0	17.0
DSI = 1 (Head)	Max Allowed Power	24.0	23.0	23.0	23.0
	Nominal	23.0	22.0	22.0	22.0

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)		
			Pmax	DSI = 0 (Body-Worn, Hotspot, or Phablet)	DSI = 1 (Head)
LTE Band 71	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
LTE Band 71	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
LTE Band 12	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
LTE Band 12	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
LTE Band 13	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
LTE Band 13	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
LTE Band 14	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
LTE Band 14	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
LTE Band 26/5	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
LTE Band 26/5	E	Max Allowed Power	25.0	25.0	22.0
		Nominal	24.0	24.0	21.0
LTE Band 66/4	A	Max Allowed Power	24.5	20.0	24.5
		Nominal	23.5	19.0	23.5
LTE Band 66/4	F	Max Allowed Power	24.5	21.5	19.5
		Nominal	23.5	20.5	18.5
LTE Band 25/2	A	Max Allowed Power	24.5	19.0	24.5
		Nominal	23.5	18.0	23.5
LTE Band 25/2	F	Max Allowed Power	24.5	21.0	19.5
		Nominal	23.5	20.0	18.5
LTE Band 30	A	Max Allowed Power	23.5	20.5	23.5
		Nominal	22.5	19.5	22.5
LTE Band 30	F	Max Allowed Power	23.0	21.0	18.0
		Nominal	22.0	20.0	17.0
LTE Band 7	B	Max Allowed Power	24.5	21.0	24.5
		Nominal	23.5	20.0	23.5
LTE Band 7	F	Max Allowed Power	24.5	20.5	17.0
		Nominal	23.5	19.5	16.0
LTE Band 41/38	B	Max Allowed Power	25.0	23.0	25.0
		Nominal	24.0	22.0	24.0
LTE Band 41/38	F	Max Allowed Power	25.0	22.5	19.0
		Nominal	24.0	21.5	18.0
LTE Band 48	F	Max Allowed Power	23.0	22.5	19.0
		Nominal	22.0	21.5	18.0
NTN Band 255	F	Max Allowed Power	23.0	N/A	N/A
		Nominal	22.0	N/A	N/A

For LTE TDD, the above powers listed are TDD burst average values.

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)		
			Pmax	DSI = 0 (Body-Worn, Hotspot, or Phablet)	DSI = 1 (Head)
NR Band n71	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
NR Band n71	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
NR Band n12	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
NR Band n12	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
NR Band n14	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
NR Band n14	E	Max Allowed Power	25.0	25.0	22.5
		Nominal	24.0	24.0	21.5
NR Band n26/n5	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
NR Band n26/n5	E	Max Allowed Power	25.0	25.0	22.0
		Nominal	24.0	24.0	21.0
NR Band n70	A	Max Allowed Power	24.5	20.0	24.5
		Nominal	23.5	19.0	23.5
NR Band n70	F	Max Allowed Power	24.5	22.0	19.5
		Nominal	23.5	21.0	18.5
NR Band n66	A	Max Allowed Power	24.5	20.0	24.5
		Nominal	23.5	19.0	23.5
NR Band n66	F	Max Allowed Power	24.5	21.5	19.5
		Nominal	23.5	20.5	18.5
NR Band n25/n2	A	Max Allowed Power	24.5	19.0	24.5
		Nominal	23.5	18.0	23.5
NR Band n25/n2	F	Max Allowed Power	24.5	21.0	19.5
		Nominal	23.5	20.0	18.5
NR Band n30	A	Max Allowed Power	23.5	20.5	23.5
		Nominal	22.5	19.5	22.5
NR Band n30	F	Max Allowed Power	23.0	21.0	18.0
		Nominal	22.0	20.0	17.0
NR Band n7	B	Max Allowed Power	24.5	21.0	24.5
		Nominal	23.5	20.0	23.5
NR Band n7	F	Max Allowed Power	24.5	20.5	17.0
		Nominal	23.5	19.5	16.0
NR Band n41 PC2 (Path 1)	F	Max Allowed Power	27.0	20.5	17.5
		Nominal	26.0	19.5	16.5
NR Band n41 PC2 (Path 1)	B	Max Allowed Power	24.0	20.5	17.5
		Nominal	23.0	19.5	16.5
NR Band n41 PC2 (Path 1)	E	Max Allowed Power	24.5	19.0	16.0
		Nominal	23.5	18.0	15.0
NR Band n41 PC2 (Path 1)	D	Max Allowed Power	23.0	20.5	17.5
		Nominal	22.0	19.5	16.5
NR Band n41 PC2 (Path 2)	B	Max Allowed Power	27.0	21.0	22.0
		Nominal	26.0	20.0	21.0
NR Band n41 PC2 (Path 2)	F	Max Allowed Power	22.5	20.5	17.5
		Nominal	21.5	19.5	16.5
NR Band n41 PC2 (Path 2)	D	Max Allowed Power	26.0	21.0	22.0
		Nominal	25.0	20.0	21.0
NR Band n41 PC2 (Path 2)	E	Max Allowed Power	21.0	18.5	18.5
		Nominal	20.0	17.5	17.5
NR Band n41 PC1.5 UL-MIMO	F	Max Allowed Power	27.0	20.5	17.5
		Nominal	26.0	19.5	16.5
NR Band n41 PC1.5 UL-MIMO	B	Max Allowed Power	27.0	21.0	22.0
		Nominal	26.0	20.0	21.0
NR Band n41 PC1.5	E	Max Allowed Power	24.5	19.0	16.0
		Nominal	23.5	18.0	15.0
NR Band n41 PC1.5	D	Max Allowed Power	26.0	20.5	17.5
		Nominal	25.0	19.5	16.5
NR Band n38 (Path 1)	F	Max Allowed Power	25.0	20.5	17.5
		Nominal	24.0	19.5	16.5
NR Band n38 (Path 2)	B	Max Allowed Power	25.0	21.0	22.0
		Nominal	24.0	20.0	21.0
NR Band n48	F	Max Allowed Power	23.0	20.5	17.0
		Nominal	22.0	19.5	16.0
NR Band n48	C	Max Allowed Power	17.5	15.5	12.0
		Nominal	16.5	14.5	11.0
NR Band n48	I	Max Allowed Power	22.0	20.0	16.5
		Nominal	21.0	19.0	15.5
NR Band n48	D	Max Allowed Power	17.5	15.5	12.0
		Nominal	16.5	14.5	11.0
NR Band n78 PC2	F	Max Allowed Power	27.0	19.0	17.0
		Nominal	26.0	18.0	16.0
NR Band n78 PC2	C	Max Allowed Power	22.0	18.0	22.0
		Nominal	21.0	17.0	21.0
NR Band n78 PC2	I	Max Allowed Power	26.5	19.0	16.5
		Nominal	25.5	18.0	15.5
NR Band n78 PC2	D	Max Allowed Power	21.0	14.0	11.5
		Nominal	20.0	13.0	10.5
NR Band n77 PC2	F	Max Allowed Power	27.0	19.0	17.0
		Nominal	26.0	18.0	16.0
NR Band n77 PC2	C	Max Allowed Power	22.0	18.0	22.0
		Nominal	21.0	17.0	21.0
NR Band n77 PC2	I	Max Allowed Power	26.5	19.0	16.5
		Nominal	25.5	18.0	15.5
NR Band n77 PC2	D	Max Allowed Power	21.0	14.0	11.5
		Nominal	20.0	13.0	10.5
NR Band n77 PC1.5 UL-MIMO	F	Max Allowed Power	27.0	19.0	17.0
		Nominal	26.0	18.0	16.0
NR Band n77 PC1.5 UL-MIMO	C	Max Allowed Power	27.0	18.0	22.0
		Nominal	26.0	17.0	21.0
NR Band n77 PC1.5	I	Max Allowed Power	26.5	19.0	16.5
		Nominal	25.5	18.0	15.5
NR Band n77 PC1.5	D	Max Allowed Power	27.0	14.0	11.5
		Nominal	26.0	13.0	10.5

For NR TDD, the above powers listed are TDD burst average and framed average values

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2.3.2 2.4 GHz WLAN Output Power

The below table is applicable is applicable in the following conditions:

- Pmax
- DSI=0 (Body-worn, Hotspot or Phablet)

[illegible]

The below table is applicable is applicable in the following conditions:

- $DSI=1$ (RCV)

IEEE 802.11 Modulation/CPS Output Power (100mW)																																								
Band	802.11a												802.11b												802.11g/n															
	Channel 1												Channel 2												Channel 3															
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12				
Maximal throughput	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs	Mbs			
Channel width	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0				
Modulation (MCS)	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	1																

2.3.3 5 GHz WLAN Output Power

The below table is applicable is applicable in the following conditions:

- P_{max}

[illegible]

The below table is applicable is applicable in the following conditions:

- DSI=0 (Body-worn, Hotspot or Phablet), DSI=1 (Head)

[illegible]

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2.3.4 6 GHz WLAN Output Power

The below table is applicable in the following conditions:

- Pmax, DSI = 1 (Head)

Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H			Antenna E			Antenna H			Antenna E			MIMO			MIMO		
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
6 GHz WiFi (20MHz BW) - SP	UNII-5	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0
	UNII-7	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0
6 GHz WiFi (40MHz BW) - SP	UNII-5	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0
	UNII-7			17.0	16.0	17.0	16.0			17.0	16.0	17.0	16.0			17.0	16.0	17.0	16.0
6 GHz WiFi (80MHz BW) - SP	UNII-5			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
	UNII-7			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
6 GHz WiFi (160MHz BW) - SP	UNII-5			15.0	14.0	15.0	14.0			15.0	14.0	15.0	14.0			15.0	14.0	15.0	14.0
	UNII-7			14.5	13.5	14.5	13.5			14.5	13.5	14.5	13.5			14.5	13.5	14.5	13.5
6 GHz WiFi (320MHz BW) - SP	UNII-5					15.0	14.0					15.0	14.0					15.0	14.0
	UNII-7					14.5	13.5					14.5	13.5					14.5	13.5
Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H			Antenna E			Antenna H			Antenna E			MIMO			MIMO		
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
6 GHz WiFi (20MHz BW) - LPI	UNII-5	9.5	8.5	10.0	9.0	10.0	9.0	9.5	8.5	10.0	9.0	10.0	9.0	9.5	8.5	10.0	9.0	10.0	9.0
	UNII-6	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0
	UNII-7	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0
	UNII-8	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0
6 GHz WiFi (40MHz BW) - LPI	UNII-5			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0
	UNII-6			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0
	UNII-7			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0
	UNII-8			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0
6 GHz WiFi (80MHz BW) - LPI	UNII-5			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
	UNII-6			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
	UNII-7			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
	UNII-8			15.5	14.5	15.5	14.5			15.5	14.5	15.5	14.5			15.5	14.5	15.5	14.5
6 GHz WiFi (160MHz BW) - LPI	UNII-5			15.0	14.0	15.0	14.0			15.0	14.0	15.0	14.0			15.0	14.0	15.0	14.0
	UNII-6			15.0	14.0	15.0	14.0			15.0	14.0	15.0	14.0			15.0	14.0	15.0	14.0
	UNII-7			14.5	13.5	14.5	13.5			14.5	13.5	14.5	13.5			14.5	13.5	14.5	13.5
	UNII-8			14.5	13.5	14.5	13.5			14.5	13.5	14.5	13.5			14.5	13.5	14.5	13.5
6 GHz WiFi (320MHz BW) - LPI	UNII-5					15.0	14.0					15.0	14.0					15.0	14.0
	UNII-6					15.0	14.0					15.0	14.0					15.0	14.0
	UNII-7					14.5	13.5					14.5	13.5					14.5	13.5
	UNII-8					14.5	13.5					14.5	13.5					14.5	13.5
Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H			Antenna E			Antenna H			Antenna E			MIMO			MIMO		
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
6 GHz WiFi (20MHz BW) - VLP	UNII-5	5.5	4.5	6.0	5.0	6.0	5.0	5.5	4.5	6.0	5.0	6.0	5.0	5.5	4.5	6.0	5.0	6.0	5.0
	UNII-7	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
6 GHz WiFi (40MHz BW) - VLP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
6 GHz WiFi (80MHz BW) - VLP	UNII-5			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
	UNII-7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
6 GHz WiFi (160MHz BW) - VLP	UNII-5			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
	UNII-7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
6 GHz WiFi (320MHz BW) - VLP	UNII-5					12.0	11.0					12.0	11.0					12.0	11.0
	UNII-7					12.0	11.0					12.0	11.0					12.0	11.0

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The below table is applicable in the following conditions:

- DSI=0 (Body-worn or Phablet)

Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	
6 GHz WiFi (20MHz BW) - LPI	UNII-5	9.0 ch. 2: 8.0	8.0 7.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 8.0	8.0 7.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 8.0	8.0 7.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 7.0	8.0 6.0
	UNII-6	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
	UNII-7	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
	UNII-8	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
6 GHz WiFi (40MHz BW) - LPI	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-6			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
	UNII-8			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (80MHz BW) - LPI	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-6			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
	UNII-8			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (160MHz BW) - LPI	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-6			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
	UNII-8			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (320MHz BW) - LPI	UNII-5				9.0	8.0					9.0	8.0					9.0	8.0	
	UNII-6				9.0	8.0					9.0	8.0					9.0	8.0	
	UNII-7				9.0	8.0					9.0	8.0					9.0	8.0	
	UNII-8				9.0	8.0					9.0	8.0					9.0	8.0	
Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	
6 GHz WiFi (20MHz BW) - SP	UNII-5	9.0 ch. 2: 8.0	8.0 7.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 8.0	8.0 7.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 8.0	8.0 7.0	9.0 ch. 2: 7.0	8.0 6.0	9.0 ch. 2: 7.0	8.0 6.0
	UNII-7	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
6 GHz WiFi (40MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (80MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (160MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (320MHz BW) - SP	UNII-5				9.0	8.0					9.0	8.0					9.0	8.0	
	UNII-7				9.0	8.0					9.0	8.0					9.0	8.0	
Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	
6 GHz WiFi (20MHz BW) - VLP	UNII-5	5.5	4.5	6.0	5.0	6.0	5.0	5.5	4.5	6.0	5.0	6.0	5.0	5.5	4.5	6.0	5.0	6.0	5.0
	UNII-7	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
6 GHz WiFi (40MHz BW) - VLP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (80MHz BW) - VLP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (160MHz BW) - VLP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0						
6 GHz WiFi (320MHz BW) - VLP	UNII-5				9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	
	UNII-7				9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0					

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2.3.5 2.4 GHz Maximum Bluetooth Output Power

The below table is applicable in the following conditions:

- P_{max}, DSI=0 (Body-worn, Hotspot or Phablet), DSI=1 (Head)

Mode	Data Rate	Modulated Output Power (in dBm)							
		Single Antenna				Each Chain in Dual Mode			
		Antenna H		Antenna J		Antenna H		Antenna J	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
Bluetooth	1Mbps	19.5	18.5	19.5	18.5	15.5	14.5	15.5	14.5
Bluetooth EDR	2Mbps	16.5	15.5	16.5	15.5	12.5	11.5	12.5	11.5
Bluetooth EDR	3Mbps	16.0	15.0	16.0	15.0	12.5	11.5	12.5	11.5
Bluetooth LE	1Mbps	20.5	19.5	20.0	19.0	15.5	14.5	14.0	13.0
Bluetooth LE	2Mbps	20.5	19.5	20.0	19.0	15.5	14.5	14.0	13.0
Bluetooth LE	125kbps	13.0	12.0	11.0	10.0	N/A	N/A	N/A	N/A
Bluetooth LE	500kbps	13.0	12.0	11.0	10.0	N/A	N/A	N/A	N/A

2.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in DUT Antenna Diagram & SAR Test Setup Photographs Appendix. Since the display diagonal dimension of this device is > 150 mm and <200 mm, it is considered a "phablet." Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing.

Table 2-1
Device Edges/Sides for SAR Testing

Antenna	Back	Front	Top	Bottom	Right	Left
A	Yes	Yes	No	Yes	Yes	Yes
B	Yes	Yes	No	Yes	Yes	No
C	Yes	Yes	No	Yes	Yes	No
D	Yes	Yes	No	Yes	No	Yes
E	Yes	Yes	Yes	No	Yes	No
F	Yes	Yes	Yes	No	No	Yes
I	Yes	Yes	No	No	No	Yes
H	Yes	Yes	Yes	No	No	Yes
J	Yes	Yes	Yes	No	Yes	No
MIMO	Yes	Yes	Yes	No	Yes	Yes

Note: Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D01v06r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, NTN, U-NII-1, U-NII-2A, U-NII-2C, U-NII-4, and WIF16E operations are disabled.

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2.5 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in DUT Antenna Diagram & SAR Test Setup Photographs Appendix.

2.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 procedures.

**Table 2-2
Simultaneous Transmission Scenarios**

No.	Capable Transmitter Configuration	Head	Body Worn	Vehicle	Portable	Notes
1	SSM voice + 2.4 GHz Bluetooth SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
2	SSM voice + 2.4 GHz Bluetooth MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
3	SSM voice + 2.4 GHz WLAN SSID	Yes	Yes	N/A	Yes	
4	SSM voice + 2.4 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
5	SSM voice + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
6	SSM voice + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
7	SSM voice + 6 GHz WLAN SSID	Yes	Yes	N/A	Yes	
8	SSM voice + 6 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
9	SSM voice + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
10	SSM voice + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
11	SSM voice + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
12	SSM voice + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
13	SSM voice + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
14	SSM voice + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
15	SSM voice + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
16	SSM voice + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
17	SSM voice + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	P Bluetooth tethering is considered
18	SSM voice + 2.4 GHz Bluetooth SSID + 5 GHz WLAN MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
19	SSM voice + 2.4 GHz Bluetooth SSID + 5 GHz WLAN SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
20	SSM voice + 2.4 GHz Bluetooth SSID + 5 GHz WLAN MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
21	SSM voice + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
22	SSM voice + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
23	SSM voice + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
24	SSM voice + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
25	SSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
26	SSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
27	SSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
28	SSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
29	SMPT/VL/EN + 2.4 GHz Bluetooth SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
30	SMPT/VL/EN + 2.4 GHz Bluetooth MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
31	SMPT/VL/EN + 2.4 GHz WLAN SSID	Yes	Yes	Yes	Yes	
32	SMPT/VL/EN + 2.4 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
33	SMPT/VL/EN + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
34	SMPT/VL/EN + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
35	SMPT/VL/EN + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
36	SMPT/VL/EN + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
37	SMPT/VL/EN + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
38	SMPT/VL/EN + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
39	SMPT/VL/EN + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
40	SMPT/VL/EN + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
41	SMPT/VL/EN + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
42	SMPT/VL/EN + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
43	SMPT/VL/EN + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
44	SMPT/VL/EN + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
45	SMPT/VL/EN + 2.4 GHz Bluetooth SSID + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
46	SMPT/VL/EN + 2.4 GHz Bluetooth SSID + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
47	SMPT/VL/EN + 2.4 GHz Bluetooth SSID + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
48	SMPT/VL/EN + 2.4 GHz Bluetooth SSID + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
49	SMPT/VL/EN + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
50	SMPT/VL/EN + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
51	SMPT/VL/EN + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
52	SMPT/VL/EN + 2.4 GHz Bluetooth MMIO + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
53	SMPT/VL/EN + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
54	SMPT/VL/EN + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
55	SMPT/VL/EN + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
56	SMPT/VL/EN + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
57	STE + NR + 2.4 GHz Bluetooth SSID	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
58	STE + NR + 2.4 GHz Bluetooth MMIO	Yes*	Yes	N/A	Yes	P Bluetooth tethering is considered
59	STE + NR + 2.4 GHz WLAN SSID	Yes	Yes	Yes	Yes	
60	STE + NR + 2.4 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
61	STE + NR + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
62	STE + NR + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
63	STE + NR + 5 GHz WLAN SSID	Yes	Yes	Yes	Yes	
64	STE + NR + 5 GHz WLAN MMIO	Yes	Yes	Yes	Yes	
65	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
66	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
67	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
68	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
69	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
70	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
71	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
72	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
73	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes	Yes	N/A	Yes	
74	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	Yes	Yes	N/A	Yes	
75	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
76	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
77	STE + NR + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
78	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
79	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
80	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
81	STE + NR + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
82	STE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
83	STE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
84	STE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
85	STE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	Yes*	Yes	Yes	Yes	P Bluetooth tethering is considered
86	SPR/VE/DOF + 2.4 GHz Bluetooth SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
87	SPR/VE/DOF + 2.4 GHz Bluetooth MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
88	SPR/VE/DOF + 2.4 GHz WLAN SSID	N/A	N/A	Yes	Yes	
89	SPR/VE/DOF + 2.4 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
90	SPR/VE/DOF + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	
91	SPR/VE/DOF + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
92	SPR/VE/DOF + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	
93	SPR/VE/DOF + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
94	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	
95	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
96	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	
97	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
98	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
99	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	
100	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	
101	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	
102	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
103	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
104	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
105	SPR/VE/DOF + 2.4 GHz WLAN SSID + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
106	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
107	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
108	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
109	SPR/VE/DOF + 2.4 GHz WLAN MMIO + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
110	SPR/VE/DOF + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
111	SPR/VE/DOF + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
112	SPR/VE/DOF + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SSID	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered
113	SPR/VE/DOF + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MMIO	N/A	N/A	Yes	Yes	P Bluetooth tethering is considered

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1. SISO represents 2.4 GHz WLAN/BT transmission on Ant H or Ant J, and 5/6 GHz transmission on Ant H or Ant E.
2. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
3. Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
4. 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII-2A, U-NII-2C, and U-NII-4 were not evaluated for wireless router conditions.
5. 6 GHz Wireless Router is not supported, therefore it was not evaluated for wireless router conditions.
6. This device supports 2x2 MIMO Tx for WLAN 802.11a/b/g/n/ac/ax/be. 802.11a/b/g/n/ac/ax/be supports CDD and STBC and 802.11n/ac/ax/be additionally supports SDM.
7. This device supports VoWIFI.
8. This device supports Bluetooth Tethering on Ant H only.
9. This device supports VoLTE.
10. This device supports VoNR.
11. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
12. 5G NR FR2 n258, n260, and n261 cannot transmit simultaneously.
13. LTE + 5G NR FR2 and 5G NR1 + 5G NR FR2 scenarios are limited to combinations with anchor bands as shown in the NR FR2 checklist.
14. UWB and NFC were evaluated for phablet based on expected usage conditions.
15. NB NTN-IoT only transmits only when the device is set to satellite mode and does not transmit with any other radios simultaneously.

2.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

Since U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02.

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A, U-NII-2C, U-NII-4 WIFI and 6 GHz, only 2.4 GHz WIFI, 2.4 GHz Bluetooth, and U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02r01.

This device supports IEEE 802.11ax/be with the following features:

- a) Up to 320 MHz Bandwidth only for 6GHz
- b) Up to 160 MHz Bandwidth only for 5/6 GHz
- c) Up to 20 MHz Bandwidth only for 2.4 GHz
- d) 2 Tx antenna output
- e) Up to 4KQAM is supported
- f) TDWR and Band gap channels are supported for 5/6 GHz
- g) MU-MIMO UL Operations are not supported

Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is greater than 150mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-1, U-NII-2A, U-NII-2C, U-NII-4 WIFI and 6 GHz, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

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Per April 2019 TCB Workshop Notes and FCC guidance, SAR testing for 802.11ax/be follows initial test configuration procedures of KDB 248227, with 802.11ax/be considered a higher order 802.11 mode.

Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factors for WIFI 6GHz/UWB and 8GHz SAR probe calibration factors for UWB. FCC KDB 648474, FCC KDB 941225 D07 and FCC KDB 248227 were followed for test positions, distances, and modes. Absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements. Incident power density is evaluated at 2mm ensuring that the resolution is sufficient such that integrated power density (iPD) between d=2mm and d=λ/5mm is ≥ -1dB per equipment manufacturer guidance. Power density results are scaled up for uncertainty above 30%. Per TCB workshop October 2020 notes, 5 channels were tested for WIFI 6 GHz.

(B) Licensed Transmitter(s)

GSM/GPRS/EDGE DTM is not supported for US bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS/EDGE Data.

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

LTE SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r04.

This device supports LTE Carrier Aggregation (CA) in the downlink. All uplink communications are identical to Release 8 specifications. Per FCC KDB Publication 941225 D05A v01r02, SAR for LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is greater than 150mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive. Additionally, SAR for 4x4 MIMO Downlink Carrier Aggregation was not needed since the maximum average output power in 4x4 MIMO Downlink Carrier Aggregation mode was not more than 0.25 dB higher than the maximum output power with 4x4 MIMO Downlink and downlink carrier aggregation inactive.

This device supports LTE/NR capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE/NR Band falls completely within an LTE/NR band with a larger transmission frequency range, both LTE/NR bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE/NR bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

This device supports LTE Carrier Aggregation (CA) for LTE Band 48 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

This device can transmit with antenna switching for bands/modes on antenna A,B,E, and F. SAR tests were performed for each antenna where switching is used per band/mode to ensure compliance. Antennas and indicated band/modes are included in section 2.3.1 of this report .

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Per FCC Guidance, C-Band for NR n77 (3705 – 3975 MHz) was fully tested according to FCC procedures. For each exposure condition and antenna, the worst-case position was additionally evaluated for the NR n77 DoD (3455.01 – 3544.98 MHz).

This device uses two transmit pathways for n41 operations (Path 1 and Path 2). For each exposure condition, the pathway with the highest target power was fully evaluated. The worst case for each antenna and exposure condition was additionally evaluated using the other path.

This device supports 5G NR for Bands n258, n260, and n261. RF Exposure assessment and simultaneous transmission analysis for these bands can be found in the Near Field PD Report (report SN can be found in Section 2.10 – Bibliography).

NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.

SRS was tested with CW signal per Qualcomm guidance in 80-w2112-4.

Per Qualcomm guidance in 80-W2112-4, when hotspot mode applies, 10-g extremity SAR is required for the surfaces and edges with hotspot mode 1g reported SAR > 1.2 W/kg. For surfaces and edges with hotspot mode 1g SAR < 1.2 W/kg, the 10-g extremity can be excluded when the normalized *SAR_design_target* for extremity DSI is less than or equal to that of hotspot DSI.

$$SAR_design_target_extremity \leq \frac{SAR_design_target_hotspot}{1g\ SAR\ limit} * 10g\ SAR\ limit$$

2.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r05, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D01v06r03 (Phablet Procedures)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO)
- November 2017, April 2018, October 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (IEEE 802.11ax, Dynamic Antenna Tuning)
- November 2017, October 2018, April 2019, November 2019, October 2020 TCBC Workshop Notes (6-8 GHz)
- SPEAG DASY6 Application Note (Interim Procedures for Devices Operating at 6-10 GHz) (Nov 2021)
- IEC/IEEE 63195-1:2022
- IEC 62479:2010

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2.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 12.

2.10 Bibliography

Report Type	Report Serial Number
PD Part 1 Test Report	1M2408260067-25.A3L
PD Part 0 Test Report	
RF Exposure Part 2 Test Report	1M2408260067-24.A3L
RF Exposure Compliance Summary Report	1M2408260067-26.A3L
RF Exposure Part 0 Test Report	1M2408260067-31.A3L

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3 LTE AND NR INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71: 665.5 - 695.5 MHz LTE Band 12: 699.7 - 715.3 MHz LTE Band 13: 779.5 - 784.5 MHz LTE Band 14: 793.5 - 795.5 MHz LTE Band 26: 814.7 - 848.3 MHz LTE Band 5: 824.7 - 848.3 MHz LTE Band 66: 1710.7 - 1779.3 MHz LTE Band 4: 1710.7 - 1754.3 MHz LTE Band 25: 1850.7 - 1914.3 MHz LTE Band 2: 1850.7 - 1909.3 MHz LTE Band 30: 2307.5 - 2312.5 MHz LTE Band 7: 2502.5 - 2567.5 MHz LTE Band 41: 2498.5 - 2687.5 MHz LTE Band 38: 2572.5 - 2617.5 MHz LTE Band 48: 3552.5 - 3597.5 MHz				
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 13: 5 MHz, 10 MHz LTE Band 14: 5 MHz, 10 MHz LTE Band 26: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz LTE Band 5: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 66: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 25: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 2: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 30: 5 MHz, 10 MHz LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 38: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)	665.5 (133147)	665.5 (133147)	665.5 (133147)	665.5 (133147)
LTE Band 71: 10 MHz	668 (133172)	668 (133172)	668 (133172)	668 (133172)	668 (133172)
LTE Band 71: 15 MHz	670.5 (133197)	670.5 (133197)	670.5 (133197)	670.5 (133197)	670.5 (133197)
LTE Band 71: 20 MHz	673 (133222)	673 (133222)	673 (133222)	673 (133222)	673 (133222)
LTE Band 12: 1.4 MHz	699.7 (23017)	699.7 (23017)	699.7 (23017)	699.7 (23017)	699.7 (23017)
LTE Band 12: 3 MHz	702.5 (23025)	702.5 (23025)	702.5 (23025)	702.5 (23025)	702.5 (23025)
LTE Band 12: 5 MHz	701.5 (23035)	701.5 (23035)	701.5 (23035)	701.5 (23035)	701.5 (23035)
LTE Band 12: 10 MHz	704 (23060)	704 (23060)	704 (23060)	704 (23060)	704 (23060)
LTE Band 13: 5 MHz	779.5 (23205)	779.5 (23205)	779.5 (23205)	779.5 (23205)	779.5 (23205)
LTE Band 13: 10 MHz	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
LTE Band 14: 5 MHz	793.5 (23305)	793.5 (23305)	793.5 (23305)	793.5 (23305)	793.5 (23305)
LTE Band 14: 10 MHz	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
LTE Band 26: 1.4 MHz	814.7 (26697)	814.7 (26697)	814.7 (26697)	814.7 (26697)	814.7 (26697)
LTE Band 26: 3 MHz	815.5 (26705)	815.5 (26705)	815.5 (26705)	815.5 (26705)	815.5 (26705)
LTE Band 26: 5 MHz	816.5 (26715)	816.5 (26715)	816.5 (26715)	816.5 (26715)	816.5 (26715)
LTE Band 26: 10 MHz	819 (26740)	819 (26740)	819 (26740)	819 (26740)	819 (26740)
LTE Band 26: 15 MHz	821.5 (26765)	821.5 (26765)	821.5 (26765)	821.5 (26765)	821.5 (26765)
LTE Band 5: 1.4 MHz	824.7 (20407)	824.7 (20407)	824.7 (20407)	824.7 (20407)	824.7 (20407)
LTE Band 5: 3 MHz	825.5 (20415)	825.5 (20415)	825.5 (20415)	825.5 (20415)	825.5 (20415)
LTE Band 5: 5 MHz	826.5 (20425)	826.5 (20425)	826.5 (20425)	826.5 (20425)	826.5 (20425)
LTE Band 5: 10 MHz	829 (20450)	829 (20450)	829 (20450)	829 (20450)	829 (20450)
LTE Band 66: 1.4 MHz	1710.7 (131979)	1710.7 (131979)	1710.7 (131979)	1710.7 (131979)	1710.7 (131979)
LTE Band 66: 3 MHz	1711.5 (131987)	1711.5 (131987)	1711.5 (131987)	1711.5 (131987)	1711.5 (131987)
LTE Band 66: 5 MHz	1712.5 (131997)	1712.5 (131997)	1712.5 (131997)	1712.5 (131997)	1712.5 (131997)
LTE Band 66: 10 MHz	1715 (132022)	1715 (132022)	1715 (132022)	1715 (132022)	1715 (132022)
LTE Band 66: 15 MHz	1717.5 (132047)	1717.5 (132047)	1717.5 (132047)	1717.5 (132047)	1717.5 (132047)
LTE Band 66: 20 MHz	1720 (132072)	1720 (132072)	1720 (132072)	1720 (132072)	1720 (132072)
LTE Band 4: 1.4 MHz	1710.7 (131987)	1710.7 (131987)	1710.7 (131987)	1710.7 (131987)	1710.7 (131987)
LTE Band 4: 3 MHz	1711.5 (131995)	1711.5 (131995)	1711.5 (131995)	1711.5 (131995)	1711.5 (131995)
LTE Band 4: 5 MHz	1712.5 (132005)	1712.5 (132005)	1712.5 (132005)	1712.5 (132005)	1712.5 (132005)
LTE Band 4: 10 MHz	1715 (132030)	1715 (132030)	1715 (132030)	1715 (132030)	1715 (132030)
LTE Band 4: 15 MHz	1717.5 (132055)	1717.5 (132055)	1717.5 (132055)	1717.5 (132055)	1717.5 (132055)
LTE Band 4: 20 MHz	1720 (132080)	1720 (132080)	1720 (132080)	1720 (132080)	1720 (132080)
LTE Band 25: 1.4 MHz	1850.7 (20187)	1850.7 (20187)	1850.7 (20187)	1850.7 (20187)	1850.7 (20187)
LTE Band 25: 3 MHz	1851.5 (20195)	1851.5 (20195)	1851.5 (20195)	1851.5 (20195)	1851.5 (20195)
LTE Band 25: 5 MHz	1852.5 (20205)	1852.5 (20205)	1852.5 (20205)	1852.5 (20205)	1852.5 (20205)
LTE Band 25: 10 MHz	1855 (20230)	1855 (20230)	1855 (20230)	1855 (20230)	1855 (20230)
LTE Band 25: 15 MHz	1857.5 (20255)	1857.5 (20255)	1857.5 (20255)	1857.5 (20255)	1857.5 (20255)
LTE Band 25: 20 MHz	1860 (20280)	1860 (20280)	1860 (20280)	1860 (20280)	1860 (20280)
LTE Band 2: 1.4 MHz	1850.7 (19187)	1850.7 (19187)	1850.7 (19187)	1850.7 (19187)	1850.7 (19187)
LTE Band 2: 3 MHz	1851.5 (19195)	1851.5 (19195)	1851.5 (19195)	1851.5 (19195)	1851.5 (19195)
LTE Band 2: 5 MHz	1852.5 (19205)	1852.5 (19205)	1852.5 (19205)	1852.5 (19205)	1852.5 (19205)
LTE Band 2: 10 MHz	1855 (19230)	1855 (19230)	1855 (19230)	1855 (19230)	1855 (19230)
LTE Band 2: 15 MHz	1857.5 (19255)	1857.5 (19255)	1857.5 (19255)	1857.5 (19255)	1857.5 (19255)
LTE Band 2: 20 MHz	1860 (19280)	1860 (19280)	1860 (19280)	1860 (19280)	1860 (19280)
LTE Band 30: 5 MHz	2307.5 (27685)	2307.5 (27685)	2307.5 (27685)	2307.5 (27685)	2307.5 (27685)
LTE Band 30: 10 MHz	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
LTE Band 7: 5 MHz	2502.5 (20775)	2502.5 (20775)	2502.5 (20775)	2502.5 (20775)	2502.5 (20775)
LTE Band 7: 10 MHz	2505 (20800)	2505 (20800)	2505 (20800)	2505 (20800)	2505 (20800)
LTE Band 7: 15 MHz	2507.5 (20825)	2507.5 (20825)	2507.5 (20825)	2507.5 (20825)	2507.5 (20825)
LTE Band 7: 20 MHz	2510 (20850)	2510 (20850)	2510 (20850)	2510 (20850)	2510 (20850)
LTE Band 41: 5 MHz	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)
LTE Band 41: 10 MHz	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)
LTE Band 41: 15 MHz	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)
LTE Band 41: 20 MHz	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)	2506 (36750)
LTE Band 38: 5 MHz	2572.5 (37775)	2572.5 (37775)	2572.5 (37775)	2572.5 (37775)	2572.5 (37775)
LTE Band 38: 10 MHz	2575 (37800)	2575 (37800)	2575 (37800)	2575 (37800)	2575 (37800)
LTE Band 38: 15 MHz	2577.5 (37825)	2577.5 (37825)	2577.5 (37825)	2577.5 (37825)	2577.5 (37825)
LTE Band 38: 20 MHz	2580 (37850)	2580 (37850)	2580 (37850)	2580 (37850)	2580 (37850)
LTE Band 48: 5 MHz	3552.5 (55265)	3552.5 (55265)	3552.5 (55265)	3552.5 (55265)	3552.5 (55265)
LTE Band 48: 10 MHz	3555 (55290)	3555 (55290)	3555 (55290)	3555 (55290)	3555 (55290)
LTE Band 48: 15 MHz	3557.5 (55315)	3557.5 (55315)	3557.5 (55315)	3557.5 (55315)	3557.5 (55315)
LTE Band 48: 20 MHz	3560 (55340)	3560 (55340)	3560 (55340)	3560 (55340)	3560 (55340)
UE Category	UE Cat 16, 17, 18, 19, 20				
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.57 (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 16. It supports carrier aggregation and downlink MIMO features. All uplink communications are identical to the Release 9 Specifications. Uplink communications are done on the PCC. The following LTE Release 17 features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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4 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

4.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 4-1).

Equation 4-1
SAR Mathematical Equation

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dv} \right)$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

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5 DOSIMETRIC ASSESSMENT

5.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 5-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 5-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 5-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

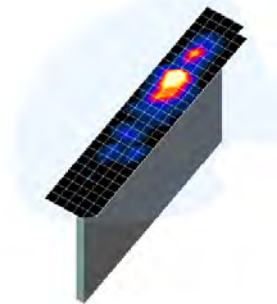


Figure 5-1
Sample SAR Area Scan

Table 5-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Frequency	Maximum Area Scan Resolution (mm) ($\Delta x_{\text{area}}, \Delta y_{\text{area}}$)	Maximum Zoom Scan Resolution (mm) ($\Delta x_{\text{zoomTV}}, \Delta y_{\text{zoom}}$)	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
				$\Delta z_{\text{zoom}}(n)$	$\Delta z_{\text{zoom}}(1)^*$	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

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6 DEFINITION OF REFERENCE POINTS

6.1 EAR REFERENCE POINT

Figure 6-2 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 6-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (see Figure 6-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

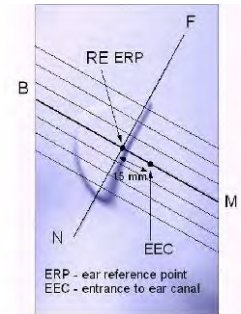


Figure 6-1
Close-Up Side view
of ERP

6.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 6-3). The acoustic output was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.



Figure 6-2
Front, back and side view of SAM Twin Phantom

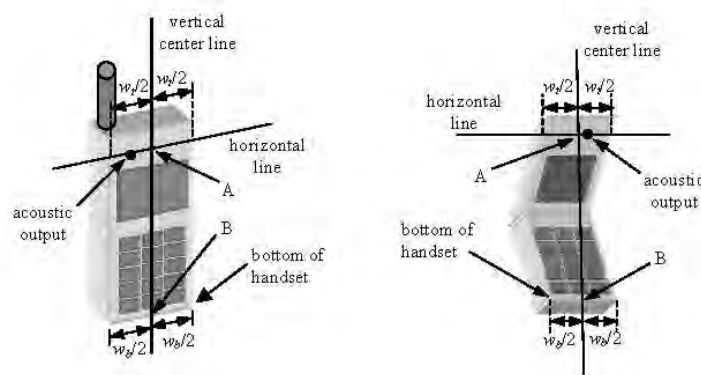


Figure 6-3
Handset Vertical Center & Horizontal Line Reference Points

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7 TEST CONFIGURATION POSITIONS

7.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$.

7.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 7-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.



Figure 7-1 Front, Side and Top View of Cheek Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the pinna.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the reference plane.
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the device contact with the ear, the device was rotated about the NF line until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 7-2).

7.3 Positioning for Ear / 15° Tilt

With the test device aligned in the “Cheek Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15 degrees.
2. The phone was then rotated around the horizontal line by 15 degrees.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the handset touched the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. In this situation, the tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 7-2).

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Figure 7-2 Front, Side and Top View of Ear/15° Tilt Position

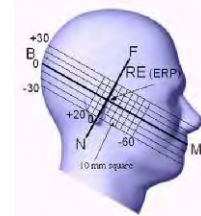


Figure 7-3 Side view w/ relevant markings

7.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones. Per IEEE 1528-2013, a rotated SAM phantom is necessary to allow probe access to such regions. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed from the table for emptying and cleaning.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D01v06r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

7.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 7-4). Per FCC KDB Publication 648474 D01v06r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

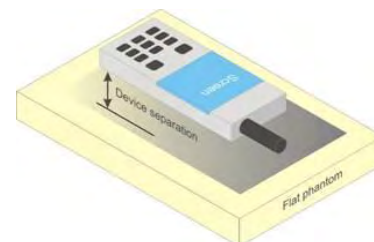


Figure 7-4 Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not

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contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented.

Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

7.6 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1g body and 10g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D01v06, Cell phones (handsets) are not normally designed to be used on extremities or operated in extremity only exposure conditions. The maximum output power levels of handsets generally do not require extremity SAR testing to show compliance. Therefore, extremity SAR was not evaluated for this device.

7.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

7.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that

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support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D01v06r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna ≤ 25 mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

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8 RF EXPOSURE LIMITS

8.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

8.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 8-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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8.3 RF Exposure Limits for Frequencies above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of W/m² or mW/cm².

Peak Spatially Averaged Power Density was evaluated over a circular area of 4 cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

Table 8-2
Human Exposure Limits Specified in FCC 47 CFR §1.1310

Human Exposure to Radiofrequency (RF) Radiation Limits		
Frequency Range [MHz]	Power Density [mW/cm ²]	Average Time [Minutes]
(A) Limits For Occupational / Controlled Environments		
1,500 – 100,000	5.0	6
(B) Limits For General Population / Uncontrolled Environments		
1,500 – 100,000	1.0	30

Note: 1.0 mW/cm² is 10 W/m²

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9 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

9.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

9.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

9.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.”

The device is placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviates by more than 5%, the SAR test and drift measurements are repeated.

9.4 SAR Measurement Conditions for UMTS

9.4.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

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9.4.2 Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

9.4.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCH_n configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCH_n, for the highest reported SAR configuration in 12.2 kbps RMC.

9.4.4 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

9.4.5 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

9.4.6 SAR Measurement Conditions for DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

9.5 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r04 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

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9.5.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

9.5.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

9.5.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

9.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

- a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
 - i. The required channel and offset combination with the highest maximum output power is required for SAR.
 - ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
 - iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
- b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
- c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
- d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to $\frac{1}{2}$ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/kg.

9.5.5 TDD

LTE TDD testing is performed using the SAR test guidance provided in FCC KDB 941225 D05v02r04. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05v02r04. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

9.5.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink

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carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for downlink only carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

9.6 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

9.6.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

9.6.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

9.6.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all

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positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.5 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n/ax OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per April 2019 TCB Workshop and FCC guidance, 802.11ax/be was considered the highest order 802.11 mode. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

9.6.7 Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest

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802.11 mode is considered for SAR measurements (See Section 9.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.9 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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10 RF CONDUCTED POWERS

All conducted power measurements for Sub6 WWAN technologies and bands in this section were performed by setting *Reserve_power_margin* (Qualcomm® Smart Transmit EFS entry) to 0dB, so that the EUT transmits continuously at minimum (P_{limit} , maximum tune up output power P_{max}).

10.1 GSM Conducted Powers

Table 10-1
Measured P_{max} for all DSI for GSM 850 Ant A
Measured P_{limit} for DSI = 0 (Body-worn, Hotspot or Phablet) for GSM 1900 Ant A

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	32.91	32.91	31.62	29.72	27.73	26.84	25.71	23.58	22.56
	190	33.24	33.24	31.66	29.77	28.06	27.01	25.54	23.50	22.55
	251	33.20	33.20	31.61	29.74	27.61	27.11	25.42	23.61	22.55
GSM 1900	512	27.31	27.31	24.80	23.00	21.75	25.55	24.17	22.01	21.14
	661	27.65	27.65	24.57	22.93	21.62	25.51	24.04	22.10	21.26
	810	27.82	27.82	24.63	22.98	21.52	25.35	23.77	21.99	21.02

Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	23.71	23.71	25.43	25.29	24.55	17.64	19.52	19.15	19.38
	190	24.04	24.04	25.47	25.34	24.88	17.81	19.35	19.07	19.37
	251	24.00	24.00	25.42	25.31	24.43	17.91	19.23	19.18	19.37
GSM 1900	512	18.11	18.11	18.61	18.57	18.57	16.35	17.98	17.58	17.96
	661	18.45	18.45	18.38	18.50	18.44	16.31	17.85	17.67	18.08
	810	18.62	18.62	18.44	18.55	18.34	16.15	17.58	17.56	17.84

GSM 850	Frame Avg.Targets:	23.30	23.30	25.31	25.07	24.32	17.80	18.81	18.57	18.82
GSM 1900		18.80	18.80	18.81	18.77	18.82	16.80	17.81	17.57	17.82

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Table 10-2
Measured P_{max} for DSI = 1 (Head) for GSM 1900 Ant A

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 1900	512	29.39	29.39	28.00	26.22	24.35	25.55	24.17	22.01	21.14
	661	29.35	29.35	27.80	26.15	24.39	25.51	24.04	22.10	21.26
	810	29.70	29.71	27.87	26.17	24.57	25.35	23.77	21.99	21.02

Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 1900	512	20.19	20.19	21.81	21.79	21.17	16.35	17.98	17.58	17.96
	661	20.15	20.15	21.61	21.72	21.21	16.31	17.85	17.67	18.08
	810	20.50	20.51	21.68	21.74	21.39	16.15	17.58	17.56	17.84

GSM 1900	Frame Avg. Targets:	20.30	20.30	21.81	22.07	21.32	16.80	17.81	17.57	17.82
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Table 10-3
Measured P_{max} for DSI = 0 (Body-worn, Hotspot or Phablet) for GSM 850 Ant E

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	32.99	33.16	31.95	29.16	27.55	26.69	25.31	23.19	22.57
	190	32.78	33.00	31.99	29.77	27.52	26.76	25.24	23.39	22.40
	251	32.76	32.75	31.98	29.68	27.42	26.63	25.07	23.28	22.54

Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	23.79	23.96	25.76	24.73	24.37	17.49	19.12	18.76	19.39
	190	23.58	23.80	25.80	25.34	24.34	17.56	19.05	18.96	19.22
	251	23.56	23.55	25.79	25.25	24.24	17.43	18.88	18.85	19.36

GSM 850	Frame Avg. Targets:	23.30	23.30	25.31	25.07	24.32	17.80	18.81	18.57	18.82
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Table 10-4
Measured P_{limit} for DSI = 1 (Head) for GSM 850 Ant E

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	29.04	29.06	26.41	24.74	23.28	26.62	25.22	23.18	22.48
	190	29.38	29.40	26.43	24.69	23.50	26.70	25.23	23.42	22.53
	251	29.43	29.46	26.29	24.63	23.44	26.68	25.12	23.34	22.65

Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	19.84	19.86	20.22	20.31	20.10	17.42	19.03	18.75	19.30
	190	20.18	20.20	20.24	20.26	20.32	17.50	19.04	18.99	19.35
	251	20.23	20.26	20.10	20.20	20.26	17.48	18.93	18.91	19.47

GSM 850	Frame Avg. Targets:	20.30	20.30	20.31	20.27	20.32	17.80	18.81	18.57	18.82
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Note:

- Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.
- GPRS/EDGE (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.
- EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8-PSK modulation do not have an impact on output power.

GSM Class: B
GPRS Multislot class: 33 (Max 4 Tx uplink slots)
EDGE Multislot class: 33 (Max 4 Tx uplink slots)
DTM Multislot Class: N/A



Figure 10-1
Power Measurement Setup

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10.2 UMTS Conducted Powers

Table 10-5
Measured P_{max} for all DSI for UMTS 850 Ant A
Measured P_{limit} for DSI = 0 (Body-worn, Hotspot or Phablet) for UMTS 1750 & UMTS 1900 Ant A

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.75	23.79	23.73	19.56	19.64	19.69	18.49	18.50	18.52	-
99		12.2 kbps AMR	23.77	23.82	23.77	19.57	19.65	19.69	18.47	18.51	18.56	-
6	HSDPA	Subtest 1	22.91	22.97	22.86	18.14	18.08	18.12	16.86	16.92	16.83	0
6		Subtest 2	22.91	23.00	22.88	18.14	18.12	18.13	16.87	16.93	16.79	0
6		Subtest 3	22.37	22.45	22.37	17.66	17.62	17.63	16.36	16.41	16.30	0.5
6		Subtest 4	22.38	22.47	22.37	17.63	17.62	17.61	16.35	16.42	16.30	0.5
6	HSUPA	Subtest 1	22.87	22.91	22.82	18.17	18.12	18.13	16.94	16.91	16.83	0
6		Subtest 2	20.78	20.86	20.74	16.11	16.11	16.14	14.89	14.95	14.83	2
6		Subtest 3	21.76	21.84	21.75	17.11	17.12	17.14	15.90	15.99	15.87	1
6		Subtest 4	20.71	20.83	20.72	16.11	16.10	16.09	14.95	14.93	14.78	2
6		Subtest 5	22.74	22.80	22.72	18.21	18.17	18.14	16.88	16.90	16.78	0
8	DC-HSDPA	Subtest 1	22.71	22.80	22.72	18.17	18.12	18.16	16.87	16.96	16.88	0
8		Subtest 2	22.73	22.82	22.74	18.18	18.13	18.12	16.91	16.98	16.85	0
8		Subtest 3	22.23	22.29	22.15	17.71	17.64	17.61	16.38	16.50	16.39	0.5
8		Subtest 4	22.21	22.29	22.19	17.65	17.64	17.63	16.39	16.49	16.35	0.5

Table 10-6
Measured P_{max} for DSI = 1 (Head) for UMTS 1750 & UMTS 1900 Ant A

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.08	23.09	23.27	23.14	23.15	23.19	-
99		12.2 kbps AMR	23.10	23.17	23.23	23.19	23.16	23.22	-
6	HSDPA	Subtest 1	21.74	21.67	21.72	21.65	21.68	21.55	0
6		Subtest 2	21.76	21.70	21.70	21.59	21.67	21.55	0
6		Subtest 3	21.21	21.20	21.24	21.13	21.15	21.02	0.5
6		Subtest 4	21.24	21.18	21.18	21.08	21.15	21.06	0.5
6	HSUPA	Subtest 1	21.84	21.76	21.76	21.60	21.70	21.56	0
6		Subtest 2	19.74	19.74	19.73	19.67	19.68	19.54	2
6		Subtest 3	20.72	20.73	20.74	20.59	20.70	20.65	1
6		Subtest 4	19.80	19.72	19.70	19.56	19.68	19.50	2
6		Subtest 5	21.75	21.73	21.75	21.64	21.68	21.60	0
8	DC-HSDPA	Subtest 1	22.80	22.67	22.69	22.60	22.61	22.55	0
8		Subtest 2	22.76	22.68	22.71	22.60	22.68	22.55	0
8		Subtest 3	22.76	22.69	22.75	22.64	22.70	22.58	0.5
8		Subtest 4	22.75	22.71	22.75	22.63	22.68	22.56	0.5

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Table 10-7
Measured P_{max} for DSI = 0 (Body-worn, Hotspot or Phablet) for UMTS 850 Ant E

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	24.20	24.32	24.27	-
99		12.2 kbps AMR	24.26	24.32	24.30	-
6	HSDPA	Subtest 1	22.95	23.05	22.96	0
6		Subtest 2	22.97	23.07	22.96	0
6		Subtest 3	22.46	22.53	22.46	0.5
6		Subtest 4	22.41	22.52	22.47	0.5
6	HSUPA	Subtest 1	22.98	23.04	22.96	0
6		Subtest 2	20.94	21.03	20.91	2
6		Subtest 3	21.94	22.01	21.92	1
6		Subtest 4	20.95	21.01	20.92	2
6		Subtest 5	22.95	23.05	22.99	0
8	DC-HSDPA	Subtest 1	22.91	23.02	22.85	0
8		Subtest 2	22.93	23.03	22.99	0
8		Subtest 3	22.45	22.53	22.44	0.5
8		Subtest 4	22.46	22.52	22.42	0.5

Table 10-8
Measured P_{limit} for DSI = 1 (Head) for UMTS 850 Ant E

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	20.88	20.93	20.86	-
99		12.2 kbps AMR	20.88	20.92	20.86	-
6	HSDPA	Subtest 1	19.70	19.81	19.70	0
6		Subtest 2	19.74	19.82	19.72	0
6		Subtest 3	19.22	19.26	19.20	0.5
6		Subtest 4	19.23	19.30	19.19	0.5
6	HSUPA	Subtest 1	19.74	19.83	19.69	0
6		Subtest 2	17.70	17.83	17.70	2
6		Subtest 3	18.69	18.78	18.72	1
6		Subtest 4	17.70	17.82	17.72	2
6		Subtest 5	19.82	19.84	19.73	0
8	DC-HSDPA	Subtest 1	19.73	19.80	19.69	0
8		Subtest 2	19.74	19.80	19.72	0
8		Subtest 3	19.23	19.29	19.21	0.5
8		Subtest 4	19.20	19.28	19.19	0.5

DC-HSDPA considerations

- 3GPP Specification 34.121-1 Release 8 Ver 8.10.0 was used for DC-HSDPA guidance
- H-Set 12 (QPSK) was confirmed to be used during DC-HSDPA measurements
- The DUT supports UE category 24 for HSDPA

It is expected by the manufacturer that MPR for some HSPA subtests may be up to 2 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model.



Figure 10-2
Power Measurement Setup

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10.3 LTE Conducted Powers

Note: Per FCC KDB Publication 941225 D05v02r05, LTE SAR for the lower bandwidths was not required for testing since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg. Lower bandwidth conducted powers for all LTE bands can be found in LTE and NR Lower Bandwidth RF Conducted Powers Appendix.

Note: Some bands do not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

LTE Carrier Aggregation Notes:

1. This device supports uplink carrier aggregation for LTE CA_48C, with a maximum of two component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

10.3.1 LTE Band 71

Table 10-9
LTE Band 71 Ant A Measured P_{Max} for all DSI - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]		
QPSK	1	0	24.07	0	0
	1	50	24.08		0
	1	99	23.99		0
	50	0	22.91	0-1	1
	50	25	22.89		1
	50	50	22.92		1
16QAM	100	0	22.87	0-1	1
	1	0	23.12		1
	1	50	23.11		1
	1	99	22.89	0-2	1
	50	0	21.96		2
	50	25	21.93		2
64QAM	50	50	21.92	0-2	2
	100	0	21.91		2
	1	0	22.06	0-2	2
	1	50	22.25		2
	1	99	22.01		2
	50	0	20.93	0-3	3
256QAM	50	25	20.87		3
	50	50	20.89		3
	100	0	20.89	0-5	3
	1	0	19.01		5
	1	50	18.98		5
	1	99	18.96		5
256QAM	50	0	18.86	0-5	5
	50	25	18.86		5
	50	50	18.87		5
	100	0	18.85		5

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Table 10-10
LTE Band 71 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.49	0	0
	1	50	24.24		0
	1	99	24.17		0
	50	0	23.13	0-1	1
	50	25	23.09		1
	50	50	23.11		1
	100	0	23.11		1
16QAM	1	0	23.46	0-1	1
	1	50	23.52		1
	1	99	23.39		1
	50	0	22.15	0-2	2
	50	25	22.11		2
	50	50	22.12		2
	100	0	22.10		2
64QAM	1	0	22.32	0-2	2
	1	50	22.32		2
	1	99	22.21		2
	50	0	21.06	0-3	3
	50	25	21.07		3
	50	50	21.03		3
	100	0	21.00		3
256QAM	1	0	19.18	0-5	5
	1	50	19.23		5
	1	99	19.08		5
	50	0	19.04		5
	50	25	19.01		5
	50	50	19.01		5
	100	0	19.02		5

Table 10-11
LTE Band 71 Ant E Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	21.31	0	0
	1	50	21.36		0
	1	99	21.26		0
	50	0	21.26	0-1	0
	50	25	21.23		0
	50	50	21.25		0
	100	0	21.23		0
16QAM	1	0	21.57	0-1	0
	1	50	21.60		0
	1	99	21.52		0
	50	0	21.33	0-2	0
	50	25	21.28		0
	50	50	21.32		0
	100	0	21.26		0
64QAM	1	0	21.52	0-2	0
	1	50	21.52		0
	1	99	21.28		0
	50	0	21.01	0-3	0.5
	50	25	21.01		0.5
	50	50	21.01		0.5
	100	0	20.97		0.5
256QAM	1	0	19.21	0-5	2.5
	1	50	19.29		2.5
	1	99	19.00		2.5
	50	0	19.00		2.5
	50	25	18.96		2.5
	50	50	18.96		2.5
	100	0	18.93		2.5

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10.3.2 LTE Band 12

Table 10-12
LTE Band 12 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz) Conducted Power [dBm]		
QPSK	1	0	24.00	0	0
	1	25	24.01		0
	1	49	23.80		0
	25	0	22.83	0-1	1
	25	12	22.94		1
	25	25	22.90		1
	50	0	22.92		1
16QAM	1	0	23.12	0-1	1
	1	25	23.25		1
	1	49	23.07		1
	25	0	21.84	0-2	2
	25	12	21.92		2
	25	25	21.87		2
	50	0	21.92		2
64QAM	1	0	22.09	0-2	2
	1	25	22.20		2
	1	49	22.06		2
	25	0	20.83	0-3	3
	25	12	20.96		3
	25	25	20.92		3
	50	0	20.93		3
256QAM	1	0	18.93	0-5	5
	1	25	18.97		5
	1	49	18.79		5
	25	0	18.80		5
	25	12	18.94		5
	25	25	18.87		5
	50	0	18.88		5

Table 10-13
LTE Band 12 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz) Conducted Power [dBm]		
QPSK	1	0	24.04	0	0
	1	25	24.04		0
	1	49	24.06		0
	25	0	23.00	0-1	1
	25	12	23.09		1
	25	25	23.08		1
	50	0	23.07		1
16QAM	1	0	23.34	0-1	1
	1	25	23.27		1
	1	49	23.31		1
	25	0	22.00	0-2	2
	25	12	22.14		2
	25	25	22.09		2
	50	0	22.07		2
64QAM	1	0	22.37	0-2	2
	1	25	22.37		2
	1	49	22.12		2
	25	0	21.15	0-3	3
	25	12	21.06		3
	25	25	21.06		3
	50	0	21.03		3
256QAM	1	0	19.01	0-5	5
	1	25	19.13		5
	1	49	19.00		5
	25	0	18.94		5
	25	12	19.06		5
	25	25	19.01		5
	50	0	19.03		5

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Table 10-14
LTE Band 12 Ant E Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	21.32	0	0
	1	25	21.34		0
	1	49	21.25		0
	25	0	21.20	0-1	0
	25	12	21.30		0
	25	25	21.29		0
	50	0	21.28		0
16QAM	1	0	21.37	0-1	0
	1	25	21.58		0
	1	49	21.27		0
	25	0	21.26	0-2	0
	25	12	21.29		0
	25	25	21.33		0
	50	0	21.30		0
64QAM	1	0	21.47	0-2	0
	1	25	21.47		0
	1	49	21.36		0
	25	0	21.36	0-3	0.5
	25	12	21.03		0.5
	25	25	21.03		0.5
	50	0	21.02		0.5
256QAM	1	0	19.08	0-5	2.5
	1	25	19.19		2.5
	1	49	19.01		2.5
	25	0	18.90		2.5
	25	12	19.01		2.5
	25	25	19.00		2.5
	50	0	18.98		2.5

10.3.3 LTE Band 13

Table 10-15
LTE Band 13 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.85	0	0
	1	25	23.78		0
	1	49	23.83		0
	25	0	22.72	0-1	1
	25	12	22.77		1
	25	25	22.83		1
	50	0	22.79		1
16QAM	1	0	23.09	0-1	1
	1	25	23.03		1
	1	49	23.07		1
	25	0	21.77	0-2	2
	25	12	21.78		2
	25	25	21.79		2
	50	0	21.84		2
64QAM	1	0	22.12	0-2	2
	1	25	22.13		2
	1	49	22.02		2
	25	0	20.70	0-3	3
	25	12	20.75		3
	25	25	20.80		3
	50	0	20.84		3
256QAM	1	0	18.79	0-5	5
	1	25	18.95		5
	1	49	18.82		5
	25	0	18.71		5
	25	12	18.72		5
	25	25	18.77		5
	50	0	18.83		5

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Table 10-16
LTE Band 13 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.91	0	0
	1	25	23.83		0
	1	49	23.94		0
	25	0	22.89	0-1	1
	25	12	22.87		1
	25	25	23.01		1
16QAM	50	0	22.97	0-1	1
	1	0	23.21		1
	1	25	23.21		1
	1	49	23.23	0-2	1
	25	0	21.89		2
	25	12	21.89		2
64QAM	25	25	21.94	0-2	2
	50	0	21.91		2
	1	0	22.10	0-2	2
	1	25	22.19		2
	1	49	22.13		2
	25	0	20.92	0-3	3
256QAM	25	12	20.93		3
	25	25	20.89		3
	50	0	20.94	0-3	3
	1	0	18.96		5
	1	25	19.19	0-5	5
	1	49	19.02		5
	25	0	18.81		5
	25	12	18.91		5
	25	25	18.89		5
	50	0	18.98		5

Table 10-17
LTE Band 13 Ant E Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	20.89	0	0
	1	25	20.95		0
	1	49	20.94		0
	25	0	20.91	0-1	0
	25	12	21.03		0
	25	25	20.92		0
16QAM	50	0	20.90	0-1	0
	1	0	20.93		0
	1	25	20.93		0
	1	49	20.94	0-2	0
	25	0	20.96		0
	25	12	20.97		0
64QAM	25	25	20.90	0-2	0
	50	0	20.93		0
	1	0	20.98	0-2	0
	1	25	20.92		0
	1	49	20.93		0
	25	0	20.94	0-3	0.5
256QAM	25	12	20.93		0.5
	25	25	20.97		0.5
	50	0	20.96	0-5	0.5
	1	0	19.00		2.5
	1	25	19.09		2.5
	1	49	18.96		2.5
	25	0	18.80		2.5
	25	12	18.86		2.5
	25	25	18.87		2.5
	50	0	18.96		2.5

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10.3.4 LTE Band 14

Table 10-18
LTE Band 14 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.69	0	0
	1	25	23.83		0
	1	49	23.70		0
	25	0	22.81	0-1	1
	25	12	22.86		1
	25	25	22.88		1
	50	0	22.83		1
16QAM	1	0	23.10	0-1	1
	1	25	23.19		1
	1	49	22.97		1
	25	0	21.84	0-2	2
	25	12	21.89		2
	25	25	21.88		2
	50	0	21.84		2
64QAM	1	0	22.00	0-2	2
	1	25	22.12		2
	1	49	22.05		2
	25	0	20.80	0-3	3
	25	12	20.89		3
	25	25	20.90		3
	50	0	20.79		3
256QAM	1	0	18.80	0-5	5
	1	25	18.99		5
	1	49	18.92		5
	25	0	18.75		5
	25	12	18.81		5
	25	25	18.81		5
	50	0	18.77		5

Table 10-19
LTE Band 14 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.85	0	0
	1	25	23.97		0
	1	49	23.85		0
	25	0	22.94	0-1	1
	25	12	23.01		1
	25	25	23.03		1
	50	0	22.96		1
16QAM	1	0	23.18	0-1	1
	1	25	23.33		1
	1	49	23.21		1
	25	0	21.96	0-2	2
	25	12	22.04		2
	25	25	22.03		2
	50	0	21.97		2
64QAM	1	0	22.14	0-2	2
	1	25	22.22		2
	1	49	22.12		2
	25	0	20.94	0-3	3
	25	12	21.00		3
	25	25	21.03		3
	50	0	20.95		3
256QAM	1	0	18.88	0-5	5
	1	25	19.23		5
	1	49	18.96		5
	25	0	18.88		5
	25	12	18.95		5
	25	25	18.97		5
	50	0	18.91		5

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Table 10-20
LTE Band 14 Ant E Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz) Conducted Power [dBm]		
QPSK	1	0	21.23	0	0
	1	25	21.34		0
	1	49	21.21		0
	25	0	21.17	0-1	0
	25	12	21.23		0
	25	25	21.26		0
	50	0	21.17		0
16QAM	1	0	21.22	0-1	0
	1	25	21.41		0
	1	49	21.38		0
	25	0	21.23	0-2	0
	25	12	21.27		0
	25	25	21.28		0
	50	0	21.22		0
64QAM	1	0	21.38	0-2	0
	1	25	21.58		0
	1	49	21.37		0
	25	0	20.96	0-3	0.5
	25	12	20.97		0.5
	25	25	21.00		0.5
	50	0	21.00		0.5
256QAM	1	0	18.89	0-5	2.5
	1	25	19.08		2.5
	1	49	18.99		2.5
	25	0	18.92		2.5
	25	12	18.98		2.5
	25	25	19.01		2.5
	50	0	18.92		2.5

10.3.5 LTE Band 26

Table 10-21
LTE Band 26 Ant A Measured P_{Max} for all DSI - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz) Conducted Power [dBm]		
QPSK	1	0	24.34	0	0
	1	36	24.46		0
	1	74	24.17		0
	36	0	23.01	0-1	1
	36	18	23.03		1
	36	37	23.02		1
	75	0	22.99		1
16QAM	1	0	23.10	0-1	1
	1	36	23.21		1
	1	74	23.05		1
	36	0	22.09	0-2	2
	36	18	22.10		2
	36	37	22.06		2
	75	0	22.04		2
64QAM	1	0	22.13	0-2	2
	1	36	22.52		2
	1	74	22.17		2
	36	0	21.08	0-3	3
	36	18	21.09		3
	36	37	21.01		3
	75	0	21.03		3
256QAM	1	0	19.04	0-5	5
	1	36	19.18		5
	1	74	19.00		5
	36	0	19.03		5
	36	18	19.06		5
	36	37	19.01		5
	75	0	18.98		5

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Table 10-22
LTE Band 26 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz) Conducted Power [dBm]		
QPSK	1	0	24.45	0	0
	1	36	24.60		0
	1	74	24.37		0
	36	0	23.21	0-1	1
	36	18	23.17		1
	36	37	23.16		1
	75	0	23.11		1
16QAM	1	0	23.31	0-1	1
	1	36	23.47		1
	1	74	23.33		1
	36	0	22.27	0-2	2
	36	18	22.26		2
	36	37	22.20		2
	75	0	22.19		2
64QAM	1	0	22.31	0-2	2
	1	36	22.54		2
	1	74	22.33		2
	36	0	21.22	0-3	3
	36	18	21.24		3
	36	37	21.19		3
	75	0	21.16		3
256QAM	1	0	19.31	0-5	5
	1	36	19.33		5
	1	74	19.15		5
	36	0	19.19		5
	36	18	19.20		5
	36	37	19.15		5
	75	0	19.13		5

Table 10-23
LTE Band 26 Ant E Measured P_{Limit} for DSI = 1 (Head) - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz) Conducted Power [dBm]		
QPSK	1	0	20.78	0	0
	1	36	21.15		0
	1	74	20.78		0
	36	0	20.91	0-1	0
	36	18	21.03		0
	36	37	20.89		0
	75	0	20.94		0
16QAM	1	0	21.15	0-1	0
	1	36	21.21		0
	1	74	21.04		0
	36	0	21.00	0-2	0
	36	18	21.00		0
	36	37	20.97		0
	75	0	20.94		0
64QAM	1	0	21.13	0-2	0
	1	36	21.21		0
	1	74	21.08		0
	36	0	20.98	0-3	0
	36	18	20.99		0
	36	37	20.96		0
	75	0	20.95		0
256QAM	1	0	19.41	0-5	2
	1	36	19.46		2
	1	74	19.29		2
	36	0	19.20		2
	36	18	19.16		2
	36	37	19.15		2
	75	0	19.11		2

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10.3.6 LTE Band 66

Table 10-24
LTE Band 66 (AWS) Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.50	18.75	19.10	0	0
	1	50	18.75	18.96	18.70		0
	1	99	18.41	18.39	18.64		0
	50	0	18.76	18.71	19.03	0-1	0
	50	25	19.00	19.00	18.81		0
	50	50	18.80	18.74	18.80		0
16QAM	100	0	19.02	18.73	18.64	0	
	1	0	19.00	19.03	18.67	0-1	0
	1	50	19.02	18.95	18.65		0
	1	99	18.80	18.86	18.64		0
	50	0	18.79	18.74	18.72	0-2	0
	50	25	18.97	18.83	18.72		0
50	50	18.82	18.79	18.90	0		
64QAM	100	0	18.75	18.77	18.80	0	
	1	0	19.00	18.96	18.80	0-2	0
	1	50	18.99	18.96	18.72		0
	1	99	18.97	18.77	18.68		0
	50	0	18.74	18.65	18.77	0-3	0
	50	25	18.78	18.72	18.80		0
50	50	18.77	18.82	18.71	0		
256QAM	100	0	18.76	18.87	18.72	0	
	1	0	18.45	18.43	18.60	0-5	0.5
	1	50	18.57	18.43	18.57		0.5
	1	99	18.36	18.38	18.38		0.5
	50	0	18.39	18.33	18.39		0.5
	50	25	18.41	18.41	18.32		0.5
50	50	18.39	18.32	18.34	0.5		
	100	0	18.42	18.39	18.30	0.5	

Table 10-25
LTE Band 66 (AWS) Ant A Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.49	23.43	23.49	0	0
	1	50	23.54	23.44	23.38		0
	1	99	23.50	23.34	23.38		0
	50	0	22.50	22.48	22.41	0-1	1
	50	25	22.57	22.49	22.41		1
	50	50	22.50	22.31	22.48		1
	100	0	22.48	22.47	22.32		1
16QAM	1	0	22.57	22.57	22.82	0-1	1
	1	50	22.72	22.57	22.61		1
	1	99	22.57	22.55	22.77		1
	50	0	21.55	21.32	21.47	0-2	2
	50	25	21.60	21.51	21.46		2
	50	50	21.48	21.51	21.39		2
	100	0	21.54	21.45	21.39		2
64QAM	1	0	21.67	21.71	21.46	0-2	2
	1	50	21.72	21.66	21.46		2
	1	99	21.59	21.40	21.59		2
	50	0	20.41	20.53	20.59	0-3	3
	50	25	20.54	20.54	20.37		3
	50	50	20.67	20.50	20.43		3
	100	0	20.49	20.51	20.30		3
256QAM	1	0	18.52	18.50	18.58	0-5	5
	1	50	18.62	18.60	18.66		5
	1	99	18.53	18.46	18.33		5
	50	0	18.41	18.45	18.40		5
	50	25	18.52	18.47	18.36		5
	50	50	18.45	18.45	18.37		5
	100	0	18.51	18.43	18.33		5

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Table 10-26
LTE Band 66 (AWS) Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	21.00	20.92	21.04	0	0
	1	50	20.95	20.97	21.09		0
	1	99	20.92	20.81	21.04		0
	50	0	20.96	20.97	20.98	0-1	0
	50	25	20.80	21.00	21.02		0
	50	50	20.81	20.84	20.98		0
	100	0	20.87	20.95	21.00		0
16QAM	1	0	21.50	21.23	21.33	0-1	0
	1	50	21.37	21.33	21.33		0
	1	99	21.36	21.29	21.50		0
	50	0	20.91	21.02	21.01	0-2	0
	50	25	20.85	20.98	21.03		0
	50	50	20.84	20.87	21.00		0
	100	0	20.79	20.98	20.99		0
64QAM	1	0	21.00	21.27	21.30	0-2	0
	1	50	21.26	21.27	21.30		0
	1	99	21.21	21.39	21.38		0
	50	0	20.63	20.71	20.74	0-3	0
	50	25	20.62	20.74	20.71		0
	50	50	20.54	20.60	20.71		0
	100	0	20.58	20.70	20.73		0
256QAM	1	0	18.83	18.89	18.79	0-5	2
	1	50	18.80	18.80	18.90		2
	1	99	18.77	18.78	18.76		2
	50	0	18.63	18.67	18.72		2
	50	25	18.56	18.68	18.73		2
	50	50	18.55	18.56	18.68		2
	100	0	18.54	18.66	18.71		2

Table 10-27
LTE Band 66 (AWS) Ant F Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.42	18.34	18.57	0	0
	1	50	18.41	18.34	18.50		0
	1	99	18.34	18.28	18.50		0
	50	0	18.40	18.50	18.55	0-1	0
	50	25	18.38	18.52	18.60		0
	50	50	18.32	18.37	18.54		0
	100	0	18.34	18.48	18.51		0
16QAM	1	0	18.77	18.62	18.74	0-1	0
	1	50	18.71	18.83	18.87		0
	1	99	18.60	18.71	18.76		0
	50	0	18.42	18.50	18.58	0-2	0
	50	25	18.34	18.54	18.57		0
	50	50	18.34	18.41	18.55		0
	100	0	18.35	18.52	18.56		0
64QAM	1	0	18.82	18.73	18.71	0-2	0
	1	50	18.64	18.99	18.92		0
	1	99	18.68	18.71	18.85		0
	50	0	18.41	18.52	18.59	0-3	0
	50	25	18.39	18.59	18.62		0
	50	50	18.39	18.42	18.59		0
	100	0	18.37	18.53	18.57		0
256QAM	1	0	18.58	18.74	18.69	0-5	0
	1	50	18.72	18.84	18.87		0
	1	99	18.66	18.50	18.68		0
	50	0	18.47	18.56	18.62		0
	50	25	18.40	18.59	18.64		0
	50	50	18.38	18.45	18.57		0
	100	0	18.36	18.54	18.61		0

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10.3.7 LTE Band 25

Table 10-28
LTE Band 25 (PCS) Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	17.84	17.66	17.56	0	0	
	1	50	17.85	17.70	17.80		0	
	1	99	17.78	17.64	17.56		0	
	50	0	17.68	17.73	17.59	0-1	0	
	50	25	17.84	17.71	17.51		0	
	50	50	17.72	17.66	17.54		0	
16QAM	100	0	17.73	17.56	17.55	0-1	0	
	1	0	17.82	17.53	17.56		0-2	0
	1	50	17.76	17.54	17.40			0
	1	99	17.75	17.67	17.53	0		
	50	0	17.68	17.69	17.58	0		
	50	25	17.75	17.74	17.50	0		
64QAM	50	50	17.84	17.71	17.50	0-2	0	
	100	0	17.65	17.55	17.53		0	
	1	0	17.86	17.64	17.56		0-3	0
	1	50	17.97	17.79	17.44	0		
	1	99	17.87	17.66	17.49	0		
	50	0	17.71	17.68	17.60	0		
256QAM	50	25	17.80	17.74	17.54	0-3	0	
	50	50	17.89	17.63	17.52		0	
	100	0	17.81	17.65	17.60		0	
	256QAM	1	0	17.84	17.80	17.56	0-5	0
		1	50	17.92	17.88	17.72		0
		1	99	17.75	17.78	17.62		0
50		0	17.68	17.64	17.52	0-5	0	
50		25	17.78	17.65	17.55		0	
50		50	17.69	17.69	17.57		0	
256QAM	100	0	17.77	17.63	17.50	0		

Table 10-29
LTE Band 25 (PCS) Ant A Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.49	23.37	23.26	0	0
	1	50	23.51	23.35	23.26		0
	1	99	23.39	23.32	23.13		0
	50	0	22.37	22.32	22.16	0-1	1
	50	25	22.52	22.37	22.16		1
	50	50	22.31	22.32	22.28		1
16QAM	100	0	22.39	22.18	22.16	0-1	1
	1	0	22.57	22.39	22.65		1
	1	50	22.46	22.49	22.72		1
	1	99	22.51	22.47	22.59	0-2	1
	50	0	21.40	21.37	21.28		2
	50	25	21.55	21.29	21.16		2
64QAM	50	50	21.45	21.44	21.31	0-2	2
	100	0	21.35	21.32	21.19		2
	1	0	21.58	21.48	21.40		0-2
	1	50	21.52	21.57	21.40	2	
	1	99	21.53	21.41	21.34	2	
	256QAM	50	0	20.48	20.38	20.34	0-3
50		25	20.47	20.31	20.25	3	
50		50	20.38	20.41	20.25	3	
100		0	20.36	20.39	20.36	0-5	3
1		0	18.48	18.41	18.18		5
1		50	18.52	18.54	18.28		5
1	99	18.40	18.36	18.19	5		
50	0	18.31	18.30	18.15	5		
50	25	18.44	18.28	18.13	5		
256QAM	50	50	18.31	18.31	18.19	5	
	100	0	18.39	18.27	18.13	5	

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Table 10-30
LTE Band 25 (PCS) Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.09	20.12	20.16	0	0
	1	50	20.12	20.15	20.14		0
	1	99	20.09	20.17	20.08		0
	50	0	20.05	20.09	20.06	0-1	0
	50	25	20.15	20.12	20.18		0
	50	50	20.12	20.19	20.12		0
	100	0	20.12	20.09	20.16		0
16QAM	1	0	20.25	20.44	20.36	0-1	0
	1	50	20.35	20.37	20.38		0
	1	99	20.31	20.33	20.31		0
	50	0	20.09	20.11	20.09	0-2	0
	50	25	20.18	20.15	20.17		0
	50	50	20.18	20.18	20.15		0
	100	0	20.15	20.12	20.16		0
64QAM	1	0	20.40	20.63	20.40	0-2	0
	1	50	20.40	20.42	20.40		0
	1	99	20.52	20.42	20.30		0
	50	0	20.07	20.10	20.08	0-3	0
	50	25	20.19	20.17	20.19		0
	50	50	20.13	20.21	20.14		0
	100	0	20.13	20.13	20.16		0
256QAM	1	0	18.99	19.02	18.94	0-5	1.5
	1	50	18.98	19.12	19.11		1.5
	1	99	19.03	19.00	19.05		1.5
	50	0	18.75	18.85	18.80		1.5
	50	25	18.86	18.88	18.89		1.5
	50	50	18.82	18.89	18.83		1.5
	100	0	18.82	18.84	18.88		1.5

Table 10-31
LTE Band 25 (PCS) Ant F Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.48	18.63	18.68	0	0
	1	50	18.57	18.67	18.60		0
	1	99	18.46	18.63	18.56		0
	50	0	18.58	18.59	18.60	0-1	0
	50	25	18.68	18.63	18.69		0
	50	50	18.65	18.68	18.61		0
	100	0	18.62	18.59	18.65		0
16QAM	1	0	19.10	19.02	18.98	0-1	0
	1	50	19.16	18.93	18.89		0
	1	99	19.10	18.80	18.83		0
	50	0	18.61	18.61	18.65	0-2	0
	50	25	18.71	18.66	18.72		0
	50	50	18.63	18.69	18.66		0
	100	0	18.67	18.61	18.68		0
64QAM	1	0	18.86	18.96	18.93	0-2	0
	1	50	18.87	18.86	18.97		0
	1	99	18.88	18.87	18.87		0
	50	0	18.60	18.67	18.61	0-3	0
	50	25	18.71	18.66	18.76		0
	50	50	18.62	18.72	18.69		0
	100	0	18.65	18.61	18.72		0
256QAM	1	0	18.84	18.74	18.94	0-5	0
	1	50	18.94	18.86	18.93		0
	1	99	18.82	18.87	18.71		0
	50	0	18.60	18.66	18.63		0
	50	25	18.71	18.68	18.73		0
	50	50	18.65	18.71	18.65		0
	100	0	18.62	18.65	18.68		0

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10.3.8 LTE Band 30

Table 10-32

LTE Band 30 Ant A Measured P_{limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	19.80	0	0
	1	25	19.74		0
	1	49	19.64		0
	25	0	19.84	0-1	0
	25	12	19.81		0
	25	25	19.75		0
16QAM	50	0	19.79	0-1	0
	1	0	20.05		0
	1	25	20.11		0
	1	49	19.88	0-2	0
	25	0	19.83		0
	25	12	19.80		0
64QAM	25	25	19.76	0-2	0
	50	0	19.75		0
	1	0	20.09	0-2	0
	1	25	20.08		0
	1	49	19.82	0-3	0
	25	0	19.80		0
256QAM	25	12	19.51	0-3	0
	25	25	19.37		0
	50	0	19.39		0
	1	0	17.52	0-5	2
	1	25	17.72		2
	1	49	17.38		2
	25	0	17.43		2
	25	12	17.40		2
	25	25	17.39		2
	50	0	17.43		2

Table 10-33

LTE Band 30 Ant A Measured P_{Max} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	22.45	0	0
	1	25	22.08		0
	1	49	21.78		0
	25	0	21.49	0-1	1
	25	12	21.50		1
	25	25	21.46		1
16QAM	50	0	21.49	0-1	1
	1	0	21.70		1
	1	25	21.57		1
	1	49	21.20	0-2	1
	25	0	20.52		2
	25	12	20.54		2
64QAM	25	25	20.47	0-2	2
	50	0	20.49		2
	1	0	20.66	0-2	2
	1	25	20.65		2
	1	49	20.56	0-3	2
	25	0	19.54		3
256QAM	25	12	19.47	0-3	3
	25	25	19.45		3
	50	0	19.51		3
	1	0	17.66	0-5	5
	1	25	17.72		5
	1	49	17.42		5
	25	0	17.47		5
	25	12	17.47		5
	25	25	17.42		5
	50	0	17.42		5

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Table 10-34
LTE Band 30 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	19.46	0	0
	1	25	19.44		0
	1	49	19.40		0
	25	0	19.48	0-1	0
	25	12	19.47		0
	25	25	19.42		0
	50	0	19.43		0
16QAM	1	0	19.77	0-1	0
	1	25	19.81		0
	1	49	19.68		0
	25	0	19.56	0-2	0
	25	12	19.53		0
	25	25	19.48		0
	50	0	19.50		0
64QAM	1	0	19.61	0-2	0
	1	25	19.80		0
	1	49	19.55		0
	25	0	19.25	0-3	1
	25	12	19.28		1
	25	25	19.21		1
	50	0	19.26		1
256QAM	1	0	17.29	0-5	3
	1	25	17.25		3
	1	49	17.18		3
	25	0	17.26		3
	25	12	17.29		3
	25	25	17.19		3
	50	0	17.23		3

Table 10-35
LTE Band 30 Ant F Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	16.39	0	0
	1	25	16.48		0
	1	49	16.29		0
	25	0	16.50	0-1	0
	25	12	16.51		0
	25	25	16.46		0
	50	0	16.46		0
16QAM	1	0	16.82	0-1	0
	1	25	16.82		0
	1	49	16.67		0
	25	0	16.51	0-2	0
	25	12	16.50		0
	25	25	16.43		0
	50	0	16.44		0
64QAM	1	0	16.53	0-2	0
	1	25	16.64		0
	1	49	16.51		0
	25	0	16.49	0-3	0
	25	12	16.48		0
	25	25	16.45		0
	50	0	16.43		0
256QAM	1	0	16.60	0-5	0
	1	25	16.70		0
	1	49	16.51		0
	25	0	16.56		0
	25	12	16.54		0
	25	25	16.51		0
	50	0	16.47		0

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10.3.9 LTE Band 7

Table 10-36

LTE Band 7 Ant B Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.66	20.23	20.44	0	0
	1	50	20.32	20.31	20.51		0
	1	99	20.21	20.32	20.31		0
	50	0	20.47	20.35	20.33	0-1	0
	50	25	20.49	20.43	20.22		0
	50	50	20.45	20.19	20.28		0
	100	0	20.43	20.31	20.26	0	
16QAM	1	0	20.61	20.21	20.26	0-1	0
	1	50	20.48	20.44	20.35		0
	1	99	20.25	20.28	20.48		0
	50	0	20.45	20.33	20.24	0-2	0
	50	25	20.53	20.29	20.27		0
	50	50	20.53	20.28	20.37		0
	100	0	20.47	20.36	20.16		0
64QAM	1	0	20.71	20.50	20.54	0-2	0
	1	50	20.63	20.53	20.45		0
	1	99	20.57	20.37	20.42		0
	50	0	20.51	20.38	20.32	0-3	0
	50	25	20.57	20.41	20.16		0
	50	50	20.45	20.23	20.41		0
	100	0	20.49	20.25	20.34	0	
256QAM	1	0	19.28	19.11	19.22	0-5	1.5
	1	50	19.27	18.96	19.12		1.5
	1	99	19.07	19.01	18.93		1.5
	50	0	19.06	18.91	18.87		1.5
	50	25	19.06	18.91	18.92		1.5
	50	50	18.98	18.89	18.92		1.5
	100	0	19.10	18.90	18.84		1.5

Table 10-37

LTE Band 7 Ant B Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.98	23.92	23.67	0	0
	1	50	23.91	23.66	23.72		0
	1	99	23.92	23.76	23.71		0
	50	0	23.10	22.94	22.91	0-1	1
	50	25	23.18	22.95	22.87		1
	50	50	23.03	23.03	22.95		1
	100	0	23.11	22.90	22.87		1
16QAM	1	0	23.35	23.04	22.86	0-1	1
	1	50	23.25	23.19	23.22		1
	1	99	22.98	23.10	23.30		1
	50	0	22.17	22.03	21.96	0-2	2
	50	25	22.30	22.10	21.93		2
	50	50	22.10	22.05	21.97		2
	100	0	22.10	21.94	21.95		2
64QAM	1	0	22.38	22.27	22.10	0-2	2
	1	50	22.36	22.21	22.30		2
	1	99	22.11	22.20	22.07		2
	50	0	21.23	20.92	21.02	0-3	3
	50	25	21.12	20.88	21.02		3
	50	50	21.09	20.91	20.94		3
	100	0	21.11	20.99	20.90		3
256QAM	1	0	19.18	19.10	18.99	0-5	5
	1	50	19.22	19.19	19.22		5
	1	99	19.05	19.04	19.04		5
	50	0	19.14	18.96	18.89		5
	50	25	19.11	18.97	18.88		5
	50	50	19.03	18.93	18.94		5
	100	0	19.10	18.97	18.84		5

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Table 10-38
LTE Band 7 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.72	19.68	19.68	0	0
	1	50	19.70	19.63	19.71		0
	1	99	19.64	19.62	19.69		0
	50	0	19.74	19.69	19.75	0-1	0
	50	25	19.80	19.76	19.72		0
	50	50	19.74	19.73	19.77		0
	100	0	19.70	19.68	19.61		0
16QAM	1	0	20.11	19.89	19.89	0-1	0
	1	50	19.97	19.86	19.92		0
	1	99	19.94	19.90	19.90		0
	50	0	19.75	19.71	19.74	0-2	0
	50	25	19.80	19.79	19.87		0
	50	50	19.77	19.75	19.79		0
	100	0	19.79	19.78	19.74		0
64QAM	1	0	19.86	19.95	19.98	0-2	0
	1	50	19.91	20.04	19.95		0
	1	99	19.80	19.94	19.82		0
	50	0	19.81	19.70	19.77	0-3	0
	50	25	19.83	19.81	19.87		0
	50	50	19.78	19.75	19.78		0
	100	0	19.83	19.78	19.75		0
256QAM	1	0	19.22	18.91	19.06	0-5	1
	1	50	19.31	19.20	19.21		1
	1	99	19.09	19.09	19.19		1
	50	0	18.97	18.94	18.98		1
	50	25	19.07	19.05	19.06		1
	50	50	19.02	19.02	19.04		1
	100	0	19.04	19.00	18.95		1

Table 10-39
LTE Band 7 Ant F Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 7							
20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850	21100	21350		
			(2510.0 MHz)	(2535.0 MHz)	(2560.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	16.30	16.17	16.12	0	0
	1	50	16.21	16.15	16.11		0
	1	99	16.17	16.11	16.09		0
	50	0	16.24	16.16	16.17	0-1	0
	50	25	16.27	16.22	16.24		0
	50	50	16.25	16.20	16.22		0
	100	0	16.26	16.22	16.13		0
16QAM	1	0	16.46	16.36	16.39	0-1	0
	1	50	16.48	16.42	16.59		0
	1	99	16.39	16.31	16.48		0
	50	0	16.25	16.19	16.21	0-2	0
	50	25	16.32	16.25	16.25		0
	50	50	16.25	16.23	16.23		0
	100	0	16.27	16.22	16.17		0
64QAM	1	0	16.43	16.27	16.39	0-2	0
	1	50	16.51	16.43	16.36		0
	1	99	16.30	16.24	16.41		0
	50	0	16.28	16.18	16.21	0-3	0
	50	25	16.27	16.23	16.25		0
	50	50	16.22	16.17	16.24		0
	100	0	16.28	16.20	16.16		0
256QAM	1	0	16.31	16.23	16.26	0-5	0
	1	50	16.33	16.30	16.36		0
	1	99	16.37	16.31	16.46		0
	50	0	16.19	16.13	16.21		0
	50	25	16.26	16.25	16.30		0
	50	50	16.24	16.22	16.26		0
	100	0	16.23	16.20	16.20		0

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10.3.10 LTE Band 41

Table 10-40

LTE Band 41 Ant B Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 41									
20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	22.63	22.53	22.39	22.45	22.50	0	0
	1	50	22.66	22.51	22.40	22.42	22.43		0
	1	99	22.68	22.54	22.20	22.33	22.29		0
	50	0	22.58	22.46	22.37	22.57	22.53	0-1	0
	50	25	22.57	22.33	22.34	22.38	22.52		0
	50	50	22.62	22.60	22.35	22.48	22.53		0
	100	0	22.53	22.28	22.39	22.52	22.46		0
16QAM	1	0	22.79	22.46	22.42	22.54	22.61	0-1	0
	1	50	22.64	22.70	22.36	22.48	22.46		0
	1	99	22.56	22.59	22.25	22.40	22.36		0
	50	0	22.40	22.33	22.23	22.19	22.41	0-2	0
	50	25	22.40	22.37	22.27	22.32	22.39		0
	50	50	22.32	22.53	22.32	22.14	22.37		0
	100	0	22.33	22.27	22.19	22.28	22.33		0
64QAM	1	0	22.34	22.39	22.09	22.33	22.42	0-2	0
	1	50	22.30	22.36	22.11	22.32	22.35		0
	1	99	22.14	22.34	22.07	22.34	22.23		0
	50	0	21.44	21.42	21.41	21.27	21.37	0-3	1
	50	25	21.43	21.30	21.24	21.21	21.53		1
	50	50	21.52	21.29	21.11	21.35	21.44		1
	100	0	21.38	21.26	21.34	21.15	21.20		1
256QAM	1	0	19.33	19.24	19.23	19.16	19.38	0-5	3
	1	50	19.41	19.31	19.23	19.32	19.42		3
	1	99	19.29	19.27	19.02	19.09	19.27		3
	50	0	19.34	19.24	19.23	19.26	19.40		3
	50	25	19.44	19.30	19.27	19.25	19.45		3
	50	50	19.37	19.32	19.19	19.30	19.35		3
	100	0	19.42	19.25	19.24	19.19	19.32		3

Table 10-41

LTE Band 41 Ant B Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.53	24.24	24.26	24.23	24.43	0	0
	1	50	24.48	24.39	24.23	24.33	24.37		0
	1	99	24.56	24.42	24.04	24.19	24.15		0
	50	0	23.37	23.28	23.24	23.22	23.49	0-1	1
	50	25	23.50	23.36	23.20	23.17	23.46		1
	50	50	23.57	23.41	23.26	23.33	23.43		1
	100	0	23.44	23.32	23.33	23.36	23.37		1
16QAM	1	0	23.64	23.39	23.22	23.36	23.50	0-1	1
	1	50	23.55	23.53	23.08	23.23	23.30		1
	1	99	23.38	23.44	23.04	23.10	23.17		1
	50	0	22.46	22.38	22.24	22.28	22.52	0-2	2
	50	25	22.66	22.33	22.36	22.26	22.59		2
	50	50	22.32	22.61	22.29	22.40	22.39		2
	100	0	22.54	22.25	22.29	22.28	22.46		2
64QAM	1	0	22.61	22.31	22.23	22.19	22.42	0-2	2
	1	50	22.44	22.46	22.07	22.33	22.23		2
	1	99	22.36	22.44	22.10	22.17	22.16		2
	50	0	21.34	21.39	21.28	21.41	21.50	0-3	3
	50	25	21.46	21.33	21.29	21.37	21.45		3
	50	50	21.58	21.31	21.41	21.19	21.44		3
	100	0	21.55	21.18	21.19	21.21	21.51		3
256QAM	1	0	19.32	19.23	19.37	19.23	19.37	0-5	5
	1	50	19.35	19.45	19.34	19.29	19.39		5
	1	99	19.30	19.39	19.11	19.04	19.12		5
	50	0	19.36	19.31	19.28	19.30	19.42		5
	50	25	19.49	19.35	19.33	19.27	19.44		5
	50	50	19.41	19.40	19.25	19.26	19.40		5
	100	0	19.47	19.28	19.32	19.24	19.33		5

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Table 10-42
LTE Band 41 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	21.86	21.97	21.87	21.75	21.90	0	0
	1	50	21.84	21.84	21.77	21.75	21.83		0
	1	99	21.81	21.77	21.58	21.63	21.75		0
	50	0	21.89	21.95	21.89	21.84	21.93	0-1	0
	50	25	21.94	21.91	21.88	21.79	21.87		0
	50	50	21.94	21.88	21.82	21.75	21.90		0
16QAM	100	0	21.89	21.90	21.86	21.75	21.89	0-1	0
	1	0	21.96	21.85	21.95	21.83	22.02		0
	1	50	22.01	21.98	21.78	21.85	21.88		0
	1	99	21.89	21.75	21.75	21.58	21.74	0-2	0
	50	0	21.88	21.95	21.94	21.83	21.97		0
	50	25	21.99	21.96	21.91	21.79	21.95		0
64QAM	50	50	21.95	21.91	21.79	21.83	21.89	0-2	0
	100	0	21.96	21.93	21.92	21.80	21.92		0
	1	0	21.91	21.93	21.89	21.89	22.03	0-2	0
	1	50	21.94	22.01	21.82	21.91	21.91		0
	1	99	21.76	21.96	21.74	21.60	21.80	0-3	0
	50	0	21.41	21.44	21.46	21.31	21.45		0.5
50	25	21.47	21.46	21.40	21.28	21.38	0.5		
50	50	21.41	21.42	21.30	21.28	21.39	0.5		
256QAM	100	0	21.44	21.38	21.38	21.22	21.40	0-3	0.5
	1	0	19.24	19.34	19.30	19.23	19.41		2.5
	1	50	19.32	19.34	19.34	19.37	19.39	0-5	2.5
	1	99	19.21	19.24	19.07	19.17	19.27		2.5
	50	0	19.37	19.41	19.44	19.30	19.46		2.5
	50	25	19.46	19.44	19.36	19.26	19.40		2.5
50	50	19.41	19.38	19.30	19.24	19.40	2.5		
	100	0	19.40	19.40	19.36	19.25	19.40		2.5

Table 10-43
LTE Band 41 Ant F Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	18.35	18.42	18.26	18.23	18.32	0	0
	1	50	18.29	18.34	18.18	18.15	18.24		0
	1	99	18.23	18.22	18.00	17.99	18.12		0
	50	0	18.35	18.41	18.31	18.19	18.34	0-1	0
	50	25	18.38	18.40	18.29	18.18	18.28		0
	50	50	18.37	18.33	18.19	18.15	18.26		0
	100	0	18.36	18.39	18.28	18.14	18.26		0
16QAM	1	0	18.49	18.38	18.20	18.15	18.33	0-1	0
	1	50	18.44	18.31	18.16	18.21	18.20		0
	1	99	18.51	18.23	18.07	18.05	18.13		0
	50	0	18.31	18.36	18.33	18.20	18.36	0-2	0
	50	25	18.41	18.41	18.31	18.16	18.31		0
	50	50	18.40	18.34	18.21	18.18	18.31		0
	100	0	18.37	18.34	18.31	18.13	18.30		0
64QAM	1	0	18.28	18.33	18.21	18.13	18.31	0-2	0
	1	50	18.34	18.34	18.33	18.15	18.32		0
	1	99	18.25	18.32	18.04	17.91	18.02		0
	50	0	18.36	18.42	18.37	18.22	18.35	0-3	0
	50	25	18.44	18.42	18.31	18.19	18.34		0
	50	50	18.40	18.34	18.24	18.26	18.30		0
	100	0	18.39	18.38	18.28	18.18	18.30		0
256QAM	1	0	18.41	18.35	18.26	18.17	18.27	0-5	0
	1	50	18.39	18.44	18.19	18.26	18.41		0
	1	99	18.33	18.29	18.08	18.06	18.24		0
	50	0	18.40	18.44	18.38	18.25	18.44		0
	50	25	18.48	18.44	18.30	18.24	18.35		0
	50	50	18.43	18.37	18.27	18.22	18.37		0
	100	0	18.47	18.41	18.32	18.22	18.36		0

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10.3.11 LTE Band 48

Table 10-44

LTE Band 48 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55340 (3560.0 MHz)	55773 (3603.3 MHz)	56207 (3646.7 MHz)	56640 (3690.0 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	21.48	21.68	21.90	21.76	0	0
	1	50	21.80	21.70	21.80	21.84		0
	1	99	21.64	21.71	21.71	21.86		0
	50	0	20.51	20.74	20.77	20.85	0-1	0.5
	50	25	20.71	20.91	21.04	20.99		0.5
	50	50	20.72	20.85	20.89	20.94		0.5
	100	0	20.66	20.82	20.84	20.94		0.5
16QAM	1	0	20.81	20.88	20.90	20.95	0-1	0.5
	1	50	20.86	20.93	20.97	21.29		0.5
	1	99	20.80	20.91	21.00	21.10		0.5
	50	0	19.52	19.77	19.81	19.83	0-2	1.5
	50	25	19.73	19.88	19.92	20.00		1.5
	50	50	19.69	19.89	19.92	19.95		1.5
	100	0	19.68	19.84	19.91	19.97		1.5
64QAM	1	0	19.86	19.98	19.98	19.94	0-2	1.5
	1	50	19.96	19.97	19.97	19.92		1.5
	1	99	19.94	19.92	19.95	19.95		1.5
	50	0	18.54	18.76	18.76	18.85	0-3	2.5
	50	25	18.66	18.87	18.92	18.97		2.5
	50	50	18.69	18.87	18.91	18.94		2.5
	100	0	18.71	18.89	18.89	18.98		2.5
256QAM	1	0	16.66	16.92	16.75	16.95	0-5	4.5
	1	50	16.61	16.87	16.70	16.89		4.5
	1	99	16.80	16.73	16.94	16.84		4.5
	50	0	16.49	16.77	16.75	16.87		4.5
	50	25	16.66	16.83	16.90	16.94		4.5
	50	50	16.67	16.83	16.95	16.98		4.5
	100	0	16.63	16.83	16.92	16.95		4.5

Table 10-45

LTE Band 48 Ant F Uplink Carrier Aggregation Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

20 MHz Bandwidth																
ination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
48C	LTE B48	20	56207	3646.7	QPSK	1	0	LTE B48	20	56009	3626.9	QPSK	1	99	21.89	21.90

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Table 10-46
LTE Band 48 Ant F Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55340 (3560.0 MHz)	55773 (3603.3 MHz)	56207 (3646.7 MHz)	56640 (3690.0 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	17.34	17.62	17.62	17.92	0	0
	1	50	17.42	17.43	17.80	17.75		0
	1	99	17.77	17.56	17.79	17.80		0
	50	0	17.52	17.77	17.81	18.00	0-1	0
	50	25	17.91	17.88	17.91	17.99		0
	50	50	17.69	17.87	17.93	17.95		0
	100	0	17.66	17.82	17.86	17.91		0
16QAM	1	0	17.74	17.70	17.70	17.89	0-1	0
	1	50	17.75	17.81	17.81	17.82		0
	1	99	17.76	17.90	17.90	17.93		0
	50	0	17.54	17.78	17.79	17.88	0-2	0
	50	25	17.69	17.90	17.94	17.99		0
	50	50	17.70	17.87	17.95	18.00		0
	100	0	17.71	17.88	17.94	18.01		0
64QAM	1	0	17.79	17.97	17.82	18.07	0-2	0
	1	50	17.69	18.16	17.90	18.11		0
	1	99	18.12	17.86	18.05	18.12		0
	50	0	17.56	17.76	17.79	17.86	0-3	0
	50	25	17.69	17.88	17.95	18.01		0
	50	50	17.71	17.85	17.94	18.01		0
	100	0	17.71	17.87	17.89	18.03		0
256QAM	1	0	16.39	16.65	16.57	16.71	0-5	1
	1	50	16.51	17.09	16.93	17.00		1
	1	99	16.73	17.14	16.75	17.00		1
	50	0	16.56	16.82	16.77	16.90		1
	50	25	16.67	16.90	16.97	17.05		1
	50	50	16.73	16.88	16.90	17.03		1
	100	0	16.69	16.87	16.89	17.03		1

Table 10-47
LTE Band 48 Ant F Uplink Carrier Aggregation Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 48 CA#1: Spk1 carrier Aggregation measured 7.1kmh for DC: 1 (Ready) 20 MHz Bandwidth																
Combination	PCC Band	PCC Bandwidth [MHz]	PCC				SCC				Power					
			PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_48C	LTE B48	20	56640	3690.0	QPSK	100	0	LTE B48	20	56442	3670.2	QPSK	100	0	17.99	17.91

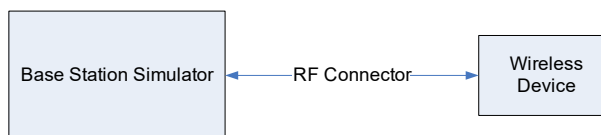


Figure 10-3
Power Measurement Setup

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10.4 NR Conducted Powers

Per October 2020 TCB Workshop Guidance, NR FR1 SAR evaluations are being generally based on adapting the existing LTE SAR procedures (FCC KDB Publication 941225 D05v02r05). Therefore, NR SAR for the lower bandwidths was not required for testing based on the measured output power and the reported NR SAR for the highest bandwidth. Lower bandwidth conducted powers for all NR bands can be found in LTE and NR Lower Bandwidth RF Conducted Powers Appendix.

Note: Some bands do not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

10.4.1 NR Band n71

Table 10-48
NR Band n71 Ant A Measured P_{Max} for all DSI - 35 MHz Bandwidth

NR Band n71 35 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.68	0	0.0
	1	94	24.02		0.0
	1	186	23.75		0.0
	90	0	22.88	0-1	1.0
	90	49	24.11	0	0.0
	90	98	22.98	0-1	1.0
	180	0	22.98		1.0
DFT-s-OFDM 16QAM	1	1	22.65	0-1	1.0
CP-OFDM QPSK	1	1	22.23	0-1.5	1.5

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Table 10-49
NR Band n71 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 35 MHz Bandwidth

NR Band n71 35 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.97	0	0.0
	1	94	24.39		0.0
	1	186	24.06		0.0
	90	0	23.21	0-1	1.0
	90	49	24.35	0	0.0
	90	98	23.33	0-1	1.0
	180	0	23.28		1.0
DFT-s-OFDM 16QAM	1	1	22.97	0-1	1.0
CP-OFDM QPSK	1	1	22.58	0-1.5	1.5

Table 10-50
NR Band n71 Ant E Measured P_{Limit} for DSI = 1 (Head) - 35 MHz Bandwidth

NR Band n71 35 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.62	0	0.0
	1	94	21.71		0.0
	1	186	21.56		0.0
	90	0	21.68	0-1	0.0
	90	49	21.71	0	0.0
	90	98	21.49	0-1	0.0
	180	0	21.59		0.0
DFT-s-OFDM 16QAM	1	1	21.49	0-1	0.0
CP-OFDM QPSK	1	1	21.79	0-1.5	0.0

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10.4.2 NR Band n12

Table 10-51
NR Band n12 Ant A Measured P_{Max} for all DSI - 15 MHz Bandwidth

NR Band n12 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			141500 (707.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.11	0	0.0
	1	40	24.12		0.0
	1	77	24.00		0.0
	36	0	22.87	0-1	1.0
	36	22	24.15	0	0.0
	36	43	23.11	0-1	1.0
	75	0	23.03		1.0
DFT-s-OFDM 16QAM	1	1	22.88	0-1	1.0
CP-OFDM QPSK	1	1	22.78	0-1.5	1.5

Table 10-52
NR Band n12 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 15 MHz Bandwidth

NR Band n12 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			141500 (707.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.40	0	0.0
	1	40	24.44		0.0
	1	77	24.26		0.0
	36	0	23.42	0-1	1.0
	36	22	24.44	0	0.0
	36	43	23.40	0-1	1.0
	75	0	23.27		1.0
DFT-s-OFDM 16QAM	1	1	23.27	0-1	1.0
CP-OFDM QPSK	1	1	22.95	0-1.5	1.5

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Table 10-53
NR Band n12 Ant E Measured P_{Limit} for DSI = 1 (Head) - 15 MHz Bandwidth

NR Band n12 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			141500 (707.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.73	0	0.0
	1	40	21.66		0.0
	1	77	21.67		0.0
	36	0	21.71	0-1	0.0
	36	22	21.70	0	0.0
	36	43	21.65	0-1	0.0
	75	0	21.59		0.0
DFT-s-OFDM 16QAM	1	1	21.57	0-1	0.0
CP-OFDM QPSK	1	1	22.04	0-1.5	0.0

10.4.3 NR Band n14

Table 10-54
NR Band n14 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

NR Band n14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			158600 (793 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.84	0	0.0
	1	26	23.56		0.0
	1	50	23.64		0.0
	25	0	22.85	0-1	1.0
	25	14	23.58	0	0.0
	25	27	22.42	0-1	1.0
	50	0	22.20		1.0
DFT-s-OFDM 16QAM	1	1	22.75	0-1	1.0
CP-OFDM QPSK	1	1	22.35	0-1.5	1.5

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Table 10-55
NR Band n14 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

NR Band n14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			158600 (793 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.07	0	0.0
	1	26	23.91		0.0
	1	50	24.03		0.0
	25	0	23.04	0-1	1.0
	25	14	23.92	0	0.0
	25	27	22.83	0-1	1.0
	50	0	23.11		1.0
DFT-s-OFDM 16QAM	1	1	22.92	0-1	1.0
CP-OFDM QPSK	1	1	22.51	0-1.5	1.5

Table 10-56
NR Band n14 Ant E Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

NR Band n14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			158600 (793 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.34	0	0.0
	1	26	21.40		0.0
	1	50	21.46		0.0
	25	0	21.32	0-1	0.0
	25	14	21.36	0	0.0
	25	27	21.27	0-1	0.0
	50	0	21.20		0.0
DFT-s-OFDM 16QAM	1	1	21.35	0-1	0.0
CP-OFDM QPSK	1	1	21.51	0-1.5	0.0

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10.4.4 NR Band n26

Table 10-57
NR Band n26 Ant A Measured P_{Max} for all DSI - 20 MHz Bandwidth

NR Band n26 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			166300 (831.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.07	0	0.0
	1	53	24.22		0.0
	1	104	24.06		0.0
	50	0	23.11	0-1	1.0
	50	28	24.11	0	0.0
	50	56	23.09	0-1	1.0
	100	0	23.19		1.0
DFT-s-OFDM 16QAM	1	1	22.91	0-1	1.0
CP-OFDM QPSK	1	1	22.65	0-1.5	1.5

Table 10-58
NR Band n26 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n26 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			166300 (831.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.32	0	0.0
	1	53	24.36		0.0
	1	104	24.24		0.0
	50	0	23.35	0-1	1.0
	50	28	24.42	0	0.0
	50	56	23.26	0-1	1.0
	100	0	23.38		1.0
DFT-s-OFDM 16QAM	1	1	23.14	0-1	1.0
CP-OFDM QPSK	1	1	22.83	0-1.5	1.5

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Table 10-59
NR Band n26 Ant E Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

NR Band n26 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			166300 (831.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.23	0	0.0
	1	53	21.14		0.0
	1	104	21.00		0.0
	50	0	21.02	0-1	0.0
	50	28	21.06	0	0.0
	50	56	20.99	0-1	0.0
	100	0	21.05		0.0
DFT-s-OFDM 16QAM	1	1	21.06	0-1	0.0
CP-OFDM QPSK	1	1	21.24	0-1.5	0.0

10.4.5 NR Band n70

Table 10-60
NR Band n70 Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 15 MHz Bandwidth

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.91	0	0.0
	1	40	18.93		0.0
	1	77	18.88		0.0
	36	0	18.94	0-1	0.0
	36	22	18.88	0	0.0
	36	43	18.82	0-1	0.0
	75	0	18.88		0.0
DFT-s-OFDM 16QAM	1	1	18.95	0-1	0.0
CP-OFDM QPSK	1	1	19.01	0-1.5	0.0

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Table 10-61
NR Band n70 Ant A Measured P_{Max} for DSI = 1 (Head) - 15 MHz Bandwidth

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.67	0	0.0
	1	40	23.65		0.0
	1	77	23.47		0.0
	36	0	22.67	0-1	1.0
	36	22	23.66	0	0.0
	36	43	22.68	0-1	1.0
	75	0	22.64		1.0
DFT-s-OFDM 16QAM	1	1	22.45	0-1	1.0
CP-OFDM QPSK	1	1	22.33	0-1.5	1.5

Table 10-62
NR Band n70 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 15 MHz Bandwidth

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.70	0	0.0
	1	40	21.14		0.0
	1	77	21.15		0.0
	36	0	20.91	0-1	0.0
	36	22	21.02	0	0.0
	36	43	21.05	0-1	0.0
	75	0	21.00		0.0
DFT-s-OFDM 16QAM	1	1	20.84	0-1	0.0
CP-OFDM QPSK	1	1	21.14	0-1.5	0.0

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Table 10-63
NR Band n70 Ant F Measured P_{Limit} for DSI = 1 (Head) - 15 MHz Bandwidth

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.32	0	0.0
	1	40	18.52		0.0
	1	77	18.82		0.0
	36	0	18.27	0-1	0.0
	36	22	18.47	0	0.0
	36	43	18.52	0-1	0.0
	75	0	18.44		0.0
DFT-s-OFDM 16QAM	1	1	18.16	0-1	0.0
CP-OFDM QPSK	1	1	18.49	0-1.5	0.0

10.4.6 NR Band n66

Table 10-64
NR Band n66 Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 45 MHz Bandwidth

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.06	0	0.0
	1	121	19.08		0.0
	1	240	19.20		0.0
	120	0	19.23	0-1	0.0
	120	61	19.12	0	0.0
	120	122	19.10	0-1	0.0
	240	0	19.19		0.0
DFT-s-OFDM 16QAM	1	1	18.98	0-1	0.0
CP-OFDM QPSK	1	1	19.16	0-1.5	0.0

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Table 10-65
NR Band n66 Ant A Measured P_{Max} for DSI = 1 (Head) - 45 MHz Bandwidth

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.04	0	0.0
	1	121	23.63		0.0
	1	240	23.51		0.0
	120	0	22.75	0-1	1.0
	120	61	23.74	0	0.0
	120	122	22.79	0-1	1.0
	240	0	22.76		1.0
DFT-s-OFDM 16QAM	1	1	22.01	0-1	1.0
CP-OFDM QPSK	1	1	21.80	0-1.5	1.5

Table 10-66
NR Band n66 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 45 MHz Bandwidth

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.43	0	0.0
	1	121	21.17		0.0
	1	240	21.04		0.0
	120	0	21.19	0-1	0.0
	120	61	21.09	0	0.0
	120	122	21.02	0-1	0.0
	240	0	21.13		0.0
DFT-s-OFDM 16QAM	1	1	21.28	0-1	0.0
CP-OFDM QPSK	1	1	21.31	0-1.5	0.0

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Table 10-67
NR Band n66 Ant F Measured P_{Limit} for DSI = 1 (Head) - 45 MHz Bandwidth

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.87	0	0.0
	1	121	18.52		0.0
	1	240	18.52		0.0
	120	0	18.64	0-1	0.0
	120	61	18.53	0	0.0
	120	122	18.54	0-1	0.0
	240	0	18.57		0.0
DFT-s-OFDM 16QAM	1	1	18.76	0-1	0.0
CP-OFDM QPSK	1	1	18.87	0-1.5	0.0

10.4.7 NR Band n25

Table 10-68
NR Band n25 Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 40 MHz Bandwidth

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	17.80	0	0.0
	1	108	17.87		0.0
	1	214	17.86		0.0
	108	0	17.86	0-1	0.0
	108	54	17.83	0	0.0
	108	108	17.85	0-1	0.0
	216	0	17.74		0.0
DFT-s-OFDM 16QAM	1	1	17.65	0-1	0.0
CP-OFDM QPSK	1	1	17.92	0-1.5	0.0

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Table 10-69
NR Band n25 Ant A Measured P_{Max} for DSI = 1 (Head) - 40 MHz Bandwidth

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.50	0	0.0
	1	108	23.61		0.0
	1	214	23.57		0.0
	108	0	22.55	0-1	1.0
	108	54	23.56	0	0.0
	108	108	22.56	0-1	1.0
	216	0	22.65		1.0
DFT-s-OFDM 16QAM	1	1	22.44	0-1	1.0
CP-OFDM QPSK	1	1	22.04	0-1.5	1.5

Table 10-70
NR Band n25 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 40 MHz Bandwidth

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.14	0	0.0
	1	108	20.05		0.0
	1	214	19.98		0.0
	108	0	19.91	0-1	0.0
	108	54	20.00	0	0.0
	108	108	19.91	0-1	0.0
	216	0	19.99		0.0
DFT-s-OFDM 16QAM	1	1	19.99	0-1	0.0
CP-OFDM QPSK	1	1	20.20	0-1.5	0.0

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Table 10-71
NR Band n25 Ant F Measured P_{Limit} for DSI = 1 (Head) - 40 MHz Bandwidth

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.61	0	0.0
	1	108	18.50		0.0
	1	214	18.39		0.0
	108	0	18.46	0-1	0.0
	108	54	18.48	0	0.0
	108	108	18.32	0-1	0.0
	216	0	18.47		0.0
DFT-s-OFDM 16QAM	1	1	18.49	0-1	0.0
CP-OFDM QPSK	1	1	18.73	0-1.5	0.0

10.4.8 NR Band n30

Table 10-72
NR Band n30 Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.29	0	0.0
	1	26	19.26		0.0
	1	50	19.10		0.0
	25	0	19.19	0-1	0.0
	25	14	19.26	0	0.0
	25	27	19.25	0-1	0.0
	50	0	19.13		0.0
DFT-s-OFDM 16QAM	1	1	19.23	0-1	0.0
CP-OFDM QPSK	1	1	19.40	0-1.5	0.0

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Table 10-73
NR Band n30 Ant A Measured P_{Max} for DSI = 1 (Head) - 10 MHz Bandwidth

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	22.19	0	0.0
	1	26	22.06		0.0
	1	50	22.01		0.0
	25	0	21.25	0-1	1.0
	25	14	22.20	0	0.0
	25	27	21.23	0-1	1.0
	50	0	21.23		1.0
DFT-s-OFDM 16QAM	1	1	21.30	0-1	1.0
CP-OFDM QPSK	1	1	20.87	0-1.5	1.5

Table 10-74
NR Band n30 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.03	0	0.0
	1	26	19.20		0.0
	1	50	19.04		0.0
	25	0	19.27	0-1	0.0
	25	14	19.26	0	0.0
	25	27	19.21	0-1	0.0
	50	0	19.19		0.0
DFT-s-OFDM 16QAM	1	1	19.42	0-1	0.0
CP-OFDM QPSK	1	1	19.33	0-1.5	0.0

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Table 10-75
NR Band n30 Ant F Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	16.10	0	0.0
	1	26	16.28		0.0
	1	50	16.01		0.0
	25	0	16.24	0-1	0.0
	25	14	16.41	0	0.0
	25	27	16.25	0-1	0.0
	50	0	16.25		0.0
DFT-s-OFDM 16QAM	1	1	16.49	0-1	0.0
CP-OFDM QPSK	1	1	16.08	0-1.5	0.0

10.4.9 NR Band n7

Table 10-76
NR Band n7 Ant B Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 50 MHz Bandwidth

NR Band n7 50 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.41	0	0.0
	1	135	20.22		0.0
	1	268	20.16		0.0
	135	0	20.35	0-1	0.0
	135	68	20.28	0	0.0
	135	135	20.13	0-1	0.0
	270	0	20.27		0.0
DFT-s-OFDM 16QAM	1	1	19.99	0-1	0.0
CP-OFDM QPSK	1	1	20.68	0-1.5	0.0

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Table 10-77
NR Band n7 Ant B Measured P_{Max} for DSI = 1 (Head) - 50 MHz Bandwidth

NR Band n7 50 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.56	0	0.0
	1	135	23.22		0.0
	1	268	23.29		0.0
	135	0	22.40	0-1	1.0
	135	68	23.28	0	0.0
	135	135	22.15	0-1	1.0
	270	0	22.33		1.0
DFT-s-OFDM 16QAM	1	1	22.38	0-1	1.0
CP-OFDM QPSK	1	1	22.17	0-1.5	1.5

Table 10-78
NR Band n7 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 50 MHz Bandwidth

NR Band n7 50 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.79	0	0.0
	1	135	19.57		0.0
	1	268	19.71		0.0
	135	0	19.63	0-1	0.0
	135	68	19.74	0	0.0
	135	135	19.61	0-1	0.0
	270	0	19.71		0.0
DFT-s-OFDM 16QAM	1	1	19.73	0-1	0.0
CP-OFDM QPSK	1	1	20.07	0-1.5	0.0

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Table 10-79
NR Band n7 Ant F Measured P_{Limit} for DSI = 1 (Head) - 50 MHz Bandwidth

NR Band n7 50 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	16.31	0	0.0
	1	135	16.14		0.0
	1	268	16.21		0.0
	135	0	16.24	0-1	0.0
	135	68	16.21	0	0.0
	135	135	16.08	0-1	0.0
	270	0	16.15		0.0
DFT-s-OFDM 16QAM	1	1	16.15	0-1	0.0
CP-OFDM QPSK	1	1	16.38	0-1.5	0.0

10.4.10 NR Band n41

Table 10-80
NR Band n41 PC2 Antenna F Path 1 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.22	0	0.0
	1	137	20.27		0.0
	1	271	20.24		0.0
	135	0	20.24	0-1	0.0
	135	69	20.33	0	0.0
	135	138	20.28	0-1	0.0
	270	0	20.26		0.0
DFT-s-OFDM 16QAM	1	1	20.21	0-1	0.0
CP-OFDM QPSK	1	1	20.24	0-1.5	0.0

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Table 10-81
NR Band n41 PC2 Antenna F Path 1 Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	17.18	0	0.0
	1	137	17.33		0.0
	1	271	17.22		0.0
	135	0	17.18	0-1	0.0
	135	69	17.29	0	0.0
	135	138	17.23	0-1	0.0
	270	0	17.26		0.0
DFT-s-OFDM 16QAM	1	1	17.12	0-1	0.0
CP-OFDM QPSK	1	1	17.25	0-1.5	0.0

Table 10-82
NR Band n41 PC2 Antenna B, E, D Path 1 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz) Conducted Power [dBm]
SRS #2 Ant B	20.31
SRS #3 Ant E	18.63
SRS #4 Ant D	19.83

Table 10-83
NR Band n41 PC2 Antenna B, E, D Path 1 Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz) Conducted Power [dBm]
SRS #2 Ant B	17.30
SRS #3 Ant E	15.60
SRS #4 Ant D	16.85

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Table 10-84
NR Band n41 PC2 Antenna B Path 2 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.93	0	0.0
	1	137	20.96		0.0
	1	271	20.94		0.0
	135	0	20.91	0-1	0.0
	135	69	20.92	0	0.0
	135	138	20.95	0-1	0.0
	270	0	20.93		0.0
DFT-s-OFDM 16QAM	1	1	20.88	0-1	0.0
CP-OFDM QPSK	1	1	20.97	0-1.5	0.0

Table 10-85
NR Band n41 PC2 Antenna B Path 2 Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.98	0	0.0
	1	137	21.97		0.0
	1	271	22.00		0.0
	135	0	21.98	0-1	0.0
	135	69	21.93	0	0.0
	135	138	21.93	0-1	0.0
	270	0	21.94		0.0
DFT-s-OFDM 16QAM	1	1	21.91	0-1	0.0
CP-OFDM QPSK	1	1	21.98	0-1.5	0.0

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Table 10-86

NR Band n41 PC2 Antenna F & D Path 2 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) and NR Band n41 PC2 Antenna E Path 2 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) and P_{Limit} for DSI = 1 (Head)

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz)
	Conducted Power [dBm]
SRS #2 Ant F	19.96
SRS #3 Ant D	20.26
SRS #4 Ant E	18.07

Table 10-87

NR Band n41 PC2 Antenna F & D Path 2 Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz)
	Conducted Power [dBm]
SRS #2 Ant F	17.03
SRS #3 Ant D	21.24

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Table 10-88
NR Band n41 PC1.5 UL-MIMO Antenna F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.36	0	0.0
	1	137	19.55		0.0
	1	271	19.63		0.0
	135	0	19.59	0-1	0.0
	135	69	19.55	0	0.0
	135	138	19.58	0-1	0.0
	270	0	19.57		0.0
DFT-s-OFDM 16QAM	1	1	19.63	0-1	0.0
CP-OFDM QPSK	1	1	19.75	0-1.5	0.0

Table 10-89
NR Band n41 PC1.5 UL-MIMO Antenna F Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	16.71	0	0.0
	1	137	16.77		0.0
	1	271	16.75		0.0
	135	0	16.67	0-1	0.0
	135	69	16.61	0	0.0
	135	138	16.63	0-1	0.0
	270	0	16.60		0.0
DFT-s-OFDM 16QAM	1	1	16.65	0-1	0.0
CP-OFDM QPSK	1	1	16.68	0-1.5	0.0

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Table 10-90
NR Band n41 PC1.5 UL-MIMO Antenna B Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.42	0	0.0
	1	137	20.25		0.0
	1	271	20.30		0.0
	135	0	20.21	0-1	0.0
	135	69	20.08	0	0.0
	135	138	20.10	0-1	0.0
	270	0	20.15		0.0
DFT-s-OFDM 16QAM	1	1	20.27	0-1	0.0
CP-OFDM QPSK	1	1	20.28	0-1.5	0.0

Table 10-91
NR Band n41 PC1.5 UL-MIMO Antenna B Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.09	0	0.0
	1	137	20.90		0.0
	1	271	21.12		0.0
	135	0	20.90	0-1	0.0
	135	69	20.74	0	0.0
	135	138	20.77	0-1	0.0
	270	0	20.80		0.0
DFT-s-OFDM 16QAM	1	1	20.89	0-1	0.0
CP-OFDM QPSK	1	1	20.93	0-1.5	0.0

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10.4.11 NR Band n48

Table 10-92

NR Band n48 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM QPSK	1	1	19.87	20.35	20.34	0	0.0
	1	53	20.11	20.26	20.21		0.0
	1	104	20.29	20.27	20.37		0.0
	50	0	20.12	20.37	20.28	0-1	0.0
	50	28	20.16	20.34	20.38	0	0.0
	50	56	20.20	20.27	20.36	0-1	0.0
	100	0	20.14	20.32	20.33		0.0
DFT-s-OFDM 16QAM	1	1	19.89	20.31	20.23	0-1	0.0
CP-OFDM QPSK	1	1	19.88	20.31	20.29	0-1.5	0.0

Table 10-93

NR Band n48 Ant F Measured P_{Limit} for DSI = 1 (Head) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM QPSK	1	1	16.35	16.81	16.79	0	0.0
	1	53	16.59	16.74	16.67		0.0
	1	104	16.75	16.68	16.84		0.0
	50	0	16.56	16.81	16.75	0-1	0.0
	50	28	16.64	16.73	16.83	0	0.0
	50	56	16.77	16.77	16.77	0-1	0.0
	100	0	16.61	16.76	16.77		0.0
DFT-s-OFDM 16QAM	1	1	16.42	16.71	16.72	0-1	0.0
CP-OFDM QPSK	1	1	16.45	16.68	16.79	0-1.5	0.0

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Table 10-94
NR Band n48 Antenna C, I, D Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth			
Channel			
Antenna	638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)
	Conducted Power [dBm]		
SRS #2 Ant C	15.36	15.33	15.16
SRS #3 Ant I	19.45	19.49	19.50
SRS #4 Ant D	14.98	15.07	15.16

Table 10-95
NR Band n48 Antenna C, I, D Measured P_{Limit} for DSI = 1 (Head) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth			
Channel			
Antenna	638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)
	Conducted Power [dBm]		
SRS #2 Ant C	11.84	11.90	11.65
SRS #3 Ant I	15.96	16.01	15.95
SRS #4 Ant D	11.46	11.61	11.62

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10.4.12 NR Band n77

Table 10-96
NR Band n77 DoD Antenna F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n77 DoD 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			633334 (3500.01 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.81	0	0.0
	1	137	18.58		0.0
	1	271	18.99		0.0
	135	0	18.73	0-1	0.0
	135	69	18.62	0	0.0
	135	138	19.00	0-1	0.0
	270	0	18.80		0.0
DFT-s-OFDM 16QAM	1	1	18.82	0-1	0.0
CP-OFDM QPSK	1	1	18.85	0-1.5	0.0

Table 10-97
NR Band n77 DoD Antenna F Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n77 DoD 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			633334 (3500.01 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	16.88	0	0.0
	1	137	16.71		0.0
	1	271	16.99		0.0
	135	0	16.75	0-1	0.0
	135	69	16.64	0	0.0
	135	138	17.00	0-1	0.0
	270	0	16.73		0.0
DFT-s-OFDM 16QAM	1	1	16.84	0-1	0.0
CP-OFDM QPSK	1	1	16.83	0-1.5	0.0

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Table 10-98
NR Band n77 DoD Antenna C, I, D Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n77 DoD 100 MHz Bandwidth	
Channel	
Antenna	633334 (3500.01 MHz)
	Conducted Power [dBm]
SRS #2 Ant C	17.95
SRS #3 Ant I	17.90
SRS #4 Ant D	13.65

Table 10-99
NR Band n77 DoD Antenna C, I, D Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n77 DoD 100 MHz Bandwidth	
Channel	
Antenna	633334 (3500.01 MHz)
	Conducted Power [dBm]
SRS #2 Ant C	21.40
SRS #3 Ant I	15.54
SRS #4 Ant D	11.19

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Table 10-100
NR Band n77 Antenna F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	18.49	18.94	0	0.0
	1	137	18.43	18.72		0.0
	1	271	18.51	18.93		0.0
	135	0	18.56	18.82	0-1	0.0
	135	69	18.48	18.78	0	0.0
	135	138	18.44	18.90	0-1	0.0
	270	0	18.46	18.85		0.0
DFT-s-OFDM 16QAM	1	1	18.38	18.83	0-1	0.0
CP-OFDM QPSK	1	1	18.49	18.86	0-1.5	0.0

Table 10-101
NR Band n77 Antenna F Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	16.46	16.94	0	0.0
	1	137	16.41	16.67		0.0
	1	271	16.52	16.79		0.0
	135	0	16.47	16.73	0-1	0.0
	135	69	16.37	16.73	0	0.0
	135	138	16.30	16.84	0-1	0.0
	270	0	16.37	16.73		0.0
DFT-s-OFDM 16QAM	1	1	16.51	16.83	0-1	0.0
CP-OFDM QPSK	1	1	16.46	16.81	0-1.5	0.0

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Table 10-102
NR Band n77 Antenna C, I, D Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth		
Channel		
Antenna	650000 (3750 MHz)	662000 (3930 MHz)
	Conducted Power [dBm]	
SRS #2 Ant C	16.71	17.00
SRS #3 Ant I	17.70	18.87
SRS #4 Ant D	12.91	13.40

Table 10-103
NR Band n77 Antenna C, I, D Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth		
Channel		
Antenna	650000 (3750 MHz)	662000 (3930 MHz)
	Conducted Power [dBm]	
SRS #2 Ant C	20.05	20.55
SRS #3 Ant I	15.11	16.27
SRS #4 Ant D	10.34	10.85

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Table 10-104
NR Band n77 PC1.5 UL-MIMO Antenna F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	17.86	18.30	0	0.0
	1	137	17.51	18.13		0.0
	1	271	17.66	18.15		0.0
	135	0	17.90	18.23	0-1	0.0
	135	69	17.61	18.14	0	0.0
	135	138	17.61	18.16	0-1	0.0
	270	0	17.75	18.20		0.0
DFT-s-OFDM 16QAM	1	1	17.87	18.23	0-1	0.0
CP-OFDM QPSK	1	1	17.97	18.32	0-1.5	0.0

Table 10-105
NR Band n77 PC1.5 UL-MIMO Antenna F Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	16.06	16.23	0	0.0
	1	137	15.69	16.05		0.0
	1	271	15.78	16.06		0.0
	135	0	15.96	16.13	0-1	0.0
	135	69	15.69	16.06	0	0.0
	135	138	15.71	16.16	0-1	0.0
	270	0	15.79	16.14		0.0
DFT-s-OFDM 16QAM	1	1	16.09	16.23	0-1	0.0
CP-OFDM QPSK	1	1	16.06	16.30	0-1.5	0.0

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Table 10-106
NR Band n77 PC1.5 UL-MIMO Antenna C Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	17.20	17.52	0	0.0
	1	137	16.95	17.55		0.0
	1	271	17.05	17.67		0.0
	135	0	17.05	17.75	0-1	0.0
	135	69	17.12	17.71	0	0.0
	135	138	17.25	17.85	0-1	0.0
	270	0	17.07	17.65		0.0
DFT-s-OFDM 16QAM	1	1	17.15	17.50	0-1	0.0
CP-OFDM QPSK	1	1	17.25	17.80	0-1.5	0.0

Table 10-107
NR Band n77 PC1.5 UL-MIMO Antenna C Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	21.11	21.21	0	0.0
	1	137	20.79	21.21		0.0
	1	271	20.96	21.27		0.0
	135	0	21.08	21.26	0-1	0.0
	135	69	20.88	21.31	0	0.0
	135	138	20.84	21.33	0-1	0.0
	270	0	20.94	21.25		0.0
DFT-s-OFDM 16QAM	1	1	21.06	21.27	0-1	0.0
CP-OFDM QPSK	1	1	21.13	21.52	0-1.5	0.0

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Figure 10-4
Power Measurement Setup – NR FDD

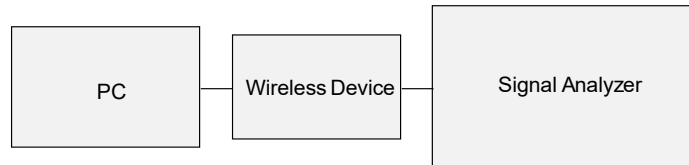


Figure 10-5
Power Measurement Setup – NR TDD

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10.5 NTN Band 255 Conducted Powers

Table 10-108
NTN Band b255 Antenna F Measured P_{Max} for DSI = 0 (Body-worn and Phablet) - 20 MHz Bandwidth

Rx Channel	Tx Channel	Frequency	# Tones	Tone Start	BPSK	QPSK
228737	261505	1626.6	1	0	22.34	22.45
			1	5	22.56	22.76
			1	11	22.07	22.05
			3	0	22.02	21.49
			3	3	22.28	21.52
			3	6	22.04	21.48
			6	0	22.25	21.43
			6	6	22.22	21.38
			12	0	22.19	21.44
228906	261674	1643.5	1	0	22.06	22.01
			1	5	22.53	22.53
			1	11	22	22.03
			3	0	22.01	21.99
			3	3	22.19	22.08
			3	6	22	21.98
			6	0	22.14	21.94
			6	6	22.16	22.06
			12	0	22.16	22.11
229075	261843	1660.4	1	0	22.03	22.03
			1	5	22.53	22.49
			1	11	22.11	22.02
			3	0	22.15	20.78
			3	3	22.05	20.80
			3	6	22.12	20.75
			6	0	22.19	20.76
			6	6	22.27	20.78
			12	0	22.11	20.74

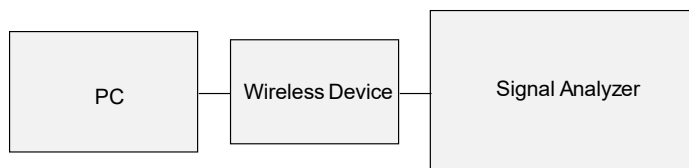


Figure 10-6
Power Measurement Setup – NTN

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10.6 WLAN Conducted Powers

Table 10-109
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant H

2.4GHz WIFI (20MHz 802.11b SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.88
2437	6		16.43
2462	11		16.80
2.4GHz WIFI (20MHz 802.11g SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.57
2437	6		16.82
2462	11		16.79
2.4GHz WIFI (20MHz 802.11n SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.62
2437	6		16.54
2462	11		16.79
2.4GHz WIFI (20MHz 802.11ac SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.52
2437	6		16.76
2462	11		16.71

2.4GHz WIFI (20MHz 802.11ax SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.75
2437	6		16.55
2462	11		16.97
2.4GHz WIFI (20MHz 802.11be SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.83
2437	6		16.58
2462	11		16.29

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Table 10-110
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant J

2.4GHz WIFI (20MHz 802.11b SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.82
2437	6		16.33
2462	11		16.62
2.4GHz WIFI (20MHz 802.11g SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.75
2437	6		16.82
2462	11		16.70
2.4GHz WIFI (20MHz 802.11n SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.73
2437	6		16.73
2462	11		16.62
2.4GHz WIFI (20MHz 802.11ac SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.83
2437	6		16.67
2462	11		16.67
2.4GHz WIFI (20MHz 802.11ax SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.79
2437	6		16.83
2462	11		16.65
2.4GHz WIFI (20MHz 802.11be SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.77
2437	6		16.78
2462	11		16.64

Table 10-111
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – MIMO

2.4GHz WIFI (20MHz 802.11g MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	16.47	16.21	19.35
2437	6		16.12	15.93	19.03
2462	11		16.51	16.01	19.28

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Table 10-112

2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – Ant H

2.4GHz WIFI (20MHz 802.11b SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	19.73
2437	6		19.51
2462	11		19.97
2.4GHz WIFI (20MHz 802.11g SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.54
2437	6		17.42
2462	11		17.40
2.4GHz WIFI (20MHz 802.11n SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.65
2437	6		17.53
2462	11		17.43
2.4GHz WIFI (20MHz 802.11ac SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.09
2437	6		17.53
2462	11		17.43
2.4GHz WIFI (20MHz 802.11ax SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.49
2437	6		17.41
2462	11		17.90
2.4GHz WIFI (20MHz 802.11be SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.52
2437	6		17.40
2462	11		17.36

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Table 10-113

2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – Ant J

2.4GHz WIFI (20MHz 802.11b SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	19.55
2437	6		19.45
2462	11		19.53
2.4GHz WIFI (20MHz 802.11g SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.35
2437	6		17.46
2462	11		17.08
2.4GHz WIFI (20MHz 802.11n SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.48
2437	6		17.48
2462	11		17.04
2.4GHz WIFI (20MHz 802.11ac SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.40
2437	6		17.55
2462	11		17.05
2.4GHz WIFI (20MHz 802.11ax SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.36
2437	6		17.34
2462	11		17.46
2.4GHz WIFI (20MHz 802.11be SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.33
2437	6		17.33
2462	11		17.43

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Table 10-114
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – MIMO

2.4GHz WIFI (20MHz 802.11g MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	17.96	17.77	20.88
2437	6		17.51	17.73	20.63
2462	11		17.74	17.82	20.79

Table 10-115
5 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet), DSI = 1 (Head) – Ant H

5GHz WIFI (80MHz 802.11ac SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.53
UNII-2A	5290	58	15.95
UNII-2C	5530	106	13.87
	5610	122	16.00
	5690	138	15.59
UNII-3	5775	155	15.66
UNII-4	5885	171	15.89
5GHz WIFI (80MHz 802.11ax SISO ANTH)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	14.51
UNII-2A	5290	58	14.48
UNII-2C	5530	106	12.51
	5610	122	15.78
	5690	138	15.93
UNII-3	5775	155	15.96
UNII-4	5885	171	15.67
5GHz WIFI (80MHz 802.11be SISO ANTH)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	14.53
UNII-2A	5290	58	14.89
UNII-2C	5530	106	12.53
	5610	122	15.86
	5690	138	15.97
UNII-3	5775	155	15.45
UNII-4	5885	171	15.67

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Table 10-116
5 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet), DSI = 1 (Head) – Ant E

5GHz WIFI (80MHz 802.11ac SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.79
UNII-2A	5290	58	15.60
UNII-2C	5530	106	14.09
	5610	122	15.65
	5690	138	15.96
UNII-3	5775	155	15.69
UNII-4	5885	171	15.97
5GHz WIFI (80MHz 802.11ax SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.10
UNII-2A	5290	58	15.07
UNII-2C	5530	106	13.20
	5610	122	15.75
	5690	138	15.82
UNII-3	5775	155	15.77
UNII-4	5885	171	15.94
5GHz WIFI (80MHz 802.11be SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.09
UNII-2A	5290	58	15.10
UNII-2C	5530	106	13.25
	5610	122	15.81
	5690	138	15.81
UNII-3	5775	155	15.81
UNII-4	5885	171	15.98

Table 10-117
5 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet), DSI = 1 (Head) – MIMO

5GHz WIFI (80MHz 802.11ac MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5210	42	15.56	15.52	18.55
UNII-2A	5290	58	15.98	15.45	18.73
UNII-2C	5530	106	13.70	14.32	17.03
	5610	122	15.99	15.99	19.00
	5690	138	15.60	15.73	18.68
UNII-3	5775	155	15.20	15.61	18.42
UNII-4	5885	171	15.38	15.87	18.64

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Table 10-118
6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn or Phablet) – Ant H

6GHz WIFI (160MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	6025	15	8.81
	6345	79	8.73
UNII-6	6505	111	8.88
UNII-7	6825	175	8.83
UNII-8	6985	207	8.89
6GHz WIFI (160MHz 802.11be SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	6025	15	8.43
	6345	79	8.31
UNII-6	6505	111	8.37
UNII-7	6825	175	8.66
UNII-8	6985	207	8.51

Table 10-119
6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn or Phablet) – Ant E

6GHz WIFI (160MHz 802.11ax SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	6025	15	8.93
	6345	79	8.51
UNII-6	6505	111	8.90
UNII-7	6825	175	8.91
UNII-8	6985	207	8.68
6GHz WIFI (160MHz 802.11be SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	6025	15	8.79
	6185	47	9.26
	6345	79	9.07
UNII-6	6505	111	9.65
UNII-7	6665	143	9.11
	6825	175	9.72
UNII-8	6985	207	9.96

Table 10-120
6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn or Phablet) – MIMO

6GHz WIFI (160MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	6025	15	8.70	8.56	11.64
	6345	79	8.60	8.59	11.61
UNII-6	6505	111	8.49	8.72	11.62
UNII-7	6825	175	8.02	8.98	11.54
UNII-8	6985	207	8.29	8.81	11.57

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Table 10-121

6 GHz WLAN Measured P_{max} Average RF Power for DSI = 1 (Head) – Ant H

6GHz WIFI (40MHz 802.11ax SISO ANT H)				6GHz WIFI (80MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]	Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5965	3	16.99	UNII-6	6465	103	15.89
	6285	67	16.54		7025	215	15.24
UNII-7	6685	147	16.92	6GHz WIFI (80MHz 802.11be SISO ANT H)			
6GHz WIFI (40MHz 802.11be SISO ANT H)				Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]	UNII-6	6465	103	15.66
UNII-5	5965	3	16.56		7025	215	15.26
UNII-5	6285	67	16.93				
	6685	147	16.71				

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Table 10-122

6 GHz WLAN Measured P_{max} Average RF Power for DSI = 1 (Head) – Ant E

6GHz WIFI (40MHz 802.11ax SISO ANT E)				6GHz WIFI (80MHz 802.11ax SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]	Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5965	3	16.99	UNII-6	6465	103	15.50
	6285	67	16.98		7025	215	15.00
UNII-7	6685	147	16.89	6GHz WIFI (80MHz 802.11be SISO ANT E)			
6GHz WIFI (40MHz 802.11be SISO ANT E)				Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]	UNII-6	6465	103	15.47
UNII-5	5965	3	16.69		7025	215	15.08
	6285	67	16.83				
UNII-7	6685	147	16.65				

Table 10-123

6 GHz WLAN Measured P_{max} Average RF Power for DSI = 1 (Head) – MIMO

6GHz WIFI (40MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	5965	3	16.86	16.65	19.77
	6285	67	16.59	15.95	19.29
UNII-7	6685	147	16.90	16.60	19.76
6GHz WIFI (80MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-6	6465	103	15.41	15.79	18.61
UNII-8	7025	215	14.84	15.20	18.03

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.

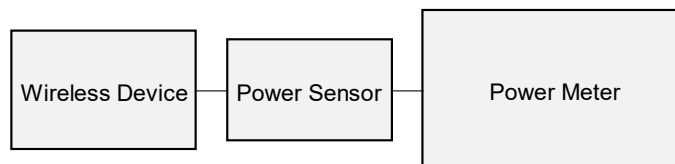


Figure 10-7
Power Measurement Setup

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10.7 Bluetooth Conducted Powers

Table 10-124
Bluetooth Measured P_{max} Average RF Power for all DSI – Ant H

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	17.10	51.227
2441	1.0	GFSK	ePA	39	18.64	73.182
2480	1.0	GFSK	ePA	78	17.75	59.574
2402	2.0	$\pi/4$ -DQPSK	ePA	0	13.79	23.920
2441	2.0	$\pi/4$ -DQPSK	ePA	39	15.71	37.238
2480	2.0	$\pi/4$ -DQPSK	ePA	78	14.88	30.780
2402	3.0	8DPSK	ePA	0	14.25	26.620
2441	3.0	8DPSK	ePA	39	15.83	38.255
2480	3.0	8DPSK	ePA	78	14.71	29.592

Table 10-125
Bluetooth Measured P_{max} Average RF Power for all DSI – Ant J

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	18.09	64.408
2441	1.0	GFSK	ePA	39	18.68	73.723
2480	1.0	GFSK	ePA	78	17.74	59.425
2402	2.0	$\pi/4$ -DQPSK	ePA	0	15.06	32.055
2441	2.0	$\pi/4$ -DQPSK	ePA	39	15.58	36.126
2480	2.0	$\pi/4$ -DQPSK	ePA	78	14.46	27.954
2402	3.0	8DPSK	ePA	0	15.14	32.695
2441	3.0	8DPSK	ePA	39	15.55	35.917
2480	3.0	8DPSK	ePA	78	14.54	28.467

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Table 10-126
Bluetooth Measured P_{max} Average RF Power for all DSI – MIMO

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	ANT1 Avg Conducted Power		ANT1 Target [dBm]	ANT2 Avg Conducted Power		ANT2 Target [dBm]	Dual Avg Conducted Power	
					[dBm]	[mW]		[dBm]	[mW]		[dBm]	[mW]
2402	1.0	GFSK	iPA	0	13.82	24.099	14.500	13.64	23.121	14.500	16.74	47.220
2441	1.0	GFSK	iPA	39	15.14	32.659	14.500	15.39	34.594	14.500	18.28	67.253
2480	1.0	GFSK	iPA	78	14.77	29.992	14.500	14.82	30.339	14.500	17.81	60.331
2402	2.0	$\pi/4$ -DQPSK	iPA	0	11.21	13.213	11.500	11.49	14.093	11.500	14.36	27.306
2441	2.0	$\pi/4$ -DQPSK	iPA	39	12.35	17.179	11.500	12.37	17.258	11.500	15.37	34.437
2480	2.0	$\pi/4$ -DQPSK	iPA	78	11.48	14.060	11.500	11.53	14.223	11.500	14.52	28.284
2402	3.0	8DPSK	iPA	0	11.28	13.428	11.500	11.31	13.521	11.500	14.31	26.948
2441	3.0	8DPSK	iPA	39	12.42	17.458	11.500	12.41	17.418	11.500	15.43	34.876
2480	3.0	8DPSK	iPA	78	11.82	15.205	11.500	11.55	14.289	11.500	14.70	29.494

Table 10-127
Bluetooth LE Measured P_{max} Average RF Power for all DSI – Ant H

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Peak Conducted Power	
				[dBm]	[mW]
2402	125 kbps	0	LE	11.28	13.428
2440	125 kbps	19	LE	12.60	18.197
2480	125 kbps	39	LE	11.73	14.894
2402	500 kbps	0	LE	11.32	13.552
2440	500 kbps	19	LE	12.63	18.323
2480	500 kbps	39	LE	11.79	15.101
2402	1 Mbps	0	LE	19.25	84.140
2440	1 Mbps	19	LE	19.94	98.628
2480	1 Mbps	39	LE	19.16	82.414
2402	2 Mbps	0	LE	19.19	82.985
2440	2 Mbps	19	LE	20.08	101.859
2480	2 Mbps	39	LE	19.42	87.498

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Table 10-128
Bluetooth LE Measured P_{max} Average RF Power for all DSI – Ant J

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Peak Conducted Power	
				[dBm]	[mW]
2402	125 kbps	0	LE	9.75	9.441
2440	125 kbps	19	LE	10.34	10.814
2480	125 kbps	39	LE	9.67	9.268
2402	500 kbps	0	LE	9.88	9.727
2440	500 kbps	19	LE	10.37	10.889
2480	500 kbps	39	LE	9.72	9.376
2402	1 Mbps	0	LE	18.77	75.336
2440	1 Mbps	19	LE	19.37	86.497
2480	1 Mbps	39	LE	18.32	67.920
2402	2 Mbps	0	LE	18.66	73.451
2440	2 Mbps	19	LE	19.27	84.528
2480	2 Mbps	39	LE	18.47	70.307

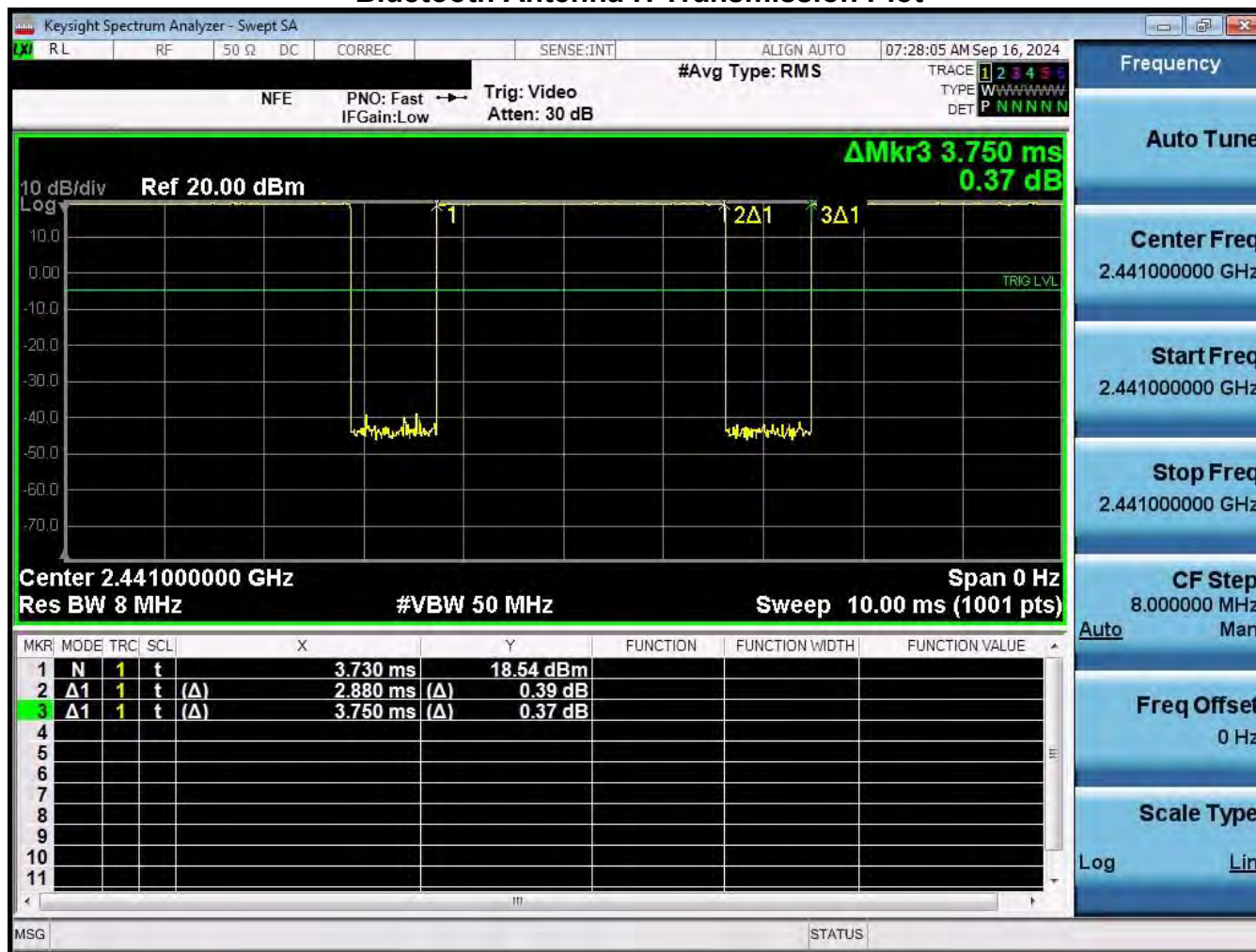
Table 10-129
Bluetooth LE Measured P_{max} Average RF Power for all DSI – MIMO

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Bluetooth Mode	ANT1 Peak Conducted Power		ANT2 Peak Conducted Power		Dual Peak Conducted Power	
						[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]
2402	1 Mbps	GFSK	ePA	0	LE	14.35	27.227	13.72	23.550	17.06	50.778
2440	1 Mbps	GFSK	ePA	19	LE	15.44	34.995	13.92	24.660	17.76	59.655
2480	1 Mbps	GFSK	ePA	39	LE	15.39	34.594	13.61	22.961	17.60	57.555
2402	2 Mbps	GFSK	iPA	0	LE	14.46	27.925	13.99	25.061	17.24	52.987
2440	2 Mbps	GFSK	iPA	19	LE	15.43	34.914	14.09	25.645	17.82	60.559
2480	2 Mbps	GFSK	iPA	39	LE	15.48	35.318	14.00	25.119	17.81	60.437

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Figure 10-8
Bluetooth Antenna H Transmission Plot



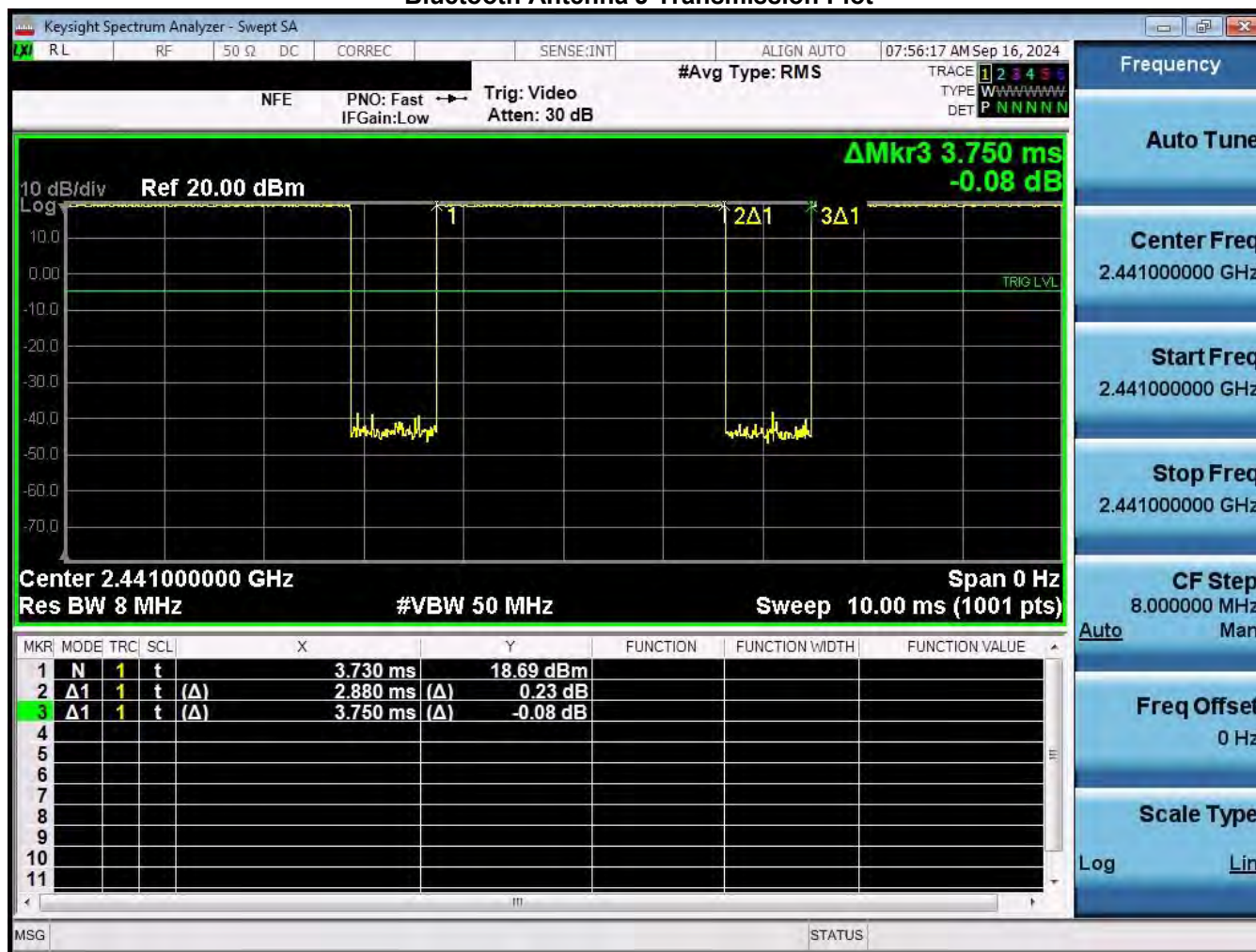
Equation 10-1

Bluetooth Antenna H Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.88\text{ms}}{3.75\text{ms}} * 100\% = 76.8\%$$

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Figure 10-9
Bluetooth Antenna J Transmission Plot



Equation 10-2

Bluetooth Antenna J Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.88\text{ms}}{3.75\text{ms}} * 100\% = 76.8\%$$

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Figure 10-10
Bluetooth MIMO Transmission Plot



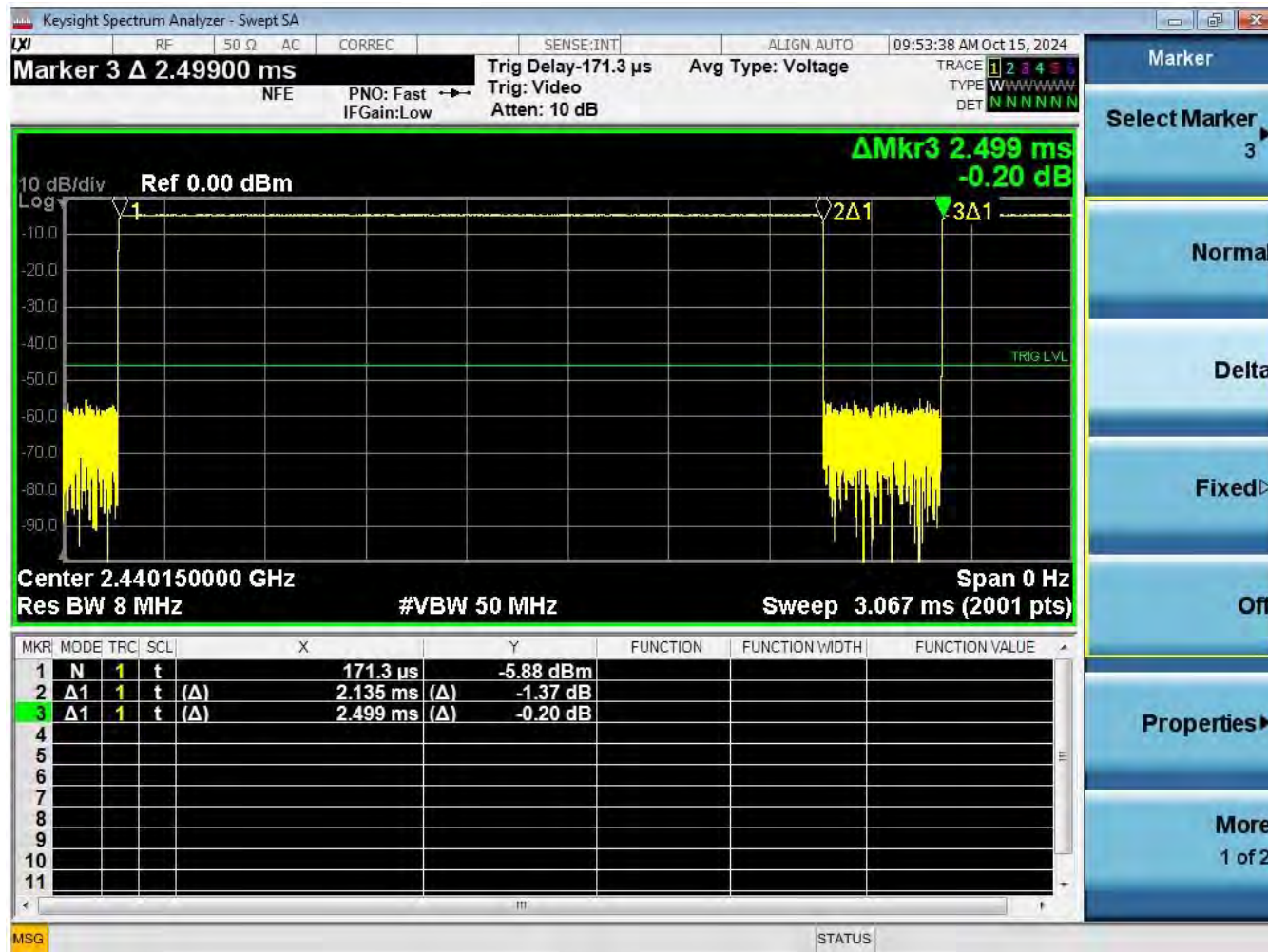
Equation 10-3
Bluetooth MIMO Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.890\text{ms}}{3.750\text{ms}} * 100\% = 77.07\%$$

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Figure 10-12
Bluetooth LE Antenna J Transmission Plot



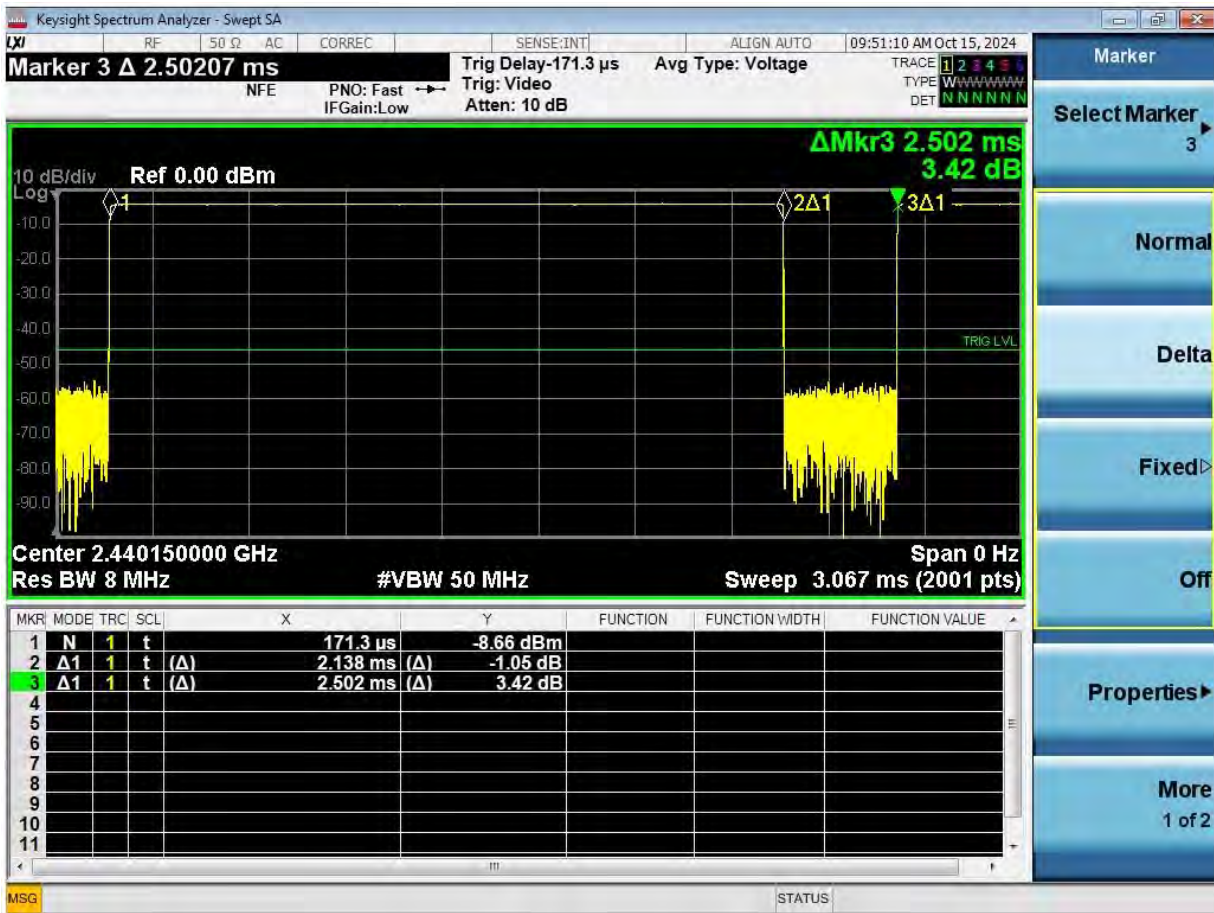
Equation 10-5

Bluetooth LE Antenna J Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.135ms}{2.499ms} * 100\% = 85.43\%$$

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Figure 10-13
Bluetooth LE MIMO Transmission Plot



Equation 10-6
Bluetooth LE MIMO Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.138\text{ms}}{2.502\text{ms}} * 100\% = 85.45\%$$

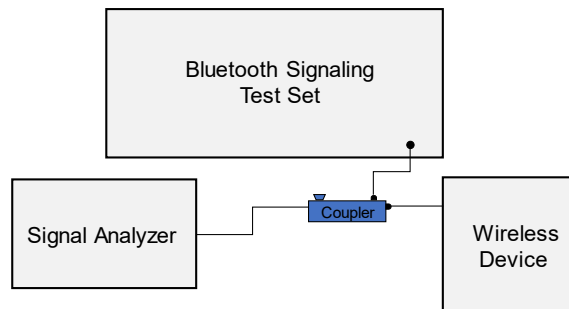


Figure 10-14
Power Measurement Setup

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11 SYSTEM VERIFICATION

11.1 Tissue Verification

Table 11-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
10/02/2024	30 Head	24.8	4	0.716	57.318	0.750	55.000	-4.53%	4.21%
			6	0.716	55.954	0.750	55.000	-4.53%	1.73%
			12	0.717	53.496	0.750	55.000	-4.40%	-2.79%
			13	0.717	53.354	0.750	55.000	-4.40%	-2.99%
			14	0.717	53.297	0.750	55.000	-4.40%	-3.10%
			30	0.719	52.625	0.750	55.000	-4.13%	-4.32%
			60	0.722	52.049	0.753	54.325	-4.12%	-4.19%
			65	0.723	51.921	0.753	54.213	-3.98%	-4.23%
			150	0.751	50.187	0.760	52.300	-1.18%	-4.04%
			680	0.876	40.503	0.888	42.305	-1.35%	-4.26%
09/18/2024	750 Head	21.6	695	0.882	40.469	0.889	42.227	-0.79%	-4.16%
			700	0.883	40.456	0.889	42.201	-0.67%	-4.13%
			710	0.887	40.430	0.890	42.149	-0.34%	-4.08%
			725	0.892	40.383	0.891	42.071	0.11%	-4.01%
			750	0.900	40.305	0.894	41.942	0.67%	-3.90%
			770	0.907	40.255	0.895	41.838	1.34%	-3.78%
			785	0.912	40.222	0.896	41.760	1.79%	-3.68%
			800	0.917	40.184	0.897	41.682	2.23%	-3.59%
			680	0.876	41.388	0.888	42.305	-1.35%	-2.17%
			695	0.881	41.322	0.889	42.227	-0.90%	-2.14%
09/22/2024	750 Head	22.3	710	0.886	41.294	0.890	42.149	-0.45%	-2.10%
			725	0.892	41.214	0.891	42.071	0.11%	-2.04%
			750	0.901	41.163	0.894	41.942	0.78%	-1.86%
			770	0.908	41.116	0.895	41.838	1.45%	-1.73%
			785	0.913	41.057	0.896	41.760	1.90%	-1.69%
			800	0.918	40.986	0.897	41.682	2.34%	-1.67%
			680	0.870	42.019	0.888	42.305	-2.03%	-0.68%
			695	0.875	41.972	0.889	42.227	-1.57%	-0.60%
			700	0.877	41.959	0.889	42.201	-1.35%	-0.57%
			710	0.880	41.929	0.890	42.149	-1.12%	-0.52%
09/23/2024	750 Head	20.6	725	0.886	41.883	0.891	42.071	-0.56%	-0.45%
			750	0.895	41.804	0.894	41.942	0.11%	-0.33%
			770	0.903	41.746	0.895	41.838	0.89%	-0.22%
			785	0.908	41.702	0.896	41.760	1.34%	-0.14%
			800	0.914	41.653	0.897	41.682	1.90%	-0.07%
			680	0.852	43.772	0.888	42.305	-4.05%	3.47%
			695	0.865	43.572	0.889	42.227	-2.70%	3.19%
			700	0.870	43.507	0.889	42.201	-2.14%	3.09%
			710	0.875	43.379	0.890	42.149	-1.24%	2.92%
			725	0.892	43.177	0.891	42.071	0.11%	2.63%
10/02/2024	750 Head	24.7	750	0.915	42.856	0.894	41.942	2.35%	2.18%
			770	0.933	42.612	0.895	41.838	4.25%	1.85%
			680	0.882	41.072	0.888	42.305	-0.68%	-2.91%
			695	0.887	41.028	0.889	42.227	-0.22%	-2.84%
			710	0.892	40.982	0.890	42.149	0.22%	-2.77%
			725	0.897	40.934	0.891	42.071	0.67%	-2.70%
			750	0.905	40.858	0.894	41.942	1.34%	-2.58%
			770	0.912	40.794	0.895	41.838	1.90%	-2.50%
			785	0.917	40.743	0.896	41.760	2.34%	-2.44%
			800	0.922	40.700	0.897	41.682	2.79%	-2.36%
10/07/2024	750 Head	22.8	680	0.880	40.216	0.888	42.305	-0.86%	-4.94%
			695	0.885	40.163	0.889	42.227	-0.44%	-4.89%
			700	0.887	40.143	0.889	42.201	-0.26%	-4.88%
			710	0.890	40.104	0.890	42.149	0.03%	-4.85%
			725	0.896	40.050	0.891	42.071	0.54%	-4.80%
			750	0.905	39.974	0.894	41.942	1.22%	-4.69%
			770	0.912	39.911	0.895	41.838	1.90%	-4.61%
			785	0.917	39.856	0.896	41.760	2.35%	-4.56%
			800	0.922	39.798	0.897	41.682	2.81%	-4.52%
			680	0.855	40.863	0.888	42.305	-3.72%	-3.41%
09/25/2024	750 Head	22.1	695	0.860	40.814	0.889	42.227	-3.26%	-3.35%
			710	0.866	40.752	0.890	42.149	-2.70%	-3.31%
			725	0.871	40.705	0.891	42.071	-2.24%	-3.25%
			750	0.879	40.636	0.894	41.942	-1.68%	-3.11%
			770	0.887	40.578	0.895	41.838	-0.89%	-3.01%
			785	0.892	40.529	0.896	41.760	-0.45%	-2.95%
			800	0.898	40.488	0.897	41.682	0.11%	-2.91%
			815	0.924	40.144	0.898	41.594	2.90%	-3.49%
			820	0.926	40.129	0.899	41.578	3.00%	-3.49%
			835	0.931	40.085	0.900	41.500	3.44%	-3.41%
10/24/2024	750 Head	19.0	850	0.936	40.037	0.916	41.500	2.18%	-3.53%
			815	0.911	41.774	0.898	41.594	1.45%	0.43%
			820	0.913	41.757	0.899	41.578	1.56%	0.43%
			835	0.918	41.718	0.900	41.500	2.00%	0.53%
			850	0.923	41.668	0.916	41.500	0.76%	0.40%
			815	0.924	40.919	0.898	41.594	2.90%	-1.62%
			820	0.926	40.902	0.899	41.578	3.00%	-1.63%
			835	0.932	40.862	0.900	41.500	3.56%	-1.54%
			850	0.939	40.835	0.916	41.500	2.51%	-1.60%
			815	0.919	41.593	0.898	41.594	2.34%	0.00%
09/18/2024	835 Head	21.6	820	0.921	41.571	0.899	41.578	2.45%	-0.02%
			835	0.927	41.508	0.900	41.500	3.00%	0.02%
			850	0.933	41.461	0.916	41.500	1.86%	-0.09%
			815	0.871	42.808	0.898	41.594	-3.01%	2.91%
			820	0.874	42.788	0.899	41.578	-2.78%	2.91%
			835	0.880	42.680	0.900	41.500	-2.22%	2.84%
			850	0.883	42.614	0.916	41.500	-3.60%	2.68%
			815	0.927	39.745	0.898	41.594	3.24%	-4.45%
			820	0.929	39.732	0.899	41.578	3.31%	-4.44%
			835	0.934	39.700	0.900	41.500	3.79%	-4.34%
09/23/2024	835 Head	20.7	850	0.940	39.665	0.916	41.500	2.59%	-4.42%
			815	0.927	41.571	0.899	41.578	2.45%	-0.02%
			820	0.929	41.553	0.899	41.578	2.45%	-0.02%
			835	0.933	41.461	0.916	41.500	1.86%	-0.09%
			815	0.871	42.808	0.898	41.594	-3.01%	2.91%
			820	0.874	42.788	0.899	41.578	-2.78%	2.91%
			835	0.880	42.680	0.900	41.500	-2.22%	2.84%
			850	0.883	42.614	0.916	41.500	-3.60%	2.68%
			815	0.927	39.745	0.898	41.594	3.24%	-4.45%
			820	0.929	39.732	0.899	41.578	3.31%	-4.44%
09/25/2024	835 Head	22.1	835	0.934	39.700	0.900	41.500	3.79%	-4.34%
			850	0.940	39.665	0.916	41.500	2.59%	-4.42%

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Table 11-2
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% div σ	% div ϵ
10/14/2024	1640 Head	21.8	1610	1.228	40.587	1.290	40.300	-4.81%	0.71%
			1620	1.233	40.570	1.296	40.284	-4.86%	0.71%
			1640	1.244	40.542	1.307	40.253	-4.82%	0.72%
			1650	1.249	40.526	1.313	40.237	-4.87%	0.72%
09/16/2024	1750 Head	21.8	1700	1.333	40.502	1.343	40.145	-0.74%	0.89%
			1705	1.336	40.490	1.345	40.141	-0.67%	0.87%
			1710	1.340	40.479	1.348	40.136	-0.59%	0.85%
			1720	1.342	40.458	1.354	40.126	-0.59%	0.85%
			1745	1.361	40.411	1.368	40.087	-0.51%	0.82%
			1750	1.364	40.401	1.371	40.079	-0.51%	0.80%
			1770	1.374	40.365	1.383	40.047	-0.65%	0.79%
			1790	1.385	40.332	1.394	40.016	-0.65%	0.80%
09/18/2024	1750 Head	23.0	1700	1.318	40.394	1.343	40.145	-1.86%	0.62%
			1705	1.320	40.386	1.345	40.141	-1.86%	0.61%
			1710	1.323	40.378	1.348	40.136	-1.85%	0.60%
			1720	1.325	40.358	1.354	40.126	-1.85%	0.58%
			1745	1.343	40.318	1.368	40.087	-1.83%	0.58%
			1750	1.346	40.311	1.371	40.079	-1.82%	0.58%
			1770	1.358	40.285	1.383	40.047	-1.81%	0.59%
			1790	1.369	40.258	1.394	40.016	-1.79%	0.60%
09/18/2024	1750 Head	23.0	1700	1.318	40.394	1.343	40.145	-1.86%	0.62%
			1705	1.320	40.386	1.345	40.141	-1.86%	0.61%
			1710	1.323	40.378	1.348	40.136	-1.85%	0.60%
			1720	1.325	40.358	1.354	40.126	-1.85%	0.58%
			1745	1.343	40.318	1.368	40.087	-1.83%	0.58%
			1750	1.346	40.311	1.371	40.079	-1.82%	0.58%
			1770	1.358	40.285	1.383	40.047	-1.81%	0.59%
			1790	1.369	40.258	1.394	40.016	-1.79%	0.60%
09/19/2024	1750 Head	21.0	1700	1.328	40.157	1.348	40.136	-1.48%	0.05%
			1720	1.335	40.142	1.354	40.126	-1.42%	0.04%
			1745	1.352	40.101	1.368	40.087	-1.17%	0.03%
			1750	1.355	40.091	1.371	40.079	-1.17%	0.03%
			1770	1.367	40.060	1.383	40.047	-1.16%	0.03%
			1790	1.378	40.025	1.394	40.016	-1.15%	0.02%
			1700	1.320	40.327	1.343	40.145	-1.71%	0.45%
			1705	1.323	40.319	1.345	40.141	-1.64%	0.44%
09/26/2024	1750 Head	19.1	1710	1.325	40.308	1.348	40.136	-1.63%	0.42%
			1720	1.332	40.287	1.354	40.126	-1.62%	0.40%
			1745	1.348	40.244	1.368	40.087	-1.46%	0.39%
			1750	1.351	40.235	1.371	40.079	-1.46%	0.39%
			1770	1.363	40.193	1.383	40.047	-1.45%	0.38%
			1790	1.376	40.156	1.394	40.016	-1.29%	0.35%
			1700	1.334	38.989	1.343	40.145	-0.67%	-2.88%
			1705	1.336	38.981	1.345	40.141	-0.67%	-2.89%
09/18/2024	1750 Head	23.2	1710	1.335	38.875	1.348	40.136	-0.67%	-2.89%
			1720	1.345	38.861	1.354	40.126	-0.66%	-2.90%
			1745	1.357	38.824	1.368	40.087	-0.80%	-2.90%
			1750	1.360	38.815	1.371	40.079	-0.80%	-2.90%
			1770	1.370	38.867	1.383	40.047	-0.94%	-2.95%
			1790	1.381	38.822	1.394	40.016	-0.93%	-2.98%
			1700	1.293	39.760	1.343	40.145	-3.72%	-0.96%
			1705	1.296	39.756	1.345	40.141	-3.64%	-0.95%
09/20/2024	1750 Head	20.3	1710	1.299	39.732	1.348	40.136	-3.64%	-0.95%
			1720	1.305	39.740	1.354	40.126	-3.62%	-0.96%
			1745	1.321	39.699	1.368	40.087	-3.44%	-0.97%
			1750	1.324	39.689	1.371	40.079	-3.43%	-0.97%
			1770	1.337	39.656	1.383	40.047	-3.35%	-0.98%
			1790	1.349	39.626	1.394	40.016	-3.23%	-0.97%
			1850	1.394	39.636	1.400	40.000	-0.43%	-0.16%
			1860	1.400	39.525	1.400	40.000	0.00%	-0.19%
09/11/2024	1900 Head	19.0	1880	1.413	39.897	1.400	40.000	0.93%	-0.22%
			1900	1.425	39.882	1.400	40.000	1.78%	-0.30%
			1905	1.428	39.874	1.400	40.000	2.00%	-0.31%
			1910	1.432	39.867	1.400	40.000	2.29%	-0.33%
			1920	1.438	39.852	1.400	40.000	2.71%	-0.37%
			1950	1.450	40.724	1.400	40.000	0.02%	1.81%
			1980	1.407	40.713	1.400	40.000	0.50%	1.79%
			1880	1.419	40.695	1.400	40.000	1.36%	1.74%
09/13/2024	1900 Head	21.5	1900	1.431	40.674	1.400	40.000	2.21%	1.69%
			1920	1.434	40.668	1.400	40.000	2.43%	1.67%
			1910	1.437	40.662	1.400	40.000	2.64%	1.66%
			1920	1.444	40.648	1.400	40.000	3.14%	1.62%
			1850	1.422	40.236	1.400	40.000	1.57%	0.59%
			1860	1.427	40.214	1.400	40.000	1.93%	0.52%
			1880	1.438	40.183	1.400	40.000	2.71%	0.48%
			1900	1.448	40.166	1.400	40.000	3.43%	0.41%
09/16/2024	1900 Head	21.8	1905	1.451	40.163	1.400	40.000	3.64%	0.41%
			1910	1.454	40.160	1.400	40.000	3.86%	0.40%
			1920	1.460	40.153	1.400	40.000	4.29%	0.38%
			1850	1.413	38.751	1.400	40.000	0.93%	-3.12%
			1860	1.418	38.735	1.400	40.000	1.29%	-3.16%
			1880	1.429	38.703	1.400	40.000	2.07%	-3.24%
			1900	1.442	38.681	1.400	40.000	3.02%	-3.30%
			1905	1.445	38.679	1.400	40.000	3.21%	-3.30%
09/18/2024	1900 Head	23.2	1910	1.446	38.678	1.400	40.000	3.43%	-3.31%
			1920	1.455	38.677	1.400	40.000	3.93%	-3.31%
			1850	1.414	40.026	1.400	40.000	1.00%	0.09%
			1860	1.420	40.017	1.400	40.000	1.43%	0.04%
			1880	1.432	39.986	1.400	40.000	2.59%	-0.03%
			1900	1.445	39.959	1.400	40.000	3.21%	-0.10%
			1905	1.448	39.952	1.400	40.000	3.43%	-0.12%
			1910	1.452	39.945	1.400	40.000	3.71%	-0.14%
09/26/2024	1900 Head	19.1	1920	1.458	39.929	1.400	40.000	4.14%	-0.18%
			1850	1.400	39.610	1.400	40.000	0.00%	-0.98%
			1860	1.405	39.591	1.400	40.000	0.36%	-1.02%
			1880	1.417	39.557	1.400	40.000	1.21%	-1.11%
			1900	1.429	39.523	1.400	40.000	2.07%	-1.19%
			1905	1.432	39.516	1.400	40.000	2.29%	-1.21%
			1910	1.435	39.508	1.400	40.000	2.50%	-1.22%
			1920	1.441	39.492	1.400	40.000	2.93%	-1.27%
10/02/2024	1900 Head	19.3	1850	1.414	39.230	1.400	40.000	1.00%	-1.93%
			1860	1.420	39.214	1.400	40.000	1.43%	-1.97%
			1880	1.432	39.186	1.400	40.000	2.29%	-2.04%
			1900	1.445	39.165	1.400	40.000	3.21%	-2.09%
			1905	1.448	39.160	1.400	40.000	3.43%	-2.10%
			1910	1.451	39.156	1.400	40.000	3.64%	-2.11%
			1920	1.458	39.145	1.400	40.000	4.14%	-2.14%
			1850	1.384	39.508	1.400	40.000	-1.14%	-1.25%
09/20/2024	1900 Head	20.3	1860	1.390	39.485	1.400	40.000	-0.71%	-1.29%
			1880	1.403	39.441	1.400	40.000	0.21%	-1.40%
			1900	1.416	39.409	1.400	40.000	1.14%	-1.48%
			1905	1.419	39.403	1.400	40.000	1.36%	-1.49%
			1910	1.422	39.397	1.400	40.000	1.57%	-1.51%
			1920	1.428	39.383	1.400	40.000	2.00%	-1.54%

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Table 11-3
Measured Head Tissue Properties

Calibrated for Tissue Performance on:	Tissue Type	Time Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity σ (B/m)	Measured Dielectric Constant, ε	TARGET Conductivity σ (B/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
09/11/2024	2400 Head	20.7	2110	1.605	18.371	1.679	18.325	-1.05%	-2.62%
			2220	1.705	18.240	1.687	18.460	0.65%	-2.82%
			2400	1.755	18.255	1.700	18.300	-0.30%	-0.30%
			2450	1.760	18.100	1.680	18.200	-0.44%	-2.03%
			2500	1.810	18.120	1.820	18.162	-0.05%	-0.26%
			2550	1.820	18.100	1.800	18.100	-0.24%	-0.26%
			2600	1.800	18.050	1.800	18.120	-0.40%	-0.38%
			2625	1.805	18.050	1.805	18.062	-1.00%	-0.00%
			2650	1.875	18.050	1.880	18.075	-1.62%	-0.00%
			2680	1.880	18.050	1.880	18.080	-1.07%	-0.00%
			2690	1.910	17.987	1.904	18.000	-2.44%	-2.70%
			2695	1.905	17.994	2.010	18.000	-3.02%	-2.70%
09/13/2024	2400 Head	21.3	2110	1.600	17.917	2.001	18.007	-3.80%	-0.00%
			2220	1.695	18.127	1.610	18.000	1.00%	-0.00%
			2310	1.695	18.227	1.670	18.400	0.99%	-2.30%
			2350	1.700	18.170	1.687	18.400	0.99%	-2.60%
			2400	1.700	18.100	1.700	18.200	0.17%	-0.00%
			2450	1.700	18.110	1.680	18.200	-0.24%	-0.17%
			2490	1.810	18.073	1.833	18.162	-0.82%	-2.78%
			2510	1.825	18.050	1.800	18.120	-1.44%	-0.70%
			2535	1.850	18.000	1.800	18.000	-1.00%	-2.70%
			2550	1.875	17.990	1.800	18.073	-1.44%	-2.70%
			2560	1.880	17.971	1.820	18.000	-2.00%	-2.70%
			2600	1.910	17.994	1.900	18.000	-0.00%	-0.00%
09/18/2024	2400 Head	21.8	2110	1.600	17.770	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%
09/19/2024	2400 Head	21.8	2110	1.600	17.900	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%
09/25/2024	2400 Head	24.0	2110	1.600	17.900	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%
09/30/2024	2400 Head	24.0	2110	1.600	17.900	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%
10/02/2024	2400 Head	24.0	2110	1.600	17.900	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%
10/06/2024	2400 Head	21.0	2110	1.600	17.900	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%
10/14/2024	2400 Head	20.0	2110	1.600	17.900	2.001	18.007	-3.82%	-0.00%
			2220	1.695	18.400	1.670	18.500	0.79%	-2.50%
			2310	1.690	18.400	1.670	18.400	0.00%	-0.00%
			2350	1.700	18.471	1.687	18.400	1.13%	-0.01%
			2400	1.700	18.400	1.700	18.200	-0.00%	-0.00%
			2450	1.800	17.900	1.800	18.000	-0.00%	-0.00%
			2490	1.810	17.907	1.833	18.162	-2.00%	-3.00%
			2510	1.810	17.920	1.800	18.120	-2.00%	-3.00%
			2535	1.850	17.900	1.800	18.073	-2.00%	-3.00%
			2550	1.875	17.900	1.800	18.000	-2.00%	-3.00%
			2560	1.880	17.900	1.820	18.000	-2.00%	-3.00%
			2600	1.910	17.920	1.900	18.000	-0.00%	-0.00%

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Table 11-4
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
09/16/2024	3600 Head	19.3	3300	2.589	38.361	2.708	38.157	-4.39%	0.53%
			3350	2.631	38.313	2.759	38.100	-4.64%	0.56%
			3450	2.725	38.119	2.861	37.986	-4.72%	0.35%
			3500	2.768	38.008	2.913	37.929	-4.98%	0.21%
			3550	2.817	37.924	2.964	37.871	-4.96%	0.14%
			3600	2.869	37.835	3.015	37.814	-4.84%	0.06%
			3650	2.915	37.760	3.066	37.757	-4.92%	0.01%
			3690	2.955	37.678	3.107	37.711	-4.89%	-0.09%
			3700	2.965	37.663	3.117	37.700	-4.88%	-0.10%
			3750	3.015	37.604	3.169	37.643	-4.86%	-0.10%
			3900	3.164	37.303	3.323	37.471	-4.78%	-0.45%
			3930	3.197	37.260	3.353	37.437	-4.65%	-0.47%
			4100	3.366	36.965	3.528	37.243	-4.59%	-0.75%
			4150	3.429	36.901	3.579	37.186	-4.19%	-0.77%
			3300	2.601	38.859	2.708	38.157	-3.95%	1.84%
			3350	2.645	38.763	2.759	38.100	-4.13%	1.74%
09/18/2024	3600 Head	19.3	3450	2.740	38.586	2.861	37.986	-4.23%	1.58%
			3500	2.780	38.483	2.913	37.929	-4.57%	1.46%
			3550	2.833	38.410	2.964	37.871	-4.42%	1.42%
			3560	2.842	38.398	2.974	37.860	-4.44%	1.42%
			3600	2.877	38.312	3.015	37.814	-4.58%	1.32%
			3650	2.926	38.231	3.066	37.757	-4.57%	1.26%
			3690	2.962	38.173	3.107	37.711	-4.67%	1.23%
			3700	2.970	38.149	3.117	37.700	-4.72%	1.19%
			3750	3.022	38.077	3.169	37.643	-4.64%	1.15%
			3900	3.172	37.833	3.323	37.471	-4.54%	0.97%
			3930	3.199	37.779	3.353	37.437	-4.59%	0.91%
			4100	3.383	37.504	3.528	37.243	-4.11%	0.70%
			4150	3.435	37.401	3.579	37.186	-4.02%	0.58%
			3300	2.635	38.791	2.708	38.157	-2.70%	1.66%
			3350	2.685	38.697	2.759	38.100	-2.68%	1.57%
			3450	2.775	38.488	2.861	37.986	-3.01%	1.32%
09/18/2024	3600 Head	19.6	3500	2.819	38.417	2.913	37.929	-3.23%	1.29%
			3550	2.871	38.319	2.964	37.871	-3.14%	1.18%
			3560	2.879	38.294	2.974	37.860	-3.19%	1.15%
			3600	2.918	38.240	3.015	37.814	-3.22%	1.13%
			3650	2.966	38.126	3.066	37.757	-3.26%	0.98%
			3690	3.001	38.086	3.107	37.711	-3.41%	0.99%
			3700	3.011	38.054	3.117	37.700	-3.40%	0.94%
			3750	3.056	37.958	3.169	37.643	-3.57%	0.84%
			3900	3.211	37.690	3.323	37.471	-3.37%	0.58%
			3930	3.245	37.644	3.353	37.437	-3.22%	0.55%
			4100	3.418	37.349	3.528	37.243	-3.12%	0.28%
			4150	3.476	37.258	3.579	37.186	-2.88%	0.19%
			3300	2.614	38.897	2.708	38.157	-3.47%	1.94%
			3350	2.659	38.818	2.759	38.100	-3.62%	1.88%
			3450	2.751	38.657	2.861	37.986	-3.84%	1.77%
			3500	2.797	38.554	2.913	37.929	-3.98%	1.65%
09/23/2024	3600 Head	19.1	3550	2.841	38.468	2.964	37.871	-4.15%	1.58%
			3560	2.847	38.453	2.974	37.860	-4.27%	1.57%
			3600	2.892	38.373	3.015	37.814	-4.08%	1.48%
			3650	2.940	38.275	3.066	37.757	-4.11%	1.37%
			3690	2.979	38.222	3.107	37.711	-4.12%	1.36%
			3700	2.991	38.205	3.117	37.700	-4.04%	1.34%
			3750	3.043	38.140	3.169	37.643	-3.98%	1.32%
			3900	3.201	37.938	3.323	37.471	-3.67%	1.25%
			3930	3.230	37.850	3.353	37.437	-3.67%	1.10%
			4100	3.413	37.544	3.528	37.243	-3.26%	0.81%
			4150	3.478	37.461	3.579	37.186	-2.82%	0.74%
			3300	2.606	38.043	2.708	38.157	-3.77%	-0.30%
			3350	2.654	37.943	2.759	38.100	-3.81%	-0.41%
			3450	2.746	37.755	2.861	37.986	-4.02%	-0.61%
			3500	2.788	37.647	2.913	37.929	-4.29%	-0.74%
			3550	2.838	37.559	2.964	37.871	-4.25%	-0.82%
10/16/2024	3600 Head	19.1	3560	2.845	37.534	2.974	37.860	-4.34%	-0.86%
			3600	2.881	37.457	3.015	37.814	-4.44%	-0.94%
			3650	2.930	37.383	3.066	37.757	-4.44%	-0.99%
			3690	2.970	37.299	3.107	37.711	-4.41%	-1.09%
			3700	2.973	37.291	3.117	37.700	-4.62%	-1.08%
			3750	3.024	37.216	3.169	37.643	-4.58%	-1.13%
			3900	3.170	36.951	3.323	37.471	-4.60%	-1.39%
			3930	3.200	36.921	3.353	37.437	-4.56%	-1.38%
			4100	3.384	36.578	3.528	37.243	-4.08%	-1.79%
			4150	3.427	36.508	3.579	37.186	-4.25%	-1.82%

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Table 11-5
Measured Head Tissue Properties

Calculated for Tests Performed on:	Tissue Type	Times Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant ϵ'	TARGET Frequency (MHz)	TARGET Conductivity σ (S/m)	TARGET Dielectric Constant ϵ'	% dev σ	% dev ϵ'
09/23/2024	D00-5800 Head	20.2	5110	4.933	5.043	4.933	50.953	-1.1386	-2.8094	
			5160	4.937	5.0223	4.919	36.940	-1.1386	-2.8294	
			5210	4.933	5.0223	4.920	36.920	-1.1386	-2.8294	
			5180	4.930	5.0364	4.920	36.920	-0.0090	-2.8294	
			5190	4.930	5.0364	4.946	36.986	-0.0090	-2.8694	
			5200	4.931	5.0364	4.950	36.990	-0.0090	-2.8694	
			5230	4.932	5.0504	4.980	36.970	-0.0490	-2.9294	
			5240	4.930	5.0504	4.970	36.960	-0.0490	-2.9294	
			5250	4.930	5.0504	4.980	36.940	-0.7990	-3.0494	
			5260	4.931	5.0504	4.970	36.920	-0.7990	-3.0494	
			5280	4.931	5.0227	4.717	36.917	-0.7290	-3.0294	
			5270	4.930	5.0227	4.722	36.940	-0.7290	-3.0294	
			5290	4.933	5.0363	4.732	36.930	-0.7290	-3.0694	
			5290	4.714	5.0364	4.746	36.985	-0.7290	-3.1294	
			5300	4.722	5.0364	4.750	36.987	-0.6890	-3.1494	
			5330	4.723	5.0223	4.760	36.980	-0.6890	-3.1494	
			5330	4.950	5.0363	4.950	36.940	-0.0090	-3.0394	
			5350	4.950	5.0363	4.970	36.940	-0.0090	-3.0394	
			5370	4.950	5.0363	4.970	36.940	-0.0090	-3.0394	
			5390	4.950	5.0363	4.970	36.940	-0.0090	-3.0394	
			5420	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5430	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5440	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5450	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5460	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5470	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5480	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5490	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5500	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5510	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5520	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5530	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5540	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5550	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5560	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5570	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5580	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5590	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5600	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
			5610	4.950	5.0363	4.980	36.920	-0.0090	-3.0394	
5620	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5630	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5640	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5650	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5660	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5670	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5680	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5690	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5700	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5710	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5720	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5730	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5740	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5750	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5760	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5770	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5780	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5790	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5800	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5810	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5820	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5830	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5840	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5850	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5860	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5870	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5880	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5890	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5900	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5910	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5920	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5930	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5940	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5950	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5960	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5970	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5980	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
5990	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6000	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6010	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6020	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6030	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6040	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6050	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6060	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6070	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6080	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6090	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6100	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6110	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6120	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6130	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6140	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6150	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6160	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6170	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6180	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6190	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6200	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6210	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6220	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6230	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6240	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6250	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6260	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6270	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6280	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6290	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6300	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6310	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6320	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6330	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6340	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6350	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6360	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6370	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6380	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6390	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6400	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6410	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6420	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6430	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6440	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6450	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6460	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6470	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6480	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6490	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6500	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6510	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6520	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6530	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6540	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6550	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6560	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6570	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6580	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6590	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6600	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6610	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6620	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6630	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6640	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6650	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6660	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6670	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6680	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6690	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6700	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6710	4.950	5.0363	4.980	36.920	-0.0090	-3.0394				
6720	4.950	5.0363	4.980</							

11.2 SAR Test System Verification

Prior to SAR assessment, the system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in SAR System Validation Appendix.

Table 11-6
System Verification Results – Head

System Verification TARGET & MEASURED																						
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (°C)	Liquid Temp. (°C)	Input Power (W)	Source SN	Probe SN	DAE	Measured SAR 1g (W/kg)	1W Target SAR 1g (W/kg)	1W Normalized SAR 1g (W/kg)	Deviation 1g (%)	Measured SAR 10g (W/kg)	1W Target SAR 10g (W/kg)	1W Normalized SAR 10g (W/kg)	Deviation 10g (%)	Measured 4cm ² APD (W/m ²)	1W Target 4cm ² APD (W/m ²)	1W Normalized 4cm ² APD (W/m ²)	Deviation 4cm ² APD (%)	
AM14	13	HEAD	10/02/2024	21.5	23.0	1.00	1004	7308	534	0.54	0.58	0.54	-6.23%	0.53	0.36	0.33	-6.81%	N/A	N/A	N/A	N/A	
AM1	750	HEAD	09/18/2024	22.0	22.0	0.20	1097	7357	1582	1.73	8.27	8.55	4.59%	1.10	5.38	5.80	7.81%	N/A	N/A	N/A	N/A	
J	750	HEAD	09/22/2024	21.9	22.3	0.20	1161	7406	1677	1.64	8.44	8.30	-2.84%	1.08	5.51	5.40	-2.00%	N/A	N/A	N/A	N/A	
AM1	750	HEAD	09/23/2024	22.2	20.6	0.20	1097	7357	1582	1.74	8.27	8.70	5.20%	1.10	5.38	5.80	7.81%	N/A	N/A	N/A	N/A	
L	750	HEAD	09/25/2024	24.0	23.9	0.20	1161	7406	1677	1.67	8.44	8.35	-1.07%	1.09	5.51	5.45	-1.09%	N/A	N/A	N/A	N/A	
AM1	750	HEAD	10/02/2024	21.5	23.0	0.20	1097	7416	701	1.71	8.27	8.55	3.39%	1.13	5.38	5.65	5.02%	N/A	N/A	N/A	N/A	
J	750	HEAD	10/07/2024	25.7	25.5	0.20	1054	7660	1677	1.73	8.52	8.05	-5.53%	1.13	5.40	5.65	4.60%	N/A	N/A	N/A	N/A	
L	750	HEAD	10/24/2024	18.8	18.0	0.20	1054	7660	1678	1.81	8.52	9.05	6.22%	1.23	5.60	6.05	8.04%	N/A	N/A	N/A	N/A	
AM14	835	HEAD	09/18/2024	22.0	21.0	0.20	46108	7357	1582	2.03	9.80	10.15	3.57%	1.39	6.34	6.70	5.68%	N/A	N/A	N/A	N/A	
AM14	835	HEAD	09/20/2024	22.0	20.0	0.20	46108	7357	1582	2.00	9.95	9.53	-4.11%	1.31	6.34	6.55	3.33%	N/A	N/A	N/A	N/A	
J	835	HEAD	09/22/2024	21.9	22.3	0.20	46047	7406	1677	2.03	9.65	10.15	5.18%	1.33	6.31	6.45	2.06%	N/A	N/A	N/A	N/A	
AM14	835	HEAD	09/23/2024	22.2	20.6	0.20	46108	7357	1582	2.04	9.80	10.20	4.08%	1.39	6.34	6.70	5.68%	N/A	N/A	N/A	N/A	
K3	835	HEAD	09/23/2024	21.8	20.5	0.20	46110	7401	1532	2.02	9.96	10.10	1.41%	1.38	6.48	6.70	3.40%	N/A	N/A	N/A	N/A	
J	835	HEAD	09/25/2024	24.0	23.9	0.20	46047	7406	1677	1.84	9.45	9.30	-1.60%	1.20	6.31	6.00	-4.91%	N/A	N/A	N/A	N/A	
E	840	HEAD	09/25/2024	22.6	22.6	0.20	821	7570	1530	2.28	34.50	34.80	0.87%	1.51	18.50	19.10	3.24%	N/A	N/A	N/A	N/A	
E	1750	HEAD	09/26/2024	22.6	21.8	0.20	1150	7659	1407	1.83	36.50	38.30	5.70%	2.05	19.40	20.50	5.67%	N/A	N/A	N/A	N/A	
S	1750	HEAD	09/18/2024	21.0	23.0	0.10	1150	7803	1583	3.79	38.50	37.90	-1.59%	2.05	19.40	20.50	5.67%	N/A	N/A	N/A	N/A	
E	1750	HEAD	09/18/2024	24.3	23.2	0.10	1148	7409	1334	3.87	37.20	38.70	4.03%	2.05	19.40	20.50	5.67%	N/A	N/A	N/A	N/A	
K4	1750	HEAD	09/19/2024	23.0	21.0	0.10	1051	7560	1466	3.49	37.00	34.90	-5.68%	1.86	19.50	18.60	-4.62%	N/A	N/A	N/A	N/A	
O	1750	HEAD	09/20/2024	21.5	20.3	0.10	1148	7394	728	3.87	37.20	38.70	4.03%	2.07	19.40	20.70	6.70%	N/A	N/A	N/A	N/A	
K4	1750	HEAD	09/26/2024	21.0	19.1	0.10	1051	7560	1466	3.85	37.00	38.50	4.05%	2.05	19.50	20.50	5.13%	N/A	N/A	N/A	N/A	
K4	1900	HEAD	09/11/2024	19.2	19.0	0.10	56143	7560	1466	3.87	40.30	39.70	-1.57%	2.00	21.00	20.00	-4.76%	N/A	N/A	N/A	N/A	
K4	1900	HEAD	09/13/2024	22.6	21.5	0.10	56143	7560	1466	4.15	40.30	41.50	2.98%	2.24	21.00	21.40	1.90%	N/A	N/A	N/A	N/A	
C	1900	HEAD	09/16/2024	22.6	21.8	0.10	56145	7659	1407	4.18	40.10	41.80	4.24%	2.15	21.00	21.60	2.86%	N/A	N/A	N/A	N/A	
C	1900	HEAD	09/18/2024	24.3	23.2	0.10	54980	7409	1334	4.30	39.60	43.00	8.59%	2.23	20.70	22.30	7.73%	N/A	N/A	N/A	N/A	
S	1900	HEAD	09/18/2024	21.0	21.0	0.10	56145	7659	1466	4.17	40.10	41.70	3.99%	2.10	21.00	21.90	4.29%	N/A	N/A	N/A	N/A	
G	1900	HEAD	09/20/2024	21.5	20.3	0.10	54980	7394	728	4.23	39.60	42.30	6.82%	2.19	20.70	21.90	5.80%	N/A	N/A	N/A	N/A	
K4	1900	HEAD	09/26/2024	21.0	19.1	0.10	56143	7560	1466	4.14	40.10	41.40	2.73%	2.14	21.00	21.40	1.90%	N/A	N/A	N/A	N/A	
K4	1900	HEAD	09/30/2024	21.0	19.1	0.10	56143	7560	1466	4.14	40.10	41.00	1.74%	2.12	21.00	21.20	0.95%	N/A	N/A	N/A	N/A	
K4	1900	HEAD	10/02/2024	20.0	19.1	0.10	54920	7560	1466	4.14	39.80	41.40	4.02%	2.14	20.70	21.40	3.38%	N/A	N/A	N/A	N/A	
AM13	2100	HEAD	09/18/2024	21.6	21.6	0.10	1064	7427	1467	4.85	49.30	49.50	0.41%	2.32	23.80	23.10	-2.93%	N/A	N/A	N/A	N/A	
AM13	2100	HEAD	09/25/2024	20.7	22.6	0.10	1038	7682	1683	4.66	49.10	46.60	-5.09%	2.22	23.70	22.20	-6.33%	N/A	N/A	N/A	N/A	
AM13	2100	HEAD	09/30/2024	21.5	22.6	0.10	1064	7482	1683	4.66	49.10	46.60	-5.48%	2.27	23.80	22.20	-6.72%	N/A	N/A	N/A	N/A	
AM13	2100	HEAD	10/02/2024	21.6	21.6	0.10	1064	7482	1683	4.65	49.10	49.10	0.01%	2.31	23.80	23.10	-2.94%	N/A	N/A	N/A	N/A	
K2	2450	HEAD	09/11/2024	20.0	20.7	0.10	945	7637	1652	5.30	53.40	53.00	-0.75%	2.47	25.10	24.70	-1.59%	N/A	N/A	N/A	N/A	
K2	2450	HEAD	09/13/2024	21.5	21.3	0.10	945	7637	1652	5.71	53.40	57.10	6.93%	2.46	25.10	26.50	5.58%	N/A	N/A	N/A	N/A	
AM13	2450	HEAD	09/18/2024	21.0	21.8	0.10	790	7427	1467	5.26	53.60	52.60	-0.00%	2.37	24.50	23.70	-3.27%	N/A	N/A	N/A	N/A	
K2	2450	HEAD	09/23/2024	20.7	20.8	0.10	945	7637	1652	5.14	53.40	51.40	-3.75%	2.39	25.10	23.90	-4.78%	N/A	N/A	N/A	N/A	
AM13	2450	HEAD	09/25/2024	21.1	21.3	0.10	857	7682	1660	5.14	52.40	51.40	-1.92%	2.32	24.60	23.50	-4.07%	N/A	N/A	N/A	N/A	
K2	2450	HEAD	09/25/2024	21.1	21.3	0.10	945	7640	1645	5.48	53.40	54.80	2.62%	2.55	25.10	25.50	1.59%	N/A	N/A	N/A	N/A	
K3	2450	HEAD	10/09/2024	20.5	21.0	0.10	882	7558	1364	5.40	53.00	54.00	1.89%	2.53	24.90	25.30	1.63%	N/A	N/A	N/A	N/A	
AM13	2600	HEAD	09/18/2024	21.0	21.0	0.10	10402	7471	1467	5.75	55.80	52.90	-5.20%	2.30	24.90	23.00	-7.63%	N/A	N/A	N/A	N/A	
K2	2600	HEAD	09/19/2024	20.9	21.0	0.10	1009	7637	1652	5.60	54.60	56.00	2.50%	2.52	25.50	25.20	-1.18%	N/A	N/A	N/A	N/A	
K2	2600	HEAD	09/23/2024	20.7	20.8	0.10	1009	7637	1652	5.30	54.60	53.00	-4.36%	2.38	25.50	23.80	-6.67%	N/A	N/A	N/A	N/A	
AM13	2600	HEAD	09/24/2024	19.9	21.3	0.10	10415	7481	1468	5.60	54.90	56.00	0.18%	2.47	25.40	24.70	-2.76%	N/A	N/A	N/A	N/A	
K2	2600	HEAD	09/25/2024	21.3	21.3	0.10	1009	7640	1645	5.44	54.60	55.40	1.45%	2.49	25.50	24.90	-2.35%	N/A	N/A	N/A	N/A	
AM13	2600	HEAD	09/30/2024	21.3	22.6	0.10	1042	7481	1468	5.44	53.80	56.40	4.80%	2.48	24.90	24.80	-0.40%	N/A	N/A	N/A	N/A	
H	3000	HEAD	09/16/2024	21.9	20.8	0.10	1097	7488	1415	6.73	65.40	67.50	3.21%	2.58	24.70	25.80	4.43%	N/A	N/A	N/A	N/A	
L	3000	HEAD	09/18/2024	20.7	20.5	0.10	1097	7488	1415	6.82	65.40	69.10	5.81%	2.60	24.70	26.40	6.88%	N/A	N/A	N/A	N/A	
H	3000	HEAD	09/18/2024	22.7	21.3	0.10	1097	7488	1415	6.41	65.40	64.10	-1.99%	2.47	24.70	24.70	0.00%	N/A	N/A	N/A	N/A	
K4	3000	HEAD	09/23/2024	22.0	19.1	0.10	1058	7365	1466	6.03	65.30	60.10	-7.96%	2.33	24.70	23.10	-6.48%	N/A	N/A	N/A	N/A	
H	3000	HEAD	10/16/2024	21.5	20.5	0.10	1097	7488	1415	6.47	65.40	64.70	-1.07%	2.50	24.70	25.00	1.21%	N/A	N/A	N/A	N/A	
H	3700	HEAD	09/16/2024	21.9	20.8	0.10	1067	7488	1415	6.86	66.90	68.60	2.54%	2.55	24.30	25.50	4.94%	N/A	N/A	N/A	N/A	
L	3700	HEAD	09/18/2024	20.7	20.5	0.10	1067	7488	1415	6.86	66.90	68.60	2.54%	2.47	24.30	24.70	1.65%	N/A	N/A	N/A	N/A	
H	3700	HEAD	09/23/2024	22.7	21.3	0.10	1067	7488	1415	6.90	66.90	69.00	3.14%	2.57	24.30	25.70	5.76%	N/A	N/A	N/A	N/A	
K4	3700	HEAD	09/23/2024	22.0	19.1	0.10	1029	7365	1466	6.31	67.30	63.10	-6.24%	2.34	24.50	23.40	-4.49%	N/A	N/A	N/A	N/A	
H	3900	HEAD	09/16/2024	20.7	20.5	0.10	1056	7488	1415	8.05	68.20	68.90	1.02%	2.62	24.80	24.80	0.00%	N/A	N/A	N/A	N/A	
H	3900	HEAD	09/18/2024	22.7	21.3	0.10	1073	7488	1415	7.05	68.50	70.50	1.44%	2.49	24.30	24.90	2.47%	N/A	N/A	N/A	N/A	
K5	5250	HEAD	09/23/2024	21.5	20.2	0.05	1237	7402	1502	3.71	80.10	74.20	-7.37%	1.06	22.90	21.20	-7.42%	N/A	N/A	N/A	N/A	
K5	5600	HEAD	09/23/2024	21.5	20.2																	

11.3 Power Density Test System Verification

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.

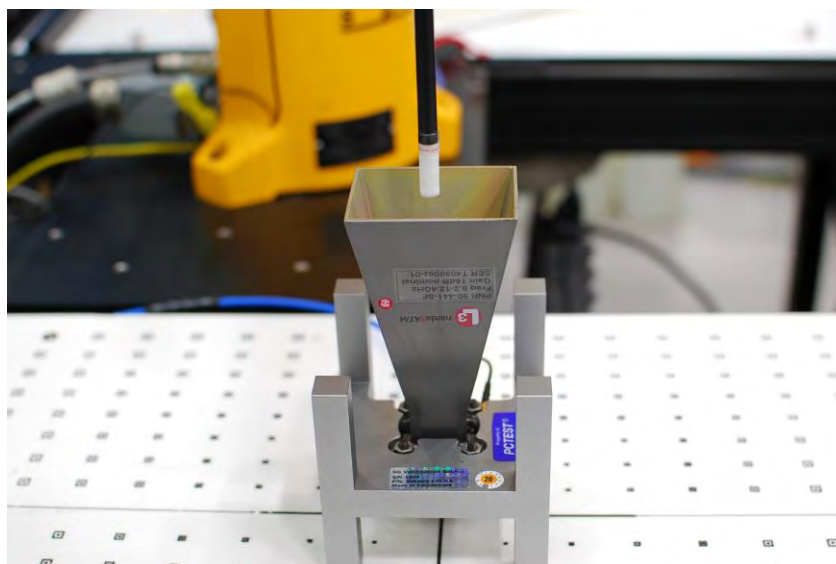


Figure 11-3
System Verification Setup Photo

Table 11-7
10 GHz Verifications

System Verification											
System	Frequency (GHz)	Date	Source S/N	Probe S/N	Prad (mW)	Normal psPD (W/m ² over 4 cm ²)		Deviation (dB)	Total psPD (W/m ² over 4 cm ²)		Deviation (dB)
						Measured	Target		Measured	Target	
Q	10	10/04/2023	1002	9622	93.3	59.90	54.60	0.40	60.30	54.90	0.41
R	10	10/14/2024	1002	9421	93.3	47.20	54.60	-0.63	47.40	54.90	-0.64

Note: A **10 mm distance spacing** was used from the reference horn antenna aperture to the probe element.

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12 SAR DATA SUMMARY

12.1 GSM 850 Standalone SAR

Table 12-1

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 850	GSM	A	0015M	1:8.3	0.07	836.60	190	33.5	33.24	Right Cheek	0	0.058	1.062	0.062	0.223	0.202		36.4		
Head	GSM 850	GSM	A	0015M	1:8.3	-0.02	836.60	190	33.5	33.24	Right Tilt	0	0.034	1.062	0.036	0.189	0.118			35.7	31.5
Head	GSM 850	GSM	A	0015M	1:8.3	0.02	836.60	190	33.5	33.24	Left Cheek	0	0.067	1.062	0.071	0.373	0.233			35.7	
Head	GSM 850	GSM	A	0015M	1:8.3	-0.03	836.60	190	33.5	33.24	Left Tilt	0	0.040	1.062	0.042	0.223	0.139		38.0		
ANSI/IEEE CS9.1 1992 - SAFETY LIMIT											Head										
Spatial Peak											1.6 W/kg (mW/g)										
Uncontrolled Exposure/General Population											averaged over 1 gram										

Table 12-2

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 850	GSM	E	0015M	1:8.3	0.02	848.80	251	30.5	29.43	Right Cheek	0	0.507	1.279	0.648	0.648	0.405		23.1		
Head	GSM 850	GSM	E	0015M	1:8.3	-0.03	848.80	251	30.5	29.43	Right Tilt	0	0.442	1.279	0.565	0.565	0.353		23.7	22.3	20.3
Head	GSM 850	GSM	E	0015M	1:8.3	0.03	848.80	251	30.5	29.43	Left Cheek	0	0.634	1.279	0.785	0.785	0.491		22.3		
Head	GSM 850	GSM	E	0015M	1:8.3	0.03	848.80	251	30.5	29.43	Left Tilt	0	0.616	1.279	0.788	0.788	0.493	A1	22.3		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak											Head										
Uncontrolled Exposure/General Population											1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-3

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-Worn/Hotspot	GPRS 850	GPRS 3 Tx Slots	A	0015M	1:2.76	0.05	836.60	190	30.5	29.77	Back	10	0.214	1.183	0.253	0.580	0.363		32.0	32.0	29.7
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	0015M	1:2.76	0.00	836.60	190	30.5	29.77	Front	10	0.104	1.183	0.123	0.282	0.176	35.1			
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	0015M	1:2.76	0.02	836.60	190	30.5	29.77	Bottom	10	0.045	1.183	0.053	0.122	0.076	38.8			
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	0015M	1:2.76	-0.02	836.60	190	30.5	29.77	Right	10	0.079	1.183	0.093	0.214	0.134	36.3			
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	0015M	1:2.76	-0.04	836.60	190	30.5	29.77	Left	10	0.081	1.183	0.096	0.220	0.138	36.2			
ANSI/IEEE CS9.1 1992 - SAFETY LIMIT												Body									
Spatial Peak												1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population												averaged over 1 gram									

Table 12-4

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift (dB)	Frequency (MHz)	Channel #	Max Allowed Power (dBm)	Conducted Power (dBm)	Test Position	Spacing (mm)	Measured 1g SAR (W/kg)	Power Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Plot #	Plimit (dBm)	Overall Plimit (dBm)	EFS Plimit (dBm)
Body-Worn/Hotspot	GPRS 850	GPRS 3 Tx Slots	E	0015M	1:2.76	-0.02	836.60	190	30.5	29.77	Back	10	0.277	1.183	0.328	0.474	0.296	A2	30.9	29.0	27.7
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	0015M	1:2.76	-0.02	836.60	190	30.5	29.77	Front	10	0.361	1.183	0.427	0.617	0.386		29.7		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	0015M	1:2.76	-0.20	836.60	190	30.5	29.77	Top	10	0.428	1.183	0.508	0.734	0.459	A3	31.0		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	0015M	1:2.76	-0.03	836.60	190	30.5	29.77	Right	10	0.239	1.183	0.283	0.405	0.256		31.5		
ANSI/IEEE CS9.1 1992 - SAFETY LIMIT											Body 1.6 W/kg (mW/g) averaged over 1 gram										
Spatial Peak Uncontrolled Exposure/General Population																					

12.2 GSM 1900 Standalone SAR

Table 12-5

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift (dB)	Frequency (MHz)	Channel #	Max Allowed Power (dBm)	Conducted Power (dBm)	Test Position	Spacing (mm)	Measured 1g SAR (W/kg)	Power Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Plot #	Plimit (dBm)	Overall Plimit (dBm)	EFS Plimit (dBm)
Head	GSM 1900	GSM	A	0015M	1:8.3	0.01	1909.80	810	30.5	29.70	Right Cheek	0	0.098	1.202	0.070	0.392	0.245	A4	32.8		
Head	GSM 1900	GSM	A	0015M	1:8.3	0.05	1909.80	810	30.5	29.70	Right Tilt	0	0.021	1.202	0.025	0.142	0.089		37.2	32.8	28.8
Head	GSM 1900	GSM	A	0015M	1:8.3	-0.07	1909.80	810	30.5	29.70	Left Cheek	0	0.038	1.202	0.046	0.257	0.161		34.7		
Head	GSM 1900	GSM	A	0015M	1:8.3	-0.13	1909.80	810	30.5	29.70	Left Tilt	0	0.037	1.202	0.044	0.250	0.156		34.8		
ANSI/IEEE CS9.1 1992 - SAFETY LIMIT												Head									
Spatial Peak												1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population												averaged over 1 gram									

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Table 12-6

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Body-worn/Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	0015M	1:2.076	-0.06	1850.20	512	23.0	21.75	Back	10	0.286	1.334	0.382	0.382	0.239	A5	24.0	21.7	18.8
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	0015M	1:2.076	-0.06	1850.20	512	23.0	21.75	Front	10	0.245	1.334	0.327	0.327	0.204		24.6		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	0015M	1:2.076	0.01	1850.20	512	23.0	21.75	Bottom	10	0.482	1.334	0.643	0.643	0.402	A6	21.7		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	0015M	1:2.076	-0.04	1850.20	512	23.0	21.75	Right	10	0.033	1.334	0.044	0.044	0.028		33.3		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	0015M	1:2.076	0.01	1850.20	512	23.0	21.75	Left	10	0.035	1.334	0.047	0.047	0.029		33.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram									

12.3 UMTS 850 Standalone SAR

Table 12-7

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	UMTS 850	RMC	A	0015M	1:1	-0.06	836.60	4183	25.0	23.79	Right Cheek	0	63	0.096	1.321	0.127	0.319	0.199		33.9		
Head	UMTS 850	RMC	A	0015M	1:1	0.00	836.60	4183	25.0	23.79	Right Tilt	0	63	0.056	1.321	0.074	0.186	0.116		36.3	33.4	29.0
Head	UMTS 850	RMC	A	0015M	1:1	0.02	836.60	4183	25.0	23.79	Left Cheek	0	63	0.109	1.321	0.144	0.362	0.226		33.4		
Head	UMTS 850	RMC	A	0015M	1:1	0.02	836.60	4183	25.0	23.79	Left Tilt	0	63	0.054	1.321	0.071	0.179	0.112		36.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak												Head										
Uncontrolled Exposure/General Population												1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-8

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	UMTS 850	RMC	E	0015M	1:1	0.03	836.60	4183	21.5	20.93	Right Cheek	0	0.593	1.140	0.676	0.676	0.423		23.1		
Head	UMTS 850	RMC	E	0015M	1:1	0.05	836.60	4183	21.5	20.93	Right Tilt	0	0.548	1.140	0.625	0.625	0.391		23.5		
Head	UMTS 850	RMC	E	0015M	1:1	0.01	826.40	4132	21.5	20.88	Left Cheek	0	0.868	1.153	1.001	1.001	0.626		21.4		
Head	UMTS 850	RMC	E	0015M	1:1	0.01	836.60	4183	21.5	20.93	Left Cheek	0	0.895	1.140	1.020	1.020	0.638	A7	21.4	21.4	20.5
Head	UMTS 850	RMC	E	0015M	1:1	0.01	836.60	4183	21.5	20.93	Left Cheek	0	0.946	1.140	1.020	1.020	0.638		21.4		
Head	UMTS 850	RMC	E	0015M	1:1	0.02	846.60	4233	21.5	20.86	Left Cheek	0	0.846	1.159	0.981	0.981	0.613		21.5		
Head	UMTS 850	RMC	E	0015M	1:1	0.03	836.60	4183	21.5	20.93	Left Tilt	0	0.675	1.140	0.770	0.770	0.481		22.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram									
Note: Blue entry represents variability measurement																					

Note: Blue entry represents variability measurement

Table 12-9

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Body-worn/Hotspot	UMTS 850	RMC	A	0015M	1:1	0.01	836.60	4183	25.0	23.79	Back	10	133	0.206	1.321	0.272	0.335	0.209		30.6		
Hotspot	UMTS 850	RMC	A	0015M	1:1	-0.05	836.60	4183	25.0	23.79	Front	10	63	0.145	1.321	0.192	0.236	0.148		32.1		
Hotspot	UMTS 850	RMC	A	0015M	1:1	0.00	836.60	4183	25.0	23.79	Bottom	10	133	0.063	1.321	0.083	0.102	0.064		35.7	30.6	25.9
Hotspot	UMTS 850	RMC	A	0015M	1:1	0.05	836.60	4183	25.0	23.79	Right	10	133	0.111	1.321	0.147	0.180	0.113		33.3		
Hotspot	UMTS 850	RMC	A	0015M	1:1	0.09	836.60	4183	25.0	23.79	Left	10	63	0.111	1.321	0.147	0.180	0.113		33.3		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-10

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift (dB)	Frequency (MHz)	Channel #	Max Allowed Power (dBm)	Conducted Power (dBm)	Test Position	Spacing (mm)	Measured 1g SAR (W/kg)	Power Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Plot #	PLimit (dBm)	Overall PLimit (dBm)	EFS PLimit (dBm)
Body-worn/Hotspot	UMTS 850	RMC	E	0015M	1:1	0.02	836.60	4183	25.0	24.32	Back	10	0.425	1.169	0.497	0.770	0.481	A8	28.0		
Hotspot	UMTS 850	RMC	E	0015M	1:1	0.02	836.60	4183	25.0	24.32	Front	10	0.460	1.169	0.538	0.833	0.521		27.6		
Hotspot	UMTS 850	RMC	E	0015M	1:1	0.00	836.60	4183	25.0	24.32	Top	10	0.498	1.169	0.582	0.902	0.564	A9	27.3	27.3	26.9
Hotspot	UMTS 850	RMC	E	0015M	1:1	-0.05	836.60	4183	25.0	24.32	Right	10	0.296	1.169	0.346	0.536	0.335		29.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT												Body 1.6 W/kg (mW/g) averaged over 1 gram									
Spatial Peak																					
Uncontrolled Exposure/General Population																					

12.4 UMTS 1750 Standalone SAR

Table 12-11

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift (dB)	Frequency (MHz)	Channel #	Max Allowed Power (dBm)	Conducted Power (dBm)	Test Position	Spacing (mm)	Tune state	Measured 1g SAR (W/kg)	Power Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Plot #	PLimit (dBm)	Overall PLimit (dBm)	EFS PLimit (dBm)
Head	UMTS 1750	RMC	A	0015M	1:1	0.06	1752.60	1513	24.0	23.27	Right Cheek	0	99	0.098	1.183	0.116	0.402	0.251	A10	33.3		
Head	UMTS 1750	RMC	A	0015M	1:1	-0.15	1752.60	1513	24.0	23.27	Right Tilt	0	99	0.053	1.183	0.063	0.217	0.136		36.0		29.4
Head	UMTS 1750	RMC	A	0015M	1:1	0.01	1752.60	1513	24.0	23.27	Left Cheek	0	99	0.064	1.183	0.076	0.263	0.164		35.2		
Head	UMTS 1750	RMC	A	0015M	1:1	-0.03	1752.60	1513	24.0	23.27	Left Tilt	0	99	0.047	1.183	0.056	0.193	0.121		36.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak														Head								
Uncontrolled Exposure/General Population														1.6 W/kg (mW/g) averaged over 1 gram								

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Table 12-12

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Body-worn/Hotspot	UMTS 1750	RMC	A	0015M	1:1	0.01	1752.60	1513	20.0	19.69	Back	10	99	0.599	1.074	0.643	0.643	0.402	A11	21.9	19.9	19.0
Hotspot	UMTS 1750	RMC	A	0015M	1:1	-0.01	1752.60	1513	20.0	19.69	Front	10	99	0.422	1.074	0.453	0.453	0.283		23.4		
Hotspot	UMTS 1750	RMC	A	0015M	1:1	-0.01	1712.40	1312	20.0	19.56	Bottom	10	107	0.852	1.107	0.943	0.943	0.589		20.2		
Hotspot	UMTS 1750	RMC	A	0015M	1:1	0.01	1752.40	1412	20.0	19.64	Bottom	10	101	0.822	1.086	0.893	0.893	0.558		20.4		
Hotspot	UMTS 1750	RMC	A	0015M	1:1	0.00	1752.60	1513	20.0	19.69	Bottom	10	99	0.938	1.074	1.007	1.007	0.629	A12	19.9		
Hotspot	UMTS 1750	RMC	A	0015M	1:1	-0.01	1752.60	1513	20.0	19.69	Right	10	99	0.083	1.074	0.089	0.089	0.056		30.4		
Hotspot	UMTS 1750	RMC	A	0015M	1:1	0.03	1752.60	1513	20.0	19.69	Left	10	99	0.062	1.074	0.067	0.067	0.042		31.7		
ANS/IEEE C63.1.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram										

12.5 UMTS 1900 Standalone SAR

Table 12-13

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]		
Head	UMTS 1900	RMC	A	0015M	1:1	-0.02	1907.60	9538	24.0	23.19	Right Cheek	0	115	0.095	1.205	0.114	0.362	0.226	A13	33.4	33.4	29.0		
Head	UMTS 1900	RMC	A	0015M	1:1	0.05	1907.60	9538	24.0	23.19	Right Tilt	0	115	0.034	1.205	0.041	0.130	0.081		37.8				
Head	UMTS 1900	RMC	A	0015M	1:1	-0.03	1907.60	9538	24.0	23.19	Left Cheek	0	115	0.080	1.205	0.096	0.305	0.191		34.1				
Head	UMTS 1900	RMC	A	0015M	1:1	0.01	1907.60	9538	24.0	23.19	Left Tilt	0	115	0.065	1.205	0.078	0.248	0.155		35.0				
ANSI/IEEE C63.1.1992 - SAFETY LIMIT																								
Spatial Peak																								
Uncontrolled Exposure/General Population																								
														Head										
														1.6 W/kg (mW/g)										
														averaged over 1 gram										

Table 12-14

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Body-worn/Hotspot	UMTS 1900	RMC	A	0015M	1:1	-0.02	1907.60	9538	19.0	18.52	Back	10	112	0.496	1.117	0.554	0.554	0.346	A14	21.5	18.7	18.0
Hotspot	UMTS 1900	RMC	A	0015M	1:1	0.01	1907.60	9538	19.0	18.52	Front	10	112	0.380	1.117	0.424	0.424	0.265		22.7		
Hotspot	UMTS 1900	RMC	A	0015M	1:1	0.01	1852.40	9262	19.0	18.49	Bottom	10	99	0.897	1.125	1.009	1.009	0.631		18.9		
Hotspot	UMTS 1900	RMC	A	0015M	1:1	-0.02	1880.00	9400	19.0	18.50	Bottom	10	46	0.889	1.122	0.997	0.997	0.623		19.0		
Hotspot	UMTS 1900	RMC	A	0015M	1:1	-0.02	1907.60	9538	19.0	18.52	Bottom	10	49	0.943	1.117	1.053	1.053	0.658	A15	18.7		
Hotspot	UMTS 1900	RMC	A	0015M	1:1	0.05	1907.60	9538	19.0	18.52	Bottom	10	49	0.961	1.117	1.051	1.051	0.607		18.7		
Hotspot	UMTS 1900	RMC	A	0015M	1:1	-0.04	1907.60	9538	19.0	18.52	Right	10	52	0.036	1.117	0.040	0.040	0.025		32.9	32.2	29.0
Hotspot	UMTS 1900	RMC	A	0015M	1:1	-0.03	1907.60	9538	19.0	18.52	Left	10	115	0.042	1.117	0.047	0.047	0.029		32.2		
ANSI/IEEE C63.1.1992 - SAFETY LIMIT												Body										
Spatial Peak												1.6 W/kg (mW/g)										
Uncontrolled Exposure/General Population												averaged over 1 gram										

Note: Blue entry represents variability measurement

12.6 LTE Band 71 Standalone SAR

Table 12-15

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Head	LTE Band 71	20	QPSK	A	0129M	1:1	0.04	680.50	133297	0.0	25.0	21.08	1	50	Right Cheek	0	28	0.128	1.236	0.158	0.362	0.226		33.0	33.0	28.6
Head	LTE Band 71	20	QPSK	A	0129M	1:1	0.08	680.50	133297	0.0	24.0	21.92	50	50	Right Cheek	0	137	0.095	1.282	0.122	0.351	0.219		33.1		
Head	LTE Band 71	20	QPSK	A	0056M	1:1	0.13	680.50	133297	0.0	25.0	21.08	1	50	Right Tilt	0	28	0.049	1.236	0.061	0.339	0.087		37.3		
Head	LTE Band 71	20	QPSK	A	0056M	1:1	0.01	680.50	133297	1.0	24.0	21.50	50	50	Right Tilt	0	28	0.056	1.282	0.051	0.348	0.093		36.6		
Head	LTE Band 71	20	QPSK	A	0129M	1:1	0.05	680.50	133297	0.0	25.0	21.08	1	50	Left Cheek	0	28	0.148	1.236	0.158	0.362	0.226		33.0		
Head	LTE Band 71	20	QPSK	A	0129M	1:1	0.06	680.50	133297	1.0	24.0	21.50	50	50	Left Cheek	0	28	0.085	1.282	0.109	0.314	0.126		33.6		
Head	LTE Band 71	20	QPSK	A	0016M	1:1	0.07	680.50	133297	0.0	25.0	21.08	1	50	Left Tilt	0	28	0.049	1.236	0.061	0.339	0.087		37.3		
Head	LTE Band 71	20	QPSK	A	0016M	1:1	0.09	680.50	133297	1.0	24.0	21.92	50	50	Left Tilt	0	28	0.059	1.282	0.046	0.333	0.083		37.3		
ANS/IEEE C63.1.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																										
																			Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 12-16

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Head	LTE Band 71	20	QPSK	E	0095M	1:1	-0.04	680.50	133297	0.0	22.5	21.36	1	50	Right Cheek	0	0.407	1.300	0.555	0.555	0.347		25.0	22.7	21.5
Head	LTE Band 71	20	QPSK	E	0095M	1:1	-0.06	680.50	133297	0.0	22.5	21.26	50	0	Right Cheek	0	0.424	1.300	0.551	0.551	0.344		25.0		
Head	LTE Band 71	20	QPSK	E	0095M	1:1	-0.01	680.50	133297	0.0	22.5	21.38	1	50	Right Tilt	0	0.426	1.300	0.554	0.554	0.346		25.0		
Head	LTE Band 71	20	QPSK	E	0095M	1:1	-0.01	680.50	133297	0.0	22.5	21.26	50	0	Right Tilt	0	0.422	1.300	0.561	0.561	0.351		25.0		
Head	LTE Band 71	20	QPSK	E	0129M	1:1	0.04	680.50	133297	0.0	22.5	21.38	1	50	Left Cheek	0	0.706	1.300	0.944	0.944	0.590	A16	22.7		
Head	LTE Band 71	20	QPSK	E	0129M	1:1	0.08	680.50	133297	0.0	22.5	21.26	50	0	Left Cheek	0	0.701	1.300	0.932	0.932	0.583		22.8		
Head	LTE Band 71	20	QPSK	E	0129M	1:1	0.10	680.50	133297	0.0	22.5	21.23	100	0	Left Cheek	0	0.683	1.340	0.915	0.915	0.572		22.8		
Head	LTE Band 71	20	QPSK	E	0129M	1:1	0.07	680.50	133297	0.0	22.5	21.26	1	50	Left Tilt	0	0.470	1.300	0.871	0.871	0.544		23.0		
Head	LTE Band 71	20	QPSK	E	0129M	1:1	0.13	680.50	133297	0.0	22.5	21.26	50	0	Left Tilt	0	0.685	1.300	0.884	0.884	0.553		23.0		
Head	LTE Band 71	20	QPSK	E	0129M	1:1	0.13	680.50	133297	0.0	22.5	21.23	100	0	Left Tilt	0	0.633	1.340	0.848	0.848	0.530		23.2		
ANS/IEEE C63.1.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																									
																			Head 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 12-17

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 71	20	QPSK	A	0129M	1:1	-0.06	680.50	133297	0.0	25.0	24.08	1	50	Back	10	137	0.129	1.236	0.283	0.470	0.294		30.4		
Body-worn/Hotspot	LTE Band 71	20	QPSK	A	0129M	1:1	-0.02	680.50	133297	0.0	25.0	22.92	50	50	Back	10	137	0.178	1.282	0.228	0.477	0.298		30.4		
Hotspot	LTE Band 71	20	QPSK	A	0095M	1:1	-0.05	680.50	133297	0.0	25.0	24.08	1	50	Front	10	137	0.129	1.236	0.159	0.265	0.166		32.9		
Hotspot	LTE Band 71	20	QPSK	A	0095M	1:1	-0.09	680.50	133297	1.0	24.0	22.92	50	50	Front	10	137	0.082	1.282	0.105	0.220	0.138		33.7		
Hotspot	LTE Band 71	20	QPSK	A	0095M	1:1	0.13	680.50	133297	0.0	25.0	24.08	1	50	Bottom	10	137	0.085	1.236	0.043	0.072	0.045		38.6		
Hotspot	LTE Band 71	20	QPSK	A	0095M	1:1	-0.02	680.50	133297	1.0	24.0	22.92	50	50	Bottom	10	137	0.028	1.282	0.036	0.075	0.047		38.4		
Hotspot	LTE Band 71	20	QPSK	A	0129M	1:1	-0.06	680.50	133297	0.0	25.0	24.08	1	50	Right	10	137	0.208	1.236	0.282	0.468	0.293		30.3		
Hotspot	LTE Band 71	20	QPSK	A	0129M	1:1	-0.01	680.50	133297	1.0	24.0	22.92	50	50	Right	10	137	0.168	1.282	0.215	0.450	0.281		30.6		
Hotspot	LTE Band 71	20	QPSK	A	0129M	1:1	-0.03	680.50	133297	0.0	25.0	24.08	1	50	Left	10	27	0.173	1.236	0.211	0.351	0.229		31.7		
Hotspot	LTE Band 71	20	QPSK	A	0129M	1:1	-0.09	680.50	133297	1.0	24.0	22.92	50	50	Left	10	27	0.134	1.282	0.172	0.359	0.224		31.4		
ANSI/IEEE C63.1 D192 - SAFETY LIMIT																		Body		1.6 W/kg (mW/g)		averaged over 1 gram				
Spatial Peak																		Uncontrolled Exposure/General Population								

Table 12-18

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 71	20	QPSK	E	0095M	1:1	-0.01	680.50	133297	0.0	25.0	24.49	1	0	Back	10	0.427	1.125	0.480	0.761	0.476	A17	28.1	27.4	27.0
Body-worn/Hotspot	LTE Band 71	20	QPSK	E	0095M	1:1	0.01	680.50	133297	1.0	24.0	23.13	50	0	Back	10	0.366	1.222	0.447	0.802	0.508		27.4		
Hotspot	LTE Band 71	20	QPSK	E	0129M	1:1	0.10	680.50	133297	0.0	25.0	24.49	1	0	Front	10	0.333	1.125	0.375	0.593	0.371		29.2		
Hotspot	LTE Band 71	20	QPSK	E	0129M	1:1	0.04	680.50	133297	1.0	24.0	23.13	50	0	Front	10	0.287	1.222	0.351	0.700	0.438		28.5		
Hotspot	LTE Band 71	20	QPSK	E	0129M	1:1	-0.08	680.50	133297	0.0	25.0	24.49	1	0	Top	10	0.507	1.125	0.413	0.654	0.409		28.8		
Hotspot	LTE Band 71	20	QPSK	E	0129M	1:1	-0.02	680.50	133297	1.0	24.0	23.13	50	0	Top	10	0.321	1.222	0.362	0.783	0.489		28.0		
Hotspot	LTE Band 71	20	QPSK	E	0129M	1:1	-0.02	680.50	133297	0.0	25.0	24.49	1	0	Right	10	0.312	1.125	0.351	0.556	0.348		29.5		
Hotspot	LTE Band 71	20	QPSK	E	0129M	1:1	-0.04	680.50	133297	1.0	24.0	23.13	50	0	Right	10	0.267	1.222	0.326	0.651	0.407		28.8		
ANSI/IEEE C63.1 D192 - SAFETY LIMIT																		Body		1.6 W/kg (mW/g)		averaged over 1 gram			
Spatial Peak																		Uncontrolled Exposure/General Population							

12.7 LTE Band 12 Standalone SAR

Table 12-19

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 12	10	QPSK	A	0129M	1:1	0.01	707.50	23095	0.0	25.0	24.01	1	25	Right Cheek	0	124	0.139	1.256	0.175	0.391	0.244		32.5		
Head	LTE Band 12	10	QPSK	A	0129M	1:1	-0.04	707.50	23095	1.0	24.0	22.94	25	12	Right Cheek	0	124	0.126	1.256	0.176	0.328	0.236		32.2		
Head	LTE Band 12	10	QPSK	A	0095M	1:1	-0.06	707.50	23095	0.0	25.0	24.01	1	25	Right Tilt	0	124	0.063	1.256	0.079	0.177	0.111		36.0		
Head	LTE Band 12	10	QPSK	A	0095M	1:1	0.08	707.50	23095	1.0	24.0	22.94	25	12	Right Tilt	0	124	0.060	1.276	0.064	0.180	0.113		32.8		
Head	LTE Band 12	10	QPSK	A	0129M	1:1	0.08	707.50	23095	0.0	25.0	24.01	1	25	Left Cheek	0	124	0.110	1.256	0.166	0.371	0.232		32.8		
Head	LTE Band 12	10	QPSK	A	0129M	1:1	0.07	707.50	23095	1.0	24.0	22.94	25	12	Left Cheek	0	124	0.101	1.276	0.129	0.303	0.227		32.5		
Head	LTE Band 12	10	QPSK	A	0095M	1:1	-0.05	707.50	23095	0.0	25.0	24.01	1	25	Left Tilt	0	124	0.060	1.256	0.075	0.169	0.106		36.2		
Head	LTE Band 12	10	QPSK	A	0095M	1:1	-0.11	707.50	23095	1.0	24.0	22.94	25	12	Left Tilt	0	124	0.066	1.276	0.061	0.173	0.108		36.1		
ANSI/IEEE C63.1 D192 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)						
Spatial Peak																		Uncontrolled Exposure/General Population		averaged over 1 gram						

Table 12-20

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 12	10	QPSK	E	0095M	1:1	-0.01	707.50	23095	0.0	22.5	21.34	1	25	Right Cheek	0	0.460	1.306	0.601	0.601	0.376		24.7		
Head	LTE Band 12	10	QPSK	E	0095M	1:1	-0.01	707.50	23095	0.0	22.5	21.34	25	12	Right Cheek	0	0.459	1.318	0.605	0.605	0.378		24.6		
Head	LTE Band 12	10	QPSK	E	0095M	1:1	0.01	707.50	23095	0.0	22.5	21.34	1	25	Right Tilt	0	0.480	1.306	0.585	0.585	0.366		24.8		
Head	LTE Band 12	10	QPSK	E	0095M	1:1	0.02	707.50	23095	0.0	22.5	21.30	25	12	Right Tilt	0	0.450	1.318	0.593	0.593	0.371	24.7			
Head	LTE Band 12	10	QPSK	E	0129M	1:1	-0.01	707.50	23095	0.0	22.5	21.34	1	25	Left Cheek	0	0.463	1.306	1.049	1.049	0.656	A18	22.2		
Head	LTE Band 12	10	QPSK	E	0129M	1:1	0.11	707.50	23095	0.0	22.5	21.34	25	12	Left Cheek	0	0.390	1.318	1.054	1.054	0.659		22.3	22.2	
Head	LTE Band 12	10	QPSK	E	0129M	1:1	0.08	707.50	23095	0.0	22.5	21.36	50	0	Left Cheek	0	0.901	1.324	1.046	1.046	0.654	22.3			
Head	LTE Band 12	10	QPSK	E	0129M	1:1	0.17	707.50	23095	0.0	22.5	21.34	1	25	Left Tilt	0	0.724	1.306	0.946	0.946	0.591	22.7			
Head	LTE Band 12	10	QPSK	E	0129M	1:1	-0.06	707.50	23095	0.0	22.5	21.34	25	12	Left Tilt	0	0.738	1.324	0.924	0.924	0.578	22.8			
Head	LTE Band 12	10	QPSK	E	0129M	1:1	0.13	707.50	23095	0.0	22.5	21.38	50	0	Left Tilt	0	0.688	1.324	0.924	0.924	0.578	22.8			
ANSI/IEEE C63.1 D192 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)		averaged over 1 gram			
Spatial Peak																		Uncontrolled Exposure/General Population							

Table 12-21

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	
Body-worn/Hotspot	LTE Band 12	10	QPSK	A	0129M	1:1	-0.02	707.50	23095	0.0	25.0	24.01	1	25	Back	10	124	0.235	1.256	0.295	0.468	0.293		30.3			
Body-worn/Hotspot	LTE Band 12	10	QPSK	A	0129M	1:1	0.01	707.50	23095	1.0	24.0	22.94	25	12	Back	10	124	0.183	1.276	0.234	0.466	0.291		30.3			
Hotspot	LTE Band 12	10	QPSK	A	0095M	1:1	-0.02	707.50	23095	0.0	25.0	24.01	1	25	Front	10	124	0.124	1.256	0.156	0.247	0.154		33.0			
Hotspot	LTE Band 12	10	QPSK	A	0095M	1:1	-0.02	707.50	23095	1.0	24.0	22.94	25	12	Front	10	124	0.088	1.276	0.125	0.250	0.156		33.0			
Hotspot	LTE Band 12	10	QPSK	A	0095M	1:1	0.09	707.50	23095	0.0	25.0	24.01	1	25	Bottom	10	124	0.041	1.256	0.051	0.082	0.051		37.8			
Hotspot	LTE Band 12	10	QPSK	A	0095M	1:1	-0.20	707.50	23095	1.0	24.0	22.94	1	25	Bottom	10	124	0.124	1.276	0.156	0.247	0.154		33.0	30.3	27.0	
Hotspot	LTE Band 12	10	QPSK	A	0129M	1:1	-0.03	707.50	23095	0.0	25.0	24.01	1	25	Right	10	124	0.083	1.256	0.255	0.404	0.253		30.3			
Hotspot	LTE Band 12	10	QPSK	A	0129M	1:1	-0.06	707.50	23095	1.0	24.0	22.94	25	12	Right	10	124	0.155	1.276	0.196	0.395	0.247		31.0			
Hotspot	LTE Band 12	10	QPSK	A	0129M	1:1	-0.10	707.50	23095	1.0	24.0	22.94	25	12	Left	10	124	0.169	1.276	0.266	0.418	0.278		31.0			
Hotspot	LTE Band 12	10	QPSK	A	0129M	1:1	-0.08	707.50	23095	1.0	24.0	22.94	25	12	Left	10	124	0.139	1.276	0.177	0.354	0.221		31.5			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																											
Spatial Peak																		Body									
Uncontrolled Exposure/General Population																		INFERRED over 1g									
																		1.4 W/kg (mW/g)									

12.8 LTE Band 13 Standalone SAR

Table 12-23

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Out [dBm]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1st [W/kg]	Power Scaling Factor	Reported 1st SAE [W/kg]	Adjusted 1st SAE [W/kg]	Exposure Ratio (1st SAE)	Plot #	Plot (dBm)	Overall Plot (dBm)	ERP [dBm]
Head	LTE Band 11	30	QPSK	A	0120M	1:1	0.05	782.00	23220	0.0	25.0	23.85	1	0	Right Cheek	0	0	0.105	1.303	0.137	0.275	0.171		33.6		
Head	LTE Band 11	30	QPSK	A	0120M	1:1	0.08	782.00	23220	1.0	24.0	22.83	25	25	Right Cheek	0	0	0.085	1.303	0.111	0.260	0.153		33.3		
Head	LTE Band 11	30	QPSK	A	0095M	1:1	0.15	782.00	23220	0.0	25.0	23.85	1	0	Right Tilt	0	0	0.020	1.303	0.026	0.050	0.033		40.8		
Head	LTE Band 11	30	QPSK	A	0095M	1:1	0.11	782.00	23220	1.0	24.0	22.83	25	25	Right Tilt	0	0	0.018	1.309	0.050	0.125	0.078		40.7		
Head	LTE Band 11	30	QPSK	A	0120M	1:1	0.04	782.00	23220	0.0	24.0	23.08	1	1	Left Cheek	0	0	0.137	1.303	0.172	0.441	0.214		32.6	32.3	26.0
Head	LTE Band 11	30	QPSK	A	0120M	1:1	0.06	782.00	23220	0.0	24.0	22.83	25	25	Left Cheek	0	0	0.111	1.309	0.145	0.360	0.228		32.3		
Head	LTE Band 11	30	QPSK	A	0095M	1:1	0.01	782.00	23220	0.0	25.0	23.85	1	0	Left Tilt	0	0	0.062	1.303	0.081	0.163	0.101		35.9		
Head	LTE Band 11	30	QPSK	A	0095M	1:1	0.00	782.00	23220	0.0	24.0	22.83	25	25	Left Tilt	0	0	0.040	1.309	0.056	0.141	0.088		36.4		
ANSI/IEEE C95.1.1992 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure General Population																		measured over 1cm								

Table 12-24

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dbrt [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 13	10	QPSK	E	0009M	1:1	-0.01	782.00	23230	0.0	22.5	20.95	1	25	Right Cheek	0	0.550	1.429	0.786	0.786	0.491		23.5		
Head	LTE Band 13	10	QPSK	E	0009M	1:1	-0.01	782.00	23230	0.0	22.5	21.03	25	12	Right Cheek	0	0.549	1.403	0.902	0.902	0.564		22.9		
Head	LTE Band 13	10	QPSK	E	0009M	1:1	0.00	782.00	23230	0.0	22.5	20.90	50	0	Right Cheek	0	0.545	1.445	0.768	0.768	0.493		23.5		
Head	LTE Band 13	10	QPSK	E	0009M	1:1	0.07	782.00	23230	0.0	22.5	20.95	1	25	Right Thigh	0	0.559	1.429	0.999	0.999	0.499		23.9		
Head	LTE Band 13	10	QPSK	E	0009M	1:1	-0.02	782.00	23230	0.0	22.5	21.03	25	12	Right Thigh	0	0.562	1.403	0.788	0.788	0.493		23.5		
Head	LTE Band 13	10	QPSK	E	0009M	1:1	0.11	782.00	23230	0.0	22.5	20.90	1	25	Left Cheek	0	0.543	1.429	0.809	0.809	0.793		22.9		
Head	LTE Band 13	10	QPSK	E	0129M	1:1	-0.09	782.00	23230	0.0	22.5	21.03	25	12	Left Cheek	0	0.835	1.403	1.172	1.172	0.733		23.5	23.5	
Head	LTE Band 13	10	QPSK	E	0129M	1:1	-0.09	782.00	23230	0.0	22.5	20.90	50	0	Left Cheek	0	0.845	1.445	1.221	1.221	0.763		23.6		
Head	LTE Band 13	10	QPSK	E	0129M	1:1	0.14	782.00	23230	0.0	22.5	20.90	1	25	Left Thigh	0	0.847	1.429	1.210	1.210	0.756		23.6		
Head	LTE Band 13	10	QPSK	E	0129M	1:1	0.14	782.00	23230	0.0	22.5	21.03	25	12	Left Thigh	0	0.849	1.403	1.263	1.263	0.767		23.7		
Head	LTE Band 13	10	QPSK	E	0129M	1:1	0.13	782.00	23230	0.0	22.5	20.90	50	0	Left Thigh	0	0.870	1.445	1.257	1.257	0.786	A20	21.5		
Head	LTE Band 13	10	QPSK	E	0259M	1:2	0.11	782.00	23230	0.0	22.5	20.90	50	0	Left Thigh	0	0.858	1.445	1.192	1.192	0.745		21.7		
Spatial Peak																	Head								
Uncontrolled Exposure/General Population																	1.6 W/kg (mW/g) averaged over 1 gram								

Note: Blue entry represents variability measurement

Table 12-25

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured I SAR [W/kg]	Power Scaling Factor	Reported I SAR [W/kg]	Adjusted I SAR [W/kg]	Exposure Ratio [1/s]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EFS Plimt [dBm]
Body-worn/Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.00	782.00	23230	0.0	25.0	23.85	1	0	Back	30	0	0.289	1.303	0.377	0.597	0.373		29.2		
Body-worn/Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.00	782.00	23230	0.0	24.0	22.83	25	25	Back	30	0	0.212	1.309	0.304	0.606	0.379		29.1		
Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.08	782.00	23230	0.0	25.0	23.85	1	0	Front	30	117	0.175	1.303	0.223	0.353	0.221		31.5		
Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.06	782.00	23230	0.0	24.0	22.83	25	25	Front	30	0	0.180	1.309	0.170	0.340	0.213		31.6		
Hotspot	LTE Band 13	30	QPSK	A	4129M	1:1	0.21	782.00	23230	0.0	25.0	23.85	1	0	Bottom	30	117	0.092	1.303	0.120	0.190	0.189		34.2		
Hotspot	LTE Band 13	30	QPSK	A	4129M	1:1	0.08	782.00	23230	0.0	24.0	22.83	25	25	Bottom	30	117	0.100	1.303	0.100	0.180	0.181		34.3	27.0	
Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.06	782.00	23230	0.0	25.0	23.85	1	0	Right	30	0	0.140	1.303	0.182	0.289	0.181		29.1		
Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.08	782.00	23230	0.0	24.0	22.83	25	25	Right	30	0	0.102	1.309	0.134	0.266	0.366		32.7		
Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.00	782.00	23230	0.0	25.0	23.85	1	0	Left	30	117	0.189	1.303	0.246	0.390	0.244		31.0		
Hotspot	LTE Band 13	30	QPSK	A	0129M	1:1	0.00	782.00	23230	0.0	24.0	22.83	25	25	Left	30	117	0.222	1.309	0.206	0.410	0.266		30.8		
ANSI/IEEE C63.1-1992, SAFETY LIMIT																		Body								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Environment, General Population																		0.4 W/kg (mW/g)								

Table 12-26

issue	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPK [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RF Size	RF Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Rate (1g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	RF Spill [dBm]
Body worn/hotspot	LTE Band 13	10	QPSK	E	0045M	1:1	-0.11	782.00	23230	0.0	25.0	23.94	1	49	Back	10	0.485	1.276	0.619	0.761	0.476	A21	27.0		
Body worn/hotspot	LTE Band 13	10	QPSK	E	0045M	1:1	0.00	782.00	23230	1.0	24.0	23.01	25	25	Front	10	0.391	1.256	0.461	0.561	0.478	A22	27.0		
Hotspot	LTE Band 13	10	QPSK	E	0129M	1:1	0.03	782.00	23230	0.0	25.0	23.94	1	49	Front	10	0.519	1.276	0.662	0.815	0.509		26.7		
Hotspot	LTE Band 13	10	QPSK	E	0129M	1:1	0.00	782.00	23230	1.0	24.0	23.01	25	25	Front	10	0.409	1.256	0.514	0.796	0.498		26.8		
Hotspot	LTE Band 13	10	QPSK	E	0129M	1:1	0.04	782.00	23230	0.0	25.0	23.94	1	49	Front	10	0.603	1.256	0.795	1.078	0.611	A22	26.8	25.0	
Hotspot	LTE Band 13	10	QPSK	E	0129M	1:1	0.00	782.00	23230	1.0	24.0	23.01	25	25	Top	10	0.494	1.256	0.620	0.861	0.602		26.0		
Hotspot	LTE Band 13	10	QPSK	E	0129M	1:1	0.02	782.00	23230	0.0	25.0	23.94	1	49	Right	10	0.512	1.276	0.653	0.804	0.503		26.0		
Hotspot	LTE Band 13	10	QPSK	E	0129M	1:1	0.08	782.00	23230	1.0	24.0	23.01	25	25	Right	10	0.617	1.256	0.524	0.813	0.507		26.0		
ANU/ITER CRS.1.1992 - SAFETY LIMIT																	Body								
Spatial Peak																	1.6 W/kg (mW/g)								
Uncontrolled Exposure (General Population)																	0.08 W/kg (8 mW/g)								

12.9 LTE Band 14 Standalone SAR

Table 12-27

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Spectral Density [dBm]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAE [W/kg]	Power Scaling Factor	Reported 1g SAE [W/kg]	Adjusted 1g SAE [W/kg]	Exposure Ratio	Plot #	Film (dBm)	Overall Film (dBm)	EPS Film (dBm)
Head	LTE Band 14	30	QPSK	A	0120M	1.1	0.02	793.00	23330	0.0	25.0	23.83	1	25	Right Cheek	0	117	0.095	1.329	0.119	0.255	0.159		34.2		
Head	LTE Band 14	30	QPSK	A	0120M	1.1	0.09	793.00	23330	1.0	24.0	23.88	1	25	Right Cheek	0	117	0.072	1.293	0.093	0.251	0.151		34.3		
Head	LTE Band 14	30	QPSK	A	0096M	1.1	0.11	793.00	23330	0.0	25.0	23.83	1	25	Right Tilt	0	117	0.035	1.309	0.020	0.042	0.026		42.0		
Head	LTE Band 14	30	QPSK	A	0096M	1.1	0.09	793.00	23330	1.0	24.0	22.98	25	25	Right Tilt	0	117	0.017	1.294	0.022	0.059	0.037		40.5		
Head	LTE Band 14	30	QPSK	A	0120M	1.1	0.05	793.00	23330	0.0	25.0	23.83	1	25	Left Cheek	0	117	0.130	1.309	0.170	0.349	0.218		37.6	26.1	28.1
Head	LTE Band 14	30	QPSK	A	0120M	1.1	0.07	793.00	23330	1.0	24.0	22.88	25	25	Left Cheek	0	117	0.100	1.294	0.129	0.348	0.218		37.8		
Head	LTE Band 14	30	QPSK	A	0096M	1.1	0.01	793.00	23330	0.0	25.0	23.83	1	25	Left Tilt	0	117	0.008	1.329	0.076	0.162	0.101		36.1		
Head	LTE Band 14	30	QPSK	A	0096M	1.1	0.09	793.00	23330	1.0	24.0	22.88	25	25	Left Tilt	0	117	0.049	1.294	0.056	0.150	0.094		36.5		
ANSI/IEEE C63.1992 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)						
Spatial Peak																		Uncontrolled Exposure		averaged over 6 min						

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Table 12-28

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 14	10	QPSK	E	0095M	1:1	-0.02	793.00	23330	0.0	22.5	21.34	1	25	Right Cheek	0	0.600	1.306	0.784	0.784	0.490		23.5		21.5
Head	LTE Band 14	10	QPSK	E	0095M	1:1	-0.03	793.00	23330	0.0	22.5	21.26	25	25	Right Cheek	0	0.583	1.330	0.775	0.775	0.484		23.6		
Head	LTE Band 14	10	QPSK	E	0095M	1:1	-0.03	793.00	23330	0.0	22.5	21.34	1	25	Right Tilt	0	0.529	1.306	0.691	0.691	0.432		24.1		
Head	LTE Band 14	10	QPSK	E	0095M	1:1	-0.02	793.00	23330	0.0	22.5	21.26	25	25	Right Tilt	0	0.506	1.330	0.672	0.672	0.420		24.2		
Head	LTE Band 14	10	QPSK	E	0129M	1:1	0.07	793.00	23330	0.0	22.5	21.34	1	25	Left Cheek	0	0.798	1.306	0.964	0.964	0.603		22.6		
Head	LTE Band 14	10	QPSK	E	0129M	1:1	0.06	793.00	23330	0.0	22.5	21.26	25	25	Left Cheek	0	0.761	1.330	0.932	0.932	0.583		22.8		
Head	LTE Band 14	10	QPSK	E	0129M	1:1	0.06	793.00	23330	0.0	22.5	21.17	50	0	Left Cheek	0	0.721	1.358	0.993	0.993	0.621		22.5		
Head	LTE Band 14	10	QPSK	E	0129M	1:1	-0.16	793.00	23330	0.0	22.5	21.34	1	25	Left Tilt	0	0.783	1.306	0.966	0.966	0.604	A23	22.6		
Head	LTE Band 14	10	QPSK	E	0129M	1:1	0.14	793.00	23330	0.0	22.5	21.26	25	25	Left Tilt	0	0.744	1.330	0.950	0.950	0.594		22.7		
Head	LTE Band 14	10	QPSK	E	0129M	1:1	0.12	793.00	23330	0.0	22.5	21.17	50	0	Left Tilt	0	0.729	1.358	0.990	0.990	0.629		22.5		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT																	Head		1.6 W/kg (mW/g)					Spatial Peak	
Uncontrolled Exposure/General Population																	Head		1.6 W/kg (mW/g)					Spatial Peak	
																	Head		1.6 W/kg (mW/g)					Spatial Peak	

Table 12-29

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Body worn/Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.05	793.00	23330	0.0	25.0	23.83	1	25	Back	10	117	0.291	1.309	0.381	0.563	0.352		29.1		
Body worn/Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	0.02	793.00	23330	1.0	24.0	22.88	25	25	Back	10	117	0.248	1.294	0.321	0.598	0.374		28.9		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.16	793.00	23330	0.0	25.0	23.83	1	25	Front	10	117	0.344	1.309	0.188	0.779	0.174		32.1		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.07	793.00	23330	1.0	24.0	22.88	25	25	Front	10	117	0.130	1.294	0.142	0.205	0.166		32.4		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.03	793.00	23330	0.0	25.0	23.83	1	25	Bottom	10	117	0.205	1.309	0.112	0.196	0.121		33.7		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.04	793.00	23330	1.0	24.0	22.88	25	25	Bottom	10	117	0.074	1.294	0.096	0.178	0.111		34.1		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	0.30	793.00	23330	0.0	25.0	23.83	1	25	Right	10	117	0.111	1.309	0.149	0.215	0.134		33.3		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.05	793.00	23330	1.0	24.0	22.88	25	25	Right	10	117	0.078	1.294	0.101	0.188	0.118		33.9		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.04	793.00	23330	0.0	25.0	23.83	1	25	Left	10	117	0.346	1.309	0.247	0.366	0.229		31.0		
Hotspot	LTE Band 14	10	QPSK	A	0129M	1:1	-0.05	793.00	23330	1.0	24.0	22.88	25	25	Left	10	117	0.148	1.294	0.192	0.357	0.223		31.3		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT																	Body		1.6 W/kg (mW/g)					Spatial Peak		
Uncontrolled Exposure/General Population																	Body		1.6 W/kg (mW/g)					Spatial Peak		

Table 12-30

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Body worn/Hotspot	LTE Band 14	10	QPSK	E	0045M	1:1	0.18	793.00	23330	0.0	25.0	23.97	1	25	Back	10	0.464	1.268	0.588	0.775	0.484	A24	27.3		
Body worn/Hotspot	LTE Band 14	10	QPSK	E	0045M	1:1	0.05	793.00	23330	1.0	24.0	23.03	25	25	Back	10	0.365	1.250	0.456	0.757	0.473		27.4		
Hotspot	LTE Band 14	10	QPSK	E	0129M	1:1	0.07	793.00	23330	0.0	25.0	23.97	1	25	Front	10	0.452	1.268	0.575	0.755	0.472		27.4		
Hotspot	LTE Band 14	10	QPSK	E	0129M	1:1	0.06	793.00	23330	1.0	24.0	23.03	25	25	Front	10	0.349	1.250	0.436	0.724	0.453		27.6		
Hotspot	LTE Band 14	10	QPSK	E	0129M	1:1	0.00	793.00	23330	0.0	25.0	23.97	1	25	Top	10	0.593	1.268	0.752	0.991	0.619	A25	26.2	26.2	
Hotspot	LTE Band 14	10	QPSK	E	0129M	1:1	0.02	793.00	23330	1.0	24.0	23.03	25	25	Top	10	0.460	1.250	0.575	0.955	0.597		26.4		
Hotspot	LTE Band 14	10	QPSK	E	0129M	1:1	-0.01	793.00	23330	1.0	24.0	23.97	1	25	Right	10	0.413	1.268	0.524	0.680	0.451		27.8		
Hotspot	LTE Band 14	10	QPSK	E	0129M	1:1	0.03	793.00	23330	1.0	24.0	23.03	25	25	Right	10	0.409	1.250	0.511	0.849	0.531		26.9		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT																	Body		1.6 W/kg (mW/g)					Spatial Peak	
Uncontrolled Exposure/General Population																	Body		1.6 W/kg (mW/g)					Spatial Peak	

12.10 LTE Band 26 (Cell) Standalone SAR

Table 12-31

Exposure	Band / Mode	Bandwidth [kHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.09	831.50	26865	0.0	25.0	24.46	1	36	Right Cheek	0	63	0.098	1.132	0.111	0.299	0.187		34.5		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.07	831.50	26865	1.0	24.0	23.03	36	18	Right Cheek	0	63	0.078	1.250	0.098	0.130	0.206		34.1		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.07	831.50	26865	0.0	25.0	24.46	1	36	Right Tilt	0	63	0.086	1.132	0.097	0.262	0.164		35.1		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.02	831.50	26865	1.0	24.0	23.03	36	18	Right Tilt	0	63	0.066	1.250	0.083	0.280	0.175		34.8		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.08	831.50	26865	0.0	25.0	24.46	1	36	Left Cheek	0	63	0.088	1.132	0.100	0.264	0.166		33.8		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.06	831.50	26865	1.0	24.0	23.03	36	18	Left Cheek	0	63	0.086	1.250	0.108	0.364	0.228		33.6		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	0.08	831.50	26865	0.0	25.0	24.46	1	36	Left Tilt	0	63	0.078	1.132	0.088	0.238	0.149		35.5		
Head	LTE Band 26	15	QPSK	A	0129M	1:1	-0.19	831.50	26865	1.0	24.0	23.03	36	18	Left Tilt	0	63	0.057	1.250	0.071	0.241	0.151		35.4		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)					Spatial Peak	
Uncontrolled Exposure/General Population																		Head		1.6 W/kg (mW/g)					Spatial Peak	

Table 12-32

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 26	15	QPSK	E	0129M	1:1	-0.07	831.50	26865	0.0	22.0	21.15	1	36	Right Cheek	0	0.652	1.216	0.793	0.793	0.496		23.0		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	-0.11	831.50	26865	0.0	22.0	21.03	36		Right Cheek	0	0.628	1.250	0.786	0.786	0.461		23.0		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	-0.15	831.50	26865	0.0	22.0	21.15	1	36	Right Thigh	0	0.605	1.216	0.796	0.786	0.480		23.3		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	-0.08	831.50	26865	0.0	22.0	21.03	36	18	Right Thigh	0	0.582	1.250	0.728	0.728	0.405		23.3		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	0.04	831.50	26865	0.0	22.0	21.15	1	36	Left Cheek	0	0.891	1.216	1.083	1.083	0.677		21.6		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	0.04	831.50	26865	0.0	22.0	21.03	36	18	Left Cheek	0	0.816	1.250	1.116	1.116	0.696	A26	21.6		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	0.08	831.50	26865	0.0	22.0	20.94	75	0	Left Cheek	0	0.805	1.276	1.104	1.104	0.690	21.5	21.0		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	0.06	831.50	26865	0.0	22.0	21.15	1	36	Left Thigh	0	0.842	1.216	1.024	1.024	0.640		21.8		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	0.06	831.50	26865	0.0	22.0	21.03	36	18	Left Thigh	0	0.820	1.250	1.040	1.040	0.641		21.8		
Head	LTE Band 26	15	QPSK	E	0129M	1:1	0.14	831.50	26865	0.0	22.0	20.94	75	0	Left Thigh	0	0.829	1.276	1.058	1.058	0.661		21.7		
ANSI/IEEE C95.1-1992 - SAFETY LIMIT																	Head								
Spatial Peak																	1.6 W/kg (mW/g)								
Uncontrolled Exposure (General Population)																	averaged over 1 gram								

Table 12-33

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.05	831.50	26865	0.0	25.0	24.46	1	36	Back	10	63	0.243	1.132	0.275	0.446	0.279		30.6		
Body-worn/Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	0.07	831.50	26865	1.0	24.0	23.03	36	18	Back	10	63	0.250	1.250	0.263	0.536	0.335		29.8		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.20	831.50	26865	0.0	25.0	24.46	1	36	Front	10	63	0.239	1.132	0.180	0.180	0.292		32.4		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.07	831.50	26865	1.0	24.0	23.03	36	18	Front	10	63	0.242	1.250	0.153	0.311	0.194		32.1		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.17	831.50	26865	0.0	25.0	24.46	1	36	Bottom	10	63	0.077	1.132	0.087	0.141	0.085		35.5		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.19	831.50	26865	1.0	24.0	23.03	36	18	Bottom	10	63	0.058	1.250	0.073	0.148	0.093		35.3		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.15	831.50	26865	0.0	25.0	24.46	1	36	Right	10	63	0.087	1.132	0.096	0.160	0.100		35.0		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.13	831.50	26865	1.0	24.0	23.03	36	18	Right	10	63	0.065	1.250	0.081	0.166	0.104		34.9		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.15	831.50	26865	0.0	25.0	24.46	1	36	Left	10	63	0.124	1.132	0.140	0.228	0.143		33.5		
Hotspot	LTE Band 26	15	QPSK	A	0129M	1:1	-0.11	831.50	26865	1.0	24.0	23.03	36	18	Left	10	63	0.086	1.250	0.124	0.233	0.158		33.0		
ANSI/IEEE CS1.1.1982 - SAFETY LIMIT																		Body								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

Table 12-34

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	0.12	831.50	26865	0.0	25.0	24.60	1	36	Back	10	63	0.404	1.096	0.541	0.748	0.408	A27	27.8		
Body-worn/Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	0.07	831.50	26865	1.0	24.0	23.21	36	0	Back	10	63	0.389	1.199	0.442	0.769	0.481		27.5		
Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	0.10	831.50	26865	0.0	25.0	24.60	1	36	Front	10	63	0.470	1.096	0.515	0.712	0.445		27.8		
Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	0.08	831.50	26865	1.0	24.0	23.21	36	0	Front	10	63	0.552	1.199	0.422	0.734	0.459		27.7		
Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	-0.02	831.50	26865	1.0	24.0	24.60	1	36	Top	10	63	0.403	1.096	0.461	0.711	0.511	A28	28.1		
Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	0.00	831.50	26865	1.0	24.0	23.21	36	0	Top	10	63	0.446	1.199	0.535	0.929	0.581		26.7		
Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	-0.03	831.50	26865	0.0	25.0	24.60	1	36	Right	10	63	0.472	1.096	0.517	0.713	0.447		27.8		
Hotspot	LTE Band 26	15	QPSK	E	0129M	1:1	-0.02	831.50	26865	1.0	24.0	23.21	36	0	Right	10	63	0.563	1.199	0.433	0.752	0.470		27.6		
ANSI/IEEE CS1.1.1982 - SAFETY LIMIT																		Body								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

12.11 LTE Band 66 (AWS) Standalone SAR

Table 12-35

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 66	20	QPSK	A	0068M	1:1	0.05	1720.00	132572	0.0	24.5	23.54	1	50	Right Cheek	0	99	0.112	1.247	0.141	0.207	0.248		23.0		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	0.10	1720.00	132572	1.0	23.5	22.57	50	25	Right Cheek	0	99	0.078	1.239	0.097	0.343	0.214		33.6		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	0.08	1720.00	132572	0.0	24.5	23.54	1	50	Right Titl	0	99	0.069	1.247	0.086	0.243	0.152		35.3		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	-0.15	1720.00	132572	1.0	23.5	22.57	50	25	Right Titl	0	99	0.063	1.239	0.073	0.355	0.159		34.3		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	0.08	1720.00	132572	0.0	24.5	23.54	1	50	Left Cheek	0	0	0.058	1.247	0.072	0.204	0.128		35.5		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	0.00	1720.00	132572	1.0	23.5	22.57	50	25	Left Cheek	0	0	0.044	1.239	0.095	0.193	0.121		36.1		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	0.16	1720.00	132572	0.0	24.5	23.54	1	50	Left Titl	0	0	0.045	1.247	0.096	0.158	0.099		37.0		
Head	LTE Band 66	20	QPSK	A	0068M	1:1	-0.10	1720.00	132572	1.0	23.5	22.57	50	25	Left Titl	0	0	0.056	1.239	0.045	0.158	0.099		37.0		
ANSI/IEEE CS1.1.1982 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

Table 12-36

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.07	1770.00	132572	0.0	19.5	18.57	1	0	Right Cheek	0	99	0.565	1.239	0.700	0.700	0.438		21.0		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.04	1770.00	132572	0.0	19.5	18.60	50	25	Right Cheek	0	0	0.548	1.230	0.674	0.674	0.421		21.2		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.03	1770.00	132572	0.0	19.5	18.57	1	0	Right Titl	0	99	0.625	1.239	0.774	0.774	0.484	A29	20.6		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.05	1770.00	132572	0.0	19.5	18.60	50	25	Right Titl	0	99	0.602	1.230	0.740	0.740	0.463		20.8		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.01	1770.00	132572	0.0	19.5	18.57	1	0	Left Cheek	0	0	0.383	1.239	0.475	0.475	0.297		22.7		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.03	1770.00	132572	0.0	19.5	18.60	50	25	Left Cheek	0	0	0.384	1.230	0.472	0.472	0.295		22.7		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	-0.03	1770.00	132572	0.0	19.5	18.57	1	0	Left Titl	0	0	0.478	1.239	0.590	0.590	0.369		21.7		
Head	LTE Band 66	20	QPSK	F	0067M	1:1	0.05	1770.00	132572	0.0	19.5	18.60	50	25	Left Titl	0	0	0.469	1.230	0.577	0.577	0.361		21.8		
ANSI/IEEE CS1.1.1982 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

Table 12-37

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state
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Table 12-38

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Body-worn/Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	-0.02	1770.00	132572	0.0	21.5	21.09	1	50	Back	10	0.182	1.099	0.200	0.200	0.125		28.4		
Body-worn/Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	0.03	1770.00	132572	0.0	21.5	21.02	50	25	Back	10	0.177	1.117	0.198	0.198	0.134		28.5		
Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	0.02	1770.00	132572	0.0	21.5	21.09	1	50	Front	10	0.163	1.099	0.179	0.179	0.112		28.9		
Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	-0.01	1770.00	132572	0.0	21.5	21.02	50	25	Front	10	0.158	1.117	0.176	0.176	0.120		29.0		
Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	0.02	1770.00	132572	0.0	21.5	21.09	1	50	Top	10	0.485	1.099	0.478	0.478	0.299		24.7		
Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	-0.03	1770.00	132572	0.0	21.5	21.09	50	25	Top	10	0.425	1.117	0.475	0.475	0.297		24.7		
Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	0.03	1770.00	132572	0.0	21.5	21.09	1	50	Left	10	0.099	1.099	0.109	0.109	0.068		31.1		
Hotspot	LTE Band 66	20	QPSK	F	0087M	1:1	0.04	1770.00	132572	0.0	21.5	21.02	50	25	Left	10	0.095	1.117	0.113	0.113	0.075		30.9		
ANSI/IEEE C95.1.1982 - SAFETY LIMIT																					Body				
Spatial Peak																					1.6 W/kg (mW/g)				
Uncontrolled Exposure/General Population																					averaged over 1 gram				

12.12 LTE Band 25 (PCS) Standalone SAR

Table 12-39

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 25	20	QPSK	A	0086M	1:1	-0.18	1860.00	26140	0.0	24.5	23.51	1	50	Right Cheek	0	109	0.129	1.256	0.162	0.407	0.224		32.4		
Head	LTE Band 25	20	QPSK	A	0086M	1:1	0.01	1860.00	26140	1.0	23.5	22.32	50	25	Right Cheek	0	109	0.100	1.253	0.125	0.396	0.248		32.5		
Head	LTE Band 25	20	QPSK	A	0086M	1:1	-0.18	1860.00	26140	0.0	24.5	23.51	1	50	Right Tilt	0	112	0.036	1.256	0.045	0.114	0.071		37.9		
Head	LTE Band 25	20	QPSK	A	0086M	1:1	0.06	1860.00	26140	1.0	23.5	22.32	50	25	Right Tilt	0	112	0.038	1.253	0.035	0.111	0.069		36.4	32.4	28.5
Head	LTE Band 25	20	QPSK	A	0086M	1:1	0.05	1860.00	26140	0.0	24.5	23.51	1	50	Left Cheek	0	0	0.064	1.246	0.080	0.202	0.126		35.0		
Head	LTE Band 25	20	QPSK	A	0086M	1:1	0.05	1860.00	26140	1.0	23.5	22.32	50	25	Left Cheek	0	0	0.049	1.253	0.061	0.184	0.121		35.6		
Head	LTE Band 25	20	QPSK	A	0086M	1:1	0.08	1860.00	26140	0.0	24.5	23.51	1	50	Left Tilt	0	0	0.056	1.256	0.070	0.177	0.111		36.0		
Head	LTE Band 25	20	QPSK	A	0086M	1:1	-0.07	1860.00	26140	1.0	23.5	22.32	50	25	Left Tilt	0	0	0.050	1.253	0.063	0.158	0.124		35.5		
ANSI/IEEE C95.1.1982 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

Table 12-40

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.06	1905.00	26590	0.0	19.5	18.68	1	0	Right Cheek	0	0.025	1.208	0.731	0.731	0.457		20.8		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.10	1905.00	26590	0.0	19.5	18.69	50	25	Right Cheek	0	0.028	1.205	0.745	0.745	0.466		20.7		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.03	1860.00	26140	0.0	19.5	18.97	1	50	Right Tilt	0	0.047	1.239	0.802	0.802	0.501		20.4		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.01	1882.50	26365	0.0	19.5	18.67	1	50	Right Tilt	0	0.086	1.211	0.831	0.831	0.528		20.3		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.03	1905.00	26590	0.0	19.5	18.68	1	0	Right Tilt	0	0.738	1.208	0.867	0.867	0.542		20.1		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	-0.04	1860.00	26140	0.0	19.5	18.69	50	25	Right Tilt	0	0.456	1.209	0.780	0.780	0.488		20.5		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.04	1882.50	26365	0.0	19.5	18.68	50	50	Right Tilt	0	0.684	1.208	0.838	0.838	0.524		20.2	19.9	18.5
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.03	1905.00	26590	0.0	19.5	18.69	50	25	Right Tilt	0	0.745	1.205	0.898	0.898	0.561	A32	19.9		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.01	1905.00	26590	0.0	19.5	18.65	500	0	Right Tilt	0	0.731	1.216	0.893	0.893	0.557		19.9		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.00	1905.00	26590	0.0	19.5	18.68	1	0	Left Cheek	0	0.460	1.208	0.562	0.562	0.351		22.0		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.05	1905.00	26590	0.0	19.5	18.69	50	25	Left Cheek	0	0.485	1.205	0.584	0.584	0.365		21.8		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.02	1905.00	26590	0.0	19.5	18.68	1	0	Left Tilt	0	0.555	1.208	0.670	0.670	0.429		21.2		
Head	LTE Band 25	20	QPSK	F	0087M	1:1	0.00	1905.00	26590	0.0	19.5	18.69	50	25	Left Tilt	0	0.589	1.205	0.710	0.710	0.444		20.9		
ANSI/IEEE C95.1.1982 - SAFETY LIMIT																		Head							
Spatial Peak																		1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																		averaged over 1 gram							

Table 12-41

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]			
Body-worn/Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.17	1860.00	26140	0.0	19.0	17.85	1	50	Back	10	109	0.416	1.303	0.542	0.542	0.339	A33	21.6					
Body-worn/Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	-0.20	1860.00	26140	0.0	19.0	17.84	50	25	Back	10	109	0.416	1.306	0.543	0.543	0.339		21.6					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.06	1860.00	26140	0.0	19.0	17.85	1	50	Front	10	0	0.256	1.303	0.334	0.334	0.209		23.7					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.20	1860.00	26140	0.0	19.0	17.84	50	25	Front	10	0	0.261	1.306	0.341	0.341	0.213		23.6					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.04	1860.00	26140	0.0	19.0	17.85	1	50	Bottom	10	112	0.869	1.303	1.132	1.132	0.708		18.4					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.01	1882.50	26365	0.0	19.0	17.70	1	50	Bottom	10	112	0.885	1.349	1.195	1.194	0.746		18.2					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.01	1905.00	26590	0.0	19.0	17.80	1	50	Bottom	10	112	0.888	1.319	1.170	1.170	0.731	A34	18.3					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	-0.02	1860.00	26140	0.0	19.0	17.84	50	25	Bottom	10	112	0.862	1.306	1.126	1.126	0.704		18.4					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.00	1882.50	26365	0.0	19.0	17.71	50	0	Bottom	10	112	0.884	1.340	1.131	1.131	0.707		18.4					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.04	1905.00	26590	0.0	19.0	17.59	50	0	Bottom	10	112	0.839	1.384	1.161	1.161	0.726		18.3					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	-0.03	1860.00	26140	0.0	19.0	17.73	100	0	Bottom	10	112	0.769	1.340	1.090	1.090	0.644		18.8					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.03	1860.00	26140	0.0	19.0	17.85	1	50	Right	10	0	0.032	1.303	0.042	0.042	0.026		32.7					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	-0.06	1860.00	26140	0.0	19.0	17.84	50	25	Left	10	0	0.013	1.306	0.043	0.043	0.027		32.6					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.12	1860.00	26140	0.0	19.0	17.85	1	50	Left	10	0	0.039	1.303	0.039	0.039	0.024		33.0					
Hotspot	LTE Band 25	20	QPSK	A	0086M	1:1	0.04	1860.00	26140	0.0	19.0	17.84	50	25	Right	10	0	0.000	1.306	0.000	0.000	0.024		33.0					
ANSI/IEEE C63.11952 - SAFETY LIMIT																		Body 1.6 W/kg (10W/g) averaged over 1 gram											
Uncontrolled Exposure/General Population																													



12.13 LTE Band 30 Standalone SAR

Table 12-43

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (Exposure SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 30	10	QPSK	A	0079M	1:1	-0.05	2310.00	27710	0.0	23.5	22.45	1	0	Right Cheek	0	0.020	1.274	0.025	0.299	0.187		38.4		
Head	LTE Band 30	10	QPSK	A	0079M	1:1	-0.12	2310.00	27710	1.0	22.5	21.50	25	12	Right Cheek	0	0.018	1.259	0.023	0.335	0.209		38.9		
Head	LTE Band 30	10	QPSK	A	0079M	1:1	-0.09	2310.00	27710	0.0	23.5	22.45	1	0	Right Titl	0	0.003	1.274	0.015	0.150	0.094		42.4		
Head	LTE Band 30	10	QPSK	A	0079M	1:1	-0.07	2310.00	27710	1.0	22.5	21.50	25	12	Right Titl	0	0.009	1.259	0.011	0.168	0.105		41.9		
Head	LTE Band 30	10	QPSK	A	0042M	1:1	-0.09	2310.00	27710	0.0	23.5	22.45	1	0	Left Cheek	0	0.014	1.274	0.018	0.209	0.131		40.9		
Head	LTE Band 30	10	QPSK	A	0042M	1:1	-0.03	2310.00	27710	1.0	22.5	21.50	25	12	Left Cheek	0	0.003	1.259	0.005	0.172	0.101		38.4		
Head	LTE Band 30	10	QPSK	A	0042M	1:1	-0.03	2310.00	27710	0.0	23.5	22.45	1	0	Left Titl	0	0.006	1.274	0.008	0.090	0.056		44.6		
Head	LTE Band 30	10	QPSK	A	0042M	1:1	-0.02	2310.00	27710	1.0	22.5	21.50	25	12	Left Titl	0	0.012	1.259	0.015	0.223	0.139		40.7		
ANSI/IEEE C63.1 1997 - SAFETY LIMIT																	Head								
Uncontrolled Exposure/General Population																	1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-44

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.20	2310.00	27710	0.0	18.0	16.48	1	25	Right Cheek	0	0.767	1.419	1.088	1.088	0.880		17.6		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.03	2310.00	27710	0.0	18.0	16.51	25	12	Right Cheek	0	0.981	1.409	0.960	0.960	0.800		18.1		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.03	2310.00	27710	0.0	18.0	16.46	30	0	Right Cheek	0	0.781	1.426	1.114	1.114	0.886	A35	17.5		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.01	2310.00	27710	0.0	18.0	16.48	1	25	Right Throat	0	0.741	1.419	1.051	1.051	0.857		17.7		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.02	2310.00	27710	0.0	18.0	16.51	25	12	Right Throat	0	0.703	1.409	0.991	0.991	0.829		18.0		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.01	2310.00	27710	0.0	18.0	16.46	30	0	Right Throat	0	0.755	1.426	1.048	1.048	0.855		17.7		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.20	2310.00	27710	0.0	18.0	16.48	1	25	Left Cheek	0	0.787	1.419	0.949	0.949	0.343		20.6		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.03	2310.00	27710	0.0	18.0	16.51	25	12	Left Cheek	0	0.780	1.409	0.935	0.935	0.334		20.7		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.19	2310.00	27710	0.0	18.0	16.48	1	25	Left Throat	0	0.602	1.429	0.940	0.940	0.325		18.7		
Head	LTE Band 30	10	QPSK	F	0042M	1:1	-0.02	2310.00	27710	0.0	18.0	16.51	25	12	Left Throat	0	0.574	1.409	0.909	0.909	0.306		18.9		
ANSI/IEEE C63.1 1997 - SAFETY LIMIT																	Head								
Uncontrolled Exposure/General Population																	1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-45

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.18	2310.00	27710	0.0	20.5	19.80	1	0	Back	10	0.301	1.175	0.354	0.354	0.221		25.0		
Body-worn/Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.09	2310.00	27710	0.0	20.5	19.84	25	0	Back	10	0.180	1.164	0.361	0.361	0.206	A36	24.9		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.09	2310.00	27710	0.0	20.5	19.80	1	0	Front	10	0.276	1.175	0.324	0.324	0.203		25.3		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.02	2310.00	27710	0.0	20.5	19.84	25	0	Front	10	0.281	1.164	0.327	0.327	0.204		25.3		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.16	2310.00	27710	0.0	20.5	19.80	1	0	Bottom	10	0.666	1.175	0.793	0.793	0.489		21.5		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.02	2310.00	27710	0.0	20.5	19.84	25	0	Bottom	10	0.681	1.164	0.793	0.793	0.486	A37	21.5		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.10	2310.00	27710	0.0	20.5	19.80	1	0	Right	10	0.074	1.175	0.087	0.087	0.054		31.1		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.10	2310.00	27710	0.0	20.5	19.84	25	0	Right	10	0.073	1.164	0.085	0.085	0.053		31.2		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.16	2310.00	27710	0.0	20.5	19.80	1	0	Left	10	0.060	1.175	0.071	0.071	0.044		32.0		
Hotspot	LTE Band 30	10	QPSK	A	0055M	1:1	-0.07	2310.00	27710	0.0	20.5	19.84	25	0	Left	10	0.060	1.164	0.070	0.070	0.044		32.0		
ANSI/IEEE C63.1 1997 - SAFETY LIMIT																									
Spatial Peak																	Body								
Uncontrolled Exposure/General Population																	1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-46

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.21	2310.00	27710	0.0	21.0	19.46	1	0	Back	10	0.247	1.426	0.352	0.352	0.220		25.5		
Body-worn/Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.01	2310.00	27710	0.0	21.0	19.48	25	0	Back	10	0.247	1.419	0.350	0.350	0.219		25.5		
Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.11	2310.00	27710	0.0	21.0	19.46	1	0	Front	10	0.113	1.426	0.304	0.304	0.190		26.1		
Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.02	2310.00	27710	0.0	21.0	19.48	25	0	Front	10	0.120	1.419	0.326	0.326	0.204		25.8		
Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.01	2310.00	27710	0.0	21.0	19.46	1	0	Top	10	0.405	1.426	0.649	0.649	0.406		22.8		
Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.02	2310.00	27710	0.0	21.0	19.48	25	0	Top	10	0.464	1.419	0.658	0.658	0.411		22.8		
Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.17	2310.00	27710	0.0	21.0	19.46	1	0	Left	10	0.079	1.426	0.113	0.113	0.071		30.4		
Hotspot	LTE Band 30	10	QPSK	F	0055M	1:1	-0.05	2310.00	27710	0.0	21.0	19.48	25	0	Left	10	0.079	1.419	0.112	0.112	0.070		30.5		
ANSI/IEEE C63.1 1997 - SAFETY LIMIT																									
Spatial Peak																	Body								
Uncontrolled Exposure/General Population																	1.6 W/kg (mW/g) averaged over 1 gram								

12.14 LTE Band 7 Standalone SAR

Table 12-47

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.20	2510.00	20850	0.0	24.5	23.38	1	0	Right Cheek	0	0.120	1.127	0.135	0.135	0.249		33.1		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.02	2510.00	20850	1.0	23.5	22.38	50	25	Right Cheek	0	0.003	1.076	0.109	0.109	0.213		31.1		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.13	2510.00	20850	0.0	24.5	23.38	1	0	Right Tilt	0	0.061	1.127	0.069	0.203	0.127		36.1		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.03	2510.00	20850	1.0	23.5	23.38	50	25	Right Tilt	0	0.050	1.076	0.054	0.200	0.125		35.1		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.07	2510.00	20850	0.0	24.5	23.38	1	0	Left Cheek	0	0.051	1.127	0.120	0.106	0.207		36.9		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.16	2510.00	20850	1.0	23.5	23.38	50	25	Left Cheek	0	0.039	1.076	0.042	0.156	0.098		37.2		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	-0.09	2510.00	20850	0.0	24.5	23.38	1	0	Left Tilt	0	0.048	1.127	0.077	0.226	0.141		35.6		
Head	LTE Band 7	20	QPSK	B	0042M	1:1	0.19	2510.00	20850	1.0	23.5	23.38	50	25	Left Tilt	0	0.052	1.076	0.056	0.208	0.130		36.0		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																		Head							
Spatial Peak																		1.6 W/kg (W/m ²)							
Unmodulated Frequency/General Population																		averaged over 16 cm							



Table 12-48

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 7	20	QPSK	F	0042M	1:1	-0.02	2510.00	20850	0.0	17.0	16.30	1	0	Right Cheek	0	0.666	1.175	0.763	0.763	0.489		18.0		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	-0.01	2510.00	20850	0.0	17.0	16.27	50	25	Right Cheek	0	0.646	1.183	0.764	0.764	0.478		18.1		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.08	2510.00	20850	0.0	17.0	16.30	1	0	Right Tilt	0	0.723	1.175	0.850	0.850	0.531		17.7		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.02	2535.00	21100	0.0	17.0	16.27	1	0	Right Tilt	0	0.647	1.211	0.784	0.784	0.480		18.0		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.00	2560.00	21350	0.0	17.0	16.12	1	0	Right Tilt	0	0.608	1.225	0.745	0.745	0.466		18.2		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	-0.02	2510.00	20850	0.0	17.0	16.27	50	25	Right Tilt	0	0.683	1.183	0.820	0.820	0.513		17.8		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	-0.01	2535.00	21100	0.0	17.0	16.22	50	25	Right Tilt	0	0.633	1.197	0.758	0.758	0.474		18.2		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.00	2560.00	21350	0.0	17.0	16.24	50	25	Right Tilt	0	0.603	1.193	0.717	0.717	0.468		18.4		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.00	2510.00	20850	0.0	17.0	16.26	300	0	Right Tilt	0	0.733	1.186	0.869	0.869	0.543	A38	17.6		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.10	2510.00	20850	0.0	17.0	16.30	1	0	Left Cheek	0	0.328	1.175	0.385	0.385	0.241		21.1		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.10	2510.00	20850	0.0	17.0	16.27	50	25	Left Cheek	0	0.356	1.183	0.374	0.374	0.234		21.2		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	-0.05	2510.00	20850	0.0	17.0	16.50	1	0	Left Tilt	0	0.347	1.175	0.408	0.408	0.255		20.8		
Head	LTE Band 7	20	QPSK	F	0042M	1:1	0.06	2510.00	20850	0.0	17.0	16.27	50	25	Left Tilt	0	0.338	1.183	0.400	0.400	0.250		20.9		
ANSI/IEEE C63.1.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-49

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Body-worn/Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	0.07	2510.00	20850	0.0	21.0	20.66	1	0	Back	10	0.348	1.081	0.377	0.377	0.236		25.2		
Body-worn/Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	-0.10	2510.00	20850	0.0	21.0	20.49	50	25	Back	10	0.359	1.125	0.404	0.404	0.253	A39	24.9		
Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	-0.11	2510.00	20850	0.0	21.0	20.66	1	0	Front	10	0.256	1.081	0.277	0.277	0.173		26.5		
Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	0.00	2510.00	20850	0.0	21.0	20.49	50	25	Front	10	0.268	1.125	0.302	0.302	0.189		26.2		
Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	0.05	2510.00	20850	0.0	21.0	20.66	1	0	Bottom	10	0.315	1.081	0.341	0.341	0.213		25.6		
Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	-0.03	2510.00	20850	0.0	21.0	20.49	50	25	Bottom	10	0.340	1.125	0.383	0.383	0.239		25.1		
Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	-0.05	2510.00	20850	0.0	21.0	20.66	1	0	Right	10	0.352	1.081	0.384	0.384	0.240		25.1		
Hotspot	LTE Band 7	20	QPSK	B	0050M	1:1	-0.07	2510.00	20850	0.0	21.0	20.49	50	25	Right	10	0.348	1.125	0.392	0.392	0.245		25.0		
ANSI/IEEE C63.1.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-50

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Body-worn/Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	0.01	2510.00	20850	0.0	20.5	19.72	1	0	Back	10	0.200	1.197	0.359	0.359	0.224		24.9		
Body-worn/Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	0.07	2510.00	20850	0.0	20.5	19.72	50	25	Back	10	0.256	1.175	0.345	0.345	0.205		25.1		
Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	0.08	2510.00	20850	0.0	20.5	19.72	1	0	Front	10	0.247	1.197	0.296	0.296	0.185		25.7		
Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	0.03	2510.00	20850	0.0	20.5	19.80	50	25	Front	10	0.239	1.175	0.281	0.281	0.176		26.0		
Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	-0.01	2510.00	20850	0.0	20.5	19.72	1	0	Top	10	0.286	1.197	0.464	0.464	0.290	A40	23.8		
Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	-0.06	2510.00	20850	0.0	20.5	19.80	50	25	Top	10	0.303	1.175	0.450	0.450	0.281		23.9		
Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	0.08	2510.00	20850	0.0	20.5	19.72	1	0	Left	10	0.043	1.197	0.050	0.050	0.031		33.4		
Hotspot	LTE Band 7	20	QPSK	F	0050M	1:1	0.05	2510.00	20850	0.0	20.5	19.80	50	25	Left	10	0.089	1.175	0.058	0.058	0.036		32.8		
ANSI/IEEE C63.1.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram								

12.15 LTE Band 41 Standalone SAR

Table 12-51

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	-0.06	2506.00	39750	0.0	19.0	18.26	1	99	Right Cheek	0	0.071	1.107	0.079	0.079	0.052		34.0		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	0.00	2506.00	39750	1.0	19.0	18.27	50	50	Right Cheek	0	0.023	1.104	0.063	0.063	0.054		34.0		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	0.04	2506.00	39750	0.0	19.0	18.26	1	99	Right Tilt	0	0.032	1.107	0.035	0.035	0.014		37.5		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	-0.01	2510.00	39750	0.0	19.0	18.27	50	50	Right Tilt	0	0.024	1.107	0.036	0.036	0.017		37.5		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	-0.15	2506.00	39750	0.0	19.0	18.26	1	99	Left Cheek	0	0.033	1.107	0.037	0.037	0.017		37.5		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	-0.13	2506.00	39750	1.0	19.0	18.27	50	50	Left Cheek	0	0.023	1.104	0.025	0.025	0.013		37.5		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	0.05	2506.00	39750	0.0	19.0	18.26	1	99	Left Tilt	0	0.054	1.107	0.038	0.038	0.021		37.2		
Head	LTE Band 41	20	QPSK	B	0088M	1:1.58	-0.16	2506.00	39750	1.0	19.0	18.27	50	50	Left Tilt	0	0.025	1.104	0.028	0.028	0.011		37.6		
ANSI/IEEE C63.1.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-52

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	0.03	2540.50	40185	0.0	19.0	18.42	1	0	Right Cheek	0	0.417	1.143	0.477	0.477	0.296		20.2		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.04	2540.50	40185	0.0	19.0	18.41	50	0	Right Cheek	0	0.413	1.146	0.473	0.473	0.296		20.2		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.03	2540.50	40185	0.0	19.0	18.42	1	0	Right Tilt	0	0.485	1.143	0.554	0.554	0.346	A41	19.5		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	0.05	2540.50	40185	0.0	19.0	18.42	50	0	Right Tilt	0	0.423	1.146	0.519	0.519	0.314		19.5		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	0.02	2540.50	40185	0.0	19.0	18.42	1	0	Left Cheek	0	0.367	1.143	0.191	0.191	0.137		24.2		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.03	2540.50	40185	0.0	19.0	18.41	50	0	Left Cheek	0	0.364	1.146	0.188	0.188	0.138		24.2		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	0.04	2540.50	40185	0.0	19.0	18.42	1	0	Left Tilt	0	0.356	1.143	0.178	0.178	0.111		24.5		
Head	LTE Band 41	20	QPSK	F	0088M	1:1.58	0.02	2540.50	40185	0.0	19.0	18.41	50	0	Left Tilt	0	0.357	1.146	0.180	0.180	0.113		24.4		
ANSI/IEEE C63.1992 - SAFETY QUIT																									
Spatial Peak																									
Uncontrolled Exposure (General Population)																									
																		Head							
																		1.6 W/kg (W/kg)							
																		measured over 16 cm							



Table 12-54

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift (dB)	Frequency [MHz]	Channel #	MPE (dB)	Max Allowed Power (dBm)	Conducted Power (dBm)	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.03	2548.50	40185	0.0	22.5	21.97	1	0	Back	10	0.151	1.130	0.171	0.171	0.107		28.1		
Body worn/Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.03	2548.50	40185	0.0	22.5	21.95	50	0	Back	10	0.147	1.135	0.167	0.167	0.104		28.2		
Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.04	2548.50	40185	0.0	22.5	21.97	1	0	Front	10	0.150	1.130	0.181	0.181	0.113		27.9		
Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.06	2548.50	40185	0.0	22.5	21.95	50	0	Front	10	0.137	1.135	0.180	0.180	0.113		27.9		
Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.10	2548.50	40185	0.0	22.5	21.97	1	0	Top	10	0.200	1.130	0.226	0.226	0.141		26.9	26.8	19.5
Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.17	2548.50	40185	0.0	22.5	21.95	50	0	Top	10	0.103	1.135	0.230	0.230	0.144		26.8		
Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	-0.06	2548.50	40185	0.0	22.5	21.97	1	0	Left	10	0.036	1.130	0.041	0.041	0.020		34.4		
Hotspot	LTE Band 41	20	QPSK	F	0088M	1:1.58	0.03	2548.50	40185	0.0	22.5	21.95	50	0	Left	10	0.033	1.135	0.037	0.037	0.023		34.7		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram								

12.16 LTE Band 48 Standalone SAR

Table 12-55

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.06	3540.00	55340	0.0	19.0	17.77	1	99	Right Cheek	0	N/A	0.768	1.377	1.019	1.019	0.637		16.9		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3540.00	55373	0.0	19.0	17.62	1	0	Right Cheek	0	N/A	0.776	1.374	1.066	1.066	0.666		16.7		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3546.70	56207	0.0	19.0	17.80	1	50	Right Cheek	0	N/A	0.788	1.318	1.039	1.039	0.649		16.8		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3540.00	56640	0.0	19.0	17.92	1	0	Right Cheek	0	N/A	0.795	1.292	1.014	1.014	0.634		16.9		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.02	3540.00	55340	0.0	19.0	17.91	50	25	Right Cheek	0	N/A	0.729	1.285	0.937	0.937	0.586		17.2		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3540.00	55373	0.0	19.0	17.88	50	25	Right Cheek	0	N/A	0.680	1.294	0.880	0.880	0.550		17.5		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3546.70	56207	0.0	19.0	17.93	50	50	Right Cheek	0	N/A	0.717	1.279	0.937	0.937	0.573		16.7		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.05	3540.00	56640	0.0	19.0	18.00	50	0	Right Cheek	0	N/A	0.671	1.255	1.034	1.034	0.646		16.6		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.02	3540.00	56640	0.0	19.0	17.92	1	99	Right Cheek	0	N/A	0.634	1.285	1.072	1.072	0.670		16.7		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3540.00	55340	0.0	19.0	17.77	1	99	Right Tilt	0	N/A	0.889	1.327	1.153	1.153	0.721		16.3		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3540.00	55373	0.0	19.0	17.62	1	0	Right Tilt	0	N/A	0.845	1.374	1.161	1.161	0.726		16.3		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3546.70	56207	0.0	19.0	17.80	1	0	Right Tilt	0	N/A	0.879	1.318	1.159	1.159	0.724		16.3		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.07	3540.00	56640	0.0	19.0	17.92	1	0	Right Tilt	0	N/A	0.921	1.282	1.181	1.181	0.738		16.2		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3540.00	55340	0.0	19.0	17.96	50	25	Right Tilt	0	N/A	0.910	1.285	1.169	1.169	0.731		16.3		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.03	3540.00	55373	0.0	19.0	17.88	50	25	Right Tilt	0	N/A	0.870	1.294	1.126	1.126	0.704		16.5		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.06	3546.70	56207	0.0	19.0	17.93	50	50	Right Tilt	0	N/A	0.907	1.279	1.160	1.160	0.725		16.3		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3540.00	56640	0.0	19.0	18.00	50	0	Right Tilt	0	N/A	0.949	1.229	1.193	1.193	0.739	A43	16.2		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3540.00	56640	0.0	19.0	17.91	100	0	Right Tilt	0	N/A	0.915	1.285	1.205	1.205	0.751		16.1		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3540.00	56640	0.0	19.0	17.92	1	0	Left Cheek	0	N/A	0.362	1.262	0.464	0.464	0.290		20.3		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.04	3540.00	56640	0.0	19.0	18.00	50	0	Left Cheek	0	N/A	0.358	1.259	0.451	0.451	0.282		20.4		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3540.00	56640	0.0	19.0	17.92	1	0	Left Tilt	0	N/A	0.380	1.282	0.487	0.487	0.304		20.1		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.02	3540.00	56640	0.0	19.0	18.00	50	0	Left Tilt	0	N/A	0.374	1.259	0.471	0.471	0.294		20.2		
Head	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3540.00	56640	0.0	19.0	17.99	100	0	Left Tilt	0	LUCA ABC	0.935	1.262	1.180	1.180	0.738		16.2		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 12-56

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.02	3546.70	56207	0.0	22.5	21.90	1	0	Back	10	N/A	0.318	1.148	0.365	0.365	0.228	A44	24.8		
Body-worn/hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3546.70	56207	0.5	22.0	21.04	50	25	Back	10	N/A	0.264	1.247	0.329	0.329	0.205		24.8		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3546.70	56207	0.5	22.5	21.04	50	25	Front	10	N/A	0.340	1.148	0.380	0.380	0.245		25.2		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.05	3546.70	56207	0.5	22.0	21.04	50	25	Front	10	N/A	0.343	1.247	0.376	0.376	0.210		27.5		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.01	3546.70	56207	0.5	22.5	21.90	1	0	Top	10	N/A	0.315	1.148	0.351	0.351	0.209	A45	22.7		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.01	3546.70	56207	0.5	22.0	21.04	50	25	Top	10	N/A	0.311	1.247	0.331	0.331	0.212		27.1		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.06	3546.70	56207	0.5	22.5	21.90	1	0	Left	10	N/A	0.375	1.148	0.386	0.386	0.254		31.1		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	0.08	3546.70	56207	0.5	22.0	21.04	50	25	Left	10	N/A	0.272	1.247	0.290	0.290	0.156		30.4		
Hotspot	LTE Band 48	20	QPSK	F	0078M	1:1.58	-0.02	3546.70	56207	0.0	22.5	21.90	1	99	Top	10	LUCA ABC	0.471	1.151	0.542	0.542	0.339		23.1		
ANSI/IEEE C63.1-1997 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Body 1.6 W/kg (mW/g) averaged over 1 gram								

12.17 NR Band n71 Standalone SAR

Table 12-57

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.02	680.50	136100	OFDM + OFDM	0.0	25.0	24.02	1	94	Right Cheek	0	137	0.100	1.253	0.125	0.125	0.221		34.0		
Head	NR Band n71	35	QPSK	A	0078M	1:1	0.01	680.50	136100	OFDM + OFDM	0.0	25.0	24.11	99	49	Right Cheek	0	137	0.101	1.227	0.124	0.124	0.219		34.0		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.09	680.50	136100	CP-OFDM	1.5	23.5	22.25	1	1	Right Cheek	0	64	0.071	1.340	0.096	0.096	0.243		33.5		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.03	680.50	136100	OFDM + OFDM	0.0	25.0	24.02	1	94	Right Tilt	0	137	0.022	1.253	0.025	0.025	0.040		40.5		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.15	680.50	136100	OFDM + OFDM	0.0	25.0	24.11	99	49	Right Tilt	0	137	0.020	1.227	0.020	0.020	0.046		40.8		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.09	680.50	136100	OFDM + OFDM	0.0	25.0	24.02	1	94	Left Cheek	0	64	0.070	1.253	0.075	0.075	0.219		42.1		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.04	680.50	136100	OFDM + OFDM	0.0	25.0	24.02	1	94	Left Tilt	0	64	0.020	1.227	0.020	0.020	0.046		34.5		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.11	680.50	136100	OFDM + OFDM	0.0	25.0	24.02	1	94	Left Tilt	0	27	0.013	1.253	0.016	0.016	0.026		44.8		
Head	NR Band n71	35	QPSK	A	0078M	1:1	-0.09	680.50	136100	OFDM + OFDM	0.0	25.0	24.11	99	49	Left Tilt	0	64	0.016	1.227	0.018	0.018	0.038		42.5		
AVERAGE CH1-190 - SAFETY LIMIT																											
Spot # Peak																											
Uncontrolled Exposure (General Population)																											
1.5 W/kg (mW/g)																											



Table 12-59

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DnR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.15	680.50	136000	DFT+OFDM	0.0	25.0	24.02	1	94	Back	10	64	0.197	1.253	0.247	0.341	0.213		31.0		
Body-worn/Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.11	90	49	Back	10	64	0.189	1.227	0.232	0.320	0.200		31.3		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.02	1	94	Front	10	64	0.194	1.253	0.205	0.294	0.203		31.8		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.11	90	49	Front	10	64	0.193	1.227	0.200	0.276	0.173		31.9		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	0.05	680.50	136000	DFT+OFDM	0.0	25.0	24.02	1	94	Bottom	10	64	0.062	1.253	0.053	0.075	0.046		37.7		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.02	680.50	136000	DFT+OFDM	0.0	25.0	24.11	90	49	Bottom	10	64	0.065	1.227	0.055	0.078	0.050		37.5		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.02	1	94	Right	10	64	0.192	1.253	0.241	0.332	0.208		31.1		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	0.04	680.50	136000	DFT+OFDM	0.0	25.0	24.11	90	49	Right	10	64	0.218	1.227	0.267	0.369	0.271		30.7		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	-0.02	680.50	136000	CP-OFDM	1.5	23.5	22.23	1	1	Right	10	64	0.152	1.340	0.204	0.307	0.248		32.6		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.02	1	94	Left	10	64	0.192	1.293	0.241	0.332	0.208		31.1		
Hotspot	NR Band n71	35	QPSK	A	0008M	1:1	0.03	680.50	136000	DFT+OFDM	0.0	25.0	24.11	90	49	Left	10	137	0.157	1.227	0.193	0.265	0.166		32.1		
UNCONTROLLED EXPOSURE - SAFETY LIMIT																			Body 1.6 W/kg (mW/g) averaged over 1 gram								
Spatial Peak																											
Uncontrolled Exposure/General Population																											

Table 12-60

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DnR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	
Body-worn/Hotspot	NR Band n71	35	QPSK	E	0078M	1:1	-0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.39	1	94	Back	10	0.171	1.151	0.427	0.777	0.486		28.6			
Body-worn/Hotspot	NR Band n71	35	QPSK	E	0078M	1:1	0.05	680.50	136000	DFT+OFDM	0.0	25.0	24.35	90	49	Back	10	0.173	1.161	0.433	0.788	0.493	A47	28.6			
Hotspot	NR Band n71	35	QPSK	E	0008M	1:1	0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.39	1	94	Front	10	0.181	1.151	0.381	0.693	0.433		29.1			
Hotspot	NR Band n71	35	QPSK	E	0008M	1:1	0.02	680.50	136000	DFT+OFDM	0.0	25.0	24.35	90	49	Front	10	0.147	1.161	0.380	0.691	0.432		29.2			
Hotspot	NR Band n71	35	QPSK	E	0078M	1:1	-0.13	680.50	136000	DFT+OFDM	0.0	25.0	24.39	1	94	Top	10	0.182	1.151	0.440	0.800	0.500	A48	28.5		27.6	
Hotspot	NR Band n71	35	QPSK	E	0078M	1:1	0.00	680.50	136000	DFT+OFDM	0.0	25.0	24.35	90	49	Top	10	0.175	1.161	0.435	0.792	0.495		28.6			
Hotspot	NR Band n71	35	QPSK	E	0008M	1:1	-0.11	680.50	136000	CP-OFDM	1.5	23.5	22.58	1	1	Top	10	0.208	1.236	0.217	0.461	0.413		29.3			
Hotspot	NR Band n71	35	QPSK	E	0008M	1:1	0.00	680.50	136000	DFT+OFDM	0.0	25.0	24.39	1	94	Right	10	0.185	1.151	0.328	0.597	0.373		29.1			
Hotspot	NR Band n71	35	QPSK	E	0008M	1:1	0.01	680.50	136000	DFT+OFDM	0.0	25.0	24.35	90	49	Right	10	0.205	1.161	0.342	0.623	0.389		29.6			
ANSI/IEEE C63.1992 - SAFETY LIMIT																		1.6 W/kg (mW/g) averaged over 1 gram									
Spatial Peak																											
Uncontrolled Exposure/General Population																											

12.18 NR Band n12 Standalone SAR

Table 12-61

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DnR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n12	15	QPSK	A	0078M	1:1	-0.07	707.50	141000	DFT+OFDM	0.0	25.0	24.12	1	40	Right Cheek	0	124	0.133	1.225	0.163	0.340	0.213		32.8		
Head	NR Band n12	15	QPSK	A	0078M	1:1	-0.16	707.50	141000	DFT+OFDM	0.0	25.0	24.15	36	22	Right Cheek	0	124	0.148	1.246	0.148	0.351	0.229		32.7		
Head	NR Band n12	15	QPSK	A	0009M	1:1	0.07	707.50	141000	DFT+OFDM	0.0	25.0	24.12	1	40	Right Tilt	0	27	0.005	1.225	0.031	0.064	0.040		40.1		
Head	NR Band n12	15	QPSK	A	0009M	1:1	0.05	707.50	141000	DFT+OFDM	0.0	25.0	24.15	36	22	Right Tilt	0	27	0.007	1.216	0.033	0.069	0.043		39.8		
Head	NR Band n12	15	QPSK	A	0078M	1:1	-0.04	707.50	141000	DFT+OFDM	0.0	25.0	24.12	1	40	Left Cheek	0	27	0.041	1.225	0.175	0.366	0.229		32.5	28.2	
Head	NR Band n12	15	QPSK	A	0078M	1:1	-0.06	707.50	141000	DFT+OFDM	0.0	25.0	24.35	90	22	Left Cheek	0	27	0.046	1.216	0.180	0.378	0.238		32.4		
Head	NR Band n12	15	QPSK	A	0078M	1:1	-0.05	707.50	141000	CP-OFDM	0.5	23.5	22.38	1	40	Left Tilt	0	27	0.040	1.080	0.100	0.206	0.185		31.4		
Head	NR Band n12	15	QPSK	A	0009M	1:1	-0.18	707.50	141000	DFT+OFDM	0.0	25.0	24.13	1	40	Left Tilt	0	27	0.026	1.225	0.032	0.067	0.042		39.9		
Head	NR Band n12	15	QPSK	A	0009M	1:1	0.02	707.50	141000	DFT+OFDM	0.0	25.0	24.15	36	22	Left Tilt	0	27	0.008	1.216	0.032	0.066	0.041		40.0		
ANSI/IEEE C63.1982 - SAFETY LIMIT																			Head								
Spatial Peak																			1.6 W/kg (mW/g)		averaged over 1 gram						
Uncontrolled Exposure/General Population																											

Table 12-62

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DnR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n12	15	QPSK	E	0008M	1:1	-0.03	707.50	141000	DFT+OFDM	0.0	22.5	21.73	1	1	Right Cheek	0	0.106	1.194	0.604	0.604	0.178		24.6		
Head	NR Band n12	15	QPSK	E	0008M	1:1	0.00	707.50	141000	DFT+OFDM	0.0	22.5	21.71	36	0	Right Cheek	0	0.106	1.199	0.633	0.633	0.196		24.6		
Head	NR Band n12	15	QPSK	E	0008M	1:1	-0.01	707.50	141000	DFT+OFDM	0.0	22.5	21.73	1	1	Right Tilt	0	0.106	1.194	0.485	0.485	0.140		25.0		
Head	NR Band n12	15	QPSK	E	0008M	1:1	0.02	707.50	141000	DFT+OFDM	0.0	22.5	21.71	36	0	Right Tilt	0	0.107	1.199	0.488	0.488	0.140		25.0		
Head	NR Band n12	15	QPSK	E	0078M	1:1	0.07	707.50	141000	DFT+OFDM	0.0	22.5	21.71	1	1	Left Cheek	0	0.103	1.194	0.633	0.633	0.196		24.6		
Head	NR Band n12	15	QPSK	E	0078M	1:1	0.01	707.50	141000	DFT+OFDM	0.0	22.5	21.71	36	0	Left Cheek	0	0.104	1.199	0.844	0.844	0.238		23.2		
Head	NR Band n12	15	QPSK	E	0078M	1:1	-0.03	707.50	141000	DFT+OFDM	0.0	22.5	21.69	75	0	Left Cheek	0	0.107	1.233	0.900	0.900	0.263	A49	22.8		21.5
Head	NR Band n12	15	QPSK	E	0078M	1:1	0.05	707.50	141000	CP-OFDM	1.5	21.5	22.04	1	1	Left Cheek	0	0.117	1.112	0.797	0.797	0.228		24.4		
Head	NR Band n12	15	QPSK	E	0078M	1:1	-0.12	707.50	141000	DFT+OFDM	0.0	22.5	21.69	1	1	Left Tilt	0	0.108	1.194	0.679	0.679	0.194		24.1		
Head	NR Band n12	15	QPSK	E	0008M	1:1	0.00	707.50	141000	DFT+OFDM	0.0	22.5	21.71	36	0	Left Tilt	0	0.107	1.199	0.716	0.716	0.198		23.8		
ANSI/IEEE CS3.1592 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		Exposure (mW/g)								

Table 12-63



12.19 NR Band n14 Standalone SAR

Table 12-65

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dcft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EPS Pinnt [dBm]
Head	NR Band n14	10	QPSK	A	0078M	1:1	0.07	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Right Cheek	0	117	0.096	1.306	0.125	0.338	0.211	34.0			
Head	NR Band n14	10	QPSK	A	0078M	1:1	-0.01	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Right Cheek	0	117	0.086	1.387	0.119	0.321	0.201	34.2			
Head	NR Band n14	10	QPSK	A	0095M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	0	Right Tilt	0	0	0.020	1.306	0.026	0.070	0.044	40.8			
Head	NR Band n14	10	QPSK	A	0095M	1:1	0.09	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Right Tilt	0	0	0.020	1.387	0.026	0.070	0.044	40.7			
Head	NR Band n14	10	QPSK	A	0078M	1:1	-0.14	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Left Cheek	0	117	0.102	1.306	0.133	0.309	0.226	33.7			
Head	NR Band n14	10	QPSK	A	0078M	1:1	0.04	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Left Cheek	0	117	0.092	1.387	0.128	0.343	0.214	33.9			
Head	NR Band n14	10	QPSK	A	0078M	1:1	0.03	793.00	158600	CP-OFDM	1.5	23.5	22.35	1	1	Left Cheek	0	117	0.079	1.303	0.095	0.362	0.228	33.7			
Head	NR Band n14	10	QPSK	A	0095M	1:1	0.04	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Left Tilt	0	63	0.022	1.306	0.029	0.077	0.048	40.4			
Head	NR Band n14	10	QPSK	A	0095M	1:1	0.07	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Left Tilt	0	63	0.022	1.387	0.031	0.082	0.051	40.1			
ANSI/IEEE C63.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																			Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-66

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dcft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinch [dBm]	Overall Pinch [dBm]	RFSP Pinch [dBm]		
Head	NR Band n14	10	QPSK	E	0085M	1:1	0.02	783.00	158600	DFT-s-OFDM	0.0	22.5	21.46	1	50	Right Cheek	0	0.462	1.271	0.839	0.819	0.118	23.3					
Head	NR Band n14	10	QPSK	E	0085M	1:1	0.00	783.00	158600	DFT-s-OFDM	0.0	22.5	21.36	25	14	Right Cheek	0	0.428	1.300	0.806	0.806	0.104	23.4					
Head	NR Band n14	10	QPSK	E	0085M	1:1	0.01	783.00	158600	DFT-s-OFDM	0.0	22.5	21.20	50	0	Right Cheek	0	0.410	1.349	0.823	0.823	0.114	23.3					
Head	NR Band n14	10	QPSK	E	0091M	1:1	0.00	783.00	158600	DFT-s-OFDM	0.0	22.5	21.46	1	50	Right Tilt	0	0.403	1.271	0.839	0.819	0.103	24.1					
Head	NR Band n14	10	QPSK	E	0085M	1:1	-0.03	783.00	158600	DFT-s-OFDM	0.0	22.5	21.36	25	14	Right Tilt	0	0.443	1.300	0.706	0.706	0.441	24.0					
Head	NR Band n14	10	QPSK	E	0078M	1:1	0.01	783.00	158600	DFT-s-OFDM	0.0	22.5	21.46	1	50	Left Cheek	0	0.587	1.271	0.746	0.746	0.468	23.7	23.2	21.5			
Head	NR Band n14	10	QPSK	E	0078M	1:1	0.04	783.00	158600	DFT-s-OFDM	0.0	22.5	21.36	25	14	Left Cheek	0	0.421	1.300	0.807	0.807	0.104	23.4					
Head	NR Band n14	10	QPSK	E	0078M	1:1	-0.01	783.00	158600	DFT-s-OFDM	0.0	22.5	21.20	50	0	Left Cheek	0	0.618	1.349	0.835	0.835	0.122	23.2					
Head	NR Band n14	10	QPSK	E	0078M	1:1	-0.04	783.00	158600	CP-OFDM	0.0	22.5	21.31	1	1	Left Cheek	0	0.612	1.296	0.845	0.845	0.128	23.2	452	23.2			
Head	NR Band n14	10	QPSK	E	0078M	1:1	0.04	783.00	158600	DFT-s-OFDM	0.0	22.5	21.46	1	50	Left Tilt	0	0.488	1.271	0.748	0.748	0.468	23.1					
Head	NR Band n14	10	QPSK	E	0078M	1:1	0.11	783.00	158600	DFT-s-OFDM	0.0	22.5	21.36	25	14	Left Tilt	0	0.621	1.300	0.807	0.807	0.104	23.4					
ANSI/IEEE C63.1992 - SAFETY LIMIT																			Head									
Spatial Peak																			1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population																			averaged over 1 gram									

Table 12-67

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dcft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EPS Pinnt [dBm]
Body worn/Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Back	10	117	0.286	1.306	0.347	0.534	0.521	29.5			
Body worn/Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Back	10	117	0.281	1.387	0.380	0.536	0.380	29.0			
Body worn/Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	-0.05	793.00	158600	CP-OFDM	1.5	23.5	22.35	1	1	Back	10	117	0.388	1.303	0.245	0.512	0.320	29.6			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Front	10	117	0.277	1.306	0.356	0.517	0.310	29.1			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	0.06	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Front	10	117	0.175	1.387	0.234	0.389	0.224	31.1			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Bottom	10	117	0.072	1.306	0.094	0.139	0.087	35.2	29.0	26.7	
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	-0.03	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Bottom	10	117	0.087	1.387	0.093	0.117	0.096	35.3			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	-0.19	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Right	10	117	0.088	1.306	0.128	0.185	0.119	33.9			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	0.07	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Right	10	117	0.083	1.387	0.115	0.170	0.106	34.3			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	-0.08	793.00	158600	DFT-s-OFDM	0.0	25.0	23.84	1	1	Left	10	117	0.103	1.306	0.200	0.296	0.149	31.9			
Hotspot	NR Band n14	10	QPSK	A	0078M	1:1	-0.17	793.00	158600	DFT-s-OFDM	0.0	25.0	23.58	25	14	Left	10	117	0.108	1.387	0.219	0.324	0.203	31.5			
Spatial Peak Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-68

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dcft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EPS Pinnt [dBm]
Body worn/Hotspot	NR Band n14	10	QPSK	E	0078M	1:1	-0.04	793.00	158600	DFT-s-OFDM	0.0	25.0	24.07	1	1	Back	10	0.417	1.239	0.517	0.800	0.500	A53	27.8		
Body worn/Hotspot	NR Band n14	10	QPSK	E	0078M	1:1	-0.11	793.00	158600	DFT-s-OFDM	0.0	25.0	23.82	25	14	Back	10	0.414	1.282	0.531	0.822	0.514	27.7			
Hotspot	NR Band n14	10	QPSK	E	0085M	1:1	-0.01	793.00	158600	DFT-s-OFDM	0.0	25.0	24.07	1	1	Front	10	0.408	1.238	0.567	0.879	0.549	27.4			
Hotspot	NR Band n14	10	QPSK	E	0085M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.82	25	14	Front	10	0.461	1.282	0.591	0.916	0.573	27.2			
Hotspot	NR Band n14	10	QPSK	E	0078M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	24.07	1	1	Top	10	0.485	1.238	0.605	0.916	0.565	27.1			
Hotspot	NR Band n14	10	QPSK	E	0078M	1:1	0.00	793.00	158600	DFT-s-OFDM	0.0	25.0	23.82	25	14	Top	10	0.483	1.282	0.619	0.919	0.589	27.0			
Hotspot	NR Band n14	10	QPSK	E	0085M	1:1	-0.01	793.00	158600	DFT-s-OFDM	0.0	25.0	24.07	1	1	Right	10	0.596	1.239	0.627	0.971	0.607	A54	27.0		
Hotspot	NR Band n14	10	QPSK	E	0085M	1:1	-0.05	793.00	158600	DFT-s-OFDM	0.0	25.0	23.82	25	14	Right	10	0.484	1.282	0.625	0.961	0.613	26.5			
Hotspot	NR Band n14	10	QPSK	E	0085M	1:1	0.05	793.00	158600	CP-OFDM	1.5	23.5	22.31	1	1	Right	10	0.504	1.256	0.445	0.973	0.608	27.0			
ANU/IEEE C95.1 1992 - SAFETY LIMIT																			Body							
Spatial Peak																			1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																			averaged over 1 gram							

12.20 NR Band n26 Standalone SAR

Table 12-69

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dcft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dbm]	Conducted Power [dbm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Pinnt [dbm]	Overall Pinnt [dbm]	EPS Pinnt [dbm]
Head	NR Band n26	20	QPSK	A	0078M	1:1	0.07	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Right Cheek	0	63	0.077	1.197	0.092	0.305	0.193	35.3			
Head	NR Band n26	20	QPSK	A	0078M	1:1	-0.05	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Right Cheek	0	63	0.058	1.227	0.096	0.317	0.188	35.1			
Head	NR Band n26	20	QPSK	A	0095M	1:1	-0.15	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Right Tit	0	63	0.056	1.197	0.059	0.205	0.059	34.7			
Head	NR Band n26	20	QPSK	A	0095M	1:1	-0.09	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Right Tit	0	63	0.057	1.227	0.057	0.208	0.056	34.6			
Head	NR Band n26	20	QPSK	A	0078M	1:1	0.03	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Left Cheek	0	63	0.068	1.197	0.105	0.349	0.218	34.4			
Head	NR Band n26	20	QPSK	A	0078M	1:1	-0.11	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Left Cheek	0	63	0.056	1.227	0.056	0.208	0.056	34.6			
Head	NR Band n26	20	QPSK	A	0095M	1:1	0.02	831.50	166300	CP-OFDM	1.5	23.5	22.65	1	1	Left Cheek	0	63	0.050	1.216	0.061	0.284	0.176	35.0			
Head	NR Band n26	20	QPSK	A	0095M	1:1	-0.14	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Left Tit	0	63	0.054	1.197	0.029	0.095	0.059	34.8			
Head	NR Band n26	20	QPSK	A	0095M	1:1	0.06	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Left Tit	0	63	0.051	1.227	0.028	0.083	0.058	34.9			
UNLICENSED 5.0192 - SAFETY LIMIT																											
Special Population																											
Uncontrolled Exposure: General Population																											
1.6 W/kg (mW/g) averaged over 5 gram																											



Table 12-70

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Head	NR Band n70	20	QPSK	E	0080M	1:1	-0.03	831.50	166300	DFT-s-OFDM	0.0	22.0	21.23	1	1	Right Cheek	0	0.638	1.194	0.763	0.763	0.477		23.1		
Head	NR Band n70	20	QPSK	E	0080M	1:1	-0.01	831.50	166300	DFT-s-OFDM	0.0	22.0	21.06	50	28	Right Cheek	0	0.635	1.242	0.809	0.809	0.506		22.9		
Head	NR Band n70	20	QPSK	E	0080M	1:1	-0.04	831.50	166300	DFT-s-OFDM	0.0	22.0	21.06	500	0	Right Cheek	0	0.629	1.245	0.783	0.783	0.489		23.0		
Head	NR Band n70	20	QPSK	E	0080M	1:1	-0.05	831.50	166300	DFT-s-OFDM	0.0	22.0	21.23	1	1	Right Tilt	0	0.482	1.194	0.576	0.576	0.380		24.3		
Head	NR Band n70	20	QPSK	E	0078M	1:1	0.01	831.50	166300	DFT-s-OFDM	0.0	22.0	21.06	50	28	Right Tilt	0	0.535	1.242	0.660	0.660	0.413		23.8		
Head	NR Band n70	20	QPSK	E	0078M	1:1	0.05	831.50	166300	DFT-s-OFDM	0.0	22.0	21.23	1	1	Left Cheek	0	0.755	1.194	0.901	0.901	0.583		22.4		
Head	NR Band n70	20	QPSK	E	0078M	1:1	-0.01	831.50	166300	DFT-s-OFDM	0.0	22.0	21.06	50	28	Left Cheek	0	0.777	1.242	0.965	0.965	0.603	A55	23.1		
Head	NR Band n70	20	QPSK	E	0078M	1:1	-0.03	831.50	166300	DFT-s-OFDM	0.0	22.0	21.05	300	0	Left Cheek	0	0.729	1.245	0.945	0.945	0.591		22.2		
Head	NR Band n70	20	QPSK	E	0078M	1:1	0.08	831.50	166300	CP-OFDM	0.0	22.0	21.24	1	1	Left Cheek	0	0.749	1.191	0.885	0.885	0.533		22.5		
Head	NR Band n70	20	QPSK	E	0078M	1:1	0.09	831.50	166300	DFT-s-OFDM	0.0	22.0	21.23	1	13	Left Tilt	0	0.686	1.194	0.795	0.795	0.487		22.8		
Head	NR Band n70	20	QPSK	E	0078M	1:1	0.07	831.50	166300	DFT-s-OFDM	0.0	22.0	21.06	30	28	Left Tilt	0	0.734	1.242	0.887	0.887	0.554		22.5		
Head	NR Band n70	20	QPSK	E	0078M	1:1	0.07	831.50	166300	DFT-s-OFDM	0.0	22.0	21.05	300	0	Left Tilt	0	0.679	1.245	0.845	0.845	0.528		22.7		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-71

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Error [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]	
Body worn/Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.06	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Back	10	63	0.234	1.197	0.380	0.572	0.308		30.5			
	NR Band n70	20	QPSK	A	0078M	1:1	-0.05	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Back	10	63	0.234	1.127	0.397	0.586	0.304		30.4			
Body worn/Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	0.00	831.50	166300	CP-OFDM	1.5	23.5	22.65	1	1	Back	10	63	0.149	1.216	0.181	0.523	0.127		30.9			
	NR Band n70	20	QPSK	A	0078M	1:1	-0.07	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Front	10	63	0.189	1.197	0.189	0.368	0.141		32.3			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.05	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Front	10	63	0.180	1.127	0.195	0.401	0.151		32.0			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.02	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Bottom	10	63	0.062	1.197	0.074	0.151	0.084		36.2			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.05	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Bottom	10	63	0.063	1.127	0.077	0.150	0.099		36.1			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.14	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Right	10	63	0.078	1.197	0.093	0.195	0.119		35.2			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.20	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Right	10	63	0.080	1.227	0.098	0.200	0.125		35.0			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	0.00	831.50	166300	DFT-s-OFDM	0.0	25.0	24.22	1	53	Left	10	63	0.140	1.197	0.156	0.310	0.209		33.0			
Hotspot	NR Band n70	20	QPSK	A	0078M	1:1	-0.04	831.50	166300	DFT-s-OFDM	0.0	25.0	24.11	50	28	Left	10	63	0.127	1.227	0.156	0.310	0.359		33.0			
ANSI/IEEE C63.1 1992 - SAFETY LIMIT																							Spatial Peak			Body		
Uncontrolled Exposure/General Population																							1.6 W/kg (mW/g)			averaged over 1 gram		

Table 12-72

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Body-worn/Hotspot	NR Band n26	20	QPSK	E	0078M	1:1	-0.01	831.50	166300	DFT-s-OFDM	0.0	25.0	24.36	1	53	Back	10	0.411	1.159	0.476	0.809	0.506		28.2		
Body-worn/Hotspot	NR Band n26	20	QPSK	E	0078M	1:1	-0.05	831.50	166300	DFT-s-OFDM	0.0	25.0	24.42	50	28	Back	10	0.422	1.143	0.482	0.819	0.512	A56	28.1		
Hotspot	NR Band n26	20	QPSK	E	0080M	1:1	-0.02	831.50	166300	DFT-s-OFDM	0.0	25.0	24.36	1	53	Front	10	0.564	1.159	0.410	0.897	0.456		28.1		
Hotspot	NR Band n26	20	QPSK	E	0080M	1:1	0.04	831.50	166300	DFT-s-OFDM	0.0	25.0	24.42	50	28	Front	10	0.417	1.143	0.477	0.809	0.506		28.2		
Hotspot	NR Band n26	20	QPSK	E	0078M	1:1	-0.02	831.50	166300	DFT-s-OFDM	0.0	25.0	24.36	1	53	Top	10	0.455	1.159	0.554	0.905	0.564		27.5	27.5	
Hotspot	NR Band n26	20	QPSK	E	0078M	1:1	-0.04	831.50	166300	DFT-s-OFDM	0.0	25.0	24.42	50	28	Top	10	0.483	1.143	0.522	0.918	0.585	A57	27.5		
Hotspot	NR Band n26	20	QPSK	E	0080M	1:1	0.03	831.50	166300	CP-OFDM	1.5	23.5	22.83	1	1	Top	10	0.386	1.167	0.314	0.801	0.501		28.2		
Hotspot	NR Band n26	20	QPSK	E	0078M	1:1	-0.06	831.50	166300	DFT-s-OFDM	0.0	25.0	24.36	1	53	Right	10	0.284	1.159	0.341	0.578	0.362		29.6		
Hotspot	NR Band n26	20	QPSK	E	0080M	1:1	0.02	831.50	166300	DFT-s-OFDM	0.0	25.0	24.42	50	28	Right	10	0.307	1.143	0.371	0.906	0.373		29.5		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT																		Body								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

12.21 NR Band n70 Standalone SAR

Table 12-73

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Head	NR Band n70	15	QPSK	A	0080M	1:1	-0.17	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.67	1	1	Right Cheek	0	100	0.088	1.211	0.119	0.119	0.104	0.209		33.7	
Head	NR Band n70	15	QPSK	A	0080M	1:1	0.13	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.66	36	22	Right Cheek	0	100	0.108	1.213	0.143	0.404	0.253		32.0		
Head	NR Band n70	15	QPSK	A	0080M	1:1	0.09	1702.50	340500	CP-OFDM	1.5	23.0	22.33	1	1	Right Cheek	0	100	0.087	1.167	0.102	0.404	0.253		32.8		
Head	NR Band n70	15	QPSK	A	0080M	1:1	0.08	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.87	1	1	Right Tilt	0	100	0.081	1.211	0.176	0.176	0.114		35.8		
Head	NR Band n70	15	QPSK	A	0080M	1:1	0.04	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.66	36	22	Right Tilt	0	100	0.060	1.213	0.073	0.200	0.128		35.8	32.9	
Head	NR Band n70	15	QPSK	A	0080M	1:1	-0.04	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.67	1	1	Left Cheek	0	100	0.066	1.211	0.080	0.225	0.141		35.4		
Head	NR Band n70	15	QPSK	A	0080M	1:1	-0.06	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.66	36	22	Left Cheek	0	100	0.077	1.213	0.093	0.263	0.164		34.7		
Head	NR Band n70	15	QPSK	A	0080M	1:1	0.03	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.67	1	1	Left Tilt	0	100	0.056	1.211	0.068	0.191	0.119		36.1		
Head	NR Band n70	15	QPSK	A	0080M	1:1	0.02	1702.50	340500	DFT-s-OFDM	0.0	24.5	23.66	36	22	Left Tilt	0	100	0.062	1.213	0.075	0.212	0.133		35.7		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 12-74

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]	
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.05	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.82	1	77	Right Cheek	0	0.724	1.169	0.846	0.846	0.528		20.2			
Head	NR Band n70	15	QPSK	F	0080M	1:1	-0.01	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.82	1	77	Right Cheek	0	0.789	1.253	0.882	0.882	0.538		20.2			
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.00	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.44	75	0	Right Cheek	0	0.709	1.276	0.905	0.905	0.566		19.7			
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.02	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.82	1	77	Right Tilt	0	0.807	1.169	0.935	0.935	0.584	ASD	19.7			
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.02	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.82	1	77	Right Tilt	0	0.789	1.253	0.905	0.905	0.538		19.5			
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.01	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.44	75	0	Right Tilt	0	0.771	1.276	0.904	0.904	0.615		19.5	10.5	18.5	
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.02	1702.50	340500	CP-OFDM	0.0	19.5	18.49	1	1	Right Tilt	0	0.779	1.262	0.983	0.983	0.614		19.5			
Head	NR Band n70	15	QPSK	F	0080M	1:1	-0.02	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.82	1	77	Left Cheek	0	0.789	1.169	0.905	0.905	0.540		20.2			
Head	NR Band n70	15	QPSK	F	0080M	1:1	-0.08	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.52	36	43	Left Cheek	0	0.662	1.253	0.579	0.579	0.362		20.1			
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.05	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.82	1	77	Left Tilt	0	0.467	1.169	0.743	0.743	0.444		20.8			
Head	NR Band n70	15	QPSK	F	0080M	1:1	0.00	1702.50	340500	DFT-s-OFDM	0.0	19.5	18.52	36	43	Left Tilt	0	0.686	1.253	0.783	0.783	0.458		20.8			
ANSI/IEEE C63.19-1987 - SAFETY LIMIT																				Head				1.6 W/kg (mW/g)			
Unmodulated Exposure/General Population																				averaged over 10 min							



Table 12-75

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Body-worn/Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.63	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.93	1	40	Back	10	27	0.467	1.279	0.572	0.572	0.358	22.4			
Body-worn/Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.65	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.94	36	0	Back	10	27	0.469	1.276	0.598	0.598	0.374	A59	22.2		
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.67	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.91	1	40	Front	10	28	0.466	1.276	0.496	0.496	0.320	23.0			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.68	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.94	36	0	Front	10	28	0.467	1.276	0.519	0.519	0.324	22.8			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.65	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.93	1	40	Bottom	10	28	0.466	1.279	1.108	1.108	0.693	19.5			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	0.00	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.94	36	0	Bottom	10	28	0.465	1.276	1.152	1.152	0.720	19.3			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	0.63	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.86	75	0	Bottom	10	28	0.463	1.284	1.163	1.189	0.745	A60	19.2		
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	0.12	1702.50	345000	CP-OFDM	0.0	20.0	19.01	1	1	Bottom	10	28	0.469	1.256	1.129	1.129	0.706	19.4			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.65	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.91	1	40	Right	10	9	0.466	1.279	0.077	0.077	0.048	31.1			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	0.07	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.94	36	0	Right	10	9	0.464	1.276	0.062	0.062	0.051	30.8			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	0.10	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.93	1	40	Left	10	9	0.468	1.279	0.061	0.061	0.058	31.2			
Hotspot	NR Band n70	15	QPSK	A	0085M	1:1	-0.69	1702.50	345000	DFT-s-OFDM	0.0	20.0	18.94	36	9	Left	10	9	0.468	1.276	0.068	0.068	0.041	31.6			
ANSI/IEEE C63.1-1992 - SAFETY LIMIT																				Body							
Spatial Peak																				1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																				averaged over 1 gram							

Table 12-76

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Body-worn/Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.00	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.15	1	77	Back	10		0.353	1.216	0.427	0.427	0.267	25.6			
Body-worn/Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.00	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.05	36	43	Back	10		0.346	1.245	0.431	0.431	0.309	25.6			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	-0.06	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.15	1	77	Front	10		0.347	1.216	0.227	0.227	0.142	28.4			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.01	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.05	36	43	Front	10		0.338	1.245	0.222	0.222	0.133	28.3			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.04	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.15	1	77	Top	10		0.327	1.216	0.641	0.641	0.401	24.5			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.03	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.05	36	43	Top	10		0.348	1.245	0.732	0.732	0.458	23.3			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.01	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.14	1	1	Top	10		0.333	1.216	0.467	0.467	0.404	24.6			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	-0.04	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.15	1	77	Left	10		0.340	1.216	0.195	0.195	0.122	29.1			
Hotspot	NR Band n70	15	QPSK	F	0085M	1:1	0.04	1702.50	345000	DFT-s-OFDM	0.0	22.0	21.05	36	43	Left	10		0.336	1.245	0.194	0.194	0.121	29.1			
ANSI/IEEE C63.1-1992 - SAFETY LIMIT																				Body							
Spatial Peak																				1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																				averaged over 1 gram							

12.22 NR Band n66 Standalone SAR

Table 12-77

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Head	NR Band n66	45	QPSK	A	0085M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.42	1	121	Right Cheek	0	99	0.508	1.522	0.121	0.121	0.340	22.3			
Head	NR Band n66	45	QPSK	A	0085M	1:1	-0.06	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.74	120	52	Right Cheek	0	99	0.502	1.591	0.121	0.121	0.324	22.6			
Head	NR Band n66	45	QPSK	A	0085M	1:1	0.02	1745.00	349000	CP-OFDM	1.5	23.0	21.80	1	1	Right Cheek	0	99	0.524	1.518	0.098	0.407	0.254	33.1			
Head	NR Band n66	45	QPSK	A	0085M	1:1	0.04	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.63	1	121	Right Tit	0	99	0.508	1.522	0.083	0.083	0.153	26.3			
Head	NR Band n66	45	QPSK	A	0085M	1:1	-0.01	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.74	120	61	Right Tit	0	99	0.501	1.591	0.073	0.214	0.134	35.8			
Head	NR Band n66	45	QPSK	A	0085M	1:1	0.02	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.45	1	121	Left Cheek	0	99	0.509	1.522	0.072	0.214	0.134	35.9			
Head	NR Band n66	45	QPSK	A	0085M	1:1	-0.06	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.74	120	51	Left Cheek	0	99	0.501	1.591	0.073	0.214	0.134	35.8			
Head	NR Band n66	45	QPSK	A	0085M	1:1	0.06	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.63	1	121	Left Tit	0	99	0.506	1.522	0.081	0.218	0.149	35.4			
Head	NR Band n66	45	QPSK	A	0085M	1:1	-0.16	1745.00	349000	DFT-s-OFDM	0.0	24.5	23.74	120	51	Left Tit	0	99	0.510	1.591	0.081	0.246	0.154	35.2			
ANSI/IEEE C63.1-1992 - SAFETY LIMIT																				Head							
Spatial Peak																				1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																				averaged over 1 gram							

Table 12-78

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Pilot #	Pilmit [dBm]	Overall Pilmit [dBm]	EPS Pilmit [dBm]
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.05	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.87	1	1	Right Cheek	0	0.684	1.156	0.791	0.791	0.494	20.5			
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.03	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.64	120	0	Right Cheek	0	0.642	1.219	0.783	0.783	0.489	20.5			
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.06	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.87	1	1	Right Tit	0	0.742	1.156	0.858	0.858	0.536	20.5			
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.64	120	0	Right Tit	0	0.735	1.219	0.872	0.872	0.545	20.5			
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.03	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.57	240	0	Right Tit	0	0.679	1.239	0.841	0.841	0.526	20.7			
Head	NR Band n66	45	QPSK	F	0085M	1:1	-0.11	1745.00	349000	CP-OFDM	0.0	19.5	18.87	1	1	Right Tit	0	0.762	1.156	0.904	0.904	0.569	A61	19.9		18.5
Head	NR Band n66	45	QPSK	F	0085M	1:1	-0.09	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.87	1	1	Left Cheek	0	0.463	1.156	0.535	0.535	0.334	22.1			
Head	NR Band n66	45	QPSK	F	0085M	1:1	-0.03	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.64	120	0	Left Cheek	0	0.459	1.219	0.518	0.518	0.324	22.1			
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.03	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.64	120	0	Left Cheek	0	0.475	1.156	0.560	0.560	0.346	21.3			
Head	NR Band n66	45	QPSK	F	0085M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.64	120	0	Left Tit	0	0.533	1.239	0.650	0.650	0.406	21.3			
ANSI/IEEE C63.1.1992 - SAFETY LIMIT												Head														
Spatial Peak												1.5W/kg (mW/g)														
Uncontrolled Exposure (General Population)												*Exposure 0.09W/kg														

Table 12-80

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	-0.05	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.43	1	1	Back	10	0.104	1.016	0.139	0.139	0.217		26.1		
Body worn/Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	-0.02	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.39	120	0	Back	10	0.106	1.074	0.129	0.129	0.206		26.3		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	-0.05	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.43	1	1	Front	10	0.102	1.016	0.145	0.145	0.193		26.1		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.19	120	0	Front	10	0.149	1.074	0.169	0.169	0.190		29.0		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.43	1	1	Top	10	0.492	1.016	0.499	0.499	0.312		24.5		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	-0.00	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.19	120	0	Top	10	0.497	1.074	0.502	0.502	0.314		24.6		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	0.00	1745.00	349000	CP-OFDM	0.0	21.5	21.31	1	1	Top	10	0.502	1.045	0.525	0.525	0.328		24.3		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	0.02	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.43	1	1	Left	10	0.107	1.016	0.144	0.144	0.198		26.2		
Hotspot	NR Band n25	45	QPSK	F	0080M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	21.5	21.19	120	0	Left	10	0.138	1.074	0.137	0.137	0.086		30.1		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT																		Spatial Peak		Body		1.6 W/kg (mW/g)		averaged over 1 gram		
Uncontrolled Exposure/General Population																										

12.23 NR Band n25 Standalone SAR

Table 12-81

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dbm]	Conducted Power [dbm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dbm]	Overall Plimit [dbm]	EPS Plimit [dbm]
Head	NR Band n25	40	QPSK	A	0080M	1:1	-0.02	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.61	1	108	Right Cheek	0	112	0.001	1.227	0.114	0.114	0.329		33.9		
Head	NR Band n25	40	QPSK	A	0080M	1:1	-0.01	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.36	108	54	Right Cheek	0	112	0.001	1.242	0.115	0.115	0.362		33.9		
Head	NR Band n25	40	QPSK	A	0080M	1:1	0.03	1882.50	376000	CP-OFDM	1.5	23.0	22.04	1	1	Right Cheek	0	112	0.005	1.247	0.081	0.081	0.300		33.9		
Head	NR Band n25	40	QPSK	A	0080M	1:1	-0.07	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.61	1	108	Right Tilt	0	112	0.002	1.227	0.064	0.064	0.184		33.6		
Head	NR Band n25	40	QPSK	A	0080M	1:1	-0.11	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.36	108	54	Right Tilt	0	112	0.007	1.242	0.071	0.071	0.204		34.0		
Head	NR Band n25	40	QPSK	A	0080M	1:1	0.03	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.61	1	108	Left Cheek	0	112	0.006	1.227	0.106	0.106	0.304		34.2		
Head	NR Band n25	40	QPSK	A	0080M	1:1	-0.09	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.56	108	54	Left Cheek	0	112	0.007	1.242	0.120	0.120	0.347		33.6		
Head	NR Band n25	40	QPSK	A	0080M	1:1	0.08	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.61	1	108	Left Tilt	0	112	0.004	1.227	0.115	0.115	0.333		33.8		
Head	NR Band n25	40	QPSK	A	0080M	1:1	0.08	1882.50	376000	DFT-s-OFDM	0.0	24.5	23.56	108	54	Left Tilt	0	112	0.008	1.242	0.097	0.097	0.174		34.6		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)		averaged over 1 gram					
Spatial Peak																											
Uncontrolled Exposure/General Population																											

Table 12-82

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n25	40	QPSK	F	0080M	1:1	0.01	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.61	1	1	Right Cheek	0	0.502	1.227	0.616	0.616	0.385		21.6		
Head	NR Band n25	40	QPSK	F	0080M	1:1	-0.02	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.48	108	54	Right Cheek	0	0.406	1.265	0.638	0.638	0.399		21.4		
Head	NR Band n25	40	QPSK	F	0080M	1:1	0.02	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.61	1	1	Right Tilt	0	0.630	1.227	0.773	0.773	0.483		20.6		
Head	NR Band n25	40	QPSK	F	0080M	1:1	0.00	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.48	108	54	Right Tilt	0	0.833	1.265	0.826	0.826	0.516		20.3		
Head	NR Band n25	40	QPSK	F	0080M	1:1	0.00	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.47	216	0	Right Tilt	0	1.000	1.268	0.876	0.876	0.548	A64	20.0		
Head	NR Band n25	40	QPSK	F	0080M	1:1	-0.08	1882.50	376000	DFT-s-OFDM	0.0	19.5	17.86	108	54	Right Tilt	0	0.415	1.265	0.615	0.615	0.379		22.8		
Head	NR Band n25	40	QPSK	F	0080M	1:1	-0.03	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.61	1	1	Left Cheek	0	0.413	1.227	0.504	0.504	0.315		22.4		
Head	NR Band n25	40	QPSK	F	0080M	1:1	-0.05	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.48	108	54	Left Cheek	0	0.418	1.265	0.529	0.529	0.331		22.2		
Head	NR Band n25	40	QPSK	F	0080M	1:1	-0.12	1882.50	376000	DFT-s-OFDM	0.0	19.5	17.86	1	1	Left Tilt	0	0.413	1.227	0.620	0.620	0.393		21.5		
Head	NR Band n25	40	QPSK	F	0080M	1:1	0.01	1882.50	376000	DFT-s-OFDM	0.0	19.5	18.48	108	54	Left Tilt	0	0.544	1.265	0.688	0.688	0.430		21.1		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)		averaged over 1 gram				
Uncontrolled Exposure/General Population																										

Table 12-83

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot#	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.03	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.87	1	108	Back	10	109	0.897	1.297	0.515	0.515	0.322		21.8		
Body worn/Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.06	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.86	108	0	Back	10	109	0.406	1.300	0.528	0.528	0.330	A65	21.7		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.09	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.87	1	108	Front	10	109	0.319	1.297	0.414	0.414	0.259		22.8		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.09	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.86	108	0	Front	10	109	0.192	1.300	0.432	0.432	0.270		22.6		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	0.01	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.87	1	108	Bottom	10	99	0.851	1.297	1.104	1.104	0.690		18.5		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	0.00	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.86	108	0	Bottom	10	99	0.879	1.300	1.115	1.115	0.709	A66	18.4		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.01	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.74	216	0	Bottom	10	99	0.866	1.317	1.118	1.118	0.714		18.3	18.1	18.0
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.01	1882.50	376000	CP-OFDM	0.0	19.0	17.92	1	1	Bottom	10	99	0.871	1.262	1.117	1.117	0.696		18.5		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.21	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.87	1	108	Right	10	109	0.086	1.297	0.080	0.080	0.088		31.2		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	0.03	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.86	108	0	Right	10	109	0.050	1.300	0.065	0.065	0.041		30.8		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	0.01	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.87	1	108	Left	10	109	0.041	1.297	0.053	0.053	0.055		31.7		
Hotspot	NR Band n25	40	QPSK	A	0080M	1:1	-0.06	1882.50	376000	DFT-s-OFDM	0.0	19.0	17.86	108	0	Left	10	109	0.043	1.300	0.066	0.066	0.033		31.5		
ANSI C63.19-2022: SAFETY LIMIT																											
Spatial Power Uncontrolled Exposure (General Population)																											
1.6 W/kg (avg) over 1 gram																											



12.24 NR Band n30 Standalone SAR

Table 12-85

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.19	1	1	Right Cheek	0	0.004	1.352	0.005	0.009	0.007		46.1		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.20	25	14	Right Cheek	0	0.004	1.349	0.005	0.009	0.007		46.1		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.19	1	1	Right Tilt	0	0.004	1.352	0.005	0.009	0.007		46.1		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.20	25	14	Right Tilt	0	0.004	1.349	0.005	0.009	0.007		46.1		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.19	1	1	Left Cheek	0	0.004	1.352	0.005	0.009	0.007		38.2		33.0
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.20	25	14	Left Cheek	0	0.004	1.349	0.005	0.009	0.007		38.2		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	CP-OFDM	1.5	22.0	20.87	1	1	Left Cheek	0	0.009	1.297	0.011	0.021	0.021		38.8		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.19	1	1	Left Tilt	0	0.004	1.352	0.005	0.009	0.007		41.1		
Head	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	23.5	22.20	25	14	Left Tilt	0	0.004	1.349	0.005	0.009	0.007		40.7		
ANSI/IEEE C63.1-1997 SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram												

Table 12-86

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	18.0	16.28	1	26	Right Cheek	0	0.732	1.486	1.088	1.088	0.680		17.6		
Head	NR Band n30	10	QPSK	F	0042M	1:1	-0.11	2310.00	462000	DFT+OFDM	0.0	18.0	16.41	25	14	Right Cheek	0	0.753	1.442	1.086	1.086	0.679		17.6		
Head	NR Band n30	10	QPSK	F	0042M	1:1	-0.01	2310.00	462000	DFT+OFDM	0.0	18.0	16.25	50	0	Right Cheek	0	0.705	1.496	1.129	1.129	0.706		17.4		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.07	2310.00	462000	CP-OFDM	0.0	18.0	16.08	1	1	Right Cheek	0	0.763	1.556	1.187	1.187	0.742	A67	17.2		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	18.0	16.39	1	26	Right Tilt	0	0.745	1.468	1.092	1.092	0.688		17.7		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	18.0	16.25	25	14	Right Tilt	0	0.717	1.442	1.034	1.034	0.646		17.4		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.04	2310.00	462000	DFT+OFDM	0.0	18.0	16.25	50	0	Right Tilt	0	0.780	1.486	1.137	1.137	0.711		17.4		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	18.0	16.39	1	26	Left Cheek	0	0.774	1.466	1.094	1.094	0.646		20.5		17.0
Head	NR Band n30	10	QPSK	F	0042M	1:1	-0.03	2310.00	462000	DFT+OFDM	0.0	18.0	16.41	25	14	Left Cheek	0	0.786	1.442	1.057	1.057	0.748		20.5		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.00	2310.00	462000	DFT+OFDM	0.0	18.0	16.28	1	26	Left Tilt	0	0.651	1.486	1.819	0.819	0.521		18.8		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	18.0	16.41	25	14	Left Tilt	0	0.549	1.442	0.752	0.752	0.499		19.0		
Head	NR Band n30	10	QPSK	F	0042M	1:1	0.07	2310.00	462000	DFT+OFDM	0.0	18.0	16.25	50	0	Left Tilt	0	0.568	1.486	0.860	0.860	0.531		18.7		
ANSI/IEEE C63.1-1997 SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram												

Table 12-87

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.02	2310.00	462000	DFT+OFDM	0.0	20.5	19.29	1	1	Back	10	0.307	1.321	0.406	0.406	0.254		24.4		
Body worn/Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.05	2310.00	462000	DFT+OFDM	0.0	20.5	19.26	25	14	Back	10	0.309	1.390	0.411	0.411	0.257	A68	24.3		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	-0.02	2310.00	462000	DFT+OFDM	0.0	20.5	19.20	1	1	Front	10	0.248	1.321	0.328	0.328	0.205		25.3		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.06	2310.00	462000	DFT+OFDM	0.0	20.5	19.26	25	14	Front	10	0.305	1.330	0.352	0.352	0.220		25.0		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	-0.03	2310.00	462000	DFT+OFDM	0.0	20.5	19.29	1	1	Bottom	10	0.779	1.321	1.029	1.029	0.643		20.4		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	-0.03	2310.00	462000	DFT+OFDM	0.0	20.5	19.26	25	14	Bottom	10	0.799	1.330	1.009	1.009	0.631		20.4		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	20.5	19.13	50	0	Bottom	10	0.771	1.371	1.058	1.058	0.661		20.1		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.03	2310.00	462000	CP-OFDM	0.0	20.5	19.40	1	1	Bottom	10	0.781	1.388	1.006	1.006	0.629	A69	20.4		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	20.5	19.29	1	1	Right	10	0.061	1.321	0.067	0.067	0.042		32.2		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	20.5	19.26	25	14	Right	10	0.063	1.320	0.069	0.069	0.043		32.0		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	-0.04	2310.00	462000	DFT+OFDM	0.0	20.5	19.29	1	1	Left	10	0.054	1.321	0.071	0.071	0.044		31.9		
Hotspot	NR Band n30	10	QPSK	A	0042M	1:1	0.02	2310.00	462000	DFT+OFDM	0.0	20.5	19.26	25	14	Left	10	0.052	1.330	0.069	0.069	0.043		32.0		
ANSI/IEEE C63.1-1997 SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram												

Table 12-88

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.20	1	26	Back	10	0.225	1.514	0.341	0.341	0.213		25.6		
Body worn/Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.27	25	0	Back	10	0.209	1.489	0.356	0.356	0.223		25.4		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.20	1	26	Front	10	0.203	1.514	0.353	0.353	0.221		25.5		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.27	25	0	Front	10	0.209	1.489	0.341	0.341	0.213		25.6		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	-0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.20	1	26	Top	10	0.095	1.514	0.917	0.917	0.573		21.1		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.27	25	0	Top	10	0.032	1.489	0.941	0.941	0.588		21.1		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.19	50	0	Top	10	0.025	1.517	0.948	0.948	0.593		21.2		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	-0.11	2310.00	462000	CP-OFDM	0.0	21.0	19.13	1	1	Top	10	0.026	1.489	0.930	0.930	0.575		21.1		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.20	1	26	Left	10	0.061	1.514	0.995	0.995	0.569		31.2		
Hotspot	NR Band n30	10	QPSK	F	0042M	1:1	0.01	2310.00	462000	DFT+OFDM	0.0	21.0	19.27	25	0	Left	10	0.066	1.489	0.998	0.998	0.581		31.0		
ANSI/IEEE C63.1-1997 SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram												

12.25 NR Band n7 Standalone SAR

Table 12-89

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dft [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor
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Table 12-90

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.02	2535.00	507000	DF1+CFDM	0.0	17.0	16.31	1	1	Right Cheek	0	0.726	1.172	0.851	0.851	0.532		17.7		
Head	NR Band n7	50	QPSK	F	0042M	1:1	0.00	2535.00	507000	DF1+CFDM	0.0	17.0	16.24	135	0	Right Cheek	0	0.647	1.193	0.771	0.771	0.482		18.1		
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.01	2535.00	507000	DF1+CFDM	0.0	17.0	16.15	270	0	Right Cheek	0	0.529	1.216	0.705	0.705	0.478		18.1		
Head	NR Band n7	50	QPSK	F	0042M	1:1	0.00	2535.00	507000	DF1+CFDM	0.0	17.0	16.33	1	1	Right Tilt	0	0.989	1.172	1.065	1.065	0.666		16.1		
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.01	2535.00	507000	DF1+CFDM	0.0	17.0	16.24	135	0	Right Tilt	0	0.640	1.193	1.000	1.000	0.625		16.9		
Head	NR Band n7	50	QPSK	F	0042M	1:1	0.01	2535.00	507000	DF1+CFDM	0.0	17.0	16.15	270	0	Right Tilt	0	0.750	1.216	0.961	0.961	0.601		17.1		
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.02	2535.00	507000	CP-OFDM	0.0	22.0	20.68	1	1	Right Tilt	0	0.945	1.159	1.080	1.080	0.675		16.5		
Head	NR Band n7	50	QPSK	F	0042M	1:1	0.01	2535.00	507000	CP-OFDM	0.0	17.0	16.30	1	1	Right Tilt	0	0.966	1.153	1.114	1.114	0.696	A70	16.5		
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.02	2535.00	507000	DF1+CFDM	0.0	17.0	16.31	1	1	Left Cheek	0	0.347	1.172	0.430	0.430	0.269		20.6		
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.01	2535.00	507000	DF1+CFDM	0.0	17.0	16.28	135	0	Left Cheek	0	0.124	1.193	0.386	0.386	0.241		21.1		
Head	NR Band n7	50	QPSK	F	0042M	1:1	0.01	2535.00	507000	DF1+CFDM	0.0	17.0	16.31	1	1	Left Tilt	0	0.404	1.172	0.473	0.473	0.296		20.2		
Head	NR Band n7	50	QPSK	F	0042M	1:1	-0.01	2535.00	507000	DF1+CFDM	0.0	17.0	16.24	135	0	Left Tilt	0	0.190	1.193	0.417	0.417	0.261		20.7		
ANSI/IEEE C63.19-2 SAFETY LIMIT																		Head		1.6 W/kg (mW/g)		averaged over 1 gram				
Spatial Peak																		Body		1.6 W/kg (mW/g)		averaged over 1 gram				
Uncontrolled Exposure/General Population																										

Note: Blue entry represents variability measurement

Table 12-91

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Body-worn/Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	0.01	2535.00	507000	DF1+CFDM	0.0	21.0	20.41	1	1	Back	10	0.368	1.146	0.423	0.423	0.364		24.7		
Body-worn/Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	-0.01	2535.00	507000	DF1+CFDM	0.0	21.0	20.35	135	0	Back	10	0.179	1.161	0.435	0.435	0.277	A71	24.0		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	0.11	2535.00	507000	DF1+CFDM	0.0	21.0	20.43	1	1	Front	10	0.305	1.146	0.235	0.235	0.147		27.2		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	0.00	2535.00	507000	DF1+CFDM	0.0	21.0	20.35	135	0	Front	10	0.161	1.178	0.248	0.248	0.149		27.1		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	0.01	2535.00	507000	DF1+CFDM	0.0	21.0	20.41	1	1	Bottom	10	0.363	1.146	0.414	0.414	0.259		24.4		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	0.02	2535.00	507000	DF1+CFDM	0.0	21.0	20.35	135	0	Bottom	10	0.185	1.161	0.447	0.447	0.279		24.0		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	0.02	2535.00	507000	CP-OFDM	0.0	21.0	20.68	1	1	Bottom	10	0.363	1.178	0.429	0.429	0.262		24.1		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	-0.01	2535.00	507000	DF1+CFDM	0.0	21.0	20.35	135	0	Right	10	0.302	1.146	0.346	0.346	0.216		25.0		
Hotspot	NR Band n7	50	QPSK	B	0042M	1:1	-0.02	2535.00	507000	DF1+CFDM	0.0	21.0	20.35	135	0	Right	10	0.121	1.161	0.373	0.373	0.233		25.2		
ANSI/IEEE C63.19-2 SAFETY LIMIT																		Head		1.6 W/kg (mW/g)		averaged over 1 gram				
Spatial Peak																		Body		1.6 W/kg (mW/g)		averaged over 1 gram				
Uncontrolled Exposure/General Population																										

Table 12-92

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Body-worn/Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.03	2535.00	507000	DF1+CFDM	0.0	20.5	19.79	1	1	Back	10	0.138	1.178	0.186	0.186	0.116		27.8		
Body-worn/Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.03	2535.00	507000	DF1+CFDM	0.0	20.5	19.74	135	68	Back	10	0.143	1.191	0.170	0.170	0.106		28.1		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.06	2535.00	507000	DF1+CFDM	0.0	20.5	19.76	1	1	Front	10	0.268	1.178	0.269	0.269	0.168		26.1		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.07	2535.00	507000	DF1+CFDM	0.0	20.5	19.74	135	68	Front	10	0.208	1.191	0.248	0.248	0.155		26.5		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.00	2535.00	507000	DF1+CFDM	0.0	20.5	19.79	1	1	Top	10	0.433	1.178	0.498	0.498	0.311		23.1		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.07	2535.00	507000	DF1+CFDM	0.0	20.5	19.74	135	68	Top	10	0.177	1.191	0.449	0.449	0.281		23.1		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.04	2535.00	507000	CP-OFDM	0.0	20.5	20.07	1	1	Top	10	0.473	1.194	0.522	0.522	0.326	A72	23.1		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.05	2535.00	507000	DF1+CFDM	0.0	20.5	19.79	1	1	Left	10	0.054	1.178	0.064	0.064	0.040		32.4		
Hotspot	NR Band n7	50	QPSK	F	0042M	1:1	0.06	2535.00	507000	DF1+CFDM	0.0	20.5	19.74	135	68	Left	10	0.043	1.191	0.050	0.050	0.031		33.1		
ANSI/IEEE C63.19-2 SAFETY LIMIT																		Head		1.6 W/kg (mW/g)		averaged over 1 gram				
Spatial Peak																		Body		1.6 W/kg (mW/g)		averaged over 1 gram				
Uncontrolled Exposure/General Population																										

12.26 NR Band n41 Standalone SAR

Table 12-93

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EPS Plimt [dBm]
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.19	2592.99	518598	DF1+CFDM	0.0	22.0	21.90	1	271	Right Cheek	0	0.566	1.000	0.646	0.646	0.620		35.3		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.13	2592.99	518598	DF1+CFDM	0.0	22.0	21.98	135	0	Right Cheek	0	0.059	1.005	0.059	0.059	0.037		34.2		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.08	2592.99	518598	CP-OFDM	0.0	22.0	21.98	1	1	Right Cheek	0	0.077	1.005	0.072	0.072	0.045		33.6		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.20	2592.99	518598	DF1+CFDM	0.0	22.0	21.90	1	271	Right Tilt	0	0.560	1.000	0.620	0.620	0.613		38.9		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.07	2592.99	518598	DF1+CFDM	0.0	22.0	21.98	135	0	Right Tilt	0	0.054	1.005	0.054	0.054	0.035		35.7		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.01	2592.99	518598	CP-OFDM	0.0	22.0	21.98	135	0	Right Tilt	0	0.054	1.005	0.054	0.054	0.035		35.7	33.4	
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DF1+CFDM	0.0	22.0	21.98	135	0	Left Cheek	0	0.056	1.005	0.056	0.056	0.036		44.1		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DF1+CFDM	0.0	22.0	21.98	135	0	Left Tilt	0	0.051	1.000	0.051	0.051	0.029		41.0		
Head	NR Band n41	100	QPSK	B	2	0044M	1:1	0.12	2592.99	518598	DF1+CFDM	0.0	22.0	21.98	135	0	Left Tilt	0	0.051	1.005	0.051	0.051	0.031		38.7		
AND/IEEE C95.1 L202 - SAFETY LIMIT															Head												
Spatial Peak															1.6 W/kg (mW/g)												
Uncontrolled Exposure / General Population															Approved over 1.6 W/kg												



Table 12-95

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	RFSP1mit [dBm]
Head	NR Band n41	100	D	2	0044M	1:1	0.05	2592.99	518598	CW/SRS	22.0	21.24	Right Cheek	0	0.001	1.191	0.001	0.001	0.001		51.2		
Head	NR Band n41	100	D	2	0044M	1:1	0.05	2592.99	518598	CW/SRS	22.0	21.24	Right Tilt	0	0.000	1.191	0.000	0.000	0.000		61.2		
Head	NR Band n41	100	D	2	0044M	1:1	0.01	2592.99	518598	CW/SRS	22.0	21.24	Left Cheek	0	0.000	1.191	0.000	0.000	0.000		61.2		
Head	NR Band n41	100	D	2	0044M	1:1	0.07	2592.99	518598	CW/SRS	22.0	21.24	Left Tilt	0	0.000	1.191	0.000	0.000	0.000		61.2		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT												Head										1.6 W/kg (mW/g)	
Spatial Peak												1.6 W/kg (mW/g)										averaged over 1 gram	
Uncontrolled Exposure/General Population																							

Table 12-96

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	RFSP1mit [dBm]
Head	NR Band n41	100	E	2	0044M	1:1	-0.10	2592.99	518598	CW/SRS	18.5	18.07	Right Cheek	0	0.278	1.104	0.307	0.307	0.192		25.6		
Head	NR Band n41	100	E	2	0044M	1:1	-0.05	2592.99	518598	CW/SRS	18.5	18.07	Right Tilt	0	0.323	1.104	0.357	0.357	0.223		22.9		
Head	NR Band n41	100	E	2	0044M	1:1	-0.03	2592.99	518598	CW/SRS	18.5	18.07	Left Cheek	0	0.647	1.104	0.714	0.714	0.446		15.9		
Head	NR Band n41	100	E	2	0044M	1:1	-0.11	2592.99	518598	CW/SRS	18.5	18.07	Left Tilt	0	0.965	1.104	0.624	0.624	0.390		20.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT												Head										1.6 W/kg (mW/g)	
Spatial Peak												1.6 W/kg (mW/g)										averaged over 1 gram	
Uncontrolled Exposure/General Population																							

Table 12-97

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MFR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RF Size	RF Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	RFSP1mit [dBm]
Body-worn/Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DTT+OFDM	0.0	21.0	20.96	1	137	Back	10	0.281	1.009	0.284	0.284	0.178		26.4		
	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DTT+OFDM	0.0	21.0	20.95	135	138	Back	10	0.247	1.012	0.250	0.250	0.156		27.0		
Body-worn/Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	OFDM	0.0	21.0	20.92	1	1	Back	10	0.784	1.007	0.787	0.787	0.229	A74	25.1		
	NR Band n41	100	QPSK	B	2	0044M	1:1	0.01	2592.99	518598	DTT+OFDM	0.0	21.0	20.96	1	137	Front	10	0.238	1.009	0.232	0.232	0.145		27.3		
Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DTT+OFDM	0.0	21.0	20.96	135	138	Front	10	0.227	1.012	0.230	0.230	0.144		27.9		
Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.05	2592.99	518598	DTT+OFDM	0.0	21.0	20.96	1	137	Bottom	10	0.227	1.009	0.229	0.229	0.143		27.1		
Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DTT+OFDM	0.0	21.0	20.95	135	138	Bottom	10	0.220	1.012	0.223	0.223	0.139		27.5		
Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.03	2592.99	518598	DTT+OFDM	0.0	21.0	20.96	1	137	Right	10	0.175	1.009	0.177	0.177	0.111		28.1		
Hotspot	NR Band n41	100	QPSK	B	2	0044M	1:1	0.10	2592.99	518598	DTT+OFDM	0.0	21.0	20.95	135	138	Right	10	0.177	1.012	0.179	0.179	0.112		28.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT												Body										1.6 W/kg (mW/g)					
Spatial Peak												1.6 W/kg (mW/g)										averaged over 1 gram					
Uncontrolled Exposure/General Population																											

Table 12-98

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MFR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RF Size	RF Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	RFSP1mit [dBm]
Body-worn/Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.08	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.27	1	137	Back	10	0.188	1.054	0.209	0.209	0.111		27.9		
Body-worn/Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.05	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.33	135	69	Back	10	0.188	1.040	0.206	0.206	0.109		27.1		
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.10	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.27	1	137	Front	10	0.289	1.054	0.305	0.305	0.193		25.9		
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.05	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.33	135	69	Front	10	0.284	1.040	0.295	0.295	0.184		25.7		
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.03	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.27	1	137	Top	10	0.437	1.054	0.461	0.461	0.288		23.8	23.1	19.5
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.05	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.33	135	69	Top	10	0.436	1.040	0.453	0.453	0.283		23.9		
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.03	2592.99	518598	e-OFDM	0.0	20.5	20.28	1	1	Top	10	0.553	1.062	0.545	0.545	0.345	A75	23.1		
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.07	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.27	1	137	Left	10	0.568	1.054	0.061	0.061	0.038		39.5		
Hotspot	NR Band n41	100	QPSK	F	1	0044M	1:1	0.09	2592.99	518598	DTT+e-OFDM	0.0	20.5	20.30	135	69	Left	10	0.565	1.040	0.563	0.563	0.030		31.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Body										1.6 W/kg (mW/g)			
Spatial Peak														1.6 W/kg (mW/g)										averaged over 1 gram			
Uncontrolled Exposure/General Population																											

Table 12-99

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	RFSP1mit [dBm]
Body-worn/Hotspot	NR Band n41	100	D	2	0044M	1:1	-0.08	2592.99	518598	CW/SRS	21.0	20.26	Back	10	0.358	1.186	0.425	0.425	0.266		24.7		
Hotspot	NR Band n41	100	D	2	0044M	1:1	0.15	2592.99	518598	CW/SRS	21.0	20.26	Front	10	0.019	1.186	0.021	0.021	0.013		37.7		
Hotspot	NR Band n41	100	D	2	0044M	1:1	0.07	2592.99	518598	CW/SRS	21.0	20.26	Bottom	10	0.057	1.186	0.068	0.068	0.043		36.2		
Hotspot	NR Band n41	100	D	2	0044M	1:1	0.02	2592.99	518598	CW/SRS	21.0	20.26	Left	10	0.025	1.186	0.030	0.030	0.019		32.7		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT												Body										1.6 W/kg (mW/g)	
Spatial Peak												1.6 W/kg (mW/g)										averaged over 1 gram	
Uncontrolled Exposure/General Population																							

Table 12-100

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Path	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	RFSP1mit [dBm]	
Body-worn/Hotspot	NR Band n41	100	E	1	0044M	1:1	-0.04	2592.99	518598	CW/SRS	19.0	18.63	Back	10	0.109	1.089	0.119	0.119	0.074		28.2			
Hotspot	NR Band n41	100	E	1	0044M	1:1	0.07	2592.99	518598	CW/SRS	19.0	18.63	Front	10	0.169	1.089	0.184	0.184	0.115		26.3	24.6	18.0	
Hotspot	NR Band n41	100	E	1	0044M	1:1	0.09	2592.99	518598	CW/SRS	19.0	18.63	Top	10	0.252	1.089	0.274	0.274	0.171		24.6			
Hotspot	NR Band n41	100	E	1	0044M	1:1	-0.04	2592.99	518598	CW/SRS	19.0	18.63	Right	10	0.156	1.089	0.170	0.170	0.106		26.6			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Body									
Spatial Peak															1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population															averaged over 1 gram									



12.27 NR Band n48 Standalone SAR

Table 12-101

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.04	3570.00	638000	DFT-s-OFDM	0.0	17.0	16.75	1	104	Right Cheek	0	0.949	1.059	1.005	1.005	0.628		16.9		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.02	3524.99	641666	DFT-s-OFDM	0.0	17.0	16.81	1	1	Right Cheek	0	1.040	1.045	1.005	1.005	0.609		16.7		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.84	1	104	Right Cheek	0	1.038	1.038	1.000	1.000	0.675		16.6		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3570.00	638000	DFT-s-OFDM	0.0	17.0	16.77	50	56	Right Cheek	0	1.040	1.045	1.005	1.005	0.666		16.7		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3524.99	641666	DFT-s-OFDM	0.0	17.0	16.81	50	0	Right Cheek	0	0.991	1.045	1.036	1.036	0.648		16.6		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.83	50	28	Right Cheek	0	1.070	1.040	1.113	1.113	0.696	A76	16.5		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.06	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.79	100	28	Right Cheek	0	1.000	1.009	1.056	1.056	0.606		16.7		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.77	300	0	Right Cheek	0	1.000	1.054	1.075	1.075	0.672		16.6		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	CP-OFDM	0.0	17.0	16.79	1	1	Right Cheek	0	0.999	1.050	1.049	1.049	0.606		16.7		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.03	3570.00	638000	DFT-s-OFDM	0.0	17.0	16.76	1	104	Right Tilt	0	0.994	1.009	1.010	1.010	0.611		16.6		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3524.99	641666	DFT-s-OFDM	0.0	17.0	16.83	1	1	Right Tilt	0	0.971	1.040	1.035	1.035	0.634		16.5		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.84	1	104	Right Tilt	0	1.035	1.038	1.048	1.048	0.605		16.7		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.03	3570.00	638000	DFT-s-OFDM	0.0	17.0	16.77	50	56	Right Tilt	0	0.940	1.054	1.038	1.038	0.647		16.8		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3524.99	641666	DFT-s-OFDM	0.0	17.0	16.83	50	0	Right Tilt	0	0.968	1.045	1.033	1.033	0.633		16.5		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.83	50	28	Right Tilt	0	1.050	1.040	1.092	1.092	0.683		16.6		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.12	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.77	300	0	Right Tilt	0	1.040	1.054	1.096	1.096	0.685		16.5		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.84	1	104	Left Cheek	0	0.902	0.938	0.417	0.417	0.261		20.7		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.01	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.83	50	28	Left Cheek	0	0.417	1.040	0.434	0.434	0.271		20.6		
Head	NR Band n48	40	QPSK	F	0080M	1:1	0.00	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.84	1	104	Left Tilt	0	0.479	1.038	0.497	0.497	0.311		20.0		
Head	NR Band n48	40	QPSK	F	0080M	1:1	-0.06	3579.98	645332	DFT-s-OFDM	0.0	17.0	16.83	50	28	Left Tilt	0	0.502	1.040	0.522	0.522	0.326		19.8		
ANSI/IEEE CS1.1 1992 - SAFETY LIMIT														Head												
Spatial Peak														1.6 W/kg (mW/g)												
Uncontrolled Exposure/General Population														averaged over 1 gram												

Note: Blue entry represents variability measurement

Note: Blue entry represents variability measurement

Table 12-102

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	
Head	NR Band n48	40	C	0080M	1:1	-0.05	3524.99	641666	CW/SRS	12.0	11.90	Right Cheek	0	0.017	1.023	0.017	0.017	0.011		29.5			
Head	NR Band n48	40	C	0080M	1:1	0.01	3524.99	641666	CW/SRS	12.0	11.90	Right Tilt	0	0.011	1.023	0.011	0.011	0.007		31.4			
Head	NR Band n48	40	C	0080M	1:1	0.03	3524.99	641666	CW/SRS	12.0	11.90	Left Cheek	0	0.008	1.023	0.008	0.008	0.005		32.8			
Head	NR Band n48	40	C	0080M	1:1	0.16	3524.99	641666	CW/SRS	12.0	11.90	Left Tilt	0	0.019	1.023	0.019	0.019	0.012		29.1			
ANSI/IEEE CS1.1 1992 - SAFETY LIMIT														Head									
Spatial Peak														1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population														averaged over 1 gram									

Table 12-103

posure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	
Head	NR Band n48	40	I	0080M	1:1	-0.05	3524.99	641666	CW/SRS	16.5	16.01	Right Cheek	0	0.473	1.119	0.529	0.529	0.331		19.2			
Head	NR Band n48	40	I	0080M	1:1	0.06	3524.99	641666	CW/SRS	16.5	16.01	Right Tilt	0	0.056	1.119	0.063	0.063	0.039		28.5			
Head	NR Band n48	40	I	0080M	1:1	-0.05	3524.99	641666	CW/SRS	16.5	16.01	Left Cheek	0	0.522	1.119	0.584	0.584	0.365		18.8		15.5	
Head	NR Band n48	40	I	0080M	1:1	0.03	3524.99	641666	CW/SRS	16.5	16.01	Left Tilt	0	0.067	1.119	0.075	0.075	0.047		27.7			
ANSI/IEEE CS1.1 1992 - SAFETY LIMIT														Head									
Spatial Peak														1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population														averaged over 1 gram									

Table 12-104

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]			
Head	NR Band n48	40	D	0080M	1:1	0.04	3679.98	645332	CW/SRS	12.0	11.62	Right Cheek	0	0.001	1.091	0.001	0.001	0.001		41.6	41.6	11.0			
Head	NR Band n48	40	D	0080M	1:1	0.08	3679.98	645332	CW/SRS	12.0	11.62	Right Tilt	0	0.000	1.091	0.000	0.000	0.000		51.6					
Head	NR Band n48	40	D	0080M	1:1	0.03	3679.98	645332	CW/SRS	12.0	11.62	Left Cheek	0	0.000	1.091	0.000	0.000	0.000		51.6					
Head	NR Band n48	40	D	0080M	1:1	0.09	3679.98	645332	CW/SRS	12.0	11.62	Left Tilt	0	0.000	1.091	0.000	0.000	0.000		51.6					
ANSI/IEEE CS1.1 1992 - SAFETY LIMIT														Head											
Spatial Peak														1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population														averaged over 1 gram											

Table 12-105

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.04	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.37	1	104	Back	10	0.480	1.030	0.484	0.484	0.309	A77	23.5		
Body worn/Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.02	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.38	50	28	Back	10	0.480	1.028	0.482	0.482	0.301		23.6		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.06	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.37	1	104	Front	10	0.253	1.030	0.259	0.259	0.162		26.3		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.03	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.38	50	28	Front	10	0.257	1.028	0.264	0.264	0.165		26.2		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.03	3579.00	645666	DFT-s-OFDM	0.0	20.5	20.37	1	104	Top	10	0.681	1.050	0.681	0.681	0.384		23.5		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.02	3524.99	645666	DFT-s-OFDM	0.0	20.5	20.35	1	1	Top	10	0.624	1.035	0.646	0.646	0.404		22.3		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.03	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.37	1	104	Top	10	0.628	1.030	0.636	0.636	0.391		22.2		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.07	3579.00	645666	DFT-s-OFDM	0.0	20.5	20.37	50	28	Top	10	0.679	1.040	0.679	0.679	0.424		22.1		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.04	3524.99	645666	DFT-s-OFDM	0.0	20.5	20.37	50	0	Top	10	0.629	1.030	0.646	0.646	0.405		22.3		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.02	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.38	50	28	Top	10	0.627	1.028	0.675	0.675	0.422		22.2		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.03	3529.98	645332	DFT-s-OFDM	0.0	20.5	20.35	1	104	Top	10	0.688	1.040	0.688	0.688	0.408	A78	23.7		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	-0.04	3524.99	645666	CP-OFDM	0.0	20.5	20.31	1	1	Top	10	0.601	1.045	0.628	0.628	0.393		22.5		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.16	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.37	1	104	Left	10	0.125	1.035	0.129	0.129	0.081		29.4		
Hotspot	NR Band n48	40	QPSK	F	0080M	1:1	0.09	3579.98	645332	DFT-s-OFDM	0.0	20.5	20.38	50	28	Left	10	0.120	1.028	0.123	0.123	0.077		29.5		
ANR/IEEE C95.1.1992 - SAFETY LIMIT																								Body		
Spatial Peak																								1.6 W/kg (mW/g)		
Uncontrolled Environment (General Population)																										



Table 12-106

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P101 [dBm]	Overall P101 [dBm]	EPS P101 [dBm]
Body-worn/Hotspot	NR Band n48	40	C	0080M	1:1	-0.17	3570.00	638000	CW/SRS	15.5	15.36	Back	10	0.144	1.033	0.149	0.149	0.093	23.7	21.4	14.5
Hotspot	NR Band n48	40	C	0080M	1:1	-0.05	3570.00	638000	CW/SRS	15.5	15.36	Front	10	0.098	1.033	0.101	0.101	0.063	25.4		
Hotspot	NR Band n48	40	C	0080M	1:1	0.10	3570.00	638000	CW/SRS	15.5	15.36	Bottom	10	0.044	1.033	0.045	0.045	0.028	28.9		
Hotspot	NR Band n48	40	C	0080M	1:1	-0.01	3570.00	638000	CW/SRS	15.5	15.36	Right	10	0.247	1.033	0.255	0.255	0.159	21.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 12-107

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P101 [dBm]	Overall P101 [dBm]	EPS P101 [dBm]
Body-worn/Hotspot	NR Band n48	40	I	0080M	1:1	-0.09	3679.98	645332	CW/SRS	20.0	19.50	Back	10	0.173	1.122	0.194	0.194	0.121	27.1	24.5	19.0
Hotspot	NR Band n48	40	I	0080M	1:1	-0.01	3679.98	645332	CW/SRS	15.5	15.16	Front	10	0.026	1.081	0.028	0.028	0.018	31.0		
Hotspot	NR Band n48	40	I	0080M	1:1	-0.06	3679.98	645332	CW/SRS	20.0	19.50	Left	10	0.151	1.122	0.169	0.169	0.106	27.7		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 12-108

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P101 [dBm]	Overall P101 [dBm]	EPS P101 [dBm]
Body-worn/Hotspot	NR Band n48	40	D	0080M	1:1	-0.03	3679.98	645332	CW/SRS	15.5	15.16	Back	10	0.089	1.081	0.096	0.096	0.060	25.6	25.6	14.5
Hotspot	NR Band n48	40	D	0080M	1:1	0.01	3679.98	645332	CW/SRS	15.5	15.16	Front	10	0.008	1.081	0.009	0.009	0.006	36.1		
Hotspot	NR Band n48	40	D	0080M	1:1	0.02	3679.98	645332	CW/SRS	15.5	15.16	Bottom	10	0.026	1.081	0.028	0.028	0.018	31.0		
Hotspot	NR Band n48	40	D	0080M	1:1	0.02	3679.98	645332	CW/SRS	15.5	15.16	Left	10	0.005	1.081	0.005	0.005	0.003	38.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

12.28 NR Band n77 Standalone SAR

Table 12-109

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P101 [dBm]	P101 [dBm]	Overall P101 [dBm]	EPS P101 [dBm]
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3750.00	650000	DFT-s-OFDM	0.0	17.0	16.52	1	271	Right Cheek	0	0.817	1.117	0.913	0.913	0.571	17.3			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.11	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.94	1	1	Right Cheek	0	0.864	1.014	0.876	0.876	0.548	17.5			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3750.00	650000	DFT-s-OFDM	0.0	17.0	16.47	135	0	Right Cheek	0	0.893	1.130	1.009	1.009	0.631	16.9			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.02	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.84	135	138	Right Cheek	0	0.982	1.038	0.812	0.812	0.508	17.9			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.72	270	0	Right Cheek	0	0.797	1.064	0.846	0.846	0.530	17.7			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.05	3750.00	650000	DFT-s-OFDM	0.0	17.0	16.52	1	271	Right TIR	0	0.866	1.117	0.968	0.968	0.688	16.7			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.03	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.94	1	1	Right TIR	0	0.916	1.014	0.929	0.929	0.581	17.3			
Head	NR Band n77 DoD	100	QPSK	F	0045M	1:1	0.00	3500.01	633334	DFT-s-OFDM	0.0	17.0	17.00	135	138	Right TIR	0	1.100	1.000	1.100	1.100	0.688	470	16.3		
Head	NR Band n77 DoD	100	QPSK	F	0045M	1:1	-0.01	3500.01	633334	DFT-s-OFDM	0.0	17.0	17.00	135	138	Right TIR	0	1.100	1.000	1.029	1.029	0.698	470	16.3		
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.06	3750.00	650000	DFT-s-OFDM	0.0	17.0	16.47	135	0	Right TIR	0	1.030	1.130	1.153	1.153	0.721	16.3		16.0	
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.84	135	138	Right TIR	0	0.873	1.038	0.873	0.873	0.546	17.5			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.04	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.73	270	0	Right TIR	0	0.869	1.064	0.925	0.925	0.578	17.9			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.03	3930.00	662000	CP-OFDM	0.0	17.0	16.83	1	1	Right TIR	0	0.966	1.045	1.030	1.030	0.644	16.8			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3930.00	662000	CP-OFDM	0.0	17.0	16.83	1	1	Right TIR	0	0.966	1.045	0.966	0.966	0.613	17.4			
Head	NR Band n77	100	QPSK	F	0045M	1:1	-0.07	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.94	1	1	Left Cheek	0	0.976	1.014	0.981	0.981	0.728	21.1			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.04	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.84	135	138	Left Cheek	0	0.919	1.018	0.912	0.912	0.720	21.3			
Head	NR Band n77	100	QPSK	F	0045M	1:1	-0.08	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.94	1	1	Left TIR	0	0.982	1.014	0.987	0.987	0.742	21.1			
Head	NR Band n77	100	QPSK	F	0045M	1:1	0.07	3930.00	662000	DFT-s-OFDM	0.0	17.0	16.84	135	138	Left TIR	0	0.970	1.038	0.984	0.984	0.740	21.1			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram												

Note: Blue entry represents variability measurement

Table 12-110

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P101 [dBm]	Overall P101 [dBm]	EPS P101 [dBm]
Head	NR Band n77 DoD	100	C	0068M	1:1	0.07	3500.01	633334	CW/SRS	22.0	21.40	Right Cheek	0	0.252	1.148	0.289	0.289	0.181	27.3	27.0	21.0
Head	NR Band n77	100	C	0068M	1:1	-0.05	3930.00	662000	CW/SRS	22.0	20.55	Right Cheek	0	0.224	1.396	0.313	0.313	0.196	27.0		
Head	NR Band n77	100	C	0068M	1:1	-0.06	3930.00	662000	CW/SRS	22.0	20.55	Right TIR	0	0.094	1.396	0.121	0.121	0.087	20.8		
Head	NR Band n77	100	C	0068M	1:1	0.01	3930.00	662000	CW/SRS	22.0	20.55	Left Cheek	0	0.115	1.396	0.161	0.161	0.101	29.9		
Head	NR Band n77	100	C	0068M	1:1	-0.12	3930.00	662000	CW/SRS	22.0	20.55	Left TIR	0	0.140	1.396	0.195	0.195	0.122	29.0		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 12-111

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P101 [dBm]	Overall P101 [dBm]	EPS P101 [dBm]
Head	NR Band n77 DoD	100	I	0045	1:1	-0.02	3500.01	633334	CW/SRS	16.5	15.54	Right Cheek	0	0.346	1.247	0.307	0.307	0.192	21.6	19.6	15.5
Head	NR Band n77	100	I	0045	1:1	-0.07	3750.00	650000	CW/SRS	16.5	15.51	Right Cheek	0	0.349	1.377	0.481	0.481	0.301	19.6		
Head	NR Band n77	100	I	0045	1:1	-0.07	3930.00	662000	CW/SRS	16.5	16.27	Right Cheek	0	0.430	1.054	0.432	0.432	0.270	20.1		
Head	NR Band n77	100	I	0045	1:1	0.02	3930.00	662000	CW/SRS	16.5	16.27	Right TIR	0	0.097	1.054	0.060	0.060	0.038	28.7		
Head	NR Band n77	100	I	0045	1:1	-0.16	3930.00	662000	CW/SRS	16.5	16.27	Left Cheek	0	0.014	1.054	0.015	0.015	0.009	34.8		
Head	NR Band n77	100	I	0045	1:1	0.07	3930.00	662000	CW/SRS	16.5	16.27	Left TIR	0	0.024	1.054	0.025	0.025	0.016	32.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 12-112

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P10t #	P10t [dBm]	Overall P10t [dBm]	EF5 P10t [dBm]
Head	NR Band n77 DoD	100	D	0045M	1:1	0.05	3500.01	633334	CW/SRS	11.5	11.19	Right Cheek	0	0.002	1.074	0.002	0.002	0.001		38.1		
Head	NR Band n77	100	D	0045M	1:1	0.06	3930.00	662000	CW/SRS	11.5	10.85	Right Cheek	0	0.000	1.161	0.000	0.000	0.000		50.8		
Head	NR Band n77	100	D	0045M	1:1	0.09	3930.00	662000	CW/SRS	11.5	10.85	Right Tilt	0	0.000	1.161	0.000	0.000	0.000		50.8		
Head	NR Band n77	100	D	0045M	1:1	0.09	3930.00	662000	CW/SRS	11.5	10.85	Left Cheek	0	0.000	1.161	0.000	0.000	0.000		50.8		
Head	NR Band n77	100	D	0045M	1:1	0.04	3930.00	662000	CW/SRS	11.5	10.85	Left Tilt	0	0.000	1.161	0.000	0.000	0.000		50.8		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Head								
Spatial Peak														1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population														averaged over 1 gram								

Table 12-113

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RF Size	RF Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	P10t #	P10t [dBm]	Overall P10t [dBm]	EF5 P10t [dBm]
Body-worn/Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.03	3750.00	650000	DFT-s-OFDM	0.0	19.0	18.33	1	271	Back	10	0.420	1.119	0.470	0.470	0.294		22.2		
Body-worn/Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.01	3500.01	662000	DFT-s-OFDM	0.0	19.0	18.94	1	1	Back	10	0.526	1.004	0.544	0.544	0.240		21.6		
Body-worn/Hotspot	NR Band n77 DoD	100	QPSK	F	0045M	1:1	-0.02	3500.01	633334	DFT-s-OFDM	0.0	19.0	18.95	135	138	Back	10	0.278	1.000	0.276	0.276	0.173		24.5		
Body-worn/Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.02	3750.00	650000	DFT-s-OFDM	0.0	19.0	18.56	135	0	Back	10	0.372	1.307	0.432	0.432	0.258		22.8		
Body-worn/Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.03	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.90	135	138	Back	10	0.589	1.073	0.603	0.603	0.377		21.1		
Body-worn/Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.01	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.95	270	0	Back	10	0.195	1.095	0.612	0.612	0.383	AB1	21.1		
Body-worn/Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3930.00	662000	CP-OFDM	0.0	19.0	18.86	1	1	Back	10	0.548	1.033	0.566	0.566	0.354		21.4	21.1	18.0
Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.30	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.94	1	1	Front	10	0.122	1.034	0.124	0.124	0.078		28.0		
Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.04	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.90	135	138	Front	10	0.138	1.031	0.138	0.138	0.086		27.5		
Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.02	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.94	1	1	Top	10	0.118	1.034	0.122	0.122	0.201		23.9		
Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.90	135	138	Top	10	0.126	1.031	0.133	0.133	0.208		23.7		
Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.08	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.94	1	1	Left	10	0.125	1.034	0.127	0.127	0.079		27.9		
Hotspot	NR Band n77	100	QPSK	F	0045M	1:1	0.00	3930.00	662000	DFT-s-OFDM	0.0	19.0	18.90	135	138	Left	10	0.120	1.033	0.123	0.123	0.077		28.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram												

Table 12-114

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P10t [dBm]	Overall P10t [dBm]	EF5 P10t [dBm]
Body-worn/Hotspot	NR Band n77 DoD	100	C	1022M	1:1	0.21	3500.01	633334	CW/SRS	18.0	17.95	Back	10	0.177	1.012	0.179	0.179	0.112		25.4		
Body-worn/Hotspot	NR Band n77	100	C	1022M	1:1	0.02	3930.00	662000	CW/SRS	18.0	17.00	Back	10	0.171	1.259	0.215	0.215	0.134		24.6		
Hotspot	NR Band n77	100	C	1022M	1:1	0.03	3930.00	662000	CW/SRS	18.0	17.00	Front	10	0.158	1.259	0.199	0.199	0.134		25.0		
Hotspot	NR Band n77	100	C	1022M	1:1	0.15	3930.00	662000	CW/SRS	18.0	17.00	Bottom	10	0.137	1.259	0.172	0.172	0.108		25.6		
Hotspot	NR Band n77 DoD	100	C	1022M	1:1	-0.13	3500.01	633334	CW/SRS	18.0	17.95	Right	10	0.311	1.012	0.315	0.315	0.197		23.0		
Hotspot	NR Band n77	100	C	1022M	1:1	-0.01	3750.00	650000	CW/SRS	18.0	16.71	Right	10	0.339	1.346	0.456	0.456	0.285		21.4		
Hotspot	NR Band n77	100	C	1022M	1:1	0.11	3930.00	662000	CW/SRS	18.0	17.00	Right	10	0.421	1.259	0.530	0.530	0.331		20.7		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-115

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P10t [dBm]	Overall P10t [dBm]	EF5 P10t [dBm]
Body-worn/Hotspot	NR Band n77 DoD	100	I	0045M	1:1	0.04	3500.01	633334	CW/SRS	19.0	17.90	Back	10	0.128	1.288	0.165	0.165	0.103		26.8		
Body-worn/Hotspot	NR Band n77	100	I	0045M	1:1	0.17	3930.00	662000	CW/SRS	19.0	18.87	Back	10	0.162	1.030	0.167	0.167	0.104		26.7		
Hotspot	NR Band n77	100	I	0045M	1:1	0.08	3930.00	662000	CW/SRS	19.0	18.87	Front	10	0.113	1.030	0.158	0.158	0.099		27.0	26.7	18.0
Hotspot	NR Band n77	100	I	0045M	1:1	-0.03	3930.00	662000	CW/SRS	19.0	18.87	Left	10	0.104	1.030	0.107	0.107	0.067		28.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-116

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mit [dBm]	Overall P1mit [dBm]	EF5 P1mit [dBm]
Body-worn/Hotspot	NR Band n77 DoD	100	D	0045M	1:1	-0.02	3500.01	633334	CW/SRS	14.0	13.65	Back	10	0.079	1.084	0.086	0.086	0.054		24.6		
Body-worn/Hotspot	NR Band n77	100	D	0045M	1:1	0.00	3930.00	662000	CW/SRS	14.0	13.40	Back	10	0.115	1.148	0.132	0.132	0.083		22.7		
Hotspot	NR Band n77	100	D	0045M	1:1	0.01	3930.00	662000	CW/SRS	14.0	13.40	Front	10	0.004	1.148	0.005	0.005	0.003		37.3	22.7	13.0
Hotspot	NR Band n77	100	D	0045M	1:1	-0.18	3930.00	662000	CW/SRS	14.0	13.40	Bottom	10	0.031	1.148	0.036	0.036	0.023		28.4		
Hotspot	NR Band n77	100	D	0045M	1:1	0.09	3930.00	662000	CW/SRS	14.0	13.40	Left	10	0.000	1.148	0.000	0.000	0.000		53.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram								

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12.29 2.4 GHz WIFI SISO Standalone SAR

Table 12-117

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	0.00	2412.00	1	1	17.0	16.98	Right Cheek	0	0.763	1.028	1.013	0.784	0.784	0.480	A51	18.0	18.0	16.0
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	-0.01	2412.00	1	1	17.0	16.98	Right Tilt	0	0.333	1.028	1.013	0.347	0.347	0.217		21.6	18.0	16.0
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	0.04	2412.00	1	1	17.0	16.98	Left Cheek	0	0.153	1.028	1.013	0.159	0.159	0.099		24.9	18.0	16.0
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	0.00	2412.00	1	1	17.0	16.98	Left Tilt	0	0.088	1.028	1.013	0.092	0.092	0.058		27.3	18.0	16.0
ANSI/IEEE C63.1 D982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 12-118

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	0.02	2412.00	1	1	17.0	18.82	Right Cheek	0	0.165	1.043	1.026	0.177	0.177	0.111		24.5	20.6	16.0
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	-0.11	2412.00	1	1	17.0	18.82	Right Tilt	0	0.013	1.043	1.026	0.025	0.025	0.018		31.0	20.6	16.0
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	0.05	2412.00	1	1	17.0	18.82	Left Cheek	0	0.403	1.043	1.026	0.431	0.431	0.269		20.6	20.6	16.0
Head	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	0.06	2412.00	1	1	17.0	18.82	Left Tilt	0	0.037	1.043	1.026	0.040	0.040	0.025		11.0	20.6	16.0
ANSI/IEEE C63.1 D982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 12-119

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	0.01	2462.00	11	1	20.0	19.97	Back	10	0.386	1.007	1.013	0.394	0.394	0.246	A52	24.0	20.9	19.5
Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	-0.03	2462.00	11	1	20.0	19.97	Front	10	0.266	1.007	1.013	0.271	0.271	0.169		25.6	20.9	19.5
Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	0.02	2462.00	11	1	20.0	19.97	Top	10	0.255	1.007	1.013	0.260	0.260	0.163		25.8	20.9	19.5
Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	H	0205M	98.74	0.00	2462.00	11	1	20.0	19.97	Left	10	0.779	1.007	1.013	0.796	0.795	0.487	A53	20.9	20.9	19.5
ANSI/IEEE C63.1 D982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 12-120

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	-0.04	2412.00	1	1	20.0	19.55	Back	10	0.062	1.109	1.026	0.071	0.245	0.153		31.5	31.0	25.4
Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	0.10	2412.00	1	1	20.0	19.55	Front	10	0.069	1.109	1.026	0.079	0.272	0.170		31.0	31.0	25.4
Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	0.09	2412.00	1	1	20.0	19.55	Top	10	0.002	1.109	1.026	0.002	0.008	0.005		46.4	31.0	25.4
Hotspot	2.4 GHz WIFI / IEEE 802.11b	22	DSSS	J	0205M	97.51	0.01	2412.00	1	1	20.0	19.55	Right	10	0.024	1.109	1.026	0.027	0.095	0.059		35.6	31.0	25.4
ANSI/IEEE C63.1 D982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram											

12.30 2.4 GHz WIFI MIMO Standalone SAR

Table 12-121

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	0.00	2412.00	1	6	18.0	16.47	17.0	16.26	Right Cheek	0	0.517	1.995	1.024	0.635	0.635	0.397		18.9		
Head	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	-0.04	2412.00	1	6	18.0	16.47	17.0	16.26	Right Tilt	0	0.295	1.995	1.024	0.362	0.362	0.225		21.4	18.9	16.0
Head	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	0.00	2412.00	1	6	18.0	16.47	17.0	16.26	Left Cheek	0	0.056	1.995	1.024	0.147	0.147	0.106		26.1		
Head	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	0.08	2412.00	1	6	18.0	16.47	17.0	16.26	Left Tilt	0	0.105	1.995	1.024	0.134	0.134	0.084		25.7		
ANSI/IEEE C63.1 D982 - SAFETY LIMIT													Head													
Spatial Peak													Spatial Peak													
Uncontrolled Exposure/General Population													Head													
1.6 W/kg (mW/g)													1.6 W/kg (mW/g)													
averaged over 1 gram													averaged over 1 gram													

Note: To achieve the 20 dbm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17 dbm.

Table 12-122

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	-0.02	2412.00	1	6	18.0	17.96	18.0	17.77	Back	10	0.254	1.054	1.024	0.274	0.378	0.298		23.6	21.3	19.4
Hotspot	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	-0.04	2412.00	1	6	18.0	17.96	18.0	17.77	Front	10	0.199	1.054	1.024	0.215	0.296	0.185		24.6	21.3	19.4
Hotspot	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	0.00	2412.00	1	6	18.0	17.96	18.0	17.77	Top	10	0.196	1.054	1.024	0.147	0.301	0.127		26.1	21.3	19.4
Hotspot	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	0.12	2412.00	1	6	18.0	17.96	18.0	17.77	Right	10	0.013	1.054	1.024	0.014	0.019	0.012		36.3	21.3	19.4
Hotspot	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0205M	97.64	0.01	2412.00	1	6	18.0	17.96	18.0	17.77	Left	10	0.433	1.054	1.024	0.467	0.645	0.403		21.1	21.3	19.4
ANSI/IEEE C63.1 D982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram													

FCC ID: A3LSMS938U	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
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12.31 5 GHz WIFI SISO Standalone SAR

Table 12-123

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.07	5290.00	58	U-NII-2A	29.3	16.0	15.95	Right Cheek	0	0.468	1.022	1.095	0.519	0.519	0.524			18.8	15.0
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.01	5610.00	122	U-NII-2C	29.3	16.0	16.00	Right Cheek	0	0.729	1.000	1.095	0.798	0.798	0.499			16.9	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.12	5775.00	155	U-NII-3	29.3	16.0	15.96	Right Cheek	0	0.653	1.089	1.095	0.513	0.513	0.521			18.8	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.03	5855.00	171	U-NII-4	29.3	16.0	15.89	Right Cheek	0	0.500	1.025	1.095	0.561	0.561	0.551			18.5	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.03	5290.00	58	U-NII-2A	29.3	16.0	15.95	Right Tilt	0	0.212	1.052	1.095	0.235	0.235	0.147			22.2	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.21	5610.00	122	U-NII-2C	29.3	16.0	16.00	Right Tilt	0	0.267	1.000	1.095	0.292	0.292	0.183			21.3	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.20	5775.00	155	U-NII-3	29.3	16.0	15.96	Right Tilt	0	0.183	1.083	1.095	0.217	0.217	0.139			22.6	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.08	5855.00	171	U-NII-4	29.3	16.0	15.89	Right Tilt	0	0.243	1.025	1.095	0.273	0.273	0.171			21.6	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.02	5290.00	58	U-NII-2A	29.3	16.0	15.95	Left Cheek	0	0.163	1.022	1.095	0.181	0.181	0.113			23.4	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.13	5610.00	122	U-NII-2C	29.3	16.0	16.00	Left Cheek	0	0.109	1.000	1.095	0.119	0.119	0.074			25.2	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.04	5775.00	155	U-NII-3	29.3	16.0	15.96	Left Cheek	0	0.053	1.083	1.095	0.063	0.063	0.039			28.0	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.02	5855.00	171	U-NII-4	29.3	16.0	15.89	Left Cheek	0	0.058	1.025	1.095	0.065	0.065	0.041			27.8	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.02	5290.00	58	U-NII-2A	29.3	16.0	15.95	Left Tilt	0	0.078	1.022	1.095	0.086	0.086	0.054			26.6	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.06	5610.00	122	U-NII-2C	29.3	16.0	16.00	Left Tilt	0	0.096	1.000	1.095	0.105	0.105	0.066			25.7	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.18	5775.00	155	U-NII-3	29.3	16.0	15.96	Left Tilt	0	0.059	1.083	1.095	0.070	0.070	0.044			27.5	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.05	5855.00	171	U-NII-4	29.3	16.0	15.89	Left Tilt	0	0.071	1.025	1.095	0.080	0.080	0.050			26.9	
ANSI/IEEE C63.1.1992 - SAFETY LIMIT																Head									
Spatial Peak																1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population																averaged over 1 gram									

Table 12-124

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.03	5290.00	58	U-NII-2A	29.3	16.0	15.96	Right Cheek	0	0.406	1.097	1.031	0.439	0.409	0.297			19.9	15.0
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.08	5690.00	138	U-NII-2C	29.3	16.0	15.96	Right Cheek	0	0.302	1.009	1.031	0.306	0.306	0.086			25.7	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.09	5775.00	155	U-NII-3	29.3	16.0	15.89	Right Cheek	0	0.165	1.074	1.031	0.183	0.183	0.114			23.3	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.05	5855.00	171	U-NII-4	29.3	16.0	15.89	Right Cheek	0	0.127	1.002	1.095	0.222	0.222	0.126			22.6	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.16	5290.00	58	U-NII-2A	29.3	16.0	15.96	Right Tilt	0	0.440	1.097	1.031	0.508	0.508	0.158			18.7	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.16	5690.00	138	U-NII-2C	29.3	16.0	15.96	Right Tilt	0	0.139	1.009	1.031	0.145	0.145	0.091			24.3	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.05	5775.00	155	U-NII-3	29.3	16.0	15.89	Right Tilt	0	0.139	1.074	1.031	0.155	0.155	0.082			24.8	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.05	5855.00	171	U-NII-4	29.3	16.0	15.87	Right Tilt	0	0.121	1.007	1.031	0.126	0.126	0.079			25.0	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.02	5290.00	58	U-NII-2A	29.3	16.0	15.96	Left Cheek	0	0.431	1.097	1.031	0.487	0.487	0.304			19.1	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.05	5690.00	138	U-NII-2C	29.3	16.0	15.96	Left Cheek	0	0.166	1.009	1.031	0.181	0.181	0.101			23.8	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.09	5775.00	155	U-NII-3	29.3	16.0	15.89	Left Cheek	0	0.284	1.074	1.031	0.326	0.326	0.204			20.8	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	-0.10	5855.00	171	U-NII-4	29.3	16.0	15.97	Left Cheek	0	0.132	1.007	1.031	0.145	0.145	0.126			24.6	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.05	5290.00	58	U-NII-2A	29.3	16.0	15.96	Left Tilt	0	0.183	1.097	1.031	0.433	0.433	0.275			19.6	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.12	5690.00	138	U-NII-2C	29.3	16.0	15.96	Left Tilt	0	0.281	1.009	1.031	0.292	0.292	0.183			21.3	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.03	5775.00	155	U-NII-3	29.3	16.0	15.89	Left Tilt	0	0.181	1.074	1.031	0.200	0.200	0.125			22.9	
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.05	5855.00	171	U-NII-4	29.3	16.0	15.97	Left Tilt	0	0.171	1.007	1.031	0.178	0.178	0.111			23.5	
ANSI/IEEE C63.1.1992 - SAFETY LIMIT																Head									
Spatial Peak																1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population																averaged over 1 gram									

Table 12-125

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.09	5290.00	58	U-NII-2A	29.3	16.0	15.95	Back	10	0.147	1.012	1.095	0.163	0.163	0.102			23.8	15.0
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.02	5610.00	122	U-NII-2C	29.3	16.0	15.82	Back	10	0.203	1.042	1.095	0.232	0.232	0.145			22.3	
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.14	5855.00	171	U-NII-4	29.3	16.0	15.89	Back	10	0.157	1.002	1.095	0.174	0.174	0.126			22.6	
Body-worn/Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.03	5775.00	155	U-NII-3	29.3	16.0	15.95	Back	10	0.180	1.052	1.095	0.213	0.213	0.153			21.3	
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.02	5775.00	155	U-NII-3	29.3	16.0	15.86	Front	10	0.084	1.083	1.095	0.100	0.100	0.063			26.0	
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	0.05	5290.00	58	U-NII-2A	29.3	16.0	15.96	Top	10	0.085	1.083	1.095	0.095	0.095	0.059			26.6	
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0120M	91.35	-0.19	5775.00	155	U-NII-3	29.3	16.0	15.86	Left	10	0.339	1.053	1.095	0.402	0.402	0.251	AB6		19.9	
ANSI/IEEE C63.1.1992 - SAFETY LIMIT																Body									
Spatial Peak																1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population																averaged over 1 gram									

Table 12-126

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pict #	Plimit [dBm]	Overall P
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Table 12-128

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Dens. [dB]	Frequency [MHz]	Channel #	U-NI band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P limit [dBm]	Overall P limit [dBm]	RF P limit [dBm]
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	-0.04	5290.00	58	U-NI-2A	29.3	16.0	15.40	Back	0	0.238	1.097	1.031	0.247	0.247	0.062		26.0		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	-0.04	5690.00	138	U-NI-2C	29.3	16.0	15.96	Back	0	0.308	1.009	1.031	0.320	0.320	0.080		24.9		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	-0.05	5855.00	171	U-NI-4	29.3	16.0	15.97	Back	0	0.309	1.007	1.031	0.303	0.303	0.096		24.1		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	-0.00	5290.00	58	U-NI-2A	29.3	16.0	15.40	Front	0	0.234	1.097	1.031	0.231	0.231	0.058		26.3		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.01	5690.00	138	U-NI-2C	29.3	16.0	15.96	Front	0	0.240	1.009	1.031	0.250	0.250	0.063		26.0		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.19	5855.00	171	U-NI-4	29.3	16.0	15.97	Front	0	0.295	1.007	1.031	0.237	0.237	0.054		26.6		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.06	5290.00	58	U-NI-2A	29.3	16.0	15.40	Top	0	0.187	1.097	1.031	0.206	0.206	0.052		26.8		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.02	5690.00	138	U-NI-2C	29.3	16.0	15.96	Top	0	0.206	1.009	1.031	0.214	0.214	0.054		26.2		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.04	5855.00	171	U-NI-4	29.3	16.0	15.97	Top	0	0.226	1.007	1.031	0.235	0.235	0.059		26.7		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.00	5290.00	58	U-NI-2A	29.3	16.0	15.40	Right	0	0.083	1.097	1.031	0.094	0.094	0.024		30.2		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.04	5690.00	138	U-NI-2C	29.3	16.0	15.96	Right	0	0.189	1.009	1.031	0.197	0.197	0.049		27.0		
	5 GHz WiFi / IEEE 802.11ac	80	OFDM	E	0120M	96.96	0.04	5855.00	171	U-NI-4	29.3	16.0	15.97	Right	0	0.147	1.007	1.031	0.153	0.153	0.038		28.1		
ANSI/IEEE C63.19-2 - SAFETY LIMIT																Phablet									
Spatial Peak																4.0 W/kg (mW/g)									
Uncontrolled Exposure/General Population																averaged over 10 grams									

12.32 5 GHz WIFI MIMO Standalone SAR

Table 12-129

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Dens. [dBm]	Frequency [MHz]	Channel #	U-NI Band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plot [dBm]	Overall Plot [dBm]	RF Plot [dBm]
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.13	5290.00	58	U-NI-2A	58.5	16.0	15.98	16.0	15.45	Right Cheek	0	0.148	1.130	1.084	0.676	0.676	0.423		17.7		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.03	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Right Cheek	0	0.134	1.002	1.084	0.797	0.797	0.498	204	16.9		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	0.21	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Right Cheek	0	0.186	1.003	1.084	0.594	0.594	0.371		18.2		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.20	5855.00	171	U-NI-4	58.5	16.0	15.39	16.0	15.87	Right Cheek	0	0.140	1.153	1.084	0.552	0.552	0.345		18.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.05	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Right Tib	0	0.152	1.002	1.084	0.621	0.621	0.385		19.0		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.10	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Right Tib	0	0.168	1.002	1.084	0.385	0.385	0.384		21.3		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	0.08	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Right Tib	0	0.187	1.203	1.084	0.244	0.244	0.153		22.1		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.05	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Right Tib	0	0.195	1.153	1.084	0.239	0.239	0.149		22.2		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.09	5290.00	58	U-NI-2A	58.5	16.0	15.98	16.0	15.45	Left Cheek	0	0.147	1.136	1.084	0.550	0.550	0.344		18.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.05	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Left Cheek	0	0.160	1.002	1.084	0.400	0.400	0.257		19.9		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	0.05	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Left Cheek	0	0.168	1.203	1.084	0.343	0.343	0.214		20.6		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.06	5855.00	171	U-NI-4	58.5	16.0	15.39	16.0	15.87	Left Cheek	0	0.177	1.153	1.084	0.221	0.221	0.138		22.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	0.19	5290.00	58	U-NI-2A	58.5	16.0	15.99	16.0	15.45	Left Tib	0	0.140	1.136	1.084	0.493	0.493	0.308		19.0		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.13	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Left Tib	0	0.167	1.002	1.084	0.399	0.399	0.249		19.9		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.06	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Left Tib	0	0.171	1.002	1.084	0.211	0.211	0.127		22.7		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.05	5855.00	171	U-NI-4	58.5	16.0	15.39	16.0	15.87	Left Tib	0	0.138	1.153	1.084	0.166	0.166	0.106		23.7		
ANSI/IEEE C63.19-2 - SAFETY LIMIT																					Head						
Spatial Peak																					1.6 W/kg (mW/g)						
Uncontrolled Exposure/General Population																					averaged over 1 gram						

Notes: To achieve this 19.01dBm maximum allowed MIMO power, shown in this declaration, each antenna (consists of a maximum allowed power of 15.45dBm)

Note: To achieve the 19 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 16 dBm.

Table 12-130

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Dens. [dB]	Frequency [MHz]	Channel #	U-NI band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plot [dBm]	Overall Plot [dBm]	RF Plot [dBm]
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.03	5290.00	58	U-NI-2A	58.5	16.0	15.98	16.0	15.45	Back	10	0.161	1.130	1.084	0.158	0.158	0.134		23.0		
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.05	5610.00	122	U-NI-2C	58.5	16.0	15.99	16.0	15.99	Back	10	0.135	1.002	1.084	0.402	0.402	0.251		19.9		
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	0.05	5855.00	171	U-NI-4	58.5	16.0	15.39	16.0	15.87	Back	10	0.107	1.153	1.084	0.496	0.496	0.310	485	19.0		
Body-worn/Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.06	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Back	10	0.115	1.203	1.084	0.410	0.410	0.256		19.8		
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.03	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Front	10	0.171	1.002	1.084	0.991	0.991	0.626		26.8		
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	0.05	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Top	10	0.106	1.003	1.084	0.210	0.210	0.135		22.6		
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.13	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Right	10	0.108	1.202	1.084	0.132	0.132	0.083		24.8		
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	MIMO	0120M	92.29	-0.17	5775.00	155	U-NI-3	58.5	16.0	15.29	16.0	15.61	Left	10	0.095	1.202	1.084	0.384	0.384	0.240		20.1		
ANSI/IEEE C63.19-2 - SAFETY LIMIT																		Body									
Spatial Peak																		1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population																		averaged over 1 gram									

Note: To achieve the 19 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 16 dBm.

Table 12-131

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Dens. [dBm]	Frequency [MHz]	Channel #	U-NI band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plot [dBm]	Overall Plot [dBm]	RF Plot [dBm]	
Phablet	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.04	57800.0	16	U-NI-A-20	58.5	16.0	15.08	16.0	15.46	Back	0	0.040	1.136	0.084	0.621	0.621	0.185	21.0			22.0	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.01	56200.0	122	U-NI-A-20	58.5	16.0	15.39	16.0	15.09	Back	0	0.002	0.004	0.084	0.241	0.241	0.015	21.2			22.2	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.02	58550.0	171	U-NI-A-4	58.5	16.0	15.38	16.0	15.87	Back	0	0.040	1.153	0.084	0.526	0.526	0.131	21.7			22.7	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.02	57800.0	16	U-NI-A-20	58.5	16.0	15.08	16.0	15.46	Front	0	0.040	1.136	0.084	0.621	0.621	0.185	21.0			22.0	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.07	56200.0	122	U-NI-A-20	58.5	16.0	15.09	16.0	15.99	Front	0	0.040	1.002	0.084	0.740	0.740	0.185	21.2			22.2	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.02	58550.0	171	U-NI-A-4	58.5	16.0	15.38	16.0	15.87	Front	0	0.040	1.153	0.084	0.440	0.440	0.110	23.5			23.5	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.02	57800.0	16	U-NI-A-20	58.5	16.0	15.08	16.0	15.46	Front	0	0.040	1.136	0.084	0.621	0.621	0.185	21.0			22.0	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.01	56100.0	122	U-NI-A-20	58.5	16.0	15.09	16.0	15.99	Top	0	0.039	1.002	0.084	0.292	0.292	0.073	25.5			25.5	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.13	58550.0	171	U-NI-A-4	58.5	16.0	15.38	16.0	15.87	Right	0	0.146	1.153	0.084	2.067	2.067	0.067	25.7			25.7	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.09	57800.0	16	U-NI-A-20	58.5	16.0	15.08	16.0	15.99	Right	0	0.039	1.136	0.084	0.621	0.621	0.185	21.0			22.0	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.09	56100.0	122	U-NI-A-20	58.5	16.0	15.09	16.0	15.99	Right	0	0.146	1.002	0.084	0.180	0.180	0.045	27.4			27.4	
	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.14	58550.0	171	U-NI-A-4	58.5	16.0	15.38	16.0	15.87	Left	0	0.146	1.153	0.084	1.178	1.178	0.046	27.4			27.4	
5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.02	57800.0	16	U-NI-A-20	58.5	16.0	15.08	16.0	15.46	Left	0	0.040	1.136	0.084	1.450	1.450	0.415	17.8			17.8		
Phablet	5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.03	58550.0	122	U-NI-A-20	58.5	16.0	15.09	16.0	15.99	Left	0	0.040	1.002	0.084	1.836	1.836	0.459	AB7	27.4			27.4
5 GHz WPA3 / IEEE 802.11ac	80	OFDM	MIMO	0210M	92.29	0.03	56100.0	122	U-NI-A-4	58.5	16.0	15.38	16.0	15.87	Left	0	0.040	1.153	0.084	1.750	1.750	0.438	17.8			17.8		
ANSI/IEEE C63.19-2012 - SAFETY LIMIT											Phablet																	
Spatial Peak											4.0 W/kg (mW/g)																	
Uncontrolled Exposure (General Population)											averaged 10g SAR (mW/g)																	

12.33 6 GHz WIFI SISO Standalone SAR and APD

Table 12-132

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0208M	99.67	-0.09	5965.00	3	32.5	17.0	16.99	Right Cheek	0	0.511	1.002	1.003	0.514	0.709	0.443		19.8		18.4
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0208M	99.67	0.02	6285.00	67	32.5	17.0	16.54	Right Cheek	0	0.509	1.112	1.003	0.623	0.861	0.538		19.0		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	H	0208M	99.67	-0.13	6465.00	303	68.1	16.0	15.89	Right Cheek	0	0.505	1.026	1.003	0.571	0.992	0.620		18.4		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0208M	99.67	-0.13	6465.00	147	32.5	17.0	16.93	Right Cheek	0	0.513	1.019	1.003	0.564	0.778	0.486		19.4		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	H	0208M	99.67	0.02	7025.00	215	68.1	15.5	15.34	Right Cheek	0	0.123	1.002	1.003	0.131	0.355	0.159		24.3		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0079M	99.67	0.10	5965.00	3	32.5	17.0	16.99	Right Tilt	0	0.357	1.002	1.003	0.359	0.496	0.310		21.4		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0079M	99.67	0.17	5965.00	3	32.5	17.0	16.99	Left Cheek	0	0.196	1.002	1.003	0.197	0.272	0.170		24.0		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0079M	99.67	0.07	5965.00	3	32.5	17.0	16.99	Left Tilt	0	0.102	1.002	1.003	0.199	0.307	0.307		24.1		
ANSI/IEEE C63.1 1982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0208M	99.67	-0.09	5965.00	3	32.5	17.0	16.99	Right Cheek	0	3.320	1.002	1.003	3.337	4.409	0.730		23.8		18.4
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0208M	99.67	0.02	6285.00	67	32.5	17.0	16.54	Right Cheek	0	3.690	1.112	1.003	4.116	5.081	0.284		22.9		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	H	0208M	99.67	-0.13	6465.00	303	68.1	16.0	15.89	Right Cheek	0	3.700	1.026	1.003	3.808	6.613	0.331		22.2		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0208M	99.67	-0.13	6465.00	147	32.5	17.0	16.93	Right Cheek	0	3.000	1.019	1.003	3.127	4.315	0.216		24.1		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	H	0208M	99.67	0.02	7025.00	215	68.1	15.5	15.34	Right Cheek	0	0.614	1.002	1.003	0.654	1.275	0.064		29.4		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0079M	99.67	0.10	5965.00	3	32.5	17.0	16.99	Right Tilt	0	2.320	1.002	1.003	2.332	3.221	0.161		25.4		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0079M	99.67	0.17	5965.00	3	32.5	17.0	16.99	Left Cheek	0	1.470	1.002	1.003	1.477	2.041	0.102		27.3		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	H	0079M	99.67	0.07	5965.00	3	32.5	17.0	16.99	Left Tilt	0	1.420	1.002	1.003	1.427	1.971	0.099		27.5		

Table 12-133

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	-0.11	5965.00	3	32.5	17.0	16.99	Right Cheek	0	0.218	1.002	1.003	0.219	0.853	0.533		23.5		22.9
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	-0.07	6285.00	67	32.5	17.0	16.98	Right Cheek	0	0.211	1.005	1.003	0.213	0.827	0.517		21.7		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	E	0208M	99.67	0.05	6465.00	303	68.1	16.0	15.50	Right Cheek	0	0.091	1.122	1.003	0.102	0.502	0.354		25.8		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	-0.01	6465.00	147	32.5	17.0	16.89	Right Cheek	0	0.249	1.026	1.003	0.256	0.996	0.623		22.9		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	E	0208M	99.67	0.02	7025.00	215	68.1	15.5	15.00	Right Cheek	0	0.144	1.122	1.003	0.162	0.891	0.557		23.4		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	0.04	5965.00	3	32.5	17.0	16.99	Right Tilt	0	0.300	1.002	1.003	0.301	0.782	0.489		23.9		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0208M	99.67	0.02	5965.00	3	32.5	17.0	16.99	Left Cheek	0	0.169	1.002	1.003	0.170	0.661	0.413		24.6		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0208M	99.67	0.19	5965.00	3	32.5	17.0	16.99	Left Tilt	0	0.141	1.002	1.003	0.142	0.551	0.344		25.4		
ANSI/IEEE C63.1 1982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	-0.11	5965.00	3	32.5	17.0	16.99	Right Cheek	0	1.800	1.002	1.003	1.809	7.039	0.352		26.5		22.9
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	-0.07	6285.00	67	32.5	17.0	16.98	Right Cheek	0	1.550	1.005	1.003	1.562	6.076	0.304		27.1		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	E	0208M	99.67	0.05	6465.00	303	68.1	16.0	15.50	Right Cheek	0	0.666	1.122	1.003	0.749	3.671	0.184		29.3		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	-0.01	6465.00	147	32.5	17.0	16.89	Right Cheek	0	1.440	1.026	1.003	1.482	5.763	0.288		27.3		
Head	6 GHz WIFI/ IEEE 802.11ax	80	OFDM	E	0208M	99.67	0.02	7025.00	215	68.1	15.5	15.00	Right Cheek	0	0.982	1.122	1.003	1.105	6.073	0.304		27.1		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	0.04	5965.00	3	32.5	17.0	16.99	Right Tilt	0	1.390	1.002	1.003	1.397	5.436	0.272		27.6		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0079M	99.67	0.02	5965.00	3	32.5	17.0	16.99	Left Cheek	0	1.080	1.002	1.003	1.085	4.224	0.211		28.7		
Head	6 GHz WIFI/ IEEE 802.11ax	40	OFDM	E	0208M	99.67	0.19	5965.00	3	32.5	17.0	16.99	Left Tilt	0	1.000	1.002	1.003	1.005	4.145	0.207		28.8		

Table 12-134

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Body-worn	6 GHz WIFI/ IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.04	6985.00	207	68.1	9.0	8.89	Back	10	0.004	1.026	1.003	0.004	0.004	0.003		32.8	32.8	8.0
ANSI/IEEE C63.1 1982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Body-worn	6 GHz WIFI/ IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.04	6985.00	207	68.1	9.0	8.89	Back	10	0.055	1.026	1.003	0.057	0.057	0.003		33.5	33.5	8.0

Table 12-135

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Body-worn	6 GHz WIFI/ IEEE 802.11ax	160	OFDM	E	0079M	99.67	0.05	6025.00	15	68.1	9.0	8.93	Back	10	0.063	1.016	1.003	0.064	0.064	0.040	A89	20.9	20.9	8.0
ANSI/IEEE C63.1 1982 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Body-worn	6 GHz WIFI/ IEEE 802.11ax	160	OFDM	E	0079M	99.67	0.05	6025.00	15	68.1	9.0	8.93	Back	10	0.507	1.016	1.003	0.517	0.517	0.036	A89	22.8	22.8	8.0

FCC ID: A3LSMS938U	RF EXPOSURE PART 1 TEST REPORT																	Approved by: Technical Manager				
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Table 12-136

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio SAR	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.09	6985.00	207	68.1	9.0	8.89	Back	0	0.015	1.026	1.003	0.015	0.015	0.004		31.0		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.07	6985.00	207	68.1	9.0	8.89	Front	0	0.003	1.006	1.003	0.004	0.004	0.011		25.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.05	6985.00	207	68.1	9.0	8.89	Top	0	0.000	1.026	1.003	0.000	0.000	0.000		52.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.01	6985.00	207	68.1	9.0	8.89	Right	0	0.000	1.026	1.003	0.000	0.000	0.000		52.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.17	6025.00	15	68.1	9.0	8.81	Left	0	0.351	1.040	1.003	0.368	0.368	0.003		17.3	17.2	8.0
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.08	6345.00	79	68.1	9.0	8.73	Left	0	0.301	1.064	1.003	0.321	0.321	0.080		17.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.00	6505.00	111	68.1	9.0	8.88	Left	0	0.366	1.028	1.003	0.377	0.377	0.094	A90	17.2		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.06	6625.00	175	68.1	9.0	8.83	Left	0	0.175	1.040	1.003	0.183	0.183	0.046		20.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.08	6985.00	207	68.1	9.0	8.89	Left	0	0.094	1.006	1.003	0.097	0.097	0.024		23.1		
ANSI/IEEE C63.1.1982 - SAFETY LIMIT															Phablet									
Spatial Peak															4.0 W/kg (mW/g)									
Uncontrolled Exposure/General Population															averaged over 10 grams									
Exposure	Band/ Mode	Bandwidth [MHz]	Service/ Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.09	6985.00	207	68.1	9.0	8.89	Back	0	0.331	1.026	1.003	0.341	0.341	0.017		24.6		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.07	6985.00	207	68.1	9.0	8.89	Front	0	0.991	1.026	1.003	1.000	1.000	0.051		12.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.05	6985.00	207	68.1	9.0	8.89	Top	0	0.000	1.026	1.003	0.000	0.000	0.000		59.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.01	6985.00	207	68.1	9.0	8.89	Right	0	0.002	1.026	1.003	0.002	0.002	0.000		46.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.17	6025.00	15	68.1	9.0	8.81	Left	0	8.400	1.040	1.003	8.626	8.626	0.441		10.5	10.4	8.0
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.08	6345.00	79	68.1	9.0	8.73	Left	0	7.230	1.064	1.003	7.694	7.694	0.385	11.1			
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	0.00	6505.00	111	68.1	9.0	8.88	Left	0	8.670	1.028	1.003	8.939	8.939	0.447	A90	10.4		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.06	6625.00	175	68.1	9.0	8.83	Left	0	4.710	1.040	1.003	4.392	4.392	0.220		11.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	H	0079M	99.67	-0.09	6985.00	207	68.1	9.0	8.89	Left	0	2.270	1.026	1.003	2.336	2.336	0.117		16.3		

Table 12-137

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.06	6025.00	15	68.1	9.0	8.93	Back	0	0.094	1.016	1.003	0.096	0.096	0.024		21.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.05	6345.00	79	68.1	9.0	8.51	Back	0	0.078	1.119	1.003	0.088	0.088	0.022		23.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.11	6505.00	111	68.1	9.0	8.90	Back	0	0.063	1.023	1.003	0.065	0.065	0.016		24.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.11	6425.00	175	68.1	9.0	8.91	Back	0	0.048	1.021	1.003	0.049	0.049	0.012		26.0		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.11	6985.00	207	68.1	9.0	8.68	Back	0	0.057	1.076	1.003	0.062	0.062	0.016		25.0		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.19	6925.00	15	68.1	9.0	8.93	Front	0	0.034	1.016	1.003	0.035	0.035	0.009		27.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.10	6025.00	15	68.1	9.0	8.93	Top	0	0.036	1.016	1.003	0.037	0.037	0.009		27.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	0.06	6025.00	15	68.1	9.0	8.93	Right	0	0.036	1.016	1.003	0.037	0.037	0.009		27.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	0.09	6025.00	15	68.1	9.0	8.93	Left	0	0.006	1.016	1.003	0.006	0.006	0.002		35.1		
ANSI/IEEE C63.1.1982 - SAFETY LIMIT																					Phablet			
Spatial Peak																					4.0 W/kg (mW/g)			
Uncontrolled Exposure/General Population																					averaged over 10 grams			
Exposure	Band/ Mode	Bandwidth [MHz]	Service/ Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.06	6025.00	15	68.1	9.0	8.93	Back	0	2.190	1.016	1.003	2.232	2.232	0.112		16.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.05	6345.00	79	68.1	9.0	8.51	Back	0	1.810	1.119	1.003	2.031	2.031	0.102		16.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.11	6505.00	111	68.1	9.0	8.90	Back	0	0.880	1.023	1.003	0.782	0.782	0.033		17.0		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.11	6985.00	207	68.1	9.0	8.91	Back	0	1.140	1.021	1.003	1.157	1.157	0.058		19.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.11	6985.00	207	68.1	9.0	8.68	Back	0	1.140	1.076	1.003	1.446	1.446	0.072		18.4		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.10	6025.00	15	68.1	9.0	8.93	Front	0	0.790	1.016	1.003	0.805	0.805	0.040		20.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	-0.10	6025.00	15	68.1	9.0	8.93	Top	0	0.847	1.016	1.003	0.863	0.863	0.043		20.6		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	0.06	6025.00	15	68.1	9.0	8.93	Right	0	0.849	1.016	1.003	0.865	0.865	0.043		20.6		
Phablet	6 GHz WiFi / IEEE 802.11ax	160	OFDM	E	0079M	99.67	0.09	6025.00	15	68.1	9.0	8.93	Left	0	0.135	1.016	1.003	0.138	0.138	0.007		26.6		

12.34 6 GHz WIFI MIMO Standalone SAR and APD

Table 12-138

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd and 3rd) [dBm]	Conducted Power (2nd and 3rd) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.06	5965.00	3	32.5	17.0	16.86	17.0	16.85	Right Cheek	0	0.576	1.084	1.003	0.626	0.626	0.391		19.0		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.11	6285.00	67	32.5	17.0	16.59	17.0	16.56	Right Cheek	0	0.631	1.274	1.003	0.806	0.806	0.524		17.0		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	0073M	99.67	-0.06	6465.00	103	68.1	16.0	16.41	16.0	16.39	Right Cheek	0	0.680	1.146	1.003	0.782	0.782	0.453	A90	17.0		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.01	6685.00	147	32.5	17.0	16.50	17.0	16.40	Right Cheek	0	0.777	1.096	1.003	0.905	0.905	0.191		22.1		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	0073M	99.67	-0.14	7025.00	215	68.1	15.5	16.44	15.5	16.29	Right Cheek	0	0.537	1.464	1.003	0.158	0.223	0.139		23.1		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.12	5965.00	3	32.5	17.0	16.86	17.0	16.85	Right Tib	0	0.438	1.084	1.003	0.454	0.454	0.284		20.4		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.17	5995.00	3	32.5	17.0	16.86	17.0	16.85	Left Cheek	0	0.240	1.084	1.003	0.261	0.261	0.163		23.1		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.18	5995.00	3	32.5	17.0	16.86	17.0	16.85	Left Tib	0	0.233	1.084	1.003	0.253	0.253	0.158		22.8		
ANSI/IEEE C63.19-2012 SAFETY LIMIT																										
Spot Power																										
Uncontrolled Exposure/General Population																										
Note: To achieve the 20 dBm maximum allowed MIMO power shown in the documentation, each antenna transmit at a maximum allowed power of 17 dBm.																										
1.6 W/kg (mW/g) averaged over 1 gram																										
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd and 3rd) [dBm]	Conducted Power (2nd and 3rd) [dBm]	Test Position	Spacing [mm]	Measured AFO 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported AFO 1g SAR [W/kg]	Adjusted AFO 1g SAR [W/kg]	AFO Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.06	5965.00	3	32.5	17.0	16.86	17.0	16.85	Right Cheek	0	0.670	1.084	1.003	3.590	3.590	0.200		22.0		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.11	6285.00	67	32.5	17.0	16.59	17.0	16.59	Right Cheek	0	0.880	1.274	1.003	4.958	4.958	0.248		23.0		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	0073M	99.67	-0.04	6465.00	103	68.1	16.0	16.41	16.0	16.39	Right Cheek	0	0.450	1.146	1.003	4.655	5.858	0.293	A90	21.4		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.07	6685.00	147	32.5	17.0	16.50	17.0	16.40	Right Cheek	0	0.900	1.096	1.003	3.939	3.939	0.262		22.0		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	0073M	99.67	-0.14	7025.00	215	68.1	15.5	16.44	15.5	16.29	Right Cheek	0	0.922	1.464	1.003	1.076	1.320	0.076		27.2		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.12	5965.00	3	32.5	17.0	16.86	17.0	16.85	Right Tib	0	0.334	1.084	1.003	3.334	3.334	0.164		33.0		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.17	5995.00	3	32.5	17.0	16.86	17.0	16.85	Left Cheek	0	1.980	1.084	1.003	1.729	1.729	0.086		26.7		
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0073M	99.67	-0.18	5995.00	3	32.5	17.0	16.86	17.0	16.85	Left Tib	0	1.700	1.084	1.003	1.848	1.848	0.092		26.4		
Note: To achieve the 20 dBm maximum allowed MIMO power shown in the documentation, each antenna transmit at a maximum allowed power of 17 dBm.																										



Table 12-140

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd and 3rd) [dBm]	Conducted Power (2nd and 3rd) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EF5 PLimit [dBm]
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.11	6025.00	15	136.1	9.0	8.70	9.0	8.56	Back	0	0.063	1.107	1.003	0.070	0.070	0.038		24.5		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.12	6025.00	15	136.1	9.0	8.70	9.0	8.56	Front	0	0.064	1.107	1.003	0.071	0.071	0.038		24.4		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.07	6025.00	15	136.1	9.0	8.70	9.0	8.56	Top	0	0.093	1.107	1.003	0.097	0.097	0.009		27.1		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.05	6025.00	15	136.1	9.0	8.70	9.0	8.56	Right	0	0.023	1.107	1.003	0.026	0.026	0.007		28.9		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.02	6025.00	15	136.1	9.0	8.70	9.0	8.56	Left	0	0.253	1.107	1.003	0.281	0.281	0.070		18.4	17.5	8.0
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.05	6345.00	79	136.1	9.0	8.60	9.0	8.50	Left	0	0.204	1.089	1.003	0.234	0.234	0.081		17.8		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.01	6505.00	111	136.1	9.0	8.49	9.0	8.72	Left	0	0.307	1.125	1.003	0.346	0.346	0.087		17.5		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.06	6825.00	175	136.1	9.0	8.00	9.0	8.98	Left	0	0.146	1.253	1.003	0.183	0.183	0.046		20.1		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.03	6985.00	207	136.1	9.0	8.29	9.0	8.60	Left	0	0.117	1.178	1.003	0.138	0.138	0.035		21.5		
ANSI/IEEE C63.1.1982 - SAFETY LIMIT										Spatial Peak										Phantom						
Uncontrolled Exposure/General Population										4.0 W/kg (mW/g) averaged over 10 grams																
Note: To achieve the 12 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 9 dBm.																										
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd and 3rd) [dBm]	Conducted Power (2nd and 3rd) [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (Ac/m²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (Ac/m²)]	Adjusted APD [W/m² (Ac/m²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EF5 PLimit [dBm]
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.11	6025.00	15	136.1	9.0	8.70	9.0	8.56	Back	0	1.430	1.107	1.003	1.588	1.588	0.079		19.0		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.12	6025.00	15	136.1	9.0	8.70	9.0	8.56	Front	0	1.480	1.107	1.003	1.643	1.643	0.082		18.9		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.07	6025.00	15	136.1	9.0	8.70	9.0	8.56	Top	0	0.146	1.107	1.003	0.232	0.232	0.044		21.9		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0073M	99.67	-0.05	6025.00	15	136.1	9.0	8.70	9.0	8.56	Right	0	0.039	1.107	1.003	0.076	0.076	0.025		23.4		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.02	6025.00	15	136.1	9.0	8.70	9.0	8.56	Left	0	5.930	1.107	1.003	6.584	6.584	0.329		12.9		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.05	6345.00	79	136.1	9.0	8.60	9.0	8.50	Left	0	6.930	1.089	1.003	7.628	7.628	0.383		12.1		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.01	6505.00	111	136.1	9.0	8.49	9.0	8.72	Left	0	7.220	1.125	1.003	8.158	8.158	0.408		11.9		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.06	6825.00	175	136.1	9.0	8.00	9.0	8.98	Left	0	3.440	1.253	1.003	4.323	4.323	0.216		14.7		
Phubtest	6 GHz W/FU / IEEE 802.11ax	160	OFDM	MIMO	0080M	99.67	-0.03	6985.00	207	136.1	9.0	8.29	9.0	8.60	Left	0	2.770	1.178	1.003	3.273	3.273	0.161		15.0		
Note: To achieve the 12 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 9 dBm.																										

12.35 2.4 GHz Bluetooth SISO Standalone SAR

Table 12-141

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EF5 PLimit [dBm]	EF5 PLimit BT LE [dBm]
Head	2.4 GHz Bluetooth LE	FHSS	H	0120M	76.80	-0.04	2441.00	39	1	19.5	18.64	Right Cheek	0	0.743	1.218	1.016	0.909	0.905	0.636		18.7			
Head	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.02	2402.00	0	1	20.5	19.25	Right Cheek	0	0.594	1.334	1.020	0.808	0.808	0.505		20.8			
Head	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.01	2440.00	19	1	20.5	19.94	Right Cheek	0	0.757	1.138	1.020	0.879	0.879	0.549	A91	20.4			
Head	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.01	2440.00	39	1	20.5	19.16	Right Cheek	0	0.683	1.361	1.020	0.879	0.879	0.549		20.4			
Head	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	0.00	2440.00	39	1	20.5	19.94	Right Tilt	0	0.484	1.138	1.020	0.562	0.562	0.351		21.4			
Head	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.15	2440.00	39	1	20.5	19.94	Left Cheek	0	0.193	1.138	1.020	0.224	0.224	0.140		26.3			
Head	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	0.05	2440.00	39	1	20.5	19.94	Left Tilt	0	0.179	1.138	1.020	0.208	0.208	0.130		26.7			
ANSI/IEEE C63.1.1982 - SAFETY LIMIT										Spatial Peak										Head				
Uncontrolled Exposure/General Population										1.6 W/kg (mW/g)										averaged over 1 gram				

Table 12-142

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EF5 PLimit [dBm]	EF5 PLimit BT LE [dBm]
Head	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.02	2440.00	19	1	20.0	19.37	Right Cheek	0	0.329	1.156	1.018	0.387	0.487	0.304		23.5			
Head	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.06	2440.00	19	1	20.0	19.37	Right Tilt	0	0.041	1.156	1.018	0.048	0.061	0.038		32.5			
Head	2.4 GHz Bluetooth LE	FHSS	J	0120M	76.80	-0.04	2441.00	39	1	19.5	18.68	Left Cheek	0	0.514	1.209	1.016	0.631	1.001	0.626		20.4			
Head	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	0.04	2440.00	19	1	20.0	19.37	Left Cheek	0	0.997	1.156	1.018	0.703	0.884	0.553		20.9			
Head	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.02	2440.00	19	1	20.0	19.37	Left Tilt	0	0.061	1.156	1.018	0.072	0.090	0.056		30.8			
ANSI/IEEE C63.1.1982 - SAFETY LIMIT										Spatial Peak										Head				
Uncontrolled Exposure/General Population										1.6 W/kg (mW/g)										averaged over 1 gram				

Table 12-143

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EF5 PLimit [dBm]	EF5 PLimit BT LE [dBm]
Body-worn/Hotspot	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.01	2440.00	19	1	20.5	19.94	Back	10	0.181	1.138	1.020	0.209	0.200	0.181	A30	26.6			
Hotspot	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.03	2440.00	19	1	20.5	19.94	Front	10	0.190	1.138	1.020	0.221	0.304	0.190		26.4			
Hotspot	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.04	2440.00	19	1	20.5	19.94	Top	10	0.154	1.138	1.020	0.179	0.247	0.154		27.3			
Hotspot	2.4 GHz Bluetooth LE	FHSS	H	0120M	76.80	-0.02	2441.00	39	1	19.5	18.64	Left	10	0.380	1.218	1.016	0.470	0.917	0.573		21.6			
Hotspot	2.4 GHz Bluetooth LE	DSSS	H	0120M	85.33	-0.01	2440.00	19	1	20.5	19.94	Left	10	0.422	1.138	1.020	0.460	0.676	0.423	A30	22.9			
ANSI/IEEE C63.1.1982 - SAFETY LIMIT										Spatial Peak										Body				
Uncontrolled Exposure/General Population										1.6 W/kg (mW/g)										averaged over 1 gram				

Table 12-144

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EF5 PLimit [dBm]	EF5 PLimit BT LE [dBm]
Body-worn/hotspot	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.03	2440.00	19	1	20.0	19.37	Back	10	0.044	1.156	1.018	0.052	0.231	0.144			32.2		
Hotspot	2.4 GHz Bluetooth	FHSS	J	0120M	78.80	-0.03	2443.00	19	1	15.0	14.53	Front	10	0.082	1.209	1.018	0.082	0.440	0.289	29.2				
Hotspot	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.03	2440.00	19	1	20.0	19.37	Front	10	0.074	1.156	1.018	0.087	0.389	0.243			29.9	29.2	
Hotspot	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.08	2440.00	19	1	20.0	19.37	Top	10	0.003	1.156	1.018	0.004	0.016	0.010			43.8		
Hotspot	2.4 GHz Bluetooth LE	DSSS	J	0120M	85.43	-0.03	2440.00	19	1	20.0	19.37	Right	10	0.020	1.156	1.018	0.024	0.105	0.066			35.6		
ANSI/IEEE C95.3-1992 - SAFETY LIMIT																								
Spatial Peak																								
Uncontrolled Frequency/General Population																								
														Body										
														1.6 W/kg (W/m²)										
														averaged over 1 gram										



12.36 2.4 GHz Bluetooth MIMO Standalone SAR

Table 12-145

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1min [dBm]	Overall P1min [dBm]	EFS P1min BT [dBm]	EFS P1min BT LE [dBm]	
Head	2.4 GHz Bluetooth	PHSS	MIMO	0120M	77.07	-0.02	2441.00	39	1	15.5	15.15	15.5	15.39	Right Cheek	0	0.298	1.083	1.025	0.331	0.707	0.442		19.2				
Head	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.02	2440.00	19	1	15.5	15.49	14.0	13.92	Right Cheek	0	0.349	1.019	1.018	0.362	0.397	0.533		17.8				
Head	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	-0.01	2440.00	19	1	15.5	15.49	14.0	13.92	Right Tib	0	0.241	1.019	1.018	0.259	0.688	0.430		18.4	17.8	17.8		
Head	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.09	2440.00	19	1	15.5	15.49	14.0	13.92	Left Cheek	0	0.170	1.019	1.018	0.176	0.485	0.303		20.9				
Head	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.17	2440.00	19	1	15.5	15.49	14.0	13.92	Left Tib	0	0.074	1.019	1.018	0.077	0.211	0.132		24.5				
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Head										EFS P1min BT LE [dBm]		
Spatial Peak															1.6 W/kg (mW/g)										EFS P1min BT LE [dBm]		
Uncontrolled Exposure/General Population															averaged over 1 gram										EFS P1min BT LE [dBm]		
Note: To achieve the 18.5 dBm maximum allowed MIMO power for Bluetooth LE shown in the documentation, Antenna H transmits at a maximum allowed power of 15.5 dBm, and Antenna J transmits at a maximum allowed power of 14.0 dBm. To achieve the 18.5 dBm maximum allowed MIMO power for Bluetooth BDR shown in the documentation, each antenna transmits at a maximum allowed power of 15.5 dBm.																											

Table 12-146

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1min [dBm]	Overall P1min [dBm]	EFS P1min BT [dBm]	EFS P1min BT LE [dBm]	
Body worn/Hotspot	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.05	2440.00	19	1	15.5	15.49	14.0	13.92	Back	10	0.110	1.019	1.018	0.114	0.396	0.241		22.8				
	Hotspot	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.09	2440.00	19	1	15.5	15.49	14.0	13.92	Front	10	0.099	1.019	1.018	0.100	0.344	0.215		23.1			
	Hotspot	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.07	2440.00	19	1	15.5	15.49	14.0	13.92	Top	10	0.074	1.019	1.018	0.077	0.260	0.163		24.5	19.8	18.7	18.7
	Hotspot	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.08	2440.00	19	1	15.5	15.49	14.0	13.92	Right	10	0.018	1.019	1.018	0.020	0.083	0.039		30.6			
	Hotspot	2.4 GHz Bluetooth	PHSS	MIMO	0120M	77.07	-0.05	2441.00	39	1	15.5	15.15	15.5	15.39	Left	10	0.179	1.083	1.025	0.198	0.520	0.325		21.5			
	Hotspot	2.4 GHz Bluetooth LE	DSSS	MIMO	0120M	85.45	0.03	2440.00	19	1	15.5	15.49	14.0	13.92	Left	10	0.219	1.019	1.018	0.227	0.769	0.481		19.8			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Body										EFS P1min BT LE [dBm]		
Spatial Peak															1.6 W/kg (mW/g)										EFS P1min BT LE [dBm]		
Uncontrolled Exposure/General Population															averaged over 1 gram										EFS P1min BT LE [dBm]		
Note: To achieve the 18.5 dBm maximum allowed MIMO power for Bluetooth LE shown in the documentation, Antenna H transmits at a maximum allowed power of 15.5 dBm, and Antenna J transmits at a maximum allowed power of 14.0 dBm. To achieve the 18.5 dBm maximum allowed MIMO power for Bluetooth BDR shown in the documentation, each antenna transmits at a maximum allowed power of 15.5 dBm.																											

12.37 UWB Standalone SAR

Table 12-147

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	UWB	CW	1	0024M	1:1	0.08	6489.60	5	Back	0	0.000	0.000	
Phablet	UWB	CW	1	0024M	1:1	0.07	7987.20	9	Back	0	0.002	0.001	
Phablet	UWB	CW	1	0024M	1:1	0.07	6489.60	5	Front	0	0.000	0.000	
Phablet	UWB	CW	1	0024M	1:1	0.03	7987.20	9	Front	0	0.002	0.001	A94
Phablet	UWB	CW	1	0024M	1:1	0.03	6489.60	5	Left	0	0.001	0.000	
Phablet	UWB	CW	1	0024M	1:1	0.01	7987.20	9	Left	0	0.000	0.000	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT										Phablet			
Spatial Peak										4.0 W/kg (mW/g)			
Uncontrolled Exposure/General Population										averaged over 10 grams			
Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #
Phablet	UWB	CW	1	0024M	1:1	0.08	6489.60	5	Back	0	0.005	0.001	
Phablet	UWB	CW	1	0024M	1:1	0.07	7987.20	9	Back	0	0.044	0.011	
Phablet	UWB	CW	1	0024M	1:1	0.07	6489.60	5	Front	0	0.008	0.002	
Phablet	UWB	CW	1	0024M	1:1	0.03	7987.20	9	Front	0	0.050	0.013	A94
Phablet	UWB	CW	1	0024M	1:1	0.03	6489.60	5	Left	0	0.027	0.007	
Phablet	UWB	CW	1	0024M	1:1	0.01	7987.20	9	Left	0	0.016	0.004	
Health Canada Safety Code 6										Body			
Spatial Peak										20 W/m ²			
Uncontrolled Exposure/ General Population										average over 4 cm ²			

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12.38 NFC Standalone SAR

Table 12-148

Exposure	Band / Mode	Signal Type	Ant.	Serial Number	Power Drift [dB]	Frequency [MHz]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	NFC	B	NFC	0129M	-0.04	13.60	Back	0	0.012	0.003	A95
Phablet	NFC	B	NFC	0129M	0.09	13.60	Front	0	0.000	0.000	
Phablet	NFC	B	NFC	0129M	0.06	13.60	Top	0	0.000	0.000	
Phablet	NFC	B	NFC	0129M	0.04	13.60	Left	0	0.000	0.000	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams				

12.39 NTN Band 255 Standalone SAR

Table 12-149

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	# Tones	Tone Start	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #
Body-worn	NTN Band 255	CW	F	0089M	1:1	-0.02	1626.60	261505	23.0	22.76	1	5	Back	10	0.466	1.057	0.710	0.350	0.219	A96
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-150

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	# Tones	Tone Start	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	NTN Band 255	CW	F	0089M	1:1	0.06	1626.60	261505	23.0	22.76	1	5	Back	0	1.340	1.057	0.710	1.006	0.252	
Phablet	NTN Band 255	CW	F	0089M	1:1	0.09	1626.60	261505	23.0	22.76	1	5	Front	0	1.600	1.057	0.710	1.201	0.300	
Phablet	NTN Band 255	CW	F	0089M	1:1	0.01	1626.60	261505	23.0	22.76	1	5	Top	0	3.000	1.057	0.710	2.702	0.676	A97
Phablet	NTN Band 255	CW	F	0089M	1:1	-0.01	1626.60	261505	23.0	22.76	1	5	Top	0	1.000	1.057	0.710	2.702	0.676	
Phablet	NTN Band 255	CW	F	0089M	1:1	-0.01	1643.50	261674	23.0	22.53	1	5	Top	0	3.540	1.114	0.710	2.800	0.700	
Phablet	NTN Band 255	CW	F	0089M	1:1	-0.01	1660.40	261843	23.0	22.49	1	5	Top	0	3.360	1.125	0.710	2.684	0.671	
Phablet	NTN Band 255	CW	F	0089M	1:1	-0.07	1626.60	261505	23.0	22.76	1	5	Left	0	0.489	1.057	0.710	0.367	0.092	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Note: Blue entry represents variability measurement

SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
- Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
- Per FCC KDB Publication 648474 D01v06r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
- Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 14 for variability analysis.

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9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 7.7 for more details).
10. Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is > 150 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. This device supports dynamic antenna tuning for some bands. Per FCC Guidance, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 15 for supplemental data.
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the 1g thresholds for the equivalent test cases.
13. This device uses Qualcomm Smart Transmit for WWAN/WLAN/BT operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).
14. Per October 2020 TCB Workshop notes, absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements.

GSM Test Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.
3. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).

UMTS Notes:

1. UMTS mode was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).

LTE Notes:

1. LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 9.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported 1g SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for LTE B41/48, testing at the other channels was required for such test configurations.

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5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. For LTE Band 48 per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

NR Notes:

1. NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Due to test setup limitations, SAR testing for NR TDD was performed using test mode software to establish the connection.
3. Simultaneous transmission analysis for EN-DC operations is addressed in the Part 2 Test Report (Serial Number can be found in the bibliography).
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. Per FCC Guidance, NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.
6. Per FCC KDB Publication 447498 D01v06, when the reported NR Band n77 C-Band SAR measured at the highest output power channel in a given a test configuration was > 0.4 W/kg for 1g evaluations and > 1 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.
7. Per FCC KDB Publication 447498 D01v06, when the reported NR Band n41/48 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations and > 1.5 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.
8. SRS was tested with CW signal per Qualcomm guidance in 80-w2112-4.
9. For final implementation, NR Band n38, n41, n48 and n77 slot configuration is synchronized using maximum duty cycle of 100%. SAR testing was performed using FTM mode with a 100% duty cycle applied to match final duty cycle.
10. Per FCC Guidance, C-Band for NR n77 (3705 – 3975 MHz) was fully tested according to FCC procedures. For each exposure condition and antenna, the worst-case position was additionally evaluated for the NR n77 DoD (3455.01 – 3544.98 MHz).
11. This device uses two transmit pathways for n41 operations (Path 1 and Path 2). For each exposure condition, the pathway with the highest target power was fully evaluated. The worst case for each antenna and exposure condition was additionally evaluated using the other path.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due

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to the maximum allowed powers and the highest reported DSSS SAR. See Section 9.6.5 for more information.

3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 9.6.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Multi-TX and Antenna SAR Considerations Appendix for complete analysis.
5. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
7. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.
8. Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factor for WIFI 6E. Per October 2020 TCB Workshop notes, 5 channels were tested for WIFI 6E.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 79% transmission duty factor for Bluetooth and 87% transmission duty factor for Bluetooth LE to determine compliance. See RF Conducted Power Section for the time domain plot and calculation for the duty factor of the device.
2. Head and Hotspot Bluetooth SAR were evaluated for BT BDR tethering applications.
3. The highest frame average power configurations for both Bluetooth and Bluetooth LE were evaluated for SAR. The worst case configuration was used for the remaining test positions as the most conservative scenario.

UWB Notes:

1. UWB was evaluated for phablet based on expected usage conditions.
2. Per FCC guidance, SAR was performed using 6.5 GHz/8GHz probe calibration factor for UWB.

NTN Notes:

1. Due to equipment limitations, NTN was tested using factory test mode software transmitting CW at 100% duty cycle. The results were scaled down to the maximum duty cycle of 71%, declared by the manufacturer.

NTN NB-IoT only supports data transmission, therefore only body-worn and phablet exposure conditions were evaluated.

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13 POWER DENSITY DATA SUMMARY

13.1 6 GHz WIFI Power Density Results

Table 13-1

MEASUREMENT RESULTS																										
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant H) (dBm)	Conducted Power (Ant H) (dBm)	Maximum Allowed Power (Ant E) (dBm)	Conducted Power (Ant E) (dBm)	Power Df/B (dB)	Spacing (mm)	Antenna Config.	Keyboard Variant	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	PD (W/m²)	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal paPD (W/m²)	Scaled Normal paPD (W/m²)	Total paPD (W/m²)	Scaled Total paPD (W/m²)	Plot #
6985.00	207	802.11ax	OFDM	160	9.00	8.89	-	-	3.63	2	H	1	0066M	MCSD	Back	99.67	0.125	0.554	1.554	1.028	1.003	0.220	0.352	0.290	0.464	
6985.00	207	802.11ax	OFDM	160	9.00	8.89	-	-	0.37	2	H	1	0066M	MCSD	Front	99.67	0.125	0.677	1.554	1.028	1.003	0.227	0.363	0.269	0.430	
6985.00	207	802.11ax	OFDM	160	9.00	8.89	-	-	-2.19	2	H	1	0066M	MCSD	Top	99.67	0.125	0.380	1.554	1.028	1.003	0.174	0.278	0.195	0.312	
6985.00	207	802.11ax	OFDM	160	9.00	8.89	-	-	-0.20	2	H	1	0066M	MCSD	Left	99.67	0.125	0.624	1.554	1.028	1.003	0.690	1.103	0.869	1.390	
6025.00	15	802.11ax	OFDM	160	9.00	8.81	-	-	-0.32	2	H	1	0066M	MCSD	Left	99.67	0.125	0.665	1.554	1.045	1.003	1.450	2.362	1.800	2.932	
6345.00	79	802.11ax	OFDM	160	9.00	8.73	-	-	0.07	2	H	1	0066M	MCSD	Left	99.67	0.125	0.939	1.554	1.064	1.003	1.810	3.002	2.080	3.450	
6905.00	111	802.11ax	OFDM	160	9.00	8.88	-	-	0.10	2	H	1	0066M	MCSD	Left	99.67	0.125	2.060	1.554	1.028	1.003	2.660	4.262	3.190	5.111	
6825.00	175	802.11ax	OFDM	160	9.00	8.83	-	-	-0.60	2	H	1	0066M	MCSD	Left	99.67	0.125	0.624	1.554	1.040	1.003	1.630	2.642	2.000	3.242	
6985.00	207	802.11ax	OFDM	160	9.00	8.89	-	-	0.89	8.98	H	1	0066M	MCSD	Left	99.67	0.125	0.731	1.554	1.026	1.003	0.373	0.596	0.597	0.635	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.93	0.02	2	E	1	0066M	MCSD	Back	99.67	0.125	1.870	1.554	1.016	1.003	1.990	3.151	2.100	3.326	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.93	0.81	2	E	1	0066M	MCSD	Front	99.67	0.125	0.420	1.554	1.016	1.003	0.207	0.328	0.222	0.352	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.93	3.06	2	E	1	0066M	MCSD	Top	99.67	0.125	0.516	1.554	1.016	1.003	0.317	0.502	0.361	0.619	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.93	-6.99	2	E	1	0066M	MCSD	Right	99.67	0.125	4.240	1.554	1.016	1.003	0.392	0.621	0.444	0.703	
6345.00	79	802.11ax	OFDM	160	-	-	9.00	8.51	0.00	2	E	1	0066M	MCSD	Back	99.67	0.125	0.777	1.554	1.119	1.003	0.841	1.467	1.000	1.744	
6905.00	111	802.11ax	OFDM	160	-	-	9.00	8.90	7.37	2	E	1	0066M	MCSD	Back	99.67	0.125	0.870	1.554	1.023	1.003	0.617	0.984	0.799	1.274	
6825.00	175	802.11ax	OFDM	160	-	-	9.00	8.91	0.66	2	E	1	0066M	MCSD	Back	99.67	0.125	0.849	1.554	1.021	1.003	0.637	1.014	0.716	1.139	
6985.00	207	802.11ax	OFDM	160	-	-	9.00	8.88	0.30	2	E	1	0066M	MCSD	Back	99.67	0.125	0.589	1.554	1.076	1.003	0.415	0.696	0.608	1.104	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.93	0.33	9.95	E	1	0066M	MCSD	Back	99.67	0.125	1.540	1.554	1.016	1.003	1.230	1.948	1.280	2.027	
6345.00	79	802.11ax	OFDM	160	9.00	8.80	9.00	8.59	0.14	2	MMMO	1	0076M	MCSD	Back	99.67	0.125	-	1.554	1.099	1.003	1.380	2.364	1.650	2.826	
6345.00	79	802.11ax	OFDM	160	9.00	8.80	9.00	8.59	0.14	2	MMMO	1	0076M	MCSD	Front	99.67	0.125	-	1.554	1.099	1.003	0.754	1.292	1.040	1.781	
6345.00	79	802.11ax	OFDM	160	9.00	8.80	9.00	8.59	0.11	2	MMMO	1	0076M	MCSD	Top	99.67	0.125	-	1.554	1.099	1.003	0.539	0.923	0.615	1.587	
6345.00	79	802.11ax	OFDM	160	9.00	8.80	9.00	8.59	0.13	2	MMMO	1	0076M	MCSD	Right	99.67	0.125	-	1.554	1.099	1.003	0.579	0.980	0.618	1.059	
6025.00	15	802.11ax	OFDM	160	9.00	8.70	9.00	8.56	0.15	2	MMMO	1	0076M	MCSD	Left	99.67	0.125	-	1.554	1.107	1.003	2.070	3.572	2.760	4.762	
6345.00	79	802.11ax	OFDM	160	9.00	8.60	9.00	8.59	-0.07	2	MMMO	1	0076M	MCSD	Left	99.67	0.125	-	1.554	1.099	1.003	2.070	3.546	3.280	5.619	AMB
6905.00	111	802.11ax	OFDM	160	9.00	8.49	9.00	8.72	0.06	2	MMMO	1	0076M	MCSD	Left	99.67	0.125	-	1.554	1.125	1.003	1.920	3.367	2.600	4.559	
6825.00	175	802.11ax	OFDM	160	9.00	8.02	9.00	8.98	0.04	2	MMMO	1	0076M	MCSD	Left	99.67	0.125	-	1.554	1.253	1.003	1.000	1.953	1.340	2.617	
6925.00	207	802.11ax	OFDM	160	9.00	8.29	9.00	8.81	-0.13	2	MMMO	1	0076M	MCSD	Left	99.67	0.125	-	1.554	1.178	1.003	0.583	1.070	1.050	1.928	
48 CFR §1.1319 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population													Power Density 10 W/m² averaged over 4 cm²/31													

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13.2 UWB Power Density Results

Table 13-2

MEASUREMENT RESULTS															
Frequency (MHz)	Channel	Mode	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Side	Grid Step (λ)	iPD (W/m ²)	Scaling Factor for Measurement Uncertainty per IEC 62479	Normal psPD (W/m ²)	Scaled Normal psPD (W/m ²)	Total psPD (W/m ²)	Scaled Total psPD (W/m ²)	Plot #
6489.60	5	CW	-0.14	2	1	0024M	Back	0.125	-	1.554	0.279	0.434	0.313	0.486	A99
6489.60	5	CW	0.17	2	1	0024M	Front	0.125	-	1.554	0.128	0.199	0.133	0.207	
6489.60	5	CW	0.18	2	1	0024M	Top	0.125	0.253	1.554	0.166	0.258	0.213	0.331	
6489.60	5	CW	-0.12	9.24	1	0024M	Top	0.125	0.148	1.554	0.077	0.120	0.089	0.138	
6489.60	5	CW	-0.16	2	1	0024M	Left	0.125	-	1.554	0.069	0.107	0.076	0.118	
7987.20	9	CW	0.17	2	1	0024M	Back	0.125	-	1.554	0.107	0.166	0.125	0.194	
7987.20	9	CW	-0.12	2	1	0024M	Front	0.125	-	1.554	0.148	0.230	0.153	0.238	
7987.20	9	CW	-0.14	2	1	0024M	Top	0.125	-	1.554	0.085	0.132	0.099	0.154	
7987.20	9	CW	0.18	2	1	0024M	Left	0.125	-	1.554	0.062	0.096	0.073	0.113	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population						Power Density 10 W/m ² averaged over 4 cm ²									

Power Density General Notes

1. The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
2. Batteries are fully charged at the beginning of the measurements. The DUT was connected to a wall charger for some measurements due to the test duration. It was confirmed that the charger plugged into this DUT did not impact the near-field PD test results.
3. Power density was calculated by repeated E-field measurements on two measurement planes separated by $\lambda/4$.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools.
5. Per FCC guidance and equipment manufacturer guidance, power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty > 30%. Total expanded uncertainty of 2.68 dB (85.4%) was used to determine the psPD measurement scaling factor.
6. Per equipment manufacturer guidance, power density was measured at $d=2\text{mm}$ and $d=\lambda/5\text{mm}$ using the same grid size and grid step size for some frequencies and surfaces. The integrated Power Density (iPD) was calculated based on these measurements. Since iPD ratio between the two distances is $\geq -1\text{dB}$, the grid step was sufficient for determining compliance at $d=2\text{mm}$.
7. psPD for MIMO was evaluated by making a measurement with both antennas transmitting simultaneously.
8. PTP-PR algorithm was used during psPD measurement and calculations.
9. PD results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04.

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14 SAR MEASUREMENT VARIABILITY

14.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~10% from the 1g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
- 5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Table 14-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Test Position	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)
750	782.00	23230	LTE Band 13, 10 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	Left	Tilt	E	0.870	0.825	1.05	N/A	N/A	N/A
835	836.60	4183	UMTS 850	RMC	Left	Cheek	E	0.895	0.888	1.01	N/A	N/A	N/A
2600	2535.00	507000	NR Band n7, 50 MHz Bandwidth	CP-OFDM, 1 RB, 1 RB Offset	Right	Tilt	F	0.966	0.937	1.03	N/A	N/A	N/A
3500	3500.01	633334	NR Band n77 DoD, 100 MHz Bandwidth	DFT-s-OFDM, QPSK, 135 RB, 138 RB Offset	Right	Tilt	F	1.100	1.020	1.08	N/A	N/A	N/A
3700	3679.98	645332	NR Band n48, 40 MHz Bandwidth	DFT-s-OFDM, QPSK, 50 RB, 28 RB Offset	Right	Cheek	F	1.070	1.010	1.06	N/A	N/A	N/A
3900	3930.00	662000	NR Band n77, 100 MHz Bandwidth	CP-OFDM, 1 RB, 1 RB Offset	Right	Tilt	F	0.986	0.947	1.04	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Head							
Spatial Peak						1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population						averaged over 1 gram							

Table 14-2
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)
1750	1745.00	349000	NR Band n66, 45 MHz Bandwidth	CP-OFDM, QPSK, 1 RB, 1 RB Offset	Bottom	10	A	0.980	0.934	1.05	N/A	N/A	N/A
1900	1907.60	9538	UMTS 1900	RMC	Bottom	10	A	0.943	0.941	1.00	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Body							
Spatial Peak						1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population						averaged over 1 gram							

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Table 14-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Side	Spacing	Antenna Config	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1640	1626.60	261505	NTN Band 255	CW	Top	0	F	3.600	3.600	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

14.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g and <3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

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15 ADDITIONAL TESTING PER FCC GUIDANCE

15.1 Tuner Testing

Per April 2019 TCB Workshop Notes, the following test procedures were followed to demonstrate that the SAR results in Section 12 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other than impedance matching.

To evaluate all the tuner states, the 143 tuner states were divided among the aggregate band, mode and exposure combinations. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest measured SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was $> 1.2 \text{ W/kg}$ for a particular band/mode/exposure condition, point SAR measurements were made for all 143 states.

The operational description contains more information about the design and implementation of the dynamic antenna tuning.

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Table 15-1
UMTS Supplemental Head SAR Data

Supplemental Head SAR Data					
UMTS B5		UMTS B4		UMTS B2	
RMC		RMC		RMC	
Test Position	Left Cheek	Test Position	Right Cheek	Test Position	Right Cheek
Frequency (MHz)	836.60	Frequency (MHz)	1752.60	Frequency (MHz)	1907.60
Channel	4183	Channel	1513	Channel	9538
Measured 1g SAR (W/kg)	0.109	Measured 1g SAR (W/kg)	0.098	Measured 1g SAR (W/kg)	0.095
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 63)	0.116	Auto-tune (State 99)	0.107	Auto-tune (State 115)	0.112
Default (State 0)	0.092	Default (State 0)	0.081	Default (State 0)	0.080
State 0	0.092	State 1	0.069	State 2	0.072
State 47	0.072	State 46	0.098	State 45	0.092
State 63	0.103	State 94	0.019	State 93	0.012
State 95	0.072	State 97	0.014	State 98	0.008
State 96	0.066	State 99	0.118	State 115	0.086
State 117	0.093	State 118	0.100	State 119	0.012
State 141	0.089	State 142	0.091	State 141	0.101

Table 15-2
LTE Supplemental Head SAR Data

Supplemental Head SAR Data							
LTE B71		LTE B12		LTE B13		LTE B14	
QPSK, 20 MHz Bandwidth, 1 RB, 50 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 25 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 25 RB Offset	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Left Cheek	Test Position	Left Cheek
Frequency (MHz)	680.50	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	793.00
Channel	133297	Channel	23095	Channel	23230	Channel	23330
Measured 1g SAR (W/kg)	0.128	Measured 1g SAR (W/kg)	0.139	Measured 1g SAR (W/kg)	0.132	Measured 1g SAR (W/kg)	0.130
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 28)	0.121	Auto-tune (State 124)	0.121	Auto-tune (State 0)	0.127	Auto-tune (State 117)	0.117
Default (State 0)	0.101	Default (State 0)	0.112	Default (State 0)	0.097	Default (State 0)	0.119
State 3	0.063	State 4	0.067	State 0	0.097	State 6	0.075
State 19	0.066	State 43	0.043	State 5	0.081	State 22	0.080
State 28	0.127	State 91	0.123	State 42	0.036	State 41	0.055
State 44	0.034	State 99	0.113	State 90	0.051	State 54	0.080
State 51	0.040	State 120	0.133	State 100	0.055	State 82	0.084
State 79	0.044	State 124	0.137	State 121	0.083	State 89	0.015
State 92	0.116	State 140	0.101	State 139	0.035	State 117	0.118

Supplemental Head SAR Data					
LTE B26		LTE B66		LTE B25	
QPSK, 15 MHz Bandwidth, 1 RB, 36 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 50 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 50 RB Offset	
Test Position	Left Cheek	Test Position	Right Cheek	Test Position	Right Cheek
Frequency (MHz)	831.50	Frequency (MHz)	1720.00	Frequency (MHz)	1860.00
Channel	26865	Channel	132072	Channel	26140
Measured 1g SAR (W/kg)	0.115	Measured 1g SAR (W/kg)	0.113	Measured 1g SAR (W/kg)	0.129
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 63)	0.114	Auto-tune (State 99)	0.117	Auto-tune (State 109)	0.136
Default (State 0)	0.101	Default (State 0)	0.085	Default (State 0)	0.088
State 7	0.051	State 11	0.096	State 13	0.114
State 40	0.063	State 36	0.018	State 34	0.092
State 63	0.107	State 84	0.096	State 82	0.130
State 88	0.034	State 99	0.120	State 104	0.120
State 101	0.090	State 103	0.112	State 109	0.125
State 122	0.053	State 124	0.097	State 125	0.015
State 138	0.053	State 136	0.031	State 135	0.132

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Table 15-3
NR Supplemental Head SAR Data

Supplemental Head SAR Data							
NR Band n71		NR Band n12		NR Band n14		NR Band n26	
DFT-s-OFDM QPSK, 35 MHz Bandwidth, 90 RB, 49 RB Offset		DFT-s-OFDM QPSK, 15 MHz Bandwidth, 1 RB, 40 RB Offset		DFT-s-OFDM QPSK, 10 MHz Bandwidth, 1 RB, 1 RB Offset		DFT-OFDM QPSK, 20 MHz Bandwidth, 50 RB, 28 RB Offset	
Test Position	Right Cheek	Test Position	Left Cheek	Test Position	Left Cheek	Test Position	Left Cheek
Frequency (MHz)	680.50	Frequency (MHz)	707.50	Frequency (MHz)	793.00	Frequency (MHz)	831.50
Channel	136100	Channel	141500	Channel	158600	Channel	166300
Measured 1g SAR (W/kg)	0.101	Measured 1g SAR (W/kg)	0.143	Measured 1g SAR (W/kg)	0.102	Measured 1g SAR (W/kg)	0.090
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 137)	0.099	Auto-tune (State 27)	0.149	Auto-tune (State 117)	0.109	Auto-tune (State 63)	0.093
Default (State 0)	0.088	Default (State 0)	0.125	Default (State 0)	0.101	Default (State 0)	0.083
State 15	0.013	State 16	0.013	State 17	0.016	State 18	0.075
State 31	0.093	State 27	0.144	State 30	0.089	State 29	0.084
State 32	0.086	State 31	0.118	State 33	0.068	State 34	0.059
State 63	0.104	State 32	0.108	State 65	0.091	State 63	0.085
State 80	0.025	State 64	0.132	State 78	0.039	State 66	0.079
State 94	0.061	State 79	0.039	State 94	0.074	State 77	0.036
State 137	0.105	State 95	0.067	State 117	0.100	State 93	0.066

Supplemental Head SAR Data					
NR Band n70		NR Band n66		NR Band n25	
DFTs-OFDM QPSK, 15 MHz Bandwidth, 36 RB, 22 RB Offset		DFT-s-OFDM QPSK, 45 MHz Bandwidth, 1 RB, 121 RB Offset		DFT-S-OFDM QPSK, 40 MHz Bandwidth, 108 RB, 54 RB Offset	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek
Frequency (MHz)	1702.50	Frequency (MHz)	1745.00	Frequency (MHz)	1882.50
Channel	340500	Channel	349000	Channel	376500
Measured 1g SAR (W/kg)	0.118	Measured 1g SAR (W/kg)	0.108	Measured 1g SAR (W/kg)	0.101
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 100)	0.131	Auto-tune (State 99)	0.122	Auto-tune (State 112)	0.115
Default (State 0)	0.104	Default (State 0)	0.087	Default (State 0)	0.106
State 20	0.017	State 21	0.009	State 22	0.010
State 27	0.130	State 26	0.001	State 25	0.004
State 36	0.017	State 74	0.007	State 73	0.010
State 68	0.104	State 99	0.116	State 107	0.076
State 75	0.011	State 106	0.093	State 112	0.104
State 91	0.128	State 127	0.022	State 128	0.105
State 100	0.134	State 133	0.100	State 132	0.019

Table 15-4
UMTS Supplemental Body SAR Data

Supplemental Body SAR Data					
UMTS B5		UMTS B4		UMTS B2	
RMC		RMC		RMC	
Test Position	Back	Test Position	Bottom	Test Position	Bottom
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	836.60	Frequency (MHz)	1752.60	Frequency (MHz)	1907.60
Channel	4183	Channel	1513	Channel	9538
Measured 1g SAR (W/kg)	0.206	Measured 1g SAR (W/kg)	0.938	Measured 1g SAR (W/kg)	0.943
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 133)	0.225	Auto-tune (State 99)	1.030	Auto-tune (State 49)	1.040
Default (State 0)	0.194	Default (State 0)	0.721	Default (State 0)	0.751
State 23	0.121	State 22	0.146	State 21	0.130
State 24	0.107	State 25	0.110	State 26	0.071
State 72	0.165	State 70	0.721	State 49	1.030
State 108	0.094	State 99	1.050	State 69	0.615
State 129	0.094	State 109	0.683	State 110	0.867
State 131	0.165	State 130	0.716	State 129	0.843
State 133	0.212	State 132	0.206	State 133	0.828

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Table 15-5
LTE Supplemental Body SAR Data

Supplemental Body SAR Data							
LTE B71		LTE B12		LTE B13		LTE B14	
QPSK, 20 MHz Bandwidth, 1 RB, 50 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 25 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 25 RB Offset	
Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Back
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	680.50	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	793.00
Channel	133297	Channel	23095	Channel	23230	Channel	23330
Measured 1g SAR (W/kg)	0.229	Measured 1g SAR (W/kg)	0.235	Measured 1g SAR (W/kg)	0.289	Measured 1g SAR (W/kg)	0.291
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 137)	0.204	Auto-tune (State 124)	0.222	Auto-tune (State 0)	0.269	Auto-tune (State 117)	0.295
Default (State 0)	0.168	Default (State 0)	0.184	Default (State 0)	0.306	Default (State 0)	0.293
State 20	0.103	State 19	0.140	State 0	0.306	State 17	0.046
State 27	0.188	State 28	0.200	State 18	0.181	State 30	0.249
State 43	0.070	State 67	0.156	State 29	0.202	State 46	0.208
State 68	0.151	State 111	0.137	State 66	0.211	State 65	0.264
State 75	0.116	State 124	0.258	State 112	0.163	State 78	0.114
State 84	0.094	State 128	0.181	State 127	0.137	State 81	0.152
State 137	0.239	State 134	0.185	State 135	0.084	State 117	0.289

Supplemental Body SAR Data					
LTE B26		LTE B66		LTE B25	
QPSK, 15 MHz Bandwidth, 1 RB, 36 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 50 RB Offset	
Test Position	Back	Test Position	Bottom	Test Position	Bottom
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	831.50	Frequency (MHz)	1770.00	Frequency (MHz)	1905.00
Channel	26865	Channel	132572	Channel	26590
Measured 1g SAR (W/kg)	0.243	Measured 1g SAR (W/kg)	0.953	Measured 1g SAR (W/kg)	0.888
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 63)	0.277	Auto-tune (State 99)	0.965	Auto-tune (State 112)	0.958
Default (State 0)	0.267	Default (State 0)	0.743	Default (State 0)	0.704
State 16	0.065	State 12	0.831	State 10	0.945
State 31	0.257	State 35	0.773	State 37	0.138
State 63	0.281	State 60	0.196	State 58	0.167
State 64	0.276	State 99	0.965	State 112	0.943
State 113	0.183	State 115	0.784	State 116	0.807
State 126	0.157	State 124	0.85	State 123	0.204
State 136	0.201	State 138	0.155	State 139	0.954

Table 15-6
NR Supplemental Body SAR Data

Supplemental Body SAR Data							
NR Band n71		NR Band n12		NR Band n14		NR Band n26	
DFT-OFDM QPSK, 35 MHz Bandwidth, 90 RB, 49 RB Offset		DFT-OFDM QPSK, 15 MHz Bandwidth, 36 RB, 22 RB Offset		DFT-OFDM QPSK, 10 MHz Bandwidth, 25 RB, 14 RB Offset		DFT-OFDM QPSK, 20 MHz Bandwidth, 1 RB, 53 RB Offset	
Test Position	Right	Test Position	Back	Test Position	Back	Test Position	Back
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	680.50	Frequency (MHz)	707.50	Frequency (MHz)	793.00	Frequency (MHz)	831.50
Channel	136100	Channel	141500	Channel	158600	Channel	166300
Measured 1g SAR (W/kg)	0.218	Measured 1g SAR (W/kg)	0.215	Measured 1g SAR (W/kg)	0.281	Measured 1g SAR (W/kg)	0.234
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 64)	0.235	Auto-tune (State 63)	0.242	Auto-tune (State 117)	0.306	Auto-tune (State 63)	0.207
Default (State 0)	0.193	Default (State 0)	0.249	Default (State 0)	0.322	Default (State 0)	0.228
State 8	0.053	State 7	0.089	State 6	0.202	State 5	0.151
State 39	0.140	State 40	0.144	State 41	0.142	State 42	0.109
State 55	0.149	State 55	0.209	State 54	0.215	State 53	0.060
State 56	0.150	State 56	0.205	State 57	0.263	State 58	0.199
State 64	0.218	State 63	0.282	State 70	0.183	State 63	0.247
State 72	0.184	State 71	0.114	State 89	0.045	State 69	0.194
State 87	0.056	State 88	0.032	State 117	0.324	State 90	0.193

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Supplemental Body SAR Data					
NR Band n70		NR Band n66		NR Band n25	
DFTs-OFDM QPSK, 15 MHz Bandwidth, 75 RB, 0 RB Offset		CP-OFDM QPSK, 45 MHz Bandwidth, 1 RB, 1 RB Offset		DFTs-OFDM QPSK, 40 MHz Bandwidth, 108 RB, 0 RB Offset	
Test Position	Bottom	Test Position	Bottom	Test Position	Bottom
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	1702.50	Frequency (MHz)	1745.00	Frequency (MHz)	1882.50
Channel	340500	Channel	349000	Channel	376500
Measured 1g SAR (W/kg)	0.919	Measured 1g SAR (W/kg)	0.980	Measured 1g SAR (W/kg)	0.873
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 28)	1.030	Auto-tune (State 28)	1.060	Auto-tune (State 99)	0.984
Default (State 0)	0.748	Default (State 0)	0.872	Default (State 0)	0.672
State 3	0.642	State 2	0.797	State 1	0.626
State 28	0.996	State 28	1.050	State 46	0.913
State 44	0.154	State 61	0.215	State 62	0.101
State 51	0.620	State 101	0.887	State 99	0.968
State 60	0.247	State 118	0.826	State 119	0.144
State 67	0.779	State 121	0.154	State 120	0.896
State 92	0.224	State 141	0.833	State 142	0.854

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16 EQUIPMENT LIST

[illegible]

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

Note: All equipment was used solely within its respective calibration period.

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17 MEASUREMENT UNCERTAINTIES

Note: The tables below represent the worst-case uncertainty budget among the uncertainty budgets of all testing laboratories listed in Section 1.2

Applicable for SAR measurements < 6GHz:

a	b	c	d	e = f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E2.1	7	N	1	1	1	7.0	7.0	∞
Axial Isotropy	E2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E2.4	0.25	R	1.73	1	1	0.1	0.1	∞
Modulation Response	E2.5	4.8	R	1.73	1	1	2.8	2.8	∞
Readout Electronics	E2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E6.1	3	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E6.1	3	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E6.3	6.7	R	1.73	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E5	4	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E2.9	5	R	1.73	1	1	2.9	2.9	∞
SAR Scaling	E6.5	0	R	1.73	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E3.4	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E3.4	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)							RSS	12.2	12.0
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	24.4	24.0

The above measurement uncertainties are according to IEEE Std. 1528-2013

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Applicable for SAR measurements > 6GHz:

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E2.1	9.3	N	1	1	1	9.3	9.3	∞
Axial Isotropy	E2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E2.4	0.25	R	1.73	1	1	0.1	0.1	∞
Modulation Response	E2.5	4.8	R	1.73	1	1	2.8	2.8	∞
Readout Electronics	E2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E6.1	3	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E6.1	3	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E6.3	6.7	R	1.73	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E5	4	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E2.9	5	R	1.73	1	1	2.9	2.9	∞
SAR Scaling	E6.5	0	R	1.73	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E3.4	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E3.4	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)							RSS	13.8	13.6
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	27.6	27.1

The above measurement uncertainties are according to IEEE Std. 1528-2013

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Applicable for Power Density Measurements:

a	b	c	d	e	f = c x f/e	g
Uncertainty Component	Unc. (± dB)	Prob. Dist.	Div.	c _i	u _i (± dB)	v _i
Measurement System						
Calibration	0.49	N	1	1	0.49	∞
Probe Correction	0.00	R	1.73	1	0.00	∞
Frequency Response	0.20	R	1.73	1	0.12	∞
Sensor Cross Coupling	0.00	R	1.73	1	0.00	∞
Isotropy	0.50	R	1.73	1	0.29	∞
Linearity	0.20	R	1.73	1	0.12	∞
Probe Scattering	0.00	R	1.73	1	0.00	∞
Probe Positioning offset	0.30	R	1.73	1	0.17	∞
Probe Positioning Repeatability	0.04	R	1.73	1	0.02	∞
Sensor Mechanical Offset	0.00	R	1.73	1	0.00	∞
Probe Spatial Resolution	0.00	R	1.73	1	0.00	∞
Field Impedance Dependence	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Drift	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Noise	0.04	R	1.73	1	0.02	∞
Measurement Area Truncation	0.00	R	1.73	1	0.00	∞
Data Acquisition	0.03	N	1	1	0.03	∞
Sampling	0.00	R	1.73	1	0.00	∞
Field Reconstruction	2.00	R	1.73	1	1.15	∞
Forward Transformation	0.00	R	1.73	1	0.00	∞
Power Density Scaling	0.00	R	1.73	1	0.00	∞
Spatial Averaging	0.10	R	1.73	1	0.06	∞
System Detection Limit	0.04	R	1.73	1	0.02	∞
Test Sample Related						
Probe Coupling with DUT	0.00	R	1.73	1	0.00	∞
Modulation Response	0.40	R	1.73	1	0.23	∞
Integration Time	0.00	R	1.73	1	0.00	∞
Response Time	0.00	R	1.73	1	0.00	∞
Device Holder Influence	0.10	R	1.73	1	0.06	∞
DUT alignment	0.00	R	1.73	1	0.00	∞
RF Ambient Conditions	0.04	R	1.73	1	0.02	∞
Ambient Reflections	0.04	R	1.73	1	0.02	∞
Immunity/Secondary Reception	0.00	R	1.73	1	0.00	∞
Drift of DUT	0.21	R	1.73	1	0.12	∞
Combined Standard Uncertainty (k=1)					RSS	1.34
Expanded Uncertainty (95% CONFIDENCE LEVEL)					k=2	2.68

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18 CONCLUSION

18.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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**PART 2 RF EXPOSURE EVALUATION REPORT****Applicant Name:**

Samsung Electronics Co., Ltd.
129, Samsung-ro, Maetan dong,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:

09/26/2024 – 10/23/2024

Test Site/Location:

Element, Columbia, MD, USA

Document Serial No.:

1M2408260067-24.A3L

FCC ID:

A3LSMS938U

APPLICANT:

SAMSUNG ELECTRONICS CO., LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SM-S938U

Additional Model(s):

SM-S938U1

Device Serial Numbers:

Pre-Production Samples [1001M, 1111M, 0071M, 1095M]

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.



RJ Ortanez

Executive Vice President



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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 26	Voice/Data	814.7 - 848.3 MHz
LTE Band 5	Voice/Data	824.7 - 848.3 MHz
LTE Band 66	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 38	Voice/Data	2572.5 - 2617.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
NR Band n71	Voice/Data	665.5 - 695.5 MHz
NR Band n12	Voice/Data	701.5 - 713.5 MHz
NR Band n14	Voice/Data	790.5 - 795.5 MHz
NR Band n26	Voice/Data	816.5 - 846.5 MHz
NR Band n5	Voice/Data	826.5 - 846.5 MHz
NR Band n70	Voice/Data	1697.5 - 1707.5 MHz
NR Band n66	Voice/Data	1712.5 - 1777.5 MHz
NR Band n25	Voice/Data	1852.5 - 1912.5 MHz
NR Band n2	Voice/Data	1852.5 - 1907.5 MHz
NR Band n30	Voice/Data	2307.5 - 2312.5 MHz
NR Band n7	Voice/Data	2502.5 - 2567.5 MHz
NR Band n41	Voice/Data	2501.01 - 2685 MHz
NR Band n38	Voice/Data	2575 - 2615 MHz
NR Band n48	Voice/Data	3555 - 3694.98 MHz
NR Band n78	Voice/Data	3455.01 - 3544.98 MHz; 3705 - 3795 MHz
NR Band n77	Voice/Data	3455.01 - 3544.98 MHz; 3705 - 3975 MHz
NR Band n255 NTN	Voice/Data	1629 - 1658 MHz
NR Band n258	Data	24250 - 24450 MHz; 24750 - 25250 MHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz
2.4 GHz WIFI	Voice/Data	2412 - 2462 MHz
5 GHz WIFI	Voice/Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz
6 GHz WIFI	Voice/Data	U-NII-5: 5945 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz

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1.2 Time-Averaging Algorithm for RF Exposure Compliance

This device is enabled with Qualcomm® Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. DUT contains embedded file system (EFS) version 23 configured for the second generation (GEN2) for Sub6.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of *SAR_design_target* or *PD_design_target*, below the predefined time-averaged power limit (i.e., *Plimit* for sub-6 radio, and *input.power.limit* for 5G mmW NR), for each characterized technology and band.

Smart Transmit allows the device to transmit at higher power instantaneously, as high as P_{max} , when needed, but enforces power limiting to maintain time-averaged transmit power to P_{limit} for frequencies < 6 GHz and *input.power.limit* for frequencies > 6 GHz.

Note that the device uncertainty for this DUT is 1.0 dB for sub-6GHz and 1.4 dB for mmW.

The following input parameters are key parameters that are required for functionality of the Smart Transmit feature. These parameters cannot be accessed by the end user, because at the factory they are entered through the embedded file system (EFS) entries by the OEM.

- o *WLAN_BT_control*: ON/OFF switch. ONLY applicable for Smart Transmit EFS version 19 (or higher)

The EFS version 19 (or higher) provides the entry to manage Qualcomm WLAN/BT chipsets under Smart Transmit control. When selected 'ON', Smart Transmit will manage time-averaged RF exposure from all WWAN/WLAN/BT radios. If selected "OFF", then WLAN and BT are the radios outside of Smart Transmit control.

- o *Tx_power_at_SAR_design_target* (*Plimit* in dBm) for Tx transmitting frequency < 6 GHz

The maximum time-average transmit power, in dBm, at which this radio configuration (i.e., band and technology) reaches the *SAR_design_target*. This *SAR_design_target* is pre-determined for the specific device and it shall be less than regulatory SAR limit after accounting for all design related tolerances. The time-averaged SAR is assessed against this *SAR_design_target* in real time to determine the compliance. The *Plimit* could vary with technology, band, antenna and DSI (device state index), therefore it has the unique value for each technology, band, antenna and DSI.

The reserve margin for WWAN radios can be configured for each sub6 antenna group, and each exposure category as shown below:

For a given exposure category (head vs. non-head) and antenna group, OEM can configure:

- o *TOTAL_MIN_RES_RATIO*

This entry corresponds to the minimum reserve margin for WWAN radio or WLAN radio when operating in standalone mode per antenna group. Here, *TOTAL_MIN_RES_RATIO* is in linear units ranging between [0 1].

- o *WWAN_PRI_SPLIT_RATIO*, *WWAN_SEC_SPLIT_RATIO*

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In multi-Tx scenarios in the same antenna group, minimum reserve for each active radio (i.e., WWAN primary radio, WWAN secondary radio, WLAN radio) is a product of the corresponding fraction out of sum of active radio split ratios and $TOTAL_MIN_RES_RATIO$.

In case of WWAN primary, WWAN secondary, and WLAN simultaneous transmission in the same antenna group, the minimum reserve for each radio, respectively, are:

- $TOTAL_MIN_RES_RATIO * \{WWAN_PRI_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WWAN_SEC_SPLIT_RATIO + WLAN_SPLIT_RATIO)\}$
- $TOTAL_MIN_RES_RATIO * \{WWAN_SEC_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WWAN_SEC_SPLIT_RATIO + WLAN_SPLIT_RATIO)\}$
- $TOTAL_MIN_RES_RATIO * \{WLAN_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WWAN_SEC_SPLIT_RATIO + WLAN_SPLIT_RATIO)\}$

In case of WWAN primary and WLAN secondary simultaneous transmission in the same antenna group, the minimum reserve for each radio, respectively, are:

- $TOTAL_MIN_RES_RATIO * \{WWAN_PRI_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WLAN_SEC_SPLIT_RATIO)\}$
- $TOTAL_MIN_RES_RATIO * \{WLAN_SEC_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WLAN_SEC_SPLIT_RATIO)\}$

In case of WWAN primary, and WWAN secondary simultaneous transmission in the same antenna group, the minimum reserve for each radio, respectively, are:

- $TOTAL_MIN_RES_RATIO * \{WWAN_PRI_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WWAN_SEC_SPLIT_RATIO)\}$
- $TOTAL_MIN_RES_RATIO * \{WWAN_SEC_SPLIT_RATIO / (WWAN_PRI_SPLIT_RATIO + WWAN_SEC_SPLIT_RATIO)\}$

Here, $WWAN_PRI_SPLIT_RATIO$, $WWAN_SEC_SPLIT_RATIO$ and $WLAN_SPLIT_RATIO$ are in linear units ranging between [0 1].

o $WLAN_MARGIN_IN_MODEM_APM$

When WWAN modem is turned off (say, in airplane mode – APM), then the RF exposure budget is split between WLAN and BT radios, where WLAN RF exposure budget is $WLAN_MARGIN_IN_MODEM_APM$ and BT exposure budget is $(1 - WLAN_MARGIN_IN_MODEM_APM)$. Here, $WLAN_MARGIN_IN_MODEM_APM$ is in linear units ranging between [0 1].

o BT (Bluetooth) Config

$BT_STANDALONE$: desired BT transmit power = $(BT_STANDALONE * P_{limit})$ in BT single radio transmission condition, where P_{limit} is BT $Tx_power_at_SAR_design_target$ in mW.

$BT_AND_1_RADIO_SAME_AG$: reduced BT transmit power = $(BT_AND_1_RADIO_SAME_AG * P_{limit})$ in a two-radio transmission condition. Here, two radios (BT+WLAN or BT+WWAN) are in the same AG.

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BT_AND_2+_RADIO_SAME_AG: further reduced BT transmit power = (**BT_AND_2+_RADIO_SAME_AG** * P_{limit}) in a three (or more)-radio transmission condition. Here, all radios, i.e., BT with 2 or more other radios (WWAN primary, WWAN secondary, WLAN), are in the same AG.

BT_STANDALONE, **BT_AND_1_RADIO_SAME_AG** and **BT_AND_2+_RADIO_SAME_AG** are in linear units ranging between [0 1].

NOTE: For BT, P_{max} allocated by Smart Transmit $\leq P_{limit}$. In other words, BT allowed maximum power will be at one of the above 3 levels relative to P_{limit} depending on transmission scenarios as described above.

The equivalent reserve of *Reserve_power_margin* for $P_{reserve}$ calculation in v19 (or higher) EFS if WLAN/BT radios are under Smart Transmit control is (**TOTAL_MIN_RES_RATIO** + **BT_AND_2+_RADIO_SAME_AG**).

- o **input.power.limit** (dBm) for Tx transmitting frequency ≥ 6 GHz
The maximum time-average power at the input of antenna element port, in dBm, at which each beam meets the *PD_design_target* that is less than the regulatory power density limit after accounting for all design related tolerances.
- o **Multi_Tx_factor:** ONLY applicable for Smart Transmit EFS version 19 (or higher).

The EFS version 19 (or higher) provides the entry to improve performance of sub6 radios in simultaneous transmission scenarios.

With EFS version 19 or higher: In single Tx transmission scenarios, Smart Transmit ensures time-averaged RF exposure is $\leq (SAR_design_target * 10(+ \text{sub6 device uncertainty}/10)) < \text{regulatory RF exposure limit for sub6 radio managed by Smart Transmit}$. In simultaneous Tx transmission scenarios, Smart Transmit ensures time-averaged RF exposure is $\leq (SAR_design_target * multi_Tx_factor * 10(+ \text{sub6 device uncertainty}/10)) < \text{regulatory RF exposure limit for sub6 radios managed by Smart Transmit}$. These simultaneous transmission scenarios are listed below:

- 2-or-more radio scenarios within WWAN like EN-DC, LTE ULCA, etc.
- 2-or-more-radio across technologies such as WWAN+WLAN, WWAN+BT, WLAN+BT and WWAN+WLAN+BT transmission scenarios (if WLAN/BT radios are also managed by Smart Transmit).

The *multi_Tx_factor* can be determined using

$$multi_Tx_factor \leq \frac{regulatory\ SAR\ limit^{\dagger}}{SAR_design_target \times 10^{+\frac{sub6\ device\ uncertainty\ (dB)}{10}}}$$

$$= \frac{regulatory\ SAR\ limit^{\dagger}}{reported\ SAR}$$

$\dagger$ *regulatory SAR limit* may be *reduced* to meet some specific requirement, e.g., antenna grouping.

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NOTE: If only 2 WLAN radios are transmitting (e.g., 2.4GHz + 5GHz), then *multi_Tx_factor* is not applied by Smart Transmit.

NOTE: If WWAN modem is offline (i.e., in airplane mode), then *multi_Tx_factor* is not applied by Smart Transmit for WLAN and BT simultaneous transmission.

- o *Hand exposure applicability when device held next to head:* Yes/No switch. ONLY applicable for Smart Transmit EFS version 19 (or higher).

If “Yes” is selected in Smart Transmit EFS version 19 (or higher) for the country/region of interest, then Smart Transmit will ensure time-averaged RF exposure compliance in both hand and head tissue regions when device is held next to head in a voice call. Otherwise, if “No” is selected, then Smart Transmit will ensure time-averaged RF exposure compliance only in head tissue region when device is held next to head.

This purpose of the Part 2 report is to demonstrate the DUT complies with FCC RF exposure requirement under Tx varying transmission scenarios, thereby validity of Qualcomm® Smart Transmit feature implementation in this device. It serves to compliment the Part 0 and Part 1 Test Reports to justify compliance per FCC.

1.3 Bibliography

Report Type	Report Serial Number
SAR Characterization and Evaluation Report	1M2408260067-23.A3L
Part 1 Power Density Test Report	1M2408260067-25.A3L
RF Exposure Compliance Summary	1M2408260067-26.A3L

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2 RF EXPOSURE LIMITS

Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

2.1 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

2.2 RF Exposure Limits for Frequencies Below 6 GHz

Table 2-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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2.3 RF Exposure Limits for Frequencies Above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of W/m² or mW/cm².

Peak Spatially Averaged Power Density was evaluated over a circular area of 4 cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

Table 2-2
Human Exposure Limits Specified in FCC 47 CFR §1.1310

Human Exposure to Radiofrequency (RF) Radiation Limits		
Frequency Range [MHz]	Power Density [mW/cm ²]	Averaging Time [Minutes]
(A) Limits for Occupational / Controlled Environments		
1,500 – 100,000	5.0	6
(B) Limits for General Population / Uncontrolled Environments		
1,500 – 100,000	1.0	30

Note: 1.0 mW/cm² is 10 W/m²

2.4 Time Averaging Windows for FCC Compliance

Per October 2018 TCB Workshop Notes, the below time-averaging windows can be used for assessing time-averaged exposures for devices that are capable of actively monitoring and adjusting power output over time to comply with exposure limits.

Interim Guidance	Frequency (GHz)	Maximum Averaging Time (sec)
SAR	< 3	100
	3 – 6	60
MPE	6 - 10	30
	10 - 16	14
	16 – 24	8
	24 – 42	4
	42 – 95	2

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3 TIME VARYING TRANSMISSION TEST CASES

To validate the time averaging feature and demonstrate the compliance in Tx varying transmission conditions, the following transmission scenarios are covered in the Part 2 test:

1. During a time-varying Tx power transmission: To prove that the Smart Transmit feature accounts for Tx power variations in time accurately.
2. During a call disconnect and re-establish scenario: To prove that the Smart Transmit feature accounts for history of past Tx power transmissions accurately.
3. During a technology/band handover: To prove that the Smart Transmit feature functions correctly during transitions in technology/band.
4. During a DSI (Device State Index) change: To prove that the Smart Transmit feature functions correctly during transition from one device state (DSI) to another.
5. During an antenna (or beam) switch: To prove that the Smart Transmit feature functions correctly during transitions in antenna (such as AsDiv scenario) or beams (different antenna array configurations) or beams (different antenna array configurations).
6. SAR vs. PD exposure switching during sub-6+mmW transmission: To prove that the Smart Transmit feature functions correctly and ensures total RF exposure compliance during transitions in SAR dominant exposure, SAR+PD exposure, and PD dominant exposure scenarios.
7. During time window switch: To prove that the Smart Transmit feature correctly handles the transition from one time window to another specified by FCC, and maintains the normalized time-averaged RF exposure to be less than normalized FCC limit of 1.0 at all times.
8. SAR exposure switching between two active radios (radio1 and radio2): To prove that the Smart Transmit feature functions correctly and ensures total RF exposure compliance when exposure varies among SAR_radio1 only, SAR_radio1 + SAR_radio2, and SAR_radio2 only scenarios.
9. System level compliance continuity: Within terrestrial networks (WWAN, WLAN, BT, etc.): To demonstrate the time averaged RF exposure compliance continuity during technology transition in both single-radio and multi-radio transmission scenarios and under both modes (i.e., ON and airplane) of WWAN modem.

NOTE: Technology in this test refers to WWAN, WLAN and/or Bluetooth

NOTE: For WWAN, theoretically, either sub6 radio or mmW radio can be selected for this system level compliance continuity test as Smart Transmit internal operation is identical. Thus, the test with either WWAN sub6 or mmW radio is sufficient. However, since FCC time average window for WWAN mmW NR is 4 seconds, to be more practical and feasible in actual measurement, sub6 WWAN radio is recommended to be selected for this test.

NOTE: BT allowed maximum power will be at one of the 3 levels populated in EFS depending on transmission scenarios, and BT's Pmax allocated by Smart Transmit is always $\leq$ Plimit. Therefore, for 10.b), either WWAN or WLAN can be selected as a terrestrial network for demonstrating the compliance continuity during bi-directional transitions between non-terrestrial networks and terrestrial network. Test with one pair of terrestrial and non-terrestrial radios is sufficient as the continuity among all terrestrial technologies is covered and validated.

As described in Part 0 report, the RF exposure is proportional to the Tx power for a SAR- and PD-characterized wireless device. Thus, feature validation in Part 2 can be effectively performed through conducted (for $f < 6\text{GHz}$)

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and radiated (for $f \geq 6\text{GHz}$) power measurement. Therefore, the compliance demonstration under dynamic transmission conditions and feature validation are done in conducted/radiated power measurement setup for transmission scenario 1 through 10.

To add confidence in the feature validation, the time-averaged SAR and PD measurements are also performed but only performed for transmission scenario 1 to avoid the complexity in SAR and PD measurement (such as, for scenario 3 requiring change in SAR probe calibration file to accommodate different bands and/or tissue simulating liquid).

The strategy for testing in Tx varying transmission condition is outlined as follows:

- Demonstrate the total RF exposure averaged over FCC defined time windows does not exceed FCC's SAR and PD limits, through time-averaged power measurements
 - o Measure conducted Tx power (for $f < 6\text{GHz}$) versus time, and radiated Tx power (EIRP for $f > 10\text{GHz}$) versus time.
 - o Convert it into RF exposure and divide by respective FCC limits to get normalized exposure versus time.
 - o Perform running time-averaging over FCC defined time windows.
 - o Demonstrate that the total normalized time-averaged RF exposure is less than 1 for all transmission scenarios (i.e., transmission scenarios 1, 2, 3, 4, 5, 6, 7, and 8) at all times.

Mathematical expression:

For $< 6\text{ GHz}$ transmission only:

$$1g_or_10gSAR(t) = \frac{\text{conducted_Tx_power}(t)}{\text{conducted_Tx_power_P}_{limit}} * 1g_or_10gSAR_P_{limit} \quad (1a)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} \leq 1 \quad (1b)$$

For sub-6+mmW transmission:

$$1g_or_10gSAR(t) = \frac{\text{conducted_Tx_power}(t)}{\text{conducted_Tx_power_P}_{limit}} * 1g_or_10gSAR_P_{limit} \quad (2a)$$

$$4cm^2PD(t) = \frac{\text{radiated_Tx_power}(t)}{\text{radiated_Tx_power_input.power.limit}} * 4cm^2PD_input.power.limit \quad (2b)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} + \frac{\frac{1}{T_{PD}} \int_{t-T_{PD}}^t 4cm^2PD(t) dt}{FCC\ 4cm^2\ PD\ limit} \leq 1 \quad (2c)$$

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where, $conducted_Tx_power(t)$, $conducted_Tx_power_P_{limit}$, and $1g_or_10gSAR_P_{limit}$ correspond to the measured instantaneous conducted Tx power, measured conducted Tx power at P_{limit} , and measured $1gSAR$ or $10gSAR$ values at P_{limit} corresponding to sub-6 transmission. Similarly, $radiated_Tx_power(t)$, $radiated_Tx_power_input_power_limit$, and $4cm^2PD_input_power_limit$ correspond to the measured instantaneous radiated Tx power, radiated Tx power at $input_power_limit$ (i.e., radiated power limit), and $4cm^2PD$ value at $input_power_limit$ corresponding to mmW transmission. Both P_{limit} and $input_power_limit$ are the parameters pre-defined in Part 0 and loaded via Embedded File System (EFS) onto the EUT. T_{SAR} is the FCC defined time window for sub-6 radio; T_{PD} is the FCC defined time window for mmW radio.

- Demonstrate the total RF exposure averaged over FCC defined time windows does not exceed FCC's SAR and PD limits, through time-averaged SAR and PD measurements. Note as mentioned earlier, this measurement is performed for transmission scenario 1 only.
 - o For sub-6 transmission only, measure instantaneous SAR versus time; for LTE+sub6 NR transmission, request low power (or all-down bits) on LTE so that measured SAR predominantly corresponds to sub6 NR.
 - o For LTE + mmW transmission, measure instantaneous E-field versus time for mmW radio and instantaneous conducted power versus time for LTE radio.
 - o Convert it into RF exposure and divide by respective FCC limits to obtain normalized exposure versus time.
 - o Perform time averaging over FCC defined time window.
 - o Demonstrate that the total normalized time-averaged RF exposure is less than 1 for transmission scenario 1 at all times.

Mathematical expression:

- For sub-6 transmission only:

$$1g_or_10gSAR(t) = \frac{pointSAR(t)}{pointSAR_P_{limit}} * 1g_or_10gSAR(t)_P_{limit} \quad (3a)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} \leq 1 \quad (3b)$$

- For sub-6 +f ≥ 6GHz transmission:

$$1g_or_10gSAR(t) = \frac{conducted_Tx_power(t)}{conducted_Tx_power_P_{limit}} * 1g_or_10gSAR_P_{limit} \quad (4a)$$

$$4cm^2PD(t) = \frac{[pointE(t)]^2}{[pointE_input_power_limit]^2} * 4cm^2PD_input_power_limit \quad (4b)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} + \frac{\frac{1}{T_{PD}} \int_{t-T_{PD}}^t 4cm^2PD(t) dt}{FCC\ 4cm^2PD\ limit} \leq 1 \quad (4c)$$

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where, $pointSAR(t)$, $pointSAR_{P_{limit}}$, and $1g_or_10gSAR_{P_{limit}}$ correspond to the measured instantaneous point SAR, measured point SAR at P_{limit} , and measured 1gSAR or 10gSAR values at P_{limit} corresponding to sub-6 transmission. Similarly, $pointE(t)$, $pointE_{input.power.limit}$, and $4cm^2PD_{input.power.limit}$ correspond to the measured instantaneous E-field, E-field at $input.power.limit$, and $4cm^2PD$ value at $input.power.limit$ corresponding to mmW transmission.

Note: cDASY6 measurement system by Schmid & Partner Engineering AG (SPEAG) of Zurich, Switzerland measures relative E-field, and provides ratio of $\frac{[pointE(t)]^2}{[pointE_{input.power.limit}]^2}$ versus time.

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4 FCC MEASUREMENT PROCEDURES (FREQ < 6 GHz)

This chapter provides the test plan and test procedure for validating Qualcomm Smart Transmit feature for sub-6 transmission. The 100 seconds time window for operating $f < 3\text{GHz}$ is used as an example to detail the test procedures in this chapter. The same test plan and test procedures described in this chapter apply to 60 seconds time window for operating $f \geq 3\text{GHz}$.

4.1 Test Sequence Determination for Validation

Following the FCC recommendation, two test sequences having time-variation in Tx power are predefined for sub-6 ($f < 6\text{GHz}$) validation:

- Test sequence 1: request DUT's Tx power to be at maximum power, measured $P_{max}^{\dagger}$, for 80s, then requesting for half of the maximum power, i.e., measured $P_{max}/2$, for the rest of the time.
- Test sequence 2: request DUT's Tx power to vary with time. This sequence is generated relative to measured P_{max} , measured P_{limit} and calculated $P_{reserve}$ (= measured P_{limit} in dBm - $reserve_power_margin$ in dB) of DUT based on measured P_{limit} .

The details for generating these two test sequences is described and listed in Appendix E.

NOTE: For test sequence generation, "measured P_{limit} " and "measured P_{max} " are used instead of the " P_{limit} " specified in EFS entry and " P_{max} " specified for the device, because the Smart Transmit feature operates against the actual power level of the " P_{limit} " that was calibrated for the DUT. The "measured P_{limit} " accurately reflects what the feature is referencing to, therefore, it should be used during feature validation testing. The RF tune up and device-to-device variation are already considered in Part 0 report prior to determining P_{limit} .

4.2 Test Configuration Selection Criteria for Validating Smart Transmit Feature

For validating the Smart Transmit feature, this section provides the general guidance to select test cases.

4.2.1 Time-Varying Tx Power Transmission

The Smart Transmit time averaging feature operation is independent of bands, modes, and channels for a given technology. Hence, validation of Smart Transmit in one band/mode/channel per technology is sufficient. Two bands per technology are proposed and selected for this testing to provide high confidence in this validation.

Note this test is designed for single radio transmission scenario. If UE supports sub6 NR in both non-standalone (NSA) and standalone (SA) modes, then validation in time-varying Tx power transmission scenario described in this section needs to be performed in SA mode. Otherwise, it needs to be performed in NSA mode with LTE anchor set to low power. The choice between SA and NSA mode needs to also take into account the selection criteria described below. In general, one mode out of the two modes (NSA or SA) is sufficient for this test.

The criteria for the selection are based on the P_{limit} values determined in Part 0 report. Select two bands* in each supported technology that correspond to least** and highest*** P_{limit} values that are less than P_{max} for validating Smart Transmit. Note:

1. P_{max} refers to maximum Tx power configured for this device in this technology/band (not rated P_{max}). This P_{max} definition applies throughout this Part 2 report.

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2. If $P_{limit} > P_{max}$, the validation test with time-varying test sequences is not needed as no power enforcement will be required in this condition.

* If one P_{limit} level applies to all the bands within a technology, then only one band needs to be tested. In this case, within the bands having the same P_{limit} , the radio configuration (e.g., # of RBs, channel#) and device position that correspond to the highest *measured* 1gSAR at P_{limit} shown in Part 1 report is selected.

** In case of multiple bands having the same least P_{limit} within the technology, then select the band having the highest *measured* 1gSAR at P_{limit} .

*** The band having a higher P_{limit} needs to be properly selected so that the power limiting enforced by Smart Transmit can be validated using the pre-defined test sequences. If the highest P_{limit} in a technology is too high where the power limiting enforcement is not needed when testing with the pre-defined test sequences, then the next highest level is checked. This process is continued within the technology until the second band for validation testing is determined.

4.2.2 Change In Call

The criteria to select a test configuration for call-drop measurement is:

- Select technology/band with least P_{limit} among all supported technologies/bands, and select the radio configuration (e.g., # of RBs, channel#) in this technology/band that corresponds to the highest *measured* 1gSAR at P_{limit} listed in Part 1 report.
- In case of multiple bands having same least P_{limit} , then select one band/radio configuration for this test.

This test is performed with the DUT's Tx power requested to be at maximum power, the above band selection will result in Tx power enforcement (i.e., DUT forced to have Tx power at $P_{reserve}$) for longest duration in one FCC defined time window. The call change (call drop/reestablish) is performed during the Tx power enforcement duration (i.e., during the time when DUT is forced to have Tx power at $P_{reserve}$). One test is sufficient as the feature operation is independent of technology and band.

4.2.3 Change In Technology/Band

The selection criteria for this measurement is, for a given antenna, to have DUT switch from a technology/band with lowest P_{limit} within the technology group (in case of multiple bands having the same P_{limit} , then select the band with highest *measured* 1gSAR at P_{limit}) to a technology/band with highest P_{limit} within the technology group, in case of multiple bands having the same P_{limit} , then select the band with lowest *measured* 1gSAR at P_{limit} in Part 1 report, or vice versa.

This test is performed with the DUT's Tx power requested to be at maximum power, the technology/band switch is performed during Tx power enforcement duration (i.e., during the time when DUT is forced to have Tx power at $P_{reserve}$).

4.2.4 Change In Antenna

The criteria to select a test configuration for antenna switch measurement is:

- Whenever possible and supported by the DUT, first select antenna switch configuration within the same technology/band (i.e., same technology and band combination).

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- Then, select any technology/band that supports multiple Tx antennas, and has the highest difference in P_{limit} among all supported antennas.
- In case of multiple bands having same difference in P_{limit} among supported antennas, then select the band having the highest *measured* 1gSAR at P_{limit} in Part 1 report.

This test is performed with the DUT's Tx power requested to be at maximum power in selected technology/band, and antenna change is conducted during Tx power enforcement duration (i.e., during the time when DUT is forced to have Tx power at $P_{reserve}$).

4.2.5 Change In DSI

The criteria to select a test configuration for DSI change test is

- Select a technology/band having the $P_{limit} < P_{max}$ within any technology and DSI group, and for the same technology/band having a different P_{limit} in any other DSI group. Note that the selected DSI transition need to be supported by the device.

This test is performed with the DUT's Tx power requested to be at maximum power in selected technology/band, and DSI change is conducted during Tx power enforcement duration (i.e., during the time when DUT is forced to have Tx power at $P_{reserve}$).

4.2.6 Change In Time Window

FCC specifies different time window for time averaging based on operation frequency. The criteria to select a test configuration for validating Smart Transmit feature and demonstrating the compliance during the change in time window is

- Select any technology/band that has operation frequency classified in one time window defined by FCC (such as 100-seconds time window), and its corresponding P_{limit} is less than P_{max} if possible.
- Select the 2nd technology/band that has operation frequency classified in a different time window defined by FCC (such as 60-seconds time window), and its corresponding P_{limit} is less than P_{max} if possible.
- Note it is preferred both P_{limit} values of two selected technology/band less than corresponding P_{max} , but if not possible, at least one of technologies/bands has its P_{limit} less than P_{max} .

This test is performed with the EUT's Tx power requested to be at maximum power in selected technology/band. Test for one pair of time windows selected is sufficient as the feature operation is the same.

4.2.7 SAR Exposure Switching

If supported, the test configuration for SAR exposure switching should cover

1. SAR exposure switch when two active radios are in the same time window
2. SAR exposure switch when two active radios are in different time windows. One test with two active radios in any two different time windows is sufficient as Smart Transmit operation is the same for RF exposure switch in any combination of two different time windows. For device supporting LTE + mmW NR, this test is covered in SAR vs PD exposure switch validation.

The Smart Transmit time averaging operation is independent of the source of SAR exposure (for example, LTE vs. Sub6 NR) and ensures total time-averaged RF exposure compliance. Hence, validation of Smart Transmit in any one simultaneous SAR transmission scenario (i.e., one combination for LTE + Sub6 NR transmission) is sufficient, where the SAR exposure varies among SAR_{radio1} only, $SAR_{radio1} + SAR_{radio2}$, and SAR_{radio2} only scenarios.

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The criteria to select a test configuration for validating Smart Transmit feature during SAR exposure switching scenarios is

- Select any two < 6GHz technologies/bands that the EUT supports simultaneous transmission (for example, LTE+Sub6 NR).
- Among all supported simultaneous transmission configurations, the selection order is
 1. select one configuration where both P_{limit} of radio1 and radio2 is less than their corresponding P_{max} , preferably, with different P_{limits} . If this configuration is not available, then,
 2. select one configuration that has P_{limit} less than its P_{max} for at least one radio. If this can not be found, then,
 3. select one configuration that has P_{limit} of radio1 and radio2 greater than P_{max} but with least $(P_{limit} - P_{max})$ delta.

Test for one simultaneous transmission scenario is sufficient as the feature operation is the same.

4.2.8 Exposure Category Switch

The criteria to select a test configuration for exposure category switch measurement is:

1. If the device's intended exposure mode is configured for time averaged exposure mode operation, then:
 - If $P_{limit} < P_{max}$ for at least one radio out of all supported technology/band/antenna/DSI, then:
 - (a) Out of all head exposure DSIs, select a technology/band/antenna/DSI having the least P_{limit} ($< P_{max}$), furthermore, having the largest difference between P_{max} and P_{limit} ($P_{limit} < P_{max}$) should be considered in the selection. Then, select a second DSI in the non- head exposure category DSI that has the least P_{limit} among all the non-head DSIs for the same technology/band/antenna. This technology/band/antenna and selected DSIs are used for head to non-head to head exposure switch test. If the $P_{limit} > P_{max}$ for all supported technology/band/antenna/DSI in head exposure category, then this test is not required.
 - (b) Similarly, out of all non-head exposure DSIs, select a technology/band/antenna/DSI having the least P_{limit} ($< P_{max}$), furthermore, having the largest difference between P_{max} and P_{limit} ($P_{limit} < P_{max}$) should be considered in the selection. Then, select a second DSI in the head exposure category DSI that has the least P_{limit} among all the head DSIs for the same technology/band/antenna. This technology/band/antenna and selected DSIs are used for non-head to head to non-head exposure switch test. If the $P_{limit} > P_{max}$ for all supported technology/band/antenna/DSI in non-head exposure category, then this test is not required.
 - If $P_{limit} > P_{max}$ for all supported technology/band/antenna/DSIs for both head and non-head DSI categories, then:
 - c) select a supported sub6 simultaneous transmission scenario (like LTE + FR1 NSA, or LTE interband ULCA, or FR1 interband NR-DC, etc.) in head DSI that has $P_{limit} < P_{max} + 10 \cdot \log(N)$ for all radios of selected technology(s)/band(s)/antenna(s), where N is the number of active radios in selected sub6 simultaneous transmission scenario.

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Note that the antennas determined for the selected radios of simultaneous transmission scenario should be in the same antenna group if EUT is configured with GEN2_SUB6 or GEN2_SUB6_MMW. Then, select a second DSI in the non-head exposure category that has the lowest Plimit among all the non-head DSIs for all the radios of the selected technology(s)/band(s)/antenna(s) simultaneous transmission scenario. This selected technology(s)/band(s)/antenna(s) and selected DSIs are used for head to non-head to head exposure switch test. If the head DSI has $P_{limit} > P_{max} + 10 \cdot \log(N)$ for all radios supported in sub6 simultaneous transmission scenarios, then this test is not required.

- d) select a supported sub6 simultaneous transmission scenario (like LTE + FR1 NSA, or LTE interband ULCA, or FR1 interband NR-DC, etc.) in non-head DSI that has $P_{limit} < P_{max} + 10 \cdot \log(N)$ for all radios of the selected technology(s)/band(s)/antenna(s), where N is the number of active radios in selected sub6 simultaneous transmission scenario. Note that the antennas determined for the selected radios of simultaneous transmission scenario should be in the same antenna group if EUT is configured with GEN2_SUB6 or GEN2_SUB6_MMW. Then, select a second DSI in the head exposure category that has the lowest Plimit among all the head DSIs for all the radios of the selected technology(s)/band(s)/antenna(s) simultaneous transmission scenario. This selected technology(s)/band(s)/antenna(s) and selected DSIs are used for non-head to head to non-head exposure switch test. If the non-head DSI has $P_{limit} > P_{max} + 10 \cdot \log(N)$ for all radios supported in sub6 simultaneous transmission scenarios, then this test is not required.
- Use the highest measured 1g_or_10g SAR at Plimit ($P_{limit} < P_{max}$) shown in Part 1 report for the selected tech/band/antenna/DSI out of all radio configurations and device positions in Equation (3a), (4a), (5a) and (6a) to calculate time-varying SAR. However, in the case of $P_{limit} > P_{max}$, the SAR measured in Part 1 report for the corresponding radio configuration selected and tested in Part 2 should be applied in Equation (3a), (4a), (5a) and (6a).
2. If the device's intended exposure mode is configured for peak exposure mode operation, then:
 - a) Select a supported sub6 simultaneous transmission scenario (like LTE + FR1 NSA, or LTE interband ULCA, or FR1 interband NR-DC, etc.) in head DSI that has $P_{limit} < P_{max} + 10 \cdot \log(N)$ for all radios of selected technology(s)/band(s)/antenna(s), where N is the number of active radios in selected sub6 simultaneous transmission scenario. Note that the antennas determined for the selected radios of simultaneous transmission scenario should be in the same antenna group if EUT is configured with GEN2_SUB6 or GEN2_SUB6_MMW. Then, select a second DSI in the non-head exposure category that has the lowest Plimit among all the non-head DSIs for all the radios of the selected technology(s)/band(s)/antenna(s) simultaneous transmission scenario. This selected technology(s)/band(s)/antenna(s) and selected DSIs are used for head to non-head to head exposure switch test. If the head DSI has $P_{limit} > P_{max} + 10 \cdot \log(N)$ for all radios supported in sub6 simultaneous transmission scenarios, then this test is not required.
 - b) Select a supported sub6 simultaneous transmission scenario (like LTE + FR1 NSA, or LTE interband ULCA, or FR1 interband NR-DC, etc.) in non-head DSI that has $P_{limit} < P_{max} + 10 \cdot \log(N)$ for all radios of the selected technology(s)/band(s)/antenna(s), where N is the number of active radios in selected sub6 simultaneous transmission scenario. Note that the antennas determined for the selected radios of simultaneous transmission scenario should be in the same antenna group if EUT is configured with GEN2_SUB6 or GEN2_SUB6_MMW. Then, select a second DSI in the head exposure category that has the lowest Plimit among all the head DSIs for all the radios of the selected technology(s)/band(s)/antenna(s) simultaneous transmission scenario. This selected technology(s)/band(s)/antenna(s) and selected DSIs are used for non-head to head to non-head exposure switch test. If the non-head DSI has $P_{limit} >$

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$P_{max} + 10 \cdot \log(N)$ for all radios supported in sub6 simultaneous transmission scenarios, then this test is not required.

- Use the highest measured 1g_or_10g SAR at P_{limit} ($P_{limit} < P_{max}$) shown in Part 1 report for the selected tech/band/antenna/DSI out of all radio configurations and device positions in Equation (3a), (4a), (5a) and (6a) to calculate time-varying SAR. However, in the case of $P_{limit} > P_{max}$, the SAR measured in Part 1 report for the corresponding radio configuration selected and tested in Part 2 should be applied in Equation (3a), (4a), (5a) and (6a).

4.2.9 System Level Compliance Continuity

The purpose of system level compliance test is to demonstrate the compliance continuity in the following scenarios:

1. Across technology switch
2. During transition from single technology to multi-technology
3. In transition when WWAN went from ON to airplane mode
4. Active WLAN radio and/or Bluetooth (BT) radio with WWAN in airplane mode
5. Time window transition when WWAN in airplane mode

Note: Technology in this section refers to WWAN, WLAN or BT

The selection criteria for radios to be tested is to select a radio which has the largest P_{max}/P_{limit} ratio among all configurations supported (including SISO, MIMO, DBS, SISO+MIMO or DBS+MIMO whichever appropriate) within each technology and within the same antenna group.

If the device supports simultaneous transmission of WWAN, WLAN and BT, then the selection criteria for system level compliance continuity test is:

- For a given DSI and antenna group, select band/antenna configurations for WWAN, WLAN and BT technologies that have the largest ($P_{max} - P_{limit}$) delta. In case of multiple bands/antennas having the same difference between P_{max} and P_{limit} within a given technology, then select any one band/antenna out of them.

NOTE: The antennas corresponding to the selected technologies/bands for the system level compliance continuity test case should be in the same antenna group if EUT is configured with GEN2_SUB6 or GEN2_SUB6_MMW.

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4.3 Test Procedures for Conducted Power Measurements

This section provides general conducted power measurement procedures to perform compliance test under dynamic transmission scenarios described in Section 3. In practice, an adjustment can be made in these procedures. The justification/clarification may be provided.

4.3.1 Time-Varying Tx Power Transmission

This test is performed with the two pre-defined test sequences described in Section 4.1 for all the technologies and bands selected in Section 4.2.1. The purpose of the test is to demonstrate the effectiveness of power limiting enforcement and that the time-averaged SAR (corresponding time-averaged Tx power) does not exceed the FCC limit at all times (see Eq. (1a) and (1b)).

Test procedure

1. Measure P_{max} , measure P_{limit} and calculate $P_{reserve}$ (measured P_{limit} in dBm – $total_min_reserve$ in dB) and follow Section 4.1 to generate the test sequences for all the technologies and bands selected in Section 4.2.1. Both test sequence 1 and test sequence 2 are created based on measured P_{max} and measured P_{limit} of the DUT. Test condition to measure P_{max} and P_{limit} is:
 - a. Measure P_{max} with Smart Transmit disabled and callbox set to request maximum power.
 - b. Measure P_{limit} with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode, establish radio link in desired radio configuration, with callbox requesting the DUT's Tx power to be at pre-defined test sequence 1, measure and record Tx power versus time, and then convert the conducted Tx power into 1gSAR or 10gSAR value (see Eq. (1a)) using measured P_{limit} from above Step 1. Perform running time average to determine time-averaged power and 1gSAR or 10gSAR versus time as illustrated in Figure 4-1 where using 100-seconds time window as an example.

Note: In Eq.(1a), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the measured worst-case 1gSAR or 10gSAR value at P_{limit} for the corresponding technology/band/antenna/DSI reported in Part 1 report.

Note: For an easier computation of the running time average, 0 dBm can be added at the beginning of the test sequences the length of the responding time window, for example, add 0dBm for 100-seconds so the running time average can be directly performed starting with the first 100-seconds data using excel spreadsheet. This technique applies to all tests performed in this Part 2 report for easier time-averaged computation using excel spreadsheet.

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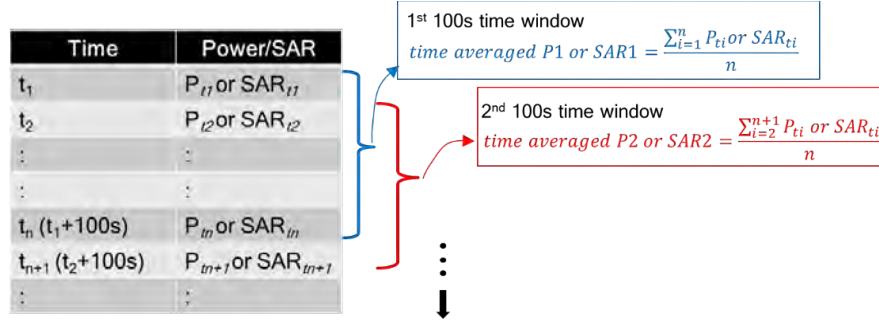


Figure 4-1
Running Average Illustration

3. Make one plot containing:
 - a. Instantaneous Tx power versus time measured in Step 2,
 - b. Requested Tx power used in Step 2 (test sequence 1),
 - c. Computed time-averaged power versus time determined in Step 2,
 - d. Time-averaged power limit (corresponding to FCC SAR limit of 1.6 W/kg for 1gSAR or 4.0W/kg for 10gSAR) given by

$$Time\ averaged\ power\ limit = meas.P_{limit} + 10 \times \log\left(\frac{FCC\ SAR\ limit}{meas.SAR_Plimit}\right) \quad (5a)$$

where $meas.P_{limit}$ and $meas.SAR_Plimit$ correspond to measured power at P_{limit} and measured SAR at P_{limit} .

4. Make another plot containing:
 - a. Computed time-averaged 1gSAR or 10gSAR versus time determined in Step 2
 - b. FCC $1gSAR_{limit}$ of 1.6W/kg or FCC $10gSAR_{limit}$ of 4.0W/kg.
5. Repeat Steps 2 ~ 4 for pre-defined test sequence 2 and replace the requested Tx power (test sequence 1) in Step 2 with test sequence 2.
6. Repeat Steps 2 ~ 5 for all the selected technologies and bands.
7. The validation criteria are, at all times, the time-averaged power versus time shown in Step 3 plot shall not exceed the time-averaged power limit (defined in Eq. (5a)), in turn, the time-averaged 1gSAR or 10gSAR versus time shown in Step 4 plot shall not exceed the FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR (i.e., Eq. (1b)).

4.3.2 Change in Call

This test is to demonstrate that Smart Transmit feature accurately accounts for the past Tx powers during time-averaging when a new call is established.

The call disconnect and re-establishment needs to be performed during power limit enforcement, i.e., when the DUT's Tx power is at $P_{reserve}$ level, to demonstrate the continuity of RF exposure management and limiting in call change scenario. In other words, the RF exposure averaged over any FCC defined

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time window (including the time windows containing the call change) doesn't exceed FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

Test procedure

1. Measure P_{limit} for the technology/band selected in Section 4.2.2. Measure P_{limit} with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode.
3. Establish radio link with callbox in the selected technology/band.
4. Request DUT's Tx power at 0 dBm for at least one time window specified for the selected technology/band, followed by requesting DUT's Tx power to be at maximum power for about ~60 seconds, and then drop the call for ~10 seconds. Afterwards, re-establish another call in the same radio configuration (i.e., same technology/band/channel) and continue callbox requesting DUT's Tx power to be at maximum power for the remaining time of at least another full duration of the specified time window. Measure and record Tx power versus time. Once the measurement is done, extract instantaneous Tx power versus time, convert the measured conducted Tx power into 1gSAR or 10gSAR value using Eq. (1a), and then perform the running time average to determine time-averaged power and 1gSAR or 10gSAR versus time.

NOTE: In Eq.(1a), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the measured worst-case 1gSAR or 10gSAR value at P_{limit} for the corresponding technology/band/antenna/DSI reported in Part 1 report.

5. Make one plot containing: (a) instantaneous Tx power versus time, (b) requested power, (c) computed time-averaged power, (d) time-averaged power limit calculated using Eq.(5a).
6. Make another plot containing: (a) computed time-averaged 1gSAR or 10gSAR versus time, and (b) FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

The validation criteria are, at all times, the time-averaged power versus time shall not exceed the time-averaged power limit (defined in Eq.(5a)), in turn, the time-averaged 1gSAR or 10gSAR versus time shall not exceed the FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR (i.e., Eq. (1b)).

4.3.3 Change In Technology/Band

This test is to demonstrate the correct power control by Smart Transmit during technology switches and/or band handovers.

Similar to the change in call test in Section 4.3.2, to validate the continuity of RF exposure limiting during the transition, the technology and band handover needs to be performed when DUT's Tx power is at $P_{reserve}$ level (i.e., during Tx power enforcement) to make sure that the DUT's Tx power from previous $P_{reserve}$ level to the new $P_{reserve}$ level (corresponding to new technology/band). Since the P_{limit} could vary with technology and band, Eq. (1a) can be written as follows to convert the instantaneous Tx power in 1gSAR or 10gSAR exposure for the two given radios, respectively:

$$1g_or_10gSAR_1(t) = \frac{conducted_Tx_power_1(t)}{conducted_Tx_power_P_{limit_1}} * 1g_or_10gSAR_P_{limit_1} \quad (6a)$$

$$1g_or_10gSAR_2(t) = \frac{conducted_Tx_power_2(t)}{conducted_Tx_power_P_{limit_2}} * 1g_or_10gSAR_P_{limit_2} \quad (6b)$$

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$$\frac{1}{T_{SAR}} \left[\int_{t-T_{SAR}}^{t_1} \frac{1g_or_10gSAR_1(t)}{FCC\ SAR\ limit} dt + \int_{t-T_{SAR}}^t \frac{1g_or_10gSAR_2(t)}{FCC\ SAR\ limit} dt \right] \leq 1 \quad (6c)$$

where, *conducted_Tx_power_1(t)*, *conducted_Tx_power_P_{limit_1}*, and *1g_or_10gSAR_P_{limit_1}* correspond to the measured instantaneous conducted Tx power, measured conducted Tx power at *P_{limit}*, and measured 1gSAR or 10gSAR value at *P_{limit}* of technology1/band1; *conducted_Tx_power_2(t)*, *conducted_Tx_power_P_{limit_2}*(t), and *1g_or_10gSAR_P_{limit_2}* correspond to the measured instantaneous conducted Tx power, measured conducted Tx power at *P_{limit}*, and measured 1gSAR or 10gSAR value at *P_{limit}* of technology2/band2. Transition from technology1/band1 to the technology2/band2 happens at time-instant '*t₁*'.

Test procedure

1. Measure *P_{limit}* for both the technologies and bands selected in Section 4.2.3. Measure *P_{limit}* with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode. Establish radio link with callbox in first technology/band selected. Establish radio link with callbox in first technology/band selected.
3. Request DUT's Tx power at 0 dBm for at least one time window specified for the selected technology/band, followed by requesting DUT's Tx power to be at maximum power for about ~60 seconds, and then switch to second technology/band selected. Continue with callbox requesting DUT's Tx power to be at maximum power for the remaining time of at least another full duration of the specified time window. Measure and record Tx power versus time for the full duration of the test.
4. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1gSAR or 10gSAR value using Eq. (6a) and (6b) and corresponding measured *P_{limit}* values from Step 1 of this section. Perform the running time average to determine time-averaged power and 1gSAR or 10gSAR versus time.

NOTE: In Eq.(6a) & (6b), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the measured worst-case 1gSAR or 10gSAR value at *P_{limit}* for the corresponding technology/band/antenna/DSI reported in Part 1 report.

5. Make one plot containing: (a) instantaneous Tx power versus time, (b) requested power, (c) computed time-averaged power, (d) time-averaged power limit calculated using Eq.(5a).
6. Make another plot containing: (a) computed time-averaged 1gSAR or 10gSAR versus time, and (b) FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

The validation criteria are, at all times, the time-averaged 1gSAR or 10gSAR versus time shall not exceed the FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR (i.e., Eq. (6c)).

4.3.4 Change In Antenna

This test is to demonstrate the correct power control by Smart Transmit during antenna switches from one antenna to another. The test procedure is identical to Section 4.3.3, by replacing technology/band switch operation with antenna switch. The validation criteria are, at all times, the time-averaged 1gSAR or 10gSAR versus time shall not exceed FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

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NOTE: If the DUT does not support antenna switch within the same technology/band, but has multiple antennas to support different frequency bands, then the antenna switch test is included as part of change in technology and band (Section 4.3.3) test.

4.3.5 Change In DSI

This test is to demonstrate the correct power control by Smart Transmit during DSI switches from one DSI to another. The test procedure is identical to Section 4.3.3, by replacing technology/band switch operation with DSI switch. The validation criteria are, at all times, the time-averaged 1gSAR or 10gSAR versus time shall not exceed FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

4.3.6 Change In Time Window

This test is to demonstrate the correct power control by Smart Transmit during the change in averaging time window when a specific band handover occurs. FCC specifies time-averaging windows of 100s for Tx frequency < 3GHz, and 60s for Tx frequency between 3GHz and 6GHz.

To validate the continuity of RF exposure limiting during the transition, the band handover test needs to be performed when EUT handovers from operation band less than 3GHz to greater than 3GHz and vice versa. The equations (3a) and (3b) in Section 2 can be written as follows for transmission scenario having change in time window,

$$1gSAR_1(t) = \frac{\text{conducted_Tx_power_1}(t)}{\text{conducted_Tx_power_P}_{limit_1}} * 1g_or\ 10g_SAR_P_{limit_1} \quad (7a)$$

$$1gSAR_2(t) = \frac{\text{conducted_Tx_power_2}(t)}{\text{conducted_Tx_power_P}_{limit_2}} * 1g_or\ 10g_SAR_P_{limit_2} \quad (7b)$$

$$\frac{1}{T1_{SAR}} \left[\int_{t-T1_{SAR}}^{t_1} \frac{1g_or\ 10g_SAR_1(t)}{FCC\ SAR\ limit} dt \right] + \frac{1}{T2_{SAR}} \left[\int_{t-T2_{SAR}}^t \frac{1g_or\ 10g_SAR_2(t)}{FCC\ SAR\ limit} dt \right] \leq 1 \quad (7c)$$

where, *conducted_Tx_power_1(t)*, *conducted_Tx_power_P_{limit_1}(t)*, and *1g_or 10g_SAR_P_{limit_1}* correspond to the instantaneous Tx power, conducted Tx power at *P_{limit}*, and compliance *1g_or 10g_SAR* values at *P_{limit_1}* of band1 with time-averaging window '*T1_{SAR}*'; *conducted_Tx_power_2(t)*, *conducted_Tx_power_P_{limit_2}(t)*, and *1g_or 10g_SAR_P_{limit_2}* correspond to the instantaneous Tx power, conducted Tx power at *P_{limit}*, and compliance *1g_or 10g_SAR* values at *P_{limit_2}* of band2 with time-averaging window '*T2_{SAR}*'. One of the two bands is less than 3GHz, another is greater than 3GHz. Transition from first band with time-averaging window '*T1_{SAR}*' to the second band with time-averaging window '*T2_{SAR}*' happens at time-instant '*t₁*'.

Test procedure

1. Measure *P_{limit}* for both the technologies and bands selected in Section 4.2.6. Measure *P_{limit}* with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode.

Transition from 100s time window to 60s time window, and vice versa

3. Establish radio link with callbox in the technology/band having 100s time window selected in Section 4.2.6.
4. Request EUT's Tx power to be at 0 dBm for at least 100 seconds, followed by requesting EUT's Tx power to be at maximum power for about ~140 seconds, and then switch to second technology/band (having 60s time window) selected in Section 4.2.6. Continue with callbox requesting EUT's Tx power to be at

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maximum power for about ~60s in this second technology/band, and then switch back to the first technology/band. Continue with callbox requesting EUT's Tx power to be at maximum power for at least another 100s. Measure and record Tx power versus time for the entire duration of the test.

5. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1gSAR or 10gSAR value (see Eq. (7a) and (7b)) using corresponding technology/band Step 1 result, and then perform 100s running average to determine time-averaged 1gSAR or 10gSAR versus time. Note that in Eq.(7a) & (7b), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the worst-case 1gSAR or 10gSAR value tested in Part 1 for the selected technologies/bands at P_{limit} .
6. Make one plot containing: (a) instantaneous Tx power versus time measured in Step 4.
7. Make another plot containing: (a) instantaneous 1gSAR versus time determined in Step 5, (b) computed time-averaged 1gSAR versus time determined in Step 5, and (c) corresponding regulatory $1gSAR_{limit}$ of 1.6W/kg or $10gSAR_{limit}$ of 4.0W/kg.

Transition from 60s time window to 100s time window, and vice versa

8. Establish radio link with callbox in the technology/band having 60s time window selected in Section 4.2.6.
9. Request EUT's Tx power to be at 0 dBm for at least 60 seconds, followed by requesting EUT's Tx power to be at maximum power for about ~80 seconds, and then switch to second technology/band (having 100s time window) selected in Section 4.2.6. Continue with callbox requesting EUT's Tx power to be at maximum power for about ~100s in this second technology/band, and then switch back to the first technology/band. Continue with callbox requesting EUT's Tx power to be at maximum power for the remaining time for a total test time of 500 seconds. Measure and record Tx power versus time for the entire duration of the test.
10. Repeat above Step 5~7 to generate the plots

The validation criteria is, at all times, the time-averaged 1gSAR or 10gSAR versus time shall not exceed the regulatory $1gSAR_{limit}$ of 1.6W/kg or $10gSAR_{limit}$ of 4.0W/kg.

4.3.7 SAR Exposure Switching

This test is to demonstrate that Smart Transmit feature is accurately accounts for switching in exposures among SAR from radio1 only, SAR from both radio1 and radio2, and SAR from radio2 only scenarios, and ensures total time-averaged RF exposure complies with the FCC limit. Here, radio1 represents primary radio (for example, LTE anchor in a NR non-standalone mode call) and radio2 represents secondary radio (for example, sub6 NR or mmW NR). The detailed test procedure for SAR exposure switching in the case of LTE+Sub6 NR non-standalone mode transmission scenario is provided in APPENDIX F.

Test procedure:

1. Measure conducted Tx power corresponding to P_{limit} for radio1 and radio2 in selected band. Test condition to measure conducted P_{limit} is:
 - Establish device in call with the callbox for radio1 technology/band. Measure conducted Tx power corresponding to radio1 P_{limit} with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.

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- Repeat above step to measure conducted Tx power corresponding to radio2 P_{limit} . If radio2 is dependent on radio1 (for example, non-standalone mode of Sub6 NR requiring radio1 LTE as anchor), then establish radio1 + radio2 call with callbox, and request all down bits for radio1 LTE. In this scenario, with callbox requesting maximum power from radio2 Sub6 NR, measured conducted Tx power corresponds to radio2 P_{limit} (as radio1 LTE is at all-down bits)
- 2. Set DUT to the intended Smart Transmit exposure mode, with EUT setup for radio1 + radio2 call. In this description, it is assumed that radio2 has lower priority than radio1. Establish device in radio1+radio2 call, and request all-down bits or low power on radio1, with callbox requesting EUT's Tx power to be at maximum power in radio2 for at least one time window. After one time window, set callbox to request EUT's Tx power to be at maximum power on radio1, i.e., all-up bits. Continue radio1+radio2 call with both radios at maximum power for at least one time window, and drop (or request all-down bits on) radio2. Continue radio1 at maximum power for at least one time window. Record the conducted Tx power for both radio1 and radio2 for the entire duration of this test.
- 3. Once the measurement is done, extract instantaneous Tx power versus time for both radio1 and radio2 links. Convert the conducted Tx power for both these radios into 1gSAR or 10gSAR value (see Eq. (6a) and (6b)) using corresponding technology/band P_{limit} measured in Step 1, and then perform the running time average to determine time-averaged 1gSAR or 10gSAR versus time.
- 4. Make one plot containing: (a) instantaneous Tx power versus time measured in Step 2.
- 5. Make another plot containing: (a) instantaneous 1gSAR versus time determined in Step 3, (b) computed time-averaged 1gSAR versus time determined in Step 3, and (c) corresponding regulatory $1gSAR_{limit}$ of 1.6W/kg or $10gSAR_{limit}$ of 4.0W/kg.

The validation criteria is, at all times, the time-averaged 1gSAR or 10gSAR versus time shall not exceed the regulatory $1gSAR_{limit}$ of 1.6W/kg or $10gSAR_{limit}$ of 4.0W/kg.

NOTE: If $multi_Tx_factor$ is set to > 1.0 with EFS version 19 (or higher), then in single Tx transmission scenarios, Smart Transmit ensures time-averaged RF exposure is $\leq (SAR_design_target * 10^{(+sub6\ device\ uncertainty/10)}) < regulatory\ RF\ exposure\ limit\ for\ sub6\ radio\ managed\ by\ Smart\ Transmit$. In simultaneous Tx transmission scenarios, Smart Transmit ensures time-averaged RF exposure is $\leq (SAR_design_target * multi_Tx_factor * 10^{(+sub6\ device\ uncertainty/10)}) < regulatory\ RF\ exposure\ limit\ for\ sub6\ radios\ managed\ by\ Smart\ Transmit$. These simultaneous transmission scenarios are listed below:

- 2-or-more radio scenarios within WWAN like EN-DC, LTE ULCA, etc.
- 2-or-more-radio across technologies such as WWAN+WLAN, WWAN+BT, WLAN+BT and WWAN+WLAN+BT transmission scenarios (if WLAN/BT radios are also managed by Smart Transmit).

4.3.8 Exposure Category Switch

This test is performed with the EUT being requested to transmit at maximum power in selected technology/band/antenna/DSI. The change in exposure category is preferably performed during Tx power enforcement (i.e., EUT forced to transmit at a sustainable level). One test is sufficient as this feature operation is independent of technology, band and antenna. Test procedure are:

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In case of head to non-head to head exposure switch test, 'first DSI' in below test procedure refers to head DSI and 'second DSI' refers to non-head DSI. Similarly, in case of non-head to head to non-head exposure switch test, 'first DSI' in below test procedure refers to non-head DSI and 'second DSI' refers to head DSI.

1. Measure *Plimit* for all the technology(s)/band(s)/antenna(s)/DSI(s) selected following the above selection criteria. Measure *Plimit* with Smart Transmit Peak exposure mode enabled and callbox set to request maximum power.
2. Set EUT to intended Smart Transmit exposure mode.
3. Establish radio link with first DSI and with callbox in the selected technology(s)/band(s)/antenna(s).
4. Request EUT to transmit at 0 dBm for at least 100 seconds, followed by requesting EUT to transmit at maximum Tx power for the active radio(s) for half of the regulatory time window, and then switch to the second DSI for ~10s, and switch back to the first DSI for at least one time window. Throughout this test, when switching between DSIs (i.e., switching between exposure categories), continue with callbox requesting EUT to transmit at maximum Tx power for the active radio(s). Measure and record Tx power versus time for the entire duration of the test.
5. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1g_or_10gSAR value (see Eq. (7a) and (7b)) using the corresponding *Plimit* measured in Step 1 and 1g_or_10gSAR value measured in 80-W2112-4 Part 1 report, and then perform 100s running average to determine time-averaged 1g_or_10gSAR versus time as illustrated in Figure 5-1. Note that in Eq.(7a) & (7b), instantaneous Tx power is converted into instantaneous 1g_or_10gSAR value by applying the worst-case 1gSAR value for the selected technologies/bands at *Plimit* as reported in 80- W2112-4 Part 1 report.
6. Make one plot containing: (a) computed time-averaged normalized 1g_or_10gSAR of the selected technology(s)/band(s)/antenna(s) versus time determined in Step 5 for exposure under first DSI , (b) total time-averaged normalized exposure for exposure under first DSI if simultaneous transmission scenario was tested, and (c) normalized regulatory limit of 1.0.
7. Make another plot containing: (a) computed time-averaged 1g_or_10gSAR of the selected technology(s)/band(s)/antenna(s) versus time determined in Step 5 for exposure under second DSI, (b) total time-averaged normalized exposure for exposure under second DSI if simultaneous transmission scenario was tested, and (c) normalized regulatory limit of 1.0.

The validation criteria is, at all times, the time-averaged normalized exposure versus time shall not exceed the normalized limit of 1.0 for both first & second DSIs (i.e., both head exposure category and non-head exposure category).

4.3.9 System Level Compliance Continuity

Below is the test flow outline of the system level compliance test. The test contains 6 sections and 5 transitions: Start with WWAN radio transmission (Section A), transition to WLAN transmission (Section B), transition to simultaneous transmission of WWAN + WLAN + BT (Section C), then drop off WWAN radio and set WWAN to airplane mode, at the same time transition to WLAN+BT transmission simultaneously (Section D), transition to BT only transmission (Section E), transition to WLAN only transmission (Section F), and finally transition to simultaneous transmission of WWAN + WLAN + BT (Section G).

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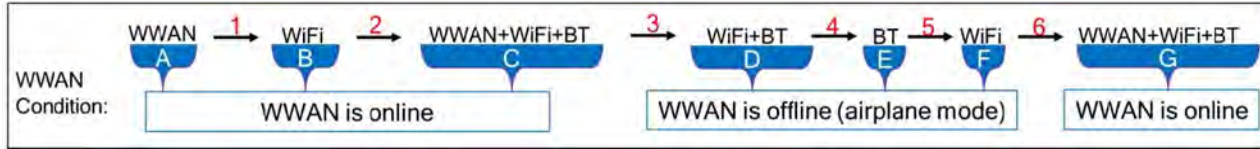


Figure 4-2

Schematic of technology transitions for system level compliance continuity test

1. Measure conducted Tx power corresponding to P_{limit} for all three (WWAN, WLAN & BT) technologies in the selected radio configurations. Test condition to measure conducted P_{limit} for each technology is:
 - Establish device in call with the callbox for the first technology in desired band. Measure conducted Tx power corresponding to the first technology P_{limit} with Smart Transmit Peak exposure mode enabled and callbox set to request maximum power (or maximum duty cycle in case of WLAN/BT).
 - Repeat above step to measure conducted Tx power corresponding to the remaining two technologies' P_{limit} . In the case of BT, measured conducted Tx power is compensated by tested duty cycle and $BT_STANDALONE$ EFS parameter, i.e., measured P_{limit} = conducted power measured in BT standalone condition / $BT_STANDALONE$ / BT_duty_cycle .
2. Set EUT to the intended Smart Transmit exposure mode.
3. As depicted in Figure 4-2, first
 - i. Section A: Establish WWAN connection with the callbox in selected WWAN radio configuration. Request EUT to transmit at 0 dBm for at least one WWAN time window (100s or 60s), followed by requesting EUT to transmit at maximum Tx power for {one WWAN time window (T_{WWAN} = 100s if $f < 3\text{GHz}$ or 60s if $3\text{GHz} < f < 6\text{GHz}$ for FCC, 360s for ICNIRP) + the maximum high power duration allowed in one T_{WWAN} }, denoted as TA_WWAN .
 - ii. Section B: After TA_WWAN , drop WWAN connection and establish WLAN connection with the callbox in selected WLAN radio configuration and request EUT to transmit at maximum duty cycle (and maximum power) for {one WLAN time-window duration (T_{WLAN} = 30s for all WLAN frequency bands for FCC, 360s for ICNIRP) + the maximum high power duration allowed in one T_{WLAN} }, denoted TB_WLAN .
 - iii. Section C: After TB_WLAN , add the selected WWAN and BT radios to have the simultaneous transmission of WWAN + WLAN + BT. Request WWAN radio to transmit at maximum power and request WLAN & BT radios to transmit at maximum duty cycle (and maximum power) for at least one $\max\{TA_WWAN, TB_WLAN, T_{BT}\}$, where, T_{BT} = 100s for FCC, 360s for ICNIRP.
 - iv. Section D: Drop WWAN connection and set WWAN modem into airplane mode. Continue requesting WLAN & BT radios to transmit at maximum duty cycle (and maximum power) for at least two times the $\max\{T_{WLAN}, T_{BT}\}$.
 - v. Section E: Drop WLAN connection. Continue requesting BT radio to transmit at maximum duty cycle (and maximum power). Continue the test for at least one T_{BT} .
 - vi. Section F: In the case of FCC time windows, after at least one T_{BT} , drop BT connection and establish back WLAN connection in selected radio configuration. Continue requesting WLAN radio to transmit

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at maximum duty cycle (and maximum power). Continue the test for at least one max { TWLAN, TBT}. In the case of ICNIRP time windows, Section F is not required.

- vii. Section G: Disable airplane mode and add WWAN and BT connections after Section F in the case of FCC time windows (Disable airplane mode and add WWAN and WLAN connections after Section E in the case of ICNIRP time windows) to have the simultaneous transmission of WWAN + WLAN + BT. Request WWAN radio to transmit at maximum power and request WLAN & BT radios to transmit at maximum duty cycle (and maximum power) for at least one max{TA_WWAN, TB_WLAN, TBT}, where, TBT = 100s for FCC, 360s for ICNIRP.
4. Once the measurement is done, extract instantaneous Tx power versus time for all WWAN, WLAN and BT radios in selected configurations. Similar to technology/band switch test in Section 4.3.3, convert the conducted Tx power for both these radios into 1g_or_10gSAR value (see Eq. (7a) and (7b)) using corresponding technology/band Plimit measured in Step 1, and then perform running average over corresponding time-windows (i.e., 100s/60s for WWAN radio, 30s for WLAN radio and 100s for BT radio in case of FCC time-windows, and 360s for all of them in case of ICNIRP time-windows) to determine time-averaged 1g_or_10gSAR versus time as illustrated in Figure 4-1.
5. Make one plot containing: (a) computed normalized time-averaged 1g_or_10gSAR for WWAN radio configuration versus time determined in Step 4, (b) computed normalized time- averaged 1g_or_10gSAR for WLAN radio configuration versus time determined in Step 4, (c) computed normalized time-averaged 1g_or_10gSAR for WLAN radio configuration versus time determined in Step 4, (d) computed total normalized time-averaged 1g_or_10gSAR versus time (sum of Steps (5.a), (5.b) and (5.c)) determined in Step 4, and (e) corresponding normalized regulatory 1g_or_10gSARlimit limit of 1.0.

The validation criteria is, at all times, the time-averaged 1g_or_10gSAR versus time shall not exceed the regulatory 1g_or_10gSARlimit limit.

NOTE: If *multi_Tx_factor* is set to > 1.0 with EFS version 19 (or higher), then in single Tx transmission scenarios, Smart Transmit ensures time-averaged RF exposure is $\leq (SAR_design_target * 10^{(+ sub6 device uncertainty/10)}) < regulatory$ RF exposure limit for sub6 radio managed by Smart Transmit. In simultaneous Tx transmission scenarios, Smart Transmit ensures time-averaged RF exposure is $\leq (SAR_design_target * multi_Tx_factor * 10^{(+ sub6 device uncertainty/10)}) < regulatory$ RF exposure limit for sub6 radios managed by Smart Transmit. These simultaneous transmission scenarios are listed below:

- 2-or-more radio scenarios within WWAN like EN-DC, LTE ULCA, etc.
- 2-or-more-radio across technologies such as WWAN+WLAN, WWAN+BT, WLAN+BT and WWAN+WLAN+BT transmission scenarios (if WLAN/BT radios are also managed by Smart Transmit).

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4.4 Test Procedure for Time-Varying SAR Measurements

This section provides general time-varying SAR measurement procedures to perform compliance test under dynamic transmission scenarios described in Section 3. In practice, an adjustment can be made in these procedures. The justification/clarification may be provided.

To perform the validation through SAR measurement for transmission scenario 1 described in Section 3, the “path loss” between callbox antenna and DUT needs to be calibrated to ensure that the DUT Tx power reacts to the requested power from callbox in a radiated call. It should be noted that when signaling in closed loop mode, protocol-level power control is in play, resulting in DUT not solely following callbox TPC (Tx power control) commands. In other words, DUT response has many dependencies (RSSI, quality of signal, path loss variation, fading, etc.,) other than just TPC commands. These dependencies have less impact in conducted setup (as it is a controlled environment and the path loss can be very well calibrated) but have significant impact on radiated testing in an uncontrolled environment, such as SAR test setup. Therefore, the deviation in DUT Tx power from callbox requested power is expected, however the time-averaged SAR should not exceed FCC SAR requirement at all times as Smart Transmit controls Tx power at DUT.

The following steps are for time averaging feature validation through SAR measurement:

1. “Path Loss” calibration: Place the DUT against the phantom in the worst-case position determined based on Section 4.2.1. For each band selected, prior to SAR measurement, perform “path loss” calibration between callbox antenna and DUT. Since the SAR test environment is not controlled and well calibrated for OTA (Over the Air) test, extreme care needs to be taken to avoid the influence from reflections. The test setup is described in Section 6.2.
2. Time averaging feature validation:
 - i For a given radio configuration (technology/band) selected in Section 4.2.1, enable Smart Transmit peak exposure mode, with callbox to request maximum power, perform area scan, conduct pointSAR measurement at peak location of the area scan. This point SAR value, $pointSAR_{P_{limit}}$, corresponds to point SAR at the measured P_{limit} (i.e., measured P_{limit} from the DUT in Step 1 of Section 4.3.1).
 - ii Set DUT to the intended Smart Transmit exposure mode. Note, if *Total_min_reserve* cannot be set wirelessly, care must be taken to re-position the DUT in the exact same position relative to the SAM phantom as in above Step 2.i. Establish radio link in desired radio configuration, with callbox requesting the DUT's Tx power at power levels described by test sequence 1 generated in Step 1 of Section 4.3.1, conduct point SAR measurement versus time at peak location of the area scan determined in Step 2.i of this section. Once the measurement is done, extract instantaneous point SAR vs time data, $pointSAR(t)$, and convert it into instantaneous 1gSAR or 10gSAR vs. time using Eq. (3a), re-written below:

$$1g_or_10gSAR(t) = \frac{pointSAR(t)}{pointSAR_{P_{limit}}} * 1g_or_10gSAR_{P_{limit}}$$

where, $pointSAR_{P_{limit}}$ is the value determined in Step 2.i, and $pointSAR(t)$ is the instantaneous point SAR measured in Step 2.ii, $1g_or_10gSAR_{P_{limit}}$ is the measured 1gSAR or 10gSAR value listed in Part 1 report.

- iii Perform 100s running average to determine time-averaged 1gSAR or 10gSAR versus time.
- iv Make one plot containing: (a) time-averaged 1gSAR or 10gSAR versus time determined in Step 2.iii of this section, (b) FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.
- v Repeat 2.ii ~ 2.iv for test sequence 2 generated in Step 1 of Section 4.3.1.

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vi Repeat 2.i ~ 2.v for all the technologies and bands selected in Section 4.2.1.

The time-averaging validation criteria for SAR measurement is that, at all times, the time-averaged 1gSAR or 10gSAR versus time shall not exceed FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR (i.e., Eq. (3b)).

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5 FCC MEASUREMENT PROCEDURES (FREQ > 6 GHZ)

This section provides the test plan and test procedures for validating Qualcomm Smart Transmit feature for mmW transmission. For this EUT, millimeter wave (mmW) transmission is only in non-standalone mode, i.e., it requires an LTE link as anchor.

5.1 Test Sequence for Validation In mmW NR Transmission

In 5G mmW NR transmission, the test sequence for validation is with the callbox requesting EUT's Tx power in 5G mmW NR at maximum power all the time.

5.2 Test Configuration Selection Criteria for Validating Smart Transmit Feature

5.2.1 Time-Varying Tx Power Transmission

The Smart Transmit time averaging operation is independent of bands, modes, channels, and antenna configurations (beams) for a given technology. Hence, validation of Smart Transmit in any one band/mode/channel per technology is sufficient. Two mmW bands are proposed and selected for this testing to provide high confidence in this validation (Note, the EUT used in this report is only supported in one mmW band).

The selection criteria for this measurement is to test EUT transmit in a beam containing highest number of elements (as it has lower *input.power.limit*). Additionally, for EUT enabled with Smart Transmit EFS version 18 (or higher) utilizing DSI applicability feature (see Section 10.1), since this test is performed in non-standalone (NSA) mode with a sub6 anchor, perform this test in a DSI that has *DSI_PD_ratio* < 1 (see equation 9b in Section 12.1) in the EFS for the selected beam.

5.2.2 SAR vs. PD Exposure Switch During Transmission

The Smart Transmit time averaging feature operation is independent of the nature of exposure (SAR vs. PD) and ensures total time-averaged RF exposure compliance. Hence, validation of Smart Transmit in any one band/mode/channel/beam for mmW + sub-6 (LTE) transmission is sufficient, where the exposure varies among SAR dominant scenario, SAR+PD scenario, and PD only scenarios.

The selection criteria for this measurement is to test EUT transmit in a beam containing highest number of elements (as it has lower *input.power.limit*).

5.2.3 Change In Antenna (Beam)

The Smart Transmit time averaging feature operation is independent of bands, modes, channels, and antenna configurations (beams) for a given technology. Hence, validation of Smart Transmit with beam switch between any two beams is sufficient.

NOTE: The selected two beams should be in the same module group if EUT is configured with GEN2_MMW or GEN2_SUB6_MMW.

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5.3 Test Procedures for mmW Radiated Power Measurements

Perform conducted power measurement (for $f < 6\text{GHz}$) and radiated power measurement (for $f > 6\text{GHz}$) for LTE + mmW transmission to validate Smart Transmit time averaging feature in the various transmission scenarios described in Section 3.

This section provides general conducted power measurement procedures to perform compliance test under dynamic transmission scenarios described in Section 3. In practice, an adjustment can be made in these procedures. The justification/clarification may be provided.

5.3.1 Time-Varying Tx Power Transmission

The purpose of the test is to demonstrate the effectiveness of power limiting enforcement and that the time-averaged Tx power when converted into RF exposure values does not exceed the FCC limit at all times (see Eq. (2a), (2b) & (2c) in Section 3).

Test procedure:

1. Measure conducted Tx power corresponding to P_{limit} for LTE in selected band, and measure radiated Tx power corresponding to *input.power.limit* in desired mmW band/channel/beam by following below steps:
 - a. Measure radiated power corresponding to mmW *input.power.limit* by setting up the EUT's Tx power in desired band/channel/beam at *input.power.limit* in Factory Test Mode (FTM). This test is performed in a calibrated anechoic chamber. Rotate the EUT to obtain maximum radiated Tx power, keep the EUT in this position and do not disturb the position of the EUT inside the anechoic chamber for the rest of this test.
 - b. Reset EUT to place in online mode and establish radio link in LTE, measure conducted Tx power corresponding to LTE P_{limit} with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode. With DUT setup for a mmW NR call in the desired/selected LTE band and mmW NR band, perform the following steps:
 - a. Establish LTE and mmW NR connection in desired band/channel/beam used in Step 1. As soon as the mmW connection is established, immediately request all-down bits on LTE link. With callbox requesting EUT's Tx power to be at maximum mmW power to test predominantly PD exposure scenario (as SAR exposure is less when LTE's Tx power is at low power).
 - b. After 120s, request LTE to go all-up bits for at least 100s. SAR exposure is dominant. There are two scenarios:
 - i. If $P_{limit} < P_{max}$ for LTE, then the RF exposure margin (provided to mmW NR) gradually runs out (due to high SAR exposure). This results in gradual reduction in the 5G mmW NR transmission power and eventually seized 5G mmW NR transmission when LTE goes to $P_{reserve}$ level.
 - ii. If $P_{limit} \geq P_{max}$ for LTE, then the 5G mmW NR transmission's averaged power should gradually reduce but the mmW NR connection can sustain all the time (assuming TxAGC uncertainty = 0dB).
 - c. Record the conducted Tx power of LTE and radiated Tx power of mmW for the full duration of this test of at least 300s.

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- Once the measurement is done, extract instantaneous Tx power versus time for both LTE and mmW links. Convert the conducted Tx power for LTE into 1gSAR or 10gSAR value using Eq. (2a) and P_{limit} measured in Step 1.b, and then divide by FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR to obtain instantaneous normalized 1gSAR or 10gSAR versus time. Perform 100s running average to determine normalized 100s-averaged 1gSAR or 10gSAR versus time.

NOTE: In Eq.(2a), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the measured worst-case 1gSAR or 10gSAR value at P_{limit} for the corresponding technology/band/antenna/DSI reported in Part 1 report.

- Similarly, convert the radiated Tx power for mmW into 4cm²PD value using Eq. (2b) and the radiated Tx power limit (i.e., radiated Tx power at *input.power.limit*) measured in Step 1.a, then divide by FCC 4cm²PD limit of 10W/m² to obtain instantaneous normalized 4cm²PD versus time. Perform 4s running average to determine normalized 4s-averaged 4cm²PD versus time.

NOTE: In Eq.(2b), instantaneous radiated Tx power is converted into instantaneous 4cm²PD by applying the worst-case 4cm²PD value measured at *input.power.limit* for the selected band/beam in Part 1 report.

- Make one plot containing: (a) instantaneous conducted Tx power for LTE versus time, (b) computed 100s-averaged conducted Tx power for LTE versus time, (c) instantaneous radiated Tx power for mmW versus time, as measured in Step 2, (d) computed 4s-averaged radiated Tx power for mmW versus time, and (e) time-averaged conducted and radiated power limits for LTE and mmW radio using Eq. (5a) & (5b), respectively:

$$\text{Time avearged LTE power limit} = \text{meas. } P_{limit} + 10 \times \log\left(\frac{FCC \text{ SAR limit}}{\text{meas. SAR } P_{limit}}\right) \quad (5a)$$

$$\text{Time avearged mmW NR power limit} = \text{meas. EIRP}_{\text{input.power.limit}} + 10 \times \log\left(\frac{FCC \text{ PD limit}}{\text{meas. PD}_{\text{input.power.limit}}}\right) \quad (5b)$$

where $\text{meas. EIRP}_{\text{input.power.limit}}$ and $\text{meas. PD}_{\text{input.power.limit}}$ correspond to measured EIRP at *input.power.limit* and measured power density at *input.power.limit*.

- Make another plot containing: (a) computed normalized 100s-averaged 1gSAR or 10gSAR versus time determined in Step 3, (b) computed normalized 4s-averaged 4cm²PD versus time determined in Step 4, and (c) corresponding total normalized time-averaged RF exposure (sum of steps (6.a) and (6.b)) versus time.

The validation criteria are, at all times, the total normalized time-averaged RF exposure versus time determined in Step 6.c shall not exceed the normalized limit of 1.0 of FCC requirement (i.e., Eq. (2c)).

5.3.2 SAR vs. PD Exposure Switch During Transmission

This test is to demonstrate that Smart Transmit feature is independent of the nature of exposure (SAR vs. PD), accurately accounts for switching in exposures among SAR dominant, SAR+PD, and PD dominant scenarios, and ensures total time-averaged RF exposure compliance.

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Test procedure:

1. Measure conducted Tx power corresponding to P_{limit} for LTE in selected band, and measure radiated Tx power corresponding to *input.power.limit* in desired mmW band/channel/beam by following below steps:
 - a. Measure radiated power corresponding to *input.power.limit* by setting up the EUT's Tx power in desired band/channel/beam at *input.power.limit* in FTM. This test is performed in a calibrated anechoic chamber. Rotate the EUT to obtain maximum radiated Tx power, keep the EUT in this position and do not disturb the position of the EUT inside the anechoic chamber for the rest of this test.
 - b. Reset EUT to place in online mode and establish radio link in LTE, measure conducted Tx power corresponding to LTE P_{limit} with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode. With DUT setup for LTE + mmW call, perform the following steps:
 - a. Establish LTE (sub-6) and mmW NR connection with callbox.
 - b. As soon as the mmW connection is established, immediately request all-down bits on LTE link. Continue LTE (all-down bits) + mmW transmission for more than 100s duration to test predominantly PD exposure scenario (as SAR exposure is negligible from all-down bits in LTE).
 - c. After 120s, request LTE to go all-up bits, mmW transmission should gradually run out of RF exposure margin if LTE's $P_{limit} < P_{max}$ and seize mmW transmission (SAR only scenario); or mmW transmission should gradually reduce in Tx power and will sustain the connection if LTE's $P_{limit} > P_{max}$.
 - d. After 75s, request LTE to go all-down bits, mmW transmission should start getting back RF exposure margin and resume transmission again.
 - e. Record the conducted Tx power of LTE and radiated Tx power of mmW for the entire duration of this test of at least 300s.
3. Once the measurement is done, extract instantaneous Tx power versus time for both LTE and mmW links. Convert the conducted Tx power for LTE into 1gSAR or 10gSAR value using Eq. (2a) and P_{limit} measured in Step 1.b, and then divide by FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR to obtain instantaneous normalized 1gSAR or 10gSAR versus time. Perform 100s running average to determine normalized 100s-averaged 1gSAR or 10gSAR versus time.

NOTE: In Eq.(2a), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the measured worst-case 1gSAR or 10gSAR value at P_{limit} for the corresponding technology/band/antenna/DSI reported in Part 1 report.

4. Similarly, convert the radiated Tx power for mmW into 4cm²PD value using Eq. (2b) and the radiated Tx power limit (i.e., radiated Tx power at *input.power.limit*) measured in Step 1.a, then divide this by FCC 4cm²PD limit of 10W/m² to obtain instantaneous normalized 4cm²PD versus time. Perform 4s running average to determine normalized 4s-averaged 4cm²PD versus time.

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NOTE: In Eq.(2b), instantaneous radiated Tx power is converted into instantaneous 4cm²PD by applying the worst-case 4cm²PD value measured at *input.power.limit* for the selected band/beam in Part 1 report.

5. Make one plot containing: (a) instantaneous conducted Tx power for LTE versus time, (b) computed 100s-averaged conducted Tx power for LTE versus time, (c) instantaneous radiated Tx power for mmW versus time, as measured in Step 2, (d) computed 4s-averaged radiated Tx power for mmW versus time, and (e) time-averaged conducted and radiated power limits for LTE and mmW radio using Eq. (5a) & (5b), respectively.
6. Make another plot containing: (a) computed normalized 100s-averaged 1gSAR or 10gSAR versus time determined in Step 3, (b) computed normalized 4s-averaged 4cm²PD versus time determined in Step 4, and (c) corresponding total normalized time-averaged RF exposure (sum of steps (6.a) and (6.b)) versus time.

The validation criteria are, at all times, the total normalized time-averaged RF exposure versus time determined in Step 6.c shall not exceed the normalized limit of 1.0 of FCC requirement (i.e., Eq. (2c)).

5.3.3 Change In Antenna Configuration (Beam)

This test is to demonstrate the correct power control by Smart Transmit during changes in antenna configuration (beam). Since the *input.power.limit* varies with beam, the Eq. (2a), (2b) and (2c) in Section 3 are written as below for transmission scenario having change in beam,

$$1g_or_10gSAR(t) = \frac{conducted_Tx_power(t)}{conducted_Tx_power_P_{limit}} * 1g_or_10gSAR_P_{limit} \quad (8a)$$

$$4cm^2PD_1(t) = \frac{radiated_Tx_power_1(t)}{radiated_Tx_power_input.power.limit_1} * 4cm^2PD_input.power.limit_1 \quad (8b)$$

$$4cm^2PD_2(t) = \frac{radiated_Tx_power_2(t)}{radiated_Tx_power_input.power.limit_2} * 4cm^2PD_input.power.limit_2 \quad (8c)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} + \frac{\frac{1}{T_{PD}} \left[\int_{t-T_{PD}}^{t_1} 4cm^2PD_1(t) dt + \int_{t_1}^t 4cm^2PD_2(t) dt \right]}{FCC\ 4cm^2\ PD\ limit} \leq 1 \quad (8d)$$

where, *conducted_Tx_power(t)*, *conducted_Tx_power_P_{limit}*, and *1g_or_10gSAR_P_{limit}* correspond to the measured instantaneous conducted Tx power, measured conducted Tx power at *P_{limit}*, and measured 1gSAR or 10gSAR values at *P_{limit}* corresponding to LTE transmission. Similarly, *radiated_Tx_power_1(t)*, *radiated_Tx_power_input.power.limit_1*, and *4cm²PD_input.power.limit_1* correspond to the measured instantaneous radiated Tx power, radiated Tx power at *input.power.limit*, and 4cm²PD value at *input.power.limit* of beam 1; *radiated_Tx_power_2(t)*, *radiated_Tx_power_input.power.limit_2*, and *4cm²PD_input.power.limit_2* correspond to the measured instantaneous radiated Tx power, radiated Tx power at *input.power.limit*, and 4cm²PD value at *input.power.limit* of beam 2 corresponding to mmW transmission.

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Test procedure:

1. Measure conducted Tx power corresponding to P_{limit} for LTE in selected band, and measure radiated Tx power corresponding to *input.power.limit* in desired mmW band/channel/beam by following below steps:
 - a. Measure radiated power corresponding to mmW *input.power.limit* by setting up the EUT's Tx power in desired band/channel at *input.power.limit* of beam 1 in FTM. Do not disturb the position of the EUT inside the anechoic chamber for the rest of this test. Repeat this Step 1.a for beam 2.
 - b. Reset EUT to place in online mode and establish radio link in LTE, measure conducted Tx power corresponding to LTE P_{limit} with Smart Transmit peak exposure mode enabled, and callbox set to request maximum power.
2. Set DUT to the intended Smart Transmit exposure mode. With DUT setup for LTE + mmW connection, perform the following steps:
 - a. Establish LTE (sub-6) and mmW NR connection in beam 1. As soon as the mmW connection is established, immediately request all-down bits on LTE link with the callbox requesting EUT's Tx power to be at maximum mmW power.
 - b. After beam 1 continues transmission for at least 20s, request the EUT to change from beam 1 to beam 2, and continue transmitting with beam 2 for at least 20s.
 - c. Record the conducted Tx power of LTE and radiated Tx power of mmW for the entire duration of this test.
3. Once the measurement is done, extract instantaneous Tx power versus time for both LTE and mmW links. Convert the conducted Tx power for LTE into 1gSAR or 10gSAR value using the similar approach described in Step 3 of Section 5.3.2. Perform 100s running average to determine normalized 100s-averaged 1gSAR versus time.
4. Similarly, convert the radiated Tx power for mmW NR into 4cm²PD value using Eq. (8b), (8c) and the radiated Tx power limits (i.e., radiated Tx power at *input.power.limit*) measured in Step 1.a for beam 1 and beam 2, respectively, and then divide the resulted PD values by FCC 4cm²PD limit of 10W/m² to obtain instantaneous normalized 4cm²PD versus time for beam 1 and beam 2. Perform 4s running average to determine normalized 4s-averaged 4cm²PD versus time.

NOTE: In Eq.(8b) and (8c), instantaneous radiated Tx power of beam 1 and beam 2 is converted into instantaneous 4cm²PD by applying the worst-case 4cm²PD value measured at the *input.power.limit* of beam 1 and beam 2 in Part 1 report, respectively.

5. Since the measured radiated powers for beam 1 and beam 2 in Step 1.a were performed at an arbitrary rotation of EUT in anechoic chamber, repeat Step 1.a of this procedure by rotating the EUT to determine maximum radiated power at *input.power.limit* in FTM mode for both beams separately. Re-scale the measured instantaneous radiated power in Step 2.c by the delta in radiated power measured in Step 5 and the radiated power measured in Step 1.a for plotting purposes in next Step. In other words, this step essentially converts measured instantaneous radiated power during the measurement in Step 2 into maximum instantaneous radiated power for both beams. Perform 4s running average to compute 4s-averaged radiated Tx power. Additionally, use these EIRP values measured at *input.power.limit* at respective peak locations to determine the EIRP limits (using Eq. (5b)) for both these beams.

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6. Make one plot containing: (a) instantaneous conducted Tx power for LTE versus time, (b) computed 100s-averaged conducted Tx power for LTE versus time, (c) instantaneous radiated Tx power for mmW versus time, as obtained in Step 5, (d) computed 4s-averaged radiated Tx power for mmW versus time, as obtained in Step 5, and (e) time-averaged conducted and radiated power limits for LTE and mmW radio, respectively.
7. Make another plot containing: (a) computed normalized 100s-averaged 1gSAR versus time determined in Step 3, (b) computed normalized 4s-averaged 4cm²PD versus time determined in Step 4, and (c) corresponding total normalized time-averaged RF exposure (sum of steps (6.a) and (6.b)) versus time.

The validation criteria are, at all times, the total normalized time-averaged RF exposure versus time determined in Step 6.c shall not exceed the normalized limit of 1.0 of FCC requirement (i.e., (8d)).

5.4 Test Procedure for Time-Varying PD Measurements

The following steps are used to perform the validation through PD measurement for transmission scenario 1 described in Section 3:

1. Place the EUT on the cDASY6 platform to perform PD measurement in the worst-case position/surface for the selected mmW band/beam. In PD measurement, the callbox is set to request maximum Tx power from EUT all the time. Hence, “path loss” calibration between callbox antenna and EUT is not needed in this test.
2. Time averaging feature validation:
 - a. Measure conducted Tx power corresponding to P_{limit} for LTE in selected band, and measure point E-field corresponding to *input.power.limit* in desired mmW band/channel/beam by following the below steps:
 - i. Measure conducted Tx power corresponding to LTE P_{limit} with Smart Transmit Peak exposure mode enabled, with callbox set to request maximum power.
 - ii. Measure point E-field at peak location of fast area scan corresponding to *input.power.limit* by setting up the EUT's Tx power in desired mmW band/channel/beam at *input.power.limit* in FTM. Do not disturb the position of EUT and mmW cDASY6 probe.
 - b. Set EUT to the intended Smart Transmit exposure mode, place EUT in online mode. With EUT setup for LTE (sub-6) + mmW NR call, as soon as the mmW NR connection is established, request all-down bits on LTE link. Continue LTE (all-down bits) + mmW transmission for more than 100s duration to test predominantly PD exposure scenario. After 120s, request LTE to go all-up bits, mmW transmission should gradually reduce. Simultaneously, record the conducted Tx power of LTE transmission using power meter and point E-field (in terms of ratio of $\frac{[pointE(t)]^2}{[pointE_input.power.limit]^2}$) of mmW transmission using cDASY6 E-field probe at peak location identified in Step 2.a.ii for the entire duration of this test of at least 300s.
 - c. Once the measurement is done, extract instantaneous conducted Tx power versus time for LTE transmission and $\frac{[pointE(t)]^2}{[pointE_input.power.limit]^2}$ ratio versus time from cDASY6 system for mmW transmission. Convert the conducted Tx power for LTE into 1gSAR or 10gSAR value using Eq. (4a) and P_{limit} measured in Step 2.a.i, and then divide this by FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR to obtain instantaneous normalized 1gSAR or 10gSAR versus time.

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Perform 100s running average to determine normalized 100s-averaged 1gSAR or 10gSAR versus time

NOTE: In Eq.(4a), instantaneous Tx power is converted into instantaneous 1gSAR or 10gSAR value by applying the measured worst-case 1gSAR or 10gSAR value at P_{limit} for the corresponding technology/band reported in Part 1 report.

- d. Similarly, convert the point E-field for mmW transmission into $4\text{cm}^2\text{PD}$ value using Eq. (4b) and radiated power limit measured in Step 2.a.ii, and then divide this by FCC $4\text{cm}^2\text{PD}$ limit of $10\text{W}/\text{m}^2$ to obtain instantaneous normalized $4\text{cm}^2\text{PD}$ versus time. Perform 4s running average to determine normalized 4s-averaged $4\text{cm}^2\text{PD}$ versus time.
- e. Make one plot containing: (i) computed normalized 100s-averaged 1gSAR or 10gSAR versus time determined in Step 2.c, (ii) computed normalized 4s-averaged $4\text{cm}^2\text{PD}$ versus time determined in Step 2.d, and (iii) corresponding total normalized time-averaged RF exposure (sum of steps (2.e.i) and (2.e.ii)) versus time.

The validation criteria are, at all times, the total normalized time-averaged RF exposure versus time determined in Step 2.e.iii shall not exceed the normalized limit of 1.0 of FCC requirement (i.e., Eq. (4c)).

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6 MEASUREMENT TEST SETUP (FREQ < 6 GHZ)

6.1 Conducted Measurement

Legacy test setup

The Rohde & Schwarz CMW500 callbox was used in this test. The test setup schematic is shown in Figure 6-1a (Appendix D – Test Setup Photo 1, 2, and 3) for measurements with a single antenna of DUT and in Figure 6-1b (Appendix D – Test Setup Photo 6) for measurements involving antenna switch. For single antenna measurement, one port (RF1 COM) of the callbox is connected to the RF port of the DUT using a directional coupler. For technology/band switch measurement, one port (RF1 COM) of the callbox used for signaling two different technologies is connected to a combiner, which is in turn connected to a directional coupler. The other end of the directional coupler is connected to a splitter to connect to two RF ports of the DUT corresponding to the two antennas of interest. In the setups, power meter is used to tap the directional coupler for measuring the conducted output power of the DUT. For all legacy conducted tests, only RF1 COM port of the callbox is used to communicate with the DUT.

All the path losses from RF port of DUT to the callbox RF COM port and to the power meter are calibrated and automatically entered as offsets in the callbox and the power meter via test scripts on the PC used to control callbox and power meter

Sub6 NR test setup:

The Anritsu MT8000A callbox was used in this test. The test setup schematic is the same as the Legacy Test Setup shown in Figure 6-1a (Appendix D – Test Setup Photo 4 and 5). One port of the callbox is connected to the RF port of the DUT using a directional coupler. In the setup, the power meter is used to tap the directional coupler for measuring the conducted output power of the DUT.

All the path losses from RF port of DUT to the callbox RF COM port and to the power meter are calibrated and automatically entered as offsets in the callbox and the power meter via test scripts on the PC used to control callbox and power meter.

LTE+Sub6 NR test setup:

LTE conducted port and Sub6 NR conducted port are different on this EUT, therefore, the LTE and Sub6 NR signals for power meter measurement are performed on separate paths as shown below in Figure 6-1c. (Appendix D – Test Setup Photo 7).

All the path losses from RF port of DUT to the callbox RF COM port and to the power meter are calibrated and automatically entered as offsets in the callbox and the power meter via test scripts on the PC used to control callbox and power meter.

WLAN SISO test setup:

The Rohde & Schwarz CMW500 callbox was used in this test. The test setup schematic is shown in Figure 6-1d (Appendix D – Test Setup Photo 8, 9).

All the path losses from RF port of DUT to the callbox RF COM port and to the power meter are calibrated and automatically entered as offsets in the callbox and the power meter via test scripts on the PC used to control callbox and power meter.

WLAN DBS test setup:

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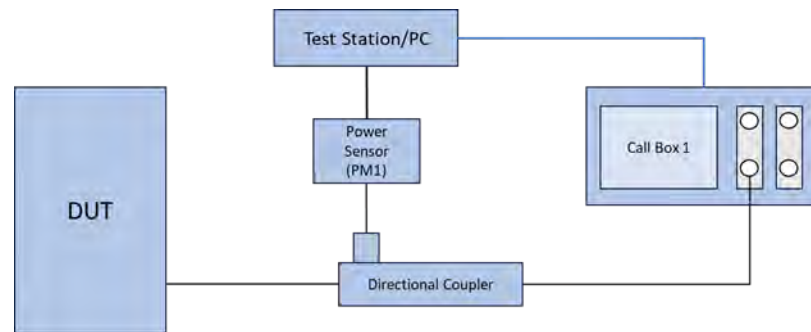
The Rohde & Schwarz CMW500 callbox was used in this test. WLAN 2.4GHz port and WLAN 5GHz conducted ports are different on this EUT, therefore, the WLAN signals for power meter measurement are performed on separate paths as shown below in Figure 6-1d (Appendix D – Test Setup Photo 10).

All the path losses from RF port of DUT to the callbox RF COM port and to the power meter are calibrated and automatically entered as offsets in the callbox and the power meter via test scripts on the PC used to control callbox and power meter.

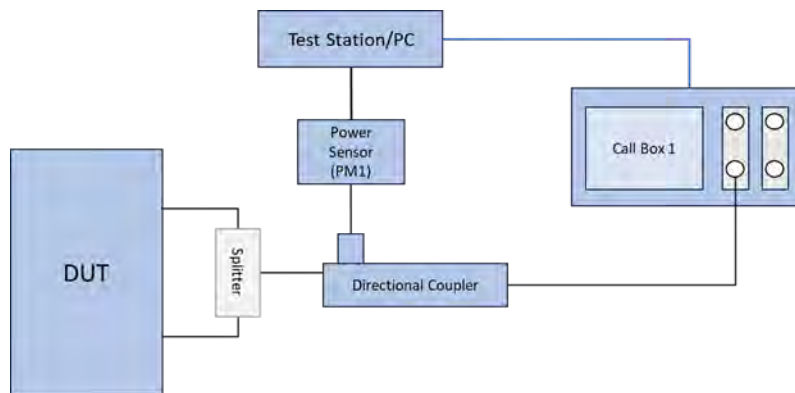
System continuity test setup:

The Rohde & Schwarz CMW500 callbox was used in this test. WWAN conducted port and BT conducted port are the same on this EUT, while the WLAN conducted port is separate. Therefore the WWAN, WLAN, and BT signals for power meter measurement are performed on paths shown below in Figure 6-1f (Appendix D – Test Setup Photo 11).

All the path losses from RF port of DUT to the callbox RF COM port and to the power meter are calibrated and automatically entered as offsets in the callbox and the power meter via test scripts on the PC used to control callbox and power meter.

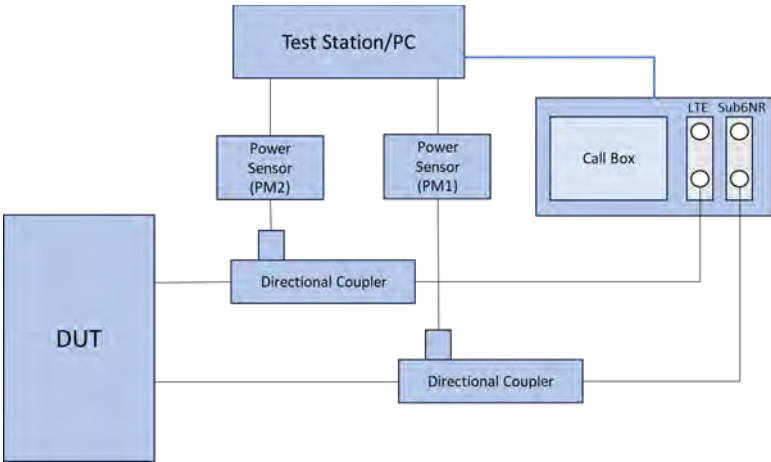


(a) Appendix D – Test Setup Photo 1, 2, 3, 4, 5

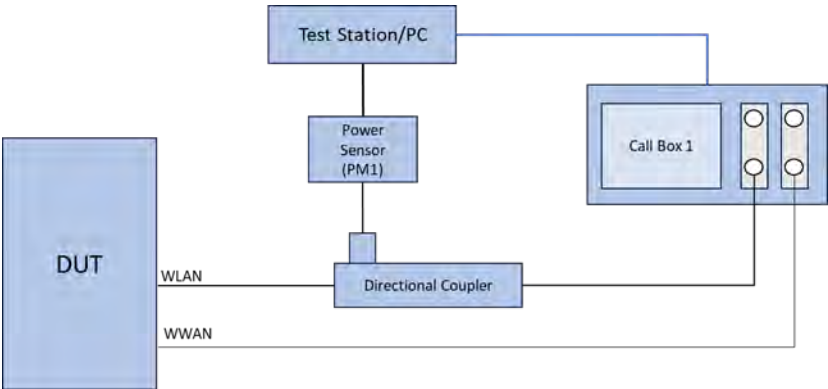


(b) Appendix D – Test Setup Photo 6

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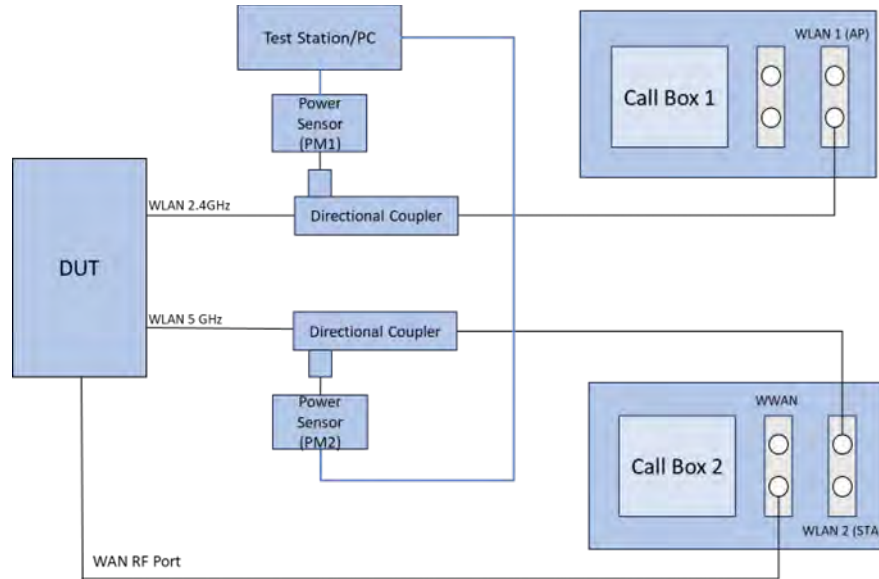


(c) Appendix D – Test Setup Photo 7

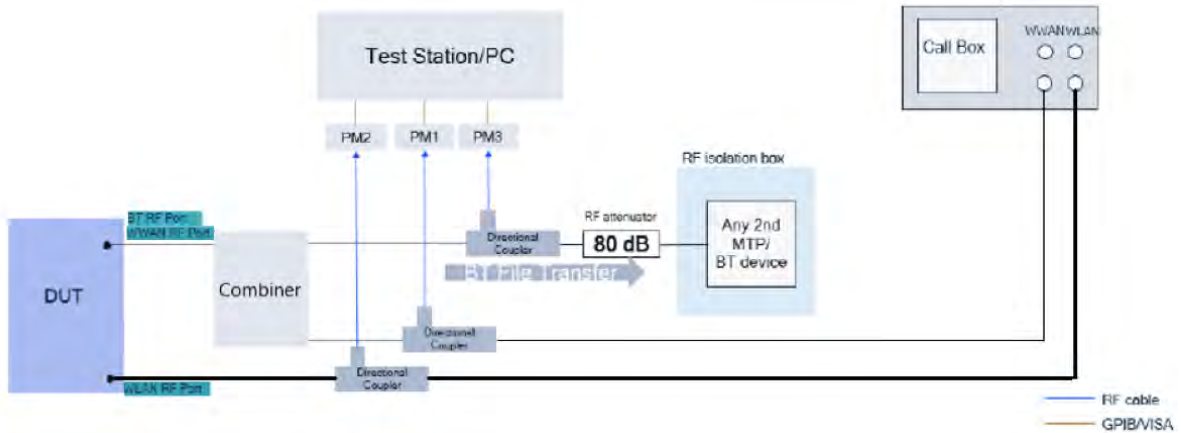


(d) Appendix D – Test Setup Photo 8, 9

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(e) Appendix D – Test Setup Photo 10



(f) Appendix D – Test Setup Photo 11

Figure 6-1
Conducted power measurement setup

Both the callbox and power meter are connected to the PC using GPIB cables. Two test scripts are custom made for automation, and the test duration set in the test scripts is 500 seconds.

For time-varying Tx power measurement, the PC runs the 1st test script to send GPIB commands to control the callbox's requested power versus time, while at the same time to record the conducted power measured at DUT RF port using the power meter. The commands sent to the callbox to request power are:

- 0dBm for 100 seconds

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- test sequence 1 or test sequence 2 (defined in Section 4.1 and generated in Section 4.2.1), for 360 seconds.
- stay at the last power level of test sequence 1 or test sequence 2 for the remaining time.

Power meter readings are periodically recorded every 100ms. A running average of this measured Tx power over 100 seconds is performed in the post-data processing to determine the 100s-time averaged power.

For call drop, technology/band/antenna switch, and DSI switch tests, after the call is established, the callbox is set to request the DUT's Tx power at 0dBm for 100 seconds while simultaneously starting the 2nd test script runs at the same time to start recording the Tx power measured at DUT RF port using the power meter. After the initial 100 seconds since starting the Tx power recording, the callbox is set to request maximum power from the DUT for the rest of the test. Note that the call drop/re-establish, or technology/band/antenna switch or DSI switch is manually performed when the Tx power of DUT is at $P_{reserve}$ level. See Section 4.3 for detailed test procedure of call drop test, technology/band/antenna switch test and DSI switch test.

6.2 SAR Measurement

The measurement setup is similar to normal SAR measurements as described in the Part 1 Test Report. The difference in SAR measurement setup for time averaging feature validation is that the callbox is signaling in close loop power control mode (instead of requesting maximum power in open loop control mode) and callbox is connected to the PC using GPIB so that the test script executed on PC can send GPIB commands to control the callbox's requested power over time (test sequence). The same test script used in conducted setup for time-varying Tx power measurements is also used in this section for running the test sequences during SAR measurements, and the recorded values from the disconnected power meter by the test script were discarded.

As mentioned in Section 4.4, for DUT to follow TPC command sent from the callbox wirelessly, the "path loss" between callbox antenna and the DUT needs to be very well calibrated. Since the SAR chamber is in uncontrolled environment, precautions must be taken to minimize the environmental influences on "path loss". Similarly, in the case of time-varying SAR measurements in Sub6 NR (with LTE as anchor), "path loss" between callbox antenna and the EUT needs to be carefully calibrated for both LTE link as well as for Sub6 NR link.

The DUT is placed in worst-case position according to Table 8-2.

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7 MEASUREMENT TEST SETUP (FREQ > 6 GHZ)

7.1 Radiated Power Measurement

The Keysight Technologies E7515B UXM callbox is used in this test. The schematic of the setup is shown in Figure 7-1. The UXM callbox has two RF radio heads to up/down convert IF to mmW frequencies, which in turn are connected to two horn antennas for V- and H-polarizations for downlink communication. In the uplink, a directional coupler is used in the path of one of the horn antennas to measure and record radiated power using a Rohde & Schwarz NRP50S power sensor. Note here that the isolation of the directional coupler may not be sufficient to attenuate the downlink signal from the callbox, which will result in high noise floor masking the recording of radiated power from EUT. In that case, either lower the downlink signal strength emanating from the RF radio heads of callbox or add an attenuator between callbox radio heads and directional coupler. Additionally, note that since the measurements performed in this validation are all relative, measurement of EUT's radiated power in one polarization is sufficient. The EUT is placed inside an anechoic chamber with V- and H-pol horn antennas to establish the radio link as shown in Figure 7-1. The callbox's LTE port is directly connected to the EUT's RF port via a directional coupler to measure the EUT's conducted Tx power using a Rohde & Schwarz NRP8S power sensor. Additionally, EUT is connected to the PC via USB connection for sending beam switch command. Care is taken to route the USB cable and RF cable (for LTE connection) away from the EUT's mmW antenna modules.

Setup in Figure 7-1 is used for the test scenario 1, 5 and 6 described in Section 3. The test procedures described in Section 5 are followed. The path losses from the EUT to both the power meters are calibrated and used as offset in the power meter.

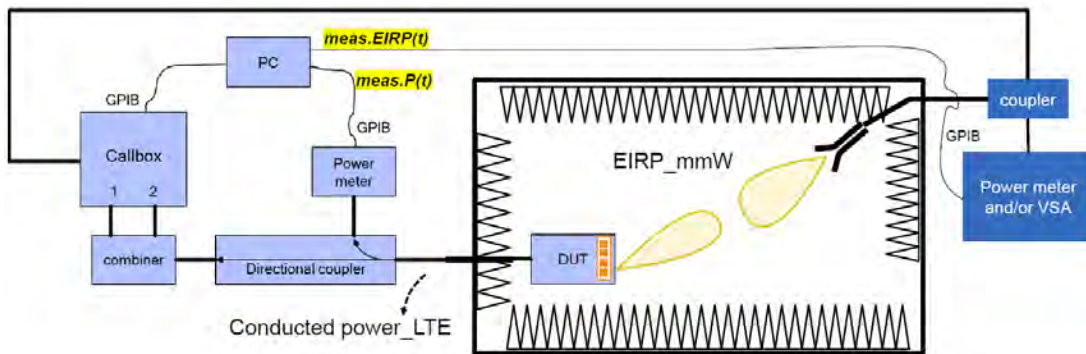


Figure 7-1
mmW NR radiated power measurement setup – Test Setup Photos 12

Both the callbox and power meters are connected to the PC using USB cables. Test scripts are custom made for automation of establishing LTE + mmW call, LTE + sub6 NR call, and sub6 NR + mmW call conducted Tx powers recording for LTE, sub6 NR and radiated Tx power recording for mmW. These tests are manually stopped after desired time duration. Test script is programmed to set LTE Tx power to all-down bits on the callbox immediately after the mmW link is established and programmed to set toggle between all-up and all-down bits depending on the transmission scenario being evaluated. Similarly, test

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script is also programmed to send beam switch command manually to the EUT via USB connection. For all the tests, the callbox is set to request maximum Tx power in mmW NR radio from EUT all the time.

Test configurations for this validation are detailed in Section 5.2. Test procedures are listed in Section 5.3.

7.2 Power Density Measurement

The measurement setup is similar to normal PD measurements, the EUT is positioned on cDASY6 platform, and is connected with the callbox (conducted for LTE and wirelessly for mmW). Keysight UXM callbox is set to request maximum mmW Tx power from EUT all the time. Hence, “path loss” calibration between callbox antenna and EUT is not needed in this test. The callbox’s LTE port is directly connected to the EUT’s RF port via a directional coupler to measure the EUT’s conducted Tx power using a Rohde & Schwarz NRP8S power sensor. Additionally, EUT is connected to the PC via USB connection for toggling between FTM and online mode with Smart Transmit enabled following the test procedures described Section 5.4.

Worst-surface of EUT (for the mmW beam being tested) is positioned facing up for PD measurement with cDASY6 mmW probe. Figure 7-2 shows the schematic of this measurement setup.

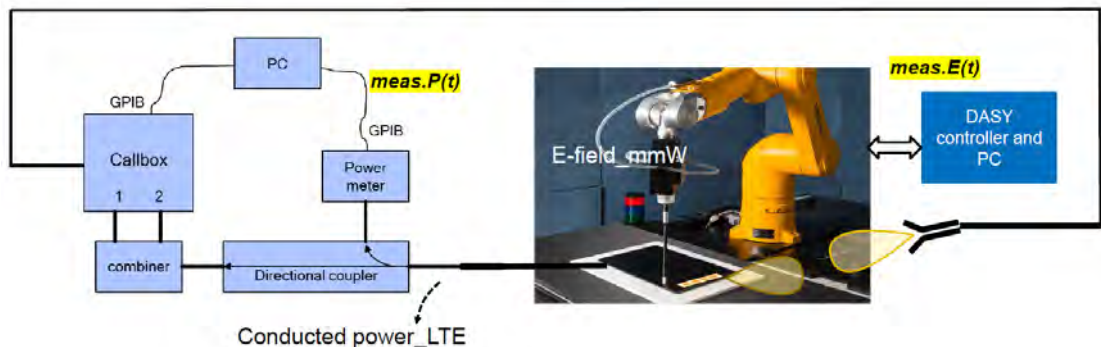


Figure 7-2
Power Density Measurement Setup – Test Setup Photos 13

Both callbox and power meters are connected to the PC using USB cables. Test scripts are custom made for automation of establishing LTE + mmW call, and for conducted Tx power recording of LTE transmission. These tests are manually stopped after desired time duration. Once the mmW link is established, LTE Tx power is programmed to toggle between all-up and all-down bits on the callbox. For all the tests, the callbox is set to request maximum Tx power in mmW NR radio from EUT all the time. Therefore, the calibration for the pathloss between the EUT and the horn antenna connected to the remote radio head of the callbox is not required.

Power meter readings are periodically recorded every 10ms on NR8S power sensor for LTE conducted Tx power. Time-averaged E-field measurements are performed using EUmWV4 mmW probe at peak location of fast area scan. The distance between EUmWV4 mmW probe tip to EUT surface is ~0.5 mm, and the distance between EUmWV4 mmW probe sensor to probe tip is 1.5 mm. cDASY6 records relative point E-field (i.e., ratio $\frac{[pointE(t)]^2}{[pointE_input.power.limit]^2}$) versus time for mmW NR transmission.

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8 TEST CONFIGURATIONS (FREQ < 6 GHz)

8.1 WWAN (sub-6) Transmission

The P_{limit} values, corresponding to 1.0 W/kg (1gSAR) and 2.5 W/kg (10gSAR) of SAR_{design_target} , for technologies and bands supported by DUT are derived in Part 0 report and summarized in Table 8-1. Note all P_{limit} power levels entered in Table 8-1 correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes.

Table 8-1
 P_{limit} for supported technologies and bands (P_{limit} in EFS file)

Exposure Scenario			Maximum Time-Up	Body-Worn, Hotspot, or PDA/Net	Head
Antenna Volume Spacing			Output Power*	1g/10g 10mm, 0mm	1g 0mm
DSI				0	1
Technology/Band	Antenna	Antenna Group	P_{max}	P_{lim}	P_{lim}
GSM 850	A	AG0	25.3	29.7	31.5
GSM 850	E	AG1	25.3	27.7	20.3
GSM 1900	A	AG0	22.1	18.8	28.8
UMTS 850	A	AG0	24.0	25.9	29.0
UMTS 850	E	AG1	24.0	26.9	20.5
UMTS 1750	A	AG0	23.0	19.0	29.4
UMTS 1900	A	AG0	23.0	18.0	29.0
LTE Band 71	A	AG0	24.0	27.2	28.6
LTE Band 71	E	AG1	24.0	27.0	21.5
LTE Band 12	A	AG0	24.0	27.0	28.5
LTE Band 12	E	AG1	24.0	26.2	21.5
LTE Band 13	A	AG0	24.0	27.0	28.0
LTE Band 13	E	AG1	24.0	25.9	21.5
LTE Band 14	A	AG0	24.0	26.7	28.3
LTE Band 14	E	AG1	24.0	26.2	21.5
LTE Band 26/5	A	AG0	24.0	27.1	29.3
LTE Band 26/5	E	AG1	24.0	26.4	21.0
LTE Band 66/4	A	AG0	23.5	19.0	29.0
LTE Band 66/4	F	AG1	23.5	20.5	18.5
LTE Band 25/2	A	AG0	23.5	18.0	28.5
LTE Band 25/2	F	AG1	23.5	20.0	18.5
LTE Band 30	A	AG0	22.5	19.5	34.2
LTE Band 30	F	AG1	22.0	20.0	17.0
LTE Band 7	B	AG0	23.5	20.0	29.2
LTE Band 7	F	AG1	23.5	19.5	16.0
LTE Band 41/38	B	AG0	22.0	20.0	30.1
LTE Band 41/38	F	AG1	22.0	19.5	16.0
LTE Band 48	F	AG1	20.0	19.5	16.0
NR Band n71	A	AG0	24.0	26.4	29.5
NR Band n71	E	AG1	24.0	27.6	21.5
NR Band n12	A	AG0	24.0	26.2	28.2
NR Band n12	E	AG1	24.0	27.0	21.5
NR Band n14	A	AG0	24.0	26.7	29.3
NR Band n14	E	AG1	24.0	26.9	21.5
NR Band n25/n5	A	AG0	24.0	28.1	30.2
NR Band n25/n5	E	AG1	24.0	27.3	21.0
NR Band n70	A	AG0	23.5	19.0	29.0
NR Band n70	F	AG1	23.5	21.0	18.5
NR Band n66	A	AG1	23.5	19.0	29.2
NR Band n66	F	AG1	23.5	20.5	18.5
NR Band n25/n2	A	AG0	23.5	18.0	29.1
NR Band n25/n2	F	AG1	23.5	20.0	18.5
NR Band n30	A	AG0	22.5	19.5	33.9
NR Band n30	F	AG1	22.0	20.0	17.0
NR Band n7	B	AG0	23.5	20.0	28.2
NR Band n7	F	AG1	23.5	19.5	16.0
NR Band n1 PC2 (Path 1)	F	AG1	26.0	19.5	16.5
NR Band n1 PC2 (Path 1)	B	AG0	23.0	19.5	16.5
NR Band n1 PC2 (Path 1)	E	AG1	23.5	18.0	15.0
NR Band n1 PC2 (Path 1)	D	AG0	22.0	19.5	16.5
NR Band n1 PC2 (Path 2)	B	AG0	26.0	20.0	21.0
NR Band n1 PC2 (Path 2)	F	AG1	21.5	19.5	16.5
NR Band n1 PC2 (Path 2)	D	AG0	25.0	20.0	21.0
NR Band n1 PC2 (Path 2)	E	AG1	20.0	17.5	17.5
NR Band n38 (Path 1)	F	AG1	24.0	19.5	16.5
NR Band n38 (Path 2)	B	AG0	24.0	20.0	21.0
NR Band n48	F	AG1	22.0	19.5	16.0
NR Band n48	C	AG0	16.5	14.5	11.0
NR Band n48	I	AG1	21.0	19.0	15.5
NR Band n48	D	AG0	16.5	14.5	11.0
NR Band n78 PC2	F	AG1	26.0	18.0	16.0
NR Band n78 PC2	C	AG0	21.0	13.5	11.0
NR Band n78 PC2	I	AG1	25.5	18.0	15.5
NR Band n78 PC2	D	AG0	20.0	13.0	10.5
NR Band n77 PC2	F	AG1	26.0	18.0	16.0
NR Band n77 PC2	C	AG0	21.0	13.5	11.0
NR Band n77 PC2	I	AG1	25.5	18.0	15.5
NR Band n77 PC2	D	AG0	20.0	13.0	10.5
2.4 GHz WiFi	H	AG1	19.0	19.5	16.0
2.4 GHz WiFi	J	AG1	19.0	25.4	16.0
2.4 GHz WiFi	MIMO	AG1	19.0	19.4	16.0
5 GHz WiFi	H	AG1	17.0	15.0	16.0
5 GHz WiFi	E	AG1	17.0	15.0	16.0
5 GHz WiFi	MIMO	AG1	17.0	15.0	16.0
6 GHz WiFi	H	AG1	16.0	8.0	18.4
6 GHz WiFi	E	AG1	16.0	8.0	18.3
6 GHz WiFi	MIMO	AG1	16.0	8.0	17.0
2.4 GHz Bluetooth	H	AG1	18.9	21.3	18.9
2.4 GHz Bluetooth	J	AG1	18.4	25.9	20.4
2.4 GHz Bluetooth	MIMO	AG1	16.9	18.7	17.8

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* Maximum tune up target power, P_{max} , is configured in NV settings in DUT to limit maximum transmitting power. This power is converted into peak power in NV settings for TDD schemes. The DUT maximum allowed output power is equal to $P_{max} + 1$ dB device uncertainty.

Based on selection criteria described in Section 4.2.1, the selected technologies/bands for testing timevarying test sequences are highlighted in yellow in Table 8-1. Per the manufacturer, the Total_min_res_ratio is set to 0.5 in EFS and is used in Part 2 test.

The radio configurations used in Part 2 test for selected technologies, bands, DSIs and antennas are listed in Table 8-2. The corresponding worst-case radio configuration 1gSAR values for selected technology/band/DSI are extracted from Part 1 report and are listed in the last column of Table 8-2.

Based on equations (1a), (2a), (3a) and (4a), it is clear that Part 2 testing outcome is normalized quantity, which implies that it can be applied to any radio configuration within a selected technology/band/DSI. Thus, as long as applying the worst-case SAR obtained from the worst radio configuration in Part 1 testing to calculate time-varying SAR exposure in equations (1a), (2a), (3a) and (4a), the accuracy in compliance demonstration remains the same. Therefore, there may be some differences between the radio configuration selected for Part 2 testing and the radio configuration associated with worst-case SAR obtained in the Part 1 evaluation.

The measured P_{limit} for all the selected radio configurations are listed in below Table 8-2. P_{max} was also measured for radio configurations selected for testing time-varying Tx power transmission scenarios in order to generate test sequences following the test procedures in Section 4.1.

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Table 8-2
Radio configurations selected for Part 2 test

Test Case #	Test Scenario	Tech	Band	Antenna	DSI	Channel	Frequency [MHz]	Test Configurations	SAR Exposure Scenario	Part 1 Worst Case Measured SAR at P _{limit} (W/kg)	EFS P _{limit} [dBm]	Tune-up P _{max} [dBm]	Measured P _{limit} [dBm]	Measured P _{max} [dBm]
1	Time Varying Tx Power	GSM	850	E	1	251	848.8	GPRS 4 Tx Slots	Left Tilt	0.616	20.3	24.3	20.28	24.07
2			1900	A	0	661	1880	GPRS 4 Tx Slots	Bottom Edge, 10mm	0.469	18.8	21.3	18.77	21.28
3		WCDMA	5	E	1	4183	836.5	RMC	Left Cheek	0.895	20.5	24.0	21.06	24.29
4			2	A	0	9400	1880	RMC	Bottom Edge, 10mm	0.943	18.0	23.0	18.51	23.06
5		LTE	12	E	1	23095	707.5	QPSK 1/25/10 MHz BW	Left Cheek	0.803	21.5	24.0	21.84	24.51
6			41 PC3	F	1	40620	2593	QPSK 1/50/20 MHz BW	Right Tilt	0.485	16.0	22.0	16.30	22.38
7		NR	n71/SA	E	1	136100	680.5	DFT-S-OFDM, QPSK 1/1/35 MHz BW	Left Cheek	0.745	21.5	24.0	21.32	23.98
8			n77/SA	F	1	507000	2535	DFT-S-OFDM, QPSK 1/1/50 MHz BW	Right Tilt	0.966	16.0	23.5	16.02	23.81
9		WLAN	2.4 GHz	J	1	1	2412	802.11b 20MHz BW DSSS	Left Cheek	0.403	16.0	19.0	16.64	18.95
10			5 GHz	E	1	36	5180	802.11ac 80MHz BW DSSS	Right Tilt	0.449	15.0	17.0	15.19	17.22
11	Change in Call	LTE	41 PC3	F	1	40620	2593	QPSK 1/50/20 MHz BW	Right Tilt	0.485	16.0	22.0	16.30	22.38
12	Change in Technology/Band/Antenna	LTE	7	B	0	21100	2535	QPSK 1/50/20 MHz BW	Back Side, 10mm	0.359	20.0	23.5	20.63	23.65
		WCDMA	2	A	0	9400	1880	RMC	Bottom Edge, 10mm	0.943	18.0	23.0	18.51	23.06
13	Change in Time Window	LTE	25	F	1	26365	1882.5	QPSK 1/50/20 MHz BW	Right Tilt	0.745	18.5	23.5	18.49	23.70
			48	F	1	56207	3646.7	QPSK 1/50/20 MHz BW	Right Tilt	0.940	16.0	20.0	16.32	19.85
14	WWAN SAR Exposure Switching (EN-DC)	LTE	5	E	1	20525	836.5	QPSK 1/25/10 MHz BW	Left Cheek	0.893	21.0	24.0	21.20	24.51
		Sub6 NR	n66	F	1	349000	1745	DFT-S-OFDM, QPSK 1/1/45 MHz BW	Right Tilt	0.782	18.5	23.5	18.76	24.04
15	WLAN SAR Exposure Switching (DBS)	WLAN	5 GHz	E	1	36	5180	802.11ac 80MHz BW DSSS	Right Tilt	0.449	15.0	17.0	15.19	17.22
			2.4 GHz	J	1	6	2437	802.11n 20MHz BW DSSS	Left Cheek	0.403	16.0	17.0	16.64	17.62
16	System Level Compliance Continuity	WWAN (LTE)	25	F	1	26365	1882.5	QPSK 1/50/20 MHz BW	Right Tilt	0.745	18.5	23.5	18.52	23.77
		Bluetooth	2.4	H	1	0	2402	DSSS	Right Cheek	0.757	18.9	18.9	19.13	19.13
		WLAN	5 GHz	E	1	36	5180	802.11ac 80MHz BW DSSS	Right Tilt	0.449	15.0	17.0	15.19	17.22
17	Exposure Category Switch (Head-Body-Head)	LTE	41 PC3	F	1	40620	2593	QPSK 1/50/20 MHz BW	Right Tilt	0.485	16.0	22.0	16.30	22.38
					0	40620	2593	QPSK 1/50/20 MHz BW	Top Edge, 10mm	0.203	19.5	22.0	19.73	22.38
18	Exposure Category Switch (Body-Head-Body)	NR	n77 PC2/SA	F	0	650000	3750	DFT-S-OFDM, QPSK 1/136/100 MHz BW	Back Side, 10mm	0.591	18.0	26.0	18.46	25.17
					1	650000	3750	DFT-S-OFDM, QPSK 1/136/100 MHz BW	Right Tilt	1.020	16.0	26.0	16.59	25.17

Note: The device uncertainty of P_{max} is +/- 1 dB as provided by manufacturer.

Note: Multi-Tx factor is set to 1.0 per the manufacturer.

Note: The above P_{max} value for GPRS850 and GPRS1900 are for 4 Tx Slots.

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Table 8-3
DSI and Corresponding Exposure Scenarios

Scenario	Description	SAR Test Cases
Head (DSI = 1)	- Device positioned next to head - Receiver Active	<i>Head SAR per KDB Publication 648474 D04</i>
Hotspot mode (DSI = 0)	- Device transmits in hotspot mode near body - Hotspot Mode Active	<i>Hotspot SAR per KDB Publication 941225 D06</i>
Phablet (DSI = 0)	Device is held with hand	<i>Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04</i>
Body-worn (DSI = 0)	Device being used with a body-worn accessory	<i>Body-worn SAR per KDB Publication 648474 D04</i>

Based on the selection criteria described in Section 4.2, the radio configurations for the Tx varying transmission test cases listed in Section 3 are:

1. Technologies and bands for time-varying Tx power transmission: Based on selection criteria in Section 4.2.1, The test case 1~10 listed in Table 8-2 are selected to test with the test sequences in both time-varying conducted power measurement and time-varying SAR measurement.
2. Technology and band for change in call test: Based on selection criteria in Section 4.2.2, LTE Band 41, having the lowest P_{limit} among all technologies and bands (test case 11 in Table 8-2), is selected for performing the call drop test in conducted power setup.
3. Technologies and bands for change in technology/band/antenna test: Based on selection criteria in Section 4.2.3, test case 12 in Table 8-2 is selected for handover test from a technology/band within one technology group (LTE Band 7, DSI=0, antenna B), to a technology/band in the same DSI within another technology group (WCDMA Band 2, DSI=0, antenna A) in conducted power setup.
4. Technologies and bands for change in time-window: Based on selection criteria in Section 4.2.6, for a given DSI=1, test case 13 in Table 8-2 is selected for time window switch between 60s window (LTE Band 48, Antenna F) and 100s window (LTE Band 25, Antenna F) in conducted power setup.
5. Technologies and bands for switch in SAR exposure: Based on selection criteria in Section 4.2.7 Scenario 1, test case 14 in Table 8-2 is selected for SAR exposure switching test in one of the supported simultaneous WWAN transmission scenario, i.e., LTE + Sub6 NR active in the same 100s time window, in conducted power setup. Test case 15 in Table 8-2 is selected for SAR exposure switching test in one of the supported simultaneous DBS WLAN transmission scenario, i.e., WLAN + WLAN active in the same 30s time window, in conducted power setup. Since this device supports LTE+mmW NR, test for Section 4.2.7 Scenario 2 for RF exposure switch is covered in Sections 13.1 and 13.2 between LTE (100s window) and mmW NR (4s window).
6. Technologies and bands for switch in exposure category: Based on selection criteria in Section 4.2.8, test case 17 in Table 8-2 is selected for switch in exposure category test by establishing a call in LTE Band 41 PC3, antenna F in DSI=1 (head exposure) and then handing over to DSI=0 (non-head exposure) scenario in conducted power setup. Test case 18 in Table 8-2 is selected for switch in exposure category test by establishing a call in NR Band n77 PC2/SA, antenna F in DSI=0 (non-head exposure) and then handing over to DSI=1 (head exposure) scenario in conducted power setup.

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7. Technologies and bands for system level compliance continuity: Based on selection criteria in Section 4.2.9, test case 16 in Table 8-2 is selected for system level compliance continuity test by establishing a call in LTE Band 25 (antenna F, DSI = 1) and then handing over to WLAN 5GHz (antenna E, DSI = 1), and Bluetooth 2.4 (antenna H, DSI = 1) in conducted power setup.

Note: All switching and EN-DC test cases (#12 - #17) were done with modes/bands within the same antenna group.

Note: System level compliance continuity was performed with USB disconnected from DUT per Qualcomm 80-W2112-51 RevAE guidance.

8.2 EFS v23 Verification

Per Qualcomm's 80-w2112-5 document, embedded file system (EFS) version 23 products are required to be verified for Smart Tx generation for relevant MCC settings. It was confirmed that this DUT contains embedded file system (EFS) version 23 configured for Smart Tx second generation (GEN2) for Sub6 with MCC settings for the US market.

EFS v23 Generation	MCC
GEN2_Sub6	310

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9 CONDUCTED TX CASES (FREQ < 6 GHZ)

9.1 Time-varying Tx Power

The measurement setup is shown in Figure 6-1a. The purpose of the time-varying Tx power measurement is to demonstrate the effectiveness of power limiting enforcement and that the time-averaged Tx power when represented in time-averaged 1gSAR or 10gSAR values does not exceed FCC limit as shown in Eq. (1a) and (1b), rewritten below:

$$1g_or_10gSAR(t) = \frac{conducted_Tx_power(t)}{conducted_Tx_power_P_{limit}} * 1g_or_10gSAR_P_{limit} \quad (1a)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} \leq 1 \quad (1b)$$

where, $conducted_Tx_power(t)$, $conducted_Tx_power_P_{limit}$, and $1g_or_10gSAR_P_{limit}$ correspond to the measured instantaneous conducted Tx power, measured conducted Tx power at P_{limit} , and measured 1gSAR and 10gSAR values at P_{limit} reported in Part 1 test (listed in Table 8-2 of this report as well).

Following the test procedure in Section 4.3.1, the conducted Tx power measurement for all selected configurations are reported in this section. In all the conducted Tx power plots, the green curve represents time-averaged power and red line represents the conducted power limit that corresponds to FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

Similarly, in all the 1g or 10gSAR plots (when converted using Eq. (1a)), the green curve represents the 100s/60s-time averaged 1gSAR or 10gSAR value calculated based on instantaneous 1gSAR or 10gSAR; and the red line limit represents the FCC limit of 1.6 W/kg for 1gSAR or 4.0 W/kg for 10gSAR.

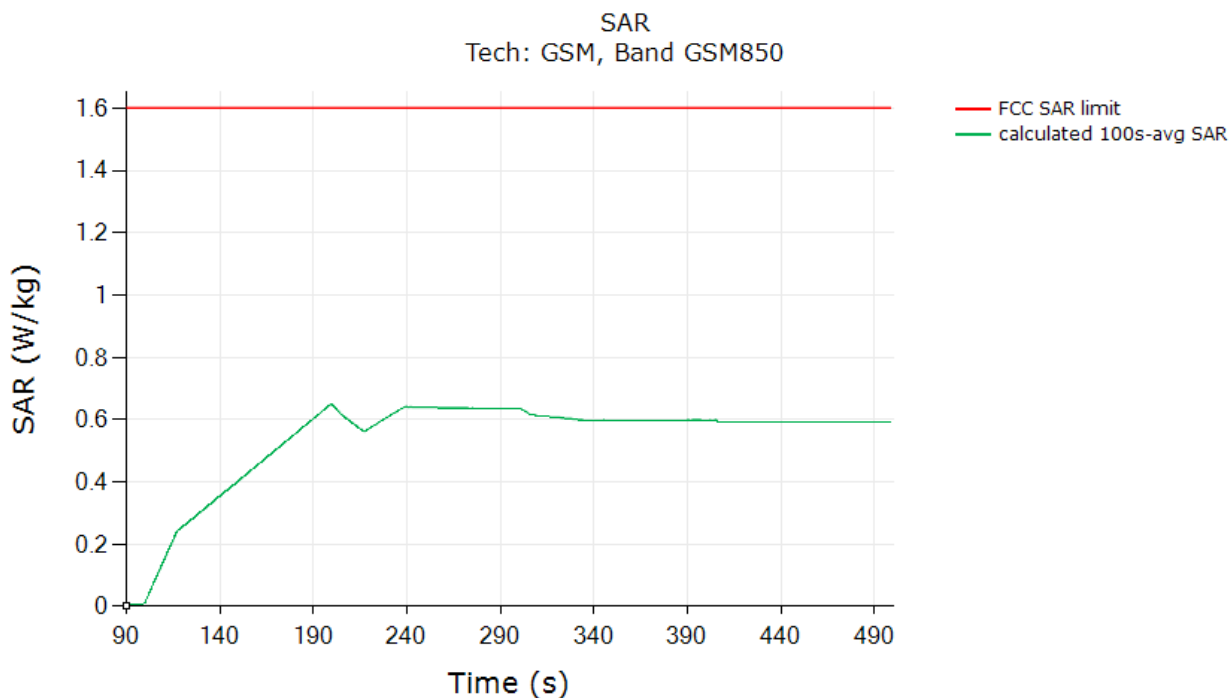
Time-varying Tx power measurements were conducted on test cases #1 ~ #10 in Table 8-2, by generating test sequence 1 and test sequence 2 given in APPENDIX E: using measured P_{limit} and measured P_{max} (last two columns of Table 8-2) for each of these test cases. Measurement results for test cases #1 ~ #10 are given in Sections 9.1.1-9.1.10.

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9.1.1 GSM/GPRS/EDGE 850, Antenna E

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

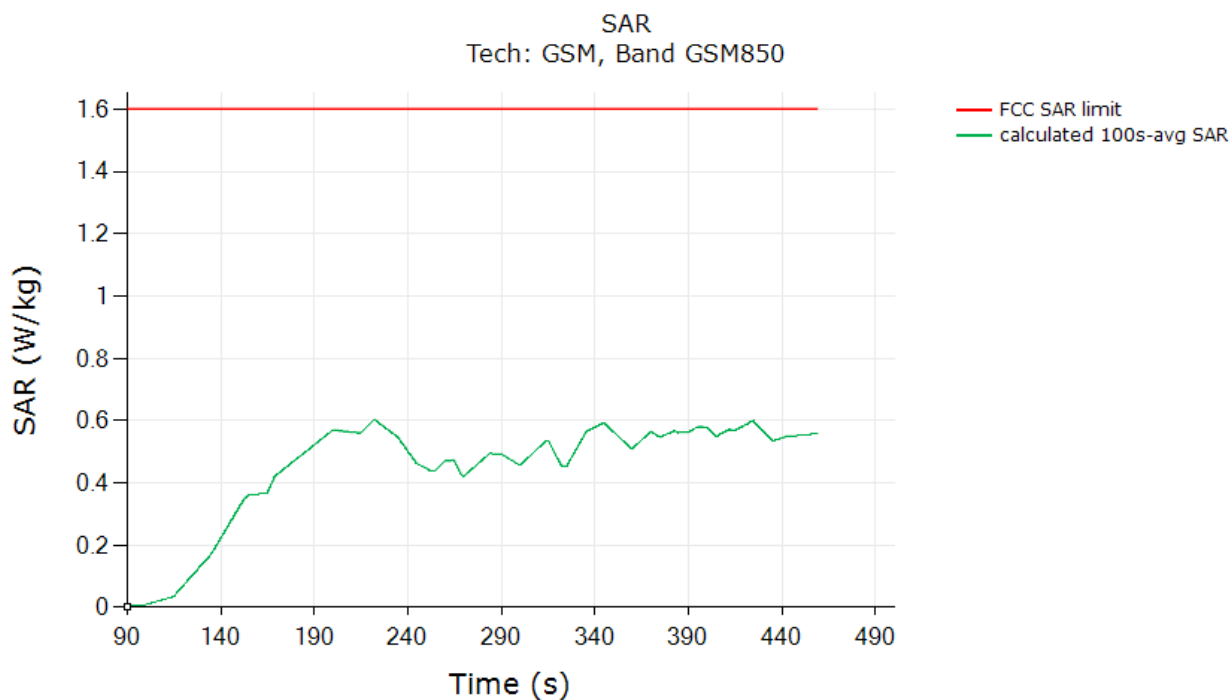


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.651
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at P_{lim} column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



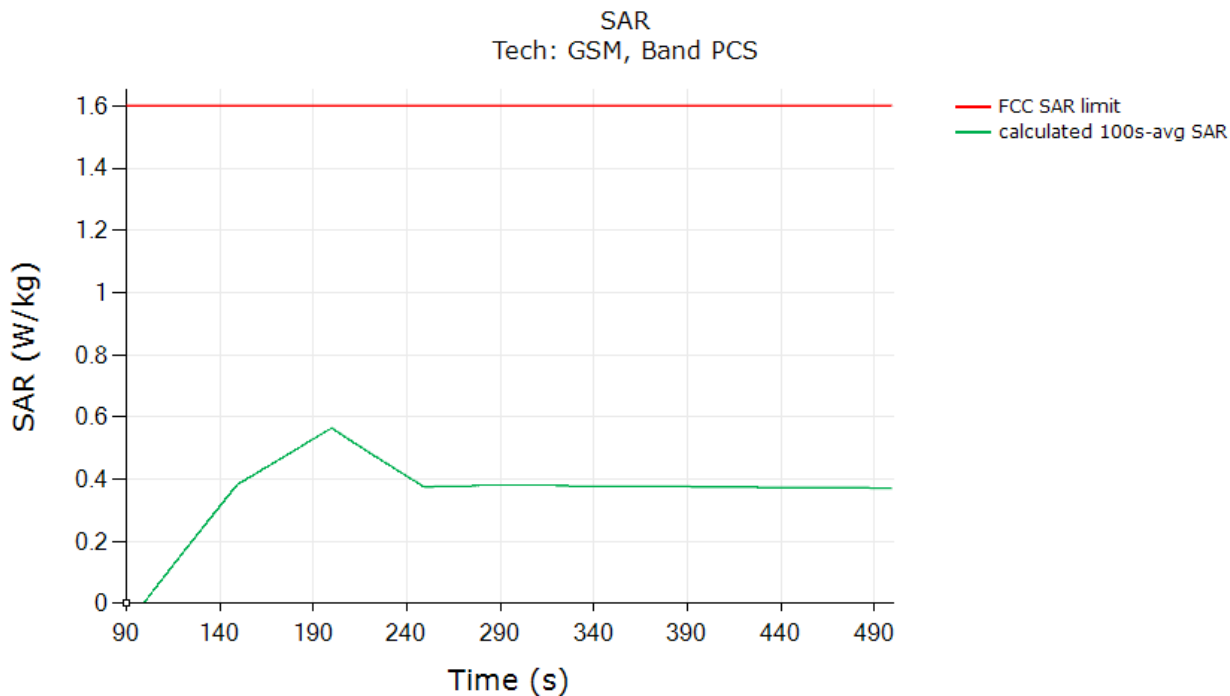
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.603
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.2 GSM/GPRS/EDGE 1900, Antenna A

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

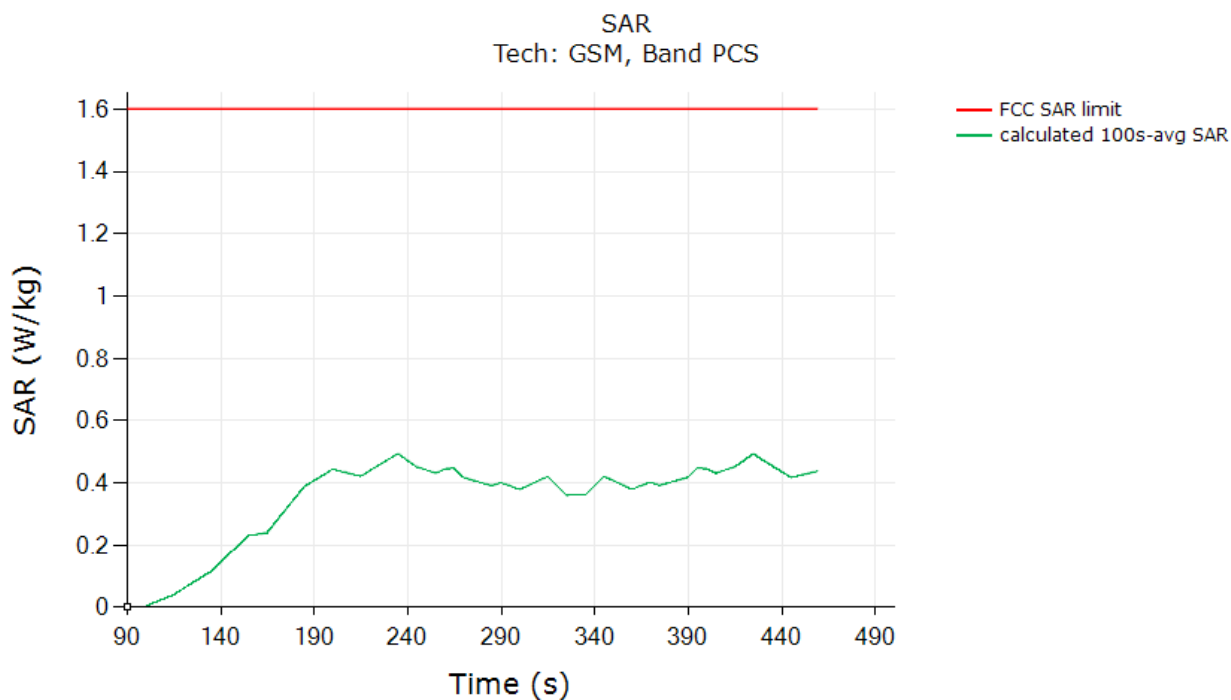


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.564
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



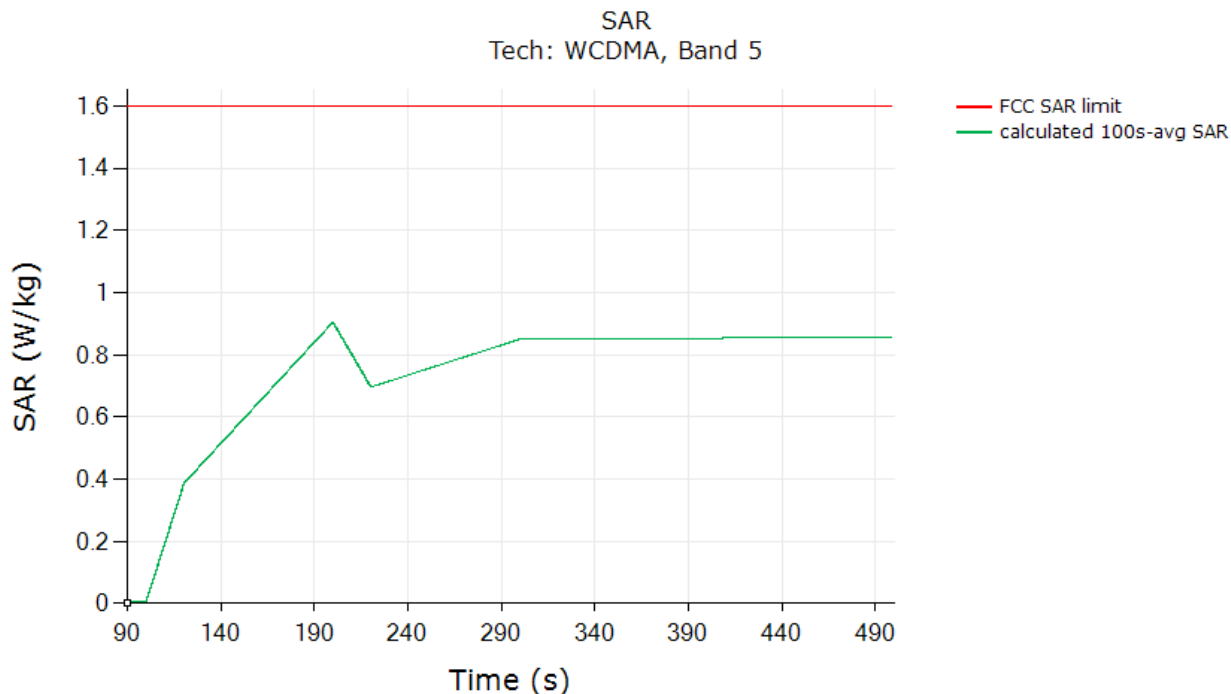
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.493
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.3 WCDMA Band 5, Antenna E

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

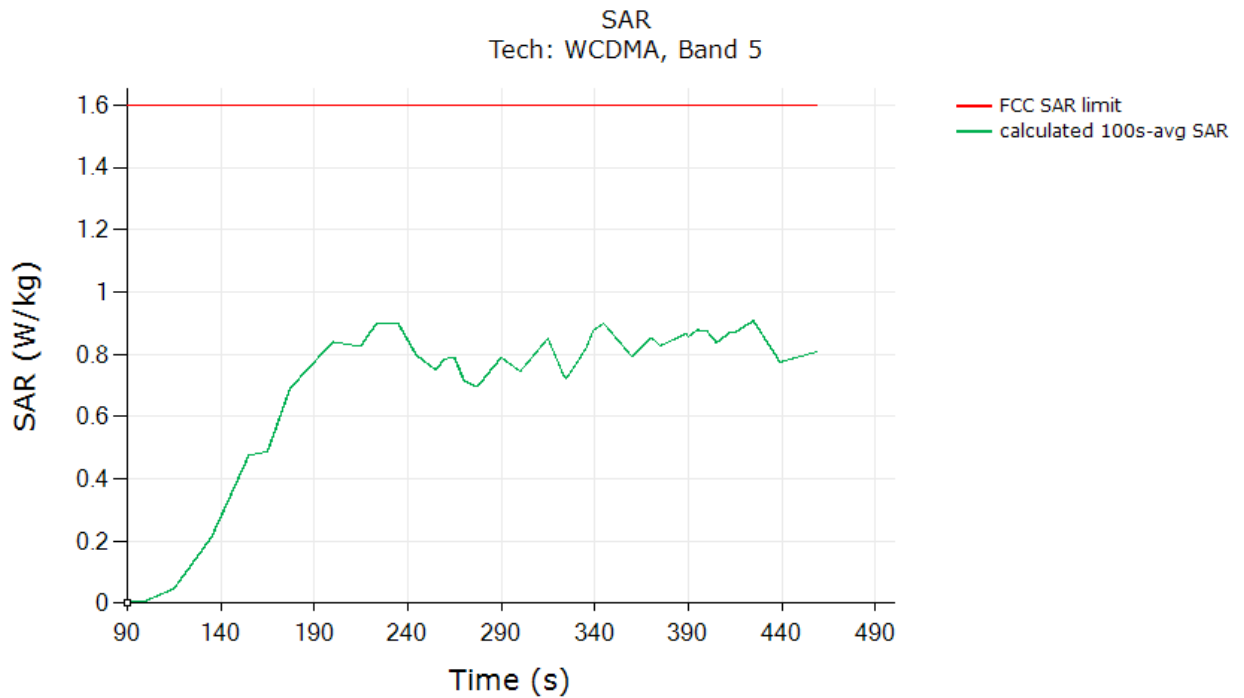


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.904
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



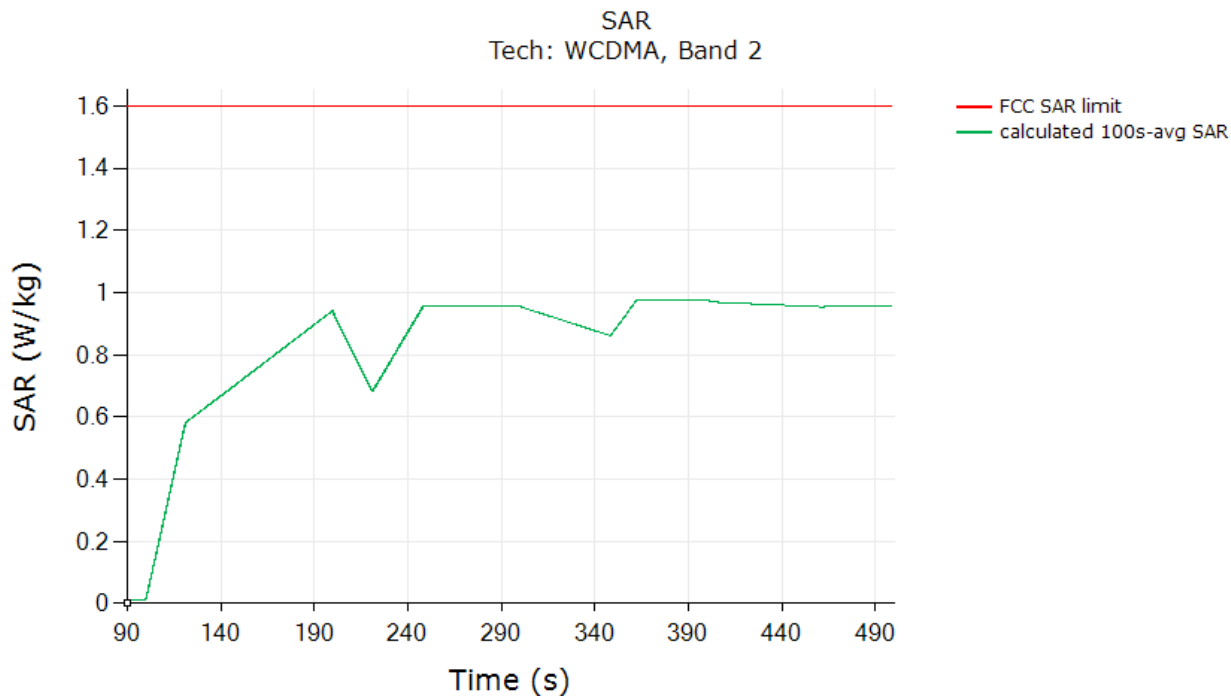
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.907
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.4 WCDMA Band 2, Antenna A

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

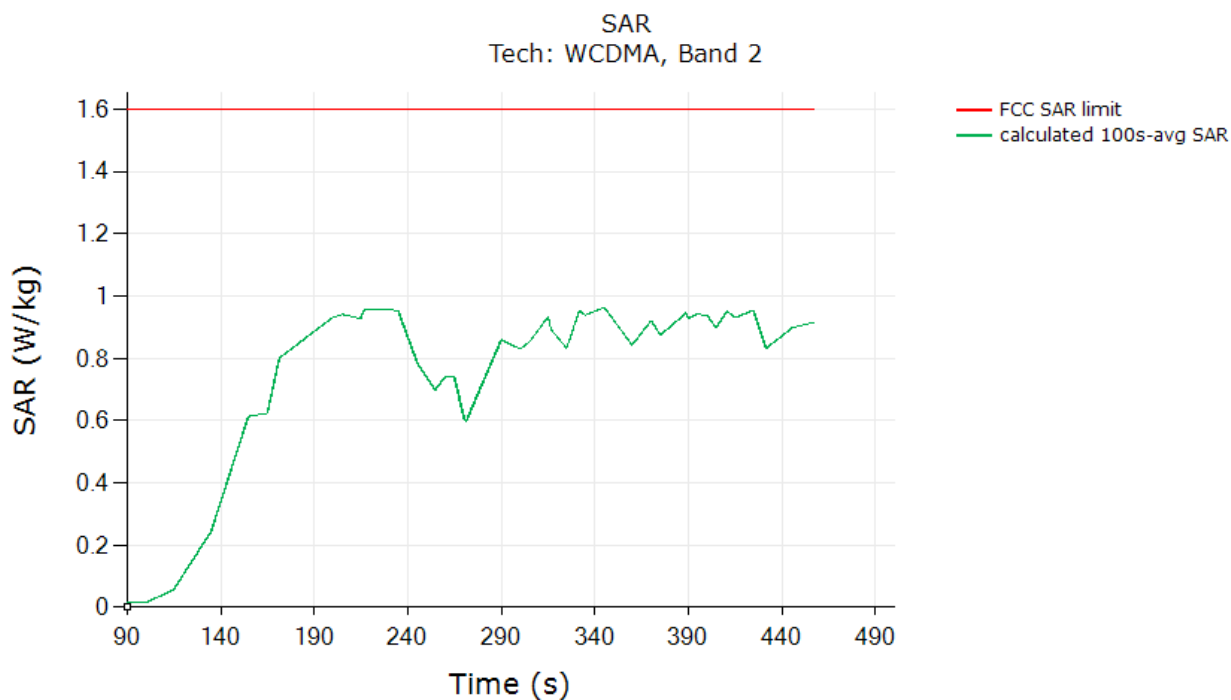


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.975
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



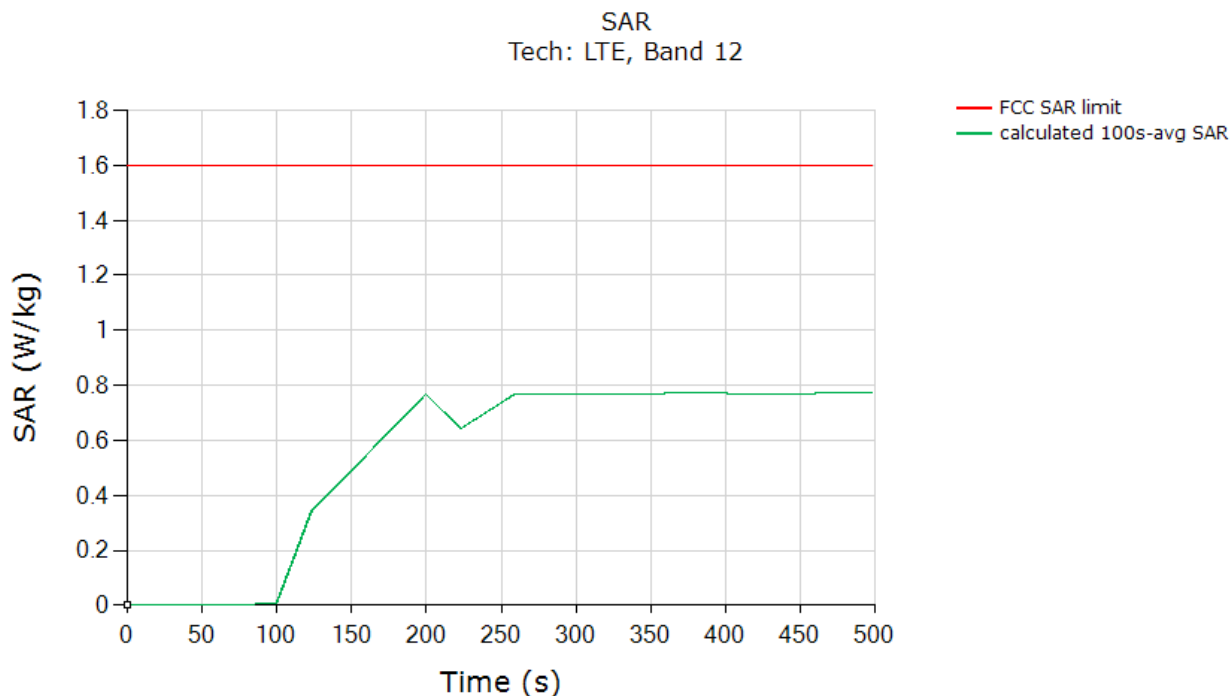
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.962
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.5 LTE Band 12, Antenna E

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

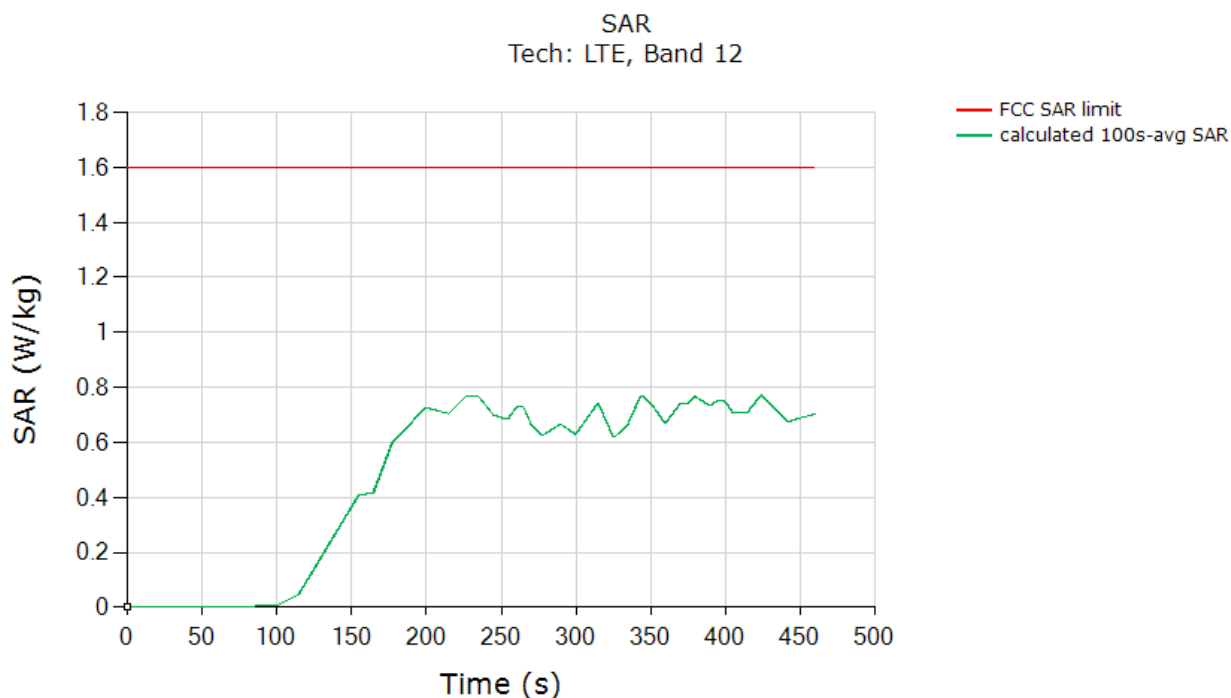


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.772
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at P_{lim} column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



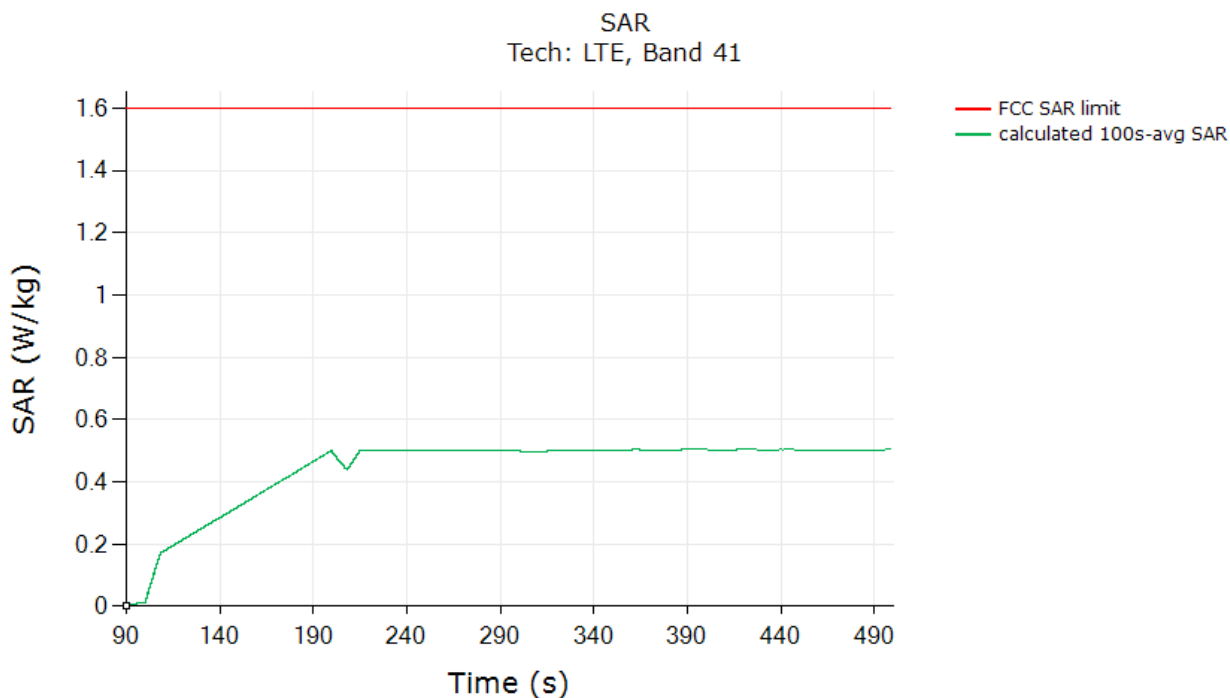
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.771
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.6 LTE Band 41 PC3, Antenna F

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

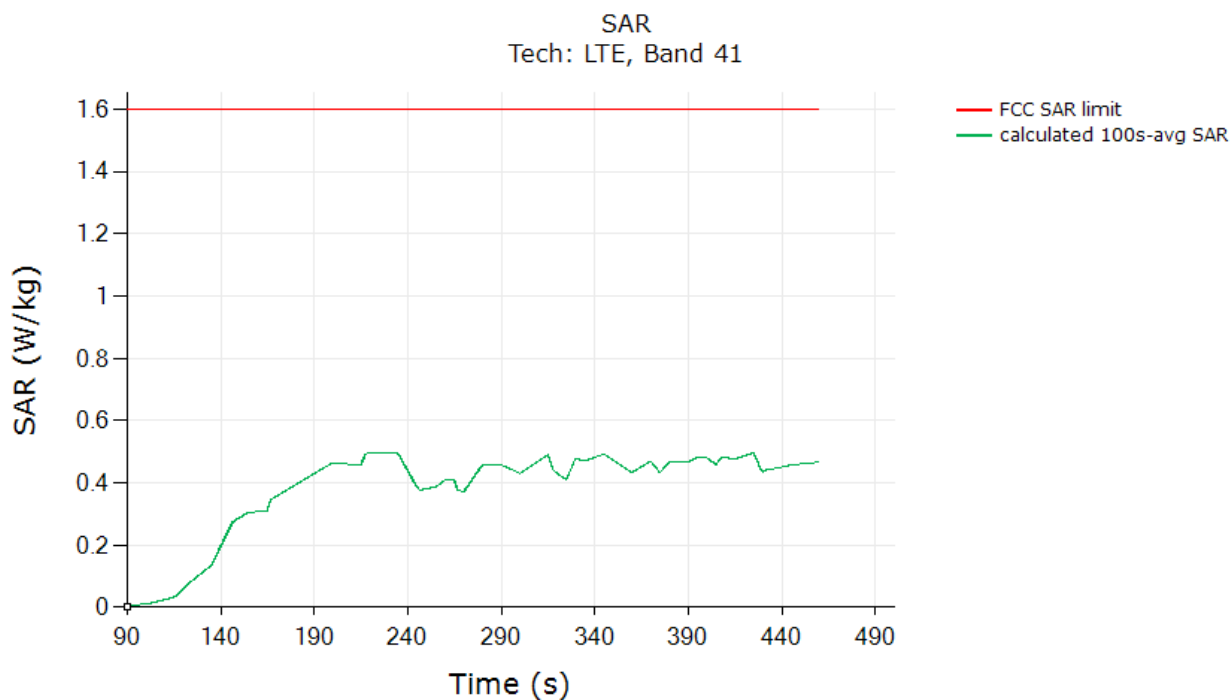


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.503
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



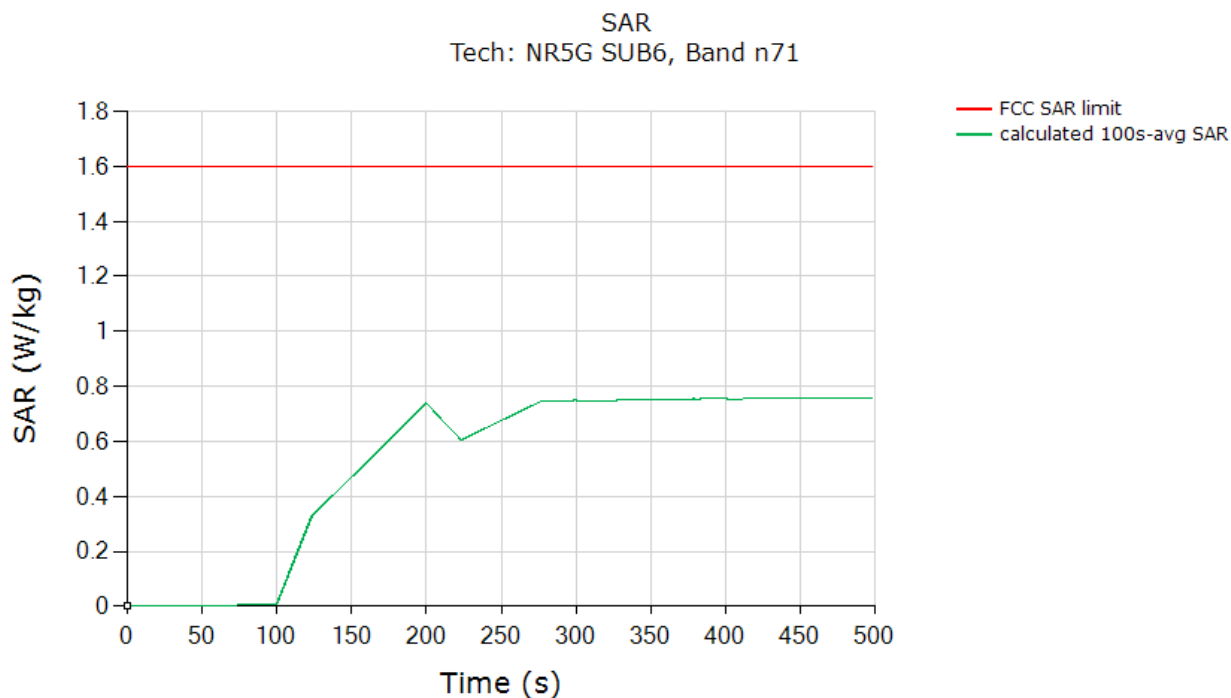
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.496
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.7 NR n71 SA, Antenna E

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

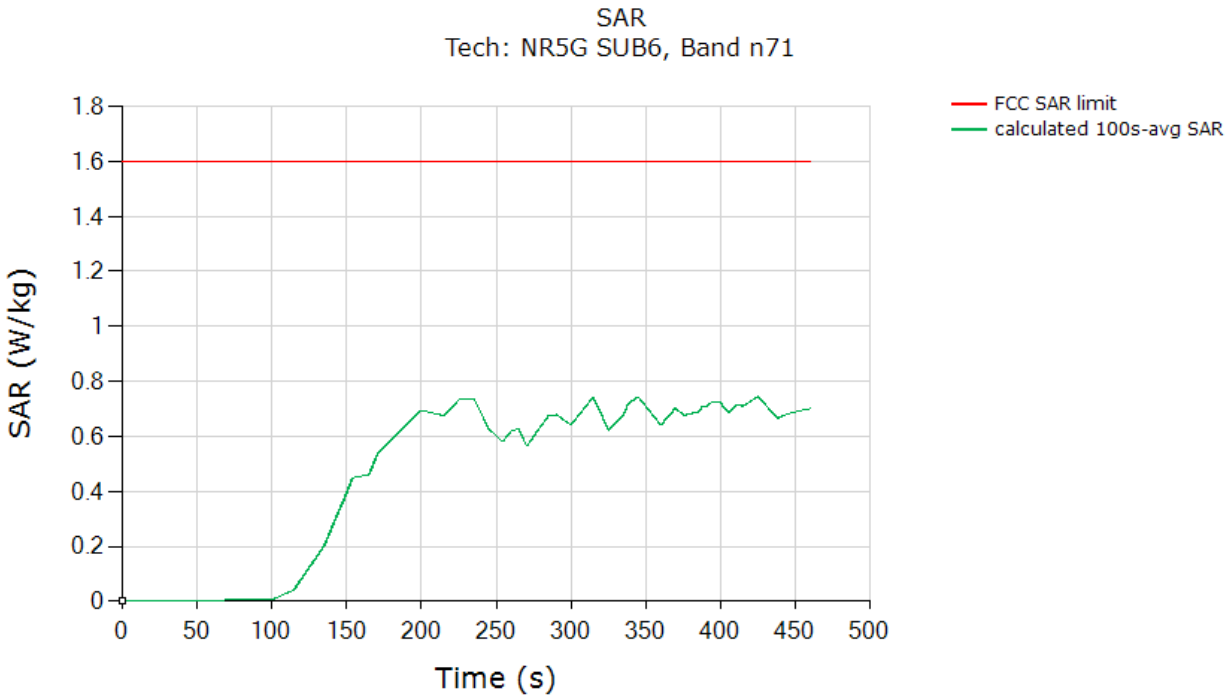


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.756
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



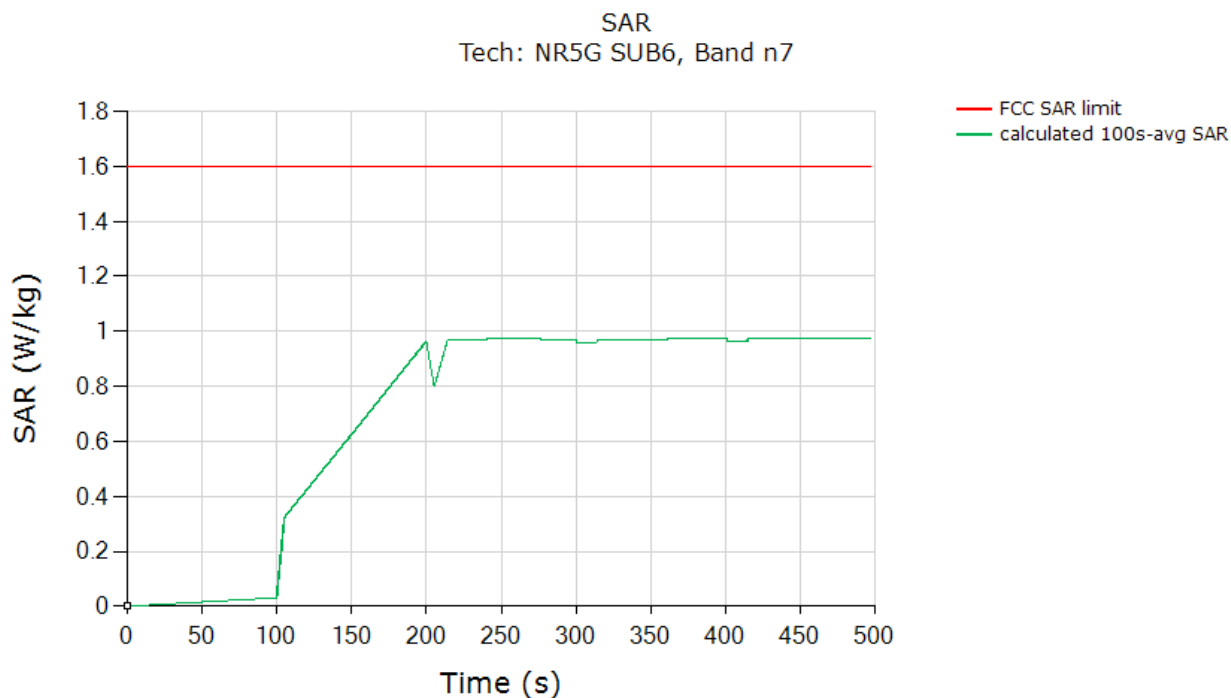
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.745
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.8 NR n7 SA, Antenna F

Test result for test sequence 1:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:

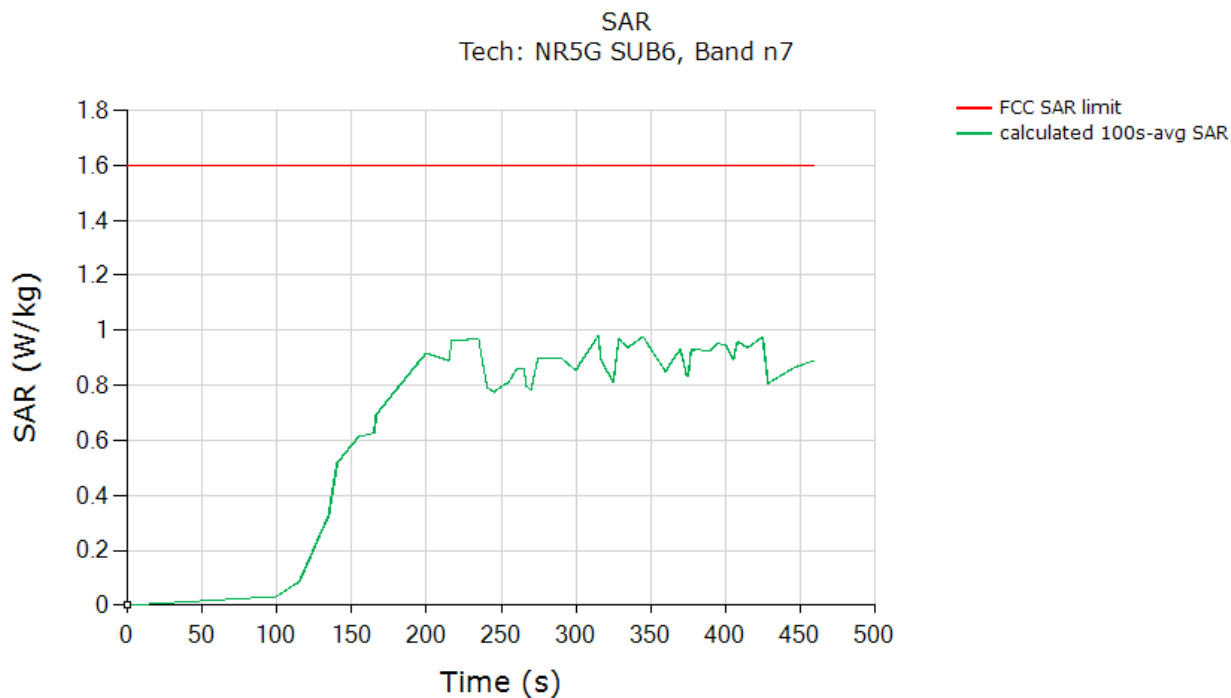


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.974
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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Test result for test sequence 2:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



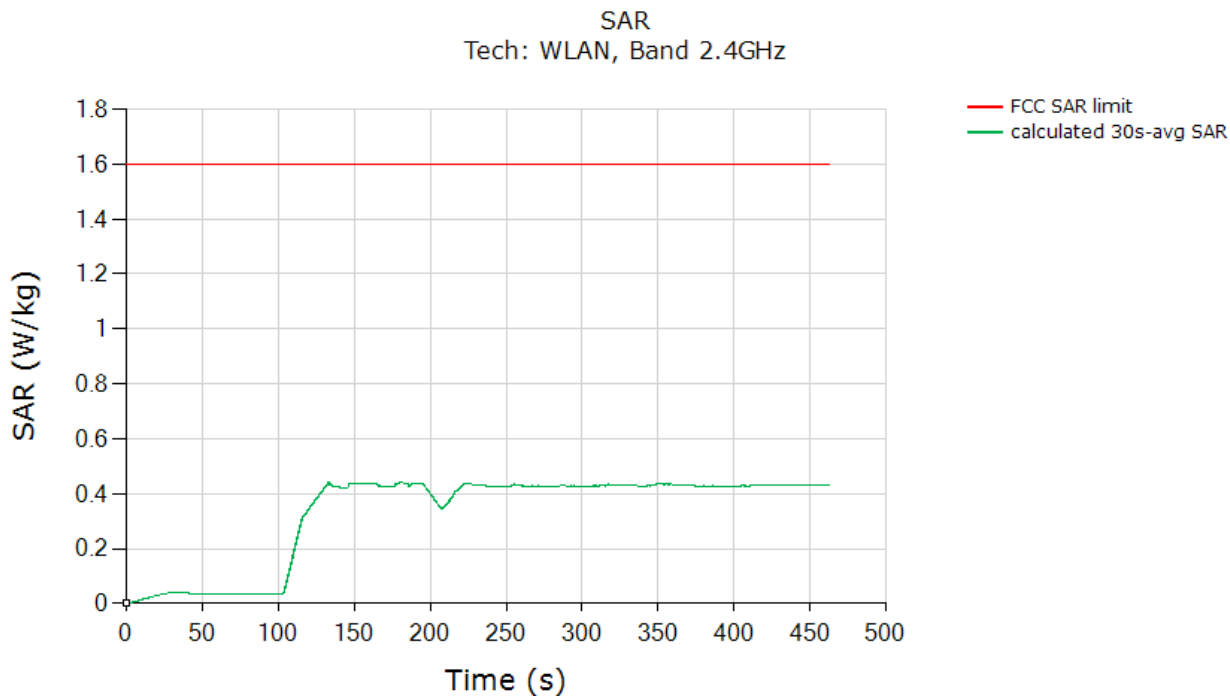
	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.979
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.9 WLAN 2.4GHz, Antenna J

Test result for test sequence:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



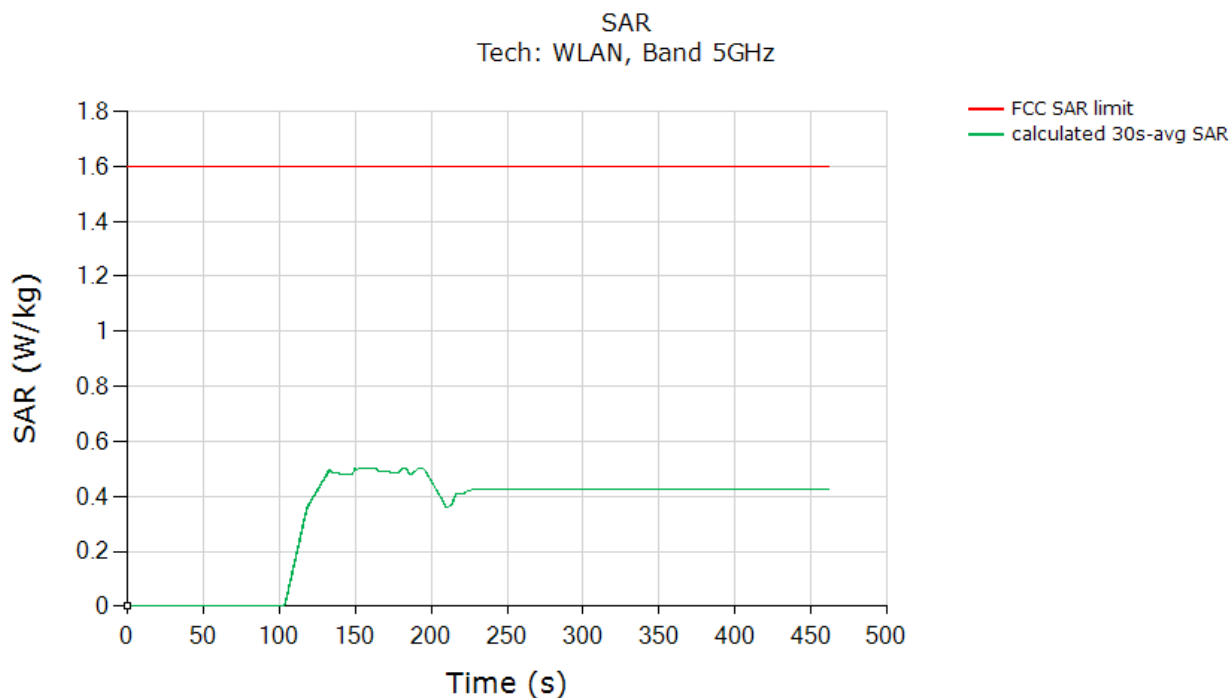
	(W/kg)
FCC 1gSAR limit	1.6
Max 30s-time averaged 1gSAR (green curve)	0.442
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.1.10 WLAN 5GHz, Antenna E

Test result for test sequence:

Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



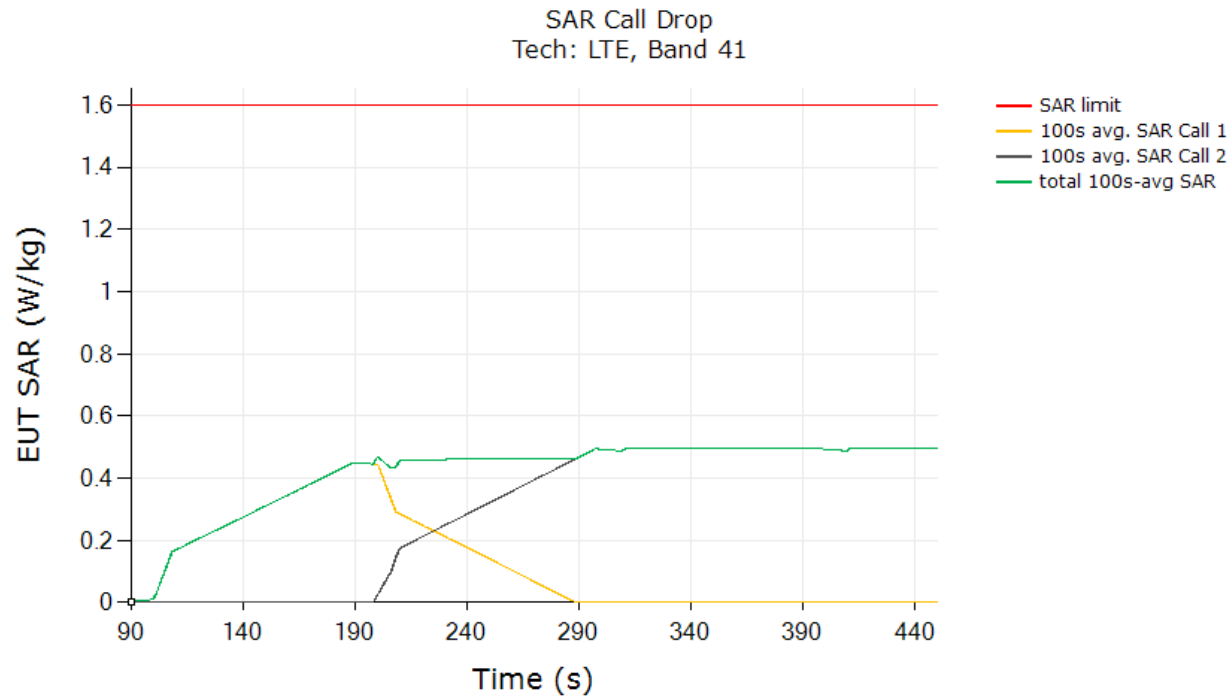
	(W/kg)
FCC 1gSAR limit	1.6
Max 30s-time averaged 1gSAR (green curve)	0.502
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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9.2 Change in Call

This test was measured LTE Band 41 PC3, Antenna F, DSI = 1, and with callbox requesting maximum power. The call drop was manually performed when the DUT is transmitting at $P_{reserve}$ level as shown in the plot below. The measurement setup is shown in Figure 6-1a. The detailed test procedure is described in Section 4.3.2.

Call drop test result:
Time-averaged conducted Tx power is converted/calculated into time-averaged 1gSAR using Equation (1a) and plotted below to demonstrate that the time-averaged 1gSAR versus time does not exceed the FCC limit of 1.6 W/kg for 1gSAR:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged 1gSAR (green curve)	0.497
Validated	

The test result validated the continuity of power limiting in call change scenario.

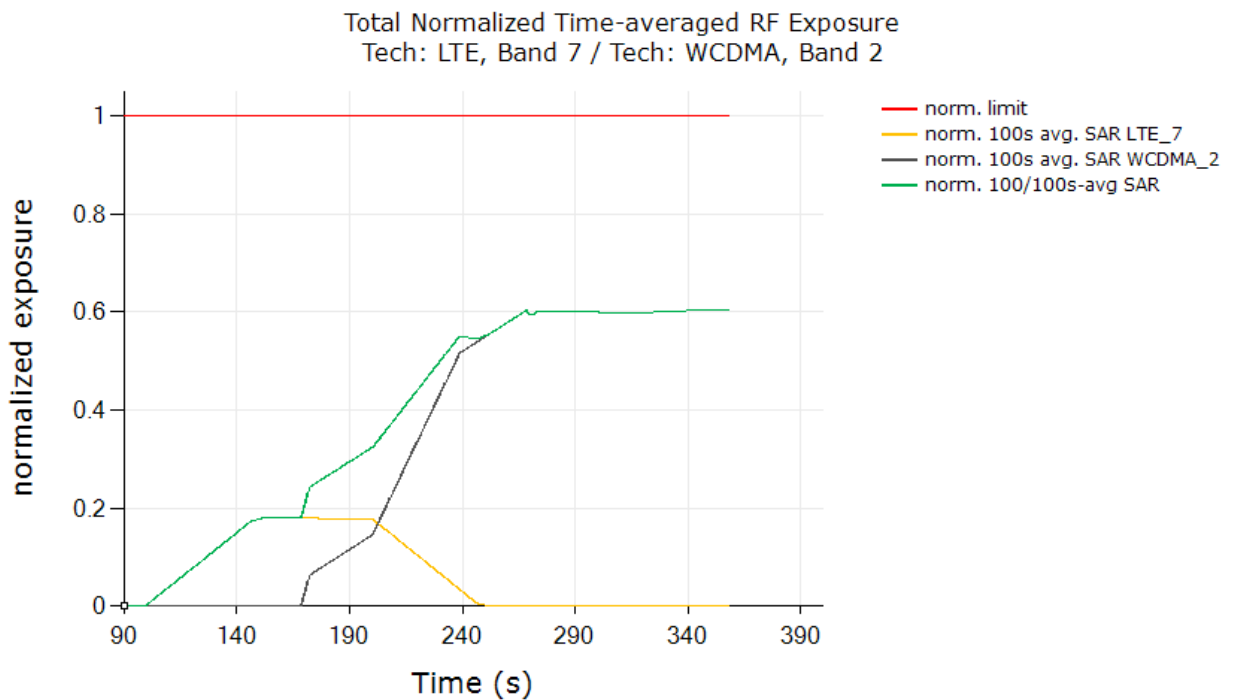
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9.3 Change in Technology/Band/Antenna

This test was conducted with callbox requesting maximum power, and with a technology switch from LTE Band 7, Antenna B, DSI = 0 to WCDMA Band 2, Antenna A, DSI = 0. Following procedure detailed in Section 4.3.3, and using the measurement setup shown in Figure 6-1b, the technology/band switch was performed when the DUT is transmitting at $P_{reserve}$ level as shown in the plot below.

Test result for change in technology/band/Antenna:

Time-averaged conducted Tx power measurement results were converted into time-averaged normalized SAR values using Equation (6a), (6b) and (6c), and plotted below to demonstrate that the time-averaged normalized SAR versus time does not exceed the normalized FCC limit of 1.0:



	(W/kg)
FCC normalized SAR limit	1.0
Max 100s-time averaged normalized SAR (green curve)	0.604
Validated	

The test result validated the continuity of power limiting in technology/band/Antenna switch scenario.

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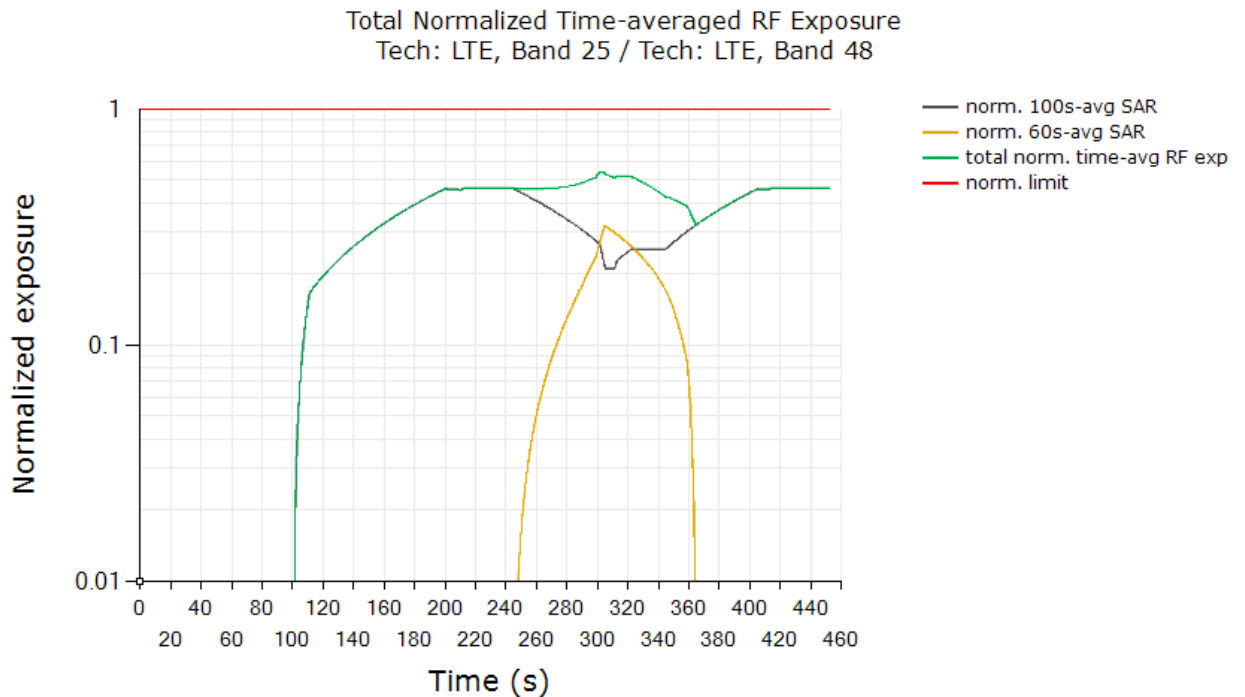
9.4 Change in Time Window

This test was conducted with callbox requesting maximum power, and with time-window between LTE Band 25, Antenna F, DSI = 1 (100s window) and LTE Band 48, Antenna F, DSI = 1 (60s window). Following procedure detailed in Section 4.3.6, and using the measurement setup shown in Figure 6-1a, the time-window switch via tech/band/antenna switch was performed when the EUT is transmitting at $P_{reserve}$ level.

9.4.1 Test case 1: transition from LTE Band 25 to LTE Band 48 (i.e., 100s to 60s), then back to LTE Band 25

Test result for change in time-window (from 100s to 60s to 100s):

All the conducted Tx power measurement results were converted into time-averaged normalized SAR values using Equation (7a), (7b) and (7c), and plotted below to demonstrate that the time-averaged normalized SAR versus time does not exceed the FCC limit of 1 unit. Equation (7a) is used to convert the Tx power of device to obtain 100s-averaged normalized SAR in LTE Band 25 as shown in black curve. Similarly, equation (7b) is used to obtain 60s-averaged normalized SAR in LTE Band 48 as shown in orange curve. Equation (7c) is used to obtain total time-averaged normalized SAR as shown in green curve (i.e., sum of black and orange curves).



	(W/kg)
FCC normalized total exposure limit	1.0
Max time averaged normalized SAR (green curve)	0.540
Validated	

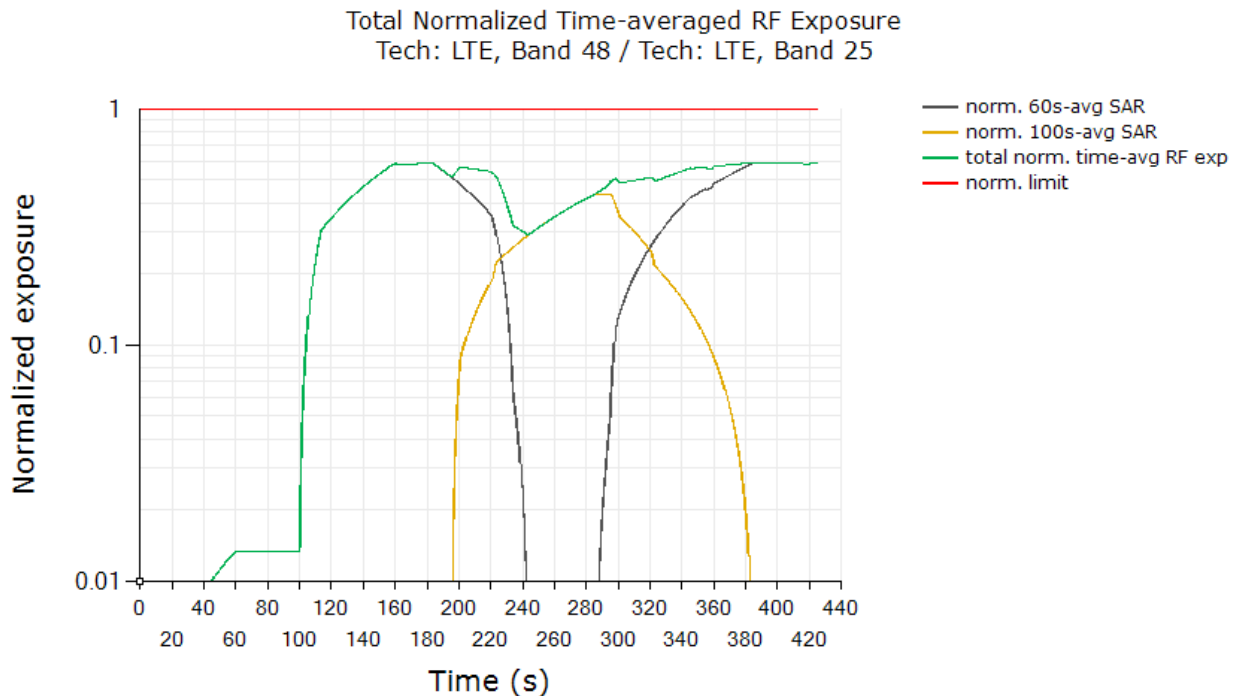
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Plot Notes: Maximum power is requested by callbox for the entire duration of the test, with tech/band switches from 100s-to-60s window at ~245s time stamp, and from 60s-to-100s window at ~305s time stamp. Smart Transmit controls the Tx power during these time-window switches to ensure total time-averaged RF exposure, i.e., sum of black and orange curves given by equation (7c), is always compliant. In time-window switch test, at all times the total time-averaged normalized RF exposure (green curve) should not exceed normalized *SAR_design_target* + 1dB device uncertainty. In this test, with a maximum normalized SAR of 0.540 being ≤ 0.79 ($= 1.0/1.6 + 1\text{dB device uncertainty}$), the above test result validated the continuity of power limiting in time-window switch scenario.

9.4.2 Test case 2: transition from LTE Band 48 to LTE Band 25 (i.e., 60s to 100s), then back to LTE Band 48

Test result for change in time-window (from 60s to 100s to 60s):

All the conducted Tx power measurement results were converted into time-averaged normalized SAR values using Equation (7a), (7b) and (7c), and plotted below to demonstrate that the time-averaged normalized SAR versus time does not exceed the FCC limit of 1 unit. Equation (7a) is used to convert the Tx power of device to obtain 60s-averaged normalized SAR in LTE Band 48 as shown in black curve. Similarly, equation (7b) is used to obtain 100s-averaged normalized SAR in LTE Band 25 as shown in orange curve. Equation (7c) is used to obtain total time-averaged normalized SAR as shown in green curve (i.e., sum of black and orange curves).



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	(W/kg)
FCC normalized total exposure limit	1.0
Max time averaged normalized SAR (green curve)	0.594
Validated	

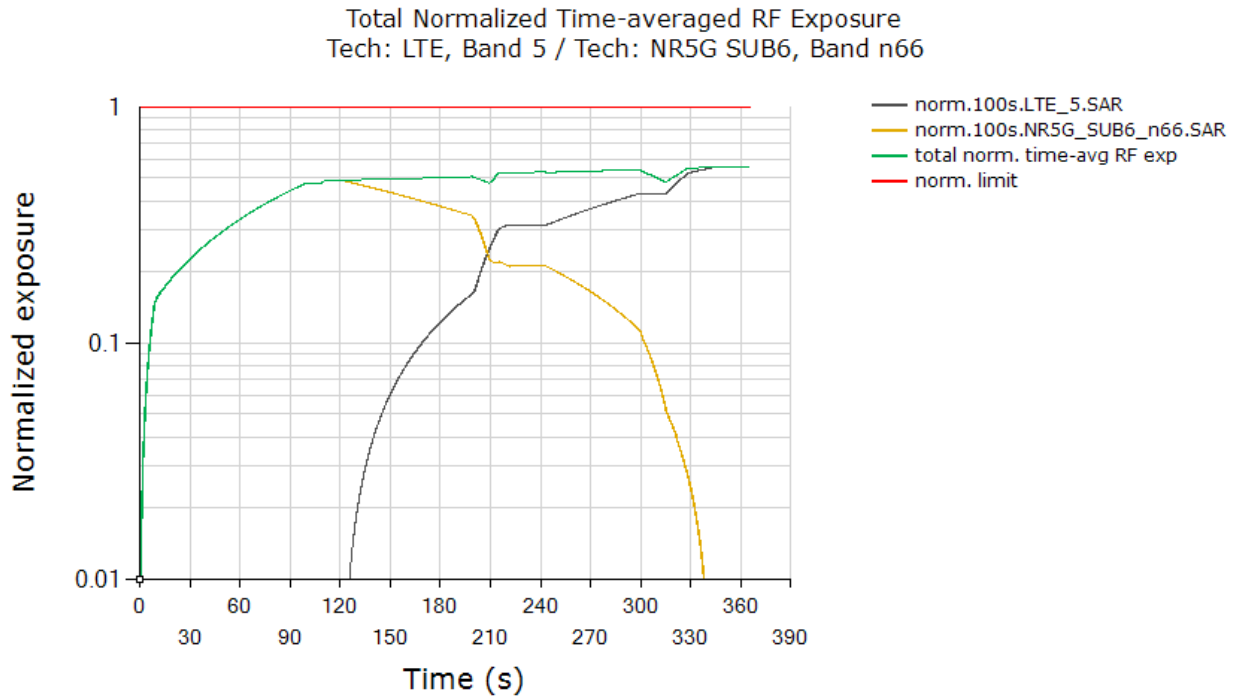
Plot Notes: Maximum power is requested by callbox for the entire duration of the test, with tech/band switches from 60s-to-100s window at ~184s time stamp, and from 100s-to-60s window at ~286s time stamp. Smart Transmit controls the Tx power during these time-window switches to ensure total time-averaged RF exposure, i.e., sum of black and orange curves given by equation (7c), is always compliant. In time-window switch test, at all times the total time-averaged normalized RF exposure (green curve) should not exceed normalized $SAR_{design_target} + 1\text{dB}$ device uncertainty. In this test, with a maximum normalized SAR of 0.594 being ≤ 0.79 ($= 1.0/1.6 + 1\text{dB}$ device uncertainty), the above test result validated the continuity of power limiting in time-window switch scenario.

9.5 SAR Exposure Switching WWAN EN-DC

This test was conducted with callbox requesting maximum power, and with the EUT in LTE Band 5 + Sub6 NR Band n66 call. Following procedure detailed in Section 4.3.7 and Appendix F.2, and using the measurement setup shown in Figure 6-1c since LTE and Sub6 NR are on different antenna ports, the SAR exposure switch measurement is performed with the EUT in various SAR exposure scenarios, i.e., in SAR_{sub6NR} only scenario ($t = 0\text{s} \sim 120\text{s}$), $SAR_{sub6NR} + SAR_{LTE}$ scenario ($t = 120\text{s} \sim 240\text{s}$) and SAR_{LTE} only scenario ($t > 240\text{s}$).

Plot Notes: All the conducted Tx power measurement results were converted into time-averaged normalized SAR values using Equation (7a), (7b) and (7c), and plotted below to demonstrate that the time-averaged normalized SAR versus time does not exceed the FCC limit of 1 unit. Equation (7a) is used to convert the LTE Tx power of device to obtain 100s-averaged normalized SAR in LTE Band 5 as shown in black curve. Similarly, equation (7b) is used to obtain 100s-averaged normalized SAR in Sub6 NR n66 as shown in orange curve. Equation (7c) is used to obtain total time-averaged normalized SAR as shown in green curve (i.e., sum of black and orange curves).

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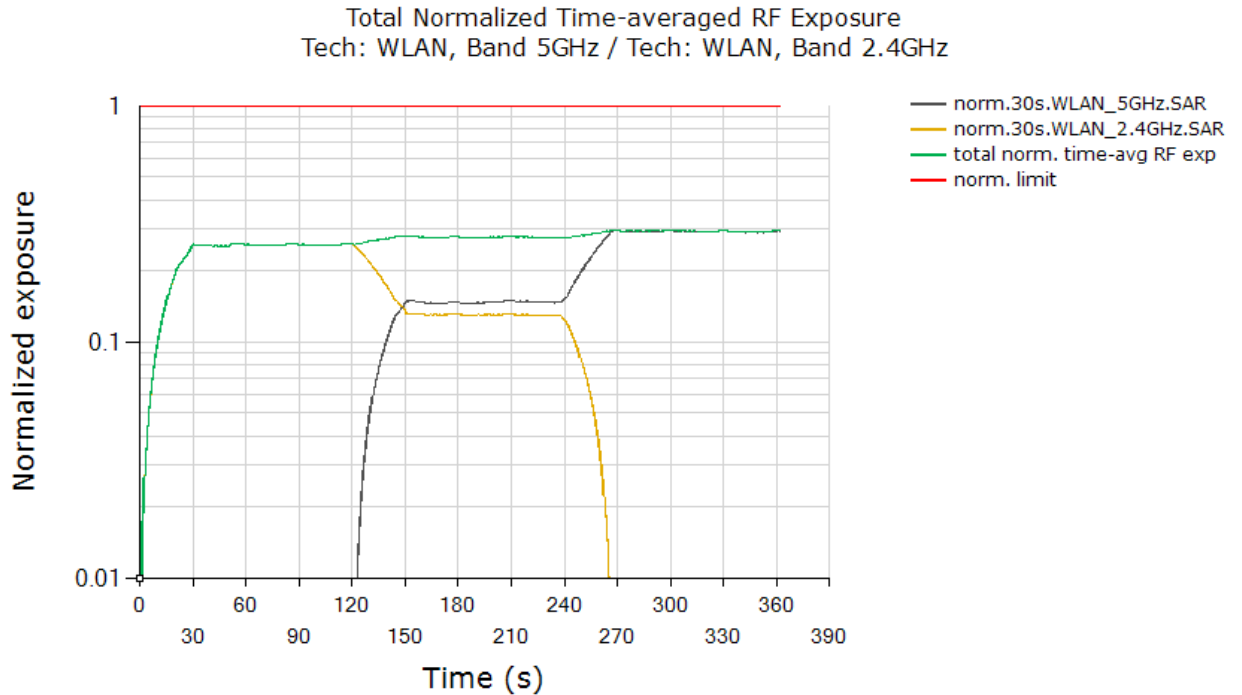
	(W/kg)
FCC normalized total exposure limit	1.0
Max time averaged normalized SAR (green curve)	0.557
Validated	

Plot Notes: Device starts predominantly in Sub6 NR SAR exposure scenario between 0s and 120s, and in LTE SAR + Sub6 NR SAR exposure scenario between 120s and 240s, and in predominantly in LTE SAR exposure scenario after $t=240s$. Here, Smart Transmit allocates a maximum of 100% of exposure margin (based on 3dB reserve margin setting) for Sub6 NR. This corresponds to a normalized 1gSAR exposure value = $100\% \times 0.782 \text{ W/kg measured SAR at Sub6 NR } P_{limit} / 1.6 \text{ W/kg limit} = 0.489 \pm 1 \text{ dB device related uncertainty}$ (see orange curve between 120s). For predominantly LTE SAR exposure scenario, maximum normalized 1gSAR exposure should correspond to 100% exposure margin = $0.893 \text{ W/kg measured SAR at LTE } P_{limit} / 1.6 \text{ W/kg limit} = 0.558 \pm 1 \text{ dB device related uncertainty}$ (see black curve after $t = 240s$). Additionally, in SAR exposure switch test, at all times the total time-averaged normalized RF exposure (green curve) should not exceed normalized $SAR_{design_target} + 1 \text{ dB device uncertainty}$. In this test, with a maximum normalized SAR of 0.557 being $\leq 0.79 (= 1.0/1.6 + 1 \text{ dB device uncertainty})$, the above test result validated the continuity of power limiting in SAR exposure switch scenario.

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9.6 SAR Exposure Switching WLAN DBS

This test was conducted with callbox requesting maximum power, and with the EUT in WLAN 2.4GHz (antenna J, DSI = 1) + WLAN 5GHz (antenna E, DSI = 1) call. Following procedure detailed in Section 4.3.7, and using the measurement setup shown in Figure 6-1e since WLAN channels are in different antenna port, the SAR exposure switch measurement is performed with the EUT in various SAR exposure scenarios, i.e., in SAR_{WLAN 2.4GHz} only scenario (t = 0s ~ 120s), SAR_{WLAN 2.4GHz} + SAR_{WLAN 5GHz} scenario (t = 120s ~ 240s) and SAR_{WLAN 5GHz} only scenario (t > 240s).



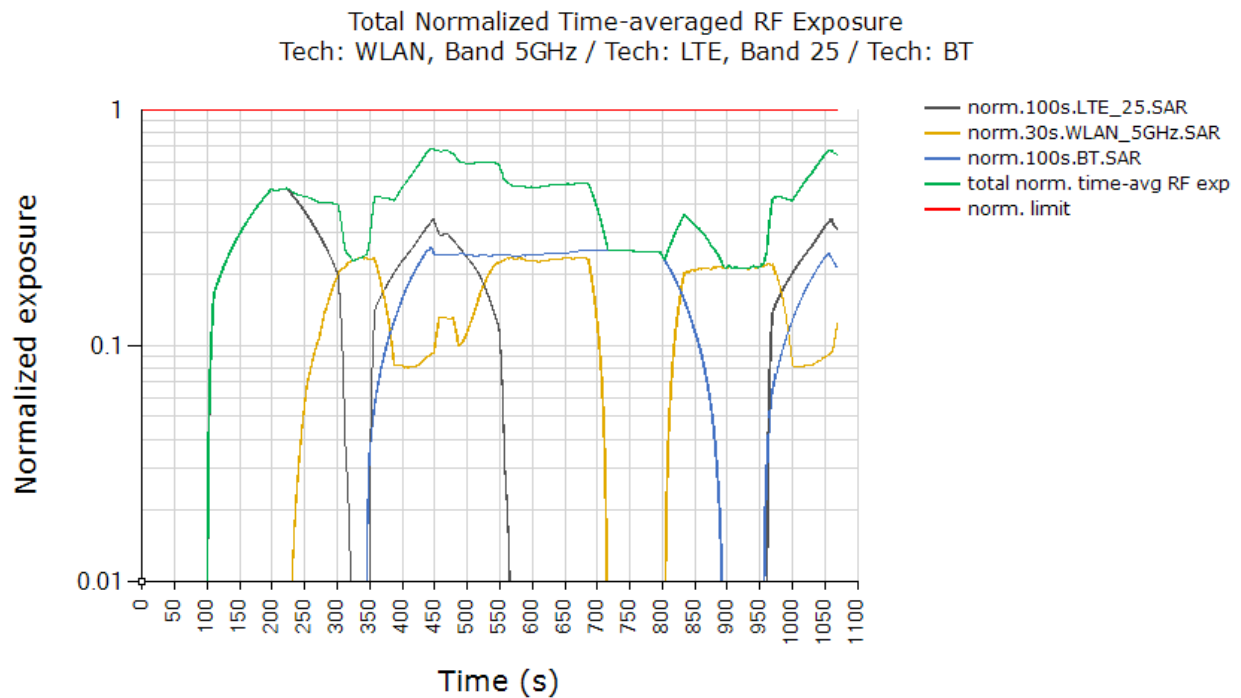
	(W/kg)
FCC normalized total exposure limit	1.0
Max time averaged normalized SAR (green curve)	0.300
Validated	

Plot Notes: All the conducted Tx power measurement results were converted into time-averaged normalized SAR values using Equation (7a), (7b) and (7c), and plotted below to demonstrate that the time-averaged normalized SAR versus time does not exceed the FCC limit of 1 unit. Equation (7a) is used to convert the LTE Tx power of device to obtain 100s-averaged normalized SAR in WLAN 2.4GHz as shown in black curve. Similarly, equation (7b) is used to obtain 100s-averaged normalized SAR in WLAN 5GHz as shown in orange curve. Equation (7c) is used to obtain total time-averaged normalized SAR as shown in green curve (i.e., sum of black and orange curves). In this test, the total time-averaged normalized RF exposure (green curve) did not exceed normalized limit of 1.0 at all times, the above test result validated the continuity of power limiting in SAR exposure switch scenario.

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9.7 System Level Compliance Continuity

This test was conducted with callbox requesting maximum power, and with the EUT in LTE Band 25 + WLAN 2.4GHz + Bluetooth call. Following procedure detailed in Section 4.3.9, and using the measurement setup shown in Figure 6-1f since WWAN, WLAN, Bluetooth are in different antenna ports, the SAR exposure switch measurement is performed with the EUT in various SAR exposure scenarios, WWAN radio transmission, WLAN transmission, simultaneous transmission of WWAN + WLAN + BT, simultaneous transmission of WLAN + BT in airplane mode, BT in airplane mode, WLAN in airplane mode, and finally simultaneous transmission of WWAN + WLAN + BT.



	(W/kg)
FCC normalized total exposure limit	1.0
Max time averaged normalized SAR (green curve)	0.689
Validated	

In this test, the total time-averaged normalized RF exposure (green curve) did not exceed normalized limit of 1.0 at all times, the above test result validated the total RF exposure compliance in system level compliance continuity test scenario.

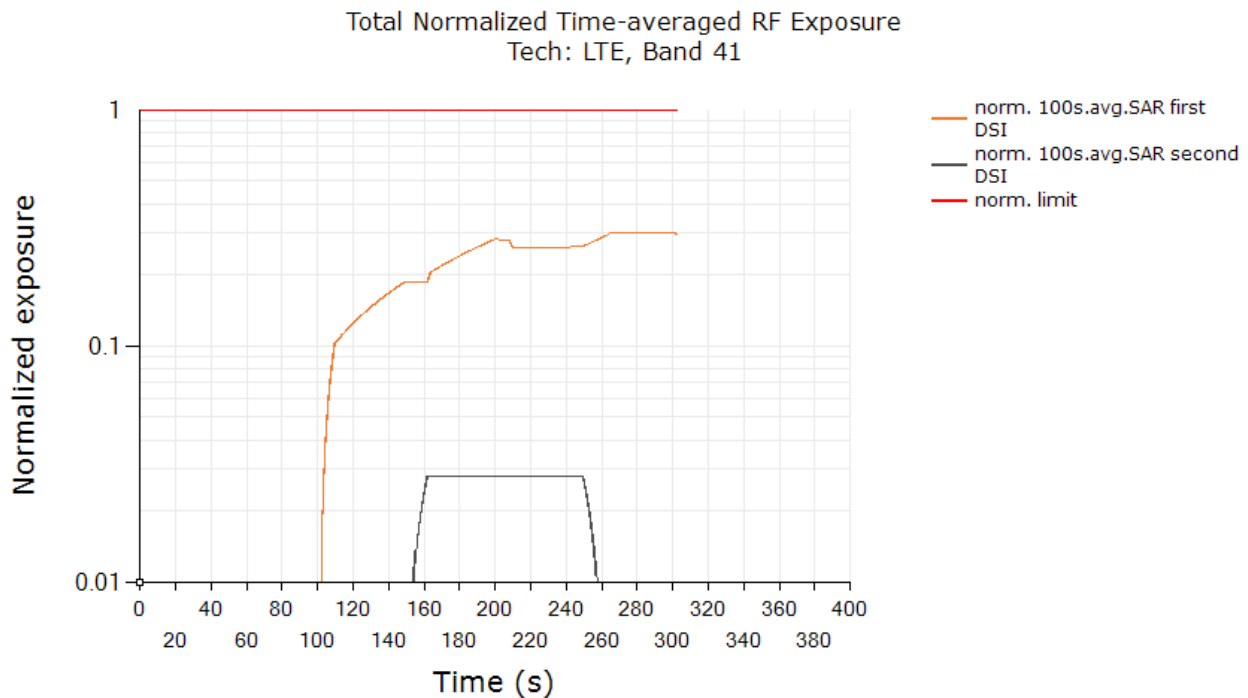
Note: This test was performed with USB disconnected from DUT per Qualcomm 80-W2112-51 RevAE guidance.

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9.8 Exposure Category Switch

This test was conducted with callbox requesting maximum power, and with exposure category switch between LTE Band 41 PC3, Antenna F, DSI = 1 (Head) and LTE Band 41 PC3, Antenna F, DSI = 0 (Non-Head); NR Band n77 PC2/SA, Antenna F, DSI = 0 (non-Head) and NR Band n77 PC2/SA, Antenna F, DSI = 1 (Head). Following procedure detailed in Section 4.3.8 and using the measurement setup shown in Figure 6-1a, the exposure category switch was performed when the EUT is transmitting at $P_{reserve}$ level.

9.8.1 Test case 1: Transition from LTE B41 PC3 DSI=1 (Head) to LTE B41 PC3 DSI=0 (Non-Head), then back to DSI=1 (Head)



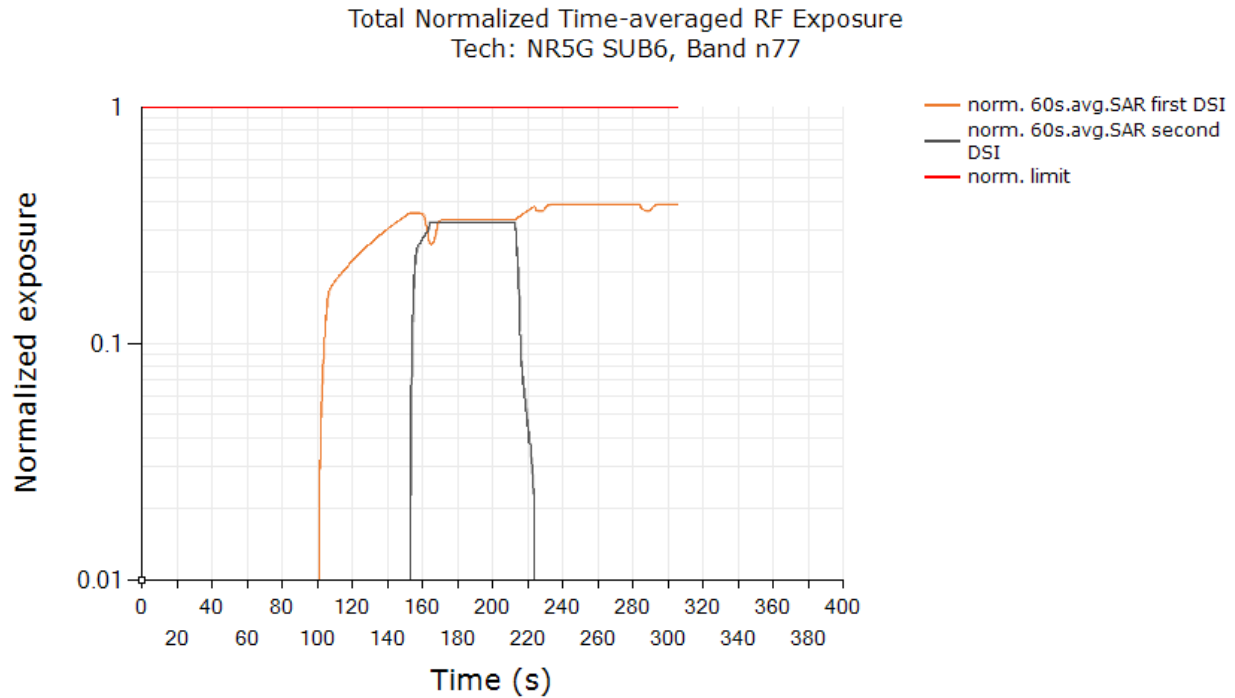
	(W/kg)
FCC normalized total exposure limit	1.0
Max 100s-time averaged normalized SAR (first DSI, orange curve)	0.300
Validated	

Plot Notes: Maximum power is requested by callbox for the entire duration of the test, time-averaged exposure in head DSI gradually increases until t~149s where the device is switched from head exposure DSI (first DSI, orange curve) to non-head exposure DSI (second DSI, black curve) as evident from increase in exposure of black curve and no change in orange curve between t~149s and t~162s. At t~162s, device is switched back from non-head exposure to head exposure as evident from increase in exposure of orange curve and no change in black curve. In this test, the time-averaged normalized RF exposure in head exposure DSI (orange curve) did not exceed normalized limit of 1.0 at all times, and is

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less than normalized SAR of 0.300 being ≤ 0.79 ($= 1.0/1.6 + 1\text{dB}$ device uncertainty), validating the exposure continuity when switching between head exposure and non-head exposure categories.

9.8.2 Test case 2: Transition from NR n77 PC2/SA DSI=0 (Non-Head) to NR n77 PC2/SA DSI=1 (Head), then back to DSI=0 (Non-Head)



	(W/kg)
FCC normalized total exposure limit	1.0
Max 60s-time averaged normalized SAR (first DSI, orange curve)	0.387
Validated	

Plot Notes: Maximum power is requested by callbox for the entire duration of the test, time-averaged exposure in head DSI gradually increases until $t \sim 153\text{s}$ where the device is switched from non-head exposure DSI (first DSI, orange curve) to head exposure DSI (second DSI, black curve) as evident from increase in exposure of black curve and no change in orange curve between $t \sim 153\text{s}$ and $t \sim 164\text{s}$. At $t \sim 164\text{s}$, device is switched back from head exposure to non-head exposure as evident from increase in exposure of orange curve and no change in black curve. In this test, the time-averaged normalized RF exposure in head exposure DSI (orange curve) did not exceed normalized limit of 1.0 at all times, and is less than normalized SAR of 0.387 being ≤ 0.79 ($= 1.0/1.6 + 1\text{dB}$ device uncertainty), validating the exposure continuity when switching between head exposure and non-head exposure categories.

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10 SYSTEM VERIFICATION (FREQ < 6 GHZ)

10.1 Tissue Verification

Table 10-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
10/3/2024	750 Head	23.9	680	0.851	41.241	0.888	42.305	-4.17%	-2.52%
			695	0.855	41.191	0.889	42.227	-3.82%	-2.45%
			700	0.857	41.175	0.889	42.201	-3.60%	-2.43%
			710	0.860	41.141	0.890	42.149	-3.37%	-2.39%
			725	0.866	41.089	0.891	42.071	-2.81%	-2.33%
			750	0.875	41.005	0.894	41.942	-2.13%	-2.23%
			770	0.882	40.935	0.895	41.838	-1.45%	-2.16%
			785	0.886	40.886	0.896	41.760	-1.12%	-2.09%
10/3/2024	835 Head	23.9	800	0.891	40.839	0.897	41.682	-0.67%	-2.02%
			815	0.897	40.800	0.898	41.594	-0.11%	-1.91%
			820	0.899	40.791	0.899	41.578	0.00%	-1.89%
			835	0.905	40.761	0.900	41.500	0.56%	-1.78%
10/3/2024	1900 Head	23.9	850	0.910	40.716	0.916	41.500	-0.66%	-1.89%
			1850	1.373	38.701	1.400	40.000	-1.93%	-3.25%
			1860	1.379	38.687	1.400	40.000	-1.50%	-3.28%
			1880	1.390	38.660	1.400	40.000	-0.71%	-3.35%
			1900	1.401	38.636	1.400	40.000	0.07%	-3.41%
			1905	1.404	38.630	1.400	40.000	0.29%	-3.42%
9/25/2024	2600 Head	22.5	1910	1.407	38.624	1.400	40.000	0.50%	-3.44%
			1920	1.413	38.611	1.400	40.000	0.93%	-3.47%
			2535	1.843	39.538	1.893	39.092	-2.64%	1.14%
			2560	1.863	39.496	1.920	39.060	-2.97%	1.12%
10/15/2024	2450 Head	21.5	2600	1.894	39.452	1.964	39.009	-3.56%	1.14%
			2650	1.930	39.349	2.018	38.945	-4.36%	1.04%
			2680	1.957	39.309	2.051	38.907	-4.58%	1.03%
			2300	1.666	39.589	1.670	39.500	-0.24%	0.23%
			2310	1.673	39.571	1.679	39.480	-0.36%	0.23%
			2320	1.681	39.553	1.687	39.460	-0.36%	0.24%
			2400	1.738	39.443	1.756	39.289	-1.03%	0.39%
			2450	1.776	39.355	1.800	39.200	-1.33%	0.40%
			2480	1.798	39.312	1.833	39.162	-1.91%	0.38%
			2500	1.813	39.289	1.855	39.136	-2.26%	0.39%
			2510	1.820	39.274	1.866	39.123	-2.47%	0.39%
			2535	1.838	39.226	1.893	39.092	-2.91%	0.34%
			2550	1.851	39.198	1.909	39.073	-3.04%	0.32%
			2560	1.859	39.179	1.920	39.060	-3.18%	0.30%
			2600	1.893	39.139	1.964	39.009	-3.62%	0.33%
10/17/2024	5250 Head	21.5	2650	1.929	39.037	2.018	38.945	-4.41%	0.24%
			2680	1.954	38.987	2.051	38.907	-4.73%	0.21%
			2700	1.971	38.971	2.073	38.882	-4.92%	0.23%
			5150	4.405	36.991	4.608	36.050	-4.41%	2.61%
			5160	4.418	36.978	4.618	36.040	-4.33%	2.60%
			5170	4.427	36.959	4.629	36.030	-4.36%	2.58%
			5180	4.435	36.939	4.635	36.009	-4.31%	2.58%
			5190	4.447	36.919	4.645	35.998	-4.26%	2.56%
			5200	4.458	36.901	4.655	35.986	-4.23%	2.54%
			5210	4.469	36.885	4.666	35.975	-4.22%	2.53%
			5240	4.503	36.821	4.696	35.940	-4.11%	2.45%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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10.2 Test System Verification

Prior to SAR assessment, the system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix C.

Table 10-2
System Verification Results – 1g

System Verification TARGET & MEASURED													
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	DAE	Measured SAR _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
M	750	HEAD	10/3/2024	23.9	21.9	0.20	1054	7551	1323	1.740	8.520	8.700	2.11%
M	835	HEAD	10/3/2024	23.9	21.9	0.20	4d132	7551	1323	1.980	9.840	9.900	0.61%
M	1900	HEAD	10/3/2024	23.9	21.9	0.10	5d080	7551	1323	4.200	39.600	42.000	6.06%
M	2450	HEAD	10/15/2024	23.5	21.5	0.10	719	7551	1323	5.500	52.200	55.000	5.36%
M	2600	HEAD	9/25/2024	23.1	22.5	0.10	1071	7551	1323	5.490	56.500	54.900	-2.83%
M	2600	HEAD	10/15/2024	23.5	21.5	0.10	1071	7551	1323	5.670	56.500	56.700	0.35%
N	5250	HEAD	10/17/2024	21.0	21.5	0.05	1191	7571	859	3.740	78.900	74.800	-5.20%

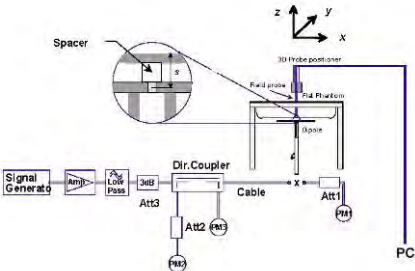


Figure 10-1
System Verification Setup Diagram



Figure 10-2
System Verification Setup Photo

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11 SAR TEST RESULTS (FREQ < 6 GHZ)

11.1 Time-varying Tx Power

Following Section 4.4 procedure, time-averaged SAR measurements are conducted using a SAR probe at peak location of area scan over 500 seconds. cDASY6 system verification for SAR measurement is provided in Section 10, and the associated SPEAG certificates are attached in Appendix G.

SAR probe integration times depend on the communication signal being tested as defined in the probe calibration parameters.

Since the sampling rate used by cDASY6 for pointSAR measurements is not in user control, the number of points in 100s interval is determined from the scan duration setting in cDASY6 time-average pointSAR measurement by (100s cDASY6_scan_duration * total number of pointSAR values recorded). Running average is performed over these number of points in excel spreadsheet to obtain 100s averaged point SAR.

Following Section 4.4, for each of selected technology/band (listed in Table 8-2):

8. With *Reserve_power_margin* set to 0 dB, area scan is performed at P_{limit} , and time-averaged pointSAR measurements are conducted to determine the pointSAR at P_{limit} at peak location, denoted as $pointSAR_{P_{limit}}$.
9. With *Reserve_power_margin* set to actual (intended) value, two more time-averaged pointSAR measurements are performed at the same peak location for test sequences 1 and 2.

To demonstrate compliance, all the pointSAR measurement results were converted into 1gSAR or 10gSAR values by using Equation (3a), rewritten below:

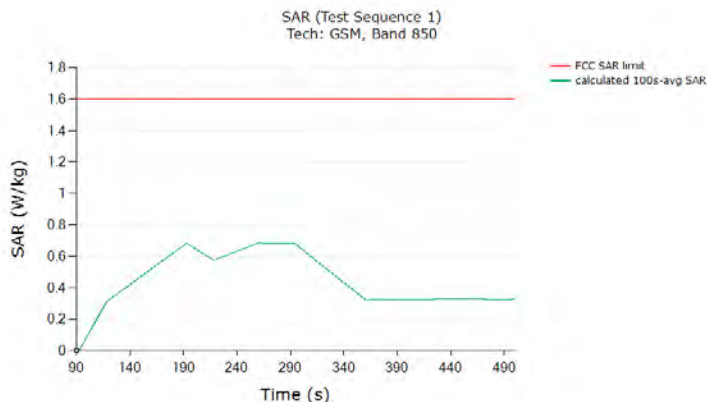
$$1g_or_10gSAR(t) = \frac{pointSAR(t)}{pointSAR_{P_{limit}}} * 1g_or_10gSAR_{P_{limit}} \quad (3a)$$

where, $pointSAR(t)$, $pointSAR_{P_{limit}}$, and $1g_or_10gSAR_{P_{limit}}$ correspond to the measured instantaneous point SAR, measured point SAR at P_{limit} from above step 1 and 2, and measured 1gSAR or 10gSAR values at P_{limit} obtained from Part 1 report and listed in Table 8-2 of this report.

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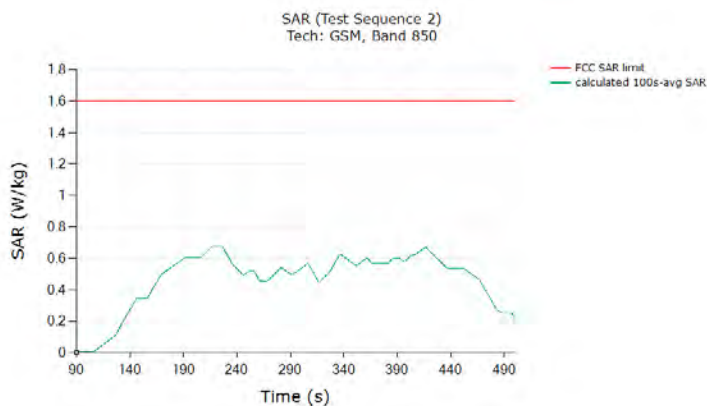
11.1.1 GSM/GPRS/EDGE 850, Antenna E

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.685
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

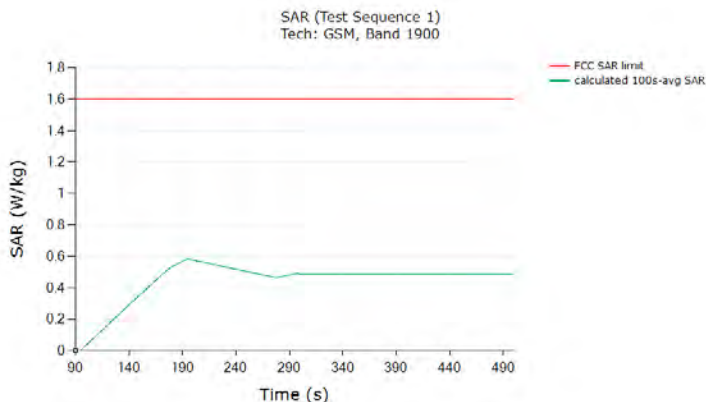


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.678
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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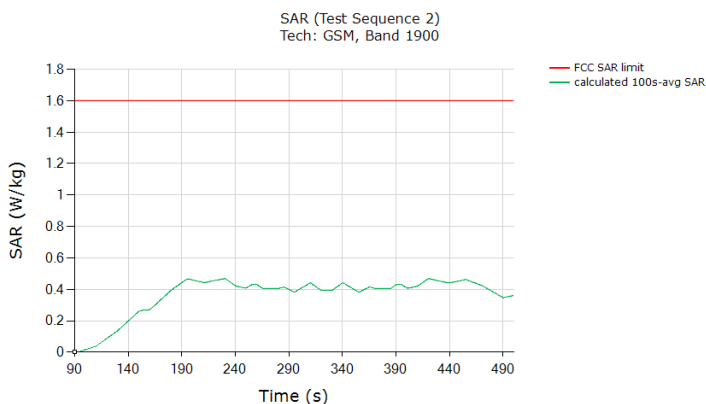
11.1.2 GSM/GPRS/EDGE 1900, Antenna A

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.583
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

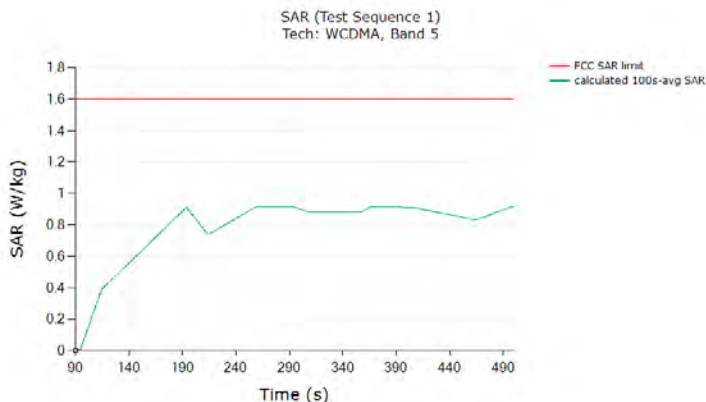


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.47
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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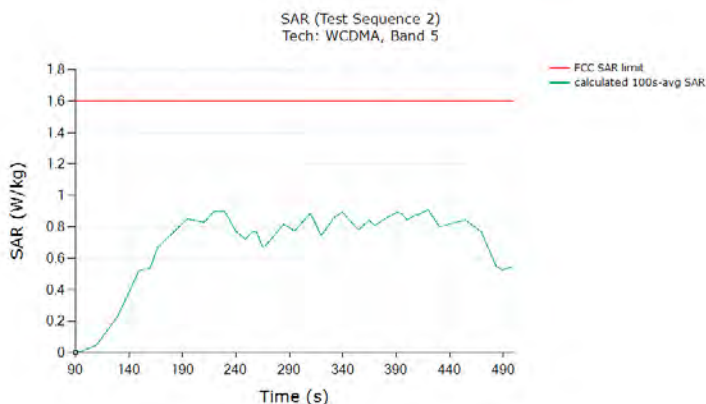
11.1.3 WCDMA Band 5, Antenna E

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.916
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

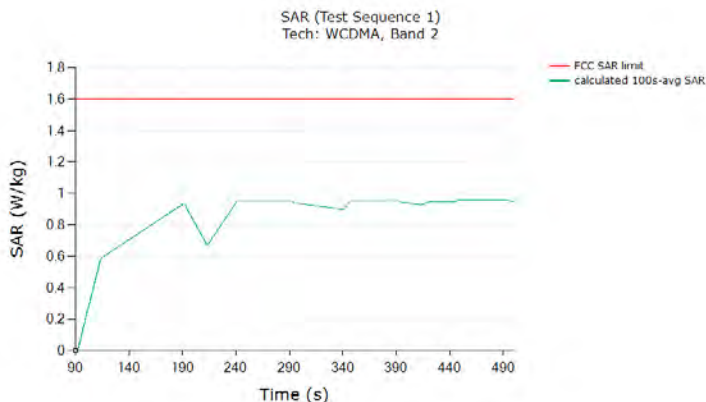


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.909
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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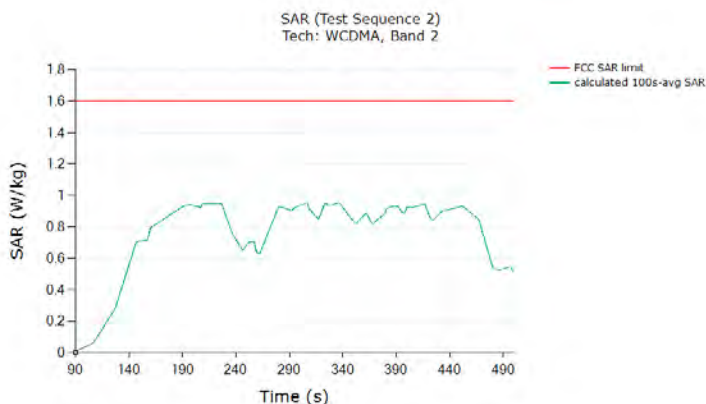
11.1.4 WCDMA Band 2, Antenna A

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.959
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

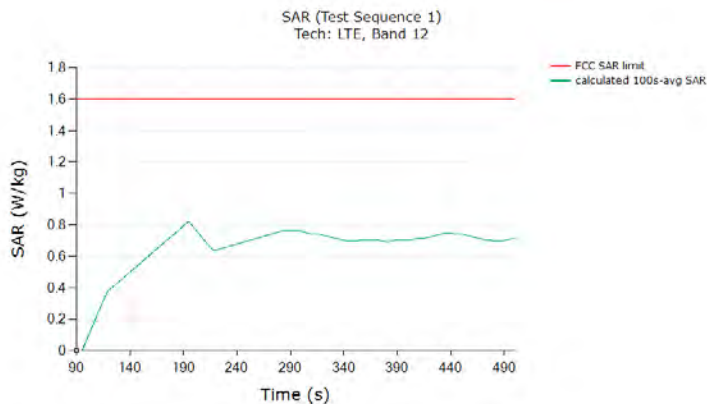


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.954
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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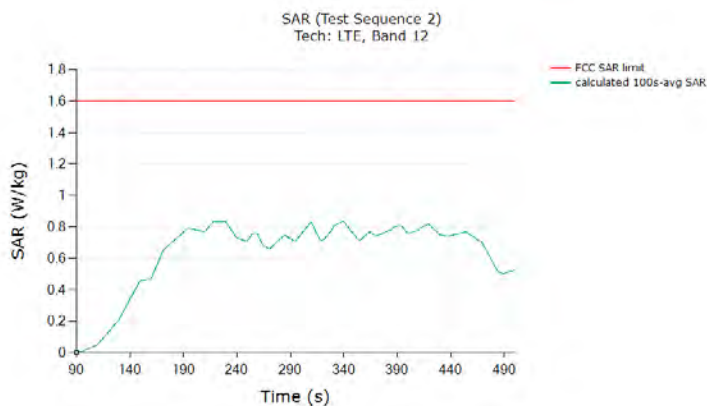
11.1.5 LTE Band 12, Antenna E

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.821
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

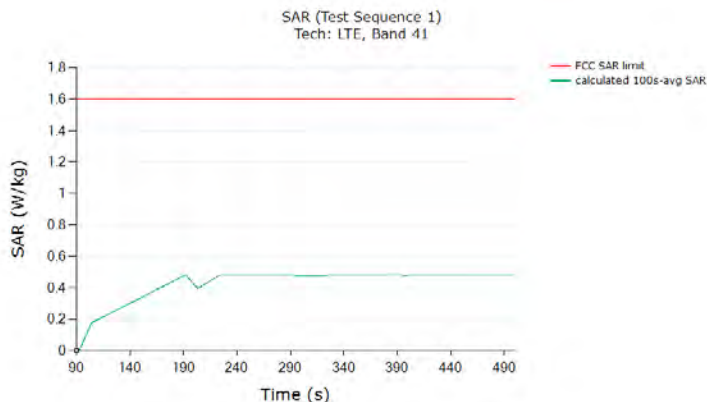


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.836
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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11.1.6 LTE Band 41 PC3, Antenna F

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.483
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

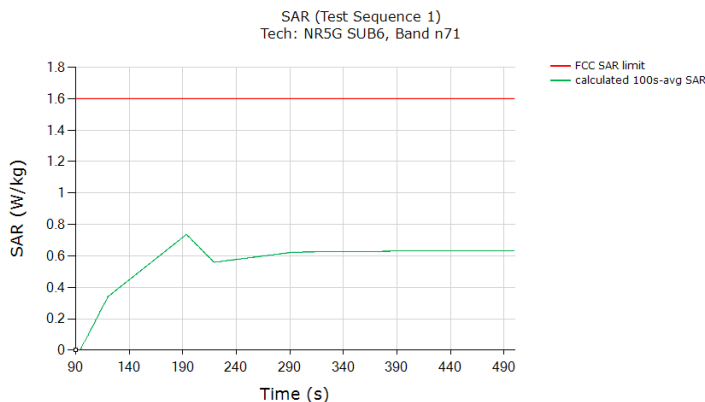


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.482
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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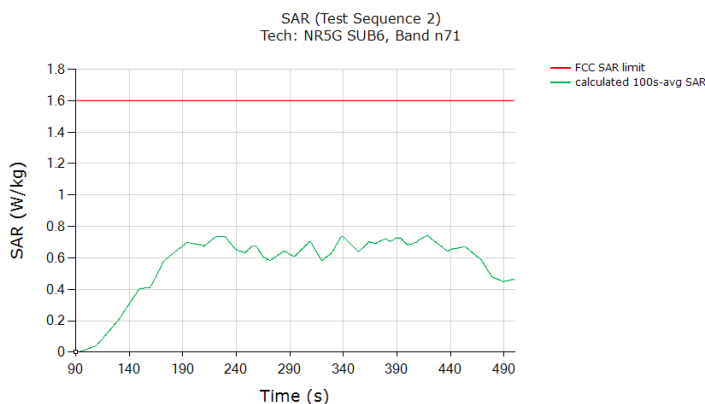
11.1.7 NR n71 SA, Antenna E

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.736
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

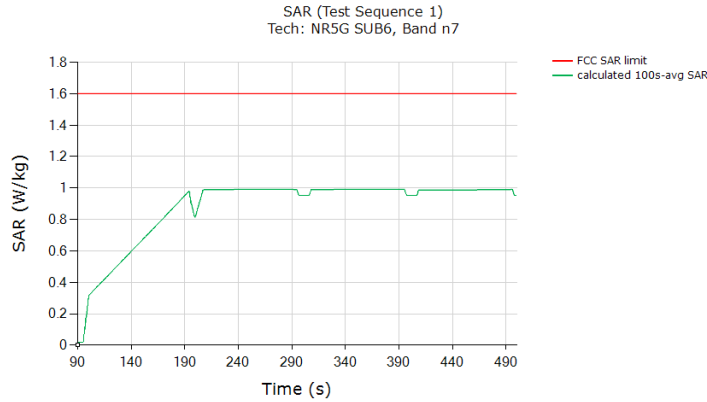


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.742
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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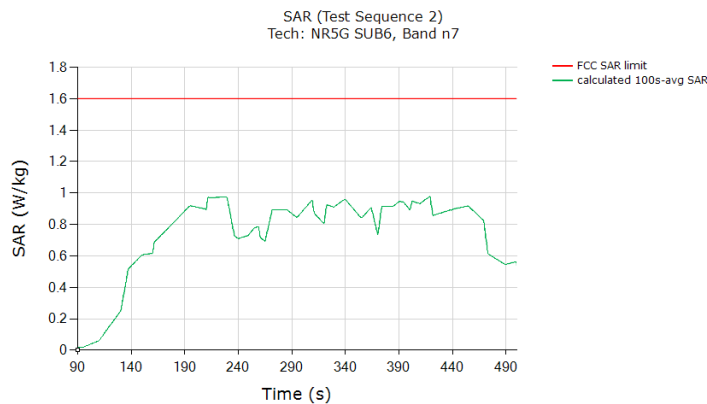
11.1.8 NR n7 SA, Antenna F

SAR test results for test sequence 1:



	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.990
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

SAR test results for test sequence 2:

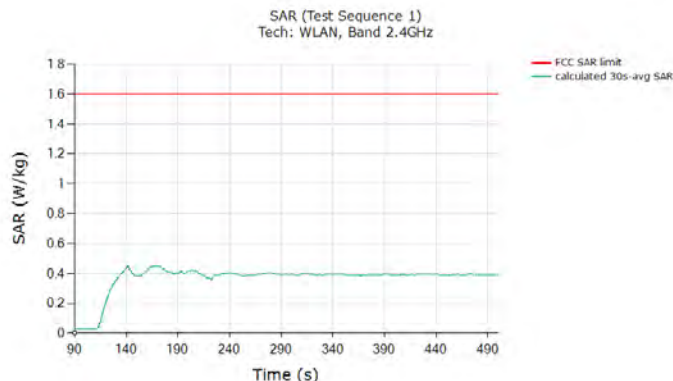


	(W/kg)
FCC 1gSAR limit	1.6
Max 100s-time averaged point 1gSAR (green curve)	0.977
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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11.1.9 WLAN 2.4GHz, Antenna J

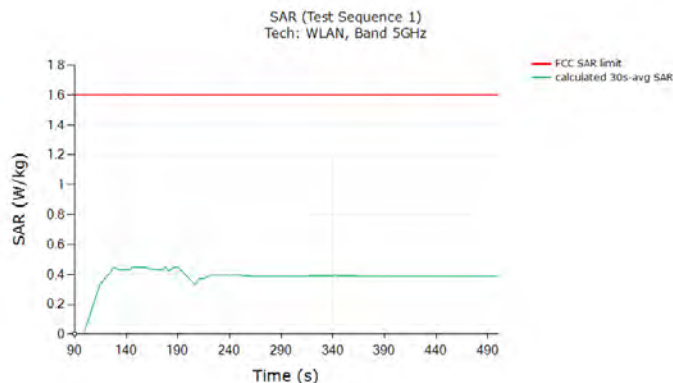
SAR test results for test sequence:



	(W/kg)
FCC 1gSAR limit	1.6
Max 30s-time averaged point 1gSAR (green curve)	0.449
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

11.1.10 WLAN 5GHz, Antenna E

SAR test results for test sequence:



	(W/kg)
FCC 1gSAR limit	1.6
Max 30s-time averaged point 1gSAR (green curve)	0.447
Validated: Max time averaged SAR (green curve) is within 1 dB device uncertainty of measured SAR at P_{limit} (worst case SAR at Plim column in Table 8-2).	

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12 TEST CONFIGURATIONS (FREQ > 6 GHZ)

12.1 LTE + mmW NR Transmission

Based on the selection criteria described in Section 5.2, the selections for LTE and mmW NR validation test are listed in Table 12-1. The radio configurations used in this test are listed in Table 12-2.

Table 12-1
Selections for LTE + mmW NR validation measurements

Transmission Scenario	Test	Technology and Band	mmWave Beam
Time-varying Tx power test	1. Cond. & Rad. Power meas. 2. PD meas.	LTE Band 2 and n261	Beam ID 19
		LTE Band 2 and n258	Beam ID 15
Switch in SAR vs. PD	1. Cond. & Rad. Power meas.	LTE Band 2 and n261	Beam ID 19
		LTE Band 2 and n258	Beam ID 15
Beam switch test	1. Cond. & Rad. Power meas.	LTE Band 2 and n261	Beam ID 20 to Beam ID 2
		LTE Band 2 and n258	Beam ID 12 to Beam ID 2

Table 12-2
Test configuration for LTE + mmW NR validation

Tech	Band	Antenna	DSI	Channel	Freq (MHz)	RB/RB Offset/Bandwidth (MHz)	Mode	UL Duty Cycle
LTE	2	A	0	18900	1880	1/0/20 MHz BW	QPSK	100%
mmW NR	n261	M	-	2084165	28299.96	20/23/100 MHz BW	DFT-s-OFDM, QPSK	75.6%*
	n258	M	-	2025833	24800.04	20/23/100 MHz BW	DFT-s-OFDM, QPSK	75.6%*

Smart Transmit EFS version 23 supports DSI applicability feature. With this new enhancement, in simultaneous transmission scenarios involving sub6 radio + mmW radio, for a given DSI, both sub6 exposure and mmW exposure will be evaluated at the DSI corresponding separation distance in TER analysis, but in the same time, the compliance of mmW exposure at 2mm is ensured for all DSI states (**Note: at this time, FCC requires PD compliance at 2mm for all DSI states**). Thus, below two steps are implemented in Smart Transmit with EFS version 23:

1. For TER calculation, scale PD exposure at 2mm down to the same separation distance at which sub6 exposure is measured for that DSI using '*DSI_PD_ratio*' (see Appendix G.1.3 of 80-W2112-4 Part 1 report for the definition of *DSI_PD_ratio* and its calculation), i.e.,

$$TER_{at_DSI_distance} = \frac{sub6\ exposure}{regulatory\ sub6\ limit} + \frac{PD\ exposure}{regulatory\ PD\ limit} \times DSI_PD_ratio \quad (9a)$$

Where,

$$DSI_PD_ratio = \frac{PD_{at_DSI_separation_distance}}{PD_{at_2mm}} \quad (9b)$$

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2. Below conditions will also be met irrespective of DSI state:

$$\frac{PD_{at_2mm}}{regulatory_PD_limit} \leq 1.0 \quad (9c)$$

12.2 mmW NR and Sub6 NR Radiated Power Test Results

To demonstrate the compliance, the conducted Tx power of LTE Band 2 in DSI = 0 is converted to 1gSAR exposure by applying the corresponding worst-case 1g SAR value at P_{limit} as reported in Part 1 report and listed in Table 8-2 and Table 12-3 of this report.

Similarly, following Step 4 in Section 5.3.1, radiated Tx power of mmW Band n261 and n258 for the beams tested is converted by applying the corresponding measured worst-case 4cm²PD values, and listed in below Table 12-3. Qualcomm Smart Transmit feature operates based on time-averaged Tx power reported on a per symbol basis, which is independent of modulation, channel and bandwidth (RBs), therefore the worst-case 4cm²PD was conducted with the EUT in FTM mode, with CW modulation and 100% duty cycle. cDASY6 system verification for power density measurement is provided in Section 14, and the associated SPEAG certificates are attached in Appendix G.

Both the worst-case 1gSAR and 4cm²PD values used in this section are listed in Table 12-3. The measured EIRP at *input.power.limit* for the beams tested in this section are also listed in Table 12-3.

Table 12-3
Selections for LTE + mmW NR validation measurements

Tech	Band	Antenna	Beam ID	input.power.limit (dBm)	Measured psPD at input.power.limit		Measured EIRP at input.power.limit (dBm)	DSI_PD_ratio	
					4cm² psPD (W/m²)	Test Position			
mmW NR	n261	M	19	5.0	6.04	Left Side	16.86	1.0	
		M	20	6.2	7.00	Left Side	17.83		
		M	2	12.3	7.25	Left Side	12.92		
mmW NR	n258	M	15	6.5	5.08	Left Side	19.05		
		M	12	6.1	5.05	Left Side	17.71		
		M	2	13.3	4.30	Left Side	15.15		
Tech	Band	Antenna	DSI	Measured Plimit (dBm)	Measured 1g SAR at Plimit				
					1g SAR (W/kg)	Test Position			
LTE	2	A	0	17.95	0.888	Botton Edge, 10mm			

Smart Transmit EFS version 23 supports DSI applicability feature. With this new enhancement, in simultaneous transmission scenarios involving sub6 radio + mmW radio, for a given DSI, both sub6 exposure and mmW exposure will be evaluated at the DSI corresponding separation distance in TER analysis, but in the same time, the compliance of mmW exposure at 2mm is ensured for all DSI states (**Note: at this time, FCC requires PD compliance at 2mm for all DSI states**). Thus, below two steps are implemented in Smart Transmit with EFS version 23:

2. For TER calculation, scale PD exposure at 2mm down to the same separation distance at which sub6 exposure is measured for that DSI using '*DSI_PD_ratio*' (see Appendix G.1.3 of 80-W2112-4 Part 1 report for the definition of *DSI_PD_ratio* and its calculation), i.e.,

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$$TER_{at_DSI_distance} = \frac{sub6\ exposure}{regulatory\ sub6\ limit} + \frac{PD\ exposure}{regulatory\ PD\ limit} \times DSI_PD_ratio \quad (9a)$$

Where,

$$DSI_PD_ratio = \frac{PD_{at_DSI_separation_distance}}{PD_{at_2mm}} \quad (9b)$$

3. Below condition will also be met irrespective of DSI state:

$$\frac{PD_{at_2mm}}{regulatory_PD_limit} \leq 1.0 \quad (9c)$$

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Figure 12-1
4cm² psPD distribution measured at *input.power.limit* of 12.3 dBm on the Left Edge at 2mm for n261 beam 2

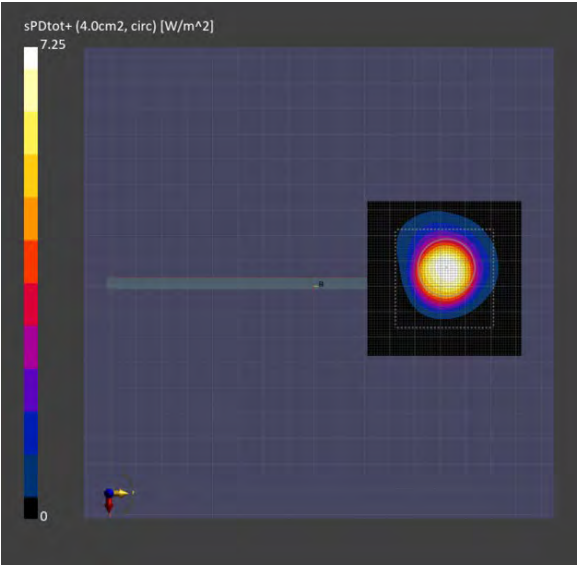
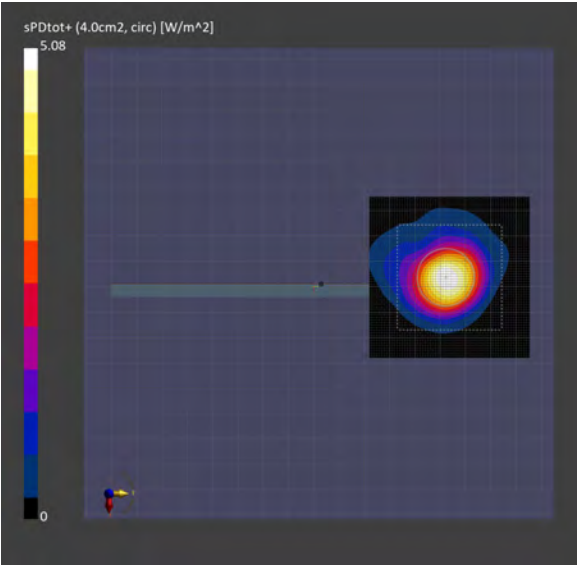


Figure 12-2
4cm² psPD distribution measured at *input.power.limit* of 6.5 dBm on the Left Edge at 2mm for n258 beam 15



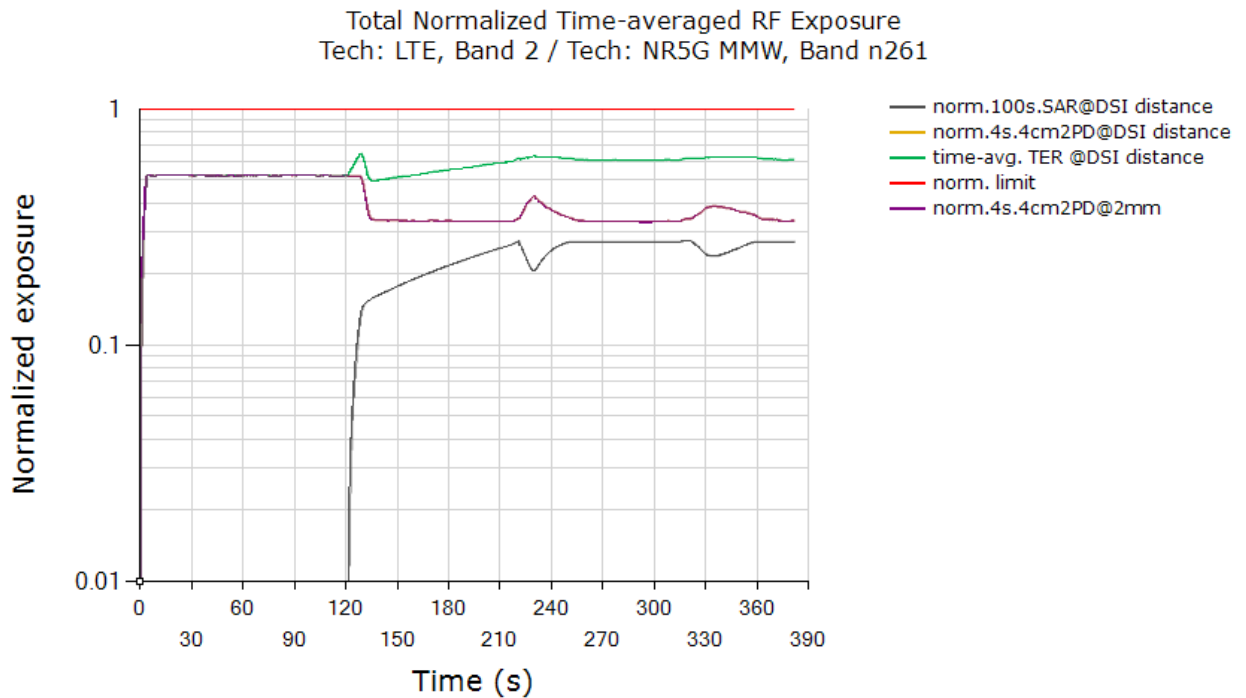
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13 RADIATED POWER TX CASES (FREQ > 6 GHZ)

13.1 Time-Varying Tx Power for n261

This test was measured with LTE Band 2 and mmW Band n261 Beam ID 19 by following the detailed test procedure described in Section 5.3.1.

Time-averaged conducted Tx power for LTE Band 2 and radiated Tx power for mmW NR n261 beam 19 are converted into time-averaged 1gSAR and time-averaged 4cm²PD using Equation (2a) and (2b), which are divided by FCC 1gSAR limit of 1.6 W/kg and 4cm²PD limit of 10 W/m², respectively, to obtain normalized exposures versus time. Below plot shows (a) normalized time-averaged 1gSAR versus time, (b) normalized time-averaged 4cm²-avg.PD versus time, (c) sum of normalized time-averaged 1gSAR and normalized time-averaged 4cm²-avg.PD:



FCC requirement for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.648
Validated	

Plot notes: As soon as 5G mmW NR call was established, LTE was placed in all-down bits immediately. Between 0s~120s, mmW exposure is the dominant contributor. Here, Smart Transmit feature allocates a maximum of 1.0 for mmW. At ~120s time mark, LTE is set to all-up bits, taking away margin from mmW exposure gradually and towards the end of the test, LTE is the dominant contributor towards RF exposure. Table 13-1 shows the calculations for the normalized 4cm² PD exposure values and the normalized 1g SAR exposure value.

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Table 13-1

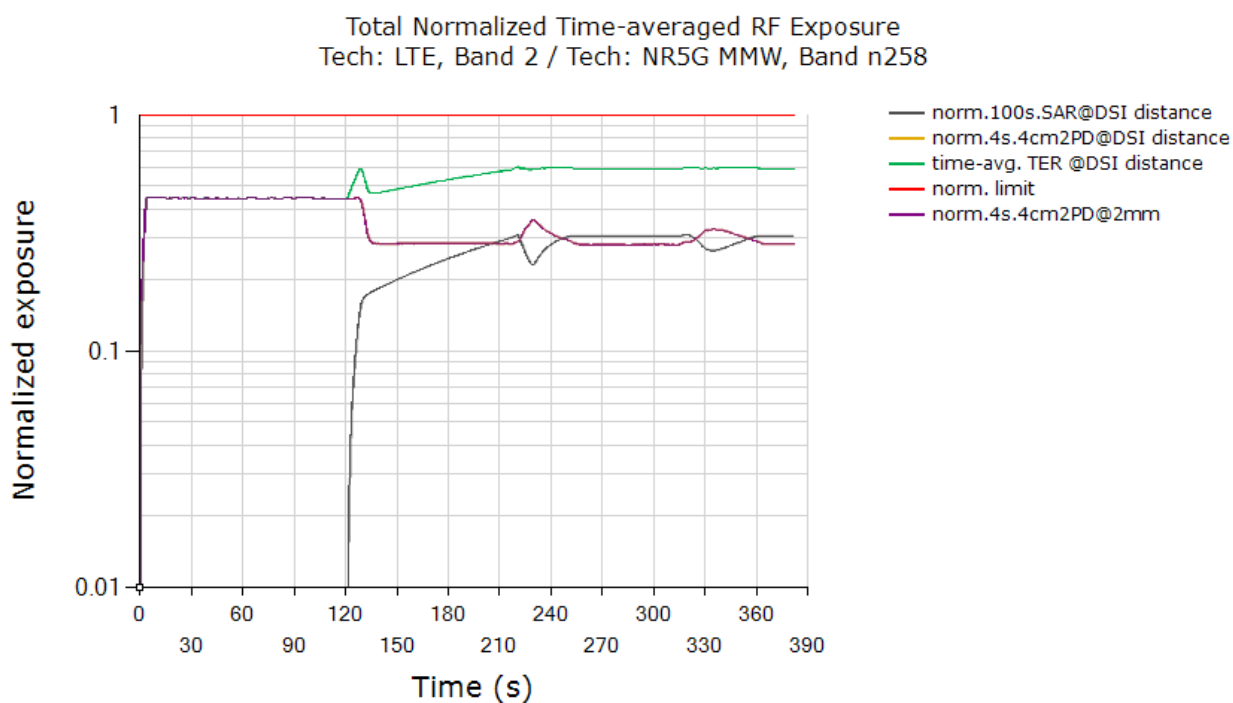
	Static 4cm ² PD or 10g SAR [W/m ² or W/kg]	Normalized Exposure	Uncertainty [dB]
0s~120s: NR Green/Orange Curve	6.04	60.4%	1.4
After ~120s: LTE Black Curve	0.888	22.2%	1.0

As can be seen, the power limiting enforcement is effective and the total normalized time-averaged RF exposure does not exceed 1.0. Therefore, Qualcomm® Smart Transmit time averaging feature is validated.

13.2 Time-Varying Tx Power for n258

This test was measured with LTE Band 2 and mmW Band n258 Beam ID 15, by following the detailed test procedure described in Section 5.3.1.

Time-averaged conducted Tx power for LTE Band 2 and radiated Tx power for mmW NR n258 beam 15 are converted into time-averaged 1gSAR and time-averaged 4cm²PD using Equation (2a) and (2b), which are divided by FCC 1gSAR limit of 1.6 W/kg and 4cm²PD limit of 10 W/m², respectively, to obtain normalized exposures versus time. Below plot shows (a) normalized time-averaged 1gSAR versus time, (b) normalized time-averaged 4cm²-avg.PD versus time, (c) sum of normalized time-averaged 1gSAR and normalized time-averaged 4cm²-avg.PD:



FCC requirement for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.605
Validated	

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Plot notes: As soon as 5G mmW NR call was established, LTE was placed in all-down bits immediately. Between 0s~120s, mmW exposure is the dominant contributor. Here, Smart Transmit feature allocates a maximum of 1.0 for mmW. At ~120s time mark, LTE is set to all-up bits, taking away margin from mmW exposure gradually and towards the end of the test, LTE is the dominant contributor towards RF exposure. Table 13-2 shows the calculations for the normalized 4cm² PD exposure values and the normalized 1g SAR exposure value.

Table 13-2

	Static 4cm ² PD or 10g SAR [W/m ² or W/kg]	Normalized Exposure	Uncertainty [dB]
0s~120s: NR Green/Orange Curve	5.08	50.8%	1.4
After ~120s: LTE Black Curve	0.888	22.2%	1.0

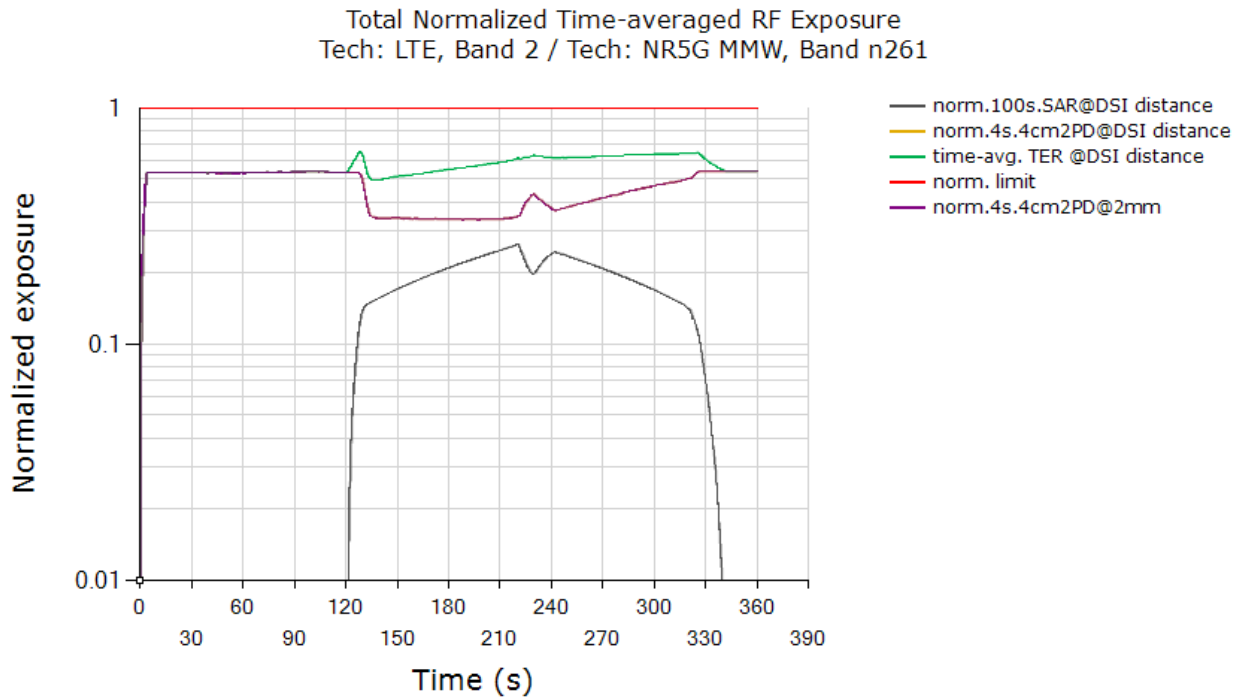
As can be seen, the power limiting enforcement is effective and the total normalized time-averaged RF exposure does not exceed 1.0. Therefore, Qualcomm® Smart Transmit time averaging feature is validated.

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13.3 SAR vs. PD Exposure Switch for n261

This test was measured with LTE Band 2 (DSI = 0) and mmW Band n261 Beam ID 19, by following the detailed test procedure is described in Section 5.3.2.

Normalized time-averaged exposures for LTE (1gSAR) and mmW (4cm²PD), as well as total normalized time-averaged exposure versus time:



FCC requirement for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.651
Validated	

Plot notes: As soon as 5G mmW NR call was established, LTE was placed in all-down bits immediately. Between 0s~120s, mmW exposure is the dominant contributor. Here, Smart Transmit feature allocates a maximum of 1.0 for mmW). At ~120s time mark, LTE is set to all-up bits, taking away margin from mmW exposure gradually (orange curve for mmW exposure goes down while black curve for LTE exposure goes up). At ~240s time mark, LTE is set to all-down bits, which results in mmW getting back RF margin slowly as seen by gradual increase in mmW exposure (orange curve for mmW exposure goes up while black curve for LTE exposure goes down). Table 13-3 shows the calculations for the normalized 4cm² PD exposure value and the normalized 1g SAR exposure value.

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Table 13-3

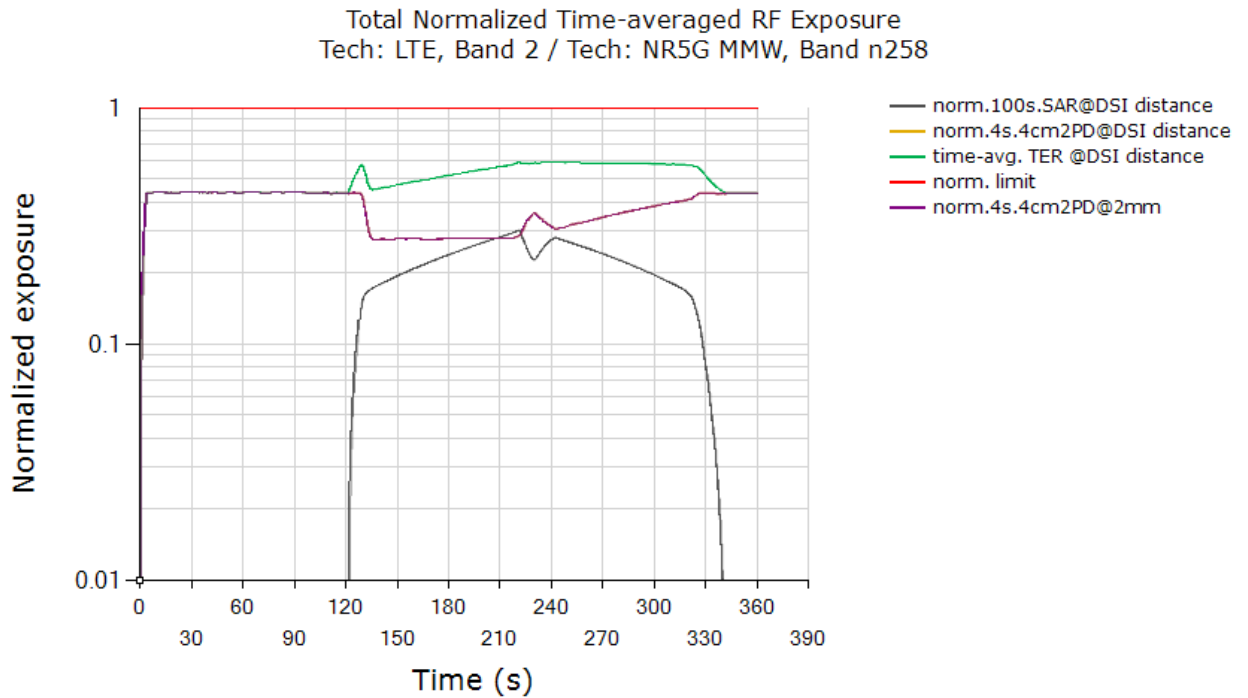
	Static 4cm ² PD or 10g SAR [W/m ² or W/kg]	Normalized Exposure	Uncert [dB]
0s~120s + After 240s: NR Green/Orange Curve	6.04	60.4%	1.4
120s - 240s: LTE Black Curve	0.888	22.2%	1.0

As can be seen, the power limiting enforcement is effective during transmission when SAR and PD exposures are switched, and the total normalized time-averaged RF exposure does not exceed 1.0. Therefore, Qualcomm® Smart Transmit time averaging feature is validated.

13.4 SAR vs. PD Exposure Switch for n258

This test was measured with LTE Band 2 (DSI = 0) and mmW Band n258 Beam ID 15, by following the detailed test procedure is described in Section 5.3.2.

Normalized time-averaged exposures for LTE (1gSAR) and mmW (4cm²PD), as well as total normalized time-averaged exposure versus time:



FCC requirement for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.592
Validated	

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Plot notes: As soon as 5G mmW NR call was established, LTE was placed in all-down bits immediately. Between 0s~120s, mmW exposure is the dominant contributor. Here, Smart Transmit feature allocates a maximum of 1.0 for mmW). At ~120s time mark, LTE is set to all-up bits, taking away margin from mmW exposure gradually (orange curve for mmW exposure goes down while black curve for LTE exposure goes up). At ~240s time mark, LTE is set to all-down bits, which results in mmW getting back RF margin slowly as seen by gradual increase in mmW exposure (orange curve for mmW exposure goes up while black curve for LTE exposure goes down). Table 13-4 shows the calculations for the normalized 4cm² PD exposure value and the normalized 1g SAR exposure value.

Table 13-4

	Static 4cm ² PD or 10g SAR [W/m ² or W/kg]	Normalized Exposure	Uncertainty [dB]
0s~120s: NR Green/Orange Curve	5.08	50.8%	1.4
After ~120s: LTE Black Curve	0.888	22.2%	1.0

As can be seen, the power limiting enforcement is effective during transmission when SAR and PD exposures are switched, and the total normalized time-averaged RF exposure does not exceed 1.0. Therefore, Qualcomm® Smart Transmit time averaging feature is validated.

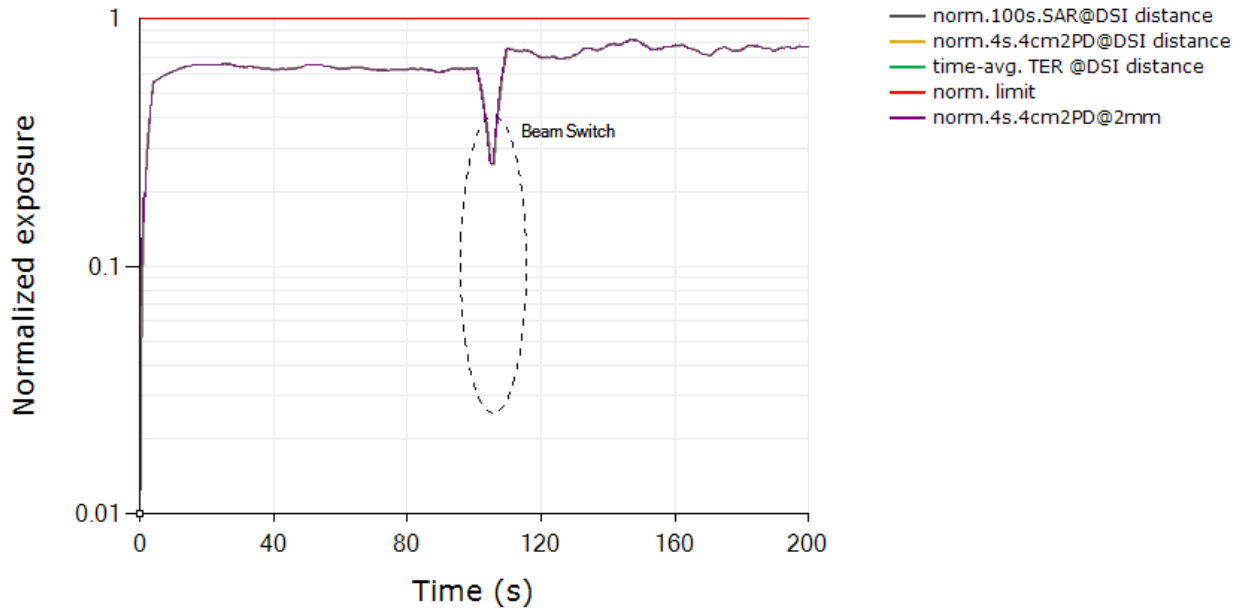
13.5 Change in Antenna Configuration (Beam) for n261

This test was measured with LTE Band 2 (DSI = 0) and mmW Band n261, with beam switch from Beam ID 20 to Beam ID 2, by following the test procedure is described in Section 5.3.3.

Normalized time-averaged exposures for LTE and mmW (4cm²PD), as well as total normalized time-averaged exposure versus time:

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Total Normalized Time-averaged RF Exposure
Tech: LTE, Band 2 / Tech: NR5G MMW, Band n261



FCC requirement for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.820
Validated	

Plot notes: 5G mmW NR call was established at ~1s time mark and LTE was placed in all-down bits immediately after 5G mmW NR call was established. For the rest of this test, mmW exposure is the dominant contributor as LTE is left in all-down bits. Here, Smart Transmit feature allocates a maximum of 1.0 for mmW for the first beam. At ~100s time mark (shown in black dotted ellipse), beam switch takes place and mmW starts transmission from the second beam. Second beam transmits at *input.power.limit* with active power limiting. Table 13-5 shows the calculations for the normalized 4cm² PD exposure values and the difference in EIRPs between two beams.

Table 13-5

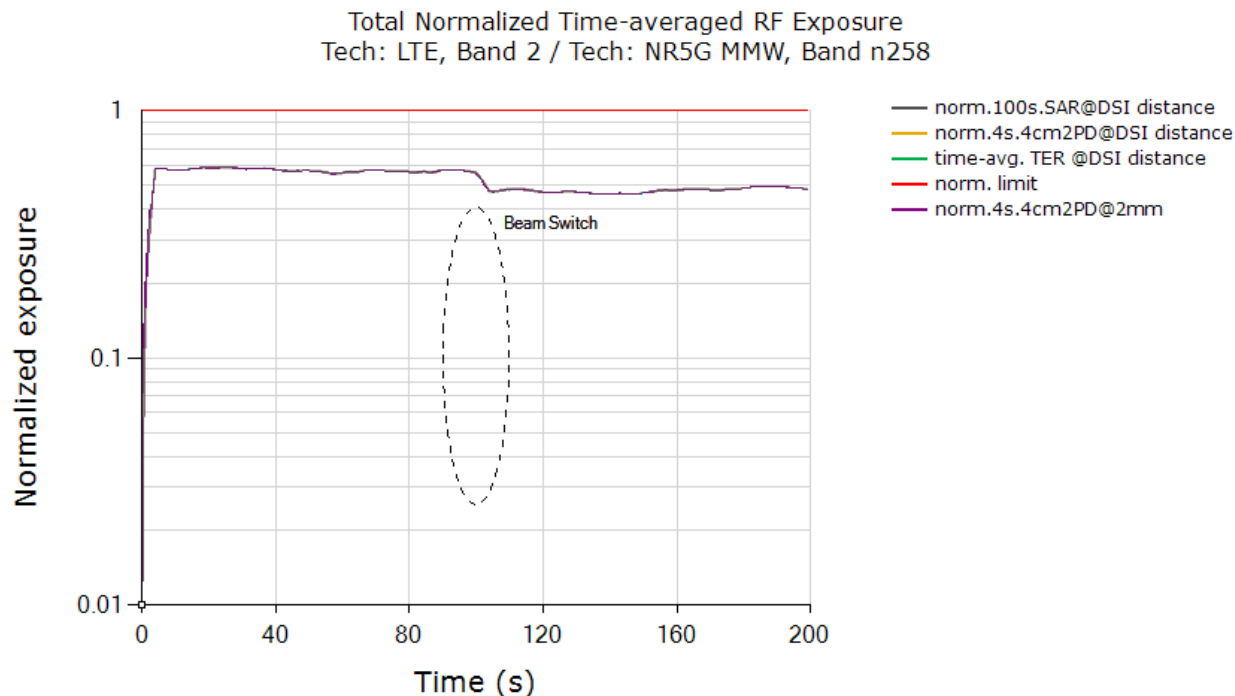
	Beam ID 20 (0 - 100 sec, before ellipse)	Beam ID 2 (100 - 200 sec, after ellipse)
Static psPD [W/m ²]	7.00	7.25
Input.power.limit [dBm]	6.2	12.3
Maximum Power [dBm]	14.00	
Normalized 4cm ² PD exposure value [% ± 1.4 dB uncertainty]	70.0%	72.5%
EIRP Difference [dB ± 1.4 dB uncertainty]	4.91	

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13.6 Change in Antenna Configuration (Beam) for n258

This test was measured with LTE Band 2 (DSI = 3) and mmW Band n258, with beam switch from Beam ID 12 to Beam ID 2, by following the test procedure is described in Section 5.3.3.

Normalized time-averaged exposures for LTE and mmW (4cm²PD), as well as total normalized time-averaged exposure versus time:



FCC requirement for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.588
Validated	

Plot notes: 5G mmW NR call was established at ~1s time mark and LTE was placed in all-down bits immediately after 5G mmW NR call was established. For the rest of this test, mmW exposure is the dominant contributor as LTE is left in all-down bits. Here, Smart Transmit feature allocates a maximum of 1.0 for mmW for the first beam. At ~100s time mark (shown in black dotted ellipse), beam switch takes place and mmW starts transmission from the second beam. Second beam transmits at *input.power.limit* with active power limiting. Table 13-6 shows the calculations for the normalized 4cm² PD exposure values and the difference in EIRPs between two beams.

Table 13-6

	Beam ID 40 (0 - 100 sec. before ellipse)	Beam ID 9 (100 - 200 sec. after ellipse)
Static psPD [W/m ²]	5.05	4.30
Input.power.limit [dBm]	12.0	2.0

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Maximum Power [dBm]	15.5	
Normalized 4cm ² PD exposure value [% $\pm$ 1.4 dB uncertainty]	50.5%	43.0%
EIRP Difference [dB $\pm$ 1.4 dB uncertainty]	2.56 dB	

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14 SYSTEM VERIFICATION (FREQ > 6 GHZ)

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.

Table 14-1
System Verification Results

System Verification										
Syst.	Freq. (GHz)	Date	Source SN	Probe SN	Normal psPD (W/m ² over 4 cm ²)		Deviation (dB)	Total psPD (W/m ² over 4 cm ²)		Deviation (dB)
					measured	target		measured	target	
N	30.00	10/21/2024	1035	9389	32.90	33.80	-0.12	33.20	34.30	-0.14

Note: A **10 mm distance spacing** was used from the reference horn antenna aperture to the probe element. This includes 4.45 mm from the reference antenna horn aperture to the surface of the verification source plus 5.55 mm from the surface to the probe. The SPEAG software requires a setting of "5.55 mm" for the correct setup.

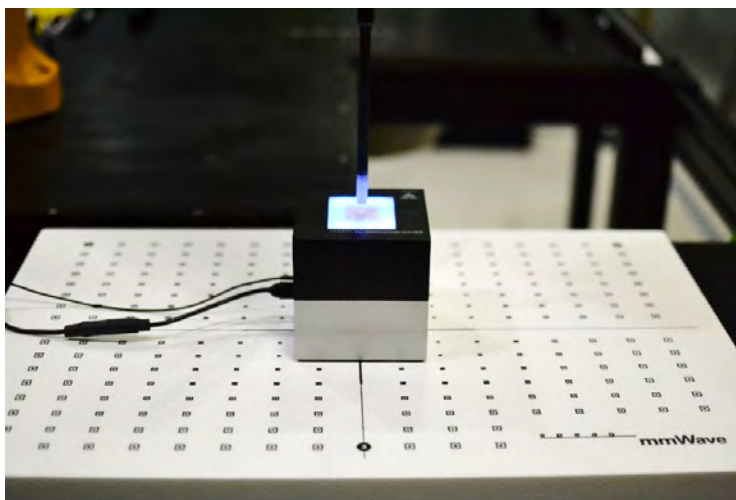


Figure 14-1
System Verification Setup Photo

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15 POWER DENSITY TEST RESULTS (FREQ > 6 GHZ)

15.1 PD Measurement Results for Time-Varying Tx Power Transmission

The following configurations were measured by following the detailed test procedure is described in Section 5.4:

1. LTE Band 2 (DSI = 0) and mmW Band n261 Beam ID 19
2. LTE Band 2 (DSI = 0) and mmW Band n258 Beam ID 15

The measured conducted Tx power of LTE and ratio of $\frac{[pointE(t)]^2}{[pointE_input.power.limit]^2}$ of mmW is converted into 1gSAR and 4cm²PD value, respectively, using Eq. (4a) and (4b), rewritten below:

$$1g_or_10gSAR(t) = \frac{conducted_Tx_power(t)}{conducted_Tx_power_P_{limit}} * 1g_or_10gSAR_P_{limit} \quad (4a)$$

$$4cm^2PD(t) = \frac{[pointE(t)]^2}{[pointE_input.power.limit]^2} * 4cm^2PD_input.power.limit \quad (4b)$$

$$\frac{\frac{1}{T_{SAR}} \int_{t-T_{SAR}}^t 1g_or_10gSAR(t) dt}{FCC\ SAR\ limit} + \frac{\frac{1}{T_{PD}} \int_{t-T_{PD}}^t 4cm^2PD(t) dt}{FCC\ 4cm^2PD\ limit} \leq 1 \quad (4c)$$

where, $conducted_Tx_power(t)$, $conducted_Tx_power_P_{limit}$, and $1g_or_10gSAR_P_{limit}$ correspond to the measured instantaneous conducted Tx power, measured conducted Tx power at P_{limit} , and measured 1gSAR or 10gSAR values at P_{limit} corresponding to LTE transmission. Similarly, $pointE(t)$, $pointE_input.power.limit$, and $4cm^2PD@input.power.limit$ correspond to the measured instantaneous E-field, E-field at $input.power.limit$, and 4cm²PD value at $input.power.limit$ corresponding to mmW transmission.

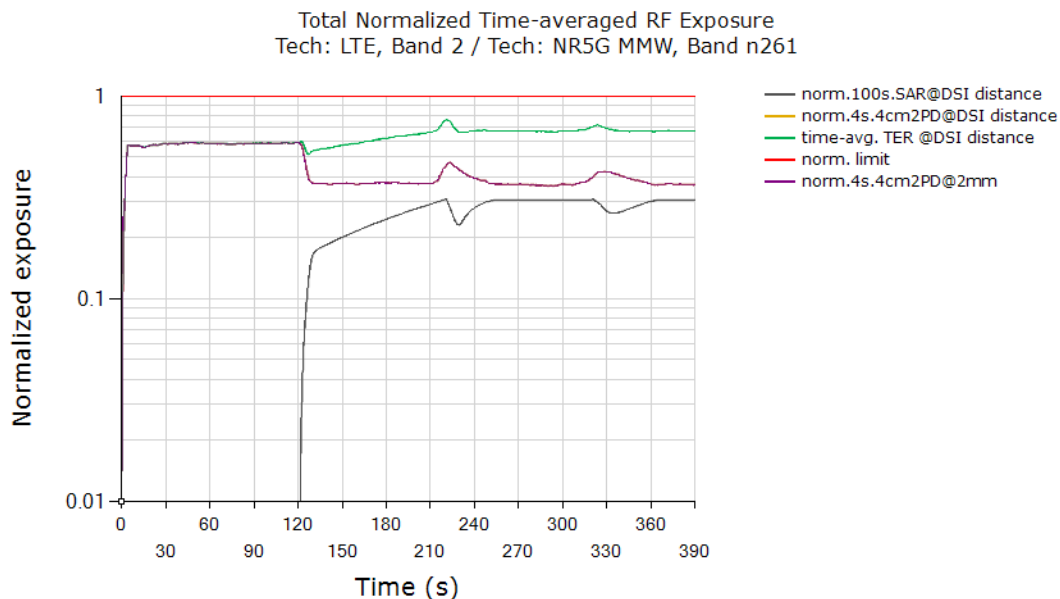
NOTE: cDASY6 system measures relative E-field, and provides ratio of $\frac{[pointE(t)]^2}{[pointE_input.power.limit]^2}$ versus time.

The radio configurations tested are described in Table 12-1 and Table 12-2. The 1gSAR at P_{limit} for LTE Band 2 DSI = 0, the measured 4cm²PD at $input.power.limit$ of mmW n261 beam 2 and n258 beam 15, are all listed in Table 12-3.

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15.1.1 PD Time-Varying Tx for n261

Step 2.e plot (in Section 5.4) for normalized instantaneous and time-averaged exposures for LTE and mmW n261 beam 2.



FCC limit for total RF exposure (normalized)	1.0
Max total normalized time-averaged RF exposure (green curve)	0.592
Validated	

Plot notes: LTE was placed in all-down bits immediately after 5G mmW NR call was established. Between 0s~120s, mmW exposure is the dominant contributor. Here, Smart Transmit feature allocates a maximum of 100% for mmW. Around the 120s time mark, LTE is set to all-up bits, taking away margin from mmW exposure gradually. Towards the end of the test, LTE is the dominant contributor towards RF exposure. Table 15-1 shows the calculations for the normalized 4cm² PD exposure values and the normalized 1g SAR exposure value.

Table 15-1

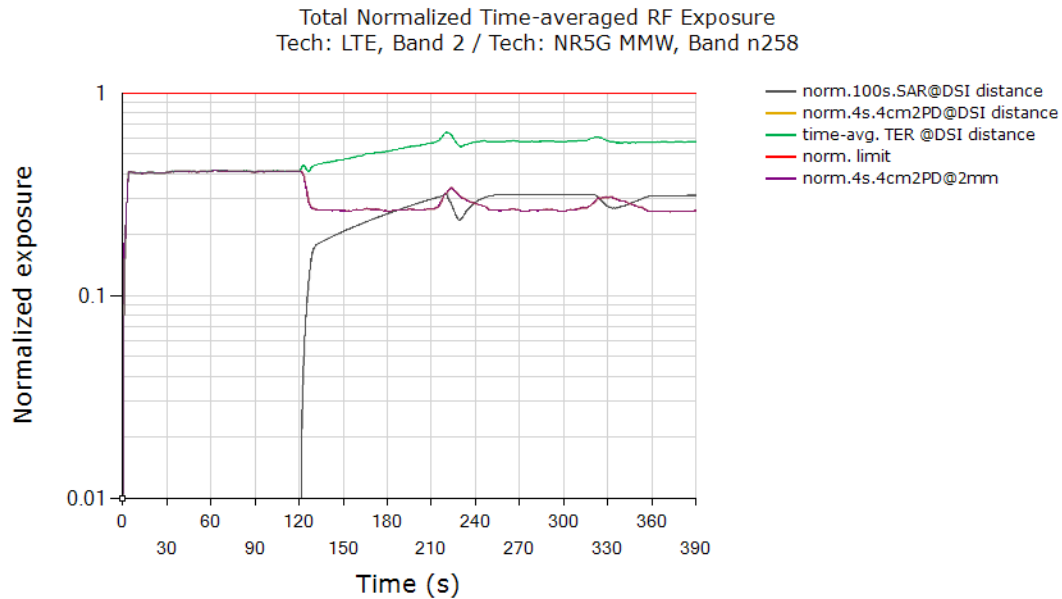
	Static 4cm ² PD or 1g SAR [W/m ² or W/kg]	Normalized Exposure	Uncertainty [dB]
0s~120s: NR Green/Orange Curve	7.25	72.5%	1.4
After ~120s: LTE Black Curve	0.888	22.2%	1.0

As can be seen, the power limiting enforcement is effective and the total normalized time-averaged RF exposure does not exceed 1.0. Therefore, Qualcomm® Smart Transmit time averaging feature is validated.

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15.1.2 PD Time-Varying Tx for n258

Step 2.e plot (in Section 5.4) for normalized instantaneous and time-averaged exposures for LTE and mmW n258 beam 15.



FCC limit for total RF exposure	1.0
Max total normalized time-averaged RF exposure (green curve)	0.643
Validated	

Plot notes: LTE was placed in all-down bits immediately after 5G mmW NR call was established. Between 0s~120s, mmW exposure is the dominant contributor. Here, Smart Transmit feature allocates a maximum of 100% for mmW. Around the 120s time mark, LTE is set to all-up bits, taking away margin from mmW exposure gradually. Towards the end of the test, LTE is the dominant contributor towards RF exposure. Table 15-2 shows the calculations for the normalized 4cm² PD exposure values and the normalized 1g SAR exposure value.

Table 15-2

	Static 4cm ² PD or 1g SAR [W/m ² or W/kg]	Normalized Exposure	Uncertainty [dB]
0s~120s: NR Green/Orange Curve	5.08	50.8%	1.4
After ~120s: LTE Black Curve	0.888	22.2%	1.0

As can be seen, the power limiting enforcement is effective and the total normalized time-averaged RF exposure does not exceed 1.0. Therefore, Qualcomm® Smart Transmit time averaging feature is validated.

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16 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MY45113242
Agilent	E4438C	ESG Vector Signal Generator	11/14/2023	Annual	11/14/2024	MY45093852
Agilent	E4438C	ESG Vector Signal Generator	11/15/2023	Annual	11/15/2024	MY45092078
Agilent	N5182A	MXG Vector Signal Generator	3/15/2024	Annual	3/15/2025	MY47420651
Agilent	N5182A	MXG Vector Signal Generator	3/7/2024	Annual	3/7/2025	MY47420603
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433972
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433974
Anritsu	MT8000A	Radio Communication Test Station	4/10/2024	Annual	4/10/2025	6261987983
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/15/2024	Annual	5/15/2025	6262150047
Anritsu	MA24106A	USB Power Sensor	12/4/2023	Annual	12/4/2024	1520501
Anritsu	MA24106A	USB Power Sensor	4/15/2024	Annual	4/15/2025	1827528
Anritsu	ML2496A	Power Meter	6/15/2023	Annual	6/15/2024	1138001
Anritsu	MA2411B	Pulse Power Sensor	7/1/2024	Annual	7/1/2025	1911105
Anritsu	MA2411B	Pulse Power Sensor	7/10/2024	Annual	7/10/2025	1126066
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
COMTECH	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M155A00-009
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240174346
Control Company	4040	Therm./ Clock/ Humidity Monitor	4/15/2024	Biennial	4/15/2026	240310280
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240171096
K & L	11SH10-1300/U4000	High Pass Filter	CBT	N/A	CBT	11SH10-1300/U4000 - 2
Keysight Technologies	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	E7515B	UXM 5G Wireless Test Platform	CBT	N/A	CBT	MY59150289
Keysight Technologies	M1740A	mmWave Transceiver	CBT	N/A	CBT	MY59291989
Keysight Technologies	M1740A	mmWave Transceiver	CBT	N/A	CBT	MY59291982
Keysight Technologies	E7770A	Common Interface Unit	CBT	N/A	CBT	MY58290483
Krytar	110067006	Directional Coupler, 10 - 67 GHz	CBT	N/A	CBT	200391
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini Circuits	ZA2PD2-63-S+	Power Splitter	CBT	N/A	CBT	SUU64901930
Mini Circuits	ZAPD-2-272-S+	Power Splitter	CBT	N/A	CBT	SF702001405
MiniCircuits	NLP-1200+	Low Pass Filter	CBT	N/A	CBT	VUU78201318
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Narda	4216-10	Directional Coupler, 0.5 to 8.0 GHz, 10 dB	CBT	N/A	CBT	01492
Narda	4216-10	Directional Coupler, 0.5 to 8.0 GHz, 10 dB	CBT	N/A	CBT	01493
Narda	4772-3	Attenuator	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator	CBT	N/A	CBT	120
Narda	BW-S10W2+	Attenuator	CBT	N/A	CBT	831
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Newmark System	NSC-G2	Motion Controller	CBT	N/A	CBT	1007-D
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/11/2024	Annual	1/11/2025	150117
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/10/2024	Annual	1/10/2025	131454
Rohde & Schwarz	NRP85	3 Path Dipole Power Sensor	1/16/2024	Annual	1/16/2025	109956
Rohde & Schwarz	NRP85	3 Path Dipole Power Sensor	12/14/2023	Annual	12/14/2024	109052
Rohde & Schwarz	NRP85	3-Path Dipole Power Sensor	12/14/2023	Annual	12/14/2024	108168
Rohde & Schwarz	NRP50S	3-Path Dipole Power Sensor	12/14/2023	Annual	12/14/2024	101339
SPEAG	5G Verification Source 30GHz	30GHz System Verification Antenna	2/7/2024	Annual	2/7/2025	1035
SPEAG	DAK-3.5	Dielectric Assessment Kit	1/16/2024	Annual	1/16/2025	1278
SPEAG	D750V2	750 MHz SAR Dipole	3/14/2022	Triennial	3/14/2025	1054
SPEAG	D835V2	835 MHz SAR Dipole	1/18/2024	Biennial	1/18/2025	4d132
SPEAG	D1900V2	1900 MHz SAR Dipole	8/8/2022	Triennial	8/8/2025	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	8/7/2024	Biennial	8/7/2025	719
SPEAG	D2600V2	2600 MHz SAR Dipole	11/15/2022	Biennial	11/15/2024	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/17/2024	Annual	1/17/2025	1191
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/15/2023	Annual	11/15/2024	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/9/2024	Annual	1/9/2025	859
SPEAG	EUmmWV3	EUmmWV3 Probe	1/5/2024	Annual	1/5/2025	9389
SPEAG	EX3DV4	SAR Probe	11/14/2023	Annual	11/14/2024	7551
SPEAG	EX3DV4	SAR Probe	1/11/2024	Annual	1/11/2025	7571
Zhuohai Bojay Electronics	BJ8827	Shielded Test Enclosure	N/A	N/A	N/A	F229647

Notes:

1. CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler, or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.
2. Each equipment item is used solely within its respective calibration period.

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17 MEASUREMENT UNCERTAINTIES

For SAR Measurements

a	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System								
Probe Calibration	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	2.0	R	1.73	1.0	1.0	1.2	1.2	∞
Linearity	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	0.25	R	1.73	1.0	1.0	0.1	0.1	∞
Readout Electronics	0.3	N	1	1.0	1.0	0.3	0.3	∞
Response Time	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions - Noise	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	6.7	R	1.73	1.0	1.0	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.7	N	1	1.0	1.0	2.7	2.7	35
Device Holder Uncertainty	1.67	N	1	1.0	1.0	1.7	1.7	5
Output Power Variation - SAR drift measurement	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
SAR Scaling	0.0	R	1.73	1.0	1.0	0.0	0.0	∞
Phantom & Tissue Parameters								
Phantom Uncertainty (Shape & Thickness tolerances)	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	4.2	N	1	0.78	0.71	3.3	3.0	10
Liquid Permittivity - measurement uncertainty	4.1	N	1	0.23	0.26	1.0	1.1	10
Liquid Conductivity - Temperature Uncertainty	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)						RSS	11.5	11.3
Expanded Uncertainty (95% CONFIDENCE LEVEL)						k=2	23.0	22.6

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For PD Measurements

a	b	c	d	e	f = c x f/e	g
Uncertainty Component	Unc. (± dB)	Prob. Dist.	Div.	c _i	u _i (± dB)	v _i
Measurement System						
Calibration	0.49	N	1	1	0.49	∞
Probe Correction	0.00	R	1.73	1	0.00	∞
Frequency Response	0.20	R	1.73	1	0.12	∞
Sensor Cross Coupling	0.00	R	1.73	1	0.00	∞
Isotropy	0.50	R	1.73	1	0.29	∞
Linearity	0.20	R	1.73	1	0.12	∞
Probe Scattering	0.00	R	1.73	1	0.00	∞
Probe Positioning offset	0.30	R	1.73	1	0.17	∞
Probe Positioning Repeatability	0.04	R	1.73	1	0.02	∞
Sensor Mechanical Offset	0.00	R	1.73	1	0.00	∞
Probe Spatial Resolution	0.00	R	1.73	1	0.00	∞
Field Impedance Dependence	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Drift	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Noise	0.04	R	1.73	1	0.02	∞
Measurement Area Truncation	0.00	R	1.73	1	0.00	∞
Data Acquisition	0.03	N	1	1	0.03	∞
Sampling	0.00	R	1.73	1	0.00	∞
Field Reconstruction	0.60	R	1.73	1	0.35	∞
Forward Transformation	0.00	R	1.73	1	0.00	∞
Power Density Scaling	0.00	R	1.73	1	0.00	∞
Spatial Averaging	0.10	R	1.73	1	0.06	∞
System Detection Limit	0.04	R	1.73	1	0.02	∞
Test Sample Related						
Probe Coupling with DUT	0.00	R	1.73	1	0.00	∞
Modulation Response	0.40	R	1.73	1	0.23	∞
Integration Time	0.00	R	1.73	1	0.00	∞
Response Time	0.00	R	1.73	1	0.00	∞
Device Holder Influence	0.10	R	1.73	1	0.06	∞
DUT alignment	0.00	R	1.73	1	0.00	∞
RF Ambient Conditions	0.04	R	1.73	1	0.02	∞
Ambient Reflections	0.04	R	1.73	1	0.02	∞
Immunity/Secondary Reception	0.00	R	1.73	1	0.00	∞
Drift of DUT	0.21	R	1.73	1	0.12	∞
Combined Standard Uncertainty (k=1)					RSS	0.76
Expanded Uncertainty (95% CONFIDENCE LEVEL)					k=2	1.52

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18 CONCLUSION

18.1 Measurement Conclusion

The SAR evaluation indicates that the DUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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