TEST REPORT

FCC SAR Part 1 Test for SC-51F
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-SR-2412-FC003-R2

DATE OF ISSUE
January 3, 2025

Tested by
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Jan. 03, 2025

FCC ID
A3LSMS931JPN

Applicant	SAMSUNG Electronics Co., Ltd 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677, Korea
Product Name	Mobile Phone
Model Name	SC-51F
Additional Model Name	SCG31
Date of Test	Oct. 01, 2024~ Nov. 27, 2024
Location of Test	■ Permanent Testing Lab ☐ On Site Testing Lab (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA)
FCC Rule Part(s)	CFR §2.1093
Test Results	PASS (SAR Limit : 1.6 W/kg PD Limit : 1 ㎽/㎠) Refer to the clause 3.2 Attestation of test result

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	Dec. 04, 2024	Initial Release
1	Dec. 27, 2024	Added NR Band n5(Main 1)
2	Jan. 03, 2025	Revised Sec. 3.2

Notice

Content
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s). The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***. When confirmation of authenticity of this test report is required, please contact www.hct.co.kr The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. Test Regulations

The tests documented in this report were performed in accordance with FCC CFR § 2.1093, IEEE 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r02
- FCC KDB Publication 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB Publication 447498 D01 General RF Exposure Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03
- FCC KDB Publication 971168 D01 Power Meas License Digital Systems v03r01

In Addition to the above, the following information was used.

- October 2013 TCB Workshop Notes (GPRS testing criteria)
- October 2014 TCB Workshop Notes (Overlapping LTE Bands)
- April 2015 TCB Workshop Notes (Overlapping LTE Bands Test exclusion)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- April 2018 TCBC Workshop Notes (LTE UL CA, DL CA SAR Test Exclusion)
- April 2019 TCBC Workshop Notes (IEEE 802.11 ax)
- April 2019 and Oct 2020 TCBC Workshop Notes (Dynamic Antenna tuning)
- October 2024 TCB Workshop Notes (CA-DL Test Reductions)

FCC RF Exposure evaluation of U-NII 6 -7 ㎓ Band of this device were measured by referring to the interim procedures in TCB Workshop document of Oct 2020, IEC/IEEE 62209-1528:2020 and also the App Note of SPEAG, the manufacturer of measuring equipment.
SAR Testing was performed using 6.5 ㎓ SAR Probe calibration factor according to FCC TCBC Document.

November 2017, October 2018, April 2019, November 2019, October 2020, October 2022, TCBC Workshop Notes.
SPEAG DASY6 System Handbook
SPEAG DASY6 Application Note (Interim Procedures for Operating at 6 -10 ㎓) (ver.9)
IEEE 1528-2013
IEC TR 63170:2018
IEC 62479:2010
IEC/IEEE 63195-1:2022

2. Test Location

2.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Telephone	031-645-6300
Fax.	031-645-6401

2.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Korea	National Radio Research Agency (Designation No. KR0032)
	KOLAS (Testing No. KT197)

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SC-51F
Additional Model Name	SCG31
Equipment Type	Mobile Phone
FCC ID	A3LSMS931JPN
Application Type	Certification
Applicant	SAMSUNG Electronics Co., Ltd.

3.2 Attestation of test result of device under test

The Highest Reported SAR						
Band	Tx. Frequency	Equipment Class	Reported SAR (W/kg)			
			1 g Head	1g BodyWorn	1 g Hotspot	10 g Extremity
GSM/GPRS/EDGE 850	824.2 ㎒ ~ 848.8 ㎒	PCE	0.78	0.72	0.72	N/A
GSM/GPRS/EDGE 1900	1 850.2 ㎒ ~ 1 909.8 ㎒	PCE	<0.10	0.46	1.18	N/A
UMTS Band 5	826.4 ㎒ ~ 846.6 ㎒	PCE	0.86	0.70	0.70	N/A
LTE FDD Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒	PCE	0.19	0.46	1.04	N/A
LTE FDD Band 4 (AWS)	1 710.7 ㎒ ~ 1 754.3 ㎒	PCE	N/A	N/A	N/A	N/A
LTE FDD Band 5 (Cell)	824.7 ㎒ ~ 848.3 ㎒	PCE	N/A	N/A	N/A	N/A
LTE FDD Band 12	699.7 ㎒ ~ 715.3 ㎒	PCE	0.98	0.59	0.59	N/A
LTE FDD Band 13	779.5 ㎒ ~ 784.5 ㎒	PCE	1.05	0.62	0.62	N/A
LTE FDD Band 26 (Cell)	814.7 ㎒ ~ 848.3 ㎒	PCE	0.88	0.57	0.57	N/A
LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒	PCE	1.04	0.52	1.19	N/A
LTE FDD Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒	PCE	0.28	0.57	1.12	N/A
NR FDD Band n5	826.5 ㎒ ~ 846.5 ㎒	PCE	0.92	0.51	0.63	N/A
NR TDD Band n41	2 501.01 ㎒ ~ 2 685 ㎒	PCE	0.44	0.41	1.07	N/A
NR FDD Band n66	1 712.5 ㎒ ~ 1 777.5 ㎒	PCE	0.24	0.52	0.78	N/A
2.4 GHz WLAN	2 412 ㎒ ~ 2 472 ㎒	DTS	0.57	0.33	0.36	N/A
U-NII-1	5 180 ㎒ ~ 5 240 ㎒	NII	N/A	N/A	N/A	N/A
U-NII-2A	5 260 ㎒ ~ 5 320 ㎒	NII	0.89	0.47	N/A	1.88
U-NII-2C	5 500 ㎒ ~ 5 720 ㎒	NII	0.62	0.47	N/A	2.37
U-NII-3	5 745 ㎒ ~ 5 825 ㎒	NII	0.76	0.61	0.61	N/A
U-NII-4	5 845 ㎒ ~ 5 885 ㎒	NII	0.87	0.74	N/A	2.53
6 ㎓ WLAN	5 925 ㎒ ~ 7 115 ㎒	6CD/6VL	0.15	<0.10	0.12	0.51
Bluetooth/LE	2 402 ㎒ ~ 2 480 ㎒	DSS	0.73	0.19	0.37	N/A
NFC	13.56 ㎒	DXX	N/A	N/A	N/A	<0.10
Simultaneous SAR per KDB 690783 D01v01r03			**1.56**	**1.58**	**1.58**	**2.53**
Date(s) of Tests:	Oct. 01, 2024 ~ Nov. 25, 2024					

The Highest Reported APD/iPD(㎽/㎠)						
Band	Tx. Frequency	Equipment Class	APD (㎽/㎠)			
			4 ㎠ Head	4 ㎠ Body Worn	4 ㎠ Hotspot	4 ㎠ Extremity
6 ㎓ WLAN	5 925 ㎒ ~ 7 115 ㎒	6CD/6VL	<0.10	<0.10	<0.10	0.88
			iPD(㎽/㎠) 4 ㎠			
			0.79			
Date(s) of Tests:	Oct. 16, 2024 ~ Oct. 29, 2024					

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band & Mode	Operating Mode	Tx Frequency
GSM850	Voice / Data	824.2 ㎒ ~ 848.8 ㎒
GSM1900	Voice / Data	1 850.2 ㎒ ~ 1 909.8 ㎒
UMTS Band 5	Voice / Data	826.4 ㎒ ~ 846.6 ㎒
LTE FDD Band 2 (PCS)	Voice / Data	1 850.7 ㎒ ~ 1 909.3 ㎒
LTE FDD Band 4 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 754.3 ㎒
LTE FDD Band 5 (Cell)	Voice / Data	824.7 ㎒ ~ 848.3 ㎒
LTE FDD Band 12	Voice / Data	699.7 ㎒ ~ 715.3 ㎒
LTE FDD Band 13	Voice / Data	779.5 ㎒ ~ 784.5 ㎒
LTE FDD Band 26	Voice / Data	814.7 ㎒ ~ 848.3 ㎒
LTE TDD Band 41	Voice / Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE FDD Band 66 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 779.3 ㎒
NR FDD Band n5	Voice / Data	826.5 ㎒ ~ 846.5 ㎒
NR TDD Band n41	Voice / Data	2 501.01 ㎒ ~ 2 685 ㎒
NR FDD Band n66	Voice / Data	1712.5 ㎒ ~ 1777.5 ㎒
U-NII-1	Voice / Data	5 180 ㎒ ~ 5 240 ㎒
U-NII-2A	Voice / Data	5 260 ㎒ ~ 5 320 ㎒
U-NII-2C	Voice / Data	5 500 ㎒ ~ 5 720 ㎒
U-NII-3	Voice / Data	5 745 ㎒ ~ 5 825 ㎒
U-NII-4	Voice / Data	5 845 ㎒ ~ 5 885 ㎒
U-NII-5	Voice / Data	5 925 ㎒ – 6 425 ㎒
U-NII-6	Voice / Data	6 425 ㎒ – 6 525 ㎒
U-NII-7	Voice / Data	6 525 ㎒ – 6 865 ㎒
U-NII-8	Voice / Data	6 865 ㎒ – 7 115 ㎒
2.4 ㎓ WLAN	Voice / Data	2 412 ㎒ ~ 2 472 ㎒
Bluetooth / LE 5.4	Data	2 402 ㎒ ~ 2 480 ㎒
NFC	Data	13.56 ㎒
WPC	Data	110 ㎑ ~ 148 ㎑

Device Description		
Battery	EB-BS931ABY (SDI)	
Device Serial Numbers	Mode	Serial Number
	GSM850, GSM1900, UMTS Band 5 LTE Band 2,12,13,26,41,66 NR Band n5, n66, n41	XIB0110M, XKI0896M, XIB0096M, XIB0119M, XKI0604M
	WLAN 2.4G, 5G, 6E, BT, NFC	XIB0122M, XIB0212M
	The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics are within operational tolerances expected for production units.	

4.2 Time-Averaging Algorithm for RF Exposure Compliance

This Device is enabled with the Qualcomm® Smart Transmit Gen2 Sub 6 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.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit (i.e., Plimit for sub-6 radio and WLAN/BT), for each characterized technology and band (see SAR Part 0 Test Report). The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit (i.e., Plimit for sub-6 radio and WLAN/BT), for each characterized technology and band (see SAR Part 0 Test Report).

Smart Transmit allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI).

Note that the device uncertainty for sub-6 GHz WWAN and WLAN/BT is 1.0 dB for this EUT.

All MIMO Pmax and Plimit are defined per Antenna chain.

*Note all Plimit EFS and maximum tune up output power Pmax levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD, GFSK, OFDM modulation schemes (e.g. GSM and LTE TDD and WLAN/BT).
*Maximum tune up output power Pmax is used to configure EUT during RF tune up procedure. The maximum allowed output power is equal to maximum Tune up output power + 1 dB device design uncertainty. The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G Sub6 WWAN and WLAN/BT technology, band, and DSI = minimum of "Plimit EFS" and "Maximum tune up output power Pmax" + 1 dB device uncertainty.

SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06. The purpose of this report (SAR Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

Measurement Condition: All conducted power and SAR measurements in this report (SAR Part 1 test) were performed by setting Reserve_power_margin (Smart Transmit EFS entry) to 0 dB

Plim values in green indicate Plimit < Pmax			Plim values in grey indicate Plim > Pmax				
Plimit corresponding to 1 W/kg (1g) 2.5W/kg(10g) SAR_Design_target							Pmax
SAR Exposure Position			Body-worn	Head (RCV ON)	Hotspot (Hotspot on)	Phablet	Maximum Tune-up Output Power (Frame Averaged Power) [dBm]
Averaging volume			1g	1g	1g	10g	
seperation Distance			10 mm	0 mm	10 mm	0 mm	
Mode	Band	Antenna	DSI=0	DSI=1	DSI=0	DSI=0	
GSM/GPRS/EDGE	850	MAIN 1	33.1	35.3	31.1	28.0	24.8
GSM/GPRS/EDGE	850	SUB 1	27.3	22.3	27.3	29.8	24.8
GSM/GPRS/EDGE	1900	MAIN 1	20.2	33.2	20.2	20.2	21.8
UMTS	5	MAIN 1	27.7	31.9	27.7	28.5	24.0
UMTS	5	SUB 1	26.6	20.0	26.5	26.3	24.0
LTE FDD	2	MAIN 1	19.0	31.7	19.0	19.0	23.5
LTE FDD	66	MAIN 1	19.5	30.5	19.5	19.5	24.0
LTE FDD	12	MAIN 1	28.5	33.8	28.5	29.3	23.5
LTE FDD	12	SUB 1	26.8	20.5	26.8	25.7	23.5
LTE FDD	13	MAIN 1	31.5	34.2	29.6	28.0	23.5
LTE FDD	13	SUB 1	26.6	21.0	26.6	26.8	23.5
LTE FDD	26	MAIN 1	29.6	32.5	29.4	27.9	24.5
LTE FDD	26	SUB 1	28.0	20.0	27.9	26.9	24.5
LTE FDD	41	MAIN 2	25.8	34.5	23.5	22.1	22.0
LTE FDD	41	SUB 2	18.5	16.0	18.5	18.5	22.0
NR FDD	5	MAIN 1	31.0	33.1	31.0	27.1	24.0
NR FDD	5	SUB 1	28.6	20.0	27.8	25.5	24.0
NR TDD	41	MAIN 2	21.0	21.0	21.0	21.0	24.0
NR TDD	41	SUB 2	20.0	15.0	20.0	20.0	24.0
NR FDD	66	MAIN 1	19.0	31.4	19.0	19.0	23.5
NR FDD	66	SUB 2	21.0	15.0	21.0	21.0	23.5
WLAN	2.4	Sub 4	24.1	14.0	23.1	21.1	17.0
WLAN	2.4	Sub 6	26.3	14.0	26.3	22.4	17.0
WLAN	2.4	Sub 4,6	22.9	14.0	22.5	20.8	17.0
WLAN	5	Sub 4	21.0	14.0	21.0	18.6	17.0
WLAN	5	Sub 1	21.7	14.0	21.7	23.3	17.0
WLAN	5	Sub 1,4	19.7	14.0	19.7	17.5	17.0
WLAN	6	Sub 4	9.0	9.0	9.0	9.0	16.0
WLAN	6	Sub 1	9.0	9.0	9.0	9.0	16.0
WLAN	6	Sub 1,4	9.0	9.0	9.0	9.0	16.0
BT	2.4	Sub 4	25.3	14.0	22.4	22.7	17.0
BT	2.4	Sub 6	25.3	14.0	25.3	23.3	17.0

Table 4-4 SAR Characterization

*Note all Plimit and maximum tune up output power Pmax levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM, LTE TDD, 5G NR TDD).

*The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G WWAN technology, band, and SAR Exposure condition=minimum of "Plimit" and "Maximum tune up output power: "Pmax" + 1dB device uncertainty.

The maximum time averaged output power means Plimit for each modes SAR values in this report were scaled to the maximum allowed output power to determine compliance per KDB Publication 447498 D01v06.

4.3 Nominal and Maximum Output Power Specifications

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

4.3.1 2G/3G/4G/5G Nominal Output Power

a. GSM/GPRS/EDGE

Mode/ Band	DSI	Voice	Burst Average GMSK				Burst Average EDGE 8-PSK			
		(in dBm)	(in dBm)				(in dBm)			
		1 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM/ GPRS/ EDGE 850 Lower (Main1)	Pmax	32.0	32.0	31.0	28.5	26.5	26.0	24.0	23.5	23.0
	DSI=0 (Free)	32.0	32.0	31.0	28.5	26.5	26.0	24.0	23.5	23.0
	DSI=1 (RCV)	32.0	32.0	31.0	28.0	26.5	26.0	24.0	23.5	23.0

Tolerance: -1.5 dB ~ +1.0 dB

Mode/ Band	DSI	Voice	Burst Average GMSK				Burst Average EDGE 8-PSK			
		(in dBm)	(in dBm)				(in dBm)			
		1 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM/ GPRS/ EDGE 850 Upper (SUB1)	Pmax	32.0	32.0	31.0	28.5	26.5	26.0	24.0	23.5	23.0
	DSI=0 (Free)	32.0	32.0	31.0	28.5	26.5	26.0	24.0	23.5	23.0
	DSI=1 (RCV)	31.0	31.0	28.5	25.5	24.0	26.0	24.0	23.0	21.0

Tolerance: -1.5 dB ~ +1.0 dB

Mode/ Band	DSI	Voice	Burst Average GMSK				Burst Average EDGE 8-PSK			
		(in dBm)	(in dBm)				(in dBm)			
		1 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM/ GPRS/ EDGE 1900	Pmax	29.0	29.0	28.0	26.0	24.0	26.0	24.0	22.0	21.0
	DSI=0 (Free)	28.0	28.0	26.0	24.5	22.5	25.0	23.5	22.5	21.0
	DSI=1 (RCV)	29.0	29.0	28.0	26.0	24.0	260.	24.0	22.0	21.0

Tolerance: -1.5 dB ~ +1.0 dB

b. UMTS/HSDPA/HSUPA

Mode/Band	DSI	Modulated Average (dBm)			
		3GPP Rel99	HSDPA	HSUPA	DC-HSDPA
			3GPP Cat.24	3GPP Cat.6	3GPP Cat.24
UMTS B5 [MAIN1]	Pmax	24.0	23.0	23.0	23.0
	DSI=0 (Free)	24.0	23.0	23.0	23.0
	DSI=1 (RCV)	24.0	23.0	23.0	23.0
UMTS B5 [SUB1]	Pmax	24.0	23.0	23.0	23.0
	DSI=0 (Free)	24.0	23.0	23.0	23.0
	DSI=1 (RCV)	20.0	20.0	20.0	20.0

Tolerance: -1.5 dB ~ +1.0 dB

c. LTE

Mode / Band	Antenna	Pmax (in dBm)	Plimit (in dBm) Burst Average Power	
			DSI=0	DSI=1
		Burst Average Power	Free	RCV
LTE B2	M1	23.5	19	23.5
LTE B4	M1	23.5	19	23.5
LTE B5	M1	24	24	24
LTE B5	S1	24	24	20
LTE B12	M1	23.5	23.5	23.5
LTE B12	S1	23.5	23.5	20.5
LTE B13	M1	23.5	23.5	23.5
LTE B13	S1	23.5	23.5	21
LTE B26	M1	24.5	24.5	24.5
LTE B26	S1	24.5	24.5	20
LTE B66	M1	24	19.5	24
LTE B41	M2	24	24	24
LTE B41	S2	24	20.5	18

Tolerance: -1.5 dB ~ +1.0 dB

d. NR

Mode / Band	Antenna	Pmax (in dBm)	Plimit (in dBm) Burst Average Power	
			DSI=0	DSI=1
		Burst Average Power	Free	RCV
N5	M1	24.0	24.0	24.0
N5	S1	24.0	24.0	20.0
N66	M1	23.5	19.0	23.5
N66[ENDC only]	S2	23.5	21.0	15.0
N41 PC3[Default]	S2	24.0	20.0	15.0
N41 PC3[Default]	M2	24.0	21.0	21.0

Tolerance: -1.5 dB ~ +1.0 dB

4.3.2 Maximum 2.4 GHz, 5 GHz, 6 GHz WIFI output power

a. Maximum Power (Pmax)

Mode	Band	SISO(ANT 1)							SISO(ANT 2)							MIMO						
		a	b	g	n	ac	ax (SU)	be (SU)	a	b	g	n	ac	ax (SU)	be (SU)	a	b	g	n	ac	ax(SU)	be(SU)
2.4GHz	2.45GHz		17 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 15 Ch.2 : 15.5 Ch.11: 15.5 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14.5 Ch.2 : 15.5 Ch.11: 15 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14.5 Ch.2 : 15.5 Ch.11: 15 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14 Ch.11: 14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14 Ch.11: 14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)		Same as ant1	Same as ant1	Same as ant1	Same as ant1	Same as ant1	Same as ant1		Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (20MHz)	UNII 1	17			17	17 Ch36 :16.5	17 Ch36 : 16	17 Ch36 : 16	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2A	17 Ch64 : 16			17 Ch64 : 16	17 Ch60, 64 : 16	17 Ch64 : 16	17 Ch64 : 16	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2C	17 Ch100 : 16			17 Ch100 : 16	17 Ch100 : 16	17 Ch100 : 16	17 Ch100 : 16	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 3	17			17	17	17	17	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 4	17			17	17	17	17	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (40MHz)	UNII 1				17 Ch38 : 13	17 Ch38 : 14	17 Ch38 : 11	17 Ch38 : 11				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2A				17 Ch62 : 13	17 Ch62 : 13	17 Ch62 : 15	17 Ch62 : 15				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2C				17 Ch102: 12	17 Ch102: 12	17 Ch102 : 13	17 Ch102 : 13				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 3				17	17	17	17				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 4				17	17	17	17				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (80MHz)	UNII 1					12	13	13					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2A					12	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2C					17 Ch106 : 12	17 Ch106 : 12	17 Ch106 : 12					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 3					17	17	17					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 4					17	17	17					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
5GHz (160MHz)	UNII 1					13	15	15					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2A					13	15	15					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2C					12	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 3					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 4					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
6GHz_LPI (20MHz)	U-NII-5	8					8 ch2 : 6	8 ch2 : 6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-6	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-8	9 Ch233 : 5					9 ch233 : 5	9 ch233 : 5	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_LPI (40MHz)	U-NII-5						11	11						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						12	12						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						12	12						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						12	12						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (80MHz)	U-NII-5						14	14						Same as ant1	Same as ant1						Ant1+2	Ant1+2

	U-NII-6						15	15						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						15	15						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						15	15						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (160MHz)	U-NII-5						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						16 Ch207 :13	16 Ch207 :13						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (320MHz)	U-NII-5							16							Same as ant1							Ant1+2
	U-NII-6							16							Same as ant1							Ant1+2
	U-NII-7																					
	U-NII-8							16 Ch.191:14							Same as ant1	Ant1+2						Ant1+2
6GHz_SP (20MHz)	U-NII-5	16 Ch2:8					16 Ch2 :6	16 Ch2 :6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	16					16	16	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_SP (40MHz)	U-NII-5						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (80MHz)	U-NII-5						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (160MHz)	U-NII-5						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						16	16						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (320MHz)	U-NII-5							16							Same as ant1							Ant1+2
6GHz_VLP (20MHz)	U-NII-5	4					4	4	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	6					6	6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_ VLP (40MHz)	U-NII-5						7	7						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						8	8						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (80MHz)	U-NII-5						10	10						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						11	11						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (160MHz)	U-NII-5						11	11						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						11	11						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (320MHz)	U-NII-5							11							Same as ant1							Ant1+2

(Upper tolerance: target +1.0dB)

b. Plimit – Body (DSI = 0)

Mode	Band	SISO(ANT 1)							SISO(ANT 2)							MIMO						
		a	b	g	n	ac	ax (SU)	be (SU)	a	b	g	n	ac	ax (SU)	be (SU)	a	b	g	n	ac	ax(SU)	be(SU)
2.4GHz	2.45GHz		17 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 15 Ch.2 : 15.5 Ch.11: 15.5 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14.5 Ch.2 : 15.5 Ch.11: 15 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14.5 Ch.2 : 15.5 Ch.11: 15 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14 Ch.11: 14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch.1: 14 Ch.11: 14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)		Same as ant1	Same as ant1	Same as ant1	Same as ant1	Same as ant1	Same as ant1		Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (20MHz)	UNII 1	17			17	17 Ch36 :16.5	17 Ch36 : 16	17 Ch36 : 16	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2A	17 Ch64 : 16			17 Ch64 : 16	17 Ch60, 64 : 16	17 Ch64 : 16	17 Ch64 : 16	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2C	17 Ch100 : 16			17 Ch100 : 16	17 Ch100 : 16	17 Ch100 : 16	17 Ch100 : 16	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 3	17			17	17	17	17	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 4	17			17	17	17	17	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (40MHz)	UNII 1				17 Ch38 : 13	17 Ch38 : 14	17 Ch38 : 11	17 Ch38 : 11				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2A				17 Ch62 : 13	17 Ch62 : 13	17 Ch62 : 15	17 Ch62 : 15				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2C				17 Ch102: 12	17 Ch102: 12	17 Ch102 : 13	17 Ch102 : 13				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 3				17	17	17	17				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 4				17	17	17	17				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (80MHz)	UNII 1					12	13	13					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2A					12	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2C					17 Ch106 : 12	17 Ch106 : 12	17 Ch106 : 12					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 3					17	17	17					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 4					17	17	17					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
5GHz (160MHz)	UNII 1					13	15	15					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2A					13	15	15					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2C					12	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 3					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 4					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
6GHz_LPI (20MHz)	U-NII-5	8					8 ch2 : 6	8 ch2 : 6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-6	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-8	9 Ch233 : 5					9 ch233 : 5	9 ch233 : 5	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_LPI (40MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2

6GHz_LPI (80MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (160MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (320MHz)	U-NII-5							9							Same as ant1							Ant1+2
	U-NII-6							9							Same as ant1							Ant1+2
	U-NII-7																					
	U-NII-8							9							Same as ant1	Ant1+2						Ant1+2
6GHz_SP (20MHz)	U-NII-5	9 Ch2:8					9 Ch2:6	9 Ch2:6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_SP (40MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (80MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (160MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (320MHz)	U-NII-5							9							Same as ant1							Ant1+2
6GHz_VLP (20MHz)	U-NII-5	4					4	4	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	6					6	6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_ VLP (40MHz)	U-NII-5						7	7						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						8	8						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (80MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (160MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (320MHz)	U-NII-5							9							Same as ant1							Ant1+2

(Upper tolerance: target +1.0dB)

c. Plimit – Head (DSI = 1)

Mode	Band	SISO(ANT 1)							SISO(ANT 2)							MIMO						
		a	b	g	n	ac	ax (SU)	be (SU)	a	b	g	n	ac	ax (SU)	be (SU)	a	b	g	n	ac	ax(SU)	be(SU)
2.4GHz	2.45GHz		14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)		Same as ant1	Same as ant1	Same as ant1	Same as ant1	Same as ant1	Same as ant1		Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (20MHz)	UNII 1	14			14	14	14	14	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2A	14			14	14	14	14	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2C	14			14	14	14	14	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 3	14			14	14	14	14	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 4	14			14	14	14	14	Same as ant1			Same as ant1	Same as ant1	Same as ant1	Same as ant1	Ant1+2			Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (40MHz)	UNII 1				14 Ch38 : 13	14	14 Ch38 : 11	14 Ch38 : 11				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2A				14 Ch62 : 13	14 Ch62 : 13	14	14				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 2C				14 Ch102: 12	14 Ch102: 12	14 Ch102: 13	14 Ch102: 13				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 3				14	14	14	14				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
	UNII 4				14	14	14	14				Same as ant1	Same as ant1	Same as ant1	Same as ant1				Ant1+2	Ant1+2	Ant1+2	Ant1+2
5GHZ (80MHz)	UNII 1					12	13	13					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2A					12	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2C					14 Ch106 : 12	14 Ch106 : 12	14 Ch106 : 12					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 3					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 4					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
5GHz (160MHz)	UNII 1					13	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2A					13	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 2C					12	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 3					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
	UNII 4					14	14	14					Same as ant1	Same as ant1	Same as ant1					Ant1+2	Ant1+2	Ant1+2
6GHz_LPI (20MHz)	U-NII-5	8					8 ch2 : 6	8 ch2 : 6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-6	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-8	9 Ch233 : 5					9 ch233 : 5	9 ch233 : 5	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_LPI (40MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2

6GHz_LPI (80MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (160MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-6						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-8						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_LPI (320MHz)	U-NII-5							9							Same as ant1							Ant1+2
	U-NII-6							9							Same as ant1							Ant1+2
	U-NII-7																					
	U-NII-8							9							Same as ant1	Ant1+2						Ant1+2
6GHz_SP (20MHz)	U-NII-5	9 Ch2:8					9 Ch2:6	9 Ch2:6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	9					9	9	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_SP (40MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (80MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (160MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_SP (320MHz)	U-NII-5							9							Same as ant1							Ant1+2
6GHz_VLP (20MHz)	U-NII-5	4					4	4	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
	U-NII-7	6					6	6	Same as ant1					Same as ant1	Same as ant1	Ant1+2					Ant1+2	Ant1+2
6GHz_ VLP (40MHz)	U-NII-5						7	7						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						8	8						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (80MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (160MHz)	U-NII-5						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
	U-NII-7						9	9						Same as ant1	Same as ant1						Ant1+2	Ant1+2
6GHz_ VLP (320MHz)	U-NII-5							9							Same as ant1							Ant1+2

(Upper tolerance: target +1.0dB)

d. 11ax/be RU Tx power Tables (Pmax)

	SISO /in dBm (ANT1=ANT2)																			
Tones	2.4G	5G/20MHz	5G/40MHz	5G/80MHz	5G/160MHz	6G/20MHz LPI	6G/40MHz LPI	6G/80MHz LPI	6G/160MHz LPI	6G/320MHz LPI	6G/20MHz SP	6G/40MHz SP	6G/80MHz SP	6G/160MHz SP	6G/320MHz SP	6G/20MHz VLP	6G/40MHz VLP	6G/80MHz VLP	6G/160MHzVLP	6G/320MHz VLP
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
26T	13 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	9	9	9	9	-1	-1	-1	-1	-1	UNII 5&7 13 ch2 : 1	UNII 5&7 13	UNII 5&7 13	UNII 5&7 13	UNII 5 13	UNII 5&7 -5	UNII 5&7 -5	UNII 5&7 -5	UNII 5&7 -5	UNII5 : -5
52T	14 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	12	12	12	12	2	2	2	2	2	UNII 5&7 13 ch2 : 3	UNII 5&7 13	UNII 5&7 13	UNII 5&7 13	UNII 5 13	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII5 : -2
106T	15 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	15	15	15	15	5	5	5	5	5	UNII 5&7 13 ch2 : 5	UNII 5&7 13	UNII 5&7 13	UNII 5&7 13	UNII 5 13	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII5 : 1
242T	17 Ch.1: 13.5 Ch.2 : 15.5 Ch.10 : 16 Ch.11: 13.5 Ch12 : 5 CH13 : 1 (RSDB : 9.5)	17 Ch36, 64, 100 : 16	17 Ch38 : 15.5, Ch62, 102 : 16	17 Ch42, 58 : 15, Ch106 : 16	16 Ch50, 163 : 15	9 UNII5 : 8 Ch2 : 6 ch233 : 5	9 UNII5 : 8	9 UNII5 : 8	9 UNII5 : 8	9 UNII5 : 8	UNII 5&7 16 ch2 : 6	UNII 5&7 16	UNII 5&7 16	UNII 5&7 16	UNII 5 16	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4
484T			17 Ch38 : 11, Ch62 : 14, Ch102 : 13	17 Ch42 : 12, Ch58 : 12, Ch106 : 11	14 Ch50 : 12, Ch114 : 11		12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11		UNII 5&7 16	UNII 5&7 16	UNII 5&7 16	UNII 5 16		UNII5 : 7 UNII7 : 8	UNII5 : 7 UNII7 : 8	UNII5 : 7 UNII7 : 8	UNII5 : 7
996T				17 Ch42, 58 : 13, Ch106 : 12	13 Ch163 : 12			15 UNII5 : 14	15 UNII5 : 14 Ch207 : 12	15 UNII5 : 14 Ch191 : 12			UNII 5&7 16	UNII 5&7 16	UNII 5 16			UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10
996Tx2					15 Ch114 : 14, Ch163 : 13				16 ch207 : 13	16 Ch191 : 13				UNII 5&7 16	UNII 5 16				UNII 5&7 11	UNII5 : 11
996Tx4										16 Ch191:13					UNII 5 16					UNII5 : 11

														MIMO /in dBm						
Tones	*2.4G*	*5G/20 Mhz*	*5G/40 Mhz*	*5G/80 Mhz*	*5G/160 Mhz*	*6G/20 Mhz LPI*	*6G/40 Mhz LPI*	*6G/80 Mhz LPI*	*6G/160 Mhz LPI*	*6G/320 Mhz LPI*	*6G/20 Mhz SP*	*6G/40 Mhz SP*	*6G/80 Mhz SP*	*6G/160 Mhz SP*	*6G/320 Mhz SP*	*6G/20 Mhz VLP*	*6G/40 Mhz VLP*	*6G/80 Mhz VLP*	*6G/160 MhVLP*	*6G/320Mhz VLP*
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
26T	16 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	12	12	12	12	2	2	2	2	2	UNII 5&7 16 ch2 : 4	UNII 5&7 16	UNII 5&7 16	UNII 5&7 16	UNII 5 16	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII5 : -2
52T	17 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	15	15	15	15	5	5	5	5	5	UNII 5&7 16 ch2 : 6	UNII 5&7 16	UNII 5&7 16	UNII 5&7 16	UNII 5 16	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII5 : 1
106T	18 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	18	18	18	18	8	8	8	8	8	UNII 5&7 16 ch2 : 8	UNII 5&7 16	UNII 5&7 16	UNII 5&7 16	UNII 5 16	UNII 5&7 4	UNII 5&7 4	UNII 5&7 4	UNII 5&7 4	UNII5 : 4
242T	20 **Ch.1: 16.5** **Ch.2 : 18.5** **Ch.10 : 19** **Ch.11: 16.5** **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	20 Ch36, 64, 100 : 19	20 Ch38 :18.5, Ch62, 102 : 19	20 Ch42, 58 : 18, Ch106 : 19	19 Ch50, 163 : 18	12 UNII5 : 11 Ch2 : 9 Ch233 : 8	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	UNII 5&7 19 ch2 : 9	UNII 5&7 19	UNII 5&7 19	UNII 5&7 19	UNII 5 19	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7
484T			20 Ch38 : 14, Ch62 : 17, Ch102 : 16	20 Ch42 : 15, Ch58 : 15, Ch106 : 14	17 Ch50 : 15 Ch114 : 14		15 UNII5 : 14	15 UNII5 : 14	15 UNII5 : 14	15 UNII5 : 14		UNII 5&7 19	UNII 5&7 19	UNII 5&7 19	UNII 5 19		UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10
996T				20 Ch42, 58 : 16, Ch106 : 15	16 Ch163 : 15			18 UNII5 : 17	18 UNII5 : 17 Ch207 : 15	18 UNII5 : 17 Ch191 : 15			UNII 5&7 19	UNII 5&7 19	UNII 5 19			UNII5 : 13 UNII7 : 14	UNII5 : 13 UNII7 : 14	UNII5 : 13
996Tx2					18 Ch114 : 17, Ch163 : 16				19 ch207 : 16	19 Ch191 : 16				UNII 5&7 19	UNII 5 19				UNII 5&7 14	UNII5 : 14
996Tx4										19 Ch191:16					UNII 5 19					UNII5 : 14

(Upper tolerance: target +1.0dB)

e. 11ax/be RU Plimit Tables – Body (DSI = 0)

	SISO /in dBm (ANT1=ANT2)																			
Tones	*2.4G*	*5G/20 Mhz*	*5G/40M hz*	*5G/80M hz*	*5G/160M hz*	*6G/20M hz LPI*	*6G/40M hz LPI*	*6G/80M hz LPI*	*6G/160M hz LPI*	*6G/320 Mhz LPI*	*6G/20M hz SP*	*6G/40M hz SP*	*6G/80M hz SP*	*6G/160M hz SP*	*6G/320 Mhz SP*	*6G/20M hz VLP*	*6G/40M hz VLP*	*6G/80M hz VLP*	*6G/160M hVLP*	*6G/320 Mhz VLP*
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
26T	13 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	9	9	9	9	-1	-1	-1	-1	-1	UNII 5&7 9 ch2 : 1	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII 5&7 -5	UNII 5&7 -5	UNII 5&7 -5	UNII 5&7 -5	UNII5 : -5
52T	14 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	12	12	12	12	2	2	2	2	2	UNII 5&7 9 ch2 : 3	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII5 : -2
106T	15 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	15	15	15	15	5	5	5	5	5	UNII 5&7 9 ch2 : 5	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII5 : 1
242T	17 Ch.1: 13.5 Ch.2 : 15.5 Ch.10 : 16 Ch.11: 13.5 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	17 Ch36, 64, 100 : 16	17 Ch38 : 15.5, Ch62, 102 : 16	17 Ch42, 58 : 15, Ch106 : 16	16 Ch50, 163 : 15	9 UNII5 : 8 Ch2 : 6 ch233 : 5	9 UNII5 : 8	9 UNII5 : 8	9 UNII5 : 8	9 UNII5 : 8	UNII 5&7 9 ch2 : 6	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4
484T			17 Ch38 : 11, Ch62 : 14, Ch102 : 13	17 Ch42 : 12, Ch58 : 12, Ch106 : 11	14 Ch50 : 12, Ch114 : 11		9	9	9	9		UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9		UNII5 : 7 UNII7 : 8	UNII5 : 7 UNII7 : 8	UNII5 : 7 UNII7 : 8	UNII5 : 7
996T				17 Ch42, 58 : 13, Ch106 : 12	13 Ch163 : 12			9	9	9			UNII 5&7 9	UNII 5&7 9	UNII 5 9			UNII 5&7 9	UNII 5&7 9	UNII 5 9
996Tx2					15 Ch114 : 14, Ch163 : 13				9	9				UNII 5&7 9	UNII 5 9				UNII 5&7 9	UNII 5 9
996Tx4										9					UNII 5 9					UNII 5 9

		MIMO /in dBm																		
Tones	*2.4G*	*5G/20 Mhz*	*5G/40 Mhz*	*5G/80 Mhz*	*5G/160 Mhz*	*6G/20 Mhz LPI*	*6G/40 Mhz LPI*	*6G/80 Mhz LPI*	*6G/160 Mhz LPI*	*6G/320 Mhz LPI*	*6G/20 Mhz SP*	*6G/40 Mhz SP*	*6G/80 Mhz SP*	*6G/160 Mhz SP*	*6G/320 Mhz SP*	*6G/20 Mhz VLP*	*6G/40 Mhz VLP*	*6G/80 Mhz VLP*	*6G/160 MhVLP*	*6G/320 Mhz VLP*
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
26T	16 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	12	12	12	12	2	2	2	2	2	UNII 5&7 12 ch2 : 4	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII5 : -2
52T	17 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	15	15	15	15	5	5	5	5	5	UNII 5&7 12 ch2 : 6	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII5 : 1
106T	18 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	18	18	18	18	8	8	8	8	8	UNII 5&7 12 ch2 : 8	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII 5&7 4	UNII 5&7 4	UNII 5&7 4	UNII 5&7 4	UNII5 : 4
242T	20 Ch.1: 16.5 Ch.2 : 18.5 Ch.10 : 19 Ch.11: 16.5 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	20 Ch36, 64, 100 : 19	20 Ch38 :1 8.5, Ch62, 102 : 19	20 Ch42, 58 : 18, Ch106 : 19	19 Ch50, 163 : 18	12 UNII5 : 11 Ch2 : 9 Ch233 : 8	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	UNII 5&7 12 ch2 : 9	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7
484T			20 Ch38 : 14, Ch62 : 17, Ch102 : 16	20 Ch42 : 15, Ch58 : 15, Ch106 : 14	17 Ch50 : 15 Ch114 : 14		12	12	12	12		UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12		UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10
996T				20 Ch42, 58 : 16, Ch106 : 15	16 Ch163 : 15			12	12	12			UNII 5&7 12	UNII 5&7 12	UNII 5 12			UNII 5&7 12	UNII 5&7 12	UNII 5 12
996Tx2					18 Ch114 : 17, Ch163 : 16				12	12				UNII 5&7 12	UNII 5 12				UNII 5&7 12	UNII 5 12
996Tx4										12					UNII 5 12					UNII 5 12

f. 11ax/be RU Plimit Tables –Head (DSI = 1)

	SISO /in dBm (ANT1=ANT2)																				
Tones	*2.4G*	*5G/20 Mhz*	*5G/40 Mhz*	*5G/80 Mhz*	*5G/160 Mhz*	*6G/20 Mhz LPI*	*6G/40 Mhz LPI*	*6G/80 Mhz LPI*	*6G/160 Mhz LPI*	*6G/320 Mhz LPI*	*6G/20 Mhz SP*	*6G/40 Mhz SP*	*6G/80 Mhz SP*	*6G/160 Mhz SP*	*6G/320 Mhz SP*	*6G/20 Mhz VLP*	*6G/40 Mhz VLP*	*6G/80 Mhz VLP*	*6G/160 MhVLP*	*6G/320 Mhz VLP*
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
26T	13 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	9	9	9	9	-1	-1	-1	-1	-1	UNII 5&7 9 ch2 : 1	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII 5&7 -5	UNII 5&7 -5	UNII 5&7 -5	UNII 5&7 -5	UNII 5 -5
52T	14 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	12	12	12	12	2	2	2	2	2	UNII 5&7 9 ch2 : 3	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5 -2
106T	14 **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	14	14	14	14	5	5	5	5	5	UNII 5&7 9 ch2 : 5	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5 1
242T	14 **Ch.1: 13.5** **Ch.11: 13.5** **Ch12 : 5** **CH13 : 1** **(RSDB : 9.5)**	14	14	14	14	9 UNII5 : 8 Ch2 : 6 ch233 : 5	9 UNII5 : 8	9 UNII5 : 8	9 UNII5 : 8	9 UNII5 : 8	UNII 5&7 9 ch2 : 6	UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4 UNII7 : 6	UNII5 : 4
484T			14 Ch38 : 11, Ch102 : 13	14 Ch42 : 12, Ch58 : 12, Ch106 : 11	14 Ch50 : 12, Ch114 : 11		9	9	9	9		UNII 5&7 9	UNII 5&7 9	UNII 5&7 9	UNII 5 9		UNII5 : 7 UNII7 : 8	UNII5 : 7 UNII7 : 8	UNII5 : 7 UNII7 : 8	UNII5 : 7
996T				14 Ch42, 58 : 13, Ch106 : 12	13 Ch163 : 12			9	9	9			UNII 5&7 9	UNII 5&7 9	UNII 5 9			UNII 5&7 9	UNII 5&7 9	UNII 5 9
996Tx2					14 Ch163 : 13				9	9				UNII 5&7 9	UNII 5 9				UNII 5&7 9	UNII 5 9
996Tx4										9					UNII 5 9					UNII 5 9

Tones	2.4G	MIMO /in dBm																		
		5G/20 Mhz	5G/40 Mhz	5G/80 Mhz	5G/160 Mhz	6G/20 Mhz LPI	6G/40 Mhz LPI	6G/80 Mhz LPI	6G/160 Mhz LPI	6G/320 Mhz LPI	6G/20 Mhz SP	6G/40 Mhz SP	6G/80 Mhz SP	6G/160 Mhz SP	6G/320 Mhz SP	6G/20 Mhz VLP	6G/40 Mhz VLP	6G/80 Mhz VLP	6G/160 MhVLP	6G/320 Mhz VLP
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
26T	16 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	12	12	12	12	2	2	2	2	2	UNII 5&7 12 ch2 : 4	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII 5&7 -2	UNII5 : -2
52T	17 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	15	15	15	15	5	5	5	5	5	UNII 5&7 12 ch2 : 6	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII 5&7 1	UNII5 : 1
106T	17 **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	17	17	17	17	8	8	8	8	8	UNII 5&7 12 ch2 : 8	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII 5&7 4	UNII 5&7 4	UNII 5&7 4	UNII 5&7 4	UNII5 : 4
242T	17 **Ch.1: 16.5** **Ch.11: 16.5** **Ch12 : 8** **CH13 : 4** **(RSDB : 12.5)**	17	17	17	17	12 UNII5 : 11 Ch2 : 9 ch233 : 8	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	12 UNII5 : 11	UNII 5&7 12 ch2 : 9	UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7 UNII7 : 9	UNII5 : 7
484T			17 Ch38 : 14, Ch102 : 16	17 Ch42 : 15, Ch58 : 15, Ch106 : 14	17 Ch50 : 15, Ch114 : 14		12	12	12	12		UNII 5&7 12	UNII 5&7 12	UNII 5&7 12	UNII 5 12		UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10 UNII7 : 11	UNII5 : 10
996T				17 Ch42, 58 : 16, Ch106 : 15	16 Ch163 : 15			12	12	12			UNII 5&7 12	UNII 5&7 12	UNII 5 12			UNII 5&7 12	UNII 5&7 12	UNII 5 12
996Tx2					17 Ch163 : 16				12	12				UNII 5&7 12	UNII 5 12				UNII 5&7 12	UNII 5 12
996Tx4										12					UNII 5 12					UNII 5 12

(Upper tolerance: target +1.0dB)

g. MRU power

Tones	SISO /in dBm(ANT1=ANT2)																			
	2.4G	*5G/20Mhz*	*5G/40Mhz*	*5G/80Mhz*	*5G/160Mhz*	*6G_SP/20Mhz*	*6G_SP/40Mhz*	*6G_SP/80Mhz*	*6G_SP/160Mhz*	*6G_SP/320Mhz*	*6G_LPI/20Mhz*	*6G_LPI/40Mhz*	*6G_LPI/80Mhz*	*6G_LPI/160Mhz*	*6G_LPI/320Mhz*	*6G_VLP/20MHz*	*6G_VLP/40MHz*	*6G_VLP/80MHz*	*6G_VLP/160MHz*	*6G_VLP/320MHz*
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
52+26T	14 **Ch12 : 5** **CH13 : 1** Same as 52T **(RSDB : 9.5)**	12 Same as 52T	12 Same as 52T	12 Same as 52T	12 Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T
106+26T	15 **Ch12 : 5** **CH13 : 1** Same as 106T **(RSDB : 9.5)**	15 Same as 106T	15 Same as 106T	15 Same as 106T	15 Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T
484+242T				17 Ch42, 58 : 12 Ch106 : 11 Same as EHT40 SU	14 Ch50 : 12 Ch114 : 11			(EHT40 SU)	(EHT40 SU)	(EHT40 SU)			(EHT40 SU)	(EHT40 SU)	(EHT40 SU)			(EHT40 SU)	(EHT40 SU)	(EHT40 SU)
996+484T					13				(EHT80 SU)	(EHT80 SU)				(EHT80 SU) Ch.207: 12	(EHT80 SU) Ch.191:12				(EHT80 SU)	(EHT80 SU)
996+484+242T					13 Ch163 : 12				(EHT80 SU)					(EHT80 SU) Ch.207: 12					(EHT80 SU)	
996x2+484T										(EHT160 SU)					(EHT160 SU)					(EHT160 SU)
996Tx3										(EHT160 SU)					(EHT160 SU)					(EHT160 SU)
996Tx3+484T										(EHT160 SU)					(EHT160 SU)					(EHT160 SU)

Tones	MIMO /in dBm																			
	2.4G	*5G/20 Mhz*	*5G/40 Mhz*	*5G/80 Mhz*	*5G/160 Mhz*	*6G_SP /20Mhz*	*6G_SP /40Mhz*	*6G_SP /80Mhz*	*6G_SP /160Mhz*	*6G_SP /320Mhz*	*6G_LPI /20Mhz*	*6G_LPI /40Mhz*	*6G_LPI /80Mhz*	*6G_LPI /160Mhz*	*6G_LPI /320Mhz*	*6G_VLP /20MHz*	*6G_VLP /40MHz*	*6G_VLP /80MHz*	*6G_VLP /160MHz*	*6G_VLP /320MHz*
	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index	Ch & RU index
52+26T	17 **Ch12 : 8** **CH13 : 4** Same as 52T **(RSDB : 12.5)**	15 Same as 52T	15 Same as 52T	15 Same as 52T	15 Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T	Same as 52T
106+26T	18 **Ch12 : 8** **CH13 : 4** Same as 106T **(RSDB : 12.5)**	18 Same as 106T	18 Same as 106T	18 Same as 106T	18 Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T	Same as 106T
484+242T				20 Ch42, 58 : 15 Ch106 : 14 Same as EHT40 SU	17 Ch50 : 15 Ch114 : 14			(EHT40 SU)	(EHT40 SU)	(EHT40 SU)			(EHT40 SU)	(EHT40 SU)	(EHT40 SU)			(EHT40 SU)	(EHT40 SU)	(EHT40 SU)
996+484T					16				(EHT80 SU)	(EHT80 SU)				(EHT80 SU) Ch.207: 15	(EHT80 SU) Ch.207: 15				(EHT80 SU)	(EHT80 SU)
996+484+242T					**16** Ch163 : 15				(EHT80 SU)					(EHT80 SU) Ch.207: 15					(EHT80 SU)	
996x2+484T										(EHT160 SU)					(EHT160 SU)					(EHT160 SU)
996Tx3										(EHT160 SU)					(EHT160 SU)					(EHT160 SU)
996Tx3+484T										(EHT160 SU)					(EHT160 SU)					(EHT160 SU)

4.3.3 Bluetooth Maximum Conducted Output Power in Conducted Mode

Maximum (= Pmax)

MODE	DATA RATE	PL11		PL10		PL9		Dual(each chain PL10+PL10)
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	Dual
BDR(in dBm)	1Mbps	17	17	12.5	12.5			15.5
EDR(in dBm)	2Mbps	13	13	9	9			12
	3Mbps	13	13	9	9			12
LE	1M	n/a	n/a	n/a	n/a	9	9	n/a
	2M	n/a	n/a	n/a	n/a	9	9	n/a
	125K	n/a	n/a	n/a	n/a	9	9	n/a
	500k	n/a	n/a	n/a	n/a	9	9	n/a

(Upper tolerance: target +1.0dB)

Body (DSI=0)

MODE	DATA RATE	PL11		PL10		PL9		Dual(each chain PL10+PL10)
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	Dual
BDR(in dBm)	1Mbps	17	17	12.5	12.5			15.5
EDR(in dBm)	2Mbps	13	13	9	9			12
	3Mbps	13	13	9	9			12
LE	1M	n/a	n/a	n/a	n/a	9	9	n/a
	2M	n/a	n/a	n/a	n/a	9	9	n/a
	125K	n/a	n/a	n/a	n/a	9	9	n/a
	500k	n/a	n/a	n/a	n/a	9	9	n/a

(Upper tolerance: target +1.0dB)

Receiver Active (DSI=1)

MODE	DATA RATE	PL11		PL10		PL9		Dual(each chain PL10+PL10)
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	Dual
BDR(in dBm)	1Mbps	14	14	12.5	12.5			15.5
EDR(in dBm)	2Mbps	13	13	9	9			12
	3Mbps	13	13	9	9			12
LE	1M	n/a	n/a	n/a	n/a	9	9	n/a
	2M	n/a	n/a	n/a	n/a	9	9	n/a
	125K	n/a	n/a	n/a	n/a	9	9	n/a
	500k	n/a	n/a	n/a	n/a	9	9	n/a

(Upper tolerance: target +1.0dB)

4.4 LTE Information

Item.		Description
Frequency Range	LTE FDD Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒
	LTE FDD Band 4 (AWS)	1 710.7 ㎒ ~ 1 754.3 ㎒
	LTE FDD Band 5 (Cell)	824.7 ㎒ ~ 848.3 ㎒
	LTE FDD Band 12	699.7 ㎒ ~ 715.3 ㎒
	LTE FDD Band 13	779.5 ㎒ ~ 784.5 ㎒
	LTE FDD Band 26	814.7 ㎒ ~ 848.3 ㎒
	LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒
	LTE FDD Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒
Channel Bandwidths	LTE FDD Band 2 (PCS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 4 (AWS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 5 (Cell)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒
	LTE FDD Band 12	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒
	LTE FDD Band 13	5 ㎒, 10 ㎒
	LTE FDD Band 26	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒
	LTE TDD Band 41	5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 66 (AWS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒

Ch. No.& Freq.(㎒)		Low / Low-Mid	Mid	Mid-High / High
LTE FDD Band 2 (PCS)	1.4 ㎒	1 850.7 (18607)	1 880.0 (18900)	1 909.3 (19193)
	3 ㎒	1 851.5 (18615)	1 880.0 (18900)	1 908.5 (19185)
	5 ㎒	1 852.5 (18625)	1 880.0 (18900)	1 907.5 (19175)
	10 ㎒	1 855.0 (18650)	1 880.0 (18900)	1 905.0 (19150)
	15 ㎒	1 857.5 (18675)	1 880.0 (18900)	1 902.5 (19125)
	20 ㎒	1 860.0 (18700)	1 880.0 (18900)	1 900.0 (19100)
LTE FDD Band 4 (AWS)	1.4 ㎒	1 710.7 (19957)	1 732.5 (20175)	1 754.3 (20393)
	3 ㎒	1 711.5 (19965)	1 732.5 (20175)	1 753.5 (20385)
	5 ㎒	1 712.5 (19975)	1 732.5 (20175)	1 752.5 (20375)
	10 ㎒	1 715.0 (20000)	1 732.5 (20175)	1 750.0 (20350)
	15 ㎒	1 717.5 (20025)	1 732.5 (20175)	1 747.5 (20325)
	20 ㎒		1 732.5 (20175)	
LTE FDD Band 5 (Cell)	1.4 ㎒	824.7 (20407)	836.5 (20525)	848.3 (20643)
	3 ㎒	825.5 (20415)	836.5 (20525)	847.5 (20635)
	5 ㎒	826.5 (20425)	836.5 (20525)	846.5 (20625)
	10 ㎒		836.5 (20525)	
LTE FDD Band 12	1.4 ㎒	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 ㎒	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 ㎒	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 ㎒		707.5 (23095)	
LTE FDD Band 13	5 ㎒		782 (23230)	
	10 ㎒		782 (23230)	
LTE FDD Band 26 (Cell)	1.4 ㎒	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 ㎒	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 ㎒	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 ㎒	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 ㎒		831.5 (26865)	

Ch. No.& Freq.(MHz)		Low / Low-Mid		Mid	Mid-High / High	
LTE FDD Band 66 (AWS)	1.4 MHz	1 710.7 (131979)		1 745 (132322)	1 779.3 (132665)	
	3 MHz	1 711.5 (131987)		1 745 (132322)	1 778.5 (132657)	
	5 MHz	1 712.5 (131997)		1 745 (132322)	1 777.5 (132647)	
	10 MHz	1 715.0 (132022)		1 745 (132322)	1 775.0 (132622)	
	15 MHz	1 717.5 (132047)		1 745 (132322)	1 772.5 (132597)	
	20 MHz	1 720.0 (132072)		1 745 (132322)	1 770.0 (132572)	
LTE TDD Band 41	5 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)
	10 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)
	15 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)
	20 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)

ITEM	Description
UE Category	LTE Rel. 16
HPUE Power Class	LTE TDD 41 Power Class 3 : (Duty : 63.3%)
Modulations Supported in UL	QPSK, 16QAM, 64QAM
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3	Yes
A-MPR disabled for SAR Testing.	Yes
LTE Carrier Aggregation	This device supports Inter-Band & Intra-Band DL-link Carrier aggregations and intra-Band UL-link Carrier aggregations.
LTE Release information	This device does not support full CA features on 3GPP Release 16. It supports carrier aggregation, downlink MIMO. All other uplink communications are identical to the release 8 specifications. The following LTE Release 16 Features are not supported: Relay, Hetnet, Enhanced elCl, MDH, cross-carrier Scheduling, Enhanced SC-FDMA.

4.5 5G NR SUB 6 Information

Item.		Description
Frequency Range	NR FDD Band n5	826.5 ㎒ ~ 846.5 ㎒
	NR TDD Band n41	2 501.01 ㎒ ~ 2 685 ㎒
	NR FDD Band n66	1 712.5 ㎒ ~ 1 777.5 ㎒
Channel Bandwidths	NR FDD Band n5	5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	NR TDD Band n41	10 ㎒, 15 ㎒, 20 ㎒, 25 ㎒, 30 ㎒, 40 ㎒, 50 ㎒, 60 ㎒, 70 ㎒, 80 ㎒, 90 ㎒, 100 ㎒
	NR FDD Band n66	5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒, 30 ㎒, 35 ㎒,40 ㎒

Ch. No.& Freq.(㎒)		Low / Low-Mid		Mid		Mid-High / High
NR FDD Band n5 (Cell)	5 ㎒	826.5 (165300)		836.5(167300)		846.5 (169300)
	10 ㎒			836.5(167300)		
	15 ㎒			836.5(167300)		
	20 ㎒			836.5(167300)		
NR FDD Band n66	5 ㎒	1 712.5(342500)		1 745(349000)		1 777.5(355500)
	10 ㎒	1 715(343000)		1 745(349000)		1 775(355000)
	15 ㎒	1 717.5(343500)		1 745(349000)		1 772.5(354500)
	20 ㎒	1 720(344000)		1 745(349000)		1 770(354000)
	30 ㎒			1 745(349000)		
	40 ㎒			1 745(349000)		
NR TDD Band n41	10 ㎒	2 501.01(500202)	2 547(509400)	2 592.99(518598)	2 639.01(527802)	2 685(537000)
	15 ㎒	2 503.5(500700)	2 548.26(509652	2 592.99(518598)	2 637.75(527550)	2 682.51(536502)
	20 ㎒	2 506.02(501204)	2 549.49(509898)	2 592.99(518598)	2 636.49(527298)	2 679.99(535998)
	25 ㎒	2 508.48(501696)	2 550.75(510150)	2 592.99(518598)	2 635.23(527046)	2 677.50(535500)
	30 ㎒	2 511(502200)	2 552.01(510402)	2 592.99(518598)	2 634(526800)	2 674.98(534996)
	40 ㎒	2 516.01(503202)	2 567.34(513468)		2 618.67(523734)	2 670(534000)
	50 ㎒	2 521.02(504204)		2 592.99(518598)		2 664.99(532998)
	60 ㎒	2 526(505200)		2 592.99(518598)		2 659.98(531996)
	70 ㎒	2 531.01(506202)				2 655(531000)
	80 ㎒	2 536.02(507204)				2 649.99(529998)
	90 ㎒	2 541(508200)				2 644.98(528996)
	100 ㎒			2 592.99(518598)		

Item.	Description
NR FDD Band n5/n66 SCS	15 ㎑
NR TDD Band n41 SCS	30 ㎑
3GPP Rel.	Rel.17
A-MPR disabled for SAR Testing.	Yes
5G NR UL/DL FR1	CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM DFT-s-OFDM: π/2-BPSK(UL Only), QPSK, 16QAM, 64QAM, 256QAM
Non-Standalone & Standalone are supported. 5G NR FR1 Bands, n41 are supported to NSA and SA Connectivity. n5, n66 is only supported to NSA connectivity More detailed specifications of the 5G NR bands are contained in the Technical description document.	
EN-DC Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations
LTE Anchor Bands for NR Band n5 (Cell)	LTE Band 2/4/66
LTE Anchor Bands for NR Band n41	LTE Band 66
LTE Anchor Bands for NR Band n66 (AWS)	LTE Band 2/4/5/12/13/26/66

4.6 DUT Antenna Locations

The overall dimensions of this device are > 9 X 5 cm. A diagram showing device antenna can be found in SAR_setup_photos. Since the diagonal dimension of this device is > 160 ㎜ and < 200 ㎜, it is considered a "phablet".

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering. Therefore, SAR test was performed for additional simultaneous transmissions.
Head and Bluetooth Tethering SAR were evaluated for BT BR tethering applications.

Antenna	Mode	Rear	Front	Left	Right	Bottom	Top
MAIN1	GSM/GPRS/EDGE 850	Yes	Yes	Yes	Yes	Yes	No
SUB1	GSM/GPRS/EDGE 850	Yes	Yes	No	Yes	No	Yes
MAIN1	GSM/GPRS/EDGE 1900	Yes	Yes	Yes	Yes	Yes	No
MAIN1	UMTS Band 5	Yes	Yes	Yes	Yes	Yes	No
SUB1	UMTS Band 5	Yes	Yes	No	Yes	No	Yes
MAIN1	LTE FDD Band 2 (PCS)	Yes	Yes	Yes	Yes	Yes	No
SUB2	LTE FDD Band 2 (PCS)	Yes	Yes	Yes	No	No	Yes
MAIN1	LTE FDD Band 4 (AWS)	Yes	Yes	Yes	Yes	Yes	No
SUB2	LTE FDD Band 4 (AWS)	Yes	Yes	Yes	No	No	Yes
MAIN1	LTE FDD Band 5	Yes	Yes	Yes	Yes	Yes	No
SUB1	LTE FDD Band 5	Yes	Yes	No	Yes	No	Yes
MAIN1	LTE FDD Band 12	Yes	Yes	Yes	Yes	Yes	No
SUB1	LTE FDD Band 12	Yes	Yes	No	Yes	No	Yes
MAIN1	LTE FDD Band 13	Yes	Yes	Yes	Yes	Yes	No
SUB1	LTE FDD Band 13	Yes	Yes	No	Yes	No	Yes
MAIN1	LTE FDD Band 26 (Cell)	Yes	Yes	Yes	Yes	Yes	No
SUB1	LTE FDD Band 26 (Cell)	Yes	Yes	No	Yes	No	Yes
MAIN2	LTE TDD Band 41 (PC3)	Yes	Yes	Yes	No	Yes	No
SUB2	LTE TDD Band 41 (PC3)	Yes	Yes	Yes	No	No	Yes
MAIN1	LTE FDD Band 66 (AWS)	Yes	Yes	Yes	Yes	Yes	No
SUB2	LTE FDD Band 66 (AWS)	Yes	Yes	No	Yes	No	Yes
MAIN1	NR FDD Band n5	Yes	Yes	Yes	Yes	Yes	No
SUB1	NR FDD Band n5	Yes	Yes	Yes	No	No	Yes
SUB2	NR TDD Band n41	Yes	Yes	Yes	No	No	Yes
MAIN2	NR TDD Band n41	Yes	Yes	Yes	No	Yes	No
MAIN1	NR FDD Band n66	Yes	Yes	Yes	Yes	Yes	No
SUB2	NR FDD Band n66	Yes	Yes	Yes	No	No	Yes
SUB 4	2.4 ㎓ WLAN SISO Ant #1	Yes	Yes	Yes	No	No	Yes
SUB 6	2.4 ㎓ WLAN SISO Ant #2	Yes	Yes	No	Yes	No	Yes
SUB 4+6	2.4 ㎓ WLAN MIMO	Yes	Yes	Yes	Yes	No	Yes
SUB 4	Bluetooth SISO Ant #1	Yes	Yes	Yes	No	No	Yes
SUB 6	Bluetooth SISO Ant #2	Yes	Yes	No	Yes	No	Yes
SUB 4+6	Bluetooth SISO MIMO	Yes	Yes	Yes	Yes	No	Yes
SUB 4	5 ㎓ WLAN SISO Ant #1	Yes	Yes	Yes	No	No	Yes
SUB 1	5 ㎓ WLAN SISO Ant #2	Yes	Yes	No	Yes	No	Yes
SUB 4+1	5 ㎓ WLAN MIMO	Yes	Yes	Yes	Yes	No	Yes
SUB 4	6 ㎓ WLAN SISO Ant #1	Yes	Yes	Yes	No	No	Yes
SUB 1	6 ㎓ WLAN SISO Ant #2	Yes	Yes	No	Yes	No	Yes
SUB 4+1	6 ㎓ WLAN MIMO	Yes	Yes	Yes	Yes	No	Yes
NFC Ant	NFC	Yes	Yes	Yes	Yes	Yes	Yes

Particular EUT edges were not required to be evaluated for Bluetooth Tethering and Hotspot SAR if the edges were > 25 mm from the transmitting antenna according to FCC KDB 941225 D06v02r01 on page 2.
The distance between the transmit antennas and the edges of the device are included in the filing.
- Note: All test configurations are based on front view position.

4.7 Near Field Communications (NFC) Antenna

This EUT 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 SAR _ Setup_ photos.

4.8 SAR Summation Scenario

According to FCC KDB 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown below paths and are mode in same rectangle to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.
This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB 447498 D01v06.

Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet
GSM voice + 2.4GHz Bluetooth SISO/MIMO	Yes^	Yes	Yes^	Yes
GSM voice + 2.4GHz WI-FI SISO/MIMO	Yes	Yes	N/A	Yes
GSM voice + 5GHz WI-FI SISO/MIMO	Yes	Yes	N/A	Yes
GSM voice + 6GHz WI-FI SISO/MIMO	Yes	Yes	N/A	Yes
GSM voice + 2.4GHz WI-FI SISO/MIMO + 5GHz WI-FI MIMO	Yes	Yes	N/A	Yes
GSM voice + 2.4GHz WI-FI SISO/MIMO + 6GHz WI-FI MIMO	Yes	Yes	N/A	Yes
GSM voice + 2.4GHz Bluetooth SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
GSM voice + 2.4GHz Bluetooth SISO/MIMO+ 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
GSM voice + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2	Yes^	Yes	Yes^	Yes
GSM voice + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
GSM voice + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
UMTS + 2.4GHz Bluetooth SISO/MIMO	Yes^	Yes	Yes^	Yes
UMTS + 2.4GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
UMTS + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
UMTS + 6GHz WI-FI MIMO SISO/MIMO	Yes	Yes	Yes	Yes
UMTS + 2.4GHz WI-FI SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
UMTS + 2.4GHz WI-FI SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
UMTS + 2.4GHz Bluetooth SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
UMTS + 2.4GHz Bluetooth SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
UMTS + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2	Yes^	Yes	Yes^	Yes
UMTS + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
UMTS + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth SISO/MIMO	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
LTE + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
LTE + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
LTE + 2.4GHz Bluetooth SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes

Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet
LTE + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
LTE + 5GNR	Yes	Yes	N/A	Yes
LTE + 2.4GHz Bluetooth SISO/MIMO + 5GNR	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz WI-FI SISO/MIMO + 5GNR	Yes	Yes	Yes	Yes
LTE + 5GHz WI-FI SISO/MIMO + 5GNR	Yes	Yes	Yes	Yes
LTE + 6GHz WI-FI SISO/MIMO + 5GNR	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI SISO/MIMO + 5GHz WI-FI SISO/MIMO + 5GNR	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI SISO/MIMO + 6GHz WI-FI SISO/MIMO + 5GNR	Yes	Yes	Yes	Yes
LTE + 2.4GHz Bluetooth SISO/MIMO + 5GHz WI-FI SISO/MIMO + 5GNR	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth SISO/MIMO + 6GHz WI-FI SISO/MIMO + 5GNR	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GNR	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GHz WI-FI SISO/MIMO + 5GNR	Yes^	Yes	Yes^	Yes
LTE + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 6GHz WI-FI SISO/MIMO + 5GNR	Yes^	Yes	Yes^	Yes
GPRS/EDGE Data + 2.4GHz Bluetooth SISO/MIMO	Yes^	Yes	Yes^	Yes
GPRS/EDGE Data + 2.4GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
GPRS/EDGE Data + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
GPRS/EDGE Data + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
GPRS/EDGE Data + 2.4GHz WI-FI SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
GPRS/EDGE Data + 2.4GHz WI-FI SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
GPRS/EDGE Data + 2.4GHz Bluetooth SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
GPRS/EDGE Data + 2.4GHz Bluetooth SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
GPRS/EDGE Data + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2	Yes^	Yes	Yes^	Yes
GPRS/EDGE Data + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
GPRS/EDGE Data + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
5GNR + 2.4GHz Bluetooth SISO/MIMO	Yes^	Yes	Yes^	Yes
5GNR + 2.4GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
5GNR + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
5GNR + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
5GNR + 2.4GHz WI-FI SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
5GNR + 2.4GHz WI-FI SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes	Yes	Yes	Yes
5GNR + 2.4GHz Bluetooth SISO/MIMO + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
5GNR + 2.4GHz Bluetooth SISO/MIMO + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
5GNR + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2	Yes^	Yes	Yes^	Yes
5GNR + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 5GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes
5GNR + 2.4GHz Bluetooth Ant.1+ 2.4GHz WI-FI Ant 2 + 6GHz WI-FI SISO/MIMO	Yes^	Yes	Yes^	Yes

Note:

1. 2.4GHz WLAN and 2.4GHz Bluetooth share the same antenna path. So, this DUT can only transmit together 2.4GHz WLAN Ant.2 and Bluetooth Ant.1.
2. 5 GHz WLAN and 6 GHz WLAN share the same antenna path and cannot transmit simultaneously.
3. 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.
4. 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.

5. 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.
6. VLP function supported on U-NII-5/7 with WLAN 6E
7. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax/be. 802.11a/g/n/ac/ax/be supports CDD and STBC and 802.11n/ac/ax/be additionally supports SDM.
8. This device supports VoWIFI/VoLTE/VoNR
9. This device supports Bluetooth Tethering in SISO/MIMO
10. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
11. NFC was evaluated for phablet based on expected usage conditions.

4.9 SAR Test Considerations

4.9.1 WiFi

Since wireless router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C and U-NII-4 WiFi and 6 GHz, WiFi Hotspot SAR test and combinations are considered only 2.4 GHz and U-NII-3, WLAN6E U-NII-5/7 for SAR with respected to wireless router configurations according to FCC KDB 941225 D06v02r01.

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 for 1g SAR and is less than 3.0 W/kg for 10g SAR, SAR is not required for U-NII-1 Band according to FCC KDB 248227D01v02r02.

This device supports IEEE 802.11ax with the following features:
a) Up to 160 MHz Bandwidth only for 5/6 GHz
b) Up to 320 MHz Bandwitdh only for 6 GHz
c) Up to 20 MHz Bandwidth only for 2.4 GHz
d) 2Tx antenna output
e) Up to 4K QAM 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 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200 mm. 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 WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WIFI, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

Per April 2019 TCB Workshop Notes, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

Per Oct. 2020 TCBC Workshop note, SAR was performed using 6.5 GHz SAR probe calibration factors for WIFI 6GHz. 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 6GHz.

DASY6 Module mmWave is optimized for incident Power Density (PD) evaluations EUT at distances as close as 2mm for frequencies in the 6–110 GHz range.
The software Module mmWave V3.0+ features the novel Equivalent Source Reconstruction (ESR) method:
This new method will greatly simplify compliance testing for distances as close as λ/25 (2mm at 6 GHz) from any surface and improve the overall flexibility and precision.
With this method, the reconstruction uncertainty (REC) is below 0.6 dB for d > λ/25, corresponding to a test distance of 2mm at 6 GHz. The above-mentioned REC value is valid if the following conditions on the grid resolution (ℓ_{grid}) and grid extent (ν_{grid}) are met:

$$\ell_{\text{grid}} = \begin{cases} 1.25d & \text{for } d < \lambda/10 \\ \lambda/8 & \text{for } d \geq \lambda/10 \end{cases}.$$

$$\nu_{\text{grid}} \geq 2\lambda$$

In accordance with the October 2020 TCBC document, the novel Equivalent Source Reconstruction (ESR), a post-processing technology of SPEAG's The Module mmWave V3.0+, a source reconstruction method, was used to evaluate the IPD of a portable device in the 6-8.5 GHz band, and the measurement uncertainty was evaluated to be 1.51 dB.

4.9.2 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.

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 D05v02r05.

Per FCC KDB 648474 D04v01r03, this device is considered a "Phablet" since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR >1.2 W/kg. When hotspot mode applies, 10g SAR required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1g SAR > 1.2 W/kg.

This Device supports 64QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per section 5.1 of FCC KDB 941225 D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64QAM is ≤ 0.5dB higher than the same configuration in QPSK and the reported SAR for QPSK configuration is ≤1.45 W/Kg, per section 5.2.4 for FCC KDB941225 D05v02r05.

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

LTE capabilities with overlapping transmission frequency ranges were applied to LTE Band 5 (824.7 ㎒ ~ 848.3㎒) is covered by LTE Band 26(814.7 ㎒ ~ 848.3 ㎒), LTE Band 4 (1 710.7 ㎒ ~ 1 754.3㎒) is covered by LTE Band 66(1 710.7 ㎒ ~ 1 779.3 ㎒) of this model each both LTE bands have the same target powers.

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 DL 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.

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 NSA(Non-standalone) and SA(Stand alone) connectivity for 5G NR FR1 Bands, More detailed specifications of the Bands are contained in the Technical description document.

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 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.

Per FCC KDB 941225 D01v03r01, 12.2 kbps RMC is the primary mode and HSPA (HSUPA/HSDPA with RMC) is the secondary mode.
Per FCC KDB 941225 D01v03r01, The SAR test exclusion is applied to the secondary mode by the following equation.

$$Adjusted\ \ SAR = Highest\ \ Reported\ \ SAR\ \ x \frac{Secondary\ \ Max\ \ tune-up\ \ (mW)}{Primary\ \ Max\ \ tune\ \ tune-up(mW)} \leq 1.2\ \ \mathrm{W/kg}.$$

Based on the highest Reported SAR, the secondary mode is not required.

5. Introduction

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

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. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave is used for guidance in measuring 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 National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. 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.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) of a given density (*r*). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

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

Figure 1. SAR Mathematical Equation

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

Where:
= conductivity of the tissue-simulant material (S/m)
= mass density of the tissue-simulant material (kg/m³)
= 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 relations 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. Description of test equipment

6.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid& Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.2).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC with Windows XP or Windows 7 or Window 10 or Window 11 is working with SAR Measurement system DASY4 & DASY5 & DASY6 &DASY8 A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

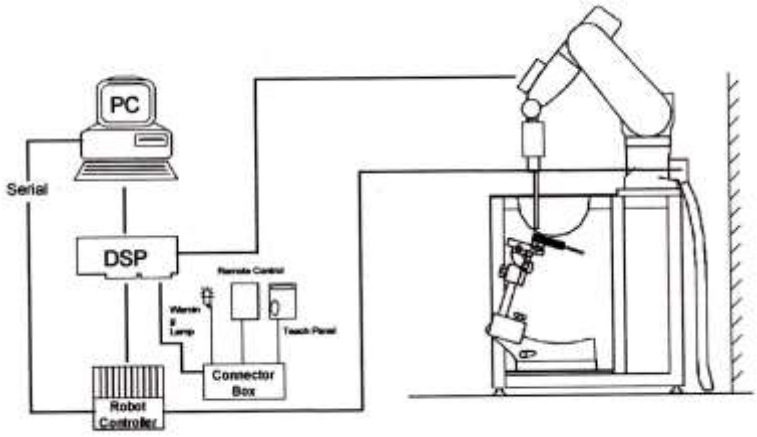


Figure 2. HCT SAR Lab. Test Measurement Set-up

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

7. SAR 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 more than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the DUT's head and body area and the horizontal grid resolution was depending on the FCC KDB 865664 D01v01r04 table 4-1 & IEEE 1528-2013.

2. Based on step, the area of the maximum absorption was determined by sophisticated interpolations routines implemented in DASY software. When an Area Scan has measured all reachable point. DASY system computes the field maximal found in the scanned are, within a range of the maximum. SAR at this fixed point was measured and used as a reference value.

3. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB 865664 D01v01r04 table 4-1 and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (reference from the DASY manual.)

   a. The data at the surface were extrapolated, since the center of the dipoles is no more than 2.7 mm away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

   b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 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 integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

   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. If the value changed by more than 5 %, the SAR evaluation and drift measurements were repeated.

Area scan and zoom scan resolution setting follow KDB 865664 D01v01r04 quoted below.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan Spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$</td><td>≤ 2 GHz: ≤15 mm
2-3 GHz: ≤12 mm</td><td>3-4 GHz: ≤12 mm
4-6 GHz: ≤10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan Spatial resolution: $\Delta x_{zoom}, \Delta y_{zoom}$</td><td>≤ 2 GHz: ≤8mm
2-3 GHz: ≤5mm*</td><td>3-4 GHz: ≤5 mm*
4-6 GHz: ≤4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan Spatial resolution normal to phantom surface</td><td colspan="2">uniform grid:$\Delta z_{zoom}(n)$</td><td>≤ 5 mm</td><td>3-4 GHz: ≤4 mm
4-5 GHz: ≤3 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{zoom}(1)$: between 1st two Points closest to phantom surface</td><td>≤ 4 mm</td><td>3-4 GHz: ≤3 mm
4-5 GHz: ≤2.5 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td>$\Delta z_{zoom}(n>1)$:between subsequent Points</td><td colspan="2">≤1.5·$\Delta z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3-4 GHz: ≥28 mm
4-5 GHz: ≥25 mm
5-6 GHz: ≥22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

8. Description of Test Position

8.1 EAR REFERENCE POINT

Figure 8-2 shows the front, back and side views of the SAM phantom. The center-of-mouth reference point is labeled "M", the left ear reference point (ERP) is marked "LE", and the right ERP is marked "RE." Each ERP is on the B-M (back-mouth) line located 15 mm behind the entrance-to-ear-canal (EEC) point, as shown in Figure 6-1. The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (See Figure 5-1), 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.

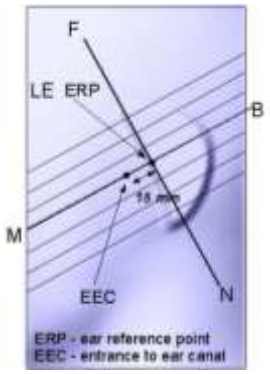


Figure 8-1
Close-up side view of ERP

8.2 Handset Reference Points

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The device under test 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 8-3). The acoustic output was than located at the same level as the center of the ear reference point. The device under test 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 8-2
Front, back and side views of SAM Twin Phantom

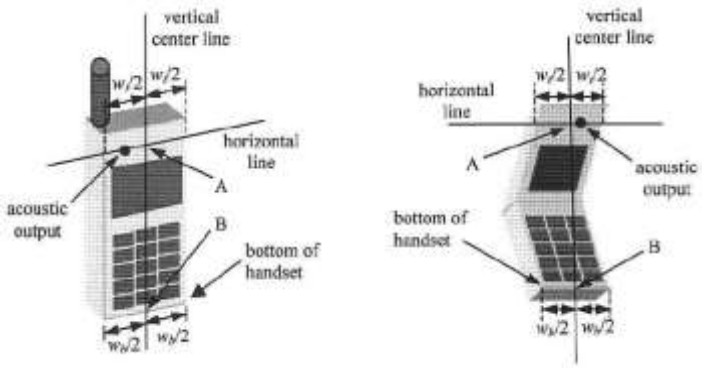


Figure 8-3. Handset vertical and horizontal reference lines

8.3 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameter; relative permittivity ε=3 and loss tangent σ =0.02.

8.4 Position for cheek

Figure 8.4. shows cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

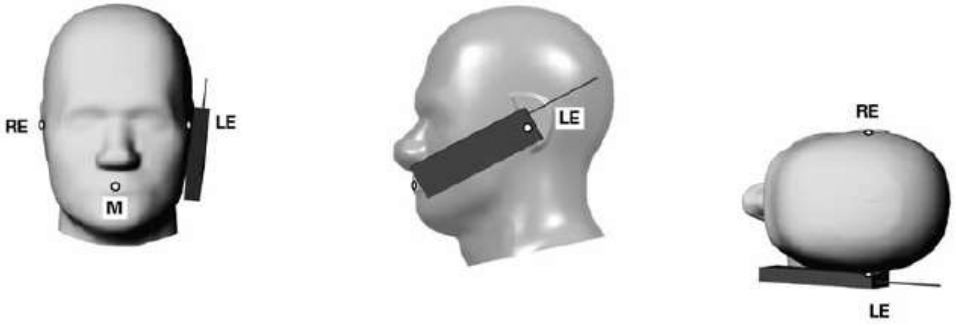


Figure 8.4 Cheek/ Touch position of the wireless device

8.5 Definition of the "tilted" position

Figure 8.5. shows tilted position. Place the device in the cheek position. Then while maintaining the orientation of the device, retract the device parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15°.

Figure 8.5. Tilt 15°position of the wireless device

8.6 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-dips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 8.6). Per FCC KDB Publication 648474 D04v01r03 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. 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 8.6
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 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-dip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

8.7 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 x W≥9cmx5 cm) are based on *a* composite test separation distance of 10 ㎜ 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.

In the closed configuration, only a simple display/interaction of notifications occurs and overall dimensions are <9 X 5 cm. Therefore Per 941225 D06v02r01, when the device is closed, test separation for hotspot mode is 5 ㎜.

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 publication 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.

8.8 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 1-g body and 10-g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear. The phablets procedures outlined in KDB Publication 648474 D04 v01r03 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-worm 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 10-g SAR. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1-g SAR > 1.2 W/kg.

8.9 Bluetooth tethering Configurations

Per May 2017 TCBC Workshop Document, When Bluetooth tethering applies, simultaneous transmission SAR needs consideration.

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering.
Therefore, SAR test was performed for additional simultaneous transmissions.
Head and Bluetooth tethering SAR were evaluated for BT BDR tethering applications.

9. RF Exposure Limits

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg)	CONTROLLED ENVIRONMENT Occupational (W/kg)
SPATIAL PEAK SAR * (Partial Body)	1.6	8.0
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.4
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.0	20.0

NOTES:

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

*** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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 mad 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.

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.

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 mW/㎠ or W/㎡.
Peak Spatially Averaged Power Density was evaluated over a circular area of 4 ㎠ per interim.
FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

HUMAN EXPOSURE	Limits For Occupational / Controlled Environments	Limits For General Population / Uncontrolled Environments
Frequency Range[MHz]	1,500 – 100,000	1,500 – 100,000
Power Density[mW/㎠]	5.0	1.0
Average Time[Minutes]	6	30

NOTES: 1.0 mW/㎠ is 10 W/㎡

10. FCC SAR General Measurement Procedures

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

10.1 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.

10.2 3G SAR Test Reduction Procedure

10.2.1 GSM, GPRS and EDGE

The following procedures may be considered for each frequency Band to determine SAR test reduction for devices operating in GSM/GPRS/EDGE modes to demonstrate RF exposure compliance. GSM voice mode transmits with 1 time-slot. GPRS and EDGE may transmit up to 4 time slots in the 8 time-slot frame according to the multi-slot class implemented in a device.

10.2.2 SAR Test Reduction

In FCC KDB 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.
SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested

10.2.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB 941225 D01v03r01-3G SAR Measurement Procedures.
The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement Software calculates a reference point at the start and end of the test to Cheek for power drifts. Lf conducted Power deviations of more than 5 % occurred, the tests were repeated.

10.3 SAR Measurement Conditions for UMTS

10.3.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in sec. 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.

10.3.2 Body SAR measurements

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

10.3.3 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 and FRC with H-SET 1 in Sub-test and a 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to release 6 HSPA test procedures. 8.4.5 SAR Measurement 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 12.2kbps 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.

10.3.4 SAR Measurements with Rel. 6 HSUPA

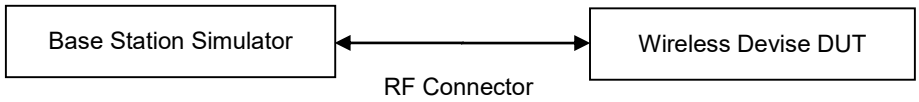
The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

10.3.5 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 TS34.121-1 to determine SAR test reduction. Primary and secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

DC-HSDPA Configurations

- 3GPP specification TS 34.121-1 Release 8. Was used for used for DC-HSDPA guidance.
- H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.



10.4 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r05publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation 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).

10.4.1 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.

10.4.2 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.

10.4.3 A-MPR

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

10.4.4 Required RB Size and RB offsets for SAR testing

According to FCC KDB 941225 D05v02r05

a. Per sec 4.2.1, 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 Sec 4.2.2, SAR is required for 50% RB allocation using the largest Bandwidth following the same procedures outlined in Sec 4.2.1.

c. Per Sec. 4.2.3, 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 Sec. 4.2.4 and 4.3, SAR test for higher order modulations and lower Bandwidths configurations are not required when the conducted power of the required test configurations determined by Sec. 4.2.1 through 4.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/Kg.

10.4.5 Downlink 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 (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. For every supported combination of downlink only carrier aggregation, additional conducted output Powers are measured with downlink carrier aggregation active for the configuration with highest measured maximum conducted power with the 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 carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25dB higher than the average output power with downlink only carrier aggregation inactive.

10.4.6 LTE Uplink Carrier Aggregation SAR Measurement Procedure

This device is specified with the same maximum output power and Tune-up tolerances for intra-band contiguous up-link LTE CA_41C. LTE Band 41 Uplink carrier aggregation and single carrier are operating with Power class 3.

For intra-band contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that aggregate maximum allowed output power is equivalent to the single carrier scenario.

The measured power results of single carrier LTE B416 and intra-band contiguous up-link LTE CA_41C satisfy Maximum output power and Tune-up tolerances.

Per Fall 2017 TCB Workshop Notes, the output Power with uplink CA active was measured for the configuration with the Highest Reported SAR with standalone condition.

UL CA SAR is not required for all required test channels, Because the reported SAR for UL CA configuration is > 1.2 W/kg

10.4.7 LTE(TDD) Considerations

According to KDB 941225 D05v02r05, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.
SAR was tested with the highest transmission duty factor (63.33 %) using Uplink-downlink configuration 0 and Special subframe configuration 6. LTE TDD Band 41 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special sub frame configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Calculated Duty Cycle – Extended cyclic prefix in uplink x (T_s) x no of S + no of U

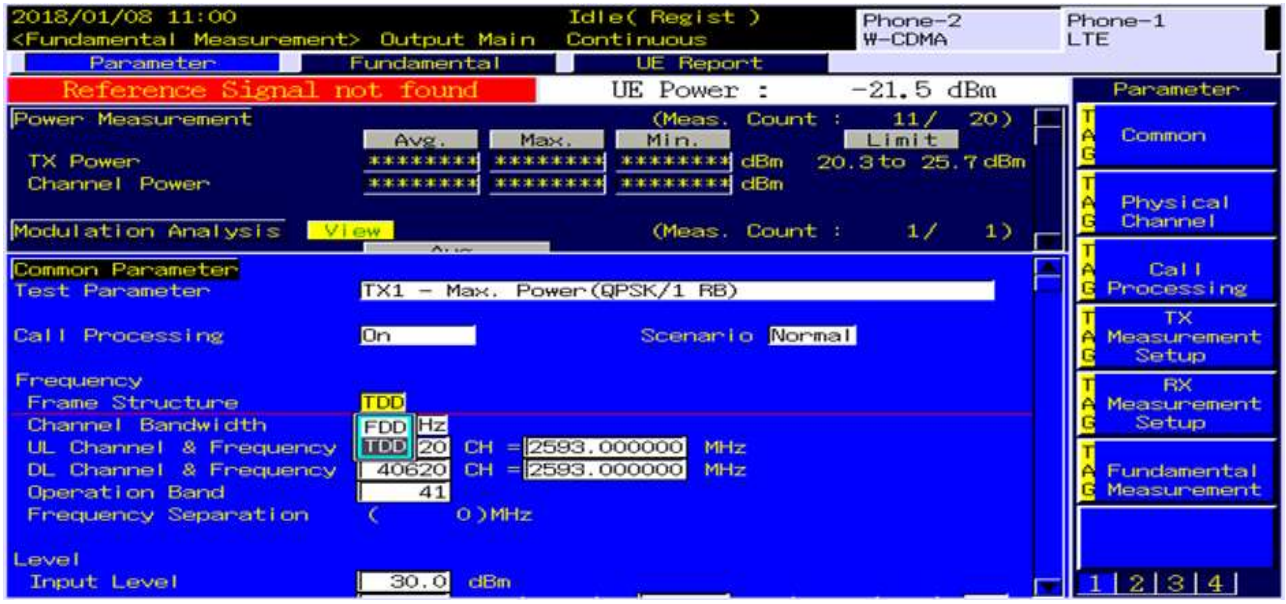
Table 4.2-2: Uplink-downlink configurations.

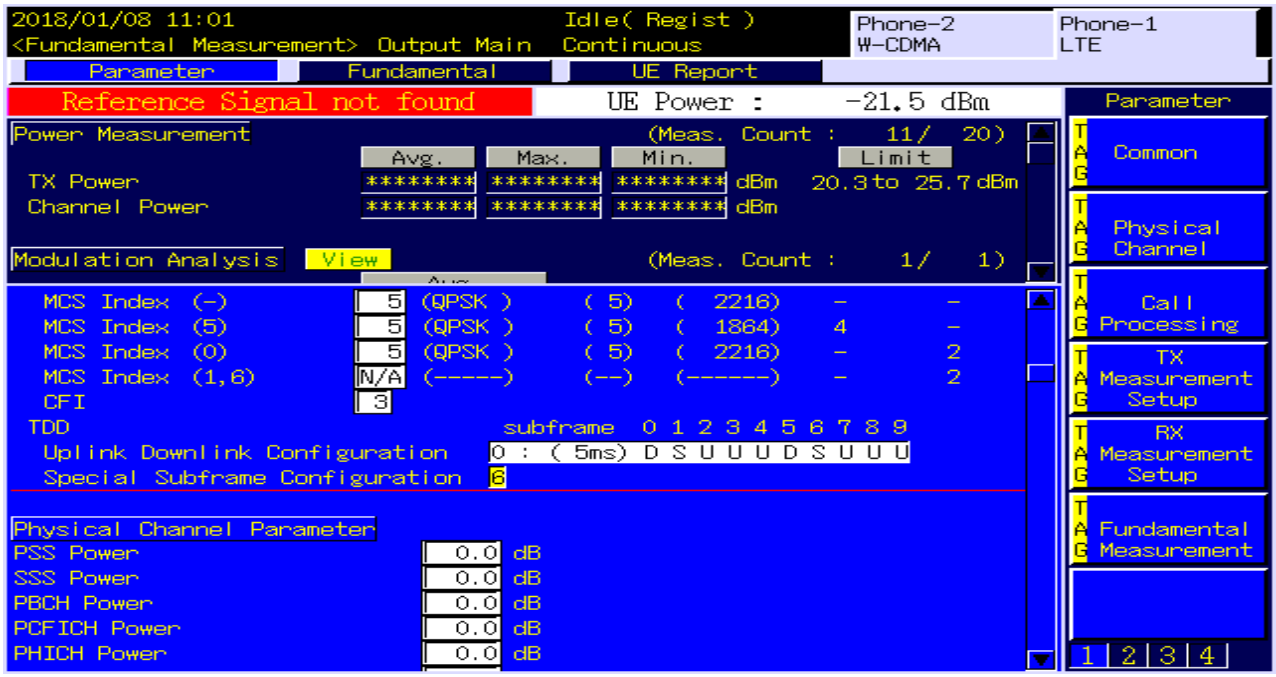
Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = (5120 x (1/(15000 x 2048)) x 2 + 0.006)/0.01 = 63.33 %
Where
T_s = 1/(15000 x 2048) seconds

10.4.8 The Call Box Setup for LTE(TDD)

When you Want to Test for LTE TDD, Please Change Frame Structure TDD and TDD Uplink Downlink Configuration 0 and Special Subframe Configuration 6.





10.5 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.

10.5.1 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 system 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.

10.5.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII2A 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 for 1g SAR or > 3.0 W/kg for 10g SAR. 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 for 1g SAR or > 3.0 W/kg for 10g SAR.

10.5.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 ㎒ (5.47 ㎓ – 5.85 ㎓), 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 ㎓ 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.

10.5.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating nest 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 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 for 1g SAR and ≤ 1.0 W/kg for 10g SAR, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg for 1g SAR and ≤ 2.0 W/kg for 10g SAR or all test positions are measured.

10.5.5 2.4 ㎓ SAR test Requirements

SAR is measured for 2.4 ㎓ 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 is 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 ㎓ 802.11 g/n 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 ㎓ Band, the Initial Test Configuration Procedures should be followed.

10.5.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 ㎓ and 5 ㎓ Bands, 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 and lowest order 802.11 a/g/n/ac mode. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11 ac or 802.11g and 802.11n with the same channel Bandwidth, modulation and data rate etc., the lower order 802.11 mode i.2., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. 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.

10.5.7 Initial Test Configuration Procedure

For OFDM, in both 2.4 ㎓ and 5 ㎓ Bands, 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, and lowest data rate. If the average RF output powers of the highest identical transmission modes are within 0.25 dB of each other, mid channel of the transmission mode with highest average RF output power is the initial test channel. Otherwise, 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 802.11 mode is considered for SAR measurements.

10.5.8 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 on 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 for 1g SAR and ≤ 3.0 W/kg for 10g SAR, no additional SAR tests for the subsequent test configurations are required.

10.5.9 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.

11. Output Power Specifications

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

Licensed Bands

Test Description	Test Procedure Used
Conducted Output Power	- KDB 971168 D01 v03r01 – Section 5.2.4 - ANSI C63.26-2015 – Section 5.2.1 & 5.2.4.2

Test Overview

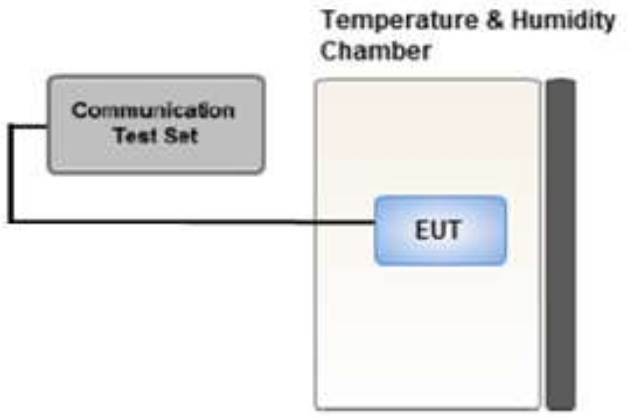
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base station emulator, communications test set, call box, or similar instrumentation that is capable of establishing a communications link with the EUT to enable control over variable parameters (e.g., output power, OBW, etc.).

In some cases, these instruments also include basic digital spectrum analyzer and/or power meter capabilities that can be utilized to measure the RF output power if the specified detectors and requirements can be realized and the measurement functions have been calibrated.

Test Procedure

1. The RF port of the EUT was connected to the Communication Tester via an RF cable.
2. Conducted average power was measured using a calibrated Radio Communication Tester.

Test setup



11.1 GSM Maximum Output Power

11.1.1 GSM 850 Maximum Conducted Output Power

GSM 850 – MAIN1 Antenna

Measured *Pmax*, DSI = 0 (free), DSI = 1 (RCV)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		33.00	33.00	32.00	29.50	27.50	27.00	25.00	24.50	24.00
Nominal		32.00	32.00	31.00	28.50	26.50	26.00	24.00	23.50	23.00
GSM 850	128	32.41	32.51	31.92	29.18	27.21	26.19	24.53	23.81	23.56
	190	31.85	31.81	31.37	29.13	27.01	26.53	24.98	24.31	23.98
	251	31.89	31.84	31.16	28.90	26.90	26.19	24.44	23.72	23.47

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		23.97	23.97	25.98	25.24	24.49	17.97	18.98	20.24	20.99
Nominal		22.97	22.97	24.98	24.24	23.49	16.97	17.98	19.24	19.99
GSM 850	128	23.38	23.48	25.90	24.92	24.20	17.16	18.51	19.55	20.55
	190	22.82	22.78	25.35	24.87	24.00	17.50	18.96	20.05	20.97
	251	22.86	22.81	25.14	24.64	23.89	17.16	18.42	19.46	20.46

GSM Conducted output powers (Frame-Average)

GSM 850 – SUB1 Antenna

Measured *Pmax*, DSI = 0 (free)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		33.00	33.00	32.00	29.50	27.50	27.00	25.00	24.50	24.00
Nominal		32.00	32.00	31.00	28.50	26.50	26.00	24.00	23.50	23.00
GSM 850	128	31.89	32.12	31.80	28.76	26.71	25.88	24.29	23.56	23.30
	190	31.25	31.38	29.88	28.67	26.74	26.27	24.92	24.24	23.94
	251	31.71	31.86	30.81	28.50	26.57	25.67	24.02	23.29	22.98

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		23.97	23.97	25.98	25.24	24.49	17.97	18.98	20.24	20.99
Nominal		22.97	22.97	24.98	24.24	23.49	16.97	17.98	19.24	19.99
GSM 850	128	22.86	23.09	25.78	24.50	23.70	16.85	18.27	19.30	20.29
	190	22.22	22.35	23.86	24.41	23.73	17.24	18.90	19.98	20.93
	251	22.68	22.83	24.79	24.24	23.56	16.64	18.00	19.03	19.97

GSM Conducted output powers (Frame-Average)

GSM 850 – SUB1 Antenna

Measured DSI = 1 (RCV)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		32.00	32.00	29.50	26.50	25.00	27.00	25.00	24.00	22.00
Nominal		31.00	31.00	28.50	25.50	24.00	26.00	24.00	23.00	21.00
GSM 850	128	30.71	31.01	27.71	25.13	23.63	25.79	24.25	22.09	21.27
	190	30.06	30.15	28.05	25.21	23.78	26.30	24.98	22.47	21.68
	251	30.07	30.32	27.41	25.03	23.52	25.71	24.03	22.07	21.04

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		22.97	22.97	23.48	22.24	21.99	17.97	18.98	19.74	18.99
Nominal		21.97	21.97	22.48	21.24	20.99	16.97	17.98	18.74	17.99
GSM 850	128	21.68	21.98	21.69	20.87	20.62	16.76	18.23	17.83	18.26
	190	21.03	21.12	22.03	20.95	20.77	17.27	18.96	18.21	18.67
	251	21.04	21.29	21.39	20.77	20.51	16.68	18.01	17.81	18.03

GSM Conducted output powers (Frame-Average)

11.1.2 GSM 1900 Maximum Conducted Output Power

GSM1900 – MAIN1 Antenna

Measured *Pmax,* DSI = 1 (RCV)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		30.00	30.00	29.00	27.00	25.00	27.00	25.00	23.00	22.00
Nominal		29.00	29.00	28.00	26.00	24.00	26.00	24.00	22.00	21.00
GSM 1900	512	29.35	29.30	28.35	25.94	24.81	25.78	24.33	22.33	21.31
	661	29.44	29.37	28.70	26.78	24.66	25.78	24.60	22.22	21.68
	810	29.68	29.63	28.55	26.04	24.82	25.67	24.43	22.43	21.52

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		20.97	20.97	22.98	22.74	21.99	17.97	18.98	18.74	18.99
Nominal		19.97	19.97	21.98	21.74	20.99	16.97	17.98	17.74	17.99
GSM 1900	512	20.32	20.27	22.33	21.68	21.80	16.75	18.31	18.07	18.30
	661	20.41	20.34	22.68	22.52	21.65	16.75	18.58	17.96	18.67
	810	20.65	20.60	22.53	21.78	21.81	16.64	18.41	18.17	18.51

GSM Conducted output powers (Frame-Average)

Measured DSI = 0 (free)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		29.00	29.00	27.00	25.50	23.50	26.00	24.50	23.50	22.00
Nominal		28.00	28.00	26.00	24.50	22.50	25.00	23.50	22.50	21.00
GSM 1900	512	28.09	28.22	25.18	23.55	21.44	25.50	24.03	22.97	21.60
	661	28.91	28.96	25.69	23.71	22.03	25.42	24.21	23.10	21.95
	810	28.34	28.28	25.97	23.63	22.11	25.44	24.16	23.07	21.64

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		19.97	19.97	20.98	21.24	20.49	16.97	18.48	19.24	18.99
Nominal		18.97	18.97	19.98	20.24	19.49	15.97	17.48	18.24	17.99
GSM 1900	512	19.06	19.19	19.16	19.29	18.43	16.47	18.01	18.71	18.59
	661	19.88	19.93	19.67	19.45	19.02	16.39	18.19	18.84	18.94
	810	19.31	19.25	19.95	19.37	19.10	16.41	18.14	18.81	18.63

GSM Conducted output powers (Frame-Average)

Note:

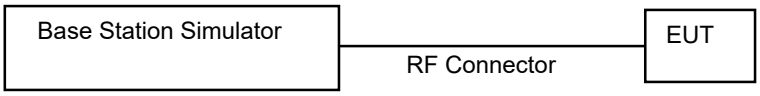
Time slot average factor is as follows:

1 Tx slot = 9.03 dB, Frame-Average output power = Burst-Average output power – 9.03 dB

2 Tx slot = 6.02 dB, Frame-Average output power = Burst-Average output power – 6.02 dB

3 Tx slot = 4.26 dB, Frame-Average output power = Burst-Average output power – 4.26 dB

4 Tx slot = 3.01 dB, Frame-Average output power = Burst-Average output power – 3.01 dB



11.2 UMTS Maximum Output Power

HSPA+
This DUT is only capable of QPSK HSPA+ in uplink. Therefore, the RF conducted power is not measured according to 941225 D01v03r01 3G SAR.

11.2.1 UMTS Band 5 Maximum Conducted Output Power

UMTS Band 5 Maximum Conducted Output Power – MAIN1 Antenna

Measured *Pmax*, DSI = 0, DSI = 1, (Free, RCV)

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 5 [dBm]			3GPP MPR
		Subtest	UL4132 DL4357	UL4183 DL4408	UL4233 DL4458	
99	UMTS	12.2 kbps RMC	23.64	23.84	23.91	-
99		12.2 kbps AMR	23.70	23.95	23.85	-
5	HSDPA	Subtest 1	22.71	22.96	22.79	0
5		Subtest 2	22.61	22.90	22.72	0
5		Subtest 3	21.47	21.81	21.69	0.5
5		Subtest 4	21.50	21.76	21.70	0.5
6	HSUPA	Subtest 1	22.98	23.10	22.90	0
6		Subtest 2	20.96	20.05	20.90	2
6		Subtest 3	21.94	22.07	21.88	1
6		Subtest 4	20.91	21.15	20.97	2
6		Subtest 5	22.99	23.10	22.91	0
8	DC-HSDPA	Subtest1	23.64	23.84	23.91	0
8		Subtest2	23.70	23.95	23.85	0
8		Subtest3	22.71	22.96	22.79	0.5
8		Subtest4	22.61	22.90	22.72	0.5

UMTS Average Conducted output powers

UMTS Band 5 Maximum Conducted Output Power – SUB1 Antenna

Measured *Pmax*, DSI = 0 (free)

3GPP Release Version	Mode	3GPP 34.121 Subtest	UMTS Band 5 [dBm] UL4132 DL4357	UL4183 DL4408	UL4233 DL4458	3GPP MPR
99	UMTS	12.2 kbps RMC	23.45	23.62	23.55	-
99		12.2 kbps AMR	23.46	23.68	23.58	-
5	HSDPA	Subtest 1	22.41	22.47	22.47	0
5		Subtest 2	22.39	22.48	22.48	0
5		Subtest 3	21.92	21.98	21.97	0.5
5		Subtest 4	21.91	21.97	21.99	0.5
6	HSUPA	Subtest 1	22.36	22.46	22.46	0
6		Subtest 2	20.42	20.48	20.46	2
6		Subtest 3	21.40	21.44	21.44	1
6		Subtest 4	20.38	20.43	20.43	2
6		Subtest 5	22.39	22.45	22.45	0
8	DC-HSDPA	Subtest1	23.45	23.62	23.55	0
8		Subtest2	23.46	23.68	23.58	0
8		Subtest3	22.41	22.47	22.47	0.5
8		Subtest4	22.39	22.48	22.48	0.5

UMTS Average Conducted output powers

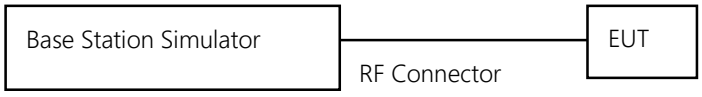
Measured DSI = 1 (RCV)

3GPP Release Version	Mode	3GPP 34.121 Subtest	UMTS Band 5 [dBm] UL4132 DL4357	UL4183 DL4408	UL4233 DL4458	3GPP MPR
99	UMTS	12.2 kbps RMC	20.60	20.64	20.63	-
99		12.2 kbps AMR	20.59	20.63	20.63	-
5	HSDPA	Subtest 1	19.56	19.59	19.60	0
5		Subtest 2	19.55	19.60	19.61	0
5		Subtest 3	19.05	19.11	19.11	0.5
5		Subtest 4	19.04	19.09	19.10	0.5
6	HSUPA	Subtest 1	19.60	19.59	19.61	0
6		Subtest 2	17.54	17.63	17.53	2
6		Subtest 3	18.54	18.62	18.56	1
6		Subtest 4	17.53	17.49	17.56	2
6		Subtest 5	19.47	19.60	19.60	0
8	DC-HSDPA	Subtest1	20.60	20.64	20.63	0
8		Subtest2	20.59	20.63	20.63	0
8		Subtest3	19.56	19.59	19.60	0.5
8		Subtest4	19.55	19.60	19.61	0.5

UMTS Average Conducted output powers

HSDPA Configurations

- 3GPP specification TS 34.121-1 Release 8. Was used for used for DC-HSDPA guidance.
- H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.



11.3 LTE Maximum Output Power

Only the Conducted Power measurement results of the maximum bandwidth, which is the SAR test condition of LTE Bands according to FCC KDB 941225 D05, are included, and the measurement results of other bandwidths are listed in Appendix J.

LTE B4/B5/B12/B13/B26/ at Max Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel Bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

11.3.1 LTE FDD Band 2 Maximum Conducted Output Power

LTE FDD Band 2 Conducted Power _ *Pmax*, DSI = 1 (RCV) _ MAIN1 Antenna

LTE FDD Band 2 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	23.74	23.49	23.45	0	0
		1	49	23.56	23.23	23.39	0	0
		1	99	23.50	23.35	23.44	0	0
		50	0	22.54	22.53	22.42	0-1	1
		50	25	22.35	22.40	22.48	0-1	1
		50	49	22.24	22.21	22.41	0-1	1
		100	0	22.81	22.35	22.48	0-1	1
	16QAM	1	0	22.73	22.60	22.90	0-1	1
		1	49	22.63	23.02	22.80	0-1	1
		1	99	22.54	22.90	23.04	0-1	1
		50	0	21.37	21.06	21.39	0-2	2
		50	25	21.44	21.36	21.52	0-2	2
		50	49	21.61	21.62	21.47	0-2	2
		100	0	21.43	21.20	21.54	0-2	2
	64QAM	1	0	21.50	21.34	21.57	0-2	2
		1	49	21.82	21.54	21.49	0-2	2
		1	99	21.47	21.73	21.55	0-2	2
		50	0	20.83	20.43	20.43	0-3	3
		50	25	20.39	20.42	20.52	0-3	3
		50	49	20.30	20.40	20.73	0-3	3
		100	0	20.34	20.26	20.53	0-3	3

LTE FDD Band 2 Conducted Power _ DSI = 0 (free) _ MAIN1 Antenna

LTE FDD Band 2 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	19.11	19.12	19.27	0	0
		1	49	18.95	18.91	19.03	0	0
		1	99	19.19	19.25	19.12	0	0
		50	0	19.08	18.95	19.00	0-1	0
		50	25	18.94	18.95	19.46	0-1	0
		50	49	18.86	18.73	19.10	0-1	0
		100	0	18.89	18.62	18.91	0-1	0
	16QAM	1	0	19.68	19.27	19.34	0-1	0
		1	49	19.26	19.22	19.30	0-1	0
		1	99	19.42	19.22	19.46	0-1	0
		50	0	19.36	18.99	19.01	0-2	0
		50	25	19.10	19.00	19.16	0-2	0
		50	49	19.26	18.88	19.06	0-2	0
		100	0	18.93	19.27	19.15	0-2	0
	64QAM	1	0	19.90	19.08	19.12	0-2	0
		1	49	19.19	18.98	19.20	0-2	0
		1	99	19.15	19.14	19.34	0-2	0
		50	0	19.08	18.93	19.07	0-3	0
		50	25	18.96	18.97	19.10	0-3	0
		50	49	18.85	18.44	19.16	0-3	0
		100	0	18.93	18.93	19.17	0-3	0

11.3.2 LTE FDD Band 4 Maximum Conducted Output Power

LTE FDD Band 4 Conducted Power _ *Pmax*, DSI = 1 (RCV) _ MAIN1 Antenna

LTE FDD Band 4 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 ㎒			
20 ㎒	QPSK	1	0		23.22		0	0
		1	49		22.99		0	0
		1	99		22.82		0	0
		50	0		22.58		0-1	1
		50	25		22.30		0-1	1
		50	49		22.45		0-1	1
		100	0		22.22		0-1	1
	16QAM	1	0		22.50		0-1	1
		1	49		22.33		0-1	1
		1	99		21.96		0-1	1
		50	0		21.51		0-2	2
		50	25		21.28		0-2	2
		50	49		21.18		0-2	2
		100	0		21.41		0-2	2
	64QAM	1	0		21.56		0-2	2
		1	49		21.48		0-2	2
		1	99		21.19		0-2	2
		50	0		20.86		0-3	3
		50	25		20.52		0-3	3
		50	49		20.50		0-3	3
		100	0		20.55		0-3	3

LTE FDD Band 4 Conducted Power _ Measured DSI = 0 (free) _ MAIN1 Antenna

LTE FDD Band 4 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 ㎒			
20 ㎒	QPSK	1	0		19.27		0	0
		1	49		19.14		0	0
		1	99		19.24		0	0
		50	0		19.18		0-1	0
		50	25		18.98		0-1	0
		50	49		19.00		0-1	0
		100	0		19.24		0-1	0
	16QAM	1	0		19.51		0-1	0
		1	49		19.47		0-1	0
		1	99		19.57		0-1	0
		50	0		19.23		0-2	0
		50	25		18.88		0-2	0
		50	49		19.32		0-2	0
		100	0		19.15		0-2	0
	64QAM	1	0		19.33		0-2	0
		1	49		19.50		0-2	0
		1	99		19.41		0-2	0
		50	0		18.85		0-3	0
		50	25		19.20		0-3	0
		50	49		19.58		0-3	0
		100	0		19.01		0-3	0

11.3.3 LTE FDD Band 5 Maximum Conducted Output Power

LTE FDD Band 5 Conducted Power _ *Pmax*, DSI = 0 (free), DSI = 1 (RCV) _ MAIN1 Antenna

LTE FDD Band 5 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20525 Ch.			
					836.5 ㎒			
10 ㎒	QPSK	1	0		23.96		0	0
		1	24		23.88		0	0
		1	49		23.86		0	0
		25	0		22.84		0-1	1
		25	12		22.87		0-1	1
		25	24		22.85		0-1	1
		50	0		22.85		0-1	1
	16QAM	1	0		23.26		0-1	1
		1	24		22.88		0-1	1
		1	49		22.85		0-1	1
		25	0		21.85		0-2	2
		25	12		21.93		0-2	2
		25	24		21.87		0-2	2
		50	0		21.91		0-2	2
	64QAM	1	0		21.90		0-2	2
		1	24		22.22		0-2	2
		1	49		22.08		0-2	2
		25	0		20.82		0-3	3
		25	12		20.94		0-3	3
		25	24		20.83		0-3	3
		50	0		20.85		0-3	3

LTE FDD Band 5 Conducted Power _*Pmax*, DSI = 0 (free), _ SUB1 Antenna

LTE FDD Band 5 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20450	20525	20600		
				829 ㎒	836.5 ㎒	844 ㎒		
10 ㎒	QPSK	1	0	24.04	23.94	23.90	0	0
		1	24	23.93	23.64	23.91	0	0
		1	49	24.08	23.69	23.69	0	1
		25	0	22.82	22.77	22.76	0-1	1
		25	12	22.83	22.86	22.80	0-1	1
		25	24	22.86	22.79	22.80	0-1	1
		50	0	22.84	22.82	22.77	0-1	1
	16QAM	1	0	23.01	22.96	22.94	0-1	1
		1	24	23.09	22.89	22.99	0-1	1
		1	49	22.94	22.97	22.85	0-1	2
		25	0	21.89	21.81	21.75	0-2	2
		25	12	21.91	21.94	21.75	0-2	2
		25	24	21.87	21.86	21.87	0-2	2
		50	0	21.87	21.82	21.86	0-2	2
	64QAM	1	0	21.83	21.91	21.94	0-2	2
		1	24	21.93	21.90	21.93	0-2	2
		1	49	21.83	21.83	22.12	0-2	2
		25	0	20.89	20.80	20.83	0-3	3
		25	12	20.89	20.94	20.79	0-3	3
		25	24	20.83	20.90	20.80	0-3	3
		50	0	20.86	20.81	20.82	0-3	3

LTE FDD Band 5 Conducted Power _ DSI = 1 (RCV) _ SUB1 Antenna

LTE FDD Band 5 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20450	20525	20600		
				829 ㎒	836.5 ㎒	844 ㎒		
10 ㎒	QPSK	1	0	20.49	20.82	20.56	0	0
		1	24	20.65	20.51	20.58	0	0
		1	49	20.47	20.47	20.43	0	0
		25	0	20.63	20.59	20.54	0-1	0
		25	12	20.65	20.66	20.49	0-1	0
		25	24	20.59	20.53	20.46	0-1	0
		50	0	20.63	20.63	20.53	0-1	0
	16QAM	1	0	21.07	20.79	20.85	0-1	0
		1	24	20.66	20.76	20.61	0-1	0
		1	49	20.71	20.53	20.65	0-1	0
		25	0	20.59	20.43	20.54	0-2	0
		25	12	20.70	20.69	20.53	0-2	0
		25	24	20.64	20.78	20.52	0-2	0
		50	0	20.62	20.70	20.49	0-2	0
	64QAM	1	0	20.70	20.70	20.84	0-2	0
		1	24	20.58	20.77	20.68	0-2	0
		1	49	20.85	20.70	20.52	0-2	0
		25	0	20.58	20.63	20.58	0-3	0
		25	12	20.77	20.69	20.52	0-3	0
		25	24	20.60	20.66	20.58	0-3	0
		50	0	20.68	20.55	20.55	0-3	0

11.3.4 LTE FDD Band 12 Maximum Conducted Output Power

LTE FDD Band 12 Conducted Power _ *Pmax,* DSI = 0 (free), DSI = 1 (RCV)_ MAIN1 Antenna

LTE FDD Band 12 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	22.89	0	0
		1	24	22.82	0	0
		1	49	22.74	0	0
		25	0	21.72	0-1	1
		25	12	21.85	0-1	1
		25	24	21.76	0-1	1
		50	0	21.81	0-1	1
	16QAM	1	0	22.31	0-1	1
		1	24	22.03	0-1	1
		1	49	21.81	0-1	1
		25	0	20.78	0-2	2
		25	12	20.77	0-2	2
		25	24	20.77	0-2	2
		50	0	20.74	0-2	2
	64QAM	1	0	20.98	0-2	2
		1	24	20.89	0-2	2
		1	49	20.81	0-2	2
		25	0	19.82	0-3	3
		25	12	19.78	0-3	3
		25	24	19.70	0-3	3
		50	0	19.75	0-3	3

LTE FDD Band 12 Conducted Power _ *Pmax*, DSI = 0 (free),_ SUB1 Antenna

LTE FDD Band 12 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	23.18	0	0
		1	24	23.15	0	0
		1	49	23.01	0	0
		25	0	22.05	0-1	1
		25	12	22.05	0-1	1
		25	24	22.14	0-1	1
		50	0	22.03	0-1	1
	16QAM	1	0	22.45	0-1	1
		1	24	22.45	0-1	1
		1	49	22.15	0-1	1
		25	0	21.08	0-2	2
		25	12	21.08	0-2	2
		25	24	21.20	0-2	2
		50	0	21.08	0-2	2
	64QAM	1	0	21.36	0-2	2
		1	24	21.36	0-2	2
		1	49	21.23	0-2	2
		25	0	20.08	0-3	3
		25	12	20.01	0-3	3
		25	24	20.15	0-3	3
		50	0	20.09	0-3	3

LTE FDD Band 12 Conducted Power _DSI = 1 (RCV) _ SUB1 Antenna

LTE FDD Band 12 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	20.32	0	0
		1	24	20.37	0	0
		1	49	20.06	0	0
		25	0	20.38	0-1	0
		25	12	20.39	0-1	0
		25	24	20.32	0-1	0
		50	0	20.28	0-1	0
	16QAM	1	0	20.75	0-1	0
		1	24	20.67	0-1	0
		1	49	20.59	0-1	0
		25	0	20.39	0-2	0
		25	12	20.42	0-2	0
		25	24	20.38	0-2	0
		50	0	20.41	0-2	0
	64QAM	1	0	20.71	0-2	0
		1	24	20.48	0-2	0
		1	49	20.65	0-2	0
		25	0	20.10	0-3	0
		25	12	20.14	0-3	0
		25	24	20.16	0-3	0
		50	0	20.10	0-3	0

11.3.5 LTE FDD Band 13 Maximum Conducted Output Power

LTE FDD Band 13 Conducted Power _ *Pmax,* DSI = 0 (free), DSI = 1 (RCV) _ MAIN1 Antenna

LTE FDD Band 13 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23230 Ch. 782 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	22.73	0	0
		1	24	22.79	0	0
		1	49	22.80	0	0
		25	0	21.76	0-1	1
		25	12	21.74	0-1	1
		25	24	21.79	0-1	1
		50	0	21.74	0-1	1
	16QAM	1	0	21.95	0-1	1
		1	24	22.01	0-1	1
		1	49	21.83	0-1	1
		25	0	20.75	0-2	2
		25	12	20.80	0-2	2
		25	24	20.84	0-2	2
		50	0	20.86	0-2	2
	64QAM	1	0	20.87	0-2	2
		1	24	20.86	0-2	2
		1	49	20.88	0-2	2
		25	0	19.77	0-3	3
		25	12	19.79	0-3	3
		25	24	19.81	0-3	3
		50	0	19.75	0-3	3

LTE FDD Band 13 Conducted Power _ *Pmax,* DSI = 0 (free) SUB1 Antenna

LTE FDD Band 13 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23230 Ch. 782 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	22.73	0	0
		1	24	22.83	0	0
		1	49	22.65	0	0
		25	0	21.76	0-1	1
		25	12	21.75	0-1	1
		25	24	21.78	0-1	1
		50	0	21.76	0-1	1
	16QAM	1	0	21.86	0-1	1
		1	24	22.09	0-1	1
		1	49	21.83	0-1	1
		25	0	20.72	0-2	2
		25	12	20.74	0-2	2
		25	24	20.82	0-2	2
		50	0	20.67	0-2	2
	64QAM	1	0	20.79	0-2	2
		1	24	20.75	0-2	2
		1	49	20.86	0-2	2
		25	0	19.75	0-3	3
		25	12	19.71	0-3	3
		25	24	19.80	0-3	3
		50	0	19.80	0-3	3

LTE FDD Band 13 Conducted Power _ DSI = 1 (RCV) _ SUB1 Antenna

LTE FDD Band 13 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23230 Ch. 782 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	20.37	0	0
		1	24	20.52	0	0
		1	49	20.38	0	0
		25	0	20.41	0-1	0
		25	12	20.54	0-1	0
		25	24	20.52	0-1	0
		50	0	20.54	0-1	0
	16QAM	1	0	20.61	0-1	0
		1	24	20.62	0-1	0
		1	49	20.80	0-1	0
		25	0	20.48	0-2	0
		25	12	20.54	0-2	0
		25	24	20.58	0-2	0
		50	0	20.60	0-2	0
	64QAM	1	0	20.37	0-2	0
		1	24	20.58	0-2	0
		1	49	20.46	0-2	0
		25	0	19.74	0-3	1
		25	12	19.75	0-3	1
		25	24	19.83	0-3	1
		50	0	19.74	0-3	1

11.3.6 LTE FDD Band 26 Maximum Conducted Output Power

LTE FDD Band 26 Conducted Power _ *Pmax*, DSI = 0 (free), DSI = 1 (RCV) _ MAIN1 Antenna

LTE FDD Band 26 _ 15 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	24.11	0	0
		1	36	24.22	0	0
		1	74	23.99	0	0
		36	0	23.08	0-1	1
		36	18	22.95	0-1	1
		36	39	22.94	0-1	1
		75	0	22.96	0-1	1
	16QAM	1	0	23.34	0-1	1
		1	36	23.34	0-1	1
		1	74	23.20	0-1	1
		36	0	22.09	0-2	2
		36	18	21.94	0-2	2
		36	39	21.98	0-2	2
		75	0	22.04	0-2	2
	64QAM	1	0	22.26	0-2	2
		1	36	22.33	0-2	2
		1	74	22.36	0-2	2
		36	0	21.10	0-3	3
		36	18	21.05	0-3	3
		36	39	20.98	0-3	3
		75	0	21.03	0-3	3

LTE FDD Band 26 Conducted Power _ *Pmax*, DSI = 0 (free), _ SUB1 Antenna

LTE FDD Band 26 _ 15 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	23.85	0	0
		1	36	24.17	0	0
		1	74	23.92	0	0
		36	0	22.83	0-1	1
		36	18	22.88	0-1	1
		36	39	22.79	0-1	1
		75	0	22.78	0-1	1
	16QAM	1	0	22.81	0-1	1
		1	36	23.37	0-1	1
		1	74	22.54	0-1	1
		36	0	21.85	0-2	2
		36	18	21.91	0-2	2
		36	39	21.74	0-2	2
		75	0	21.83	0-2	2
	64QAM	1	0	21.95	0-2	2
		1	36	22.10	0-2	2
		1	74	21.71	0-2	2
		36	0	20.80	0-3	3
		36	18	20.83	0-3	3
		36	39	20.83	0-3	3
		75	0	20.86	0-3	3

LTE FDD Band 26 Conducted Power _ DSI = 1 (RCV) _ SUB1 Antenna

LTE FDD Band 26 _ 15 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	20.61	0	0
		1	36	20.69	0	0
		1	74	20.64	0	0
		36	0	20.59	0-1	0
		36	18	20.60	0-1	0
		36	39	20.53	0-1	0
		75	0	20.56	0-1	0
	16QAM	1	0	20.77	0-1	0
		1	36	20.61	0-1	0
		1	74	20.48	0-1	0
		36	0	20.53	0-2	0
		36	18	20.61	0-2	0
		36	39	20.45	0-2	0
		75	0	20.66	0-2	0
	64QAM	1	0	20.68	0-2	0
		1	36	20.74	0-2	0
		1	74	20.65	0-2	0
		36	0	20.61	0-3	0
		36	18	20.68	0-3	0
		36	39	20.62	0-3	0
		75	0	20.60	0-3	0

11.3.7 LTE TDD Band 41 Maximum Conducted Output Power

LTE TDD Band 41 Conducted Power(Power Class 3)_*Pmax,* DSI = 0 (free), DSI = 1 (RCV) _ MAIN2 Antenna

LTE TDD Band 41 _ 20 ㎒ Bandwidth Conducted Power - Power Class 3

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	23.66	23.90	23.85	23.50	23.82	0	0
		1	49	23.94	23.83	23.81	23.69	24.01	0	0
		1	99	23.76	23.82	23.61	23.65	23.87	0	0
		50	0	22.86	23.00	23.11	22.75	23.05	0-1	1
		50	25	22.92	23.12	22.93	22.60	23.08	0-1	1
		50	49	22.85	23.10	22.81	22.77	23.13	0-1	1
		100	0	22.96	23.10	22.88	22.70	23.14	0-1	1
	16QAM	1	0	22.93	22.96	23.07	22.60	23.03	0-1	1
		1	49	22.94	23.21	23.09	22.84	23.10	0-1	1
		1	99	23.01	22.95	22.91	22.86	23.08	0-1	1
		50	0	21.92	21.95	22.02	21.60	22.06	0-2	2
		50	25	21.96	21.98	22.09	21.70	22.10	0-2	2
		50	49	21.72	22.09	21.73	21.86	22.15	0-2	2
		100	0	21.84	22.13	21.99	21.71	22.10	0-2	2
	64QAM	1	0	21.83	21.85	21.84	21.56	22.05	0-2	2
		1	49	21.65	21.95	21.98	21.65	22.10	0-2	2
		1	99	21.82	21.99	21.54	21.66	21.89	0-2	2
		50	0	20.77	20.73	20.79	20.57	21.08	0-3	3
		50	25	20.54	20.88	20.99	20.54	21.09	0-3	3
		50	49	20.72	20.95	20.77	20.67	21.11	0-3	3
		100	0	20.75	20.83	20.77	20.76	21.00	0-3	3

Note; LTE TDD Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

LTE TDD Band 41 Conducted Power (Power Class 3) _ *Pmax* _ SUB2 Antenna

LTE TDD Band 41 _ 20 ㎒ Bandwidth Conducted Power - Power Class 3

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	23.60	23.51	23.72	23.35	23.79	0	0
		1	49	23.59	23.63	23.72	23.46	23.93	0	0
		1	99	23.53	23.71	23.52	23.40	23.81	0	0
		50	0	22.69	22.64	22.82	22.50	22.97	0-1	1
		50	25	22.60	22.76	22.83	22.52	23.00	0-1	1
		50	49	22.62	22.77	22.73	22.59	23.03	0-1	1
		100	0	22.62	22.68	22.79	22.51	22.99	0-1	1
	16QAM	1	0	22.83	22.71	22.85	22.55	23.03	0-1	1
		1	49	22.67	22.80	22.85	22.71	23.04	0-1	1
		1	99	22.69	22.85	22.63	22.63	22.97	0-1	1
		50	0	21.76	21.67	21.79	21.55	21.93	0-2	2
		50	25	21.63	21.78	21.82	21.59	21.97	0-2	2
		50	49	21.60	21.79	21.77	21.62	22.08	0-2	2
		100	0	21.59	21.66	21.78	21.50	21.97	0-2	2
	64QAM	1	0	21.76	21.60	21.69	21.39	21.97	0-2	2
		1	49	21.62	21.68	21.78	21.59	21.84	0-2	2
		1	99	21.60	21.76	21.58	21.48	21.98	0-2	2
		50	0	20.71	20.62	20.81	20.55	20.95	0-3	3
		50	25	20.62	20.79	20.79	20.56	21.01	0-3	3
		50	49	20.59	20.78	20.75	20.61	21.07	0-3	3
		100	0	20.62	20.69	20.75	20.55	20.98	0-3	3

Note; LTE TDD Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

LTE TDD Band 41 Conducted Power (Power Class 3) _ DSI = 0 (free) _ SUB2 Antenna

LTE TDD Band 41 _ 20 ㎒ Bandwidth Conducted Power - Power Class 3

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	20.24	20.12	20.29	19.98	20.42	0	0
		1	49	20.22	20.27	20.32	20.09	20.61	0	0
		1	99	20.12	20.34	20.11	20.04	20.48	0	0
		50	0	20.28	20.25	20.38	20.05	20.50	0-1	0
		50	25	20.16	20.35	20.34	20.10	20.63	0-1	0
		50	49	20.12	20.35	20.29	20.16	20.61	0-1	0
		100	0	20.18	20.25	20.32	20.08	20.52	0-1	0
	16QAM	1	0	20.44	20.22	20.30	20.23	20.52	0-1	0
		1	49	20.31	20.37	20.40	20.22	20.66	0-1	0
		1	99	20.28	20.40	20.25	20.12	20.53	0-1	0
		50	0	20.31	20.25	20.36	20.07	20.51	0-2	0
		50	25	20.21	20.38	20.38	20.11	20.59	0-2	0
		50	49	20.18	20.37	20.27	20.17	20.65	0-2	0
		100	0	20.17	20.27	20.33	20.11	20.54	0-2	0
	64QAM	1	0	20.26	20.06	20.33	19.92	20.40	0-2	0
		1	49	20.08	20.34	20.29	20.12	20.53	0-2	0
		1	99	20.09	20.40	20.05	20.04	20.43	0-2	0
		50	0	20.31	20.22	20.36	20.09	20.51	0-3	0
		50	25	20.18	20.38	20.37	20.15	20.58	0-3	0
		50	49	20.15	20.38	20.26	20.19	20.66	0-3	0
		100	0	20.18	20.23	20.33	20.06	20.54	0-3	0

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

LTE TDD Band 41 Conducted Power (Power Class 3) _ DSI = 1 (RCV) _ SUB2 Antenna

LTE TDD Band 41 _ 20 ㎒ Bandwidth Conducted Power - Power Class 3

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	17.69	17.73	17.66	17.41	17.80	0	0
		1	49	17.72	17.68	17.69	17.50	17.97	0	0
		1	99	17.45	17.72	17.49	17.42	17.90	0	0
		50	0	17.68	17.54	17.74	17.40	17.85	0-1	0
		50	25	17.69	17.73	17.75	17.56	17.89	0-1	0
		50	49	17.47	17.72	17.65	17.52	17.96	0-1	0
		100	0	17.55	17.60	17.71	17.43	17.89	0-1	0
	16QAM	1	0	17.81	17.53	17.64	17.38	17.82	0-1	0
		1	49	17.65	17.69	17.62	17.62	18.07	0-1	0
		1	99	17.44	17.74	17.56	17.43	17.95	0-1	0
		50	0	17.69	17.59	17.75	17.43	17.86	0-2	0
		50	25	17.53	17.71	17.76	17.48	17.89	0-2	0
		50	49	17.52	17.76	17.65	17.54	18.02	0-2	0
		100	0	17.52	17.61	17.72	17.43	17.85	0-2	0
	64QAM	1	0	17.62	17.49	17.66	17.41	17.74	0-2	0
		1	49	17.53	17.67	17.69	17.49	17.83	0-2	0
		1	99	17.52	17.66	17.60	17.31	17.83	0-2	0
		50	0	17.67	17.61	17.76	17.42	17.87	0-3	0
		50	25	17.58	17.68	17.75	17.47	17.94	0-3	0
		50	49	17.53	17.72	17.70	17.52	17.94	0-3	0
		100	0	17.56	17.60	17.73	17.44	17.89	0-3	0

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D04v01.

11.3.8 LTE FDD Band 66 Maximum Conducted Output Power

LTE FDD Band 66 Conducted Power_ *Pmax*, DSI = 1 (RCV) _ MAIN1 Antenna

LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	23.37	23.41	23.32	0	0
		1	49	23.20	23.30	23.41	0	0
		1	99	23.50	23.45	23.29	0	0
		50	0	22.80	22.55	22.68	0-1	1
		50	25	22.26	22.66	22.79	0-1	1
		50	49	22.49	22.71	22.29	0-1	1
		100	0	22.71	22.57	22.54	0-1	1
	16QAM	1	0	22.39	22.57	21.56	0-1	1
		1	49	22.63	22.75	21.69	0-1	1
		1	99	22.77	22.82	22.43	0-1	1
		50	0	21.23	20.96	21.61	0-2	2
		50	25	21.58	21.67	21.48	0-2	2
		50	49	21.81	21.78	21.50	0-2	2
		100	0	21.64	21.51	21.62	0-2	2
	64QAM	1	0	21.58	21.60	21.36	0-2	2
		1	49	21.71	21.74	20.73	0-2	2
		1	99	21.78	21.57	21.61	0-2	2
		50	0	21.22	19.96	20.71	0-3	3
		50	25	20.70	20.66	20.24	0-3	3
		50	49	20.53	20.77	20.53	0-3	3
		100	0	20.85	21.13	20.46	0-3	3

LTE FDD Band 66 Conducted Power_ DSI = 0 (free) _ MAIN1 Antenna

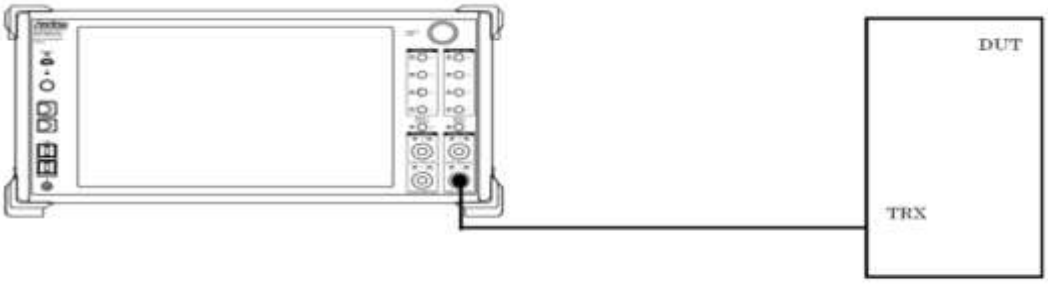
LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	19.38	19.25	19.43	0	0
		1	49	19.12	19.35	19.27	0	0
		1	99	19.28	19.27	19.64	0	0
		50	0	19.22	19.52	19.32	0-1	0
		50	25	19.10	19.20	19.42	0-1	0
		50	49	19.22	19.32	19.39	0-1	0
		100	0	19.19	19.18	19.37	0-1	0
	16QAM	1	0	19.30	19.42	19.45	0-1	0
		1	49	19.44	19.49	19.54	0-1	0
		1	99	19.56	19.71	19.67	0-1	0
		50	0	19.15	19.22	18.99	0-2	0
		50	25	19.44	19.00	19.30	0-2	0
		50	49	19.35	19.29	19.63	0-2	0
		100	0	19.24	19.27	19.20	0-2	0
	64QAM	1	0	19.24	19.73	19.35	0-2	0
		1	49	19.68	19.50	19.65	0-2	0
		1	99	19.35	19.32	19.55	0-2	0
		50	0	19.13	19.17	19.49	0-3	0
		50	25	18.75	18.89	19.55	0-3	0
		50	49	19.06	19.41	19.38	0-3	0
		100	0	19.16	19.18	19.28	0-3	0

The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

11.3.9 LTE Up-link Carrier Aggregation Conducted Powers Setup

To measure the LTE UL-CA power of this device, Anritsu's MT8821C was used to check the power as follows.



Power Measurement setup

TDD CA_41C Intra-Band Contiguous Call Connection

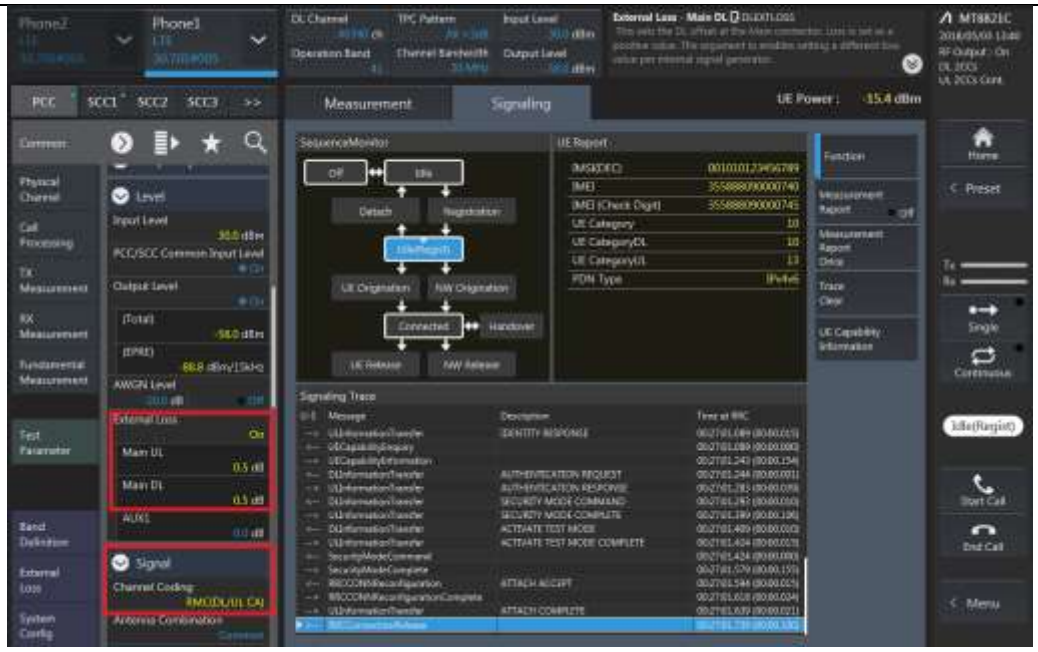
Set to MT8821C with following parameters:

-. Set up the call box for PCC Configuration for LTE Uplink CA

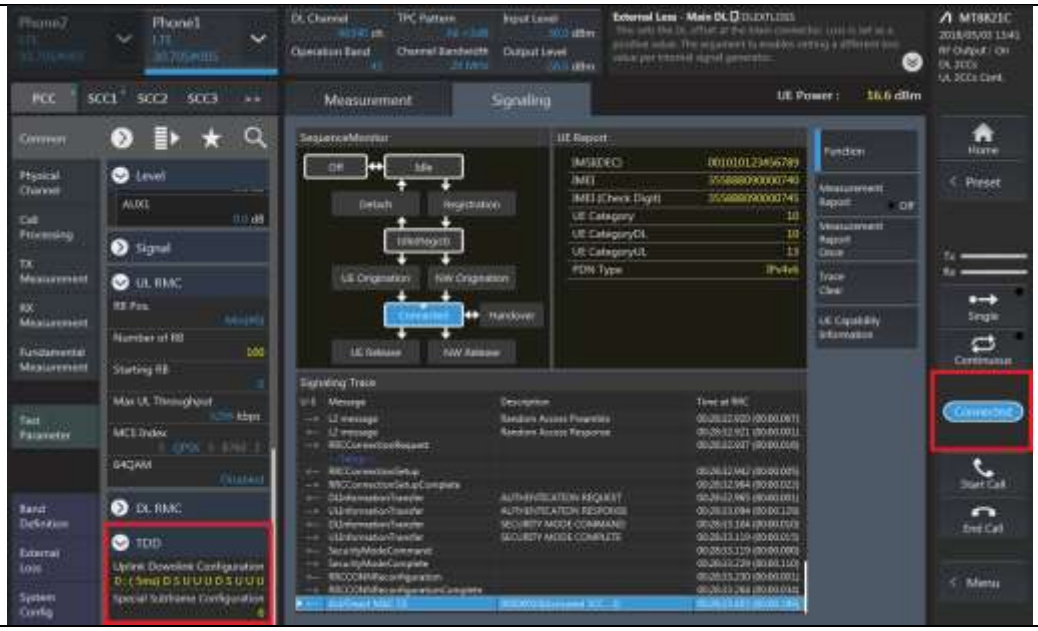
-. Set up the call box for SCC Configuration for LTE Uplink CA

-. Measure the maximum output power in Uplink LTE CA conditions.

Call 1 :Select PCC Configuration for Authentication key to Register



Call 2 :Select PCC Configuration for LTE UL CA and Cable loss



Call 3:Select PCC Configuration for LTE TDD " Uplink Downlink Configuration" set to "0"
And then Select "connect" button.

Call 4:Set to RB, offset, BW, modulation of SCC channel.

Call 5: Set to RB, offset, BW, modulation and Max Power conditions of PCC required test channel.

11.3.10 Uplink Carrier aggregation Conducted Powers

LTE TDD Band 41 Conducted Power_MAIN2

Combination	PCC						SCC						Tx Power		Note
	Band	BW	PCC UL Channel	PCC UL Frequency	RB	offset	Band	BW	SCC UL Channel	SCC UL Frequency	RB	offset	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with UL CA Enabled (dBm)	
41C	41	20	40185	2549.5	1	0	41	20	39987	2529.7	1	99	23.9	23.16	Pmax

LTE TDD Band 41 Conducted Power_SUB2

Combination	PCC						SCC						Tx Power		Note
	Band	BW	PCC UL Channel	PCC UL Frequency	RB	offset	Band	BW	SCC UL Channel	SCC UL Frequency	RB	offset	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with UL CA Enabled (dBm)	
41C	41	20	41490	2680	50	0	41	20	41292	2660.2	50	49	20.5	19.91	DSI0
41C	41	20	41490	2680	1	0	41	20	41292	2660.2	1	99	17.8	17.18	DSI1

11.4 NR Maximum Output Power

Only the Conducted Power measurement results of the maximum bandwidth, which is the SAR test condition of NR Bands according to FCC KDB 941225 D05, are included, and the measurement results of other bandwidths are listed in Appendix L.

11.4.1 NR FDD Band n5 Maximum Conducted Power

NR FDD Band n5 Conducted Power_ *Pmax,* DSI = 0 (free), DSI = 1 (RCV)_ Main1 Antenna

NR FDD Band n5_ 20 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						167300	
						836.5 ㎒	
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.54	0
				1	53	23.53	0
				1	104	23.41	0
				50	0	23.08	0.5
				50	28	23.58	0
				50	56	22.97	0.5
				100	0	23.10	0.5
			QPSK	1	1	23.78	0
				1	53	23.59	0
				1	104	23.51	0
				50	0	22.62	1
				50	28	23.70	0
				50	56	22.48	1
				100	0	22.72	1
			16QAM	1	1	22.55	1
			64QAM	1	1	21.30	2.5
			256QAM	1	1	18.61	4.5
		CP	QPSK	1	1	22.09	1.5

NR FDD Band n5 Conducted Power_ *Pmax,* DSI = 0 (free)_ SUB1 Antenna

NR FDD Band n5_ 20 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 167300 836.5 ㎒	MPR [dB]
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.61	0
				1	53	23.54	0
				1	104	23.37	0
				50	0	23.05	0.5
				50	28	23.54	0
				50	56	22.89	0.5
				100	0	23.07	0.5
			QPSK	1	1	23.69	0
				1	53	23.61	0
				1	104	23.45	0
				50	0	22.64	1
				50	28	23.60	0
				50	56	22.49	1
				100	0	22.65	1
			16QAM	1	1	22.58	1
			64QAM	1	1	21.46	2.5
			256QAM	1	1	18.55	4.5
		CP	QPSK	1	1	22.35	1.5

NR FDD Band n5 Conducted Power_ DSI = 1 (RCV)_ SUB1 Antenna

NR FDD Band n5_ 20 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 167300 836.5 ㎒	MPR [dB]
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	20.59	0
				1	53	20.62	0
				1	104	20.64	0
				50	0	20.62	0
				50	28	20.71	0
				50	56	20.63	0
				100	0	20.66	0
			QPSK	1	1	20.57	0
				1	53	20.56	0
				1	104	20.55	0
				50	0	20.55	0
				50	28	20.74	0
				50	56	20.63	0
				100	0	20.75	0
			16QAM	1	1	20.67	0
			64QAM	1	1	20.26	0
			256QAM	1	1	19.84	0
		CP	QPSK	1	1	20.62	0

11.4.2 NR TDD Band n41 Maximum Conducted Power

NR TDD Band n41 (PC3) _ Conducted Power_ *Pmax* _ MAIN2 Antenna

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2 592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			24.27			0
				1	137			24.14			0
				1	271			24.23			0
				135	0			23.60			0.5
				135	69			24.13			0
				135	138			23.55			0.5
				270	0			23.67			0.5
			QPSK	1	1			23.96			0
				1	137			23.93			0
				1	271			23.99			0
				135	0			23.19			1
				135	69			24.02			0
				135	138			23.19			1
				270	0			23.21			1
			16QAM	1	1			23.12			1
			64QAM	1	1			21.92			2.5
			256QAM	1	1			19.19			4.5
		CP	QPSK	1	1			22.86			1.5

NR TDD Band n41 (PC3) Conducted Power_ DSI = 0 (free), DSI = 1 (RCV) _ MAIN2 Antenna

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			21.80			0
				1	137			21.48			0
				1	271			21.38			0
				135	0			21.56			0
				135	69			21.44			0
				135	138			21.26			0
				270	0			21.47			0
			QPSK	1	1			21.45			0
				1	137			21.40			0
				1	271			21.35			0
				135	0			21.59			0
				135	69			21.45			0
				135	138			21.59			0
				270	0			21.31			0
			16QAM	1	1			21.22			0
			64QAM	1	1			21.26			0
			256QAM	1	1			19.42			0
		CP	QPSK	1	1			21.58			0

NR TDD Band n41 (PC3) Conducted Power_ *Pmax* _ SUB2 Antenna

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2 592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			23.93			0
				1	137			24.20			0
				1	271			24.64			0
				135	0			23.53			0.5
				135	69			24.22			0
				135	138			23.79			0.5
				270	0			23.74			0.5
			QPSK	1	1			23.89			0
				1	137			24.13			0
				1	271			24.53			0
				135	0			23.04			1
				135	69			23.56			0
				135	138			23.34			1
				270	0			23.26			1
			16QAM	1	1			22.80			1
			64QAM	1	1			20.96			2.5
			256QAM	1	1			18.99			4.5
		CP	QPSK	1	1			22.62			1.5

NR TDD Band n41 (PC3) Conducted Power_ DSI = 0 (free) _ SUB2 Antenna

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			20.39			0
				1	137			20.09			0
				1	271			20.08			0
				135	0			20.28			0
				135	69			20.23			0
				135	138			20.23			0
				270	0			20.25			0
			QPSK	1	1			20.28			0
				1	137			20.17			0
				1	271			20.11			0
				135	0			20.32			0
				135	69			20.30			0
				135	138			20.20			0
				270	0			20.25			0
			16QAM	1	1			20.45			0
			64QAM	1	1			19.92			0
			256QAM	1	1			19.55			0
		CP	QPSK	1	1			20.53			0

NR TDD Band n41 (PC3) Conducted Power_ DSI = 1 (RCV) _ SUB2 Antenna

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			15.33			0
				1	137			15.44			0
				1	271			15.74			0
				135	0			15.41			0
				135	69			15.64			0
				135	138			15.63			0
				270	0			15.35			0
			QPSK	1	1			15.29			0
				1	137			15.45			0
				1	271			15.68			0
				135	0			15.36			0
				135	69			15.41			0
				135	138			15.65			0
				270	0			15.39			0
			16QAM	1	1			15.01			0
			64QAM	1	1			15.42			0
			256QAM	1	1			14.91			0
		CP	QPSK	1	1			15.31			0

11.4.3 NR FDD Band n66 Maximum Conducted Power

NR FDD Band n66 Conducted Power_ *Pmax,* DSI = 1 (RCV) _ MAIN1 Antenna

NR FDD Band n66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						349000	
						1745 ㎒	
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.55	0
				1	108	23.59	0
				1	214	23.44	0
				108	0	23.01	0.5
				108	54	23.52	0
				108	108	22.97	0.5
				216	0	22.92	0.5
			QPSK	1	1	23.47	0
				1	108	23.44	0
				1	214	23.48	0
				108	0	22.52	1
				108	54	23.49	0
				108	108	22.49	1
				216	0	22.51	1
			16QAM	1	1	22.48	1
			64QAM	1	1	21.14	2.5
			256QAM	1	1	18.30	4.5
		CP	QPSK	1	1	22.20	1.5

NR FDD Band n66 Conducted Power_ Measured DSI = 0 (free) _ MAIN1 Antenna

NR FDD Band n66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 349000 1745 ㎒	MPR [dB]
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	19.31	0
				1	108	19.29	0
				1	214	18.99	0
				108	0	19.19	0
				108	54	19.32	0
				108	108	19.05	0
				216	0	19.17	0
			QPSK	1	1	19.13	0
				1	108	19.25	0
				1	214	19.15	0
				108	0	19.27	0
				108	54	19.12	0
				108	108	19.11	0
				216	0	19.09	0
			16QAM	1	1	19.06	0
			64QAM	1	1	19.21	0
			256QAM	1	1	18.11	0
		CP	QPSK	1	1	19.20	0

NR FDD Band n66 Conducted Power_ Measured DSI = 0 (free) _ SUB2 Antenna

NR FDD Bandn66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 349000 1745 ㎒	MPR [dB]
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	21.25	0
				1	108	20.98	0
				1	214	21.07	0
				108	0	21.06	0
				108	54	21.11	0
				108	108	21.06	0
				216	0	21.18	0
			QPSK	1	1	21.23	0
				1	108	20.97	0
				1	214	21.05	0
				108	0	21.14	0
				108	54	21.20	0
				108	108	21.08	0
				216	0	21.20	0
			16QAM	1	1	21.10	0
			64QAM	1	1	20.92	0
			256QAM	1	1	18.56	1.5
		CP	QPSK	1	1	21.27	0

NR FDD Band n66 Conducted Power_ DSI = 1 (RCV) _ SUB2 Antenna

NR FDD Band n66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 349000 1745 ㎒	MPR [dB]
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	15.19	0
				1	108	15.05	0
				1	214	15.08	0
				108	0	15.06	0
				108	54	14.98	0
				108	108	14.99	0
				216	0	15.07	0
			QPSK	1	1	15.16	0
				1	108	14.96	0
				1	214	15.06	0
				108	0	15.10	0
				108	54	15.09	0
				108	108	14.92	0
				216	0	15.13	0
			16QAM	1	1	15.15	0
			64QAM	1	1	15.07	0
			256QAM	1	1	14.65	0
		CP	QPSK	1	1	15.15	0

11.5 WIFI Conducted Power measurement method

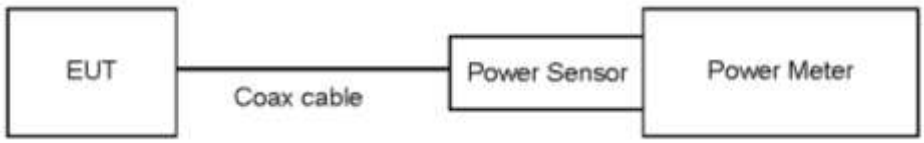
Un-Licensed Bands (DTS Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 558074 v05 – Section 8.3.2.3 - ANSI 63.10-2013 – Section 11.9.2.3

Test Procedure

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test setup



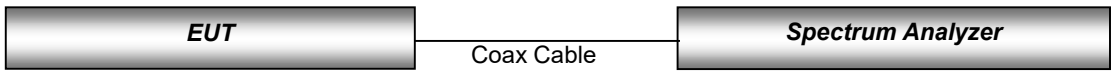
Un-Licensed Bands (NII Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 789033 D02 v02r01 – Section E.3.a

Test Procedure

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test setup



11.5.1 IEEE 802.11 (2.4 ㎓) Maximum and Reduced Conducted Power

Mode	Frequency [㎒]	Channel	Pmax, Plimit=0 (Body)		
			IEEE 802.11 (2.4 ㎓) Average RF Conducted Power [dBm]		
			WIFI 1	WIFI 2	MIMO
802.11b	2 412	1	16.70	17.58	20.17
	2 437	6	16.64	17.53	20.12
	2 462	11	16.63	17.52	20.11
802.11g	2 412	1	14.06	14.53	17.31
	2 437	6	16.46	17.52	20.03
	2 462	11	14.33	15.79	18.13
802.11n	2 412	1	13.78	14.75	17.30
	2 437	6	16.43	17.29	19.89
	2 462	11	14.33	15.56	18.00

Mode	Frequency [㎒]	Channel	Plimit=1 (Head)		
			IEEE 802.11 (2.4 ㎓) Average RF Conducted Power [dBm]		
			WIFI 1	WIFI 2	MIMO
802.11b	2 412	1	14.17	14.07	17.13
	2 437	6	13.86	14.04	16.96
	2 462	11	14.31	13.98	17.16
802.11g	2 412	1	13.86	14.33	17.11
	2 437	6	13.87	14.83	17.38
	2 462	11	13.96	14.93	17.48
802.11n	2 412	1	13.23	13.93	16.60
	2 437	6	13.30	14.49	16.95
	2 462	11	13.25	13.88	16.59

11.5.2 IEEE 802.11 (5 ㎓) Maximum and Reduced Conducted Power

Frequency [㎒]	Channel	Plimit=1 (Head) - SISO	
		IEEE 802.11 ac (80 ㎒ BW) Conducted Power [dBm]	
		Ant.1	Ant.2
5 610	122	14.01	14.82
5 690	138	14.24	14.78
5 775	155	14.38	14.67
5 855	171	14.11	14.16

Frequency [㎒]	Channel	Plimit=1 (Head) - SISO	
		IEEE 802.11 ax (80 ㎒ BW) Conducted Power [dBm]	
		Ant.1	Ant.2
5 290	58	14.92	14.07

Frequency [㎒]	Channel	Plimit=1 (Head) -MIMO		
		IEEE 802.11 ac (80 ㎒ BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 610	122	13.79	14.81	17.34
5 690	138	13.81	14.84	17.36
5 775	155	13.96	14.72	17.37
5 855	171	13.90	14.17	17.05

Frequency [㎒]	Channel	Plimit=1 (Head) -MIMO		
		IEEE 802.11 ax (80 ㎒ BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 290	58	14.92	14.07	17.52

Frequency [㎒]	Channel	Plimit=0 (Body) - SISO	
		IEEE 802.11 ac (80 ㎒ BW) Conducted Power [dBm]	
		Ant.1	Ant.2
5 610	122	17.29	17.85
5 690	138	17.35	17.87
5 775	155	17.56	17.61
5 855	171	17.33	17.16

Frequency [㎒]	Channel	Plimit=0 (Body) - SISO	
		IEEE 802.11 n (40 ㎒ BW) Conducted Power [dBm]	
		Ant.1	Ant.2
5 270	54	17.31	17.72

Frequency [㎒]	Channel	Plimit=0 (Body) - MIMO		
		IEEE 802.11 ac (80 ㎒ BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 610	122	17.10	17.90	20.53
5 690	138	17.00	17.93	20.50
5 775	155	17.28	17.68	20.49
5 855	171	17.19	17.11	20.16

Frequency [㎒]	Channel	Plimit=0 (Body) - MIMO		
		IEEE 802.11 ac (80 ㎒ BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 270	54	17.28	17.67	20.49

11.5.3 IEEE 802.11 (6-7 ㎓) Maximum and Reduced Conducted Power

Frequency [㎒]	Channel	Plimit=0(Body), 1(Head)		
		IEEE 802.11ax (160 ㎒ BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
6025	15	8.22	9.02	11.65
6185	47	8.02	8.90	11.50
6345	79	8.50	8.64	11.58
6505	111	8.48	8.57	11.54
6665	143	8.80	8.90	11.86
6825	175	8.65	9.22	11.96
6985	207	9.02	9.47	12.26

Note:

For testing the WIFI 6 GHz of this DUT, the selection of test channels was based on FCC guidance, with five channels selected across the entire WIFI 6 GHz Bands.

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 mode 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.

Test Configuration

11.6 Bluetooth Maximum Conducted Power

11.6.1 Maximum Conducted Power

The Burst Averaged-conducted power

Mode	Channel	Max. Average Conducted Power [dBm]	
		Ant.1	Ant.2
DH5	0	17.58	17.80
	39	17.43	17.85
	78	17.47	17.44
2-DH5	0	12.18	13.92
	39	13.89	12.65
	78	12.05	12.27
3-DH5	0	12.16	13.94
	39	13.87	12.67
	78	12.34	12.25

The Burst Averaged-conducted power - Dual

Mode	Channel	Max. Average Conducted Power [dBm]		
		Ant.1	Ant.2	Dual
DH5	0	11.78	11.75	14.78
	39	11.97	11.68	14.84
	78	12.32	12.13	15.24
2-DH5	0	8.52	9.28	11.93
	39	10.14	7.96	12.20
	78	8.02	8.6	11.33
3-DH5	0	8.51	9.29	11.93
	39	10.09	8.03	12.19
	78	8.06	8.64	11.37

11.6.2 Reduced Conducted Power – Receiver Active

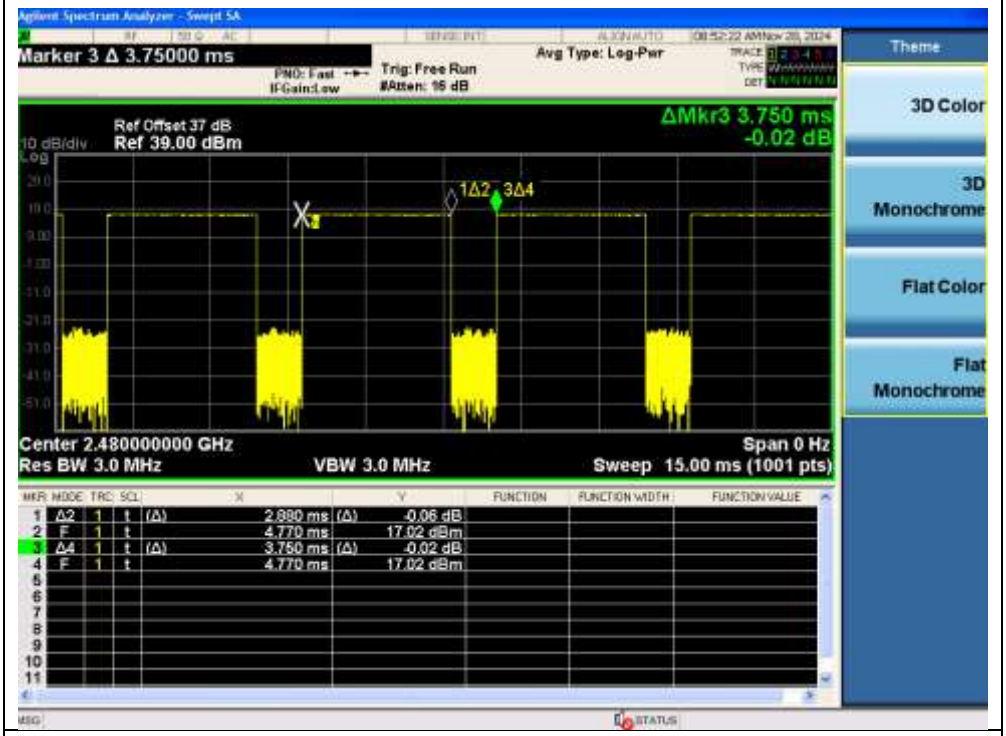
The Burst Averaged-conducted power

Mode	Channel	Max. Average Conducted Power [dBm]	
		Ant.1	Ant.2
DH5	0	13.66	13.22
	39	13.79	13.01
	78	13.93	13.61

Per October 2016 TCB Workshop Notes:

When call box and Bluetooth protocol are used for Bluetooth SAR measurement, time-domain plot is required to identify duty factor for supporting the test setup and result.
Bluetooth duty cycle was measured using Bluetooth tester equipment (CBT / R&S) with Bluetooth.

Bluetooth Duty cycle Measurement results



Duty Cycle== (BT-On time /BT-Full time)

=(2.880/3.750) = 0.768 (DH5)

BT DH5 Maximum Duty Factor:

The maximum duty cycle defined by chipset manufacturer is 79.0 % In the worst case Duty Cycle. The duty cycle of DH5 measured by DUT was 76.8%, and the measured SAR results was compensated by applying the maximum duty cycle, please refer to the technical description document.

12. System Verification

12.1 Tissue Verification

The head simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity.

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
10/07/2024	22.2	13H	12	0.730	54.380	0.750	55.000	-2.61	-1.13
			13	0.735	54.530	0.750	55.000	-2.01	-0.85
			14	0.740	54.530	0.750	55.000	-1.39	-0.85
10/04/2024	22.2	750H	705	0.876	42.652	0.889	42.174	-1.45	1.13
			710	0.878	42.640	0.890	42.148	-1.36	1.17
			750	0.894	42.504	0.893	41.940	0.11	1.34
11/08/2024	21.7	750H	705	0.853	43.377	0.889	42.174	-4.06	2.85
			710	0.859	43.304	0.890	42.148	-3.50	2.74
			750	0.903	42.300	0.893	41.940	1.12	0.86
10/03/2024	22.3	750H	750	0.895	42.549	0.893	41.940	0.22	1.45
			785	0.909	42.424	0.896	41.758	1.42	1.60
10/09/2024	21.7	750H	750	0.905	42.500	0.893	41.940	1.34	1.34
			785	0.919	43.100	0.896	41.758	2.55	3.21
11/27/2024	20.9	750H	750	0.908	42.500	0.893	41.940	1.68	1.34
			785	0.933	42.000	0.896	41.758	4.13	0.58
10/01/2024	22.6	835H	820	0.920	42.592	0.899	41.577	2.30	2.44
			835	0.924	42.530	0.900	41.500	2.67	2.48
			850	0.931	42.506	0.916	41.500	1.61	2.43
10/02/2024	22.8	835H	820	0.927	42.437	0.899	41.577	3.06	2.07
			835	0.931	42.370	0.900	41.500	3.43	2.10
			850	0.938	42.371	0.916	41.500	2.41	2.10
10/06/2024	20.3	835H	820	0.923	43.143	0.899	41.577	2.72	3.77
			835	0.939	42.937	0.900	41.500	4.33	3.46
			850	0.955	42.734	0.916	41.500	4.21	2.97
10/07/2024	19.9	835H	820	0.915	42.958	0.899	41.577	1.78	3.32
			835	0.930	42.745	0.900	41.500	3.33	3.00
			850	0.946	42.541	0.916	41.500	3.27	2.51
10/09/2024	20.7	835H	820	0.923	43.137	0.899	41.577	2.72	3.75
			835	0.939	42.932	0.900	41.500	4.33	3.45
			850	0.955	42.729	0.916	41.500	4.21	2.96
10/10/2024	22.5	835H	820	0.926	43.048	0.899	41.577	2.98	3.54
			835	0.928	42.300	0.900	41.500	3.11	1.93
			850	0.957	42.639	0.916	41.500	4.50	2.74
10/14/2024	20.4	835H	820	0.908	42.804	0.899	41.577	1.05	2.95
			835	0.924	42.595	0.900	41.500	2.67	2.64
			850	0.939	42.397	0.916	41.500	2.49	2.16
11/27/2024	20.9	835H	820	0.909	42.820	0.899	41.577	1.11	2.99
			835	0.913	42.800	0.900	41.500	1.44	3.13
			850	0.919	42.750	0.916	41.500	0.33	3.01
10/10/2024	20.9	835H	820	0.917	42.994	0.899	41.577	2.00	3.41
			835	0.932	42.784	0.900	41.500	3.56	3.09
			850	0.948	42.585	0.916	41.500	3.49	2.61

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
10/11/2024	23.3	1800H	1710	1.303	40.813	1.348	40.144	-3.30	1.67
			1750	1.337	40.733	1.371	40.080	-2.48	1.63
			1800	1.368	40.729	1.400	40.000	-2.29	1.82
10/11/2024	19.8	1800H	1710	1.305	41.040	1.348	40.144	-3.21	2.23
			1750	1.352	40.897	1.371	40.080	-1.37	2.04
			1800	1.403	40.633	1.400	40.000	0.21	1.58
11/25/2024	20.9	1800H	1710	1.350	41.200	1.348	40.144	0.15	2.63
			1750	1.370	41.200	1.371	40.080	-0.07	2.79
			1800	1.410	41.20	1.400	40.000	0.71	3.00
10/07/2024	22.3	1900H	1850	1.383	39.024	1.400	40.000	-1.23	-2.44
			1900	1.431	38.807	1.400	40.000	2.21	-2.98
			1910	1.435	38.765	1.400	40.000	2.49	-3.09
10/08/2024	20.5	1900H	1850	1.380	40.800	1.400	40.000	-1.43	2.00
			1900	1.425	40.640	1.400	40.000	1.79	1.60
			1910	1.434	40.620	1.400	40.000	2.43	1.55
10/21/2024	22.0	2450H	2400	1.741	39.180	1.756	39.290	-0.85	-0.28
			2450	1.796	39.010	1.800	39.200	-0.22	-0.48
			2500	1.852	38.860	1.855	39.140	-0.16	-0.72
10/22/2024	22.8	2450H	2400	1.741	38.880	1.756	39.290	-0.85	-1.04
			2450	1.796	38.710	1.800	39.200	-0.22	-1.25
			2500	1.852	38.550	1.855	39.140	-0.16	-1.51
10/15/2024	22.7	2450H	2400	1.790	39.071	1.756	39.290	1.91	-0.56
			2450	1.834	39.215	1.800	39.200	1.89	0.04
			2500	1.872	39.261	1.855	39.140	0.92	0.31
10/16/2024	22.4	2450H	2400	1.813	39.233	1.756	39.290	3.23	-0.15
			2450	1.856	39.381	1.800	39.200	3.11	0.46
			2500	1.899	39.434	1.855	39.140	2.37	0.75
11/27/2024	20.9	2450H	2400	1.763	39.600	1.756	39.290	0.40	0.79
			2450	1.820	39.600	1.800	39.200	1.11	1.02
			2500	1.879	39.440	1.855	39.140	1.29	0.77
11/18/2024	20.4	2600H	2500	1.930	39.000	1.855	39.140	4.04	-0.36
			2600	2.040	38.700	1.964	39.010	3.87	-0.79
			2690	2.150	38.300	2.062	38.894	4.27	-1.53
11/21/2024	20.8	2600H	2500	1.910	38.900	1.855	39.140	2.96	-0.61
			2600	2.020	38.500	1.964	39.010	2.85	-1.31
			2690	2.120	38.100	2.062	38.894	2.81	-2.04
11/19/2024	21.4	2600H	2500	1.930	38.800	1.855	39.140	4.04	-0.87
			2600	2.040	38.400	1.964	39.010	3.87	-1.56
			2690	2.140	38.200	2.062	38.894	3.78	-1.78
11/20/2024	20.9	2600H	2500	1.940	38.800	1.855	39.140	4.58	-0.87
			2600	2.050	38.500	1.964	39.010	4.38	-1.31
			2690	2.150	38.200	2.062	38.894	4.27	-1.78
11/27/2024	20.9	2600H	2500	1.904	39.260	1.855	39.140	2.64	0.31
			2600	2.010	38.900	1.964	39.010	2.34	-0.28
			2690	2.113	38.550	2.062	38.894	2.47	-0.88

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
10/17/2024	22.4	5180H-5320H	5 180	4.560	37.200	4.635	36.010	-1.62	3.30
			5 250	4.690	37.000	4.706	35.930	-0.34	2.98
			5 280	4.740	37.000	4.737	35.894	0.06	3.08
			5 320	4.790	37.100	4.778	35.846	0.25	3.50
10/17/2024	22.4	5500H-5600H	5 500	4.910	37.000	4.963	35.640	-1.07	3.82
			5 600	4.990	36.700	5.065	35.530	-1.48	3.29
			5 750	5.210	36.600	5.219	35.360	-0.17	3.51
10/17/2024	22.4	5750H-5825H	5 750	5.210	36.600	5.219	35.360	-0.17	3.51
			5 800	5.160	36.600	5.270	35.300	-2.09	3.68
			5 825	5.150	36.600	5.296	35.270	-2.76	3.77
10/17/2024	22.4	5800H-5885H	5 800	5.160	36.600	5.270	35.300	-2.09	3.68
			5 835	5.150	36.550	5.306	35.258	-2.94	3.66
			5 845	5.150	36.500	5.316	35.246	-3.12	3.56
			5 855	5.155	36.450	5.326	35.235	-3.21	3.45
			5 865	5.165	36.400	5.337	35.225	-3.22	3.34
			5 875	5.170	36.400	5.347	35.215	-3.31	3.37
			5 885	5.175	36.350	5.357	35.205	-3.40	3.25
10/18/2024	22.0	5180H-5320H	5 180	4.560	37.200	4.635	36.010	-1.62	3.30
			5 250	4.700	37.000	4.706	35.930	-0.13	2.98
			5 280	4.740	37.000	4.737	35.894	0.06	3.08
			5 320	4.790	37.100	4.778	35.846	0.25	3.50
10/18/2024	22.0	5500H-5600H	5 500	4.920	37.000	4.963	35.640	-0.87	3.82
			5 600	4.990	36.700	5.065	35.530	-1.48	3.29
			5 750	5.210	36.600	5.219	35.360	-0.17	3.51
10/18/2024	22.0	5750H-5825H	5 750	5.210	36.600	5.219	35.360	-0.17	3.51
			5 800	5.170	36.600	5.270	35.300	-1.90	3.68
			5 825	5.150	36.550	5.296	35.270	-2.76	3.63
10/18/2024	22.0	5800H-5885H	5 800	5.170	36.600	5.270	35.300	-1.90	3.68
			5 835	5.150	36.500	5.306	35.258	-2.94	3.52
			5 845	5.155	36.500	5.316	35.246	-3.03	3.56
			5 855	5.160	36.450	5.326	35.235	-3.12	3.45
			5 865	5.165	36.400	5.337	35.225	-3.22	3.34
			5 875	5.170	36.350	5.347	35.215	-3.31	3.22
			5 885	5.175	36.300	5.357	35.205	-3.40	3.11
10/21/2024	22.0	5180H-5320H	5 180	4.510	37.000	4.635	36.010	-2.70	2.75
			5 250	4.650	36.800	4.706	35.930	-1.19	2.42
			5 280	4.700	36.800	4.737	35.894	-0.78	2.52
			5 320	4.740	36.900	4.778	35.846	-0.80	2.94
10/21/2024	22.0	5500H-5600H	5 500	4.870	36.800	4.963	35.640	-1.87	3.25
			5 600	4.940	36.500	5.065	35.530	-2.47	2.73
			5 750	5.150	36.400	5.219	35.360	-1.32	2.94
10/21/2024	22.0	5750H-5825H	5 750	5.150	36.400	5.219	35.360	-1.32	2.94
			5 800	5.110	36.400	5.270	35.300	-3.04	3.12
			5 825	5.100	36.350	5.296	35.270	-3.70	3.06
10/21/2024	22.0	5800H-5885H	5 800	5.110	36.400	5.270	35.300	-3.04	3.12
			5 835	5.100	36.300	5.306	35.258	-3.88	2.96
			5 845	5.100	36.300	5.316	35.246	-4.06	2.99
			5 855	5.105	36.250	5.326	35.235	-4.15	2.88
			5 865	5.110	36.200	5.337	35.225	-4.25	2.77
			5 875	5.115	36.150	5.347	35.215	-4.34	2.66
			5 885	5.125	36.100	5.357	35.205	-4.33	2.54

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
10/22/2024	21.1	5180H-5320H	5 180	4.570	37.200	4.635	36.010	-1.40	3.30
			5 250	4.700	37.000	4.706	35.930	-0.13	2.98
			5 280	4.750	37.000	4.737	35.894	0.27	3.08
			5 320	4.790	37.100	4.778	35.846	0.25	3.50
10/22/2024	21.1	5500H-5600H	5 500	4.910	37.000	4.963	35.640	-1.07	3.82
			5 600	5.000	36.700	5.065	35.530	-1.28	3.29
			5 750	5.210	36.600	5.219	35.360	-0.17	3.51
10/22/2024	21.1	5750H-5825H	5 750	5.210	36.600	5.219	35.360	-0.17	3.51
			5 800	5.170	36.600	5.270	35.300	-1.90	3.68
			5 825	5.150	36.550	5.296	35.270	-2.76	3.63
10/22/2024	21.1	5800H-5885H	5 800	5.170	36.600	5.270	35.300	-1.90	3.68
			5 835	5.150	36.500	5.306	35.258	-2.94	3.52
			5 845	5.155	36.500	5.316	35.246	-3.03	3.56
			5 855	5.160	36.450	5.326	35.235	-3.12	3.45
			5 865	5.165	36.400	5.337	35.225	-3.22	3.34
			5 875	5.175	36.350	5.347	35.215	-3.22	3.22
			5 885	5.185	36.300	5.357	35.205	-3.21	3.11
10/23/2024	21.5	5180H-5320H	5 180	4.570	37.200	4.635	36.010	-1.40	3.30
			5 250	4.710	37.000	4.706	35.930	0.08	2.98
			5 280	4.760	37.000	4.737	35.894	0.49	3.08
			5 320	4.810	37.000	4.778	35.846	0.67	3.22
10/23/2024	21.5	5500H-5600H	5 500	4.930	36.900	4.963	35.640	-0.66	3.54
			5 600	5.010	36.700	5.065	35.530	-1.09	3.29
			5 750	5.220	36.500	5.219	35.360	0.02	3.22
10/23/2024	21.5	5750H-5825H	5 750	5.220	36.500	5.219	35.360	0.02	3.22
			5 800	5.180	36.500	5.270	35.300	-1.71	3.40
			5 825	5.170	36.500	5.296	35.270	-2.38	3.49
10/23/2024	21.5	5800H-5885H	5 800	5.180	36.500	5.270	35.300	-1.71	3.40
			5 835	5.170	36.500	5.306	35.258	-2.56	3.52
			5 845	5.170	36.450	5.316	35.246	-2.75	3.42
			5 855	5.175	36.400	5.326	35.235	-2.84	3.31
			5 865	5.180	36.350	5.337	35.225	-2.94	3.19
			5 875	5.185	36.300	5.347	35.215	-3.03	3.08
			5 885	5.195	36.300	5.357	35.205	-3.02	3.11
10/24/2024	22.0	5180H-5320H	5 180	4.540	36.900	4.635	36.010	-2.05	2.47
			5 250	4.680	36.700	4.706	35.930	-0.55	2.14
			5 280	4.730	36.700	4.737	35.894	-0.15	2.25
			5 320	4.780	36.800	4.778	35.846	0.04	2.66
10/24/2024	22.0	5500H-5600H	5 500	4.900	36.700	4.963	35.640	-1.27	2.97
			5 600	4.980	36.400	5.065	35.530	-1.68	2.45
			5 750	5.190	36.300	5.219	35.360	-0.56	2.66
10/24/2024	22.0	5750H-5825H	5 750	5.190	36.300	5.219	35.360	-0.56	2.66
			5 800	5.150	36.300	5.270	35.300	-2.28	2.83
			5 825	5.140	36.250	5.296	35.270	-2.95	2.78
10/24/2024	22.0	5800H-5885H	5 800	5.150	36.300	5.270	35.300	-2.28	2.83
			5 835	5.135	36.200	5.306	35.258	-3.22	2.67
			5 845	5.135	36.200	5.316	35.246	-3.40	2.71
			5 855	5.140	36.150	5.326	35.235	-3.49	2.60
			5 865	5.145	36.100	5.337	35.225	-3.60	2.48
			5 875	5.150	36.050	5.347	35.215	-3.68	2.37
			5 885	5.155	36.000	5.357	35.205	-3.77	2.26

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
10/25/2024	19.4	6.5 GHz	5 965	5.300	34.950	5.439	35.112	-2.56	-0.46
			6 000	5.390	34.800	5.475	35.070	-1.55	-0.77
			6 165	5.575	34.950	5.672	34.872	-1.71	0.22
			6 500	6.030	34.400	6.072	34.460	-0.69	-0.17
			6 525	6.055	34.300	6.101	34.430	-0.75	-0.38
			6 845	6.460	33.800	6.470	34.056	-0.15	-0.75
			7 000	6.660	33.400	6.650	33.880	0.15	-1.42
			7 085	6.780	33.450	6.750	33.778	0.44	-0.97
10/28/2024	19.7	6.5 GHz	5 965	5.280	34.850	5.439	35.112	-2.92	-0.75
			6 000	5.380	34.700	5.475	35.070	-1.74	-1.06
			6 165	5.555	34.900	5.672	34.872	-2.06	0.08
			6 500	6.010	34.300	6.072	34.460	-1.02	-0.46
			6 525	6.035	34.250	6.101	34.430	-1.08	-0.52
			6 845	6.435	33.750	6.470	34.056	-0.54	-0.90
			7 000	6.640	33.300	6.650	33.880	-0.15	-1.71
			7 085	6.755	33.350	6.750	33.778	0.07	-1.27
10/29/2024	20.2	6.5 GHz	5 965	5.315	34.950	5.439	35.112	-2.28	-0.46
			6 000	5.400	34.800	5.475	35.070	-1.37	-0.77
			6 165	5.590	35.050	5.672	34.872	-1.45	0.51
			6 500	6.050	34.400	6.072	34.460	-0.36	-0.17
			6 525	6.045	34.450	6.101	34.430	-0.92	0.06
			6 845	6.470	33.800	6.470	34.056	0.00	-0.75
			7 000	6.680	33.400	6.650	33.880	0.45	-1.42
			7 085	6.800	33.450	6.750	33.778	0.74	-0.97
10/22/2024	19.6	6.5 GHz	5 965	5.240	34.700	5.439	35.112	-3.66	-1.17
			6 000	5.310	34.700	5.475	35.070	-3.01	-1.06
			6 165	5.470	34.700	5.672	34.872	-3.56	-0.49
			6 500	5.950	34.100	6.072	34.460	-2.01	-1.04
			6 525	5.965	34.000	6.101	34.430	-2.23	-1.25
			6 845	6.375	33.500	6.470	34.056	-1.47	-1.63
			7 000	6.550	33.100	6.650	33.880	-1.50	-2.30
			7 085	6.665	33.200	6.750	33.778	-1.26	-1.71

12.2 System Verification

◆ System Verification Results – GSM/ UMTS/ LTE/ 5G NR/ WLAN

Input Power: 50 mW

Freq.	Date	Probe	Dipole	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR_{1g} (SPEAG)	50mW Measured SAR_{1g}	1 W Normalized SAR_{1g}	Deviation	Limit
[MHz]		(S/N)	(S/N)		[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
750	10/04/2024	7655	1014	Head	22.3	22.2	8.50	0.423	8.46	- 0.47	± 10
750	11/08/2024	7751		Head	21.8	21.7	8.50	0.449	8.98	+ 5.65	± 10
750	10/03/2024	7655		Head	22.4	22.3	8.50	0.428	8.56	+ 0.71	± 10
750	10/09/2024	7751		Head	21.8	21.7	8.50	0.450	9.00	+ 5.88	± 10
750	11/27/2024	7751		Head	21.0	20.9	8.50	0.446	8.92	+ 4.94	± 10
835	10/01/2024	7655	441	Head	22.7	22.6	9.73	0.513	10.26	+ 5.45	± 10
835	10/02/2024	7655		Head	22.9	22.8	9.73	0.519	10.38	+ 6.68	± 10
835	10/06/2024	7680		Head	20.4	20.3	9.73	0.499	9.98	+ 2.57	± 10
835	10/07/2024	7680		Head	20.0	19.9	9.73	0.493	9.86	+ 1.34	± 10
835	10/09/2024	7680		Head	20.8	20.7	9.73	0.497	9.94	+ 2.16	± 10
835	10/10/2024	7751		Head	22.6	22.5	9.73	0.516	10.32	+ 6.06	± 10
835	10/14/2024	7680		Head	20.5	20.4	9.73	0.495	9.90	+ 1.75	± 10
835	11/27/2024	7751		Head	21.0	20.9	9.73	0.479	9.58	- 1.54	± 10
835	10/10/2024	7680		Head	20.8	20.7	9.73	0.497	9.94	+ 2.16	± 10
1 800	10/11/2024	7655	2d007	Head	23.4	23.3	39.0	2.00	40.0	+ 2.56	± 10
1 800	10/11/2024	7680		Head	19.9	19.8	39.0	1.85	37.0	- 5.13	± 10
1 800	11/25/2024	7751		Head	21.0	20.9	39.0	2.01	40.2	+ 3.08	± 10
1 900	10/07/2024	7655	5d032	Head	22.4	22.3	40.2	1.94	38.80	-3.48	± 10
1 900	10/08/2024	7680		Head	20.6	20.5	40.2	1.93	38.6	- 3.98	± 10
2 450	10/21/2024	7655	743	Head	22.1	22.0	51.8	2.74	54.8	+ 5.79	± 10
2 450	10/22/2024	7655		Head	22.9	22.8	51.8	2.56	51.2	- 1.16	± 10
2 450	10/15/2024	7655		Head	22.8	22.7	51.8	2.74	54.8	+ 5.79	± 10
2 450	10/16/2024	7655		Head	22.5	22.4	51.8	2.77	55.4	+ 6.95	± 10
2 450	11/27/2024	7751		Head	21.0	20.9	51.8	2.48	49.6	- 4.25	± 10
2 600	11/18/2024	7751	1015	Head	20.5	20.4	56.4	2.79	55.8	- 1.06	± 10
2 600	11/21/2024	7751		Head	20.9	20.8	56.4	2.75	55.0	- 2.48	± 10
2 600	11/19/2024	7751		Head	21.5	21.4	56.4	2.82	56.4	+ 0.00	± 10
2 600	11/20/2024	7751		Head	21.0	20.9	56.4	2.85	57.0	+ 1.06	± 10
2 600	11/27/2024	7751		Head	21.0	20.9	56.4	2.71	54.2	- 3.90	± 10

Freq.	Date	Probe	Dipole	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR_{1g} (SPEAG)	50mW Measured SAR_{1g}	1 W Normalized SAR_{1g}	Deviation	Limit
[MHz]		(S/N)	(S/N)		[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
5 250	10/17/2024	7654	1107	Head	22.5	22.4	80.2	3.90	78.0	- 2.74	± 10
5 600	10/17/2024	7654		Head	22.5	22.4	82.1	4.16	83.2	+ 1.34	± 10
5 750	10/17/2024	7654		Head	22.5	22.4	79.9	3.77	75.4	- 5.63	± 10
5 800	10/17/2024	7654		Head	22.5	22.4	79.3	4.08	81.6	+ 2.90	± 10
5 250	10/18/2024	7654		Head	22.1	22.0	80.2	3.85	77.0	- 3.99	± 10
5 600	10/18/2024	7654		Head	22.1	22.0	82.1	4.15	83.0	+ 1.10	± 10
5 750	10/18/2024	7654		Head	22.1	22.0	79.9	3.79	75.8	- 5.13	± 10
5 800	10/18/2024	7654		Head	22.1	22.0	79.3	4.08	81.6	+ 2.90	± 10
5 250	10/21/2024	7654		Head	22.1	22.0	80.2	3.81	76.2	- 4.99	± 10
5 600	10/21/2024	7654		Head	22.1	22.0	82.1	4.09	81.8	- 0.37	± 10
5 750	10/21/2024	7654		Head	22.1	22.0	79.9	3.72	74.4	- 6.88	± 10
5 800	10/21/2024	7654		Head	22.1	22.0	79.3	4.06	81.2	+ 2.40	± 10
5 250	10/22/2024	7654		Head	21.2	21.1	80.2	3.86	77.2	- 3.74	± 10
5 600	10/22/2024	7654		Head	21.2	21.1	82.1	4.16	83.2	+ 1.34	± 10
5 750	10/22/2024	7654		Head	21.2	21.1	79.9	3.75	75.0	- 6.13	± 10
5 800	10/22/2024	7654		Head	21.2	21.1	79.3	4.08	81.6	+ 2.90	± 10
5 250	10/23/2024	7654		Head	21.6	21.5	80.2	3.88	77.6	- 3.24	± 10
5 600	10/23/2024	7654		Head	21.6	21.5	82.1	4.16	83.2	+ 1.34	± 10
5 750	10/23/2024	7654		Head	21.6	21.5	79.9	3.81	76.2	- 4.63	± 10
5 800	10/23/2024	7654		Head	21.6	21.5	79.3	4.10	82.0	+ 3.40	± 10
5 250	10/24/2024	7654		Head	22.1	22.0	80.2	3.85	77.0	- 3.99	± 10
5 600	10/24/2024	7654		Head	22.1	22.0	82.1	4.14	82.8	+ 0.85	± 10
5 750	10/24/2024	7654		Head	22.1	22.0	79.9	3.78	75.6	- 5.38	± 10
5 800	10/24/2024	7654		Head	22.1	22.0	79.3	4.07	81.4	+ 2.65	± 10
6 500	10/25/2024	7681	1012	Head	19.5	19.4	297	14.8	296	-0.34	± 10
6 500	10/28/2024	7681		Head	19.8	19.7	297	14.8	296	-0.34	± 10
6 500	10/29/2024	7681		Head	20.3	20.2	297	14.9	296	0.34	± 10
6 500	10/22/2024	7679		Head	19.7	19.6	297	14.8	296	-0.34	± 10

◆ System Verification Results – Extremity SAR

Input Power: 50 ㎽

Freq. [㎒]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{10g} (SPEAG) [W/kg]	50mW Measured SAR_{10g} [W/kg]	1 W Normalized SAR_{10g} [W/kg]	Deviation [%]	Limit [%]
13	10/07/2024	3076	1016	Head	22.3	22.2	0.343	0.018	0.36	+ 4.96	± 10
5 250	10/22/2024	7654	1107	Head	21.2	21.1	23.1	1.09	21.8	- 5.63	± 10
5 250	10/23/2024	7654		Head	21.6	21.5	23.1	1.10	22	- 4.76	± 10
5 250	10/24/2024	7654		Head	22.1	22.0	23.1	1.08	21.6	- 6.49	± 10
5 600	10/22/2024	7654		Head	21.2	21.1	23.5	1.15	23	- 2.13	± 10
5 600	10/23/2024	7654		Head	21.6	21.5	23.5	1.15	23	- 2.13	± 10
5 600	10/24/2024	7654		Head	22.1	22.0	23.5	1.15	23	- 2.13	± 10
5 800	10/22/2024	7654		Head	21.2	21.1	22.5	1.12	22.4	- 0.44	± 10
5 800	10/23/2024	7654		Head	21.6	21.5	22.5	1.12	22.4	- 0.44	± 10
5 800	10/24/2024	7654		Head	22.1	22.0	22.5	1.12	22.4	- 0.44	± 10
6 500	10/25/2024	7681	1012	Head	19.5	19.4	54.6	2.66	53.2	- 2.56	± 10
6 500	10/28/2024	7681		Head	19.8	19.7	54.6	2.66	53.2	- 2.56	± 10
6 500	10/29/2024	7681		Head	20.3	20.2	54.6	2.69	53.8	- 1.47	± 10

12.3 SAR Test System Verification Procedure

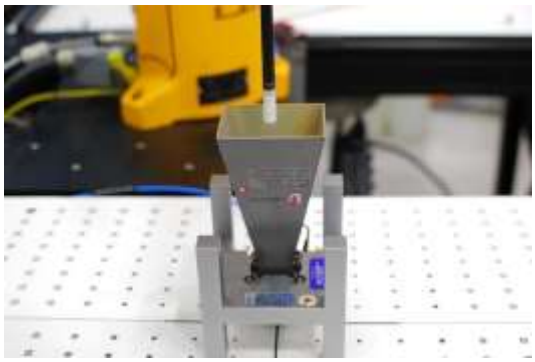
SAR measurement was prior to assessment; the system is verified to the ± 10 % of the specifications at each frequency Band by using the system verification kit. (Graphic Plots Attached)
- Cabling the system, using the verification kit equipment.
- For all frequency band except 6GHz, Generate about 50 ㎽ Input level from the signal generator to the Dipole Antenna. And Generate about 10 ㎽ Input level from the signal generator to the Dipole Antenna for 6.5GHz.
- Dipole antenna was placed below the flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.

Note;
SAR Verification was performed according to the FCC KDB 865664 D01v01r04.

12.4 Power density 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 provide by the manufacturer, per November 2017 TCBC Workshop Notes.



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◆ 10 ㎓ Power Density System Verification Results

Input Power: 50 ㎽

Freq. [㎓]	Date	Probe (S/N)	Dipole (S/N)	Amb. Temp. [°C]	Normal psPD (W/m² over 4 cm²)			Deviation [dB]	Total psPD (W/m² over 4 cm²)			Deviation [dB]
					Measured	Normalized	Target		Measured	Normalized	Target	
10	2024/10/16	9528	1018	18.8	29.0	58.0	56.5	+ 0.11	29.5	59.0	57.1	+ 0.14
10	2024/10/17	9528	1018	19.3	29.0	58.0	56.5	+ 0.11	29.2	58.4	57.1	+ 0.10
10	2024/10/18	9528	1018	20.0	28.1	56.2	56.5	- 0.02	28.2	56.4	57.1	- 0.05

13. SAR Test Data Summary

13.1 SAR Measurement Results

13.1.1 Head SAR Measurement Results

GSM 850 Head SAR													
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)				(W/kg)		(W/kg)	
824.2	128	GSM Voice	MAIN1	33.0	32.41	0.19	Left Touch	1:8.3	1	0.107	1.146	0.123	-
824.2	128	GSM Voice	MAIN1	33.0	32.41	0.16	Left Tilt	1:8.3	1	0.062	1.146	0.071	-
824.2	128	GSM Voice	MAIN1	33.0	32.41	0.19	Right Cheek	1:8.3	1	0.117	1.146	0.134	-
824.2	128	GSM Voice	MAIN1	33.0	32.41	-0.17	Right Tilt	1:8.3	1	0.068	1.146	0.078	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	-0.01	Left Touch	1:4.15	1	0.103	1.019	0.105	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	0.01	Left Tilt	1:4.15	1	0.065	1.019	0.066	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	-0.19	Right Cheek	1:4.15	1	0.111	1.019	0.113	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	0.01	Right Tilt	1:4.15	1	0.064	1.019	0.065	-
824.2	128	GSM Voice	SUB1	32.0	30.71	-0.17	Left Touch	1:8.3	0	**0.577**	1.346	**0.777**	A1
824.2	128	GSM Voice	SUB1	32.0	30.71	-0.02	Left Tilt	1:8.3	0	0.520	1.346	0.700	-
824.2	128	GSM Voice	SUB1	32.0	30.71	0.12	Right Cheek	1:8.3	0	0.478	1.346	0.643	-
824.2	128	GSM Voice	SUB1	32.0	30.71	0.00	Right Tilt	1:8.3	0	0.504	1.346	0.678	-
836.6	190	GPRS 2Tx	SUB1	29.5	28.05	-0.12	Left Touch	1:4.15	0	0.434	1.396	0.606	-
836.6	190	GPRS 2Tx	SUB1	29.5	28.05	-0.03	Left Tilt	1:4.15	0	0.331	1.396	0.462	-
836.6	190	GPRS 2Tx	SUB1	29.5	28.05	-0.11	Right Cheek	1:4.15	0	0.375	1.396	0.524	-
836.6	190	GPRS 2Tx	SUB1	29.5	28.05	-0.07	Right Tilt	1:4.15	0	0.327	1.396	0.456	-
ANSI/ IEEE C95.1 – 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram						

GSM 1900 Head SAR													
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)				(W/kg)		(W/kg)	
1 880.0	661	GSM Voice	MAIN1	30.0	29.44	-0.12	Left Touch	1:8.3	11	0.055	1.138	0.063	-
1 880.0	661	GSM Voice	MAIN1	30.0	29.44	-0.10	Left Tilt	1:8.3	11	0.026	1.138	0.030	-
1 880.0	661	GSM Voice	MAIN1	30.0	29.44	-0.15	Right Touch	1:8.3	11	0.033	1.138	0.038	-
1 880.0	661	GSM Voice	MAIN1	30.0	29.44	-0.10	Right Tilt	1:8.3	11	0.021	1.138	0.024	-
1 880.0	661	GPRS 2Tx	MAIN1	29.0	28.70	0.05	Left Touch	1:4.15	11	**0.085**	1.072	**0.091**	A2
1 880.0	661	GPRS 2Tx	MAIN1	29.0	28.70	0.04	Left Tilt	1:4.15	11	0.030	1.072	0.032	-
1 880.0	661	GPRS 2Tx	MAIN1	29.0	28.70	0.02	Right Touch	1:4.15	11	0.042	1.072	0.045	-
1 880.0	661	GPRS 2Tx	MAIN1	29.0	28.70	-0.12	Right Tilt	1:4.15	11	0.027	1.072	0.029	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram						

UMTS Band 5 Head SAR													
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)				(W/kg)		(W/kg)	
836.6	4183	RMC	MAIN1	25.0	23.84	-0.08	Left Touch	1:1	0	0.120	1.306	0.157	-
836.6	4183	RMC	MAIN1	25.0	23.84	0.08	Left Tilt	1:1	0	0.076	1.306	0.099	-
836.6	4183	RMC	MAIN1	25.0	23.84	0.09	Right Touch	1:1	0	0.156	1.306	0.204	-
836.6	4183	RMC	MAIN1	25.0	23.84	0.05	Right Tilt	1:1	0	0.081	1.306	0.106	-
836.6	4183	RMC	SUB1	21.0	20.64	0.01	Left Touch	1:1	25	0.743	1.086	0.807	
836.6	4183	RMC	SUB1	21.0	20.64	-0.17	Left Tilt	1:1	25	0.810	1.086	0.880	-
826.4	4132	RMC	SUB1	21.0	20.60	-0.10	Left Tilt	1:1	25	0.740	1.096	0.811	-
846.6	4233	RMC	SUB1	21.0	20.63	-0.18	Left Tilt	1:1	25	**0.832**	1.089	0.906	A3
836.6	4183	RMC	SUB1	21.0	20.66	-0.10	Right Touch	1:1	25	0.624	1.080	0.674	-
836.6	4183	RMC	SUB1	21.0	20.64	0.19	Right Tilt	1:1	25	0.592	1.086	0.643	-
846.6	4233	RMC	SUB1	21.0	20.63	-0.18	Left Tilt	1:1	25	0.815	1.089	0.888	#
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram						

Note: # Data entry indicate Variability measurement.

LTE FDD Band 2 Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
1 860	18700	QPSK	MAIN1	20	24.5	23.74	-0.16	Left Touch	0	1	0	1:1	24	**0.160**	1.191	**0.191**	**A4**
1 860	18700	QPSK	MAIN1	20	23.5	22.54	0.16	Left Touch	0	50	0	1:1	24	0.124	1.247	0.155	-
1 860	18700	QPSK	MAIN1	20	24.5	23.74	0.01	Left Tilt	0	1	0	1:1	24	0.059	1.191	0.070	-
1 860	18700	QPSK	MAIN1	20	23.5	22.54	0.18	Left Tilt	0	50	0	1:1	24	0.044	1.247	0.055	-
1 860	18700	QPSK	MAIN1	20	24.5	23.74	0.16	Right Touch	0	1	0	1:1	24	0.104	1.191	0.124	-
1 860	18700	QPSK	MAIN1	20	23.5	22.54	-0.16	Right Touch	0	50	0	1:1	24	0.081	1.247	0.101	-
1 860	18700	QPSK	MAIN1	20	24.5	23.74	-0.03	Right Tilt	0	1	0	1:1	24	0.060	1.191	0.071	-
1 860	18700	QPSK	MAIN1	20	23.5	22.54	0.05	Right Tilt	0	50	0	1:1	24	0.048	1.247	0.060	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 12 Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
707.5	23095	QPSK	MAIN1	10	24.5	22.89	0.08	Left Touch	0	1	0	1:1	0	0.069	1.449	0.100	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	0.02	Left Touch	1	25	12	1:1	0	0.057	1.462	0.083	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	0.04	Left Tilt	0	1	0	1:1	0	0.018	1.449	0.026	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	0.00	Left Tilt	1	25	12	1:1	0	0.026	1.462	0.038	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	-0.02	Right Touch	0	1	0	1:1	0	0.081	1.449	0.117	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	0.01	Right Touch	1	25	12	1:1	0	0.063	1.462	0.092	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	0.17	Right Tilt	0	1	0	1:1	0	0.031	1.449	0.045	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	0.01	Right Tilt	1	25	12	1:1	0	0.023	1.462	0.034	-
707.5	23095	QPSK	SUB1	10	21.5	20.37	-0.01	Left Touch	0	1	24	1:1	33	**0.757**	1.297	**0.982**	A5
707.5	23095	QPSK	SUB1	10	21.5	20.39	0.00	Left Touch	0	25	12	1:1	33	0.748	1.291	0.966	-
707.5	23095	QPSK	SUB1	10	21.5	20.28	0.01	Left Touch	0	50	0	1:1	33	0.728	1.324	0.964	-
707.5	23095	QPSK	SUB1	10	21.5	20.37	-0.02	Left Tilt	0	1	24	1:1	33	0.547	1.297	0.709	-
707.5	23095	QPSK	SUB1	10	21.5	20.39	0.00	Left Tilt	0	25	12	1:1	33	0.591	1.291	0.763	-
707.5	23095	QPSK	SUB1	10	21.5	20.37	0.00	Right Touch	0	1	24	1:1	33	0.645	1.297	0.837	-
707.5	23095	QPSK	SUB1	10	21.5	20.39	-0.04	Right Touch	0	25	12	1:1	33	0.633	1.291	0.817	-
707.5	23095	QPSK	SUB1	10	21.5	20.28	-0.02	Right Touch	0	50	0	1:1	33	0.610	1.324	0.808	-
707.5	23095	QPSK	SUB1	10	21.5	20.37	0.08	Right Tilt	0	1	24	1:1	33	0.512	1.297	0.664	-
707.5	23095	QPSK	SUB1	10	21.5	20.39	0.01	Right Tilt	0	25	12	1:1	33	0.509	1.291	0.657	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 13 Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
782	23230	QPSK	MAIN1	10	24.5	22.80	0.16	Left Touch	0	1	49	1:1	0	0.072	1.479	0.106	-
782	23230	QPSK	MAIN1	10	23.5	21.79	-0.19	Left Touch	1	25	24	1:1	0	0.056	1.483	0.083	-
782	23230	QPSK	MAIN1	10	24.5	22.80	0.07	Left Tilt	0	1	49	1:1	0	0.035	1.479	0.052	-
782	23230	QPSK	MAIN1	10	23.5	21.79	-0.19	Left Tilt	1	25	24	1:1	0	0.028	1.483	0.042	-
782	23230	QPSK	MAIN1	10	24.5	22.80	-0.10	Right Touch	0	1	49	1:1	0	0.060	1.479	0.089	-
782	23230	QPSK	MAIN1	10	23.5	21.79	0.00	Right Touch	1	25	24	1:1	0	0.048	1.483	0.071	-
782	23230	QPSK	MAIN1	10	24.5	22.80	-0.11	Right Tilt	0	1	49	1:1	0	0.034	1.479	0.050	-
782	23230	QPSK	MAIN1	10	23.5	21.79	0.10	Right Tilt	1	25	24	1:1	0	0.026	1.483	0.039	-
782	23230	QPSK	SUB1	10	22.0	20.52	0.00	Left Touch	0	1	24	1:1	0	**0.744**	1.406	**1.046**	A6
782	23230	QPSK	SUB1	10	22.0	20.54	-0.01	Left Touch	1	25	12	1:1	0	0.719	1.400	1.007	-
782	23230	QPSK	SUB1	10	22.0	20.54	-0.02	Left Touch	1	50	0	1:1	0	0.723	1.400	1.012	-
782	23230	QPSK	SUB1	10	22.0	20.52	0.02	Left Tilt	0	1	24	1:1	0	0.565	1.406	0.794	-
782	23230	QPSK	SUB1	10	22.0	20.54	-0.02	Left Tilt	1	25	12	1:1	0	0.566	1.400	0.792	-
782	23230	QPSK	SUB1	10	22.0	20.52	-0.05	Right Touch	0	1	24	1:1	0	0.652	1.406	0.917	
782	23230	QPSK	SUB1	10	22.0	20.54	-0.04	Right Touch	1	25	12	1:1	0	0.637	1.400	0.892	-
782	23230	QPSK	SUB1	10	22.0	20.54	0.00	Right Touch	1	50	0	1:1	0	0.634	1.400	0.888	-
782	23230	QPSK	SUB1	10	22.0	20.52	-0.01	Right Tilt	0	1	24	1:1	0	0.522	1.406	0.734	-
782	23230	QPSK	SUB1	10	22.0	20.54	-0.03	Right Tilt	1	25	12	1:1	0	0.521	1.400	0.729	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 26 (Cell) Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
831.5	26865	QPSK	MAIN1	15	25.5	24.22	0.02	Left Touch	0	1	36	1:1	0	0.126	1.343	0.169	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.13	Left Touch	1	36	0	1:1	0	0.106	1.387	0.147	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	0.06	Left Tilt	0	1	36	1:1	0	0.083	1.343	0.111	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.09	Left Tilt	1	36	0	1:1	0	0.068	1.387	0.094	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	-0.04	Right Touch	0	1	36	1:1	0	0.147	1.343	0.197	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	-0.18	Right Touch	1	36	0	1:1	0	0.110	1.387	0.153	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	-0.08	Right Tilt	0	1	36	1:1	0	0.080	1.343	0.107	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.16	Right Tilt	1	36	0	1:1	0	0.059	1.387	0.082	-
831.5	26865	QPSK	SUB1	15	22.5	19.64	0.01	Left Touch	0	1	36	1:1	0	**0.632**	1.517	0.865	A7
831.5	26865	QPSK	SUB1	15	22.5	19.43	0.00	Left Touch	0	36	18	1:1	0	0.611	1.549	**0.877**	-
831.5	26865	QPSK	SUB1	15	22.5	19.46	-0.02	Left Touch	0	75	0	1:1	0	0.604	1.563	0.861	
831.5	26865	QPSK	SUB1	15	22.5	19.64	0.05	Left Tilt	0	1	36	1:1	0	0.471	1.517	0.644	-
831.5	26865	QPSK	SUB1	15	22.5	19.43	-0.03	Left Tilt	0	36	18	1:1	0	0.451	1.549	0.647	-
831.5	26865	QPSK	SUB1	15	22.5	19.64	-0.05	Right Touch	0	1	36	1:1	0	0.510	1.517	0.698	-
831.5	26865	QPSK	SUB1	15	22.5	19.43	-0.06	Right Touch	0	36	18	1:1	0	0.488	1.549	0.700	-
831.5	26865	QPSK	SUB1	15	22.5	19.64	-0.01	Right Tilt	0	1	36	1:1	0	0.434	1.517	0.594	-
831.5	26865	QPSK	SUB1	15	22.5	19.43	0.03	Right Tilt	0	36	18	1:1	0	0.439	1.549	0.630	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

LTE TDD Band 41 (Power Class 3) Head SAR																		
CC	Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
	MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	-0.16	Left Touch	0	1	49	1:1.58	-	0.056	1.256	0.070	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	-0.18	Left Touch	1	50	49	1:1.58	-	0.054	1.222	0.066	-
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	-0.12	Left Tilt	0	1	49	1:1.58	-	0.025	1.256	0.031	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	-0.13	Left Tilt	1	50	49	1:1.58	-	0.023	1.222	0.028	-
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	-0.17	Right Touch	0	1	49	1:1.58	-	0.047	1.256	0.059	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	0.15	Right Touch	1	50	49	1:1.58	-	0.046	1.222	0.056	-
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	0.03	Right Tilt	0	1	49	1:1.58	-	0.023	1.256	0.029	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	0.10	Right Tilt	1	50	49	1:1.58	-	0.017	1.222	0.021	-
1CC	2 549.5	40185	QPSK	MAIN2	20	25.0	23.90	0.00	Left Touch	0	1	0	1:1.58	-	0.052	1.288	0.067	
PCC	2 549.5	40185	QPSK	MAIN2	20	25.0	23.16	-0.15	Left Touch	0	1	0	1:1.58	-	0.051	1.528	0.078	-
SCC	2 529.7	39987									1	99						
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.97	-0.10	Left Touch	0	1	49	1:1.58	-	0.221	1.268	0.280	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.96	0.01	Left Touch	1	50	49	1:1.58	-	0.228	1.271	0.290	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.97	0.09	Left Tilt	0	1	49	1:1.58	-	0.340	1.268	0.431	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.96	0.07	Left Tilt	1	50	49	1:1.58	-	0.352	1.271	0.447	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.97	0.13	Right Touch	0	1	49	1:1.58	-	0.548	1.268	0.695	-
1CC	2 506	39750	QPSK	SUB2	20	19.0	17.72	-0.16	Right Touch	0	1	49	1:1.58	-	0.389	1.343	0.522	-
1CC	2 549.5	40185	QPSK	SUB2	20	19.0	17.73	0.11	Right Touch	0	1	0	1:1.58	-	0.289	1.340	0.387	-
1CC	2 506	40620	QPSK	SUB2	20	19.0	17.69	0.05	Right Touch	0	1	49	1:1.58	-	0.338	1.352	0.457	-
1CC	2 636.5	41055	QPSK	SUB2	20	19.0	17.50	-0.17	Right Touch	0	1	49	1:1.58	-	0.444	1.413	0.627	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.96	0.05	Right Touch	1	50	49	1:1.58	-	0.612	1.271	0.778	-
1CC	2 506	39750	QPSK	SUB2	20	19.0	17.69	-0.02	Right Touch	1	50	25	1:1.58	-	0.369	1.352	0.499	-
1CC	2 549.5	40185	QPSK	SUB2	20	19.0	17.73	0.01	Right Touch	1	50	25	1:1.58	-	0.335	1.340	0.449	-
1CC	2 506	40620	QPSK	SUB2	20	19.0	17.75	0.07	Right Touch	1	50	25	1:1.58	-	0.386	1.334	0.515	-
1CC	2 636.5	41055	QPSK	SUB2	20	19.0	17.56	-0.09	Right Touch	1	50	25	1:1.58	-	0.510	1.393	0.710	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.97	-0.02	Right Tilt	0	1	49	1:1.58	-	**0.819**	1.268	**1.038**	**A8**
1CC	2 506	39750	QPSK	SUB2	20	19.0	17.72	-0.19	Right Tilt	0	1	49	1:1.58	-	0.409	1.343	0.549	-
1CC	2 549.5	40185	QPSK	SUB2	20	19.0	17.73	0.05	Right Tilt	0	1	0	1:1.58	-	0.292	1.340	0.391	-
1CC	2 506	40620	QPSK	SUB2	20	19.0	17.69	0.03	Right Tilt	0	1	49	1:1.58	-	0.336	1.352	0.454	-
1CC	2 636.5	41055	QPSK	SUB2	20	19.0	17.50	0.07	Right Tilt	0	1	49	1:1.58	-	0.476	1.413	0.673	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.96	0.11	Right Tilt	1	50	49	1:1.58	-	0.810	1.271	1.030	-
1CC	2 506	39750	QPSK	SUB2	20	19.0	17.69	0.14	Right Tilt	1	50	25	1:1.58	-	0.402	1.352	0.544	-
1CC	2 549.5	40185	QPSK	SUB2	20	19.0	17.73	0.14	Right Tilt	1	50	25	1:1.58	-	0.315	1.340	0.422	-
1CC	2 506	40620	QPSK	SUB2	20	19.0	17.75	0.16	Right Tilt	1	50	25	1:1.58	-	0.352	1.334	0.470	-
1CC	2 636.5	41055	QPSK	SUB2	20	19.0	17.56	-0.15	Right Tilt	1	50	25	1:1.58	-	0.433	1.393	0.603	-
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.97	-0.05	Right Tilt	0	1	49	1:1.58	-	0.793	1.268	1.006	#
1CC	2 680	41490	QPSK	SUB2	20	19.0	17.80	0.04	Right Tilt	0	1	0	1:1.58	-	0.469	1.318	0.618	-
PCC	2 680	41490	QPSK	SUB2	20	19.0	17.18	0.08	Right Tilt	0	1	0	1:1.58	-	0.448	1.521	0.681	-
SCC	2 660.2	41292									1	99						-

ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population	Head 1.6 W/kg Averaged over 1 gram

LTE FDD Band 66 (AWS) Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
1 720	132072	QPSK	MAIN1	20	25.0	23.54	-0.07	Left Touch	0	1	99	1:1	44	**0.199**	1.400	**0.279**	**A9**
1 720	132072	QPSK	MAIN1	20	24.0	22.80	0.02	Left Touch	1	50	0	1:1	44	0.158	1.318	0.208	-
1 720	132072	QPSK	MAIN1	20	25.0	23.54	0.07	Left Tilt	0	1	99	1:1	44	0.079	1.400	0.111	-
1 720	132072	QPSK	MAIN1	20	24.0	22.80	0.01	Left Tilt	1	50	0	1:1	44	0.051	1.318	0.067	-
1 720	132072	QPSK	MAIN1	20	25.0	23.54	-0.03	Right Touch	0	1	99	1:1	44	0.087	1.400	0.122	-
1 720	132072	QPSK	MAIN1	20	24.0	22.80	0.01	Right Touch	1	50	0	1:1	44	0.063	1.318	0.083	-
1 720	132072	QPSK	MAIN1	20	25.0	23.54	0.00	Right Tilt	0	1	99	1:1	44	0.077	1.400	0.108	-
1 720	132072	QPSK	MAIN1	20	24.0	22.80	0.08	Right Tilt	1	50	0	1:1	44	0.034	1.318	0.045	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Head 1.6 W/kg Averaged over 1 gram								

NR FDD Band n5 Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	-0.08	Left Touch	0	1	1	1:1	1	0.118	1.324	0.156	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.19	Left Touch	0	50	28	1:1	1	0.121	1.349	0.163	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	-0.02	Left Tilt	0	1	1	1:1	1	0.017	1.324	0.023	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.03	Left Tilt	0	50	28	1:1	1	0.077	1.349	0.104	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	0.08	Right Touch	0	1	1	1:1	1	0.058	1.324	0.077	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.05	Right Touch	0	50	28	1:1	1	0.048	1.349	0.065	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	0.10	Right Tilt	0	1	1	1:1	1	0.031	1.324	0.041	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.12	Right Tilt	0	50	28	1:1	1	0.024	1.349	0.032	-
836.5	167300	CP QPSK	Main1	20	23.5	22.09	-0.12	Left Touch	1.5	1	1	1:1	1	0.081	1.384	0.112	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.57	-0.18	Left Touch	0	1	1	1:1	1	0.772	1.104	0.852	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.74	0.10	Left Touch	0	50	28	1:1	1	**0.799**	1.062	0.849	A10
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.75	-0.19	Left Touch	0	100	0	1:1	1	0.574	1.059	0.608	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.67	-0.15	Left Tilt	0	1	1	1:1	1	0.657	1.079	0.709	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.75	-0.12	Left Tilt	0	50	28	1:1	1	0.7	1.059	0.741	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.67	0.02	Right Touch	0	1	1	1:1	1	0.445	1.079	0.480	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.75	-0.13	Right Touch	0	50	28	1:1	1	0.496	1.059	0.525	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.67	-0.10	Right Tilt	0	1	1	1:1	1	0.465	1.079	0.502	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	21.0	20.75	-0.03	Right Tilt	0	50	28	1:1	1	0.522	1.059	0.553	-
836.5	167300	CP QPSK	SUB1	20	21.0	20.57	0.11	Left Touch	0	1	1	1:1	1	0.769	1.000	0.769	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

NR TDD Band n41 (Power Class 3) Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	-0.13	Left Touch	0	1	1	1:1	-	0.051	1.135	0.058	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	-0.14	Left Touch	0	135	0	1:1	-	0.051	1.099	0.056	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	0.17	Left Tilt	0	1	1	1:1	-	0.020	1.135	0.023	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.14	Left Tilt	0	135	0	1:1	-	0.028	1.099	0.031	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	-0.12	Right Touch	0	1	1	1:1	-	0.033	1.135	0.037	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.18	Right Touch	0	135	0	1:1	-	0.032	1.099	0.035	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	-0.15	Right Tilt	0	1	1	1:1	-	0.020	1.135	0.023	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.03	Right Tilt	0	135	0	1:1	-	0.021	1.099	0.023	-
2 592.99	518598	CP QPSK	MAIN2	100	22.0	21.31	-0.10	Left Touch	0	1	1	1:1	-	0.058	1.172	0.068	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.68	0.09	Left Touch	0	1	271	1:1	-	0.192	1.076	0.207	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.65	0.13	Left Touch	0	135	138	1:1	-	0.207	1.084	0.224	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.68	-0.02	Left Tilt	0	1	271	1:1	-	0.327	1.076	0.352	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.65	-0.10	Left Tilt	0	135	138	1:1	-	0.292	1.084	0.317	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.68	-0.13	Right Touch	0	1	271	1:1	-	0.291	1.076	0.313	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.65	-0.06	Right Touch	0	135	138	1:1	-	0.222	1.084	0.241	-
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.68	-0.15	Right Tilt	0	1	271	1:1	-	**0.413**	1.076	**0.444**	A11
2 592.99	518598	DFT-s QPSK	SUB2	100	16.0	15.65	-0.08	Right Tilt	0	135	138	1:1	-	0.337	1.084	0.365	-
2 592.99	518598	CP QPSK	SUB2	100	16.0	15.31	0.02	Right Tilt	0	1	1	1:1	-	0.282	1.172	0.331	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

NR FDD Band n66 Head SAR																	
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.48	0.19	Left Touch	0	1	214	1:1	11	0.160	1.265	0.202	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.49	0.14	Left Touch	0	108	54	1:1	11	**0.193**	1.262	**0.244**	A12
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.48	0.12	Left Tilt	0	1	214	1:1	11	0.076	1.265	0.096	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.49	-0.15	Left Tilt	0	108	54	1:1	11	0.075	1.262	0.095	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.48	-0.14	Right Touch	0	1	214	1:1	11	0.095	1.265	0.120	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.49	0.16	Right Touch	0	108	54	1:1	11	0.095	1.262	0.120	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.48	-0.19	Right Tilt	0	1	214	1:1	11	0.054	1.265	0.068	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	24.5	23.49	0.09	Right Tilt	0	108	54	1:1	11	0.057	1.262	0.072	-
1 745	349000	CP QPSK	MAIN1	40	23.0	22.20	0.06	Left Touch	0	1	1	1:1	11	0.153	1.202	0.184	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.16	-0.14	Left Touch	0	1	1	1:1	0	0.099	1.213	0.120	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.10	N/A	Left Touch	0	108	0	1:1	0	0.064	1.230	0.079	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.16	-0.11	Left Tilt	0	1	1	1:1	0	0.138	1.213	0.167	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.10	0.16	Left Tilt	0	108	0	1:1	0	0.129	1.230	0.159	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.16	-0.11	Right Touch	0	1	1	1:1	0	0.165	1.213	0.200	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.10	0.14	Right Touch	0	108	0	1:1	0	0.153	1.230	0.188	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.16	-0.13	Right Tilt	0	1	1	1:1	0	0.166	1.213	0.201	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	16.0	15.10	-0.19	Right Tilt	0	108	0	1:1	0	0.157	1.230	0.193	-
1 745	349000	CP QPSK	SUB2	40	16.0	15.15	-0.09	Right Tilt	0	1	1	1:1	0	0.164	1.216	0.199	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram									

DTS Head SAR – RCV ON																
Frequency		Mode	Ant.	Band width (㎒)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
㎒	Ch.															
2 462	11	802.11b	SUB4	20	1	15.0	14.31	0.07	Left Touch	98.8	0.19	0.118	1.172	1.012	0.140	-
2 462	11	802.11b	SUB4	20	1	15.0	14.31	0.16	Left Tilt	98.8	0.23	0.142	1.172	1.012	0.168	-
2 462	11	802.11b	SUB4	20	1	15.0	14.31	-0.10	Right Touch	98.8	0.584	0.423	1.172	1.012	0.502	-
2 462	11	802.11b	SUB4	20	1	15.0	14.31	0.17	Right Tilt	98.8	0.445	0.374	1.172	1.012	0.444	-
2 412	1	802.11b	SUB6	20	1	15.0	14.07	-0.05	Left Touch	98.8	0.736	**0.444**	1.239	1.012	**0.557**	A13
2 412	1	802.11b	SUB6	20	1	15.0	14.07	-0.11	Left Tilt	98.8	0.0657	0.045	1.239	1.012	0.056	-
2 412	1	802.11b	SUB6	20	1	15.0	14.07	-0.04	Right Touch	98.8	0.478	0.301	1.239	1.012	0.377	-
2 412	1	802.11b	SUB6	20	1	15.0	14.07	-0.15	Right Tilt	98.8	0.0536	0.027	1.239	1.012	0.034	-
2 462	11	802.11b	SUB4+6	20	1	18.0	17.16	-0.11	Left Touch	98.8	0.655	0.398	1.265	1.012	0.510	-
2 462	11	802.11b	SUB4+6	20	1	18.0	17.16	0.10	Left Tilt	98.8	0.203	0.149	1.265	1.012	0.191	-
2 462	11	802.11b	SUB4+6	20	1	18.0	17.16	-0.13	Right Touch	98.8	0.842	0.377	1.265	1.012	0.483	-
2 462	11	802.11b	SUB4+6	20	1	18.0	17.16	-0.16	Right Tilt	98.8	0.522	0.346	1.265	1.012	0.443	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population											Head 1.6 W/kg Averaged over 1 gram					

NII Head SAR – RCV-ON																
Frequency		Mode	Ant.	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(Mbps)	(dBm)	(dBm)	(dB)			(W/kg)	(W/kg)		(Duty)	(W/kg)	
5 290	58	802.11ax	SUB4	80	MCS0	15.0	14.92	0.14	Left Touch	99.6	0.276	0.189	1.019	1.004	0.193	-
5 290	58	802.11ax	SUB4	80	MCS0	15.0	14.92	0.04	Left Tilt	99.6	0.299	0.208	1.019	1.004	0.213	-
5 290	58	802.11ax	SUB4	80	MCS0	15.0	14.92	-0.10	Right Touch	99.6	0.949	0.581	1.019	1.004	0.594	-
5 290	58	802.11ax	SUB4	80	MCS0	15.0	14.92	0.12	Right Tilt	99.6	0.493	0.417	1.019	1.004	0.427	-
5 690	138	802.11ac	SUB4	80	MCS0	15.0	14.24	0.03	Left Touch	92.0	0.120	0.075	1.191	1.087	0.097	-
5 690	138	802.11ac	SUB4	80	MCS0	15.0	14.24	0.09	Left Tilt	92.0	0.095	0.062	1.191	1.087	0.080	-
5 690	138	802.11ac	SUB4	80	MCS0	15.0	14.24	-0.13	Right Touch	92.0	0.696	0.452	1.191	1.087	0.585	-
5 690	138	802.11ac	SUB4	80	MCS0	15.0	14.24	-0.06	Right Tilt	92.0	0.344	0.223	1.191	1.087	0.289	-
5 775	155	802.11ac	SUB4	80	MCS0	15.0	14.38	-0.08	Left Touch	92.0	0.129	0.072	1.153	1.087	0.090	-
5 775	155	802.11ac	SUB4	80	MCS0	15.0	14.38	0.15	Left Tilt	92.0	0.113	0.070	1.153	1.087	0.088	-
5 775	155	802.11ac	SUB4	80	MCS0	15.0	14.38	-0.14	Right Touch	92.0	0.864	0.522	1.153	1.087	0.654	-
5 775	155	802.11ac	SUB4	80	MCS0	15.0	14.38	0.03	Right Tilt	92.0	0.343	0.199	1.153	1.087	0.249	-
5 855	171	802.11ac	SUB4	80	MCS0	15.0	14.11	-0.11	Left Touch	92.0	0.115	0.083	1.227	1.087	0.111	-
5 855	171	802.11ac	SUB4	80	MCS0	15.0	14.11	-0.15	Left Tilt	92.0	0.090	0.051	1.227	1.087	0.068	-
5 855	171	802.11ac	SUB4	80	MCS0	15.0	14.11	0.07	Right Touch	92.0	0.583	0.541	1.227	1.087	0.722	-
5 855	171	802.11ac	SUB4	80	MCS0	15.0	14.11	0.16	Right Tilt	92.0	0.275	0.203	1.227	1.087	0.271	-
5 290	58	802.11ax	SUB1	80	MCS0	15.0	14.07	0.06	Left Touch	99.6	0.272	0.202	1.239	1.004	0.251	-
5 290	58	802.11ax	SUB1	80	MCS0	15.0	14.07	0.11	Left Tilt	99.6	0.319	0.248	1.239	1.004	0.309	-
5 290	58	802.11ax	SUB1	80	MCS0	15.0	14.07	0.04	Right Touch	99.6	0.130	0.077	1.239	1.004	0.096	-
5 290	58	802.11ax	SUB1	80	MCS0	15.0	14.07	-0.15	Right Tilt	99.6	0.128	0.082	1.239	1.004	0.102	-
5 610	122	802.11ac	SUB1	80	MCS0	15.0	14.82	0.19	Left Touch	92.0	0.148	0.097	1.042	1.087	0.110	-
5 610	122	802.11ac	SUB1	80	MCS0	15.0	14.82	-0.14	Left Tilt	92.0	0.121	0.088	1.042	1.087	0.100	-
5 610	122	802.11ac	SUB1	80	MCS0	15.0	14.82	0.00	Right Touch	92.0	0.054	0.017	1.042	1.087	0.019	-
5 610	122	802.11ac	SUB1	80	MCS0	15.0	14.82	-0.17	Right Tilt	92.0	0.045	0.200	1.042	1.087	0.227	-
5 775	155	802.11ac	SUB1	80	MCS0	15.0	14.67	-0.17	Left Touch	92.0	0.264	0.157	1.078	1.087	0.184	-
5 775	155	802.11ac	SUB1	80	MCS0	15.0	14.67	0.15	Left Tilt	92.0	0.192	0.132	1.078	1.087	0.155	-
5 775	155	802.11ac	SUB1	80	MCS0	15.0	14.67	0.13	Right Touch	92.0	0.079	0.036	1.078	1.087	0.042	-
5 775	155	802.11ac	SUB1	80	MCS0	15.0	14.67	0.00	Right Tilt	92.0	0.049	0.025	1.078	1.087	0.029	-
5 855	171	802.11ac	SUB1	80	MCS0	15.0	14.16	0.14	Left Touch	92.0	0.266	0.177	1.213	1.087	0.233	-
5 855	171	802.11ac	SUB1	80	MCS0	15.0	14.16	0.16	Left Tilt	92.0	0.264	0.161	1.213	1.087	0.212	-
5 855	171	802.11ac	SUB1	80	MCS0	15.0	14.16	0.14	Right Touch	92.0	0.106	0.046	1.213	1.087	0.061	-
5 855	171	802.11ac	SUB1	80	MCS0	15.0	14.16	0.17	Right Tilt	92.0	0.079	0.046	1.213	1.087	0.061	-
5 290	58	802.11ax	S4+S1	80	MCS0	18.0	17.52	0.17	Left Touch	99.6	0.364	0.245	1.239	1.004	0.305	-
5 290	58	802.11ax	S4+S1	80	MCS0	18.0	17.52	0.18	Left Tilt	99.6	0.393	0.269	1.239	1.004	0.335	-
5 290	58	802.11ax	S4+S1	80	MCS0	18.0	17.52	-0.06	Right Touch	99.6	0.984	**0.718**	1.239	1.004	**0.893**	**A14**
5 290	58	802.11ax	S4+S1	80	MCS0	18.0	17.52	0.03	Right Tilt	99.6	0.743	0.530	1.239	1.004	0.659	-
5 690	138	802.11ac	S4+S1	80	MCS0	18.0	17.36	0.11	Left Touch	92.1	0.196	0.136	1.315	1.086	0.194	-
5 690	138	802.11ac	S4+S1	80	MCS0	18.0	17.36	0.10	Left Tilt	92.1	0.175	0.109	1.315	1.086	0.156	-
5 690	138	802.11ac	S4+S1	80	MCS0	18.0	17.36	0.08	Right Touch	92.1	0.497	0.434	1.315	1.086	0.620	-
5 690	138	802.11ac	S4+S1	80	MCS0	18.0	17.36	-0.19	Right Tilt	92.1	0.363	0.209	1.315	1.086	0.298	-
5 775	155	802.11ac	S4+S1	80	MCS0	18.0	17.37	-0.17	Left Touch	92.1	0.264	0.157	1.271	1.086	0.217	-
5 775	155	802.11ac	S4+S1	80	MCS0	18.0	17.37	0.19	Left Tilt	92.1	0.176	0.101	1.271	1.086	0.139	-
5 775	155	802.11ac	S4+S1	80	MCS0	18.0	17.37	0.08	Right Touch	92.1	0.794	0.550	1.271	1.086	0.759	-
5 775	155	802.11ac	S4+S1	80	MCS0	18.0	17.37	-0.19	Right Tilt	92.1	0.306	0.176	1.271	1.086	0.243	-
5 855	171	802.11ac	S4+S1	80	MCS0	18.0	17.05	0.11	Left Touch	92.1	0.241	0.161	1.288	1.086	0.225	-
5 855	171	802.11ac	S4+S1	80	MCS0	18.0	17.05	-0.14	Left Tilt	92.1	0.139	0.092	1.288	1.086	0.129	-
5 855	171	802.11ac	S4+S1	80	MCS0	18.0	17.05	-0.19	Right Touch	92.1	0.990	0.624	1.288	1.086	0.873	-
5 855	171	802.11ac	S4+S1	80	MCS0	18.0	17.05	-0.07	Right Tilt	92.1	0.355	0.204	1.288	1.086	0.285	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Head 1.6 W/kg Averaged over 1 gram							

6 GHz WLAN Head SAR															
Frequency		Mode	Ant.	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(Mbps)	(dBm)	(dBm)	(dB)			(W/kg)		(Duty)	(W/kg)	
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.05	Left Touch	99.7	0.017	1.253	1.003	0.021	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.01	Left Tilt	99.7	0.017	1.253	1.003	0.021	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.18	Right Touch	99.7	0.036	1.253	1.003	0.045	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.02	Right Tilt	99.7	0.050	1.253	1.003	0.063	-
6 025	15	802.11ax	SUB4	160	MCS0	10.0	8.22	0.12	Right Tilt	99.7	0.037	1.507	1.003	0.056	-
6 345	79	802.11ax	SUB4	160	MCS0	10.0	8.50	0.11	Right Tilt	99.7	**0.104**	1.413	1.003	**0.147**	**A15**
6 505	111	802.11ax	SUB4	160	MCS0	10.0	8.48	0.02	Right Tilt	99.7	0.087	1.419	1.003	0.124	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.01	Right Tilt	99.7	0.071	1.318	1.003	0.094	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.05	Left Touch	99.7	0.080	1.130	1.003	0.091	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	-0.12	Left Tilt	99.7	0.048	1.130	1.003	0.054	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.14	Right Touch	99.7	0.016	1.130	1.003	0.018	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.13	Right Tilt	99.7	0.016	1.130	1.003	0.018	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.14	Left Touch	99.7	0.034	1.253	1.003	0.043	-
6 185	47	802.11ax	SUB1	160	MCS0	10.0	8.90	0.17	Left Touch	99.7	0.011	1.288	1.003	0.014	-
6 505	111	802.11ax	SUB1	160	MCS0	10.0	8.57	-0.05	Left Touch	99.7	0.023	1.390	1.003	0.032	-
6 625	175	802.11ax	SUB1	160	MCS0	10.0	9.22	0.02	Left Touch	99.7	0.039	1.197	1.003	0.047	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	0.03	Left Touch	99.7	0.078	1.253	1.003	0.098	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	0.11	Left Tilt	99.7	0.090	1.253	1.003	0.113	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	-0.13	Right Touch	99.7	0.039	1.253	1.003	0.049	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	0.07	Right Tilt	99.7	0.037	1.253	1.003	0.047	-
6 025	15	802.11ax	S4+S1	160	MCS0	13.0	11.65	0.05	Left Tilt	99.7	0.003	1.507	1.003	0.005	-
6 345	79	802.11ax	S4+S1	160	MCS0	13.0	11.58	-0.05	Left Tilt	99.7	0.003	1.413	1.003	0.004	-
6 505	111	802.11ax	S4+S1	160	MCS0	13.0	11.54	-0.12	Left Tilt	99.7	0.042	1.419	1.003	0.060	-
6 625	175	802.11ax	S4+S1	160	MCS0	13.0	11.96	0.15	Left Tilt	99.7	0.069	1.365	1.003	0.094	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Head 1.6 W/kg Averaged over 1 gram						

DSS Head SAR – RCV ON												
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dBm)	(dBm)	(dB)		(W/kg)		(Duty)	(W/kg)	
2 480	78	Bluetooth DH5	SUB4	15.0	13.93	-0.04	Left Touch	0.154	1.279	1.030	0.203	-
2 480	78	Bluetooth DH5	SUB4	15.0	13.93	0.02	Left Tilt	0.192	1.279	1.030	0.253	-
2 480	78	Bluetooth DH5	SUB4	15.0	13.93	-0.08	Right Touch	0.505	1.279	1.030	0.721	-
2 480	78	Bluetooth DH5	SUB4	15.0	13.93	0.04	Right Tilt	0.200	1.279	1.030	0.263	-
2 480	78	Bluetooth DH5	SUB6	15.0	13.61	-0.17	Left Touch	**0.514**	1.377	1.030	0.729	**A16**
2 480	78	Bluetooth DH5	SUB6	15.0	13.61	-0.13	Left Tilt	0.078	1.377	1.030	0.111	-
2 480	78	Bluetooth DH5	SUB6	15.0	13.61	0.19	Right Touch	0.358	1.377	1.030	0.508	-
2 480	78	Bluetooth DH5	SUB6	15.0	13.61	-0.17	Right Tilt	0.017	1.377	1.030	0.024	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram					

13.1.2 Body Worn/Hotspot SAR Measurement Results

GSM 850 BodyWorn /Hotspot SAR														
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)			(mm)		(W/kg)		(W/kg)	
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	-0.08	Rear	1:4.15	10	1	0.178	1.019	0.181	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	0.03	Front	1:4.15	10	1	0.183	1.019	0.186	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	0.04	Left	1:4.15	10	1	0.260	1.019	0.265	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	-0.04	Right	1:4.15	10	1	0.289	1.019	0.294	-
824.2	128	GPRS 2Tx	MAIN1	32.0	31.92	-0.05	Bottom	1:4.15	10	1	0.043	1.019	0.044	-
824.2	128	Voice	MAIN1	33.0	32.41	-0.14	Rear	1:8.3	10	1	0.158	1.146	0.181	-
824.2	128	Voice	MAIN1	33.0	32.41	0.03	Front	1:8.3	10	1	0.156	1.146	0.179	-
824.2	128	GPRS 2Tx	SUB1	32.0	31.80	-0.07	Rear	1:4.15	10	0	**0.684**	1.047	**0.716**	**B1**
824.2	128	GPRS 2Tx	SUB1	32.0	31.80	-0.04	Front	1:4.15	10	0	0.512	1.047	0.536	-
824.2	128	GPRS 2Tx	SUB1	32.0	31.80	-0.02	Right	1:4.15	10	0	0.630	1.047	0.660	-
824.2	128	GPRS 2Tx	SUB1	32.0	31.80	0.07	Top	1:4.15	10	0	0.458	1.047	0.480	-
824.2	128	Voice	SUB1	33.0	31.89	0.14	Rear	1:8.3	10	0	0.364	1.291	0.470	-
824.2	128	Voice	SUB1	33.0	31.89	0.00	Front	1:8.3	10	0	0.331	1.291	0.427	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram							

GSM 1900 BodyWorn/Hotspot SAR														
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)			(mm)		(W/kg)		(W/kg)	
1 880.0	661	GPRS 3Tx	MAIN1	25.5	23.71	-0.09	Rear	1:1.28	10	11	0.348	1.510	0.525	
1 880.0	661	GPRS 3Tx	MAIN1	25.5	23.71	-0.05	Front	1:1.28	10	11	0.267	1.510	0.403	
1 880.0	661	GPRS 3Tx	MAIN1	25.5	23.71	0.08	Left	1:1.28	10	11	0.063	1.510	0.095	-
1 880.0	661	GPRS 3Tx	MAIN1	25.5	23.71	-0.02	Right	1:1.28	10	11	0.041	1.510	0.062	-
1 880.0	661	GPRS 3Tx	MAIN1	25.5	23.71	-0.02	Bottom	1:1.28	10	11	**0.782**	1.510	**1.181**	**B2**
1 880.0	661	Voice	MAIN1	29.0	28.91	-0.16	Rear	1:8.3	10	11	0.337	1.021	0.344	-
1 880.0	661	Voice	MAIN1	29.0	28.91	-0.12	Front	1:8.3	10	11	0.244	1.021	0.249	-
1 880.0	661	GPRS 3Tx	MAIN1	25.5	23.71	-0.02	Bottom	1:1.28	10	11	0.722	1.510	1.090	#
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram							

Note: # Data entry indicate Variability measurement.

UMTS Band 5 BodyWorn/Hotspot SAR														
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance	Ant. State	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)			(mm)		(W/kg)		(W/kg)	
836.6	4183	RMC	MAIN1	25.0	23.84	-0.10	Rear	1:1	10	0	0.414	1.306	0.541	-
836.6	4183	RMC	MAIN1	25.0	23.84	-0.07	Front	1:1	10	0	0.361	1.306	0.471	-
836.6	4183	RMC	MAIN1	25.0	23.84	0.15	Left	1:1	10	0	0.073	1.306	0.095	-
836.6	4183	RMC	MAIN1	25.0	23.84	-0.16	Right	1:1	10	0	0.231	1.306	0.302	-
836.6	4183	RMC	MAIN1	25.0	23.84	-0.11	Bottom	1:1	10	0	0.013	1.306	0.017	-
836.6	4183	RMC	SUB1	25.0	23.62	-0.11	Rear	1:1	10	0	0.506	1.374	0.695	-
836.6	4183	RMC	SUB1	25.0	23.62	0.00	Front	1:1	10	0	0.432	1.374	0.594	-
836.6	4183	RMC	SUB1	25.0	23.62	-0.05	Right	1:1	10	0	**0.511**	1.374	**0.702**	**B3**
836.6	4183	RMC	SUB1	25.0	23.62	0.01	Top	1:1	10	0	0.278	1.374	0.382	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram						

LTE FDD Band 2 BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1 900	19100	QPSK	MAIN1	20	20.0	19.27	0.09	Rear	0	1	0	1:1	44	10	0.358	1.183	0.424	-
1 900	19100	QPSK	MAIN1	20	20.0	19.46	0.07	Rear	0	50	25	1:1	44	10	0.403	1.132	0.456	-
1 900	19100	QPSK	MAIN1	20	20.0	19.27	0.19	Front	0	1	0	1:1	44	10	0.367	1.183	0.434	-
1 900	19100	QPSK	MAIN1	20	20.0	19.46	0.16	Front	0	50	25	1:1	44	10	0.355	1.132	0.402	-
1 900	19100	QPSK	MAIN1	20	20.0	19.27	0.14	Left	0	1	0	1:1	44	10	0.076	1.183	0.090	-
1 900	19100	QPSK	MAIN1	20	20.0	19.46	0.12	Left	0	50	25	1:1	44	10	0.072	1.132	0.082	-
1 900	19100	QPSK	MAIN1	20	20.0	19.27	-0.18	Right	0	1	0	1:1	44	10	0.090	1.183	0.106	-
1 900	19100	QPSK	MAIN1	20	20.0	19.46	-0.11	Right	0	50	25	1:1	44	10	0.075	1.132	0.085	-
1 900	19100	QPSK	MAIN1	20	20.0	19.27	-0.13	Bottom	0	1	0	1:1	44	10	0.791	1.183	0.936	-
1 860	18700	QPSK	MAIN1	20	20.0	19.19	-0.12	Bottom	0	1	99	1:1	44	10	0.802	1.205	0.966	-
1 880	18900	QPSK	MAIN1	20	20.0	19.25	-0.14	Bottom	0	1	99	1:1	44	10	0.791	1.189	0.940	-
1 900	19100	QPSK	MAIN1	20	20.0	19.46	-0.03	Bottom	0	50	25	1:1	44	10	0.775	1.132	0.877	-
1 860	18700	QPSK	MAIN1	20	20.0	19.08	-0.01	Bottom	0	50	0	1:1	44	10	**0.844**	1.236	**1.043**	**B4**
1 880	18900	QPSK	MAIN1	20	20.0	18.95	0.02	Bottom	0	50	0	1:1	44	10	0.782	1.274	0.996	-
1 900	19100	QPSK	MAIN1	20	20.0	18.91	-0.02	Bottom	0	100	0	1:1	44	10	0.769	1.285	0.988	-
1 860	18700	QPSK	MAIN1	20	20.0	19.08	0.00	Bottom	0	50	0	1:1	44	10	0.843	1.236	1.042	**#**
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

Note: **#** Data entry indicate Variability measurement.

LTE FDD Band 12 BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
707.5	23095	QPSK	MAIN1	10	24.5	22.89	-0.14	Rear	0	1	0	1:1	0	10	0.272	1.449	0.394	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	-0.18	Rear	1	25	24	1:1	0	10	0.212	1.462	0.310	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	-0.01	Front	0	1	0	1:1	0	10	0.123	1.449	0.178	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	-0.03	Front	1	25	24	1:1	0	10	0.093	1.462	0.136	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	0.09	Left	0	1	0	1:1	0	10	0.115	1.449	0.167	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	0.00	Left	1	25	24	1:1	0	10	0.082	1.462	0.120	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	-0.03	Right	0	1	0	1:1	0	10	0.011	1.449	0.016	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	-0.05	Right	1	25	24	1:1	0	10	0.00897	1.462	0.013	-
707.5	23095	QPSK	MAIN1	10	24.5	22.89	0.00	Bottom	0	1	0	1:1	0	10	0.075	1.449	0.109	-
707.5	23095	QPSK	MAIN1	10	23.5	21.85	0.15	Bottom	1	25	24	1:1	0	10	0.059	1.462	0.086	-
707.5	23095	QPSK	SUB1	10	24.5	23.18	0.07	Rear	0	1	0	1:1	0	10	**0.436**	1.355	**0.591**	**B5**
707.5	23095	QPSK	SUB1	10	23.5	22.14	-0.08	Rear	1	25	24	1:1	0	10	0.378	1.368	0.517	-
707.5	23095	QPSK	SUB1	10	24.5	23.18	-0.13	Front	0	1	0	1:1	0	10	0.385	1.355	0.522	-
707.5	23095	QPSK	SUB1	10	23.5	22.14	0.02	Front	1	25	24	1:1	0	10	0.309	1.368	0.423	-
707.5	23095	QPSK	SUB1	10	24.5	23.18	-0.11	Right	0	1	0	1:1	0	10	0.146	1.355	0.198	-
707.5	23095	QPSK	SUB1	10	23.5	22.14	0.02	Right	1	25	24	1:1	0	10	0.136	1.368	0.186	-
707.5	23095	QPSK	SUB1	10	24.5	23.18	-0.11	Top	0	1	0	1:1	0	10	0.209	1.355	0.283	-
707.5	23095	QPSK	SUB1	10	23.5	22.14	-0.02	Top	1	25	24	1:1	0	10	0.184	1.368	0.252	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 13 BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
782	23230	QPSK	MAIN1	10	24.5	22.80	-0.02	Rear	0	1	49	1:1	0	10	0.134	1.479	0.198	-
782	23230	QPSK	MAIN1	10	23.5	21.79	-0.08	Rear	1	25	24	1:1	0	10	0.108	1.483	0.160	-
782	23230	QPSK	MAIN1	10	24.5	22.80	-0.15	Front	0	1	49	1:1	0	10	0.116	1.479	0.172	-
782	23230	QPSK	MAIN1	10	23.5	21.79	0.09	Front	1	25	24	1:1	0	10	0.090	1.483	0.133	-
782	23230	QPSK	MAIN1	10	24.5	22.80	0.04	Left	0	1	49	1:1	0	10	0.209	1.479	0.309	-
782	23230	QPSK	MAIN1	10	23.5	21.79	0.04	Left	1	25	24	1:1	0	10	0.161	1.483	0.239	-
782	23230	QPSK	MAIN1	10	24.5	22.80	0.11	Right	0	1	49	1:1	0	10	0.115	1.479	0.170	-
782	23230	QPSK	MAIN1	10	23.5	21.79	-0.08	Right	1	25	24	1:1	0	10	0.084	1.483	0.125	-
782	23230	QPSK	MAIN1	10	24.5	22.80	0.10	Bottom	0	1	49	1:1	0	10	0.035	1.479	0.052	-
782	23230	QPSK	MAIN1	10	23.5	21.79	0.18	Bottom	1	25	24	1:1	0	10	0.027	1.483	0.040	-
782	23230	QPSK	SUB1	10	24.5	22.83	-0.03	Rear	0	1	24	1:1	0	10	**0.423**	1.469	**0.621**	B6
782	23230	QPSK	SUB1	10	23.5	21.78	-0.03	Rear	1	25	24	1:1	0	10	0.332	1.486	0.493	-
782	23230	QPSK	SUB1	10	24.5	22.83	0.07	Front	0	1	24	1:1	0	10	0.325	1.469	0.477	-
782	23230	QPSK	SUB1	10	23.5	21.78	0.03	Front	1	25	24	1:1	0	10	0.258	1.486	0.383	-
782	23230	QPSK	SUB1	10	24.5	22.83	0.00	Right	0	1	24	1:1	0	10	0.366	1.469	0.538	-
782	23230	QPSK	SUB1	10	23.5	21.78	0.00	Right	1	25	24	1:1	0	10	0.286	1.486	0.425	-
782	23230	QPSK	SUB1	10	24.5	22.83	-0.03	Top	0	1	24	1:1	0	10	0.337	1.469	0.495	-
782	23230	QPSK	SUB1	10	23.5	21.78	0.02	Top	1	25	24	1:1	0	10	0.266	1.486	0.395	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 26 (Cell) BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
831.5	26865	QPSK	MAIN1	15	25.5	24.22	-0.02	Rear	0	1	36	1:1	1	10	0.291	1.343	0.391	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.06	Rear	1	36	0	1:1	1	10	0.217	1.387	0.301	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	-0.04	Front	0	1	36	1:1	1	10	0.213	1.343	0.286	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.17	Front	1	36	0	1:1	1	10	0.166	1.387	0.230	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	0.01	Left	0	1	36	1:1	1	10	0.305	1.343	0.410	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	-0.05	Left	1	36	0	1:1	1	10	0.224	1.387	0.311	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	-0.11	Right	0	1	36	1:1	1	10	0.063	1.343	0.085	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.14	Right	1	36	0	1:1	1	10	0.047	1.387	0.065	-
831.5	26865	QPSK	MAIN1	15	25.5	24.22	0.18	Bottom	0	1	36	1:1	1	10	0.055	1.343	0.074	-
831.5	26865	QPSK	MAIN1	15	24.5	23.08	0.14	Bottom	1	36	0	1:1	1	10	0.043	1.387	0.060	-
831.5	26865	QPSK	SUB1	15	25.5	24.17	-0.04	Rear	0	1	36	1:1	0	10	0.418	1.358	0.568	-
831.5	26865	QPSK	SUB1	15	24.5	22.88	-0.14	Rear	1	36	18	1:1	0	10	0.350	1.452	0.508	-
831.5	26865	QPSK	SUB1	15	25.5	24.17	-0.06	Front	0	1	36	1:1	0	10	0.313	1.358	0.425	-
831.5	26865	QPSK	SUB1	15	24.5	22.88	-0.03	Front	1	36	18	1:1	0	10	0.240	1.452	0.348	-
831.5	26865	QPSK	SUB1	15	25.5	24.17	-0.15	Right	0	1	36	1:1	0	10	0.329	1.358	0.447	-
831.5	26865	QPSK	SUB1	15	24.5	22.88	0.08	Right	1	36	18	1:1	0	10	0.251	1.452	0.364	-
831.5	26865	QPSK	SUB1	15	25.5	24.17	-0.01	Top	0	1	36	1:1	0	10	**0.420**	1.358	**0.570**	**B7**
831.5	26865	QPSK	SUB1	15	24.5	22.88	-0.02	Top	1	36	18	1:1	0	10	0.315	1.452	0.457	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

LTE TDD Band 41 (Power Class 3) BodyWorn/Hotspot SAR																			
CC	Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
	MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	0.10	Rear	0	1	49	1:1.58	-	10	0.416	1.256	0.522	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	0.11	Rear	1	50	49	1:1.58	-	10	0.327	1.222	0.400	-
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	0.13	Front	0	1	49	1:1.58	-	10	0.307	1.256	0.386	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	0.12	Front	1	50	49	1:1.58	-	10	0.245	1.222	0.299	-
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	-0.02	Left	0	1	49	1:1.58	-	10	0.713	1.256	0.896	-
1CC	2 506	39750	QPSK	MAIN2	20	25.0	23.98	0.01	Left	0	1	49	1:1.58	-	10	0.417	1.265	0.528	-
1CC	2 549.5	40185	QPSK	MAIN2	20	25.0	23.90	0.04	Left	0	1	0	1:1.58	-	10	0.494	1.288	0.636	-
1CC	2 592.99	40620	QPSK	MAIN2	20	25.0	23.85	0.04	Left	0	1	0	1:1.58	-	10	0.660	1.303	0.860	-
1CC	2 636.5	41055	QPSK	MAIN2	20	25.0	23.69	0.09	Left	0	1	49	1:1.58	-	10	0.625	1.352	0.845	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	0.01	Left	1	50	49	1:1.58	-	10	0.573	1.222	0.700	-
1CC	2 506	39750	QPSK	MAIN2	20	24.0	22.92	-0.08	Left	1	50	25	1:1.58	-	10	0.342	1.282	0.438	-
1CC	2 549.5	40185	QPSK	MAIN2	20	24.0	23.12	-0.10	Left	1	50	25	1:1.58	-	10	0.421	1.225	0.516	-
1CC	2 592.99	40620	QPSK	MAIN2	20	24.0	23.11	-0.15	Left	1	50	0	1:1.58	-	10	0.540	1.227	0.663	-
1CC	2 636.5	41055	QPSK	MAIN2	20	24.0	22.77	-0.01	Left	1	50	49	1:1.58	-	10	0.526	1.327	0.698	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.14	-0.09	Left	1	100	0	1:1.58	-	10	0.589	1.219	0.718	-
1CC	2 680	41490	QPSK	MAIN2	20	25.0	24.01	0.08	Bottom	0	1	49	1:1.58	-	10	0.572	1.256	0.718	-
1CC	2 506	39750	QPSK	MAIN2	20	25.0	23.98	-0.01	Bottom	0	1	49	1:1.58	-	10	0.834	1.265	1.055	-
1CC	2 549.5	40185	QPSK	MAIN2	20	25.0	23.90	-0.02	Bottom	0	1	0	1:1.58	-	10	0.921	1.288	1.186	-
1CC	2 592.99	40620	QPSK	MAIN2	20	25.0	23.85	-0.02	Bottom	0	1	0	1:1.58	-	10	0.691	1.303	0.900	-
1CC	2 636.5	41055	QPSK	MAIN2	20	25.0	23.69	0.04	Bottom	0	1	49	1:1.58	-	10	0.554	1.352	0.749	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.13	0.03	Bottom	1	50	49	1:1.58	-	10	0.454	1.222	0.555	-
1CC	2 680	41490	QPSK	MAIN2	20	24.0	23.14	0.03	Bottom	1	100	0	1:1.58	-	10	0.449	1.219	0.547	-
1CC	2 549.5	40185	QPSK	MAIN2	20	25.0	23.90	-0.02	Bottom	0	1	0	1:1.58	-	10	**0.923**	1.288	**1.189**	**B8#**
PCC	2 549.5	40185	QPSK	MAIN2	20	25.0	23.16	0.06	Bottom	0	1	0	1:1.58	-	10	0.621	1.288	0.800	-
SCC	2 529.7	39987									1	99							
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Body 1.6 W/kg Averaged over 1 gram									

Note: **#** Data entry indicate Variability measurement.

LTE TDD Band 41 (Power Class 3) BodyWorn/Hotspot SAR																		
CC	Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
	MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.61	0.12	Rear	0	1	49	1:1.58	-	10	0.270	1.227	0.331	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.63	0.03	Rear	1	50	25	1:1.58	-	10	0.274	1.222	0.335	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.61	0.11	Front	0	1	49	1:1.58	-	10	0.198	1.227	0.243	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.63	0.14	Front	1	50	25	1:1.58	-	10	0.198	1.222	0.242	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.61	-0.11	Left	0	1	49	1:1.58	-	10	0.021	1.227	0.026	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.63	0.15	Left	1	50	25	1:1.58	-	10	0.020	1.222	0.024	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.61	0.09	Top	0	1	49	1:1.58	-	10	0.295	1.227	0.362	-
1CC	2 680	41490	QPSK	SUB2	20	21.5	20.63	0.05	Top	1	50	25	1:1.58	-	10	0.300	1.222	0.367	-
1CC	2680	41490	QPSK	SUB2	20	21.5	20.50	0.06	Top	1	50	25	1:1.58	-	10	0.262	1.259	0.330	-
PCC	2680	41490	QPSK	SUB2	20	21.5	19.91	-0.17	Top	1	50	0	1:1.58	-	10	0.267	1.442	0.385	-
SCC	2660.2	41292								1	50	49							
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Body 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 66 (AWS) BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1 770	132572	QPSK	MAIN1	20	20.5	19.64	-0.10	Rear	0	1	99	1:1	44	10	0.471	1.219	0.574	-
1 745	132322	QPSK	MAIN1	20	20.5	19.52	0.12	Rear	0	50	0	1:1	44	10	0.457	1.253	0.573	-
1 770	132572	QPSK	MAIN1	20	20.5	19.64	-0.19	Front	0	1	99	1:1	44	10	0.339	1.219	0.413	-
1 745	132322	QPSK	MAIN1	20	20.5	19.52	0.11	Front	0	50	0	1:1	44	10	0.324	1.253	0.406	-
1 770	132572	QPSK	MAIN1	20	20.5	19.64	0.19	Left	0	1	99	1:1	44	10	0.116	1.219	0.141	-
1 745	132322	QPSK	MAIN1	20	20.5	19.52	0.20	Left	0	50	0	1:1	44	10	0.101	1.253	0.127	-
1 770	132572	QPSK	MAIN1	20	20.5	19.64	0.01	Right	0	1	99	1:1	44	10	0.059	1.219	0.072	-
1 745	132322	QPSK	MAIN1	20	20.5	19.52	-0.14	Right	0	50	0	1:1	44	10	0.062	1.253	0.078	-
1 770	132572	QPSK	MAIN1	20	20.5	19.64	0.14	Bottom	0	1	99	1:1	44	10	0.805	1.219	0.981	-
1 720	132072	QPSK	MAIN1	20	20.5	19.38	0.09	Bottom	0	1	0	1:1	44	10	0.869	1.294	**1.124**	-
1 745	132322	QPSK	MAIN1	20	20.5	19.35	0.09	Bottom	0	1	49	1:1	44	10	0.825	1.303	1.075	-
1 745	132322	QPSK	MAIN1	20	20.0	19.52	0.06	Bottom	0	50	0	1:1	44	10	0.794	1.117	0.887	-
1 720	132072	QPSK	MAIN1	20	20.0	19.22	0.07	Bottom	0	50	0	1:1	44	10	0.844	1.197	1.010	-
1 770	132572	QPSK	MAIN1	20	20.0	19.42	0.07	Bottom	0	50	25	1:1	44	10	0.883	1.143	1.009	-
1 770	132572	QPSK	MAIN1	20	20.0	19.37	0.11	Bottom	0	100	0	1:1	44	10	**0.887**	1.156	1.025	**B9**
1 770	132572	QPSK	MAIN1	20	20.0	19.37	0.11	Bottom	0	100	0	1:1	44	10	0.886	1.156	1.024	**#**
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population															Body 1.6 W/kg Averaged over 1 gram			

Note: **#** Data entry indicate Variability measurement.

NR FDD Band n5 BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	-0.17	Rear	0	1	1	1:1	1	10	0.191	1.324	0.253	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.06	Rear	0	50	28	1:1	1	10	0.203	1.349	0.274	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	-0.09	Front	0	1	1	1:1	1	10	0.105	1.324	0.139	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.02	Front	0	50	28	1:1	1	10	0.105	1.349	0.142	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	-0.03	Left	0	1	1	1:1	1	10	0.071	1.324	0.094	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	-0.02	Left	0	50	28	1:1	1	10	0.068	1.349	0.092	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	0.17	Right	0	1	1	1:1	1	10	0.054	1.324	0.071	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.01	Right	0	50	28	1:1	1	10	0.058	1.349	0.078	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.78	0.11	Bottom	0	1	1	1:1	1	10	0.048	1.324	0.064	-
836.5	167300	DFT-s OFDM QPSK	Main1	20	25.0	23.70	0.05	Bottom	0	50	28	1:1	1	10	0.048	1.349	0.065	-
836.5	167300	CP QPSK	Main1	20	23.5	22.09	0.00	Rear	1.5	1	1	1:1	1	10	0.158	1.384	0.219	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.69	-0.10	Rear	0	1	1	1:1	1	10	0.326	1.352	0.441	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.60	0.05	Rear	0	50	28	1:1	1	10	0.371	1.380	0.512	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.69	0.03	Front	0	1	1	1:1	1	10	0.233	1.352	0.315	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.60	-0.04	Front	0	50	28	1:1	1	10	0.276	1.380	0.381	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.69	-0.00	Right	0	1	1	1:1	1	10	0.385	1.352	0.521	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.60	0.08	Right	0	50	28	1:1	1	10	**0.456**	1.380	**0.629**	B10
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.69	0.17	Top	0	1	1	1:1	1	10	0.341	1.352	0.461	-
836.5	167300	DFT-s OFDM QPSK	SUB1	20	25.0	23.60	0.10	Top	0	50	28	1:1	1	10	0.399	1.380	0.551	-
836.5	167300	CP QPSK	SUB1	20	23.5	22.35	0.03	Right	1.5	1	1	1:1	1	10	0.282	1.303	0.367	-

ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population	Body 1.6 W/kg Averaged over 1 gram

NR TDD Band n41 (Power Class 3) BodyWorn/Hotspot SAR																		
Frequency		Mode	Ant	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	0.17	Rear	0	1	1	1:1	-	10	0.358	1.135	0.406	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.05	Rear	0	135	0	1:1	-	10	0.360	1.099	0.396	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	0.18	Front	0	1	1	1:1	-	10	0.271	1.135	0.308	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.14	Front	0	135	0	1:1	-	10	0.312	1.099	0.343	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	0.06	Left	0	1	1	1:1	-	10	0.271	1.135	0.308	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.10	Left	0	135	0	1:1	-	10	0.273	1.099	0.300	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	0.01	Bottom	0	1	1	1:1	-	10	0.809	1.135	0.918	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.59	0.06	Bottom	0	135	0	1:1	-	10	0.787	1.099	0.865	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.31	0.13	Bottom	0	270	0	1:1	-	10	0.718	1.172	0.841	-
2 592.99	518598	CP QPSK	MAIN2	100	22.0	21.58	-0.04	Bottom	0	1	1	1:1	-	10	0.777	1.102	0.856	-
2 592.99	518598	DFT-s OFDM QPSK	MAIN2	100	22.0	21.45	0.03	Bottom	0	1	1	1:1	-	10	**0.944**	1.135	**1.071**	**B11#**
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.28	0.02	Rear	0	1	1	1:1	-	10	0.269	1.180	0.317	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.32	-0.15	Rear	0	135	0	1:1	-	10	0.222	1.169	0.260	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.28	0.06	Front	0	1	1	1:1	-	10	0.166	1.180	0.196	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.32	0.06	Front	0	135	0	1:1	-	10	0.132	1.169	0.154	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.28	0.07	Left	0	1	1	1:1	-	10	0.031	1.180	0.037	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.32	0.15	Left	0	135	0	1:1	-	10	0.021	1.169	0.025	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.28	0.00	Top	0	1	1	1:1	-	10	0.420	1.180	0.496	-
2 592.99	518598	DFT-s OFDM QPSK	SUB2	100	21.0	20.32	-0.04	Top	0	135	0	1:1	-	10	0.357	1.169	0.417	-
2 592.99	518598	CP QPSK	SUB2	100	21.0	20.53	-0.02	Top	0	1	1	1:1	-	10	0.382	1.114	0.426	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

Note: **#** Data entry indicate Variability measurement.

NR FDD Band n66 Body BodyWorn/ Hotspot SAR																		
Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant. State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.25	0.01	Rear	0	1	108	1:1	11	10	0.427	1.189	0.508	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.27	-0.19	Rear	0	108	0	1:1	11	10	0.440	1.183	0.521	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.25	0.11	Front	0	1	108	1:1	11	10	0.349	1.189	0.415	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.27	0.14	Front	0	108	0	1:1	11	10	00.36	1.183	0.426	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.25	0.17	Left	0	1	108	1:1	11	10	0.114	1.189	0.136	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.27	0.14	Left	0	108	0	1:1	11	10	0.115	1.183	0.136	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.25	0.10	Right	0	1	108	1:1	11	10	0.056	1.189	0.067	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.27	0.08	Right	0	108	0	1:1	11	10	0.058	1.183	0.069	-
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.25	0.16	Bottom	0	1	108	1:1	11	10	**0.655**	1.189	**0.779**	**B12**
1 745	349000	DFT-s OFDM QPSK	MAIN1	40	20.0	19.27	0.12	Bottom	0	108	0	1:1	11	10	0.653	1.183	0.772	**-**
1 745	349000	CP OFDM QPSK	MAIN1	40	20.0	19.20	0.13	Bottom	0	1	1	1:1	11	10	0.608	1.202	0.731	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.23	-0.12	Rear	0	1	1	1:1	0	10	0.179	1.194	0.214	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.20	0.11	Rear	0	108	54	1:1	0	10	0.138	1.202	0.166	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.23	-0.19	Front	0	1	1	1:1	0	10	0.117	1.194	0.140	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.20	-0.04	Front	0	108	54	1:1	0	10	0.098	1.202	0.118	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.23	-0.10	Left	0	1	1	1:1	0	10	0.057	1.194	0.068	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.20	-0.10	Left	0	108	54	1:1	0	10	0.052	1.202	0.063	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.23	0.02	Top	0	1	1	1:1	0	10	0.228	1.194	0.272	-
1 745	349000	DFT-s OFDM QPSK	SUB2	40	22.0	21.20	-0.14	Top	0	108	54	1:1	0	10	0.202	1.202	0.243	-
1 745	349000	CP OFDM QPSK	SUB2	40	22.0	21.27	0.01	Top	0	1	1	1:1	0	10	0.312	1.183	0.369	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

DTS Body Worn/Hotspot SAR																
Frequency		Mode	Ant.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.																
2 412	1	802.11b	SUB4	20	1	18.0	16.70	-0.17	Rear	98.8	10	0.284	0.180	1.349	1.012	0.246	-
2 412	1	802.11b	SUB4	20	1	18.0	16.70	-0.10	Front	98.8	10	0.279	0.182	1.349	1.012	0.249	-
2 412	1	802.11b	SUB4	20	1	18.0	16.70	0.13	Left	98.8	10	0.422	0.191	1.349	1.012	0.261	-
2 412	1	802.11b	SUB4	20	1	18.0	16.70	-0.14	Top	98.8	10	0.389	0.227	1.349	1.012	0.310	-
2 412	1	802.11b	SUB6	20	1	18.0	17.58	0.17	Rear	98.8	10	0.162	0.088	1.102	1.012	0.098	-
2 412	1	802.11b	SUB6	20	1	18.0	17.58	0.17	Front	98.8	10	0.206	0.133	1.102	1.012	0.148	-
2 412	1	802.11b	SUB6	20	1	18.0	17.58	0.10	Right	98.8	10	0.0606	0.044	1.102	1.012	0.049	-
2 412	1	802.11b	SUB6	20	1	18.0	17.58	0.01	Top	98.8	10	0.00304	0.000632	1.102	1.012	0.001	-
2 412	1	802.11b	S4+S6	20	1	21.0	20.17	-0.06	Rear	98.8	10	0.395	0.234	1.349	1.012	0.320	-
2 412	1	802.11b	S4+S6	20	1	21.0	20.17	-0.12	Front	98.8	10	0.367	0.240	1.349	1.012	0.328	-
2 412	1	802.11b	S4+S6	20	1	21.0	20.17	0.10	Left	98.8	10	0.324	0.210	1.349	1.012	0.287	-
2 412	1	802.11b	S4+S6	20	1	21.0	20.17	-0.16	Right	98.8	10	0.103	0.054	1.349	1.012	0.074	-
2 412	1	802.11b	S4+S6	20	1	21.0	20.17	0.10	Top	98.8	10	0.426	**0.265**	1.349	1.012	**0.362**	B13
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Body 1.6 W/kg Averaged over 1 gram							

5 GHz WLAN BodyWorn/Hotspot SAR																	
Frequency		Mode	Ant.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.																
5 270	54	802.11n	SUB4	40	MCS0	18.0	17.31	0.05	Rear	92.5	10	0.387	0.318	1.172	1.081	0.403	-
5 270	54	802.11n	SUB4	40	MCS0	18.0	17.31	0.06	Front	92.5	10	0.244	0.167	1.172	1.081	0.212	-
5 690	138	802.11ac	SUB4	80	MCS0	18.0	17.35	-0.19	Rear	92.1	10	0.419	0.334	1.161	1.086	0.421	-
5 690	138	802.11ac	SUB4	80	MCS0	18.0	17.35	0.08	Front	92.1	10	0.191	0.124	1.161	1.086	0.156	-
5 775	155	802.11ac	SUB4	80	MCS0	18.0	17.56	0.11	Rear	92.1	10	0.550	0.430	1.107	1.086	0.517	-
5 775	155	802.11ac	SUB4	80	MCS0	18.0	17.56	0.19	Front	92.1	10	0.218	0.143	1.107	1.086	0.172	-
5 775	155	802.11ac	SUB4	80	MCS0	18.0	17.56	-0.18	Left	92.1	10	0.559	0.415	1.107	1.086	0.499	-
5 775	155	802.11ac	SUB4	80	MCS0	18.0	17.56	-0.19	Top	92.1	10	0.172	0.088	1.107	1.086	0.106	-
5 855	171	802.11ac	SUB4	80	MCS0	18.0	17.33	-0.06	Rear	92.1	10	0.525	0.429	1.167	1.086	0.544	-
5 855	171	802.11ac	SUB4	80	MCS0	18.0	17.33	0.17	Front	92.1	10	0.909	0.232	1.167	1.086	0.294	-
5 270	54	802.11n	SUB1	40	MCS0	18.0	17.72	0.14	Rear	92.5	10	0.346	0.264	1.067	1.081	0.305	-
5 270	54	802.11n	SUB1	40	MCS0	18.0	17.72	0.16	Front	92.5	10	0.091	0.057	1.067	1.081	0.066	-
5 690	138	802.11ac	SUB1	80	MCS0	18.0	17.87	0.19	Rear	92.1	10	0.608	0.417	1.030	1.086	0.466	-
5 690	138	802.11ac	SUB1	80	MCS0	18.0	17.87	0.12	Front	92.1	10	0.063	0.035	1.030	1.086	0.039	-
5 775	155	802.11ac	SUB1	80	MCS0	18.0	17.61	0.18	Rear	92.1	10	0.313	0.244	1.094	1.086	0.290	-
5 775	155	802.11ac	SUB1	80	MCS0	18.0	17.61	0.13	Front	92.1	10	0.072	0.031	1.094	1.086	0.037	-
5 775	155	802.11ac	SUB1	80	MCS0	18.0	17.61	-0.19	Right	92.1	10	0.058	0.038	1.094	1.086	0.045	-
5 775	155	802.11ac	SUB1	80	MCS0	18.0	17.61	0.01	Top	92.1	10	0.128	0.075	1.094	1.086	0.089	-
5 855	171	802.11ac	SUB1	80	MCS0	18.0	17.16	0.19	Rear	92.1	10	0.346	0.262	1.213	1.086	0.345	-
5 855	171	802.11ac	SUB1	80	MCS0	18.0	17.16	0.00	Front	92.1	10	0.083	0.055	1.213	1.086	0.072	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	0.05	Rear	92.5	10	1.260	0.366	1.180	1.081	0.467	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	-0.06	Front	92.5	10	0.310	0.178	1.180	1.081	0.227	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	0.05	Rear	92.1	10	0.420	0.114	1.230	1.086	0.152	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	0.09	Front	92.1	10	0.144	0.066	1.230	1.086	0.088	-
5 775	155	802.11ac	SUB4+1	80	MCS0	21.0	20.49	0.15	Rear	92.1	10	1.840	0.476	1.180	1.086	0.610	-
5 775	155	802.11ac	SUB4+1	80	MCS0	21.0	20.49	0.16	Front	92.1	10	0.272	0.180	1.180	1.086	0.231	-
5 775	155	802.11ac	SUB4+1	80	MCS0	21.0	20.49	-0.03	Left	92.1	10	0.573	0.433	1.180	1.086	0.555	-
5 775	155	802.11ac	SUB4+1	80	MCS0	21.0	20.49	0.14	Right	92.1	10	0.069	0.042	1.180	1.086	0.054	-
5 775	155	802.11ac	SUB4+1	80	MCS0	21.0	20.49	-0.11	Top	92.1	10	0.274	0.180	1.180	1.086	0.231	-
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	-0.16	Rear	92.1	10	0.686	**0.554**	1.227	1.086	**0.738**	**B14**
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	0.17	Front	92.1	10	0.475	0.326	1.227	1.086	0.434	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Body 1.6 W/kg Averaged over 1 gram					

6 GHz WLAN BodyWorn/ Router (VLP) SAR																
Frequency		Mode	Ant.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.															
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.06	Rear	99.7	10	0.037	1.318	1.003	0.049	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.01	Front	99.7	10	0.018	1.318	1.003	0.024	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.11	Left	99.7	10	0.076	1.318	1.003	0.100	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	-0.14	Top	99.7	10	0.017	1.318	1.003	0.022	-
6 345	79	802.11ax	SUB4	160	MCS0	10.0	8.50	-0.16	Left	99.7	10	**0.081**	1.413	1.003	**0.115**	**B15**
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.12	Rear	99.7	10	0.023	1.253	1.003	0.029	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.17	Front	99.7	10	0.007	1.253	1.003	0.009	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.13	Rear	99.7	10	0.039	1.253	1.003	0.049	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.01	Front	99.7	10	0.004	1.253	1.003	0.005	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.05	Right	99.7	10	0.005	1.253	1.003	0.006	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.09	Top	99.7	10	0.015	1.253	1.003	0.019	-
6 665	143	802.11ax	SUB1	160	MCS0	10.0	8.90	-0.10	Rear	99.7	10	0.018	1.288	1.003	0.023	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	-0.13	Rear	99.7	10	0.020	1.130	1.003	0.023	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.08	Front	99.7	10	0	1.130	1.003	0.000	-
6 665	143	802.11ax	S4+S1	160	MCS0	13.0	11.86	0.04	Rear	99.7	10	0.048	1.318	1.003	0.063	-
6 665	143	802.11ax	S4+S1	160	MCS0	13.0	11.86	0.19	Front	99.7	10	0.016	1.318	1.003	0.021	-
6 665	143	802.11ax	S4+S1	160	MCS0	13.0	11.86	0.05	Left	99.7	10	0.060	1.318	1.003	0.079	-
6 665	143	802.11ax	S4+S1	160	MCS0	13.0	11.86	0.11	Right	99.7	10	0.005	1.318	1.003	0.007	-
6 665	143	802.11ax	S4+S1	160	MCS0	13.0	11.86	0.15	Top	99.7	10	0	1.318	1.003	0.000	-
6 025	15	802.11ax	S4+S1	160	MCS0	13.0	11.65	0.13	Left	99.7	10	0.007	1.507	1.003	0.011	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	-0.16	Rear	99.7	10	0.036	1.253	1.003	0.045	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	0.18	Front	99.7	10	0.003	1.253	1.003	0.004	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Body 1.6 W/kg Averaged over 1 gram						

DSS Tethering SAR													
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dBm)	(dBm)	(dB)		(mm)	(W/kg)		(Duty)	(W/kg)	
2 402	0	Bluetooth DH5	SUB4	18.0	17.58	-0.13	Rear	10	0.169	1.102	1.030	0.192	-
2 402	0	Bluetooth DH5	SUB4	18.0	17.58	0.14	Front	10	0.083	1.102	1.030	0.094	-
2 402	0	Bluetooth DH5	SUB4	18.0	17.58	-0.03	Left	10	**0.328**	1.102	1.030	**0.372**	**B16**
2 402	0	Bluetooth DH5	SUB4	18.0	17.58	-0.03	Top	10	0.125	1.102	1.030	0.142	-
2 441	39	Bluetooth DH5	SUB6	18.0	17.85	0.17	Rear	10	0.070	1.035	1.030	0.075	-
2 441	39	Bluetooth DH5	SUB6	18.0	17.85	-0.13	Front	10	0.180	1.035	1.030	0.192	-
2 441	39	Bluetooth DH5	SUB6	18.0	17.85	-0.09	Right	10	0.044	1.035	1.030	0.047	-
2 441	39	Bluetooth DH5	SUB6	18.0	17.85	-0.14	Top	10	0.00178	1.035	1.030	0.002	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram					

13.1.3 Phablet SAR Measurement Considerations

Per FCC KDB 648474 D04v01r03, this device is considered a "Phablet" since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR >1.2 W/kg. When hotspot mode applies, 10g SAR required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1g SAR > 1.2 W/kg.

13.1.4 Phablet SAR Measurement Results

5 GHz WLAN Phablet SAR _10g																	
Frequency		Mode	Ant.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
5 270	54	802.11n	SUB4	40	MCS0	18.0	17.31	-0.10	Rear	92.5	0	2.970	0.666	1.172	1.081	0.844	-
5 270	54	802.11n	SUB4	40	MCS0	18.0	17.31	-0.12	Front	92.5	0	4.120	0.662	1.172	1.081	0.839	-
5 270	54	802.11n	SUB4	40	MCS0	18.0	17.31	0.10	Left	92.5	0	5.700	1.480	1.172	1.081	1.875	-
5 270	54	802.11n	SUB4	40	MCS0	18.0	17.31	-0.12	Top	92.5	0	3.270	0.435	1.172	1.081	0.551	-
5 690	138	802.11ac	SUB4	80	MCS0	18.0	17.35	-0.06	Rear	92.1	0	2.530	0.595	1.161	1.086	0.750	-
5 690	138	802.11ac	SUB4	80	MCS0	18.0	17.35	0.14	Front	92.1	0	5.480	0.729	1.161	1.086	0.919	-
5 690	138	802.11ac	SUB4	80	MCS0	18.0	17.35	-0.13	Left	92.1	0	6.120	1.620	1.161	1.086	2.042	-
5 690	138	802.11ac	SUB4	80	MCS0	18.0	17.35	-0.05	Top	92.1	0	1.690	0.280	1.161	1.086	0.353	-
5 855	171	802.11ac	SUB4	80	MCS0	18.0	17.33	0.03	Rear	92.1	0	2.320	0.654	1.167	1.086	0.829	-
5 855	171	802.11ac	SUB4	80	MCS0	18.0	17.33	0.09	Front	92.1	0	4.460	0.781	1.167	1.086	0.990	-
5 855	171	802.11ac	SUB4	80	MCS0	18.0	17.33	-0.17	Left	92.1	0	7.140	1.880	1.167	1.086	2.382	-
5 855	171	802.11ac	SUB4	80	MCS0	18.0	17.33	-0.19	Top	92.1	0	2.800	0.429	1.167	1.086	0.544	-
5 270	54	802.11n	SUB1	40	MCS0	18.0	17.72	0.19	Rear	92.5	0	3.760	0.683	1.067	1.081	0.788	-
5 270	54	802.11n	SUB1	40	MCS0	18.0	17.72	0.13	Front	92.5	0	1.040	0.693	1.067	1.081	0.799	-
5 270	54	802.11n	SUB1	40	MCS0	18.0	17.72	0.15	Right	92.5	0	0.487	0.310	1.067	1.081	0.358	-
5 270	54	802.11n	SUB1	40	MCS0	18.0	17.72	-0.13	Top	92.5	0	0.736	0.559	1.067	1.081	0.645	-
5 690	138	802.11ac	SUB1	80	MCS0	18.0	17.87	0.13	Rear	92.1	0	3.660	0.630	1.030	1.086	0.705	-
5 690	138	802.11ac	SUB1	80	MCS0	18.0	17.87	0.12	Front	92.1	0	0.741	0.180	1.030	1.086	0.201	-
5 690	138	802.11ac	SUB1	80	MCS0	18.0	17.87	0.10	Right	92.1	0	0.675	0.096	1.030	1.086	0.107	-
5 690	138	802.11ac	SUB1	80	MCS0	18.0	17.87	-0.16	Top	92.1	0	1.130	0.239	1.030	1.086	0.267	-
5 855	171	802.11ac	SUB1	80	MCS0	18.0	17.16	0.16	Rear	92.1	0	2.820	0.547	1.213	1.086	0.720	-
5 855	171	802.11ac	SUB1	80	MCS0	18.0	17.16	0.00	Front	92.1	0	0.777	0.163	1.213	1.086	0.215	-
5 855	171	802.11ac	SUB1	80	MCS0	18.0	17.16	-0.12	Right	92.1	0	1.010	0.109	1.213	1.086	0.144	-
5 855	171	802.11ac	SUB1	80	MCS0	18.0	17.16	-0.11	Top	92.1	0	1.020	0.197	1.213	1.086	0.259	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	0.05	Rear	92.5	0	2.430	0.714	1.180	1.081	0.911	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	-0.05	Front	92.5	0	3.210	0.888	1.180	1.081	1.133	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	-0.02	Left	92.5	0	5.490	1.400	1.180	1.081	1.786	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	0.14	Right	92.5	0	0.563	0.117	1.180	1.081	0.149	-
5 270	54	802.11n	SUB4+1	40	MCS8	21.0	20.49	-0.14	Top	92.5	0	2.360	0.451	1.180	1.081	0.575	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	0.18	Rear	92.1	0	1.990	0.544	1.230	1.086	0.727	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	-0.11	Front	92.1	0	4.070	0.662	1.230	1.086	0.884	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	-0.11	Left	92.1	0	11.600	1.650	1.230	1.086	2.204	-
5 690	138	802.11ac	SUB4+1	80	MCS0	21.0	20.50	-0.15	Left	92.1	0	8.570	1.730	1.259	1.086	2.365	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	0.06	Right	92.1	0	0.734	0.086	1.230	1.086	0.115	-
5 610	122	802.11ac	SUB4+1	80	MCS0	21.0	20.53	-0.01	Top	92.1	0	1.420	0.211	1.230	1.086	0.282	-
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	-0.12	Rear	92.1	0	2.790	0.689	1.227	1.086	0.918	-
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	0.17	Front	92.1	0	2.970	0.592	1.227	1.086	0.789	-
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	-0.14	Left	92.1	0	7.690	**1.900**	1.227	1.086	**2.531**	C1
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	0.14	Right	92.1	0	0.852	0.145	1.227	1.086	0.193	-
5 855	171	802.11ac	SUB4+1	80	MCS0	21.0	20.16	-0.18	Top	92.1	0	2.470	0.399	1.227	1.086	0.532	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Extremity 4.0 W/kg Averaged over 10 gram					

6 GHz WLAN Phablet SAR _10g																
Frequency		Mode	Ant.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.11	Rear	99.7	0	0.064	1.253	1.003	0.080	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.05	Front	99.7	0	0.063	1.253	1.003	0.079	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.18	Left	99.7	0	0.153	1.253	1.003	0.192	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.19	Top	99.7	0	0.015	1.253	1.003	0.019	-
6 025	15	802.11ax	SUB4	160	MCS0	10.0	8.22	0.14	Left	99.7	0	0.193	1.507	1.003	0.292	-
6 345	79	802.11ax	SUB4	160	MCS0	10.0	8.50	0.13	Left	99.7	0	0.212	1.413	1.003	0.300	-
6 505	111	802.11ax	SUB4	160	MCS0	10.0	8.48	0.19	Left	99.7	0	0.269	1.419	1.003	0.383	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	-0.13	Left	99.7	0	0.165	1.318	1.003	0.218	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	-0.10	Rear	99.7	0	0.057	1.130	1.003	0.065	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.03	Front	99.7	0	0.035	1.130	1.003	0.040	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.04	Right	99.7	0	0.018	1.130	1.003	0.020	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.09	Top	99.7	0	0.007	1.130	1.003	0.008	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	0.02	Rear	99.7	0	0.095	1.253	1.003	0.119	-
6 185	47	802.11ax	SUB1	160	MCS0	10.0	8.90	-0.19	Rear	99.7	0	0.088	1.288	1.003	0.114	-
6 505	111	802.11ax	SUB1	160	MCS0	10.0	8.57	-0.13	Rear	99.7	0	0.060	1.390	1.003	0.084	-
6 625	175	802.11ax	SUB1	160	MCS0	10.0	9.22	0.19	Rear	99.7	0	0.055	1.197	1.003	0.066	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	-0.10	Rear	99.7	0	0.065	1.253	1.003	0.082	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	0.10	Front	99.7	0	0.072	1.253	1.003	0.090	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	-0.19	Left	99.7	0	0.167	1.253	1.003	0.210	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	-0.13	Right	99.7	0	0.005	1.253	1.003	0.006	-
6 985	207	802.11ax	S4+S1	160	MCS0	13.0	12.26	0.12	Top	99.7	0	0.016	1.253	1.003	0.020	-
6 025	15	802.11ax	S4+S1	160	MCS0	13.0	11.65	-0.12	Left	99.7	0	0.290	1.507	1.003	0.438	-
6 345	79	802.11ax	S4+S1	160	MCS0	13.0	11.58	0.00	Left	99.7	0	**0.360**	1.413	1.003	**0.510**	C2
6 505	111	802.11ax	S4+S1	160	MCS0	13.0	11.54	-0.18	Left	99.7	0	0.281	1.419	1.003	0.400	-
6 625	175	802.11ax	S4+S1	160	MCS0	13.0	11.96	-0.18	Left	99.7	0	0.240	1.365	1.003	0.329	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Extremity 4.0 W/kg Averaged over 10 gram						

NFC Phablet SAR _10g							
Frequency	Mode	Data Rate	Power Drift	Test Position	Distance	Meas. SAR	Plot No.
MHz		(Kbps)	(dB)		(mm)	(W/kg)	
13.56	NFC (Type A)	106	0.14	Rear	0	0.019	-
13.56	NFC (Type B)	106	0.19	Rear	0	0.019	C3
13.56	NFC (Type F)	106	0.19	Rear	0	3.86E-07	-
13.56	NFC (Type B)	106	0.00	Front	0	0	-
13.56	NFC (Type B)	106	0.19	Left	0	0.0000103	-
13.56	NFC (Type B)	106	0.19	Right	0	0.0000065	-
13.56	NFC (Type B)	106	0.19	Top	0	0.00000369	-
13.56	NFC (Type B)	106	0.18	Bottom		0.00000847	
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population				Extremity 4.0 W/kg Averaged over 10 gram			

13.2 Absorbed Power Density Results

13.2.1 Head Absorbed Power Density Results

6 GHz WLAN Absorbed Power Density											
Frequency		Mode	Ant. No.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Meas. APD 4 ㎠ (mW/cm²)	Plot No.
MHz	Ch.										
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.05	Left Touch	0.0089	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.01	Left Tilt	0.0086	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.18	Right Touch	0.0156	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.02	Right Tilt	0.0266	-
6 025	15	802.11ax	SUB4	160	MCS0	10.0	8.22	0.12	Right Tilt	0.0365	-
6 345	79	802.11ax	SUB4	160	MCS0	10.0	8.50	0.11	Right Tilt	**0.0598**	**A15**
6 505	111	802.11ax	SUB4	160	MCS0	10.0	8.48	0.02	Right Tilt	0.0499	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.01	Right Tilt	0.0385	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.05	Left Touch	0.0370	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	-0.12	Left Tilt	0.0214	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.14	Right Touch	0.0054	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.13	Right Tilt	0.0074	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.14	Left Touch	0.0158	-
6 185	47	802.11ax	SUB1	160	MCS0	10.0	8.90	0.17	Left Touch	0.0029	-
6 505	111	802.11ax	SUB1	160	MCS0	10.0	8.57	-0.05	Left Touch	0.0036	-
6 625	175	802.11ax	SUB1	160	MCS0	10.0	9.22	0.02	Left Touch	0.0097	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	0.03	Left Touch	0.0334	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	0.09	Left Tilt	0.0402	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	-0.11	Right Touch	0.0220	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	-0.19	Right Tilt	0.0187	-
6 025	15	802.11ax	SUB4+1	160	MCS0	10.0	8.22	0.07	Left Tilt	0.0059	-
6 345	79	802.11ax	SUB4+1	160	MCS0	10.0	8.50	0.18	Left Tilt	0.0054	-
6 505	111	802.11ax	SUB4+1	160	MCS0	10.0	8.48	-0.12	Left Tilt	0.0319	-
6 625	175	802.11ax	SUB4+1	160	MCS0	10.0	8.65	0.15	Left Tilt	0.0317	-

13.2.2 BodyWorn/Hotspot Absorbed Power Density Results

6 GHz WLAN BodyWorn/Hotspot Absorbed Power Density												
Frequency		Mode	Ant. No.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. APD 4 ㎠ (mW/cm²)	Plot No.
MHz	Ch.											
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.03	Rear	10	0.0275	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.14	Front	10	0.0147	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	0.19	Left	10	0.0611	-
6 665	143	802.11ax	SUB4	160	MCS0	10.0	8.80	-0.14	Top	10	0.0099	-
6 345	79	802.11ax	SUB4	160	MCS0	10.0	8.50	-0.16	Left	10	**0.0640**	**B15**
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.12	Rear	10	0.0165	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.05	Front	10	0.0038	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.13	Rear	10	0.0309	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.01	Front	10	0.0016	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.05	Right	10	0.0043	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	-0.09	Top	10	0.0112	-
6 665	143	802.11ax	SUB1	160	MCS0	10.0	8.90	-0.10	Rear	10	0.0108	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	-0.13	Rear	10	0.0114	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.08	Front	10	0	-
6 665	143	802.11ax	SUB4+1	160	MCS0	10.0	8.80	0.04	Rear	10	0.0364	-
6 665	143	802.11ax	SUB4+1	160	MCS0	10.0	8.80	0.19	Front	10	0.0095	-
6 665	143	802.11ax	SUB4+1	160	MCS0	10.0	8.80	0.05	Left	10	0.0426	-
6 665	143	802.11ax	SUB4+1	160	MCS0	10.0	8.80	0.11	Right	10	0.0009	-
6 665	143	802.11ax	SUB4+1	160	MCS0	10.0	8.80	0.15	Top	10	0.0002	-
6 025	15	802.11ax	SUB4+1	160	MCS0	10.0	8.22	0.07	Left	10	0.0023	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	-0.16	Rear	10	0.0230	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	0.16	Front	10	0.001	-

13.2.3 Phablet Absorbed Power Density Results

6 GHz WLAN Absorbed Power Density Phablet												
Frequency		Mode	Ant. No.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. APD 4 ㎠ (mW/cm²)	Plot No.
MHz	Ch.											
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.11	Rear	0	0.152	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	0.05	Front	0	0.151	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.18	Left	0	0.371	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.19	Top	0	0.0383	-
6 985	15	802.11ax	SUB4	160	MCS0	10.0	8.22	0.14	Left	0	0.474	-
6 985	79	802.11ax	SUB4	160	MCS0	10.0	8.50	0.13	Left	0	0.517	-
6 025	111	802.11ax	SUB4	160	MCS0	10.0	8.48	0.19	Left	0	0.661	-
6 985	207	802.11ax	SUB4	160	MCS0	10.0	9.02	-0.11	Rear	0	0.407	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	-0.10	Rear	0	0.135	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.03	Front	0	0.0821	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.04	Right	0	0.0082	-
6 985	207	802.11ax	SUB1	160	MCS0	10.0	9.47	0.09	Top	0	0.0173	-
6 025	15	802.11ax	SUB1	160	MCS0	10.0	9.02	0.02	Rear	0	0.225	-
6 185	47	802.11ax	SUB1	160	MCS0	10.0	8.90	-0.19	Rear	0	0.208	-
6 505	111	802.11ax	SUB1	160	MCS0	10.0	8.57	-0.13	Rear	0	0.143	-
6 625	175	802.11ax	SUB1	160	MCS0	10.0	9.22	0.19	Rear	0	0.133	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	-0.10	Rear	0	0.154	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	0.10	Front	0	0.173	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	-0.19	Left	0	0.405	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	-0.13	Right	0	0.013	-
6 985	207	802.11ax	SUB4+1	160	MCS0	10.0	9.02	0.12	Top	0	0.0392	-
6 025	15	802.11ax	SUB4+1	160	MCS0	10.0	8.22	-0.12	Left	0	0.706	-
6 345	79	802.11ax	SUB4+1	160	MCS0	10.0	8.50	0.00	Left	0	**0.875**	C2
6 505	111	802.11ax	SUB4+1	160	MCS0	10.0	8.48	-0.18	Left	0	0.683	-
6 625	175	802.11ax	SUB4+1	160	MCS0	10.0	8.65	-0.18	Left	0	0.589	-

13.3 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. 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.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. 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.
7. Per FCC KDB 648474 D04v01r03, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was 1.2 W/kg, no additional SAR evaluation using a headset cable were required.
8. Per KDB 648474 D04v01r03, this device is considered a "Phablet" since the diagonal dimension is > 160 mm and < 200 mm. When hotspot mode applies, extremity SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (with tolerance) is 1 g SAR > 1.2 W/kg.
9. Per FCC KDB 865664 D01v01r04, variability SAR measurement were performed when the measured SAR results for a frequency Band were greater than or equal to 0.8 W/kg for 1g SAR and >2 for 10g SAR Please see Section 15 for variability analysis.
10. This device utilizes power reduction for some wireless mode and technologies, as outlined in sec. 4 The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous scenarios.
11. During SAR testing for the Hotspot conditions per KDB 941225 D06v02r01, the actual portable hotspot operation (with actual simultaneous transmission of a transmitter with WiFi) was not activated.
12. Per FCC guidance SAR was performed using 6.5 ㎓ SAR probe calibration factors. Per October 2020 TCBC Workshop notes, 5 channels were tested. Absorbed power density(APD) using a 4 ㎠ averaging area is reported based on SAR measurements.

GSM/GPRS Test Notes:

1. This EUT'S GSM and GPRS device class is B.
2. This device supports GPRS VOIP in the head and the body-worn configurations therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Justification for reduced test configurations per KDB 941225 D01v03r01: The source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power including tolerance was evaluated for SAR.
4. Per FCC KDB 447498 D04v01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is 1/2 dB, instead of the middle channel, the highest output power channel must be used.

UMTS Notes:

1. The 12.2 kbps RMC mode is the primary mode per KDB 941225 D01v03r01.
2. UMTS SAR 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.
3. Per FCC KDB 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the channel highest output power channel was used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r05.
2. According to FCC KDB 941225 D05v02r05:
   When the reported SAR is 0.8 W/kg, testing of the 100% RB allocation and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the 1RB, 50%RB and 100%RB allocation with highest output power for that channel.
   Only one channel, and as reported SAR values for 1RB allocation and 50%RB allocation were less than 1.45W/Kg only the highest power RB offset for each allocation was required.
3. 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 target MPR is indicated alongside the SAR results.
4. When Power reduction is applied, MPR is 0 for some modes.
5. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
6. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) LTE TDD Band 41 SAR measured at the highest output power channel for each test configuration is 0.6 W/kg then testing at the other channels is not required for such test configurations.
7. TDD LTE (Power Class 3) was tested using UL-DL configuration 0 with 6 UL sub frames and 2S sub frames using extended cyclic prefix only and special sub frame configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Sec. 4, the duty factor using extended cyclic prefix is 0.633(cf=1.58).
8. Per KDB 941225 D05Av01r02, SAR for LTE Carrier Aggregation operations was not needed because the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink CA was not activated.
9. SAR test reduction is applied using the following criteria:
   Start with the largest channel Bandwidth and measure SAR for QPSK with 1 RB, and 50 % RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is >0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50 % RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are >0.8 W/kg, testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation <1.45 W/kg. Testing for 16-QAM modulation is not required because the reported SAR for QPSK is <1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel Bandwidths is not required because the reported SAR for the highest channel Bandwidth is <1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel Bandwidth.

NR Notes:

1. This device supports SA and NSA mode for NR implementation. In EN-DC Mode, NR operate with the LTE Bands shown in the NR FR1 checklist acting as anchor Bands.
2. Due to Limitations of the SAR measurement equipment, SAR testing for NR Bands was performed separately using test mode (FTM) software.
3. More detailed specifications of the NR Bands are contained in the technical description document.
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. For NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power was evaluated for SAR tests.

WLAN Notes:

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. For initial test position, the highest extrapolated peak SAR will be used. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g SAR and ≤ 1.0 W/kg for 10g SAR, 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 results is ≤ 0.8 W/kg for 1g SAR and ≤ 2.0 W/kg for 10 g SAR or all test position are measured.
2. Per KDB 2482227 D01v02r02 justification for test configurations of 2.4 GHz WiFi Single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement.

3. Per KDB 2482227 D01v02r02 justification for test configurations of 5 GHz WiFi Single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission mode was not investigated since the highest reported SAR for initial test configuration adjusted by the ration of maximum output powers is less than 1.2 W/kg for 1 g SAR and less than 3.0 W/kg for 10 g SAR.

4. 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 or all test channels were measured.
5. The device was configured to transmit continuously at the required data rated, 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 WLAN test reports.
6. WIFI 6 GHz operations are supported by SISO and MIMO both. WLAN 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.
7. For testing the WIFI 6 GHz of this DUT, the selection of test channels was based on FCC guidance, with five channels selected across the entire WIFI 6 GHz Bands.
8. The device was configured to transmit continuously at the required data rated, 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 WLAN test reports.
9. For testing the WIFI 6 GHz of this DUT, the selection of test channels was based on FCC guidance, with five channels selected across the entire WIFI 6 GHz Bands.

Bluetooth Notes:

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests mode type. the duty cycle was compensated by applying maximum duty cycle 79% for BDR. Please see sec.11 for the time-domain plot and calculation for duty factor of the device.
2. Head and Bluetooth tethering SAR were evaluated for BT BDR tethering applications.

13.4 6GHz WLAN Power Density Results

6 GHz WLAN Power Density																		
Frequency		Mode	Ant.	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Distance (mm)	Test Position	Duty Cycle	Grid Step (λ)	Scaling Factor for Measurement Uncertainty per IEC 62479	Normal psPD (mW/㎠)	Scaled Normal psPD (mW/㎠)	Total psPD (mW/㎠)	Reported 4 ㎠ psPD (mW/㎠)	Plot No.
MHz	Ch.																	
6985	207	802.11ax	Sub4	160	MCS0	10.0	9.02	0.05	2	Rear	99.7	0.048	1.116	0.054	0.061	0.0767	0.086	-
6985	207	802.11ax	Sub4	160	MCS0	10.0	9.02	0.15	2	Front	99.7	0.048	1.116	0.0614	0.069	0.131	0.146	-
6985	207	802.11ax	Sub4	160	MCS0	10.0	9.02	0.05	2	Left	99.7	0.048	1.116	0.144	0.161	0.287	0.320	-
6985	207	802.11ax	Sub4	160	MCS0	10.0	9.02	-0.16	2	Top	99.7	0.048	1.116	0.035	0.039	0.0579	0.065	-
6025	15	802.11ax	Sub4	160	MCS0	10.0	8.22	0.19	2	Left	99.7	0.041	1.116	0.348	0.388	**0.703**	0.785	D1
6185	47	802.11ax	Sub4	160	MCS0	10.0	8.02	0.08	2	Left	99.7	0.042	1.116	0.273	0.305	0.502	0.560	-
6505	111	802.11ax	Sub4	160	MCS0	10.0	8.48	0.05	2	Left	99.7	0.044	1.116	0.345	0.385	0.640	0.714	-
6665	143	802.11ax	Sub4	160	MCS0	10.0	8.80	0.12	2	Left	99.7	0.045	1.116	0.256	0.286	0.542	0.605	-
6985	207	802.11ax	Sub1	160	MCS0	10.0	9.47	0.19	2	Rear	99.7	0.048	1.116	0.086	0.096	0.183	0.204	-
6985	207	802.11ax	Sub1	160	MCS0	10.0	9.47	0.08	2	Front	99.7	0.048	1.116	0.0293	0.033	0.0658	0.073	-
6985	207	802.11ax	Sub1	160	MCS0	10.0	9.47	-0.12	2	Right	99.7	0.048	1.116	0.0159	0.018	0.0309	0.034	-
6985	207	802.11ax	Sub1	160	MCS0	10.0	9.47	0.07	2	Top	99.7	0.048	1.116	0.028	0.031	0.0719	0.080	-
6025	15	802.11ax	Sub1	160	MCS0	10.0	9.02	-0.05	2	Rear	99.7	0.041	1.116	0.180	0.201	0.318	0.355	-
6185	47	802.11ax	Sub1	160	MCS0	10.0	8.90	-0.08	2	Rear	99.7	0.042	1.116	0.205	0.229	0.369	0.412	-
6505	111	802.11ax	Sub1	160	MCS0	10.0	8.57	0.10	2	Rear	99.7	0.044	1.116	0.150	0.167	0.264	0.295	-
6665	143	802.11ax	Sub1	160	MCS0	10.0	8.90	0.13	2	Rear	99.7	0.045	1.116	0.105	0.117	0.217	0.242	-
6985	207	802.11ax	Sub4+1	160	MCS0	10.0	9.02	-0.11	2	Rear	99.7	0.048	1.116	0.087	0.097	0.196	0.219	-
6985	207	802.11ax	Sub4+1	160	MCS0	10.0	9.02	0.06	2	Front	99.7	0.048	1.116	0.0402	0.045	0.105	0.117	-
6985	207	802.11ax	Sub4+1	160	MCS0	10.0	9.02	0.08	2	Left	99.7	0.048	1.116	0.152	0.170	0.285	0.318	-
6985	207	802.11ax	Sub4+1	160	MCS0	10.0	9.02	0.17	2	Right	99.7	0.048	1.116	0.021	0.023	0.0454	0.051	-
6985	207	802.11ax	Sub4+1	160	MCS0	10.0	9.02	-0.05	2	Top	99.7	0.048	1.116	0.008	0.009	0.0149	0.017	-
6025	15	802.11ax	Sub4+1	160	MCS0	10.0	8.22	-0.02	2	Left	99.7	0.041	1.116	0.256	0.286	0.499	0.557	-
6185	47	802.11ax	Sub4+1	160	MCS0	10.0	8.02	0.08	2	Left	99.7	0.042	1.116	0.293	0.327	0.573	0.639	-
6505	111	802.11ax	Sub4+1	160	MCS0	10.0	8.48	0.13	2	Left	99.7	0.044	1.116	0.345	0.385	0.682	0.761	-
6665	143	802.11ax	Sub4+1	160	MCS0	10.0	8.80	0.11	2	Left	99.7	0.045	1.116	0.330	0.368	0.600	0.670	-
47 CFR §1.1310 – Safety Limit Spatial Average Uncontrolled Exposure/ General Population															Power Density 1mW/㎠ Averaged over 4 ㎠			

Power Density General Notes:

1. manufacturer has confirmed that the device tested have the same The 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. DASY6 Module mmWave is optimized for incident Power Density (PD) evaluations EUT at distances as close as 2mm for frequencies in the 6–110 GHz range.
4. The software Module mmWave V3.0+ features the novel Equivalent Source Reconstruction (ESR)method:
   This new method will greatly simplify compliance testing for distances as close as λ/25 (2mm at 6 GHz) from any surface and improve the overall flexibility and precision. With this method, the reconstruction uncertainty (REC) is below 0.6 dB For d ≥ λ/25, corresponding to a test distance of 2mm at 6 GHz. The above-mentioned REC value is valid if the following conditions on the grid resolution (ℓ_{grid}) and grid extent (ν_{grid}) are met:

$$\ell_{grid} = \begin{cases} 1.25d & \text{for } d < \lambda/10 \\ \lambda/8 & \text{for } d > \lambda/10 \end{cases}$$

$$\nu_{grid} \geq 2\lambda$$

   Power density was calculated by repeated E-field measurements on two measurement planes separated by λ/4.
5. 5. 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.
6. 6. 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 1.51 dB(41.6%) was used to determine the psPD measurement scaling factor.

14. Simultaneous SAR Analysis

This device is containing transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per KDB Publication 447498 D04v01 4.3.2, simultaneous transmission SAR test exclusion may be applied when the sum of 1g SAR and 10g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6W/kg for 1g SAR and ≤4 W/kg for 10g SAR. The different test positions in an exposure condition may be considered collectively to determine SAR exclusion according to the sum of 1g or 10g SAR.

This device is enabled with Qualcomm® Smart Transmit Gen2 with pre-defined antenna groups (AG0 and AG1). Simultaneous transmission analysis is performed per antenna groups. Below analysis demonstrates the mutually exclusive operation of AG0 and AG1, and the compliance between each antenna group with non-Smart Transmit Radios. For this model, WWAN/WLAN/BT Radios are managed under Smart Transmit. The validation of the time-averaging algorithm and compliance under the Tx varying transmission scenario for 5G WWAN/WLAN/BT technologies are reported in Part 2 Report. Non-Smart Transmit Radios include NFC.

This device supports two AGs: AG0 and AG1, with AG0 having 2 antennas (Main1, Main 2) and AG1 having 4 antennas (Sub 1, Sub 2, Sub 4, Sub 6) for DSI=1 and 0 conditions

14.1 AG0, AG1 are described in the table below.

AG0	
MAIN1	GSM850, GSM1900, WCDMA 5, LTE 2/4/5/12/13/26/66, NR n5/n66
MAIN2	LTE 41, NR n41

AG1	
SUB1	GSM850, WCDMA 5, LTE 5/12/13/26, NR n5, WLAN 5 ㎓/6 ㎓ Ant 2
SUB2	LTE 41 NR n41/n66
SUB4	WLAN 2.4 ㎓/5 ㎓/6 ㎓, Bluetooth Ant 1
SUB6	WLAN 2.4 ㎓, Bluetooth Ant 2
SUB4+SUB6	WLAN 2.4 ㎓ MIMO
SUB4+SUB1	WLAN 5 ㎓/6 ㎓ MIMO

The TER evaluation between antenna groups for this model of the Smart Transmit GEN 2 sub 6 was performed in accordance with Qualcomm Guidance 80-W2112-4 Appendix K in compliance with 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1 and TER evaluation is included in Appendix M.

14.2 Conclusion

The results of the TER evaluation between antenna groups performed in Appendix M showed that the results of the multi-transmit simultaneous transmission evaluation sufficiently satisfied the FCC's SAR limit.

15. SAR Measurement Variability and Uncertainty

In accordance with KDB procedure 865664 D01v01r04 SAR measurement 100 ㎒ to 6 ㎓, SAR additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency Band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is 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) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg for 1g SAR or < 2.0 W/kg for 10g SAR; steps 2) through 4) do not apply.

2) When the original highest measured 1g SAR is ≥ 0.80 W/kg or 10g SAR ≥ 2.0W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg for 1g SAR or ≥ 3.625 W/kg for 10g SAR (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg for 1g SAR or ≥3.75 W/kg for 10g SAR and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Head SAR measurement variability Results

Frequency		Band	Mode	Position	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
㎒	Channel						
846.6	4233	UMTS Band 5	RMC (SUB1)	Left Tilt	0.832	0.815	1.02
2 680.0	41490	LTE Band 41	QPSK (SUB2)	Right Tilt	0.819	0.793	1.03

Body SAR measurement variability Results

Frequency		Band	Mode	Position	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
㎒	Channel						
1 909.8	810	GSM1900	GPRS 2Tx (MAIN1)	Bottom	0.817	0.753	1.09
1 880.0	18700	LTE Band 2	QPSK (MAIN1)	Bottom	0.844	0.843	1.00
1 770.0	132572	LTE Band 66	QPSK (MAIN1)	Bottom	0.887	0.886	1.00
2 549.5	40185	LTE Band 41	QPSK (MAIN2)	Bottom	0.921	0.923	1.00
2 592.99	518598	NR Band n41	DFT-s QPSK(MAIN2)	Bottom	0.809	0.944	1.17

16. Antenna Impedance tuner testing

Per April 2019 TCB Workshop Notes, the following test procedures were followed to demonstrate that the SAR results in Section 11 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. Per FCC Guidance, during NR testing the device was configured with the tuner state selected by the device in LTE mode with auto-tune active at the same frequency. 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 96 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 reported 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 W/kg for a
particular band/mode/exposure condition, point SAR measurements were made for all 96 states.
The operational description contains more information about the design and implementation of the dynamic antenna tuning.

16.1 Head SAR Configuration for AG 0

GSM850		GSM1900		UMTS B5		LTE B12	
Voice		GMSK GPRS 2Tx		RMC		QPSK, 10 MHz , 1 RB, 0 RB offset	
Test Position	Right Touch	Test Position	Left Touch	Test Position	Right Touch	Test Position	Right Touch
Frequency (MHz)	824.2	Frequency (MHz)	1880	Frequency (MHz)	836.6	Frequency (MHz)	707.5
Channel	128	Channel	661	Channel	4183	Channel	23095
Measured 1g SAR (W/kg)	0.117	Measured 1g SAR (W/kg)	0.085	Measured 1g SAR (W/kg)	0.156	Measured 1g SAR(W/kg)	0.081
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 1)	0.115	Auto-tune (State 11)	0.108	Auto-tune (State 0)	0.124	Auto-tune (State 0)	0.087
Default (State 0)	0.110	Default (State 0)	0.101	Default (State 0)	0.124	Default (State 0)	0.087
State 1	0.115	State 2	0.097	State 3	0.124	State 4	0.061
State 11	0.082	State 12	0.106	State 13	0.108	State 14	0.070
State 21	0.011	State 22	0.101	State 23	0.081	State 24	0.057
State 31	0.000	State 32	0.000	State 33	0.073	State 34	0.044
State 50	0.059	State 49	0.095	State 39	0.052	State 42	0.000
State 55	0.077	State 53	0.051	State 48	0.109	State 47	0.062
State 60	0.000	State 59	0.044	State 56	0.104	State 51	0.000
State 68	0.089	State 61	0.000	State 62	0.000	State 63	0.000
State 77	0.068	State 73	0.000	State 70	0.101	State 76	0.000
State 87	0.000	State 89	0.096	State 82	0.077	State 85	0.000
State 90	0.046	State 91	0.000	State 92	0.081	State 93	0.054

LTE B13		LTE B26		LTE B66		LTE B2	
QPSK, 10 MHz, 1 RB, 49 RB Offset		QPSK, 15 MHz, 1 RB, 36 RB Offset		QPSK, 20 MHz, 1 RB, 99 RB Offset		QPSK, 20 MHz, 1 RB, 0 RB Offset	
Test Position	Left Touch	Test Position	Right Touch	Test Position	Left Touch	Test Position	Left Touch
Frequency (MHz)	782	Frequency (MHz)	831.5	Frequency (MHz)	1720	Frequency (MHz)	1860
Channel	23230	Channel	26865	Channel	132072	Channel	18700
Measured 1g SAR(W/kg)	0.072	Measured 1g SAR(W/kg)	0.147	Measured 1g SAR(W/kg)	0.199	Measured 1g SAR(W/kg)	0.152
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 0)	0.094	Auto-tune (State 0)	0.129	Auto-tune (State 44)	0.248	Auto-tune (State 24)	0.193
Default (State 0)	0.094	Default (State 0)	0.129	Default (State 0)	0.202	Default (State 0)	0.178
State 5	0.000	State 6	0.105	State 7	0.094	State 8	0.094
State 15	0.064	State 16	0.069	State 9	0.122	State 18	0.129
State 25	0.072	State 19	0.062	State 17	0.144	State 28	0.152
State 29	0.060	State 26	0.100	State 27	0.178	State 38	0.041
State 35	0.000	State 36	0.077	State 37	0.000	State 43	0.000
State 46	0.086	State 45	0.113	State 44	0.248	State 58	0.000
State 54	0.000	State 50	0.115	State 52	0.130	State 67	0.000
State 64	0.000	State 65	0.033	State 66	0.000	State 72	0.000
State 71	0.000	State 75	0.025	State 78	0.000	State 79	0.055
State 84	0.000	State 83	0.048	State 88	0.201	State 86	0.039
State 94	0.086	State 95	0.075				

NR Band n5		NR Band n66	
DFT-s QPSK, 20 MHz, 50 RB, 28 RB Offset		DFT-s QPSK, 40 MHz, 108 RB, 54 RB Offset	
Test Position	Left Touch	Test Position	Left Touch
Frequency (MHz)	836.5	Frequency (MHz)	1745.0
Channel	167300	Channel	349000
Measured 1g SAR(W/kg)	0.121	Measured 1g SAR(W/kg)	0.193
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 1)	0.138	Auto-tune (State 11)	0.215
Default (State 0)	0.131	Default (State 0)	0.194
State 9	0.048	State 10	0.043
State 19	0.000	State 20	0.090
State 29	0.056	State 30	0.103
State 39	0.046	State 40	0.000
State 42	0.000	State 41	0.000
State 59	0.059	State 57	0.000
State 68	0.101	State 69	0.000
State 79	0.088	State 74	0.000
State 81	0.094	State 80	0.000

16.2 Body SAR Configuration for AG 0

GSM850		GSM1900		UMTS B5		LTE B12	
GMSK GPRS 2Tx		GMSK GPRS 3Tx		RMC		QPSK, 10 MHz, 1 RB, 0 RB offset	
Test Position	Right	Test Position	Bottom	Test Position	Rear	Test Position	Rear
Frequency (MHz)	824.2	Frequency (MHz)	1 880	Frequency (MHz)	836.6	Frequency (MHz)	707.5
Channel	128	Channel	661	Channel	4183	Channel	23095
Measured 1g SAR (W/kg)	0.289	Measured 1g SAR (W/kg)	0.782	Measured 1g SAR (W/kg)	0.414	Measured 1g SAR(W/kg)	0.272
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 1)	0.127	Auto-tune (State 11)	0.532	Auto-tune (State 0)	0.206	Auto-tune (State 0)	0.243
Default (State 0)	0.102	Default (State 0)	0.520	Default (State 0)	0.206	Default (State 0)	0.243
State 1	0.127	State 2	0.531	State 3	0.202	State 4	0.162
State 11	0.079	State 12	0.566	State 13	0.174	State 14	0.196
State 21	0.000	State 22	0.534	State 23	0.135	State 24	0.158
State 31	0.000	State 32	0.177	State 33	0.115	State 29	0.144
State 39	0.054	State 42	0.099	State 48	0.173	State 34	0.128
State 50	0.055	State 49	0.529	State 56	0.169	State 47	0.186
State 55	0.076	State 53	0.326	State 59	0.186	State 51	0.000
State 60	0.000	State 61	0.054	State 62	0.000	State 63	0.000
State 77	0.065	State 73	0.000	State 70	0.155	State 76	0.000
State 87	0.000	State 89	0.517	State 82	0.104	State 85	0.047
State 90	0.036	State 91	0.047	State 92	0.071	State 93	0.204

LTE B13		LTE B26		LTE B66		LTE B2	
QPSK, 10 MHz, 1 RB, 49 RB Offset		QPSK, 15 MHz, 1 RB, 36 RB Offset		QPSK, 20 MHz, 100 RB, 0 RB Offset		QPSK, 20 MHz, 50 RB, 0 RB Offset	
Test Position	Left	Test Position	Left	Test Position	Bottom	Test Position	Bottom
Frequency (MHz)	782	Frequency (MHz)	831.5	Frequency (MHz)	1770	Frequency (MHz)	1860
Channel	23230	Channel	26865	Channel	132572	Channel	18700
Measured 1g SAR(W/kg)	0.209	Measured 1g SAR(W/kg)	0.305	Measured 1g SAR(W/kg)	0.887	Measured 1g SAR(W/kg)	0.800
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 0)	0.137	Auto-tune (State 1)	0.230	Auto-tune (State 44)	0.734	Auto-tune (State 44)	0.637
Default (State 0)	0.137	Default (State 0)	0.210	Default (State 0)	0.667	Default (State 0)	0.630
State 5	0.063	State 6	0.197	State 7	0.566	State 8	0.390
State 9	0.091	State 16	0.166	State 17	0.660	State 18	0.558
State 15	0.088	State 19	0.144	State 27	0.640	State 28	0.573
State 25	0.106	State 26	0.192	State 37	0.063	State 38	0.041
State 35	0.054	State 36	0.175	State 44	0.734	State 43	0.000
State 46	0.123	State 45	0.159	State 52	0.687	State 58	0.064
State 54	0.000	State 50	0.163	State 66	0.070	State 67	0.059
State 64	0.000	State 65	0.016	State 68	0.602	State 72	0.043
State 71	0.059	State 75	0.011	State 78	0.104	State 81	0.071
State 84	0.000	State 83	0.170	State 88	0.661	State 86	0.039
State 94	0.122	State 95	0.189				

NR Band n5		NR Band n66	
DFT-s QPSK, 20 MHz, 50 RB, 28 RB Offset		DFT-s QPSK, 40 MHz, 1 RB, 108 RB Offset	
Test Position	Rear	Test Position	Bottom
Frequency (MHz)	836.5	Frequency (MHz)	1745.0
Channel	167300	Channel	349000
Measured 1g SAR(W/kg)	0.203	Measured 1g SAR(W/kg)	0.655
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 1)	0.214	Auto-tune (State 11)	0.722
Default (State 0)	0.201	Default (State 0)	0.659
State 9	0.074	State 10	0.196
State 19	0.050	State 20	0.402
State 29	0.085	State 30	0.420
State 39	0.068	State 40	0.000
State 42	0.000	State 41	0.000
State 59	0.093	State 57	0.084
State 68	0.179	State 69	0.094
State 79	0.154	State 74	0.040
State 81	0.143	State 80	0.128

16.3 Head SAR Configuration for AG1

GSM 850		UMTS B5		LTE B12		LTE B13	
Voice		RMC		QPSK, 10 MHz, 1 RB, 24 RB		QPSK, 10 MHz, 1 RB, 24 RB	
Test Position	Left Touch	Test Position	Left Tilt	Test Position	Left Touch	Test Position	Left Touch
Frequency (MHz)	824.2	Frequency (MHz)	846.6	Frequency (MHz)	707.5	Frequency (MHz)	782
Channel	128	Channel	4233	Channel	23095	Channel	23230
Measured 1g SAR(W/kg)	0.577	Measured 1g SAR(W/kg)	0.832	Measured 1g SAR(W/kg)	0.757	Measured 1g SAR(W/kg)	0.744
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 0)	0.561	Auto-tune (State 25)	0.861	Auto-tune (State 33)	0.494	Auto-tune (State 0)	0.713
Default (State 0)	0.561	Default (State 0)	0.591	Default (State 33)	0.494	Default (State 0)	0.713
State 1	0.530	State 2	0.814	State 3	0.478	State 4	0.698
State 8	0.533	State 9	0.769	State 10	0.480	State 11	0.707
State 15	0.564	State 16	0.581	State 17	0.481	State 18	0.709
State 22	0.527	State 23	0.573	State 24	0.475	State 25	0.692
State 29	0.545	State 30	0.580	State 31	0.470	State 32	0.694
State 36	0.534	State 37	0.589	State 38	0.447	State 39	0.695
State 43	0.557	State 44	0.579	State 45	0.468	State 46	0.691
State 50	0.483	State 51	0.581	State 52	0.466	State 53	0.694
State 63	0.489	State 62	0.578	State 61	0.481	State 60	0.699
State 70	0.474	State 69	0.812	State 68	0.474	State 67	0.702
State 71	0.470	State 72	0.599	State 73	0.480	State 74	0.691
State 78	0.491	State 79	0.589	State 80	0.467	State 81	0.692
State 91	0.485	State 90	0.589	State 89	0.463	State 88	0.699
State 92	0.481	State 93	0.590	State 94	0.459	State 95	0.711

LTE B26		NR Band n5		NR Band n66	
QPSK, 15 MHz, 1 RB, 36 RB Offset		DFT-s QPSK, 20 MHz, 50 RB, 28 RB Offset		DFT-s QPSK, 40 MHz, 1 RB, 1 RB Offset	
Test Position	Left Touch	Test Position	Left Touch	Test Position	Right Tilt
Frequency (MHz)	831.5	Frequency (MHz)	836.5	Frequency (MHz)	1745
Channel	26865	Channel	167300	Channel	349000
Measured 1g SAR(W/kg)	0.632	Measured 1g SAR(W/kg)	0.799	Measured 1g SAR(W/kg)	0.166
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.721	Auto-tune (State 1)	0.522	Auto-tune (State 0)	0.170
Default (State 0)	0.721	Default (State 0)	0.517	Default (State 0)	0.170
State 5	0.717	State 6	0.514	State 7	0.159
State 12	0.703	State 13	0.512	State 14	0.170
State 19	0.711	State 20	0.513	State 21	0.172
State 26	0.720	State 27	0.513	State 28	0.163
State 33	0.710	State 34	0.510	State 35	0.159
State 40	0.717	State 41	0.512	State 42	0.153
State 47	0.713	State 48	0.517	State 49	0.147
State 54	0.698	State 55	0.510	State 56	0.144
State 59	0.715	State 58	0.518	State 57	0.162
State 66	0.700	State 65	0.514	State 64	0.158
State 75	0.706	State 76	0.516	State 77	0.151
State 82	0.710	State 83	0.505	State 84	0.161
State 87	0.714	State 86	0.518	State 85	0.134

16.4 Body SAR Configuration for AG1

GSM 850		UMTS B5		LTE B12		LTE B13	
Voice		RMC		QPSK, 10 MHz, 1 RB, 0 RB offset		QPSK, 10 MHz, 1 RB, 24 RB	
Test Position	Rear	Test Position	Right	Test Position	Rear	Test Position	Rear
Frequency (MHz)	824.2	Frequency (MHz)	836.6	Frequency (MHz)	707.5	Frequency (MHz)	782
Channel	128	Channel	4183	Channel	23095	Channel	23230
Measured 1g SAR(W/kg)	0.684	Measured 1g SAR(W/kg)	0.511	Measured 1g SAR(W/kg)	0.436	Measured 1g SAR(W/kg)	0.423
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 0)	0.411	Auto-tune (State 0)	0.405	Auto-tune (State 0)	0.342	Auto-tune (State 0)	0.475
Default (State 0)	0.411	Default (State 0)	0.405	Default (State 0)	0.342	Default (State 0)	0.475
State 1	0.401	State 2	0.387	State 3	0.334	State 4	0.458
State 8	0.388	State 9	0.353	State 10	0.335	State 11	0.479
State 15	0.394	State 16	0.333	State 17	0.332	State 18	0.445
State 22	0.408	State 23	0.376	State 24	0.327	State 25	0.475
State 29	0.397	State 30	0.362	State 31	0.336	State 32	0.471
State 36	0.405	State 37	0.401	State 38	0.342	State 39	0.475
State 43	0.403	State 44	0.362	State 45	0.331	State 46	0.469
State 50	0.397	State 51	0.315	State 52	0.329	State 53	0.466
State 63	0.385	State 62	0.324	State 61	0.336	State 60	0.472
State 70	0.391	State 69	0.387	State 68	0.332	State 67	0.471
State 71	0.369	State 72	0.380	State 73	0.336	State 74	0.470
State 78	0.365	State 79	0.367	State 80	0.329	State 81	0.465
State 91	0.395	State 90	0.360	State 89	0.339	State 88	0.477
State 92	0.388	State 93	0.379	State 94	0.331	State 95	0.472

LTE B26		NR Band n5		NR Band n66	
QPSK, 15 MHz, 1 RB, 36 RB Offset		DFT-s QPSK, 20 MHz, 50 RB, 28 RB Offset		CP QPSK, 40 MHz, 1 RB, 1 RB Offset	
Test Position	Top	Test Position	Right	Test Position	Top
Frequency (MHz)	831.5	Frequency (MHz)	836.5	Frequency (MHz)	1745
Channel	26865	Channel	167300	Channel	349000
Measured 1g SAR(W/kg)	0.420	Measured 1g SAR(W/kg)	0.456	Measured 1g SAR(W/kg)	0.312
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.406	Auto-tune (State 1)	0.303	Auto-tune (State 0)	0.272
Default (State 0)	0.406	Default (State 0)	0.299	Default (State 0)	0.272
State 5	0.397	State 6	0.294	State 7	0.256
State 12	0.400	State 13	0.280	State 14	0.247
State 19	0.402	State 20	0.245	State 21	0.242
State 26	0.405	State 27	0.293	State 28	0.261
State 33	0.406	State 34	0.287	State 35	0.265
State 40	0.402	State 41	0.276	State 42	0.264
State 47	0.398	State 48	0.273	State 49	0.261
State 54	0.396	State 55	0.279	State 56	0.266
State 59	0.400	State 58	0.268	State 57	0.259
State 66	0.404	State 65	0.246	State 64	0.263
State 75	0.401	State 76	0.264	State 77	0.267
State 82	0.410	State 83	0.250	State 84	0.261
State 87	0.389	State 86	0.247	State 85	0.259

17. Measurement Uncertainty

The measured SAR was <1.5 W/Kg for 1g SAR and <3.75 W/Kg, for 10g SAR for all frequency Bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE1528-2013 was not required.

For SAR Measurement Uncertainty for Frequencies Above 6GHz

Measurement Uncertainty for handset SAR test According to IEEE 1528 and IEC 62209-1528 (6 - 10 GHz range)									
a	*b*	*c*	*d*	*e*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Source of uncertainty	**Simbol**	**Uncertainty ± %**	**Probability distribution**	**Div.**	**ci**	**ci**	**Standard Uncertainty**	**Standard Uncertainty**	**vi or veff**
Description					**(1 g)**	**(10 g)**	**± % (1 g)**	**± % (10 g)**	
Measurement system									
Probe calibration	CF	18.60	N	2	1	1	9.30	9.30	∞
Probe Calibration Drift	CFdrift	1.70	N	1	1	1	1.00	1.00	∞
Probe Linearity	LIN	4.70	R	1.73	1.00	1.00	2.71	2.71	∞
Broadband Signal	BBS	3.00	R	1.73	1.00	1.00	1.73	1.73	∞
Probe Isotropy	ISO	7.60	R	1.73	1	1	4.39	4.39	∞
Data Acquisition	DAE	2.40	N	1	1	1	2.40	2.40	∞
RF Ambient	AMB	1.80	N	1	1	1	1.80	1.80	∞
Probe Positioning	Δsys	0.20	N	1	0.33	0.33	0.07	0.07	∞
Data Processing	DAT	3.50	N	1	1	1	3.50	3.50	∞
Phantom and Device Errors									
Conductivity (meas.)DAK	LIQ(σ)	2.50	N	1	0.78	0.71	1.95	1.78	∞
Conductivity (temp.)BB	LIQ(Tσ)	3.40	R	1.73	0.78	0.71	1.53	1.39	∞
Phantom Permittivity	EPS	14.00	R	1.73	0.25	0.25	2.02	2.02	∞
Distance DUT - TSL	DAS	2.00	N	1	2	2	4.00	4.00	∞
Device Holder	H	3.60	N	1	1	1	3.60	3.60	∞
DUT Modulation	MOD	2.40	R	1.73	1	1	1.39	1.39	∞
DUT drift	RFdrift	2.50	N	1	1	1	2.50	2.50	∞
Deviation to Target	C(ε, σ)	1.90	N	1	1	0.84	1.90	1.60	∞
SAR scaling	C(R)	0.00	R	1.73	1	1	0.00	0.00	∞
Combined standard uncertainty	u(ΔSAR)		RSS				13.72	13.65	
Expanded uncertainty (95% confidence interval)	U		*k = 2*				**27.44**	**27.30**	

For Power Density Measurements Uncertainty for Frequencies Above 6GHz

DASY6 Uncertainty Budget for PD (avg ≥1cm2) Evaluation Distances to the Antennas ≥ λ/25 in Compliance with IEC/IEEE 63195						
Source of uncertainty Description	Uncertainty (±dB)	Probability distribution	Div.	ci	Standard Uncertainty (±dB)	(vi) veff
Uncertainty terms dependent on the measurement system						
Calibration	0.49	N	1	1	0.49	∝
Probe correction	0.00	R	1.73	1	0.00	∝
Frequency response (BW ≤ 1 GHz)	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	N	1	1	0.04	∝
Sensor mechanical offset	0.00	N	1	1	0.00	∝
Probe spatial resolution	0.00	N	1	1	0.00	∝
Field impedance dependence	0.00	N	1	1	0.00	∝
Measurement drift	0.05	N	1	1	0.05	∝
Amplitude and phase noise	0.04	N	1	1	0.04	∝
Measurement area truncation	0.00	N	1	1	0.00	∝
Data acquisition	0.03	N	1	1	0.03	∝
Sampling	0.00	N	1	1	0.00	∝
Field reconstruction	0.60	N	1	1	0.60	∝
Signal-to-Noise Ratio	0.00	N	1	1	0.00	∝
Spatial averaging	0.10	N	1	1	0.10	∝
Uncertainty terms dependent on the DUT and environmental factors						
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	N	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	∝
Laboratory Temperature	0.05	R	1.73	1	0.03	∝
Laboratory Reflections	0.04	R	1.73	1	0.02	∝
Immunity / secondary reception	0.00	R	1.73	1	0.00	∝
Drift of the DUT	-	R	1.73	1	-	∝
Combined uncertainty (k = 1)					0.75	∝
Expanded uncertainty(k = 2)					**1.51**	

18. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
SPEAG	ELI Phantom	-	N/A	N/A	N/A
SPEAG	cDASY6 5G Module Phantom		N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli #1-R	CS8Cspeag-TX90	F12/ 5K9GA1/ C/ 01	N/A	N/A	N/A
Staubli #3	CS9spe-TX2-90	F/24/0058554/C/001	N/A	N/A	N/A
Staubli #4	CS8Cspeag-TX90	F17/ 59CHA1/ C/ 01	N/A	N/A	N/A
Staubli #6	CS9spe-TX2-90	F/24/0058554/C/002	N/A	N/A	N/A
Staubli #7	CS8Cspeag-TX90	F08/5AJ0A1/C/01	N/A	N/A	N/A
Staubli #8	CS8Cspeag-TX60	F/20/0018446/C/001	N/A	N/A	N/A
Staubli #11	CS8Cspeag-TX60L	F10/5FN3A1/C/01	N/A	N/A	N/A
Staubli #1-R	TX90 XLspeag	F12/ 5K9GA1/ A/ 01	N/A	N/A	N/A
Staubli #3	TX2-90XL spe	F/24/0058554/A/001	N/A	N/A	N/A
Staubli #4	TX90 XLspeag	F17/ 59CHA1/ A/ 01	N/A	N/A	N/A
Staubli #6	TX2-90XL spe	F/24/0058554/A/002	N/A	N/A	N/A
Staubli #7	TX90 XLspeag	F08/5AJ0A1/A/01	N/A	N/A	N/A
Staubli #8	TX60 Lspeag	F/20/0018446/A/001	N/A	N/A	N/A
Staubli #11	TX90 Xlspeag	F10/5FN3A1/A/01	N/A	N/A	N/A
Staubli #1-R	Teach Pendant (Joystick)	D2114210603	N/A	N/A	N/A
Staubli #3	Teach Pendant (Joystick)	D21144508	N/A	N/A	N/A
Staubli #4	Teach Pendant (Joystick)	D21142606B	N/A	N/A	N/A
Staubli #6	Teach Pendant (Joystick)	D21144508	N/A	N/A	N/A
Staubli #7	Teach Pendant (Joystick)	D21143300	N/A	N/A	N/A
Staubli #8	Teach Pendant (Joystick)	D21142608A	N/A	N/A	N/A
Staubli #11	Teach Pendant (Joystick)	D21142602	N/A	N/A	N/A
TESTO 1-R	175-H1/Thermometer	40331936309	12/26/2023	Annual	12/26/2024
TESTO 3	175-H1/Thermometer	40331939309	12/26/2023	Annual	12/26/2024
TESTO 4	175-H1/Thermometer	40331915309	12/26/2023	Annual	12/26/2024
TESTO 6	175-H1/Thermometer	40332651310	12/26/2023	Annual	12/26/2024
TESTO 7	175-H1/Thermometer	40331949309	12/26/2023	Annual	12/26/2024
TESTO 8	175-H1/Thermometer	44606611906	03/20/2024	Annual	03/20/2025
TESTO 11	608-H1/Thermometer	2183499992	11/29/2023	Annual	11/29/2024
SPEAG	DAE4	446	09/03/2024	Annual	09/03/2025
SPEAG	DAE4	504	01/30/2024	Annual	01/30/2025
SPEAG	DAE4	652	01/17/2024	Annual	01/17/2025
SPEAG	DAE4	780	06/19/2024	Annual	06/19/2025
SPEAG	DAE4	1417	02/16/2024	Annual	02/16/2025
SPEAG	DAE4	1686	06/19/2024	Annual	06/19/2025
SPEAG	DAE4	1866	05/02/2024	Annual	05/02/2025
SPEAG	E-Field Probe EX3DV4	7654	05/22/2024	Annual	05/22/2025
SPEAG	E-Field Probe EX3DV4	7655	05/28/2024	Annual	05/28/2025
SPEAG	E-Field Probe EX3DV4	7679	08/22/2024	Annual	08/22/2025
SPEAG	E-Field Probe EX3DV4	7681	11/27/2023	Annual	11/27/2024
SPEAG	E-Field Probe EX3DV4	7751	09/19/2024	Annual	09/19/2025
SPEAG	E-Field Probe ES3DV3	3076	07/17/2024	Annual	07/17/2025
SPEAG	CLA13	1016	09/21/2023	Biennial	09/21/2025
SPEAG	Dipole D750V3	1014	05/20/2024	Annual	05/20/2025
SPEAG	Dipole D835V2	441	04/18/2024	Annual	04/18/2025
SPEAG	Dipole D1800V2	2d007	04/15/2024	Biennial	04/15/2026
SPEAG	Dipole D1900V2	5d032	01/18/2024	Annual	01/18/2025
SPEAG	Dipole D2450V2	743	03/14/2024	Annual	03/14/2025
SPEAG	Dipole D2600V2	1015	04/22/2024	Annual	04/22/2025
SPEAG	Dipole D5 GHz V2	1107	04/19/2024	Annual	04/19/2025

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	Dipole D6.5 GHz V2	1012	09/17/2024	Annual	09/17/2025
SPEAG	5G Verification Source 10 GHz	1018	04/17/2024	Annual	04/17/2025
Agilent	Power Meter E4419B	MY41291386	09/11/2024	Annual	09/11/2025
Agilent	Power Meter N1911A	MY45101406	05/21/2024	Annual	05/21/2025
Agilent	Power Sensor 8481A	SG1091286	09/12/2024	Annual	09/12/2025
H.P	Power Sensor 8481A	MY41090675	09/12/2024	Annual	09/12/2025
Agilent	Wideband Power Sensor N1921A	MY55220026	07/30/2024	Annual	07/30/2025
Agilent	11636B/Power Divider	58698	01/15/2024	Annual	01/15/2025
SPEAG	DAKS 3.5	1038	01/22/2024	Annual	01/22/2025
SPEAG	Vector Reflectometer	0141013	01/11/2024	Annual	01/11/2025
SPEAG	DAKS 12	1048	03/20/2024	Annual	03/20/2025
SPEAG	MXA Signal Analyzer	MY49100108	01/09/2024	Annual	01/09/2025
H.P	Network Analyzer /8753ES	JP39240221	12/26/2023	Annual	12/26/2024
Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	07/29/2024	Annual	07/29/2025
Agilent	WIRELESS COMMUNICATION E5515C	MY50260992	05/22/2024	Annual	05/22/2025
R&S	Wireless Communication Test Set CMW500	115733	03/19/2024	Annual	03/19/2025
Agilent	SIGNAL GENERATOR N5182A	MY47070230	03/19/2024	Annual	03/19/2025
EMPOWER	RF Power Amplifier	1084	05/21/2024	Annual	05/21/2025
EMPOWER	RF Power Amplifier	1041D/C0508	05/21/2024	Annual	05/21/2025
EMPOWER	RF Power Amplifier	1011	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-15N	10453	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-30N	-	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-60N	32011	09/11/2024	Annual	09/11/2025
Agilent	Attenuator (3dB) 8693B	MY39260298	08/20/2024	Annual	08/20/2025
HP	Attenuator (20dB) 8493C	09271	08/20/2024	Annual	08/20/2025
Agilent	Directional Bridge 86205A	3140A04581	04/22/2024	Annual	04/22/2025
Agilent	MXA Signal Analyzer N9020A	MY50510407	06/04/2024	Annual	06/04/2025
KEYSIGHT	EXG Vector Signal Generator	MY50350097	03/05/2024	Annual	03/05/2025
HP	Dual Directional Coupler	16072	09/11/2024	Annual	09/11/2025
Anritsu	Radio Communication Test Station MT8000A	6262036812	11/28/2023	Annual	11/28/2024
Anritsu	Radio Communication Tester MT8820C	6201074225	01/17/2024	Annual	01/17/2025
Anritsu	Radio Communication Tester MT8820C	6200695605	03/19/2024	Annual	03/19/2025
Anritsu	Radio Communication Tester MT8821C	6201502997	05/21/2024	Annual	05/21/2025
Anritsu	Radio Communication Tester MT8821C	6262044720	11/28/2023	Annual	11/28/2024
Anritsu	Radio Communication Tester MT8821C	6201664725	01/17/2024	Annual	01/17/2025
ROHDE&SCHWARZ	BLUETOOTH TESTER CBT	100272	01/16/2024	Annual	01/16/2025

* The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

19. Conclusion

The SAR and RF Exposure measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 2005.

These measurements were taken to simulate the RF effects 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 abortion and distribution of electromagnetic energy in the body are very complex phenomena the 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.

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Appendix A. DUT Ant. Information & SETUP PHOTO

Please refer to test DUT Ant. Information &setup photo file no. as follows:

Report No.
HCT-SR-2412-FC003-P