



ELEMENT MATERIALS TECHNOLOGY

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RF EXPOSURE PART 1 TEST REPORT

Applicant Name:

Samsung Electronics Co., Ltd.
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Gyeonggi-do, 16677, Korea

Date of Testing:

11/06/2024 - 11/25/2024

Test Site/Locations:

Element, Columbia, MD, USA
Element, Suwon, Korea

Document Serial No.:

1M2408260070-01.A3L

FCC ID:

A3LSMS938JPN

APPLICANT:

SAMSUNG ELECTRONICS CO., LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SC-52F

Additional Model(s):

SCG32

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	GSMGPRS/EDGE 850	824.20 - 848.80 MHz	0.90	0.59	0.62	N/A
PCE	GSMGPRS/EDGE 1900	1850.20 - 1909.80 MHz	<0.1	0.37	0.65	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	1.02	0.46	0.71	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	1.01	0.34	0.48	N/A
PCE	LTE Band 13	776.5 - 784.5 MHz	1.12	0.46	0.69	N/A
PCE	LTE Band 5	824.7 - 848.3 MHz	1.13	0.55	0.69	N/A
PCE	LTE Band 66	1710.7 - 1779.3 MHz	0.19	0.51	1.03	N/A
PCE	LTE Band 4	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 2	1850.7 - 1909.3 MHz	0.10	0.50	0.99	N/A
PCE	LTE Band 41	2486.5 - 2687.5 MHz	0.90	0.43	0.61	N/A
PCE	NR Band n5	650.5 - 696.5 MHz	1.16	0.44	0.80	N/A
PCE	NR Band n66	1712.5 - 1777.5 MHz	1.17	0.51	1.17	N/A
PCE	NR Band n61	2501.01 - 2685 MHz	1.05	0.41	0.54	N/A
DTS	2.4 GHz WiFi	2412 - 2472 MHz	0.76	0.39	0.64	N/A
NI	5 GHz WiFi	UNB-1: 5180 - 5240 MHz				
		UNB-2A: 5260 - 5320 MHz	0.99	0.49	0.59	2.62
		UNB-2C: 5500 - 5720 MHz				
		UNB-3: 5745 - 5825 MHz				
6CD	6 GHz WiFi	UNB-4: 5845 - 5985 MHz				
		UNB-5: 5935 - 6415 MHz				
		UNB-6: 6435 - 6515 MHz	0.70	<0.1	N/A	0.38
		UNB-7: 6535 - 6875 MHz				
DSS	2.4 GHz Bluetooth	UNB-8: 6895 - 7115 MHz				
		2402 - 2480 MHz	0.99	0.17	0.53	N/A
DOX	NFC	13.56 MHz	N/A	N/A	N/A	<0.1
UWB	UWB	6499.5 - 7967.2 MHz	N/A	N/A	N/A	<0.1
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.51	1.59	2.62
Equipment Class	Band & Mode	Tx Frequency	APD (W/m²)			Reported PD (W/m²)
			Head	Body-Worn	Phablet	
6CD	6 GHz WiFi	UNB-5: 5935 - 6415 MHz				
		UNB-6: 6435 - 6515 MHz	4.17	0.58	8.94	7.24
		UNB-7: 6535 - 6875 MHz				
		UNB-8: 6895 - 7115 MHz				
UWB	UWB	6499.5 - 7967.2 MHz	N/A	N/A	0.02	2.01

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 2.9 of this report; for North American frequency bands only.

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


RJ Ortanez
Executive Vice President



The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 1 of 107

REV 22.0

03/30/2022

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TABLE OF CONTENTS

1	TEST LABORATORY INFORMATION.....	3
2	DEVICE UNDER TEST	4
3	LTE AND NR INFORMATION	22
4	INTRODUCTION	24
5	DOSIMETRIC ASSESSMENT	25
6	DEFINITION OF REFERENCE POINTS.....	26
7	TEST CONFIGURATION POSITIONS.....	27
8	RF EXPOSURE LIMITS	31
9	FCC MEASUREMENT PROCEDURES.....	33
10	RF CONDUCTED POWERS	39
11	SYSTEM VERIFICATION.....	70
12	SAR DATA SUMMARY	76
13	POWER DENSITY DATA SUMMARY	95
14	SAR MEASUREMENT VARIABILITY	97
15	ADDITIONAL TESTING PER FCC GUIDANCE	98
16	EQUIPMENT LIST	101
17	MEASUREMENT UNCERTAINTIES.....	102
18	CONCLUSION.....	105
19	REFERENCES	106
APPENDIX A: SAR TEST PLOTS		
APPENDIX B: SAR DIPOLE VERIFICATION PLOTS		
APPENDIX C: PROBE AND DIPOLE CALIBRATION CERTIFICATES		
APPENDIX D: SAR TISSUE SPECIFICATIONS		
APPENDIX E: MULTI-TX AND ANTENNA SAR CONSIDERATIONS		
APPENDIX F: POWER REDUCTION VERIFICATION		
APPENDIX G: SAR SYSTEM VALIDATION		
APPENDIX H: LTE AND NR LOWER BANDWIDTH RF CONDUCTED POWERS		
APPENDIX I: RU SAR EXCLUSION		
APPENDIX J: DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS		
APPENDIX K: FCC ID A3LSMS938U UNLICENSED SAR REFERENCE TEST DATA		

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 2 of 107

REV 22.0
03/30/2022


1 TEST LABORATORY INFORMATION

1.1 Introduction


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

1.2 Test Laboratories Information

1.2.1 Testing Laboratory 1

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY WASHINGTON DC LLC
Test Lab Location	7185 Oakland Mills Road, Columbia, MD 21046, United States Tel. +1.410.290.6652 / Fax +1.410.381.1520
Accreditation Info.	Lab Code. (ISED): 2451B
	CAB Identifier (NIST): US0110
	ISO/IEC 17025 (A2LA): CERT #2041.01
	
Measurement System No.	G, P, O, C, R

1.2.2 Testing Laboratory 2

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY SUWON, LTD.
Test Lab Location	(Tower-dong#P136) 13, Heungdeok 1-ro, Giheung-gu, Yongin-si, Gyeonggi-do, 16954, South Korea Tel. +82.31.660.7391 / Fax +82)31-660-7318
Accreditation Info.	Lab Code. (ISED): 26168
	CAB Identifier (NIST): KR0169
	ISO/IEC 17025 (A2LA): CERT #2041.04
	
Measurement System No.	K2, K3, K4, K6

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 3 of 107

REV 22.0
03/30/2022

2 DEVICE UNDER TEST

2.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 5	Voice/Data	824.7 - 848.3 MHz
LTE Band 66	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 2	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
NR Band n5	Voice/Data	826.5 - 846.5 MHz
NR Band n66	Voice/Data	1712.5 - 1777.5 MHz
NR Band n41	Voice/Data	2501.01 - 2685 MHz
2.4 GHz WIFI	Voice/Data	2412 - 2462 MHz
5 GHz WIFI	Voice/Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz
6 GHz WIFI	Voice/Data	U-NII-5: 5935 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
UWB	Data	6489.6 - 7987.2 MHz

2.2 Data Referencing

Reference Device		Variant Device	Key differences
FCC ID: A3LSMS938U		FCC ID: A3LSMS938JPN	See change documentation
Equipment Class	Mode	Data Referencing	Comments
DTS	2.4 GHz WIFI	Y	See RF Exposure Report Sections 12.13 through 12.14 for spot-check data
NII	5 GHz WIFI	Y	See RF Exposure Report Sections 12.15 through 12.16 for spot-check data
6CD	6 GHz WIFI	Y	See RF Exposure Report Sections 12.17 through 12.18 for spot-check and tested data

Per manufacturer declaration, there are two Portable Handset devices FCC ID: A3LSMS938U and FCC ID: A3LSMS938JPN, with high degree of similarity, reference model FCC ID: A3LSMS938U and variant model FCC ID: A3LSMS938JPN. Both models share the same material, form factor, circuit design, and components, including antennas and their locations. The reference and variant models use the same material, form factor, circuit design, and components, including antennas and their locations. The reference and variant models use the same power tables and have same tune-up tolerances.

Per FCC Approved Data Referencing Test Plan, testing was done fully on the reference model FCC ID:

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 4 of 107

REV 22.0
03/30/2022

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A3LSMS938U, while spot-check verification has been performed on variant model FCC ID: A3LSMS938JPN. The spot check verification has been performed in the worst case for each exposure/each antenna condition and if the spot check SAR value was higher, it was applied to the simultaneous transmission results and SAR CHAR on variant model FCC ID: A3LSMS938JPN. The reference and variant model comparison data summary is included in section 12(12.13 to 12.18). Please see RF exposure technical reports in Appendix K: for complete compliance evaluation for the reference model.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 5 of 107

REV 22.0
03/30/2022

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2.3 Time-Averaged Algorithm

This Device is enabled with the Qualcomm® Smart Transmit Gen2 feature with antenna grouping. This feature performs time-averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of Qualcomm® Smart Transmit feature (report SN could be found in Section 2.11– Bibliography).

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., P_{limit} for WWAN sub-6/WLAN/BT radio), for each characterized technology and band. Characterization is achieved by determining P_{limit} for WWAN sub-6/WLAN/BT that corresponds to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR_{design_target} (<FCC SAR Limit) for sub-6 radio. The SAR characterization is denoted as SAR char in this report (see SAR Summary Section and Part 0 SAR Test Results for P_{limit} Calculations Appendix).

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 6 of 107

REV 22.0
03/30/2022

Exposure Scenario			Maximum Tune-Up Output Power*	Body-Worn, Hotspot, or Phablet	Head
Averaging Volume				1g/10g	1g
Spacing				10mm, 0mm	0mm
Configuration					
DSI				0	1
Technology/Band	Antenna	Antenna Group	P _{max}	P _{limit}	P _{limit}
GSM 850	A	AG0	25.3	29.5	34.4
GSM 850	E	AG1	25.3	26.6	20.3
GSM 1900	A	AG0	22.1	18.8	34.8
UMTS 850	A	AG0	24.0	26.7	32.4
UMTS 850	E	AG1	24.0	26.5	20.5
LTE Band 12	A	AG0	24.0	26.9	32.1
LTE Band 12	E	AG1	24.0	26.1	21.5
LTE Band 13	A	AG0	24.0	28.6	31.7
LTE Band 13	E	AG1	24.0	26.9	21.5
LTE Band 5	A	AG0	24.0	27.2	32.7
LTE Band 5	E	AG1	24.0	26.5	21.0
LTE Band 66/4	A	AG0	23.5	19.0	31.8
LTE Band 2	A	AG0	23.5	18.0	32.4
LTE Band 41	B	AG0	22.0	20.0	34.4
LTE Band 41	F	AG1	22.0	19.5	16.0
NR Band n5	A	AG0	24.0	26.0	31.7
NR Band n5	E	AG1	24.0	25.9	21.0
NR Band n66	A	AG0	23.5	19.0	31.5
NR Band n66	F	AG1	23.5	20.5	18.5
NR Band n41 PC2 (Path1)	F	AG1	26.0	19.5	16.5
NR Band n41 PC2 (Path 2)	B	AG0	26.0	20.0	21.0
2.4 GHz WIFI	H	AG1	19.0	19.5	16.0
2.4 GHz WIFI	J	AG1	19.0	30.2	16.0
2.4 GHz WIFI	MIMO	AG1	17.0	19.4	16.0
5 GHz WIFI	H	AG1	17.0	15.0	15.0
5 GHz WIFI	E	AG1	17.0	15.0	15.0
5 GHz WIFI	MIMO	AG1	17.0	15.0	15.0
6 GHz WIFI	H	AG1	16.0	8.0	18.5
6 GHz WIFI	E	AG1	16.0	8.0	22.9
6 GHz WIFI	MIMO	AG1	16.0	8.0	18.5
2.4 GHz Bluetooth	H	AG1	17.4	20.0	18.4
2.4 GHz Bluetooth	J	AG1	17.4	25.3	21.0
2.4 GHz Bluetooth	MIMO	AG1	13.4	19.8	18.1

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 7 of 107

REV 22.0
03/30/2022

2.4 Nominal and Maximum Output Power Specifications

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

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

2.4.1 Licensed Output Power

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 8 of 107

UMTS Band 5 (850 MHz)				
Antenna A				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Pmax	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
DSI = 1 (Head)	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
UMTS Band 5 (850 MHz)				
Antenna E				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Pmax	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
DSI = 1 (Head)	Max Allowed Power	21.5	20.5	20.5
	Nominal	20.5	19.5	19.5

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 9 of 107

REV 22.0
03/30/2022

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 10 of 107

REV 22.0
03/30/2022

Mode / Band	Antenna		Modulated Average Output Power (in		
			Pmax	DSI = 0 (Body-Worn, Hotspot, or Phablet)	DSI = 1 (Head)
NR Band n5	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
NR Band n5	E	Max Allowed Power	25.0	25.0	22.0
		Nominal	24.0	24.0	21.0
NR Band n66	A	Max Allowed Power	24.5	20.0	24.5
		Nominal	23.5	19.0	23.5
NR Band n66	F	Max Allowed Power	24.5	21.5	19.5
		Nominal	23.5	20.5	18.5
NR Band n41 PC2 (Path1)	F	Max Allowed Power	27.0	20.5	17.5
		Nominal	26.0	19.5	16.5
NR Band n41 PC2 (Path 2)	B	Max Allowed Power	27.0	21.0	22.0
		Nominal	26.0	20.0	21.0

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 11 of 107

REV 22.0
03/30/2022



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

The below table is applicable in the following conditions:

- DSI=1 (RCV)

2.4.3 5 GHz WLAN Output Power

- P_{max}

The below table is applicable in the following conditions:

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 12 of 107

The below table is applicable in the following conditions:

- DSI=1 (RCV)

[illegible]

2.4.4 6 GHz WLAN Output Power

The below table is applicable in the following conditions:

- $P_{\max, \text{DIS}=1}(\text{Head})$

			IEEE 802.11 Modulated Output Power (in dBm)																			
Power Level	Mode	Band	SISO						SISO						SISO in MIMO							
			Antenna H				Antenna E								MIMO							
			a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)			
Maximum / Nominal Power			Max		Nom.	Max		Nom.	Max		Nom.	Max		Nom.	Max		Nom.	Max		Nom.		
Pmax	6 GHz WiFi (20MHz BW) - SP	UNII-5	17.0		16.0	17.0		16.0	17.0		16.0	17.0		16.0	17.0		16.0	17.0		16.0		
			ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0		
		UNII-7	17.0		16.0	17.0		16.0	17.0		16.0	17.0		16.0	17.0		16.0	17.0		16.0		
		UNII-5	17.0		16.0	17.0		16.0					17.0		16.0					17.0		16.0
													17.0		16.0					17.0		16.0
		UNII-7	17.0		16.0	17.0		16.0					17.0		16.0					17.0		16.0
													17.0		16.0					17.0		16.0
		UNII-5	16.0		15.0	16.0		15.0					16.0		15.0					16.0		15.0
													16.0		15.0					16.0		15.0
		UNII-7	16.0		15.0	16.0		15.0					16.0		15.0					16.0		15.0
													16.0		15.0					16.0		15.0
6 GHz WiFi (160MHz BW) - SP	UNII-5	15.0		14.0	15.0		14.0					15.0		14.0					15.0		14.0	
												15.0		14.0					15.0		14.0	
	UNII-7	14.5		13.5	14.5		13.5					14.5		13.5					14.5		13.5	
												14.5		13.5					14.5		13.5	
6 GHz WiFi (320MHz BW) - SP	UNII-5	15.0		14.0	15.0		14.0					15.0		14.0					15.0		14.0	
												15.0		14.0					15.0		14.0	
UNII-7	14.5		13.5	14.5		13.5					14.5		13.5					14.5		13.5		
											14.5		13.5					14.5		13.5		

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 13 of 107

Mode	Band	IEEE 802.11 Modulated/Frame Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	
6 GHz WiFi (20MHz BW) - VLP	UNII-5	5.5	4.5	6.0	5.0	6.0	5.0	5.5	4.5	6.0	5.0	6.0	5.0	5.5	4.5	6.0	5.0	6.0	5.0
	UNII-7	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
6 GHz WiFi (40MHz BW) - VLP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0
6 GHz WiFi (80MHz BW) - VLP	UNII-5			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
	UNII-7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
6 GHz WiFi (160MHz BW) - VLP	UNII-5			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
	UNII-7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0
6 GHz WiFi (320MHz BW) - VLP	UNII-5					12.0	11.0					12.0	11.0					12.0	11.0
	UNII-7					12.0	11.0					12.0	11.0					12.0	11.0

The below table is applicable in the following conditions:

- DSI=0 (Body-worn or Phablet)

Power Level	Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)																			
			SISO						SISO						SISO in MIMO							
			Antenna H						Antenna E						MIMO							
			a		ax (SU)		be (SU)				a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power			Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
DSI = 0 (Body-Worn, Hotspot, or Phablet)	6 GHz WiFi (20MHz BW) - SP	UNII-5	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
			ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0	ch. 2: 8.0	7.0	ch. 2: 7.0	6.0	ch. 2: 7.0	6.0		
	UNII-7	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	
	6 GHz WiFi (40MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
	6 GHz WiFi (80MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
	6 GHz WiFi (160MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
6 GHz WiFi (320MHz BW) - SP	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			
	UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			
Power Level	Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)																			
			SISO						SISO						SISO in MIMO							
			Antenna H						Antenna E						MIMO							
			a		ax (SU)		be (SU)				a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power			Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
DSI = 0 (Body-Worn, Hotspot, or Phablet)	6 GHz WiFi (20MHz BW) - LPI	UNII-5	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
		UNII-6	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
		UNII-7	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
		UNII-8	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0	9.0	8.0
	6 GHz WiFi (40MHz BW) - LPI	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-6			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-8			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
	6 GHz WiFi (80MHz BW) - LPI	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-6			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-8			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
	6 GHz WiFi (160MHz BW) - LPI	UNII-5			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-6			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-7			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
		UNII-8			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0			9.0	8.0	9.0	8.0		
	6 GHz WiFi (320MHz BW) - LPI	UNII-5					9.0	8.0					9.0	8.0					9.0	8.0		
		UNII-6					9.0	8.0					9.0	8.0					9.0	8.0		
		UNII-7					9.0	8.0					9.0	8.0					9.0	8.0		
		UNII-8					9.0	8.0					9.0	8.0					9.0	8.0		

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

2.4.5 2.4 GHz Maximum Bluetooth Output Power

The below table is applicable in the following conditions:

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

			Modulated Output Power (in dBm)					
Power Level	Mode	Data Rate	Single Antenna				Each Chain in Dual Mode	
			Antenna H		Antenna J		SISO in MIMO	
Maximum / Nominal Power			Max	Nom.	Max	Nom.	Max	Nom.
Pmax	Bluetooth	1Mbps	19.5	18.5	19.5	18.5	15.5	14.5
	Bluetooth EDR	2Mbps	16.5	15.5	16.5	15.5	12.5	11.5
	Bluetooth EDR	3Mbps	16.0	15.0	16.0	15.0	12.5	11.5
	Bluetooth LE	1Mbps	11.5	10.5	11.5	10.5	N/A	N/A
	Bluetooth LE	2Mbps	11.5	10.5	11.5	10.5	N/A	N/A
	Bluetooth LE	125kbps	13.0	12.0	13.0	12.0	N/A	N/A
	Bluetooth LE	500kbps	13.0	12.0	13.0	12.0	N/A	N/A

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 15 of 107

REV 22.0
03/30/2022

2.5 DUT Antenna Locations

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

Table 2-1
Device Edges/Sides for SAR Testing

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

Note: Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D01v06r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-1, U-NII-2A, U-NII-2C, U-NII-4, and WIFI6E operations are disabled.

2.6 Near Field Communications (NFC) Antenna

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

2.7 Simultaneous Transmission Capabilities

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 16 of 107

REV 22.0
03/30/2022

**Table 2-2
Simultaneous Transmission Scenarios**

No.	Capable Transmit Configuration	Head	Body Worn Accessory	Wireless Router	Phablet	Notes
1	GSM voice + 2.4 GHz Bluetooth SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
2	GSM voice + 2.4 GHz Bluetooth Dual	Yes	Yes	N/A	Yes	
3	GSM voice + 2.4 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
4	GSM voice + 2.4 GHz WLAN SISO	Yes	Yes	N/A	Yes	
5	GSM voice + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
6	GSM voice + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	
7	GSM voice + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
8	GSM voice + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
9	GSM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
10	GSM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	
11	GSM voice + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
12	GSM voice + 2.4 GHz WLAN MIMO + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
13	GSM voice + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
14	GSM voice + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	
15	GSM voice + 2.4 GHz WLAN SISO + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
16	GSM voice + 2.4 GHz WLAN SISO + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
17	GSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
18	GSM voice + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
19	GSM voice + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
20	GSM voice + 2.4 GHz Bluetooth SISO + 6 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
21	GSM voice + 2.4 GHz Bluetooth SISO + 6 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
22	GSM voice + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
23	GSM voice + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	
24	GSM voice + 2.4 GHz Bluetooth Dual + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
25	GSM voice + 2.4 GHz Bluetooth Dual + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
26	GSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
27	GSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
28	GSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
29	GSM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
30	UMTS/LTE/NR + 2.4 GHz Bluetooth SISO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
31	UMTS/LTE/NR + 2.4 GHz Bluetooth Dual	Yes	Yes	N/A	Yes	
32	UMTS/LTE/NR + 2.4 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
33	UMTS/LTE/NR + 2.4 GHz WLAN SISO	Yes	Yes	Yes	Yes	
34	UMTS/LTE/NR + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
35	UMTS/LTE/NR + 5 GHz WLAN SISO	Yes	Yes	Yes	Yes	
36	UMTS/LTE/NR + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
37	UMTS/LTE/NR + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
38	UMTS/LTE/NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
39	UMTS/LTE/NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	Yes	Yes	
40	UMTS/LTE/NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
41	UMTS/LTE/NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
42	UMTS/LTE/NR + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
43	UMTS/LTE/NR + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	Yes	Yes	
44	UMTS/LTE/NR + 2.4 GHz WLAN SISO + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
45	UMTS/LTE/NR + 2.4 GHz WLAN SISO + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
46	UMTS/LTE/NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
47	UMTS/LTE/NR + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
48	UMTS/LTE/NR + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
49	UMTS/LTE/NR + 2.4 GHz Bluetooth SISO + 6 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
50	UMTS/LTE/NR + 2.4 GHz Bluetooth SISO + 6 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
51	UMTS/LTE/NR + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
52	UMTS/LTE/NR + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	
53	UMTS/LTE/NR + 2.4 GHz Bluetooth Dual + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
54	UMTS/LTE/NR + 2.4 GHz Bluetooth Dual + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
55	UMTS/LTE/NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN MIMO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
56	UMTS/LTE/NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN SISO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
57	UMTS/LTE/NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
58	UMTS/LTE/NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
59	LTE + NR	Yes	Yes	N/A	Yes	
60	LTE + NR + 2.4 GHz Bluetooth SISO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
61	LTE + NR + 2.4 GHz Bluetooth Dual	Yes	Yes	N/A	Yes	
62	LTE + NR + 2.4 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
63	LTE + NR + 2.4 GHz WLAN SISO	Yes	Yes	Yes	Yes	
64	LTE + NR + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
65	LTE + NR + 5 GHz WLAN SISO	Yes	Yes	Yes	Yes	
66	LTE + NR + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
67	LTE + NR + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
68	LTE + NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
69	LTE + NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	Yes	Yes	
70	LTE + NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
71	LTE + NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
72	LTE + NR + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	Yes	Yes	
73	LTE + NR + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	Yes	Yes	
74	LTE + NR + 2.4 GHz WLAN SISO + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
75	LTE + NR + 2.4 GHz WLAN SISO + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
76	LTE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
77	LTE + NR + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
78	LTE + NR + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
79	LTE + NR + 2.4 GHz Bluetooth SISO + 6 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
80	LTE + NR + 2.4 GHz Bluetooth SISO + 6 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
81	LTE + NR + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
82	LTE + NR + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	
83	LTE + NR + 2.4 GHz Bluetooth Dual + 6 GHz WLAN MIMO	Yes	Yes	N/A	Yes	
84	LTE + NR + 2.4 GHz Bluetooth Dual + 6 GHz WLAN SISO	Yes	Yes	N/A	Yes	
85	LTE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN MIMO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
86	LTE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN SISO	Yes*	Yes	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
87	LTE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
88	LTE + NR + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN SISO	Yes*	Yes	N/A	Yes	* Bluetooth Tethering is considered only on Ant H
89	GPB/EDGE + 2.4 GHz Bluetooth SISO	N/A	N/A	Yes*	Yes	* Bluetooth Tethering is considered only on Ant H
90	GPB/EDGE + 2.4 GHz Bluetooth Dual	N/A	N/A	Yes	Yes	
91	GPB/EDGE + 2.4 GHz WLAN MIMO	N/A	N/A	Yes	Yes	
92	GPB/EDGE + 2.4 GHz WLAN SISO	N/A	N/A	N/A	Yes	
93	GPB/EDGE + 5 GHz WLAN MIMO	N/A	N/A	Yes	Yes	
94	GPB/EDGE + 5 GHz WLAN SISO	N/A	N/A	Yes	Yes	
95	GPB/EDGE + 6 GHz WLAN MIMO	N/A	N/A	N/A	Yes	
96	GPB/EDGE + 6 GHz WLAN SISO	N/A	N/A	N/A	Yes	
97	GPB/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	N/A	N/A	Yes	Yes	
98	GPB/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	N/A	N/A	Yes	Yes	
99	GPB/EDGE + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	N/A	N/A	N/A	Yes	
100	GPB/EDGE + 2.4 GHz WLAN MIMO + 6 GHz WLAN SISO	N/A	N/A	N/A	Yes	
101	GPB/EDGE + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	N/A	N/A	Yes	Yes	
102	GPB/EDGE + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	N/A	N/A	Yes	Yes	
103	GPB/EDGE + 2.4 GHz WLAN SISO + 6 GHz WLAN MIMO	N/A	N/A	N/A	Yes	
104	GPB/EDGE + 2.4 GHz WLAN SISO + 6 GHz WLAN SISO	N/A	N/A	N/A	Yes	
105	GPB/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J	N/A	N/A	Yes*	Yes	* Bluetooth Tethering is considered
106	GPB/EDGE + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	N/A	N/A	Yes*	Yes	* Bluetooth Tethering is considered
107	GPB/EDGE + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	N/A	N/A	Yes*	Yes	* Bluetooth Tethering is considered
108	GPB/EDGE + 2.4 GHz Bluetooth SISO + 6 GHz WLAN MIMO	N/A	N/A	N/A	Yes	
109	GPB/EDGE + 2.4 GHz Bluetooth SISO + 6 GHz WLAN SISO	N/A	N/A	N/A	Yes	
110	GPB/EDGE + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	N/A	N/A	Yes	Yes	
111	GPB/EDGE + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	N/A	N/A	Yes	Yes	
112	GPB/EDGE + 2.4 GHz Bluetooth Dual + 6 GHz WLAN MIMO	N/A	N/A	N/A	Yes	
113	GPB/EDGE + 2.4 GHz Bluetooth Dual + 6 GHz WLAN SISO	N/A	N/A	N/A	Yes	
114	GPB/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN MIMO	N/A	N/A	Yes*	Yes	* Bluetooth Tethering is considered
115	GPB/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 5 GHz WLAN SISO	N/A	N/A	Yes*	Yes	* Bluetooth Tethering is considered
116	GPB/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN MIMO	N/A	N/A	N/A	Yes	
117	GPB/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant J + 6 GHz WLAN SISO	N/A	N/A	N/A	Yes	

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 17 of 107

REV 22.0
03/30/2022

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1. No other simultaneous scenarios besides described above is supported for this model.
2. SISO represents 2.4 GHz WLAN/BT transmission on Ant H or Ant J, and 5/6 GHz transmission on Ant H or Ant E.
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. 6 GHz Wireless Router is not supported, therefore it was not evaluated for wireless router conditions.
7. This device supports 2x2 MIMO Tx for WLAN 802.11a/b/g/n/ac/ax/be. 802.11a/b/g/n/ac/ax/be supports CDD and STBC and 802.11n/ac/ax/be additionally supports SDM.
8. This device supports VoWIFI.
9. This device supports Bluetooth Tethering on Ant H only.
10. This device supports VoLTE.
11. This device supports VoNR.
12. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
13. UWB and NFC were evaluated for phablet based on expected usage conditions.

2.8 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

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

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

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 18 of 107

REV 22.0
03/30/2022



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

(B) Licensed Transmitter(s)

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

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

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

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

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

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

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

This device can transmit with antenna switching for bands/modes on antenna A, B, E, and F. SAR tests were performed for each antenna where switching is used per band/mode to ensure compliance. Antennas and indicated band/modes are included in section 2.4.1 of this report.

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.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 19 of 107

REV 22.0
03/30/2022

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

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

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

2.9 Guidance Applied

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 20 of 107

REV 22.0
03/30/2022

2.10 Device Serial Numbers

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

2.11 Bibliography

Report Type	Report Serial Number
RF Exposure Part 0 Test Report	1M2408260070-02.A3L
RF Exposure Part 2 Test Report	1M2408260070-04.A3L
RF Exposure Compliance Summary Report	1M2408260070-03.A3L

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 21 of 107

REV 22.0
03/30/2022

3 LTE AND NR INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12: 699.7 - 715.3 MHz				
	LTE Band 13: 779.5 - 784.5 MHz				
	LTE Band 5: 824.7 - 848.3 MHz				
	LTE Band 66: 1710.7 - 1779.3 MHz				
	LTE Band 4: 1710.7 - 1754.3 MHz				
	LTE Band 2: 1850.7 - 1909.3 MHz				
	LTE Band 41: 2498.5 - 2687.5 MHz				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 5: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	(N/A)		782 (23230)	(N/A)	
LTE Band 5: 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5: 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5: 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5: 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66: 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66: 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66: 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66: 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66: 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66: 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4: 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4: 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4: 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4: 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4: 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4: 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 2: 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2: 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2: 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2: 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2: 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2: 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	UL UE Cat: 13, DL UE Cat: 20				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 16. It supports carrier aggregation, downlink MIMO features as shown in the RF Conducted Powers section of this report and the Downlink LTE CA RF Conducted Powers Appendix. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 16 Features are not supported: Relay, HetNet, Enhanced MIMO, eCIC, eMBMS, Wifi Offloading, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 22 of 107

REV 22.0
03/30/2022

NR Information					
Form Factor	Portable Handset				
Frequency Range of each NR transmission band	NR Band n5: 826.5 - 846.5 MHz				
	NR Band n66: 1712.5 - 1777.5 MHz				
	NR Band n41: 2501.01 - 2685 MHz				
Channel Bandwidths	NR Band n5: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n66: 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 35 MHz, 40 MHz, 45 MHz				
	NR Band n41: 10 MHz, 15 MHz, 20 MHz, 30 MHz, 35 MHz, 40 MHz, 45 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz				
Channel Numbers and Frequencies (MHz)					
NR Band n5: 5 MHz	826.5 (165300)		836.5 (167300)		846.5 (169300)
NR Band n5: 10 MHz	829 (165800)		836.5 (167300)		844 (168800)
NR Band n5: 15 MHz	831.5 (166300)		836.5 (167300)		841.5 (168300)
NR Band n5: 20 MHz	834 (166800)		836.5 (167300)		839 (167800)
NR Band n66: 5 MHz	1712.5 (342500)		1745 (349000)		1777.5 (355500)
NR Band n66: 10 MHz	1715 (343000)		1745 (349000)		1775 (355000)
NR Band n66: 15 MHz	1717.5 (343500)		1745 (349000)		1772.5 (354500)
NR Band n66: 20 MHz	1720 (344000)		1745 (349000)		1770 (354000)
NR Band n66: 25 MHz	1722.5 (344500)		1745 (349000)		1767.5 (353500)
NR Band n66: 30 MHz	1725 (345000)		1745 (349000)		1765 (353000)
NR Band n66: 35 MHz	1727.5 (345500)		1745 (349000)		1762.5 (352500)
NR Band n66: 40 MHz	1730 (346000)		1745 (349000)		1760 (352000)
NR Band n66: 45 MHz	1732.5 (346500)		1745 (349000)		1757.5 (351500)
NR Band n41: 10 MHz	2501.01 (500202)	2547 (509400)	2592.99 (518598)	2639.01 (527802)	2685 (537000)
NR Band n41: 15 MHz	2503.5 (500700)	2548.26 (509652)	2592.99 (518598)	2637.75 (527550)	2682.51 (536502)
NR Band n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)	2636.49 (527298)	2679.99 (535998)
NR Band n41: 25 MHz	2508.51 (501702)	2550.75 (510150)	2592.99 (518598)	2635.26 (527052)	2677.5 (535500)
NR Band n41: 30 MHz	2511 (502200)	2552.01 (510402)	2592.99 (518598)	2634 (526800)	2674.98 (534996)
NR Band n41: 35 MHz	2513.52 (502704)	2553.24 (510648)	2592.99 (518598)	2632.74 (526548)	2672.49 (534498)
NR Band n41: 40 MHz	2516.01 (523202)	2567.34 (513468)	(N/A)	2618.67 (523734)	2670 (534000)
NR Band n41: 45 MHz	2518.5 (503700)	2568.18 (513636)	(N/A)	2617.83 (523566)	2667.48 (533496)
NR Band n41: 50 MHz	2521.02 (504204)		2592.99 (518598)		2664.99 (532998)
NR Band n41: 60 MHz	2526 (505200)		2592.99 (518598)		2659.98 (531996)
NR Band n41: 70 MHz	2531.01 (506202)		(N/A)		2655 (531000)
NR Band n41: 80 MHz	2536.02 (507204)		(N/A)		2649.99 (529998)
NR Band n41: 90 MHz	2541 (508200)		(N/A)		2644.98 (528996)
NR Band n41: 100 MHz	2546.01 (509202)		2592.99 (518598)		2640 (528000)
SCS for NR Band n5, n66	15 kHz				
SCS for NR Band n41	30 kHz				
Modulations Supported in UL	DFT-s-OFDM: $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 256QAM				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
EN-DC and NR Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Anchor Bands for NR Band n5	2/66				
LTE Anchor Bands for NR Band n66	2/13				
LTE Anchor Bands for NR Band n41	66				

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 23 of 107

REV 22.0
03/30/2022

4 INTRODUCTION

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

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

4.1 SAR Definition

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

Equation 4-1
SAR Mathematical Equation

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

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

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

where:

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 24 of 107

REV 22.0
03/30/2022

5 DOSIMETRIC ASSESSMENT

5.1 Measurement Procedure

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

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

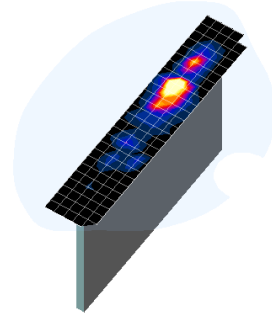


Figure 5-1
Sample SAR Area
Scan

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

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

*Also compliant to IEEE 1528-2013 Table 6

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 25 of 107

REV 22.0
03/30/2022

6 DEFINITION OF REFERENCE POINTS

6.1 EAR REFERENCE POINT

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

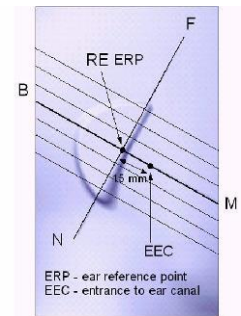


Figure 6-1
Close-Up Side view
of ERP

6.2 HANDSET REFERENCE POINTS

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



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

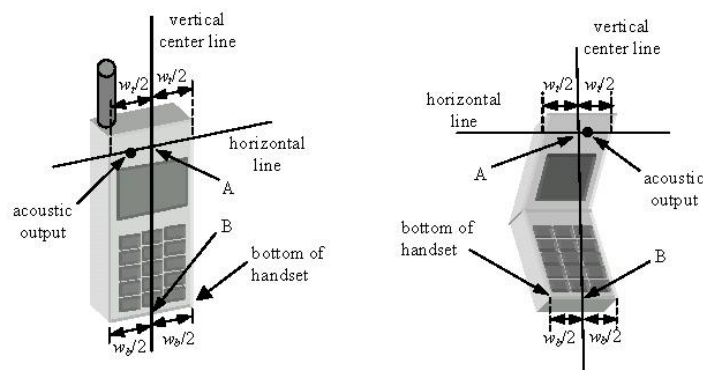


Figure 6-3
Handset Vertical Center & Horizontal Line Reference Points

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 26 of 107

REV 22.0
03/30/2022

7 TEST CONFIGURATION POSITIONS

7.1 Device Holder

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

7.2 Positioning for Cheek

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



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

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

7.3 Positioning for Ear / 15° Tilt

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 27 of 107

REV 22.0
03/30/2022

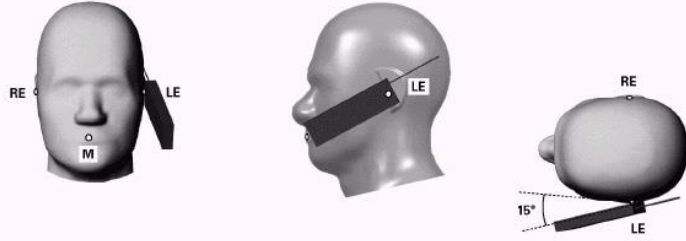


Figure 7-2 Front, Side and Top View of Ear/15° Tilt Position

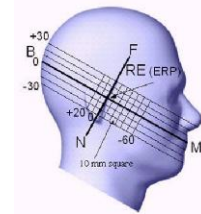


Figure 7-3 Side view w/ relevant markings

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

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

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

7.5 Body-Worn Accessory Configurations

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

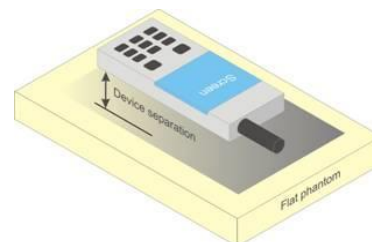


Figure 7-4 Sample Body-Worn Diagram

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 28 of 107

REV 22.0
03/30/2022



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

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

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

7.6 Extremity Exposure Configurations

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

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

7.7 Wireless Router Configurations

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

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

7.8 Phablet Configurations

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 29 of 107

REV 22.0
03/30/2022

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 30 of 107

REV 22.0
03/30/2022

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8 RF EXPOSURE LIMITS

8.1 Uncontrolled Environment

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

8.2 Controlled Environment

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

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

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 31 of 107

REV 22.0
03/30/2022

8.3 RF Exposure Limits for Frequencies above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of W/m^2 or mW/cm^2 .

Peak Spatially Averaged Power Density was evaluated over a circular area of 4 cm^2 per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

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

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

Note: 1.0 mW/cm^2 is 10 W/m^2

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 32 of 107

REV 22.0
03/30/2022

9 FCC MEASUREMENT PROCEDURES

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

9.1 Measured and Reported SAR

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

9.2 3G SAR Test Reduction Procedure

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

9.3 Procedures Used to Establish RF Signal for SAR

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

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

9.4 SAR Measurement Conditions for UMTS

9.4.1 Output Power Verification

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 33 of 107

REV 22.0
03/30/2022

9.4.2 Head SAR Measurements

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

9.4.3 Body SAR Measurements

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

9.4.4 SAR Measurements with Rel 5 HSDPA

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

9.4.5 SAR Measurements with Rel 6 HSUPA

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

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

9.5 SAR Measurement Conditions for LTE

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

9.5.1 Spectrum Plots for RB Configurations

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

9.5.2 MPR

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 34 of 107

REV 22.0
03/30/2022

9.5.3 A-MPR

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

9.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

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

9.5.5 TDD

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

9.5.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for downlink only carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 35 of 107

REV 22.0
03/30/2022

9.6 SAR Testing with 802.11 Transmitters

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

9.6.1 General Device Setup

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

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

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

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

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

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

9.6.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 36 of 107

REV 22.0
03/30/2022

9.6.5 2.4 GHz SAR Test Requirements

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

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

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

9.6.6 OFDM Transmission Mode and SAR Test Channel Selection

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

9.6.7 Initial Test Configuration Procedure

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

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 9.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 37 of 107

REV 22.0
03/30/2022



subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9.6.9 MIMO SAR considerations

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 38 of 107

REV 22.0
03/30/2022

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10 RF CONDUCTED POWERS

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

10.1 GSM Conducted Powers

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

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	31.63	31.61	30.01	28.17	26.51	25.52	24.01	22.20	20.69
	190	31.77	31.63	30.54	28.68	26.77	26.27	24.43	22.39	21.45
	251	32.28	32.19	30.55	28.65	27.03	26.51	24.65	22.51	21.73
GSM 1900	512	27.77	27.82	24.95	23.25	21.75	25.72	24.27	22.16	21.27
	661	27.95	27.98	25.81	23.26	21.85	26.04	24.00	22.16	21.19
	810	27.80	27.80	24.79	23.42	21.88	25.72	23.90	21.88	21.02
Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	22.43	22.41	23.82	23.74	23.33	16.32	17.82	17.77	17.51
	190	22.57	22.43	24.35	24.25	23.59	17.07	18.24	17.96	18.27
	251	23.08	22.99	24.36	24.22	23.85	17.31	18.46	18.08	18.55
GSM 1900	512	18.57	18.62	18.76	18.82	18.57	16.52	18.08	17.73	18.09
	661	18.75	18.78	19.62	18.83	18.67	16.84	17.81	17.73	18.01
	810	18.60	18.60	18.60	18.99	18.70	16.52	17.71	17.45	17.84
GSM 850	Frame	23.30	23.30	25.31	25.07	24.32	17.80	18.81	18.57	18.82
GSM 1900	Avg.Targets:	18.80	18.80	18.81	18.77	18.82	16.80	17.81	17.57	17.82

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 39 of 107

REV 22.0
03/30/2022

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

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 1900	512	29.85	29.90	27.73	26.50	23.66	25.72	24.27	22.16	21.27
	661	29.73	29.71	27.72	26.16	23.64	26.04	24.00	22.16	21.19
	810	29.60	29.60	27.51	26.30	23.65	25.72	23.90	21.88	21.02
Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 1900	512	20.65	20.70	21.54	22.07	20.48	16.52	18.08	17.73	18.09
	661	20.53	20.51	21.53	21.73	20.46	16.84	17.81	17.73	18.01
	810	20.40	20.40	21.32	21.87	20.47	16.52	17.71	17.45	17.84
GSM 1900	Frame Avg.Targets:	20.30	20.30	21.81	22.07	21.32	16.80	17.81	17.57	17.82

Table 10-3
Measured P_{max} for DSI = 0 (Body-worn, Hotspot or Phablet) for GSM 850 Ant E

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	31.71	32.00	30.50	28.62	26.92	25.51	23.88	21.80	20.55
	190	31.65	32.07	30.77	28.92	27.20	25.90	24.16	22.24	21.04
	251	31.98	32.65	31.00	29.29	27.27	26.14	24.41	22.61	21.44
Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	22.51	22.80	24.31	24.19	23.74	16.31	17.69	17.37	17.37
	190	22.45	22.87	24.58	24.49	24.02	16.70	17.97	17.81	17.86
	251	22.78	23.45	24.81	24.86	24.09	16.94	18.22	18.18	18.26
GSM 850	Frame Avg.Targets:	23.30	23.30	25.31	25.07	24.32	17.80	18.81	18.57	18.82

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 40 of 107

REV 22.0
03/30/2022

Table 10-4
Measured P_{limit} for DSI = 1 (Head) for GSM 850 Ant E

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	29.05	29.09	25.68	23.96	22.57	25.51	23.88	21.80	20.55
	190	29.08	29.09	26.27	24.35	23.01	25.90	24.16	22.24	21.04
	251	29.41	29.41	26.15	24.91	23.51	26.14	24.41	22.61	21.44
Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	19.85	19.89	19.49	19.53	19.39	16.31	17.69	17.37	17.37
	190	19.88	19.89	20.08	19.92	19.83	16.70	17.97	17.81	17.86
	251	20.21	20.21	19.96	20.48	20.33	16.94	18.22	18.18	18.26
GSM 1900	512	-9.20	-9.20	-6.19	-4.43	-3.18	-9.20	-6.19	-4.43	-3.18
	661	-9.20	-9.20	-6.19	-4.43	-3.18	-9.20	-6.19	-4.43	-3.18
	810	-9.20	-9.20	-6.19	-4.43	-3.18	-9.20	-6.19	-4.43	-3.18
GSM 850	Frame	20.30	20.30	20.31	20.27	20.32	17.80	18.81	18.57	18.82
GSM 1900	Avg.Targets:	-9.20	-9.20	-6.19	-4.43	-3.18	-9.20	-6.19	-4.43	-3.18

Note:

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

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



Figure 10-1
Power Measurement Setup

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 41 of 107

REV 22.0
03/30/2022

10.2 UMTS Conducted Powers

Table 10-5
Measured P_{max} for all DSI for UMTS 850 Ant A

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	23.85	23.99	23.97	-
99		12.2 kbps AMR	23.87	24.03	23.96	-
6	HSDPA	Subtest 1	22.55	22.59	22.52	0
6		Subtest 2	22.58	22.60	22.56	0
6		Subtest 3	22.09	22.10	22.05	0.5
6		Subtest 4	22.06	22.09	22.03	0.5
6	HSUPA	Subtest 1	22.53	22.55	22.55	0
6		Subtest 2	20.52	20.49	20.49	2
6		Subtest 3	21.50	21.52	21.51	1
6		Subtest 4	20.42	20.39	20.39	2
6		Subtest 5	22.41	22.41	22.41	0

Table 10-6
Measured P_{max} for DSI = 0 (Body-worn, Hotspot or Phablet) for UMTS 850 Ant E

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	23.78	23.99	23.86	-
99		12.2 kbps AMR	23.79	24.01	23.91	-
6	HSDPA	Subtest 1	22.67	22.63	22.62	0
6		Subtest 2	22.69	22.64	22.62	0
6		Subtest 3	22.17	22.15	22.14	0.5
6		Subtest 4	22.16	22.12	22.10	0.5
6	HSUPA	Subtest 1	22.65	22.65	22.66	0
6		Subtest 2	20.59	20.57	20.60	2
6		Subtest 3	21.57	21.59	21.54	1
6		Subtest 4	20.61	20.59	20.57	2
6		Subtest 5	22.62	22.60	22.59	0

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 42 of 107

REV 22.0
03/30/2022

Table 10-7
Measured P_{limit} for DSI = 1 (Head) for UMTS 850 Ant E

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	20.35	20.51	20.49	-
99		12.2 kbps AMR	20.36	20.54	20.49	-
6	HSDPA	Subtest 1	19.43	19.41	19.36	0
6		Subtest 2	19.43	19.39	19.39	0
6		Subtest 3	18.95	18.91	18.89	0.5
6		Subtest 4	18.90	18.90	18.88	0.5
6	HSUPA	Subtest 1	19.38	19.38	19.39	0
6		Subtest 2	17.39	17.34	17.32	2
6		Subtest 3	18.41	18.38	18.35	1
6		Subtest 4	17.39	17.35	17.32	2
6		Subtest 5	19.38	19.39	19.36	0

DC-HSDPA considerations

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

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



Figure 10-2
Power Measurement Setup

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 43 of 107

REV 22.0
03/30/2022

10.3 LTE Conducted Powers

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

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

LTE Carrier Aggregation Notes:

1. This device supports uplink carrier aggregation for LTE CA_ 41C, with a maximum of two component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

10.3.1 LTE Band 12

Table 10-8
LTE Band 12 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz) Conducted Power [dBm]		
QPSK	1	0	23.22	0	0
	1	25	23.27		0
	1	49	23.28		0
	25	0	22.20	0-1	1
	25	12	22.22		1
	25	25	22.27		1
	50	0	22.25		1
16QAM	1	0	22.30	0-1	1
	1	25	22.52		1
	1	49	22.51		1
	25	0	21.22	0-2	2
	25	12	21.20		2
	25	25	21.24		2
	50	0	21.23		2
64QAM	1	0	21.33	0-2	2
	1	25	21.34		2
	1	49	21.19		2
	25	0	20.17	0-3	3
	25	12	20.19		3
	25	25	20.30		3
	50	0	20.27		3

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 44 of 107

REV 22.0
03/30/2022

Table 10-9
LTE Band 12 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.53	0	0
	1	25	23.64		0
	1	49	23.57		0
	25	0	22.59	0-1	1
	25	12	22.57		1
	25	25	22.61		1
16QAM	50	0	22.60	0-1	1
	1	0	22.70		1
	1	25	22.83		1
	1	49	22.69	0-2	1
	25	0	21.54		2
	25	12	21.65		2
64QAM	25	25	21.62	0-2	2
	50	0	21.58		2
	1	0	21.68	0-2	2
	1	25	21.81		2
	1	49	21.75		2
	25	0	20.51	0-3	3
	25	12	20.57		3
	25	25	20.57		3
	50	0	20.56		3

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

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	21.79	0	0
	1	25	21.76		0
	1	49	21.82		0
	25	0	21.80	0-1	0
	25	12	21.81		0
	25	25	21.80		0
16QAM	50	0	21.80	0-1	0
	1	0	22.00		0
	1	25	22.00		0
	1	49	21.90	0-2	0
	25	0	21.56		0
	25	12	21.64		0
64QAM	25	25	21.65	0-2	0
	50	0	21.61		0
	1	0	21.55	0-2	0
	1	25	21.83		0
	1	49	21.62		0
	25	0	20.50	0-3	0.5
	25	12	20.54		0.5
	25	25	20.56		0.5
	50	0	20.57		0.5

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 45 of 107

REV 22.0
03/30/2022

10.3.2

LTE Band 13

Table 10-11
LTE Band 13 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.64	0	0
	1	25	23.49		0
	1	49	23.04		0
	25	0	22.54	0-1	1
	25	12	22.45		1
	25	25	22.25		1
	50	0	22.32		1
16QAM	1	0	22.86	0-1	1
	1	25	22.62		1
	1	49	22.10		1
	25	0	21.55	0-2	2
	25	12	21.46		2
	25	25	21.29		2
	50	0	21.35		2
64QAM	1	0	21.71	0-2	2
	1	25	21.69		2
	1	49	21.04		2
	25	0	20.52	0-3	3
	25	12	20.47		3
	25	25	20.26		3
	50	0	20.33		3

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 46 of 107

REV 22.0
03/30/2022

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

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.95	0	0
	1	25	23.85		0
	1	49	23.24		0
	25	0	22.87	0-1	1
	25	12	22.86		1
	25	25	22.59		1
	50	0	22.71		1
16QAM	1	0	23.05	0-1	1
	1	25	23.09		1
	1	49	22.50		1
	25	0	21.90	0-2	2
	25	12	21.81		2
	25	25	21.70		2
	50	0	21.77		2
64QAM	1	0	22.03	0-2	2
	1	25	22.10		2
	1	49	21.51		2
	25	0	20.91	0-3	3
	25	12	20.82		3
	25	25	20.61		3
	50	0	20.71		3

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

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	22.09	0	0
	1	25	22.08		0
	1	49	21.62		0
	25	0	22.08	0-1	0
	25	12	22.05		0
	25	25	21.80		0
	50	0	22.04		0
16QAM	1	0	22.09	0-1	0
	1	25	22.05		0
	1	49	21.90		0
	25	0	21.90	0-2	0
	25	12	21.91		0
	25	25	21.69		0
	50	0	21.70		0
64QAM	1	0	21.72	0-2	0
	1	25	22.00		0
	1	49	21.42		0
	25	0	20.90	0-3	0.5
	25	12	20.88		0.5
	25	25	20.65		0.5
	50	0	20.70		0.5

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 47 of 107

 REV 22.0
03/30/2022

10.3.3

LTE Band 5

Table 10-14
LTE Band 5 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.34	0	0
	1	25	24.26		0
	1	49	24.35		0
	25	0	23.26	0-1	1
	25	12	23.26		1
	25	25	23.27		1
	50	0	23.22		1
16QAM	1	0	23.49	0-1	1
	1	25	23.43		1
	1	49	23.49		1
	25	0	22.24	0-2	2
	25	12	22.25		2
	25	25	22.28		2
	50	0	22.22		2
64QAM	1	0	22.38	0-2	2
	1	25	22.35		2
	1	49	22.23		2
	25	0	21.18	0-3	3
	25	12	21.27		3
	25	25	21.31		3
	50	0	21.20		3

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 48 of 107

REV 22.0
03/30/2022

Table 10-15
LTE Band 5 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.73	0	0
	1	25	24.66		0
	1	49	24.75		0
	25	0	23.73	0-1	1
	25	12	23.65		1
	25	25	23.68		1
16QAM	50	0	23.69	0-1	1
	1	0	23.89		1
	1	25	23.87		1
	1	49	23.85	0-2	1
	25	0	22.68		2
	25	12	22.66		2
64QAM	25	25	22.64	0-2	2
	50	0	22.62		2
	1	0	22.85	0-2	2
	1	25	22.88		2
	1	49	22.74	0-3	2
	25	0	21.65		3
64QAM	25	12	21.69		3
	25	25	21.71	0-3	3
	50	0	21.64		3

Table 10-16
LTE Band 5 Ant E Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	21.32	0	0
	1	25	21.37		0
	1	49	21.31		0
	25	0	21.37	0-1	0
	25	12	21.35		0
	25	25	21.31		0
16QAM	50	0	21.32	0-1	0
	1	0	21.58		0
	1	25	21.64		0
	1	49	21.54	0-2	0
	25	0	21.37		0
	25	12	21.35		0
64QAM	25	25	21.35	0-2	0
	50	0	21.35		0
	1	0	21.64	0-2	0
	1	25	21.54		0
	1	49	21.44	0-3	0
	25	0	21.35		0
64QAM	25	12	21.39		0
	25	25	21.46	0-3	0
	50	0	21.34		0

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 49 of 107

 REV 22.0
03/30/2022

10.3.4 LTE Band 66

Table 10-17
LTE Band 66 (AWS) Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.10	19.25	19.26	0	0
	1	50	19.66	19.32	19.22		0
	1	99	19.37	19.40	19.55		0
	50	0	19.26	19.13	19.21	0-1	0
	50	25	19.30	19.19	19.28		0
	50	50	19.46	19.25	19.38		0
	100	0	19.24	19.30	19.31		0
16QAM	1	0	19.37	19.48	19.64	0-1	0
	1	50	19.50	19.34	19.47		0
	1	99	19.88	19.19	19.34		0
	50	0	19.14	19.13	19.34	0-2	0
	50	25	19.29	19.21	19.29		0
	50	50	19.31	19.28	19.36		0
	100	0	19.34	19.23	19.28		0
64QAM	1	0	19.59	19.27	19.32	0-2	0
	1	50	19.37	19.41	19.65		0
	1	99	19.29	19.41	19.57		0
	50	0	19.14	19.12	19.23	0-3	0
	50	25	19.34	19.21	19.26		0
	50	50	19.37	19.29	19.38		0
	100	0	19.29	19.25	19.33		0

Table 10-18
LTE Band 66 (AWS) Ant A Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.19	23.19	23.29	0	0
	1	50	23.46	23.59	23.60		0
	1	99	23.50	23.52	23.61		0
	50	0	22.20	22.21	22.39	0-1	1
	50	25	22.34	22.24	22.38		1
	50	50	22.35	22.32	22.51		1
	100	0	22.30	22.39	22.49		1
16QAM	1	0	22.30	22.55	22.55	0-1	1
	1	50	22.55	22.62	22.69		1
	1	99	22.78	22.59	22.47		1
	50	0	21.37	21.18	21.46	0-2	2
	50	25	21.37	21.34	21.43		2
	50	50	21.42	21.32	21.44		2
	100	0	21.36	21.27	21.38		2
64QAM	1	0	21.37	21.54	21.54	0-2	2
	1	50	21.85	21.50	21.49		2
	1	99	21.39	21.36	21.63		2
	50	0	20.39	20.25	20.48	0-3	3
	50	25	20.38	20.32	20.42		3
	50	50	20.37	20.34	20.43		3
	100	0	20.38	20.33	20.43		3

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 50 of 107

REV 22.0
03/30/2022

10.3.5

LTE Band 2

Table 10-19
LTE Band 2 (PCS) Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 20 MHz Bandwidth

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.35	18.22	18.11	0	0
	1	50	18.34	18.45	18.40		0
	1	99	18.47	18.13	17.99		0
	50	0	18.36	18.24	18.00	0-1	0
	50	25	18.37	18.20	18.04		0
	50	50	18.23	18.09	18.00		0
	100	0	18.30	18.14	18.05		0
16QAM	1	0	18.53	18.17	18.38	0-1	0
	1	50	18.29	18.32	17.94		0
	1	99	18.48	18.42	18.53		0
	50	0	18.37	18.22	17.99	0-2	0
	50	25	18.38	18.18	18.04		0
	50	50	18.31	18.16	18.04		0
	100	0	18.38	18.18	18.07		0
64QAM	1	0	18.66	18.31	18.52	0-2	0
	1	50	18.53	18.30	18.13		0
	1	99	18.28	18.36	18.13		0
	50	0	18.39	18.17	18.08	0-3	0
	50	25	18.40	18.24	18.03		0
	50	50	18.42	18.17	17.98		0
	100	0	18.39	18.16	18.08		0

Table 10-20
LTE Band 2 (PCS) Ant A Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.40	23.36	23.37	0	0
	1	50	23.37	23.36	23.21		0
	1	99	23.54	23.53	23.50		0
	50	0	22.52	22.31	22.17	0-1	1
	50	25	22.49	22.36	22.26		1
	50	50	22.45	22.30	22.13		1
	100	0	22.45	22.30	22.21		1
16QAM	1	0	23.03	22.34	22.63	0-1	1
	1	50	22.65	22.47	22.26		1
	1	99	22.55	22.24	22.39		1
	50	0	21.50	21.35	21.32	0-2	2
	50	25	21.58	21.38	21.21		2
	50	50	21.43	21.24	21.21		2
	100	0	21.48	21.25	21.20		2
64QAM	1	0	21.79	21.58	21.15	0-2	2
	1	50	21.54	21.56	21.25		2
	1	99	21.59	21.27	21.23		2
	50	0	20.47	20.40	20.21	0-3	3
	50	25	20.59	20.38	20.23		3
	50	50	20.47	20.23	20.20		3
	100	0	20.53	20.27	20.18		3

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 51 of 107

REV 22.0
03/30/2022

10.3.6 LTE Band 41

Table 10-21

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

LTE Band 41 20 MHz Bandwidth																
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]							
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)									
			Conducted Power [dBm]													
QPSK	1	0	22.02	22.06	22.03	22.10	22.02	0	0							
	1	50	21.96	22.03	22.23	22.09	21.95		0							
	1	99	22.01	22.03	22.06	21.98	21.98		0							
	50	0	22.18	22.18	22.25	22.23	22.13	0-1	0							
	50	25	22.28	22.25	22.32	22.24	22.25		0							
	50	50	22.21	22.22	22.29	22.27	22.22		0							
16QAM	100	0	22.20	22.21	22.22	22.20	22.17	0-1	0							
	1	0	22.34	22.44	22.33	22.23	22.02		0							
	1	50	22.61	22.44	22.56	22.45	22.24		0							
	1	99	22.29	22.38	22.27	22.22	22.02	0-2	0							
	50	0	21.98	22.00	22.07	22.02	21.96		0							
	50	25	22.08	22.10	22.10	22.04	22.05		0							
64QAM	50	50	22.05	22.05	22.08	22.06	22.05	0-2	0							
	100	0	22.00	22.05	22.08	21.97	22.03		0							
	1	0	22.02	21.94	22.18	22.10	22.08		0-3	0						
	1	50	22.05	22.07	22.08	22.02	22.03	0								
	1	99	22.07	21.95	22.13	21.97	21.99	0								
	50	0	20.98	21.01	21.09	21.02	20.93	1								
64QAM	50	25	21.06	21.10	21.11	21.06	21.07	1								
	50	50	21.05	21.07	21.13	21.04	21.02	1								
	100	0	21.01	21.02	21.03	21.00	20.99	1								
PCC																
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	Power	
															LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	40620	2593.0	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	22.72	22.06

Table 10-22

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

LTE Band 41 20 MHz Bandwidth																
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]							
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)									
			Conducted Power [dBm]													
QPSK	1	0	23.77	23.70	23.69	23.77	23.74	0	0							
	1	50	23.82	23.64	23.66	23.90	23.90		0							
	1	99	23.71	23.74	23.56	23.83	23.97		0							
	50	0	22.97	23.00	23.05	23.03	22.91	0-1	1							
	50	25	23.09	23.10	23.08	23.06	23.15		1							
	50	50	23.05	23.06	23.10	23.06	23.01		1							
16QAM	100	0	23.02	23.06	23.04	23.00	23.00	0-1	1							
	1	0	23.14	23.13	23.28	23.15	23.01		1							
	1	50	22.97	23.43	23.35	23.15	22.92		1							
	1	99	23.13	23.18	23.26	23.06	22.89	0-2	1							
	50	0	22.01	22.04	22.07	22.04	21.90		2							
	50	25	22.10	22.14	22.08	22.04	22.04		2							
64QAM	50	50	22.04	22.08	22.15	22.06	22.01	0-2	2							
	100	0	22.07	22.09	22.05	22.00	22.04		2							
	1	0	21.99	22.12	22.10	21.90	22.04		0-2	2						
	1	50	22.05	22.11	22.15	22.05	22.09	2								
	1	99	22.09	22.06	22.22	22.03	21.99	2								
	50	0	21.02	20.99	21.05	21.01	20.89	0-3	3							
50	25	21.07	21.10	21.08	21.00	21.04	3									
50	50	21.07	21.02	21.13	21.05	20.98	3									
	100	0	21.02	21.08	21.06	20.98	21.02		3							
PCC																
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC								
								SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.20	23.74

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 52 of 107

REV 22.0

03/30/2022

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Table 10-23
LTE Band 41 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth																
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]							
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)									
			Conducted Power [dBm]													
QPSK	1	0	21.80	21.70	21.64	21.56	21.56	0	0							
	1	50	21.84	21.77	21.68	21.71	21.63		0							
	1	99	21.95	21.75	21.59	21.57	21.47		0							
	50	0	21.91	21.86	21.78	21.71	21.67	0-1	0							
	50	25	21.94	21.86	21.77	21.72	21.66		0							
	50	50	22.02	21.81	21.77	21.76	21.73		0							
16QAM	100	0	21.92	21.76	21.75	21.67	21.67	0								
	1	0	21.84	21.80	21.64	21.68	21.60	0-1	0							
	1	50	21.97	21.96	21.69	21.83	21.79		0							
	1	99	21.74	21.79	21.71	21.77	21.74		0							
	50	0	21.90	21.87	21.78	21.71	21.74	0-2	0							
	50	25	21.82	21.87	21.75	21.76	21.70		0							
50	50	21.80	21.83	21.70	21.81	21.72	0									
64QAM	100	0	21.80	21.86	21.74	21.72	21.63	0								
	1	0	21.96	21.84	21.78	21.58	21.76	0-2	0							
	1	50	21.94	21.84	21.78	21.88	21.86		0							
	1	99	21.81	21.93	21.57	21.73	21.61		0							
	50	0	21.40	21.34	21.31	21.21	21.21	0-3	1							
	50	25	21.30	21.40	21.33	21.22	21.20		1							
	50	50	21.30	21.29	21.26	21.29	21.23		1							
	100	0	21.28	21.34	21.28	21.22	21.18		1							
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	39750	2506.0	QPSK	50	50	LTE B41	20	39948	2525.8	QPSK	50	0	21.97	22.02

Table 10-24
LTE Band 41 Ant F Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth																
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]							
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)									
			Conducted Power [dBm]													
QPSK	1	0	18.30	18.15	17.93	17.99	18.04	0	0							
	1	50	18.24	18.25	18.00	17.93	18.02		0							
	1	99	18.35	18.28	18.01	17.88	17.94		0							
	50	0	18.49	18.25	18.05	18.05	18.09		0							
	50	25	18.50	18.26	17.97	18.00	18.05	0-1	0							
	50	50	18.52	18.28	17.91	18.03	18.01		0							
	100	0	18.24	18.19	17.94	18.03	18.02		0							
	100	0	18.24	18.19	17.94	18.03	18.02		0							
16QAM	1	0	18.26	18.17	17.93	17.87	18.03	0-1	0							
	1	50	18.15	18.22	17.95	18.00	18.08		0							
	1	99	18.07	18.23	17.88	17.95	17.79		0							
	50	0	18.31	18.23	18.06	17.99	18.00		0							
	50	25	18.22	18.30	18.01	18.10	18.13	0-2	0							
	50	50	18.19	18.24	17.92	18.05	18.08		0							
	100	0	18.17	18.27	17.96	18.03	18.07		0							
	100	0	18.17	18.27	17.96	18.03	18.07		0							
64QAM	1	0	18.38	18.29	18.18	18.05	18.00	0-2	0							
	1	50	18.40	18.33	18.10	18.14	18.13		0							
	1	99	18.17	18.33	17.91	17.99	18.07		0							
	50	0	18.32	18.32	18.10	17.99	18.00		0							
	50	25	18.20	18.30	18.01	18.08	18.11	0-3	0							
	50	50	18.18	18.29	17.96	18.08	18.10		0							
	100	0	18.13	18.31	17.97	18.07	18.09		0							
	100	0	18.13	18.31	17.97	18.07	18.09		0							
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	39750	2506.0	QPSK	50	50	LTE B41	20	39948	2525.8	QPSK	50	0	18.45	18.52



Figure 10-3
Power Measurement Setup

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 53 of 107

10.4 NR Conducted Powers

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

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

10.4.1 NR Band n5

Table 10-25
NR Band n5 Ant A Measured P_{Max} for all DSI - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.64	0	0.0
	1	53	23.72		0.0
	1	104	23.69		0.0
	50	0	22.77	0-1	1.0
	50	28	23.78	0-1	0.0
	50	56	22.71		1.0
	100	0	22.80		1.0
DFT-s-OFDM 16QAM	1	1	23.25	0-1	1.0
CP-OFDM QPSK	1	1	22.31	0-1.5	1.5

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 54 of 107

REV 22.0
03/30/2022

Table 10-26
NR Band n5 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.79	0	0.0
	1	53	23.85		0.0
	1	104	23.77		0.0
	50	0	22.92	0-1	1.0
	50	28	23.99	0	0.0
	50	56	22.89	0-1	1.0
	100	0	22.99		1.0
DFT-s-OFDM 16QAM	1	1	23.45	0-1	1.0
CP-OFDM QPSK	1	1	22.50	0-1.5	1.5

Table 10-27
NR Band n5 Ant E Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.26	0	0.0
	1	53	21.46		0.0
	1	104	21.29		0.0
	50	0	21.36	0-1	0.0
	50	28	21.45	0	0.0
	50	56	21.26	0-1	0.0
	100	0	21.39		0.0
DFT-s-OFDM 16QAM	1	1	21.17	0-1	0.0
CP-OFDM QPSK	1	1	21.35	0-1.5	0.0

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 55 of 107

REV 22.0
03/30/2022

10.4.2 NR Band n66

Table 10-28

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

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.90	0	0.0
	1	121	18.72		0.0
	1	240	18.78		0.0
	120	0	18.84	0-1	0.0
	120	61	18.76	0	0.0
	120	122	18.71	0-1	0.0
	240	0	18.82		0.0
DFT-s-OFDM 16QAM	1	1	19.26	0-1	0.0
CP-OFDM QPSK	1	1	18.89	0-1.5	0.0

Table 10-29

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

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	22.92	0	0.0
	1	121	22.72		0.0
	1	240	22.76		0.0
	120	0	21.85	0-1	1.0
	120	61	22.78	0	0.0
	120	122	21.79	0-1	1.0
	240	0	21.78		1.0
DFT-s-OFDM 16QAM	1	1	22.12	0-1	1.0
CP-OFDM QPSK	1	1	21.22	0-1.5	1.5

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 56 of 107

REV 22.0
03/30/2022

Table 10-30
NR Band n66 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 45 MHz Bandwidth

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.24	0	0.0
	1	121	20.28		0.0
	1	240	20.32		0.0
	120	0	20.04	0-1	0.0
	120	61	20.26	0	0.0
	120	122	20.22	0-1	0.0
	240	0	20.19		0.0
DFT-s-OFDM 16QAM	1	1	20.69	0-1	0.0
CP-OFDM QPSK	1	1	20.16	0-1.5	0.0

Table 10-31
NR Band n66 Ant F Measured P_{Limit} for DSI = 1 (Head) - 45 MHz Bandwidth

NR Band n66 45 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.25	0	0.0
	1	121	18.37		0.0
	1	240	18.21		0.0
	120	0	18.25	0-1	0.0
	120	61	18.36	0	0.0
	120	122	18.24	0-1	0.0
	240	0	18.34		0.0
DFT-s-OFDM 16QAM	1	1	18.68	0-1	0.0
CP-OFDM QPSK	1	1	18.10	0-1.5	0.0

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 57 of 107

REV 22.0
03/30/2022

10.4.3 NR Band n41

Table 10-32
NR Band n41 PC2 Antenna F Path 1 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.35	0	0.0
	1	137	19.56		0.0
	1	271	19.68		0.0
	135	0	19.46	0-1	0.0
	135	69	19.59	0	0.0
	135	138	19.64	0-1	0.0
	270	0	19.58		0.0
DFT-s-OFDM 16QAM	1	1	19.44	0-1	0.0
CP-OFDM QPSK	1	1	19.53	0-1.5	0.0

Table 10-33
NR Band n41 PC2 Antenna F Path 1 Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	16.53	0	0.0
	1	137	16.73		0.0
	1	271	16.84		0.0
	135	0	16.62	0-1	0.0
	135	69	16.74	0	0.0
	135	138	16.80	0-1	0.0
	270	0	16.71		0.0
DFT-s-OFDM 16QAM	1	1	16.64	0-1	0.0
CP-OFDM QPSK	1	1	16.67	0-1.5	0.0

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT			Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset			Page 58 of 107

REV 22.0
03/30/2022

Table 10-34
NR Band n41 PC2 Antenna B Path 2 Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	20.51	0	0.0
	1	137	20.25		0.0
	1	271	20.27		0.0
	135	0	20.44	0-1	0.0
	135	69	20.24	0	0.0
	135	138	20.25	0-1	0.0
	270	0	20.30		0.0
DFT-s-OFDM 16QAM	1	1	20.47	0-1	0.0
CP-OFDM QPSK	1	1	20.69	0-1.5	0.0

Table 10-35
NR Band n41 PC2 Antenna B Path 2 Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.34	0	0.0
	1	137	21.10		0.0
	1	271	21.05		0.0
	135	0	21.14	0-1	0.0
	135	69	21.02	0	0.0
	135	138	20.94	0-1	0.0
	270	0	21.00		0.0
DFT-s-OFDM 16QAM	1	1	21.10	0-1	0.0
CP-OFDM QPSK	1	1	20.71	0-1.5	0.0

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 59 of 107

REV 22.0
03/30/2022

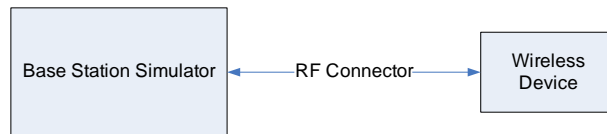


Figure 10-4
Power Measurement Setup – NR FDD

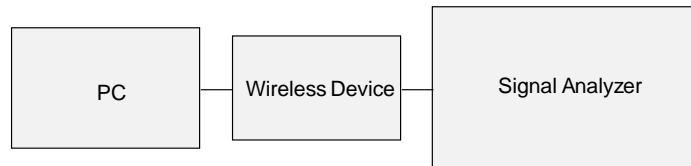


Figure 10-5
Power Measurement Setup – NR TDD

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 60 of 107

REV 22.0
03/30/2022

10.5 WLAN Conducted Powers

Table 10-36

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

2.4GHz WIFI (20MHz 802.11b SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.90
2437	6		16.58
2462	11		16.82

Table 10-37

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

2.4GHz WIFI (20MHz 802.11b SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.70
2437	6		16.90
2462	11		16.78

Table 10-38

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

2.4GHz WIFI (20MHz 802.11b MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	16.94	16.97	19.97
2437	6		16.53	16.87	19.71
2462	11		16.78	16.79	19.80

Table 10-39

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

2.4GHz WIFI (20MHz 802.11b SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	19.78
2437	6		19.46
2462	11		19.85

Table 10-40

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

2.4GHz WIFI (20MHz 802.11b SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	19.78
2437	6		19.69
2462	11		19.60

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 61 of 107

REV 22.0
03/30/2022

Table 10-41

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

2.4GHz WIFI (20MHz 802.11g MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	17.27	17.17	20.23
2437	6		17.44	17.75	20.61
2462	11		17.23	17.17	20.21

Table 10-42

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

5GHz WIFI (80MHz 802.11ac SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	14.70
UNII-2A	5290	58	14.65
UNII-2C	5530	106	14.50
	5610	122	14.96
	5690	138	15.06
UNII-3	5775	155	14.80
UNII-4	5885	171	14.69

Table 10-43

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

5GHz WIFI (80MHz 802.11ac SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	14.02
UNII-2A	5290	58	14.10
UNII-2C	5530	106	14.30
	5610	122	15.20
	5690	138	15.20
UNII-3	5775	155	15.20
UNII-4	5885	171	15.32

Table 10-44

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

5GHz WIFI (80MHz 802.11ac MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5210	42	15.99	14.01	18.12
UNII-2A	5290	58	15.98	14.33	18.24
UNII-2C	5530	106	14.67	14.51	17.60
	5610	122	15.33	15.50	18.43
	5690	138	15.42	15.58	18.51
UNII-3	5775	155	15.14	15.40	18.28
UNII-4	5885	171	15.02	15.60	18.33

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 62 of 107

Table 10-45
6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant H

6GHz WIFI (40MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5965	3	16.78
	6285	67	16.81
UNII-7	6685	147	16.65
6GHz WIFI (80MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-6	6465	103	15.87
UNII-8	7025	215	15.20

Table 10-46
6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant E

6GHz WIFI (40MHz 802.11ax SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5965	3	16.21
	6285	67	16.76
UNII-7	6685	147	16.89
6GHz WIFI (80MHz 802.11ax SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-6	6465	103	15.97
UNII-8	7025	215	15.36

Table 10-47
6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – MIMO

6GHz WIFI (40MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	5965	3	16.99	16.41	19.72
	6285	67	16.93	16.45	19.71
UNII-7	6685	147	16.98	16.70	19.85
6GHz WIFI (80MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-6	6465	103	15.80	15.99	18.91
UNII-8	7025	215	15.22	15.18	18.21

Table 10-48
6 GHz WLAN Measured P_{max} Average RF Power for DSI = 0 (Body-worn or Phablet) – Ant H

6GHz WIFI (160MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	6025	15	8.32
	6345	79	8.70
UNII-6	6505	111	8.43
UNII-7	6825	175	8.24
UNII-8	6985	207	8.35

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 63 of 107

REV 22.0
03/30/2022

Table 10-49
6 GHz WLAN Measured P_{max} Average RF Power for DSI = 0 (Body-worn or Phablet) – Ant E

6GHz WIFI (160MHz 802.11ax SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	6025	15	8.56
	6345	79	8.06
UNII-6	6505	111	8.29
UNII-7	6825	175	8.54
UNII-8	6985	207	8.46

Table 10-50
6 GHz WLAN Measured P_{max} Average RF Power for DSI = 0 (Body-worn or Phablet) – MIMO

6GHz WIFI (160MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	6025	15	8.23	8.50	11.38
	6345	79	8.56	8.02	11.31
UNII-6	6505	111	8.42	8.39	11.42
UNII-7	6825	175	8.26	8.99	11.65
UNII-8	6985	207	8.35	8.55	11.46

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

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

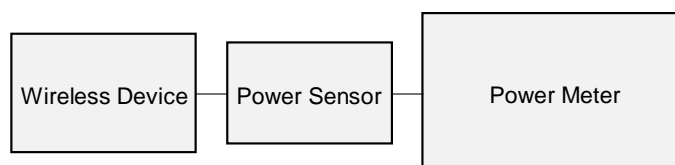


Figure 10-6
Power Measurement Setup

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 64 of 107

REV 22.0
03/30/2022

10.6 Bluetooth Conducted Powers

Table 10-51
Bluetooth Measured for Data Referencing P_{Max} Average RF Power for all DSI – Ant H

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	17.84	60.814
2441	1.0	GFSK	ePA	39	18.69	73.961
2480	1.0	GFSK	ePA	78	17.98	62.806

Table 10-52
Bluetooth Measured for Data Referencing P_{Max} Average RF Power for all DSI – Ant J

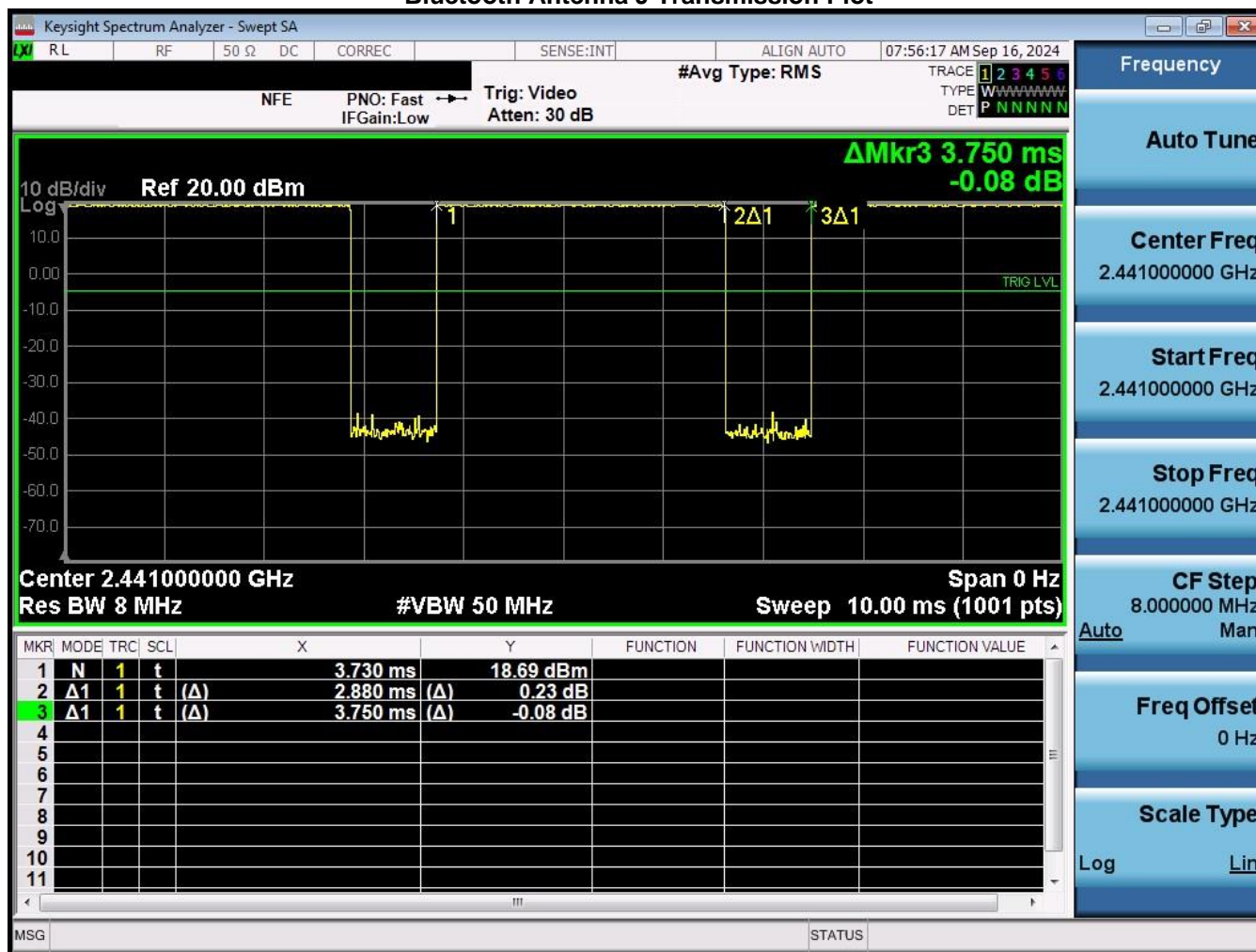
Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	17.94	62.230
2441	1.0	GFSK	ePA	39	18.59	72.277
2480	1.0	GFSK	ePA	78	18.23	66.527

Bluetooth P_{Limit} Average RF Power for all DSI – MIMO

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	ANT1 Avg Conducted Power		ANT1 Target [dBm]	ANT2 Avg Conducted Power		ANT2 Target [dBm]	Dual Avg Conducted Power	
					[dBm]	[mW]		[dBm]	[mW]		[dBm]	[mW]
2402	1.0	GFSK	iPA	0	14.63	29.040	14.500	14.12	25.823	14.500	17.39	54.863
2441	1.0	GFSK	iPA	39	15.30	33.884	14.500	14.74	29.785	14.500	18.04	63.670
2480	1.0	GFSK	iPA	78	14.69	29.444	14.500	14.54	28.445	14.500	17.63	57.889
2402	2.0	$\pi/4$ -DQPSK	iPA	0	11.73	14.894	11.500	11.10	12.882	11.500	14.44	27.776
2441	2.0	$\pi/4$ -DQPSK	iPA	39	12.45	17.579	11.500	11.56	14.322	11.500	15.04	31.901
2480	2.0	$\pi/4$ -DQPSK	iPA	78	11.87	15.382	11.500	11.47	14.028	11.500	14.68	29.410
2402	3.0	8DPSK	iPA	0	11.83	15.241	11.500	11.38	13.740	11.500	14.62	28.981
2441	3.0	8DPSK	iPA	39	12.47	17.660	11.500	11.86	15.346	11.500	15.19	33.007
2480	3.0	8DPSK	iPA	78	12.00	15.849	11.500	11.48	14.060	11.500	14.76	29.909

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 65 of 107

Figure 10-8
Bluetooth Antenna J Transmission Plot



Equation 10-2

Bluetooth Antenna J Duty Cycle Calculation

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 67 of 107

Figure 10-9
Bluetooth MIMO Transmission Plot



Equation 10-3
Bluetooth MIMO Duty Cycle Calculation

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 68 of 107

REV 22.0
03/30/2022

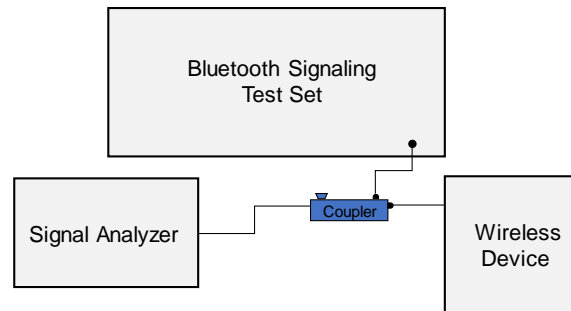


Figure 10-10
Power Measurement Setup

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 69 of 107

REV 22.0
03/30/2022

11 SYSTEM VERIFICATION

11.1 Tissue Verification

Table 11-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
11/25/2024	30 Head	19.5	12	0.746	52.543	0.750	55.000	-0.59%	-4.47%
			13	0.746	52.700	0.750	55.000	-0.59%	-4.18%
			14	0.746	52.861	0.750	55.000	-0.59%	-3.89%
			680	0.845	42.943	0.888	42.305	-4.84%	1.51%
11/20/2024	750 Head	21.6	695	0.850	42.892	0.889	42.227	-4.39%	1.57%
			700	0.852	42.877	0.889	42.201	-4.18%	1.60%
			710	0.855	42.851	0.889	42.149	-3.93%	1.67%
			725	0.861	42.803	0.891	42.071	-3.27%	1.74%
			750	0.870	42.727	0.894	41.942	-2.68%	1.87%
			770	0.877	42.672	0.895	41.838	-2.01%	1.99%
			785	0.882	42.633	0.896	41.760	-1.56%	2.09%
			800	0.888	42.595	0.897	41.682	-1.00%	2.19%
			815	0.894	42.777	0.898	41.594	-0.45%	2.84%
			820	0.896	42.764	0.899	41.578	-0.33%	2.85%
11/06/2024	835 Head	20.4	835	0.902	42.727	0.900	41.500	0.22%	2.96%
			850	0.907	42.689	0.916	41.500	-0.98%	2.87%
			815	0.892	42.894	0.898	41.594	-0.67%	3.13%
			820	0.894	42.881	0.899	41.578	-0.56%	3.13%
11/11/2024	835 Head	19.9	835	0.900	42.845	0.900	41.500	0.00%	3.24%
			850	0.906	42.800	0.916	41.500	-1.09%	3.13%
			815	0.903	41.590	0.898	41.594	0.56%	-0.01%
			820	0.905	41.576	0.899	41.578	0.67%	0.00%
11/13/2024	835 Head	21.8	835	0.910	41.536	0.900	41.500	1.11%	0.09%
			850	0.915	41.501	0.916	41.500	-0.11%	0.00%
			815	0.933	40.609	0.898	41.594	3.90%	-2.37%
			820	0.934	40.602	0.899	41.578	3.89%	-2.35%
11/18/2024	835 Head	22.0	835	0.940	40.594	0.900	41.500	4.44%	-2.21%
			850	0.946	40.543	0.916	41.500	3.28%	-2.31%
			815	0.894	42.548	0.898	41.594	-0.45%	2.29%
			820	0.896	42.531	0.899	41.578	-0.33%	2.29%
11/20/2024	835 Head	21.6	835	0.901	42.479	0.900	41.500	0.11%	2.36%
			850	0.907	42.431	0.916	41.500	-0.98%	2.24%
			815	0.892	42.051	0.898	41.594	-0.67%	1.10%
			820	0.893	42.039	0.899	41.578	-0.67%	1.11%
11/23/2024	835 Head	20.8	835	0.898	42.019	0.900	41.500	-0.22%	1.25%
			850	0.905	41.983	0.916	41.500	-1.20%	1.16%
			1700	1.277	39.744	1.343	40.145	-4.91%	-1.00%
			1705	1.280	39.741	1.345	40.141	-4.83%	-1.00%
11/11/2024	1750 Head	20.8	1710	1.283	39.737	1.348	40.136	-4.82%	-0.99%
			1720	1.290	39.730	1.354	40.126	-4.73%	-0.99%
			1745	1.304	39.704	1.368	40.087	-4.68%	-0.96%
			1750	1.307	39.697	1.371	40.079	-4.67%	-0.95%
			1770	1.319	39.667	1.383	40.047	-4.63%	-0.95%
			1790	1.330	39.636	1.394	40.016	-4.59%	-0.95%
			1700	1.285	41.376	1.343	40.145	-4.32%	3.07%
			1705	1.288	41.373	1.345	40.141	-4.24%	3.07%
11/19/2024	1750 Head	22.7	1710	1.290	41.371	1.348	40.136	-4.30%	3.08%
			1720	1.295	41.368	1.354	40.126	-4.28%	3.09%
			1745	1.310	41.349	1.368	40.087	-4.24%	3.15%
			1750	1.313	41.345	1.371	40.079	-4.23%	3.16%
			1770	1.327	41.325	1.383	40.047	-4.05%	3.19%
			1790	1.340	41.300	1.394	40.016	-3.87%	3.21%
			1700	1.281	39.207	1.343	40.145	-4.62%	-2.34%
			1705	1.284	39.201	1.345	40.141	-4.54%	-2.34%
11/20/2024	1750 Head	23.0	1710	1.287	39.196	1.348	40.136	-4.53%	-2.34%
			1720	1.292	39.186	1.354	40.126	-4.58%	-2.34%
			1745	1.306	39.160	1.368	40.087	-4.53%	-2.31%
			1750	1.309	39.154	1.371	40.079	-4.52%	-2.31%
			1770	1.320	39.130	1.383	40.047	-4.56%	-2.29%
			1790	1.331	39.108	1.394	40.016	-4.52%	-2.27%
			1850	1.397	39.847	1.400	40.000	-0.21%	-0.38%
			1860	1.403	39.833	1.400	40.000	0.21%	-0.42%
11/06/2024	1900 Head	22.0	1880	1.415	39.813	1.400	40.000	1.07%	-0.47%
			1900	1.427	39.795	1.400	40.000	1.93%	-0.51%
			1905	1.430	39.792	1.400	40.000	2.14%	-0.52%
			1910	1.433	39.788	1.400	40.000	2.36%	-0.53%
			1920	1.439	39.780	1.400	40.000	2.79%	-0.55%
			1950	1.359	39.330	1.400	40.000	-2.93%	-1.68%
			1960	1.364	39.328	1.400	40.000	-2.57%	-1.68%
			1980	1.376	39.319	1.400	40.000	-1.71%	-1.70%
			1900	1.387	39.299	1.400	40.000	-0.93%	-1.75%
			1905	1.390	39.293	1.400	40.000	-0.71%	-1.77%
11/11/2024	1900 Head	21.2	1910	1.393	39.287	1.400	40.000	-0.50%	-1.78%
			1920	1.399	39.276	1.400	40.000	-0.07%	-1.81%
			1850	1.376	41.825	1.400	40.000	-1.71%	4.56%
			1860	1.382	41.805	1.400	40.000	-1.29%	4.51%
			1880	1.394	41.772	1.400	40.000	-0.43%	4.43%
			1900	1.406	41.749	1.400	40.000	0.43%	4.37%
			1905	1.409	41.744	1.400	40.000	0.64%	4.36%
			1910	1.412	41.739	1.400	40.000	0.86%	4.35%
			1920	1.418	41.728	1.400	40.000	1.29%	4.32%
			1850	1.377	41.189	1.400	40.000	-1.64%	2.97%
11/19/2024	1900 Head	22.7	1860	1.383	41.166	1.400	40.000	-1.21%	2.91%
			1880	1.395	41.121	1.400	40.000	-0.36%	2.80%
			1900	1.407	41.084	1.400	40.000	0.50%	2.71%
			1905	1.410	41.075	1.400	40.000	0.71%	2.69%
			1910	1.413	41.066	1.400	40.000	0.93%	2.67%
			1920	1.418	41.048	1.400	40.000	1.29%	2.62%

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 70 of 107

REV 22.0
03/30/2022

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Table 11-2
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
11/11/2024	2450 Head	20.9	2300	1.710	38.494	1.670	39.500	2.40%	-2.55%
			2310	1.717	38.478	1.679	39.480	2.26%	-2.54%
			2320	1.725	38.459	1.687	39.460	2.25%	-2.54%
			2400	1.787	38.319	1.756	39.289	1.77%	-2.47%
			2450	1.825	38.225	1.800	39.200	1.39%	-2.49%
			2480	1.848	38.180	1.833	39.162	0.62%	-2.51%
			2500	1.862	38.144	1.855	39.136	0.38%	-2.53%
			2510	1.870	38.126	1.866	39.123	0.21%	-2.55%
			2535	1.889	38.089	1.893	39.092	-0.21%	-2.57%
			2550	1.901	38.070	1.909	39.073	-0.42%	-2.57%
			2560	1.909	38.058	1.920	39.060	-0.57%	-2.57%
			2600	1.941	37.995	1.964	39.009	-1.17%	-2.60%
			2650	1.982	37.910	2.018	38.945	-1.78%	-2.66%
			2680	2.007	37.858	2.051	38.907	-2.15%	-2.70%
			2700	2.023	37.815	2.073	38.882	-2.41%	-2.74%
			2300	1.711	38.220	1.670	39.500	2.46%	-3.24%
			2310	1.718	38.193	1.679	39.480	2.32%	-3.26%
11/18/2024	2450 Head	20.1	2320	1.726	38.164	1.687	39.460	2.31%	-3.28%
			2400	1.784	37.983	1.756	39.289	1.59%	-3.32%
			2450	1.820	37.861	1.800	39.200	1.11%	-3.42%
			2480	1.844	37.794	1.833	39.162	0.60%	-3.49%
			2500	1.860	37.745	1.855	39.136	0.27%	-3.55%
			2510	1.868	37.719	1.866	39.123	0.11%	-3.59%
			2535	1.885	37.663	1.893	39.092	-0.42%	-3.66%
			2550	1.898	37.637	1.909	39.073	-0.58%	-3.68%
			2560	1.906	37.619	1.920	39.060	-0.73%	-3.69%
			2600	1.936	37.523	1.964	39.009	-1.43%	-3.81%
			2650	1.974	37.410	2.018	38.945	-2.18%	-3.94%
			2680	1.998	37.338	2.051	38.907	-2.58%	-4.03%
			2700	2.011	37.279	2.073	38.882	-2.99%	-4.12%
			2300	1.735	38.218	1.670	39.500	3.89%	-3.25%
			2310	1.742	38.197	1.679	39.480	3.75%	-3.25%
			2320	1.750	38.175	1.687	39.460	3.73%	-3.26%
11/22/2024	2450 Head	21.1	2400	1.813	38.039	1.756	39.289	3.25%	-3.18%
			2450	1.853	37.945	1.800	39.200	2.94%	-3.20%
			2480	1.877	37.891	1.833	39.162	2.40%	-3.25%
			2500	1.893	37.856	1.855	39.136	2.05%	-3.27%
			2510	1.900	37.837	1.866	39.123	1.82%	-3.29%
			2535	1.920	37.788	1.893	39.092	1.43%	-3.34%
			2550	1.933	37.761	1.909	39.073	1.26%	-3.36%
			2560	1.941	37.745	1.920	39.060	1.09%	-3.37%
			2600	1.973	37.671	1.964	39.009	0.46%	-3.43%
			2650	2.013	37.569	2.018	38.945	-0.25%	-3.53%
			2680	2.038	37.512	2.051	38.907	-0.63%	-3.59%
			2700	2.053	37.472	2.073	38.882	-0.96%	-3.63%
			2300	1.695	39.196	1.670	39.500	1.50%	-0.77%
			2310	1.703	39.178	1.679	39.480	1.43%	-0.76%
			2320	1.711	39.159	1.687	39.460	1.42%	-0.76%
			2400	1.774	39.023	1.756	39.289	1.03%	-0.68%
11/25/2024	2450 Head	20.5	2450	1.812	38.933	1.800	39.200	0.67%	-0.68%
			2480	1.835	38.884	1.833	39.162	0.11%	-0.71%
			2500	1.852	38.853	1.855	39.136	-0.16%	-0.72%
			2510	1.860	38.837	1.866	39.123	-0.32%	-0.73%
			2535	1.879	38.796	1.893	39.092	-0.74%	-0.76%
			2550	1.891	38.777	1.909	39.073	-0.94%	-0.76%
			2560	1.899	38.764	1.920	39.060	-1.09%	-0.76%
			2600	1.930	38.698	1.964	39.009	-1.73%	-0.80%
			2650	1.970	38.615	2.018	38.945	-2.38%	-0.85%
			2680	1.994	38.572	2.051	38.907	-2.78%	-0.86%
			2700	2.010	38.534	2.073	38.882	-3.04%	-0.90%
			2300	1.668	37.712	1.670	39.500	-0.12%	-4.53%
			2310	1.676	37.692	1.679	39.480	-0.18%	-4.53%
			2320	1.684	37.669	1.687	39.460	-0.18%	-4.54%
			2400	1.747	37.526	1.756	39.289	-0.51%	-4.49%
			2450	1.785	37.420	1.800	39.200	-0.83%	-4.54%
			2480	1.810	37.370	1.833	39.162	-1.25%	-4.58%
11/25/2024	2450 Head	19.8	2500	1.827	37.335	1.855	39.136	-1.51%	-4.60%
			2510	1.835	37.313	1.866	39.123	-1.66%	-4.63%
			2535	1.853	37.269	1.893	39.092	-2.11%	-4.66%
			2550	1.864	37.250	1.909	39.073	-2.36%	-4.67%
			2560	1.872	37.237	1.920	39.060	-2.50%	-4.67%
			2600	1.904	37.165	1.964	39.009	-3.05%	-4.73%
			2650	1.941	37.074	2.018	38.945	-3.82%	-4.80%
			2680	1.966	37.028	2.051	38.907	-4.14%	-4.83%
			2700	1.981	36.983	2.073	38.882	-4.44%	-4.88%

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 71 of 107

REV 22.0
03/30/2022

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Table 11-3
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
11/18/2024	5200-5800 Head	19.7	5150	4.537	35.703	4.608	36.050	-1.54%	-0.96%
			5160	4.548	35.689	4.618	36.040	-1.52%	-0.97%
			5170	4.556	35.676	4.629	36.030	-1.58%	-0.98%
			5180	4.565	35.658	4.635	36.009	-1.51%	-0.97%
			5190	4.576	35.632	4.645	35.998	-1.49%	-1.02%
			5200	4.588	35.608	4.655	35.986	-1.44%	-1.05%
			5210	4.602	35.589	4.666	35.975	-1.37%	-1.07%
			5220	4.617	35.569	4.676	35.963	-1.26%	-1.10%
			5240	4.642	35.527	4.696	35.940	-1.15%	-1.15%
			5250	4.652	35.517	4.706	35.929	-1.15%	-1.15%
			5260	4.662	35.506	4.717	35.917	-1.17%	-1.14%
			5270	4.674	35.489	4.727	35.906	-1.12%	-1.16%
			5280	4.684	35.467	4.737	35.894	-1.12%	-1.19%
			5290	4.695	35.446	4.748	35.883	-1.12%	-1.22%
			5300	4.707	35.429	4.758	35.871	-1.07%	-1.23%
			5310	4.719	35.410	4.768	35.860	-1.03%	-1.25%
			5320	4.732	35.389	4.778	35.849	-0.96%	-1.29%
			5500	4.923	35.068	4.963	35.643	-0.81%	-1.61%
			5510	4.937	35.038	4.973	35.632	-0.72%	-1.67%
			5520	4.948	35.011	4.983	35.620	-0.70%	-1.71%
			5530	4.960	34.997	4.994	35.609	-0.68%	-1.72%
			5540	4.974	34.984	5.004	35.597	-0.60%	-1.72%
			5550	4.987	34.973	5.014	35.586	-0.54%	-1.72%
			5560	4.998	34.958	5.024	35.574	-0.52%	-1.73%
			5580	5.019	34.907	5.045	35.551	-0.52%	-1.81%
			5600	5.044	34.847	5.065	35.529	-0.41%	-1.92%
			5610	5.056	34.818	5.076	35.518	-0.39%	-1.97%
			5620	5.070	34.796	5.086	35.506	-0.31%	-2.00%
			5640	5.102	34.766	5.106	35.483	-0.08%	-2.02%
			5660	5.129	34.742	5.127	35.460	0.04%	-2.02%
			5670	5.139	34.724	5.137	35.449	0.04%	-2.05%
			5680	5.150	34.705	5.147	35.437	0.06%	-2.07%
			5690	5.160	34.683	5.158	35.426	0.04%	-2.10%
			5700	5.174	34.657	5.168	35.414	0.12%	-2.14%
			5710	5.188	34.638	5.178	35.403	0.19%	-2.16%
			5720	5.205	34.625	5.188	35.391	0.33%	-2.16%
			5745	5.238	34.615	5.214	35.363	0.46%	-2.12%
			5750	5.242	34.612	5.219	35.357	0.44%	-2.11%
			5755	5.247	34.609	5.224	35.351	0.44%	-2.10%
			5765	5.255	34.594	5.234	35.340	0.40%	-2.11%
			5775	5.264	34.569	5.245	35.329	0.36%	-2.15%
			5785	5.274	34.546	5.255	35.317	0.36%	-2.18%
			5795	5.285	34.531	5.265	35.305	0.38%	-2.19%
			5800	5.292	34.523	5.270	35.300	0.42%	-2.20%
			5800	5.292	34.523	5.270	35.300	0.42%	-2.20%
			5805	5.299	34.520	5.275	35.294	0.45%	-2.19%
			5825	5.332	34.511	5.296	35.271	0.68%	-2.15%
			5835	5.347	34.503	5.305	35.230	0.79%	-2.06%
			5845	5.359	34.492	5.315	35.210	0.83%	-2.04%
			5850	5.362	34.486	5.320	35.200	0.79%	-2.03%
			5855	5.363	34.475	5.325	35.197	0.71%	-2.05%
			5865	5.367	34.455	5.336	35.190	0.58%	-2.09%
			5865	5.367	34.455	5.336	35.190	0.58%	-2.09%
			5865	5.367	34.455	5.336	35.190	0.58%	-2.09%
			5875	5.374	34.431	5.347	35.183	0.50%	-2.14%
			5885	5.382	34.406	5.357	35.177	0.47%	-2.19%
			5905	5.406	34.358	5.379	35.163	0.50%	-2.29%
11/18/2024	6000 Head	20.6	5935	5.511	34.814	5.411	35.143	1.85%	-0.94%
			5970	5.536	34.677	5.448	35.120	1.62%	-1.26%
			5985	5.567	34.612	5.464	35.110	1.89%	-1.42%
			6000	5.608	34.687	5.480	35.100	2.34%	-1.18%
			6025	5.615	34.673	5.510	35.070	1.91%	-1.13%
			6065	5.691	34.533	5.557	35.022	2.41%	-1.40%
			6075	5.714	34.513	5.569	35.010	2.60%	-1.42%
			6085	5.737	34.490	5.580	34.998	2.81%	-1.45%
			6185	5.858	34.317	5.698	34.878	2.81%	-1.61%
			6275	5.950	34.118	5.805	34.770	2.50%	-1.88%
			6285	5.965	34.129	5.816	34.758	2.56%	-1.81%
			6305	5.981	34.148	5.840	34.734	2.41%	-1.69%
			6345	6.014	33.958	5.887	34.686	2.16%	-2.10%
			6475	6.194	33.726	6.041	34.530	2.53%	-2.33%
			6485	6.199	33.733	6.052	34.518	2.43%	-2.27%
			6500	6.204	33.767	6.070	34.500	2.21%	-2.12%
			6505	6.211	33.765	6.076	34.494	2.22%	-2.11%
			6545	6.261	33.581	6.122	34.446	2.27%	-2.51%
			6665	6.441	33.405	6.265	34.302	2.81%	-2.62%
			6675	6.446	33.416	6.273	34.290	2.76%	-2.55%
			6685	6.448	33.462	6.285	34.278	2.59%	-2.38%
			6715	6.471	33.374	6.319	34.242	2.41%	-2.53%
			6785	6.665	33.293	6.400	34.158	2.58%	-2.53%
			6825	6.669	33.083	6.447	34.110	1.89%	-3.01%
			6985	6.782	32.835	6.633	33.918	2.25%	-3.19%
			6995	6.789	32.802	6.644	33.906	2.18%	-3.26%
			7000	6.785	32.779	6.650	33.900	2.03%	-3.31%
			7005	6.778	32.747	6.656	33.894	1.83%	-3.38%
			7025	6.774	32.702	6.680	33.870	1.41%	-3.45%

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 72 of 107

Table 11-4
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
11/20/2024	6000 Head	21.0	5935	5.253	35.509	5.411	35.143	-2.92%	1.04%
			5970	5.279	35.416	5.448	35.120	-3.10%	0.84%
			5985	5.301	35.379	5.464	35.110	-2.98%	0.77%
			6000	5.314	35.338	5.480	35.100	-3.03%	0.68%
			6025	5.331	35.268	5.510	35.070	-3.25%	0.56%
			6065	5.413	35.124	5.557	35.022	-2.59%	0.29%
			6075	5.438	35.122	5.569	35.010	-2.35%	0.32%
			6085	5.456	35.144	5.580	34.998	-2.22%	0.42%
			6185	5.562	34.975	5.698	34.878	-2.39%	0.28%
			6275	5.664	34.839	5.805	34.770	-2.43%	0.20%
			6285	5.680	34.837	5.816	34.758	-2.34%	0.23%
			6305	5.701	34.838	5.840	34.734	-2.38%	0.30%
			6345	5.738	34.706	5.887	34.686	-2.53%	0.06%
			6475	5.893	34.489	6.041	34.530	-2.45%	-0.12%
			6485	5.904	34.491	6.052	34.518	-2.45%	-0.08%
			6500	5.916	34.481	6.070	34.500	-2.54%	-0.06%
			6505	5.921	34.472	6.076	34.494	-2.55%	-0.06%
			6545	5.978	34.318	6.122	34.446	-2.35%	-0.37%
			6665	6.153	34.169	6.265	34.302	-1.79%	-0.39%
			6675	6.167	34.200	6.273	34.290	-1.69%	-0.26%
			6685	6.172	34.220	6.285	34.278	-1.80%	-0.17%
			6715	6.184	34.141	6.319	34.242	-2.14%	-0.29%
			6785	6.263	34.072	6.400	34.158	-2.14%	-0.25%
			6825	6.279	33.908	6.447	34.110	-2.61%	-0.59%
			6985	6.468	33.600	6.633	33.918	-2.49%	-0.94%
			6995	6.471	33.569	6.644	33.906	-2.60%	-0.99%
			7000	6.471	33.549	6.650	33.900	-2.69%	-1.04%
			7005	6.472	33.524	6.656	33.894	-2.76%	-1.09%
			7025	6.491	33.449	6.680	33.870	-2.83%	-1.24%
			7500	7.014	32.664	7.240	33.300	-3.12%	-1.91%
			7980	7.639	32.053	7.816	32.724	-2.26%	-2.05%
			8000	7.641	31.872	7.840	32.700	-2.54%	-2.53%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2. The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 73 of 107

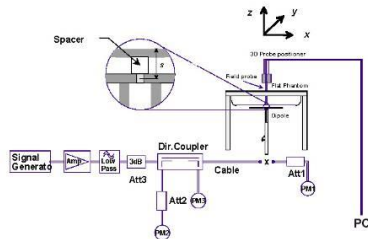
REV 22.0
03/30/2022

11.2 SAR Test System Verification

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

**Table 11-5
System Verification Results**

System Verification TARGET & MEASURED																					
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (°C)	Liquid Temp. (°C)	Input Power (W)	Source SN	Probe SN	DAE	Measured SAR 1g (W/kg)	1W Target SAR 1g (W/kg)	1W Normalized SAR 1g (W/kg)	Deviation 1g (%)	Measured SAR 10g (W/kg)	1W Target SAR 10g (W/kg)	1W Normalized SAR 10g (W/kg)	Deviation 10g (%)	Measured 4cm2 APD (W/m2)	1W Target 4cm2 APD (W/m2)	1W Normalized 4cm2 APD (W/m2)	Deviation 4cm2 APD (%)
G	13	HEAD	11/25/2024	24.5	21.5	1.00	1002	7713	1530	0.51	0.52	0.51	-2.69%	0.31	0.33	0.31	-4.00%	N/A	N/A	0.01	N/A
K3	750	HEAD	11/20/2024	22.2	21.6	0.20	1046	7558	1364	1.62	8.75	8.10	-7.43%	1.07	5.69	5.35	-5.98%	N/A	N/A	N/A	N/A
K6	835	HEAD	11/06/2024	21.4	20.4	0.20	4d119	7402	1502	1.92	9.96	9.60	-3.61%	1.26	6.48	6.30	-2.78%	N/A	N/A	N/A	N/A
K6	835	HEAD	11/11/2024	22.7	19.9	0.20	4d119	7402	1502	1.90	9.96	9.50	-4.62%	1.25	6.48	6.25	-3.55%	N/A	N/A	N/A	N/A
K6	835	HEAD	11/13/2024	22.5	21.8	0.20	4d119	7402	1502	1.91	9.96	9.55	-4.12%	1.25	6.48	6.25	-3.55%	N/A	N/A	N/A	N/A
K3	835	HEAD	11/18/2024	21.7	22.0	0.20	4d119	7558	1364	2.02	9.96	10.10	1.11%	1.33	6.48	6.65	2.62%	N/A	N/A	N/A	N/A
K3	835	HEAD	11/20/2024	22.2	21.6	0.20	4d119	7558	1364	1.97	9.96	9.85	-1.10%	1.29	6.48	6.45	-0.46%	N/A	N/A	N/A	N/A
K3	835	HEAD	11/23/2024	21.6	20.8	0.20	4d119	7558	1364	2.05	9.96	10.25	2.91%	1.34	6.48	6.70	3.40%	N/A	N/A	N/A	N/A
P	1750	HEAD	11/11/2024	22.6	21.0	0.10	1148	7718	665	3.73	37.20	37.30	0.27%	2.01	19.40	20.10	3.61%	N/A	N/A	N/A	N/A
O	1750	HEAD	11/19/2024	22.5	21.8	0.10	1150	3914	728	3.58	36.40	35.80	-1.65%	1.93	19.40	19.30	-0.52%	N/A	N/A	N/A	N/A
P	1750	HEAD	11/20/2024	20.9	21.9	0.10	1148	7718	665	3.62	37.20	36.20	-2.69%	1.96	19.40	19.60	1.03%	N/A	N/A	N/A	N/A
K4	1900	HEAD	11/06/2024	22.0	22.0	0.10	5d141	7565	1466	4.00	40.30	40.00	-0.74%	2.06	21.00	20.60	-1.90%	N/A	N/A	N/A	N/A
K3	1900	HEAD	11/11/2024	21.9	21.2	0.10	5d141	7558	1364	3.92	40.30	39.20	-2.73%	2.04	21.00	20.40	-2.86%	N/A	N/A	N/A	N/A
P	1900	HEAD	11/13/2024	20.7	20.0	0.10	5d080	7718	665	4.20	39.60	42.00	6.06%	2.23	20.70	22.30	7.73%	N/A	N/A	N/A	N/A
O	1900	HEAD	11/19/2024	22.5	21.8	0.10	5d148	3914	728	4.21	40.10	42.10	4.99%	2.20	21.00	22.00	4.76%	N/A	N/A	N/A	N/A
K4	2450	HEAD	11/22/2024	21.9	21.1	0.10	882	7565	1466	5.24	53.00	52.40	-1.13%	2.44	24.90	24.40	-2.01%	N/A	N/A	N/A	N/A
K6	2450	HEAD	11/25/2024	20.5	20.5	0.10	882	7402	1502	4.90	53.00	49.00	-7.55%	2.29	24.90	22.90	-8.03%	N/A	N/A	N/A	N/A
K4	2450	HEAD	11/25/2024	20.1	19.8	0.10	882	7565	1466	5.26	53.00	52.60	-0.75%	2.44	24.90	24.40	-2.01%	N/A	N/A	N/A	N/A
K2	2600	HEAD	11/11/2024	21.2	20.9	0.10	1009	7640	1645	5.38	56.60	53.80	-4.95%	2.43	25.50	24.30	-4.71%	N/A	N/A	N/A	N/A
K4	2600	HEAD	11/18/2024	21.0	20.1	0.10	1126	7565	1466	5.60	55.30	56.00	1.27%	2.51	24.80	25.10	1.21%	N/A	N/A	N/A	N/A
K6	2600	HEAD	11/25/2024	20.5	20.5	0.10	1126	7402	1502	5.22	55.30	52.20	-5.61%	2.37	24.80	23.70	-4.44%	N/A	N/A	N/A	N/A
K6	5250	HEAD	11/18/2024	20.3	19.7	0.05	1237	7402	1502	3.90	80.10	78.00	-2.62%	1.13	22.90	22.60	-1.31%	N/A	N/A	N/A	N/A
K6	5600	HEAD	11/18/2024	20.3	19.7	0.05	1237	7402	1502	4.03	82.00	80.60	-1.71%	1.15	23.30	23.00	-1.29%	N/A	N/A	N/A	N/A
K6	5750	HEAD	11/18/2024	20.3	19.7	0.05	1237	7402	1502	3.96	79.20	79.20	0.00%	1.14	22.50	22.80	1.33%	N/A	N/A	N/A	N/A
K6	5850	HEAD	11/18/2024	20.3	19.7	0.05	1237	7402	1502	4.18	80.40	83.60	3.98%	1.20	22.80	24.00	5.26%	N/A	N/A	N/A	N/A
C	6500	HEAD	11/18/2024	21.8	20.6	0.03	1111	7659	1407	7.13	291.00	285.20	-1.99%	1.35	53.50	54.00	0.93%	32.60	1300.00	1304.00	0.31%
R	8000	HEAD	11/20/2024	21.6	21.0	0.03	1007	7527	1272	6.75	269.00	270.00	0.37%	1.12	45.30	44.80	-1.10%	27.00	1110.00	1080.00	-2.70%



**Figure 11-1
System Verification Setup Diagram**



**Figure 11-2
System Verification Setup Photo**

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 74 of 107

REV 22.0
03/30/2022

11.3 Power Density Test System Verification

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

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

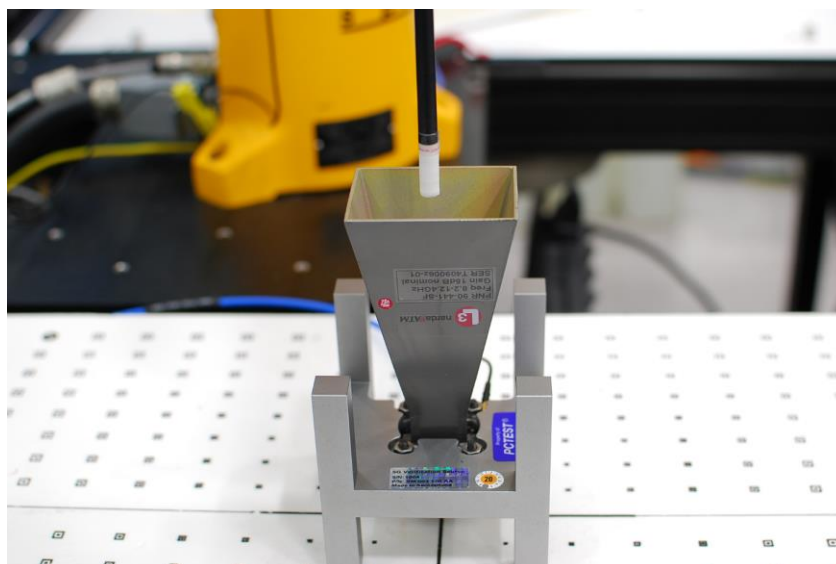


Figure 11-3
System Verification Setup Photo

Table 11-6
10 GHz Verifications

System	Frequency (GHz)	Date	Source S/N	Probe S/N	Prad (mW)	Normal psPD (W/m ² over 4 cm ²)		Deviation (dB)	Total psPD (W/m ² over 4 cm ²)		Deviation (dB)
						Measured	Target		Measured	Target	
Q	10	11/19/2024	1002	9622	93.3	62.50	54.60	0.66	62.90	54.90	0.59
Q	10	11/24/2024	1002	9622	93.3	58.00	54.60	0.32	58.30	54.90	0.26

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 75 of 107

REV 22.0
03/30/2022

12 SAR DATA SUMMARY

12.1 GSM 850 Standalone SAR

Table 12-1

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 850	GSM	A	1428M	1:8.3	0.07	836.60	190	33.5	31.77	Right Cheek	0	0.036	1.489	0.054	0.549	0.343		37.0		
Head	GSM 850	GSM	A	1428M	1:8.3	0.05	836.60	190	33.5	31.77	Right Tilt	0	0.023	1.489	0.034	0.351	0.219			36.6	34.4
Head	GSM 850	GSM	A	1428M	1:8.3	0.17	836.60	190	33.5	31.77	Left Cheek	0	0.039	1.489	0.058	0.594	0.371				
Head	GSM 850	GSM	A	1428M	1:8.3	-0.04	836.60	190	33.5	31.77	Left Tilt	0	0.021	1.489	0.031	0.320	0.200		39.3		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak											Head										
Uncontrolled Exposure/General Population											1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-2

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 850	GSM	E	1432M	1:8.3	0.02	848.80	251	30.5	29.41	Right Cheek	0	0.498	1.285	0.640	0.640	0.400		23.2		
Head	GSM 850	GSM	E	1432M	1:8.3	-0.02	848.80	251	30.5	29.41	Right Tilt	0	0.402	1.285	0.517	0.517	0.323		24.1		
Head	GSM 850	GSM	E	1432M	1:8.3	0.02	824.20	128	30.5	29.05	Left Cheek	0	0.560	1.396	0.762	0.762	0.489		22.3		
Head	GSM 850	GSM	E	1432M	1:8.3	0.04	836.60	190	30.5	29.08	Left Cheek	0	0.604	1.367	0.836	0.836	0.524		22.0	21.7	20.3
Head	GSM 850	GSM	E	1432M	1:8.3	0.01	848.80	251	30.5	29.41	Left Cheek	0	0.699	1.285	0.898	0.898	0.561	A1	21.7		
Head	GSM 850	GSM	E	1432M	1:8.3	0.01	848.80	251	30.5	29.41	Left Tilt	0	0.579	1.285	0.744	0.744	0.465		22.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT												Head									
Spatial Peak												1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population												averaged over 1 gram									

Table 12-3

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing (mm)	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]	
Body-worn/Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1428M	1:2.76	-0.08	836.60	190	30.5	28.68	Back	10	0.117	1.521	0.178	0.389	0.243		33.5			
	GPRS 850	GPRS 3 Tx Slots	A	1428M	1:2.76	-0.03	836.60	190	30.5	28.68	Front	10	0.071	1.521	0.108	0.236	0.148		35.7			
	Hotspot	GPRS 3 Tx Slots	A	1428M	1:2.76	-0.11	836.60	190	30.5	28.68	Bottom	10	0.036	1.521	0.055	0.120	0.075		38.6	33.5	29.5	
	Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1428M	1:2.76	0.01	836.60	190	30.5	28.68	Right	10	0.067	1.521	0.102	0.223	0.139		35.9		
	Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1428M	1:2.76	0.08	836.60	190	30.5	28.68	Left	10	0.058	1.521	0.088	0.193	0.121		36.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 12-4

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1432M	1:2.76	0.04	848.80	251	30.5	29.29	Back	10	0.440	1.321	0.581	0.653	0.408	A2	28.4	26.9	26.6
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1432M	1:2.76	-0.03	848.80	251	30.5	29.29	Front	10	0.560	1.321	0.740	0.830	0.519		27.3		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1432M	1:2.76	0.04	824.20	128	30.5	28.62	Top	10	0.466	1.542	0.719	0.806	0.504		27.5		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1432M	1:2.76	0.02	836.60	190	30.5	28.92	Top	10	0.541	1.439	0.778	0.873	0.546		27.1		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1432M	1:2.76	0.05	848.80	251	30.5	29.29	Top	10	0.621	1.321	0.820	0.921	0.576	A3	26.9		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1432M	1:2.76	0.01	848.80	251	30.5	29.29	Right	10	0.402	1.321	0.531	0.596	0.373		28.8		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak												Body									
Uncontrolled Exposure/General Population												1.6 W/kg (mW/g) averaged over 1 gram									

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 76 of 107

12.2 GSM 1900 Standalone SAR

Table 12-5

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	GSM 1900	GSM	A	1432M	1:8.3	0.04	1850.20	512	30.5	29.85	Right Cheek	0	0.028	1.161	0.033	0.728	0.455	A4	36.1	36.1	34.8
Head	GSM 1900	GSM	A	1432M	1:8.3	-0.20	1850.20	512	30.5	29.85	Right Tilt	0	0.024	1.161	0.028	0.624	0.399		36.8		
Head	GSM 1900	GSM	A	1432M	1:8.3	-0.02	1850.20	512	30.5	29.85	Left Cheek	0	0.023	1.161	0.027	0.598	0.374		37.0		
Head	GSM 1900	GSM	A	1432M	1:8.3	-0.08	1850.20	512	30.5	29.85	Left Tilt	0	0.022	1.161	0.026	0.572	0.358		37.2		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-6

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	-0.02	1909.80	810	23.0	21.88	Back	10	0.289	1.294	0.374	0.374	0.234	A5	24.0	20.0	18.8
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	-0.03	1909.80	810	23.0	21.88	Front	10	0.255	1.294	0.330	0.330	0.206		24.6		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	-0.05	1850.20	512	23.0	21.75	Bottom	10	0.425	1.334	0.567	0.567	0.354		22.2		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	-0.01	1880.00	661	23.0	21.85	Bottom	10	0.470	1.303	0.612	0.612	0.383		21.5		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	-0.11	1909.80	810	23.0	21.88	Bottom	10	0.732	1.294	0.947	0.947	0.592	A6	20.0	34.6	32.4
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	-0.14	1909.80	810	23.0	21.88	Right	10	0.017	1.294	0.022	0.022	0.014		36.3		
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1432M	1:2.076	0.04	1909.80	810	23.0	21.88	Left	10	0.029	1.294	0.038	0.038	0.024		34.0		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

12.3 UMTS 850 Standalone SAR

Table 12-7

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	UMTS 850	RMC	A	1428M	1:1	-0.04	836.60	4183	25.0	23.99	Right Cheek	0	0	0.081	1.262	0.102	0.562	0.351		34.9	34.6	32.4
Head	UMTS 850	RMC	A	1428M	1:1	0.09	836.60	4183	25.0	23.99	Right Tilt	0	0	0.052	1.262	0.066	0.361	0.226		36.8		
Head	UMTS 850	RMC	A	1428M	1:1	-0.07	836.60	4183	25.0	23.99	Left Cheek	0	0	0.086	1.262	0.109	0.596	0.373		34.6		
Head	UMTS 850	RMC	A	1428M	1:1	0.07	836.60	4183	25.0	23.99	Left Tilt	0	0	0.044	1.262	0.056	0.305	0.191		37.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 12-8

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	UMTS 850	RMC	E	1428M	1:1	-0.01	826.40	4132	21.5	20.35	Right Cheek	0	0.637	1.303	0.830	0.830	0.519		22.3	21.4	20.5
Head	UMTS 850	RMC	E	1428M	1:1	0.00	836.60	4183	21.5	20.51	Right Cheek	0	0.664	1.256	0.834	0.834	0.521		22.2		
Head	UMTS 850	RMC	E	1428M	1:1	-0.01	846.60	4233	21.5	20.49	Right Cheek	0	0.663	1.262	0.837	0.837	0.523		22.2		
Head	UMTS 850	RMC	E	1428M	1:1	-0.01	836.60	4183	21.5	20.51	Right Tilt	0	0.538	1.256	0.676	0.676	0.423		23.2		
Head	UMTS 850	RMC	E	1428M	1:1	0.02	826.40	4132	21.5	20.35	Left Cheek	0	0.777	1.303	1.012	1.012	0.633		21.4	A7	21.4
Head	UMTS 850	RMC	E	1428M	1:1	-0.06	836.60	4183	21.5	20.51	Left Cheek	0	0.813	1.256	1.021	1.021	0.638		21.4		
Head	UMTS 850	RMC	E	1428M	1:1	0.01	846.60	4233	21.5	20.49	Left Cheek	0	0.769	1.262	0.970	0.970	0.606		21.6		
Head	UMTS 850	RMC	E	1428M	1:1	-0.02	826.40	4132	21.5	20.35	Left Tilt	0	0.635	1.303	0.827	0.827	0.517		22.3		
Head	UMTS 850	RMC	E	1428M	1:1	0.09	836.60	4183	21.5	20.51	Left Tilt	0	0.735	1.256	0.923	0.923	0.577		21.8	22.2	
Head	UMTS 850	RMC	E	1428M	1:1	0.01	846.60	4233	21.5	20.49	Left Tilt	0	0.671	1.262	0.847	0.847	0.529		22.2		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-9

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body worn/Hotspot	UMTS 850	RMC	A	1428M	1:1	0.01	836.60	4183	25.0	23.99	Back	10	0	0.210	1.262	0.265	0.392	0.245		30.7	30.7	26.7
Hotspot	UMTS 850	RMC	A	1428M	1:1	-0.01	836.60	4183	25.0	23.99	Front	10	0	0.122	1.262	0.154	0.238	0.143		33.1		
Hotspot	UMTS 850	RMC	A	1428M	1:1	0.00	836.60	4183	25.0	23.99	Bottom	10	0	0.061	1.262	0.077	0.114	0.071		36.1		
Hotspot	UMTS 850	RMC	A	1428M	1:1	-0.02	836.60	4183	25.0	23.99	Right	10	1	0.103	1.262	0.130	0.192	0.120		33.8		
Hotspot	UMTS 850	RMC	A	1428M	1:1	-0.01	836.60	4183	25.0	23.99	Left	10	1	0.096	1.262	0.121	0.179	0.112		34.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT											Body 1.6 W/kg (mW/g) averaged over 1 gram											
Uncontrolled Exposure/General Population																						

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 77 of 107

REV 22.0
03/30/2022

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Table 12-10

[illegible]

12.4 LTE Band 12 Standalone SAR

Table 12-11

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Spectral Density [dBm]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1st SAR [W/kg]	Power Scaling Factor	Reported 1st SAR [W/kg]	Adjusted 1st SAR [W/kg]	Exposure Rate [μW/kg]	Pict #	Pict [dBm]	Overall Pict [dBm]	RFSP [dBm]
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.10	707.50	23905	0.0	25.0	23.28	1	49	Right Cheek	0	137	0.089	1.486	0.132	0.678	0.424		13.7		
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.07	707.50	23905	1.0	24.0	23.27	1	25	Left Cheek	0	137	0.079	1.489	0.133	0.711	0.447		13.4		
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.18	707.50	23905	0.0	25.0	23.28	1	49	Right Tilt	0	137	0.090	1.486	0.074	0.381	0.218		36.2		
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.07	707.50	23905	1.0	24.0	22.27	25	25	Right Tilt	0	137	0.043	1.489	0.064	0.413	0.218		15.9	33.4	32.0
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.18	707.50	23905	0.0	25.0	23.27	1	49	Left Cheek	0	137	0.079	1.486	0.117	0.603	0.316		13.4		
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.01	707.50	23905	1.0	24.0	22.27	25	25	Left Cheek	0	137	0.000	1.489	0.089	0.577	0.301		34.4		
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.17	707.50	23905	0.0	25.0	23.28	1	49	Left Tilt	0	137	0.039	1.486	0.058	0.297	0.188		17.3		
Head	LTE Band 12	10	QPSK	A	A1431M	1:1	0.25	707.50	23905	1.0	24.0	22.27	25	25	Left Tilt	0	137	0.020	1.489	0.043	0.276	0.174		17.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Unmodulated Power Spectral Density																		unmodulated Power Spectral Density								

Table 12-12

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power [dBm]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [Eden]	Conducted Power [dbm]	RF Size	RF Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Rate (1g SAR)	Pst =	Plimit [dbm]	Overall Pst [dbm]	EFS Ph [dbm]
Head	LTE Band 12	10	QPSK	E	1431M	1:1	-0.17	707.50	2309S	0.0	22.5	-21.82	1	49	Right Cheek	0	0.544	1.169	0.636	0.636	0.398		24.4		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	-0.05	707.50	2309S	0.0	22.5	-21.81	25	12	Right Cheek	0	0.518	1.172	0.607	0.607	0.379		24.6		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	0.01	707.50	2309S	0.0	22.5	-21.82	1	49	Right Tilt	0	0.404	1.169	0.566	0.566	0.354	AID	24.9		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	-0.02	707.50	2309S	0.0	22.5	-21.85	25	12	Right Tilt	0	0.446	1.172	0.523	0.523	0.327		25.3		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	-0.01	707.50	2309S	0.0	22.5	-21.82	1	49	Left Cheek	0	0.544	1.169	0.998	0.998	0.624		22.5		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	0.00	707.50	2309S	0.0	22.5	-21.81	25	12	Left Cheek	0	0.885	1.172	1.014	1.014	0.694		22.4		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	0.08	707.50	2309S	0.0	22.5	-21.80	50	0	Left Cheek	0	0.868	1.172	1.068	1.068	0.712		22.4		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	-0.02	707.50	2309S	0.0	22.5	-21.82	1	49	Left Tilt	0	0.740	1.169	0.865	0.865	0.541		23.1		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	0.02	707.50	2309S	0.0	22.5	-21.81	25	12	Left Tilt	0	0.703	1.172	0.824	0.824	0.515		23.3		
Head	LTE Band 12	10	QPSK	E	1431M	1:1	0.02	707.50	2309S	0.0	22.5	-21.80	50	0	Left Tilt	0	0.711	1.172	0.835	0.835	0.522		23.2		
ANSI/IEEE C95.1-1992 - SAFETY LIMIT																		Head 1.6 W/kg (mW/g)							
Unintentional Radiated Emission																									

Table 12-13

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power [dBm]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RIS Size	RIS Offset	Test Position	Spacing [mm]	Tune state	Measured E ₁ SAR [W/kg]	Power Scaling	Reported E ₁ SAR [W/kg]	Adjusted E ₁ SAR [W/kg]	Exposure Ratio [%]	Pilot #	Film# [cm]	Overall Film# [cm]	EIS [dB]
Body wear/Horiz	LTE Band 11	10	GPMK	A	A415M	1-1	-0.06	707.50	23905	0.0	25.0	23.28	1	49	Back	10	27	0.154	1.486	0.229	0.354	0.221	11.4			
Body wear/Horiz	LTE Band 12	10	GPMK	A	A415M	1-1	-0.06	707.50	23905	1.0	24.0	22.27	25	25	Back	10	137	0.110	1.489	0.177	0.346	0.216	11.5			
Body wear/Horiz	LTE Band 11	10	GPMK	A	A415M	1-1	-0.11	707.50	23905	1.0	25.0	23.28	1	49	Front	10	137	0.095	1.489	0.176	0.347	0.217	11.5			
HorizSpot	LTE Band 11	10	GPMK	A	A415M	1-1	-0.06	707.50	23905	1.0	24.0	22.27	23	25	Front	10	137	0.094	1.489	0.140	0.273	0.171	12.3			
HorizSpot	LTE Band 12	10	GPMK	A	A415M	1-1	-0.01	707.50	23905	0.0	25.0	23.28	1	49	Bottom	10	27	0.031	1.489	0.046	0.071	0.044	38.5			
HorizSpot	LTE Band 11	10	GPMK	A	A415M	1-1	-0.11	707.50	23905	1.0	25.0	23.28	1	49	Bottom	10	137	0.005	1.489	0.019	0.017	0.006	82.7	31.4	26.0	
HorizSpot	LTE Band 12	10	GPMK	A	A415M	1-1	-0.12	707.50	23905	0.0	25.0	23.28	1	49	Right	10	137	0.014	1.486	0.139	0.308	0.183	12.0			
HorizSpot	LTE Band 11	10	GPMK	A	A415M	1-1	-0.06	707.50	23905	0.0	24.0	22.27	25	25	Left	10	137	0.117	1.489	0.165	0.345	0.218	11.7			
HorizSpot	LTE Band 12	10	GPMK	A	A415M	1-1	-0.00	707.50	23905	0.0	25.0	23.28	1	49	Left	10	137	0.126	1.486	0.187	0.290	0.181	12.2			
HorizSpot	LTE Band 12	10	GPMK	A	A415M	1-1	-0.05	707.50	23905	1.0	24.0	22.27	25	25	Left	10	137	0.105	1.489	0.152	0.296	0.185	12.1			
Avg/MAX OVER 10 SEC - SAFETY LIMIT																		Body Exposed Area (cm²)							EIS [dB]	
Spatial Peak																		1.6 W/kg (mW/g)							EIS [dB]	
Electromagnetic Compatibility Resolution																		1.6 W/kg (mW/g)							EIS [dB]	

Table 12-14

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power [dBm]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RF Size	RF Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Rate (1g SAR)	Plot #	Plot [dBm]	Overall Plot [dBm]	EPs Plot [dBm]
Body worn/Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.01	707.50	23095	0.0	25.0	23.64	1	25	Back	10	0.246	1.368	0.337	0.433	0.271	A11	29.7		
Body worn/Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.01	707.50	23095	1.0	24.0	22.61	1	25	Back	10	0.247	1.368	0.337	0.440	0.271		28.6		
Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.19	707.50	23095	0.0	25.0	23.64	1	25	Front	10	0.245	1.368	0.390	0.502	0.314		29.0		
Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.02	707.50	23095	1.0	24.0	22.61	1	25	Front	10	0.223	1.377	0.307	0.488	0.311		29.1		
Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.00	707.50	23095	0.0	25.0	23.64	1	25	Top	10	0.207	1.368	0.420	0.541	0.319		28.7	28.1	
Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.00	707.50	23095	1.0	24.0	22.61	25	25	Top	10	0.250	1.377	0.344	0.559	0.349		28.6		
Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.15	707.50	23095	0.0	25.0	23.61	1	25	Right	10	0.304	1.368	0.484	0.624	0.390	A12	28.1		
Hotspot	LTE Band 12	30	QPSK	E	1431M	1:1	0.00	707.50	23095	1.0	24.0	22.61	25	25	Right	10	0.287	1.377	0.368	0.506	0.371		28.3		
ANALYSIS 1.1.1992 - SAFETY LIMIT																	Body								
Spatial Peak																	1.6 W/kg (mW/g)								
Unintended Co-channel Radiation																									

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 78 of 107

12.5 LTE Band 13 Standalone SAR

Table 12-15

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DfB [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAE [W/kg]	Power Scaling Factor	Reported 1g SAE [W/kg]	Adjusted 1g SAE [W/kg]	Exposure Rate (1g SAE)	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	FFS Pinnt [dBm]
Head	LTE Band 13	10	QPSK	A	1428M	1:1	-0.01	782.00	23230	0.0	25.0	23.64	1	0	Right Cheek	0	0	0.001	1.368	0.111	0.018	0.024	34.5			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	-0.01	782.00	23230	0.0	24.0	22.54	25	0	Right Cheek	0	0	0.001	1.400	0.085	0.003	0.014	34.6			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	0.01	782.00	23230	0.0	25.0	23.64	1	0	Right Tit	0	0	0.001	1.368	0.067	0.013	0.036	36.7			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	-0.01	782.00	23230	1.0	24.0	22.54	25	0	Right Tit	0	0	0.001	1.400	0.053	0.013	0.036	36.7			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	-0.01	782.00	23230	1.0	24.0	22.54	1	0	Left Cheek	0	0	0.001	1.368	0.125	0.060	0.076	33.9			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	-0.01	782.00	23230	1.0	24.0	22.54	25	0	Left Cheek	0	0	0.001	1.400	0.097	0.069	0.036	34.1			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	0.01	782.00	23230	1.0	24.0	22.54	25	0	Left Tit	0	0	0.001	1.368	0.067	0.018	0.036	36.7			
Head	LTE Band 13	10	QPSK	A	1428M	1:1	-0.01	782.00	23230	1.0	24.0	22.54	25	0	Left Tit	0	0	0.001	1.400	0.049	0.088	0.080	37.0			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																		Head								
Spatial Peak Uncontrolled Exposure/General Population																		1.6 W/kg (MW/kg) averaged over 1 gram								

Table 12-16

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Rate [μg SAR]	Plot #	Limit [dBm]	Overall Limit [dBm]	RFs Limit [dBm]
Head	LTE Band 13	30	QPSK	E	14313M	1:1	-0.01	782.00	23230	0.0	22.5	22.09	1	0	Right Cheek	0	0.784	1.099	0.807	0.807	0.504	23.4			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.01	782.00	23230	0.0	22.5	22.08	25	0	Right Cheek	0	0.728	1.102	0.802	0.802	0.501	23.4			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	-0.01	782.00	23230	0.0	22.5	22.04	30	0	Right Cheek	0	0.699	1.112	0.777	0.777	0.486	23.5			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	-0.11	782.00	23230	0.0	22.5	22.09	1	0	Right Throat	0	0.631	1.099	0.695	0.695	0.414	24.0			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.00	782.00	23230	0.0	22.5	22.08	25	0	Right Throat	0	0.625	1.102	0.689	0.689	0.431	24.1			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.00	782.00	23230	0.0	22.5	22.09	1	0	Left Cheek	0	0.835	1.099	0.835	0.835	0.513	A13	23.9		
Head	LTE Band 13	30	QPSK	E	14313M	1:1	-0.06	782.00	23230	0.0	22.5	22.09	1	0	Left Cheek	0	0.900	1.099	1.099	1.099	0.667	22.0			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.01	782.00	23230	0.0	22.5	22.08	25	0	Left Cheek	0	0.993	1.102	1.094	1.094	0.684	22.1			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.00	782.00	23230	0.0	22.5	22.04	30	0	Left Cheek	0	0.983	1.112	1.056	1.056	0.650	22.2			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	-0.06	782.00	23230	0.0	22.5	22.09	1	0	Left Throat	0	0.926	1.099	1.018	1.018	0.536	22.4			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.01	782.00	23230	0.0	22.5	22.08	25	0	Left Throat	0	0.934	1.102	1.007	1.007	0.629	22.4			
Head	LTE Band 13	30	QPSK	E	14313M	1:1	0.00	782.00	23230	0.0	22.5	22.09	30	0	Left Throat	0	0.907	1.102	1.009	1.009	0.651	22.4			
UNCLASSIFIED C95.1.1992 - SAFETY LIMIT																	Head								
Special Peak																	1.6 W/kg (mW/g)								
Annoyed/Exposure/General Population																	averaged over 1 gram								

Note: Blue entry represents variability measurement

Table 12-17

[illegible]

Table 12-18

Exposure	Band / Mode	Bandwidth [Hz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 3g SAR [W/kg]	Power Scaling Factor	Reported 3g SAR [W/kg]	Adjusted 3g SAR [W/kg]	Exposure Rate [SAR]	Plot #	PLimit [dBm]	Overall PLimit [dBm]	IFSS PLimit [dBm]
Body-worn/Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	-0.01	782.00	23230	0.0	25.0	23.95	1	0	Back	10	0.380	1.274	0.484	0.749	0.668	A14	28.1		
Body-worn/Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	-0.01	782.00	23230	1.0	24.0	23.87	25	0	Back	10	0.286	1.297	0.384	0.749	0.668	B14	28.1		
Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	0.13	782.00	23230	0.0	25.0	23.95	1	0	Front	10	0.426	1.274	0.539	0.834	0.521		27.6		
Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	-0.02	782.00	23230	1.0	24.0	22.87	25	0	Front	10	0.332	1.297	0.431	0.840	0.525		27.6		
Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	-0.02	782.00	23230	0.0	25.0	23.95	1	0	Top	10	0.407	1.274	0.633	0.960	0.613	A15	26.9	26.9	
Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	-0.01	782.00	23230	1.0	24.0	22.87	25	0	Top	10	0.385	1.297	0.499	0.974	0.609		27.0		
Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	0.04	782.00	23230	0.0	25.0	23.95	1	0	Right	10	0.452	1.274	0.576	0.891	0.557		27.3		
Hotspot	LTE Band 13	10	QPSK	E	14131M	1:1	0.00	782.00	23230	1.0	24.0	23.87	25	0	Right	10	0.357	1.297	0.463	0.903	0.564		27.3		
ANNEKING CRL 11962 - SAFETY LIMIT																		Body							
Spatial Peak																		1.6 W/kg (mW/g)							
Uncontrolled Exposure (General Population)																		0.08 W/kg (mW/g)							

12.6 LTE Band 5 (Cell) Standalone SAR

Table 12-19

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DfL [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RF Size	RF Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Pinfit [dBm]	Overall Pinfit [dBm]	RFs Pinfit [dBm]
Head	LTE Band5	10	QPSK	A	1431M	1:1	-0.31	836.50	20525	0.0	25.0	24.35	1	49	Right Cheek	0	1	0.075	1.161	0.087	0.513	0.321	35.5			
Head	LTE Band5	10	QPSK	A	1431M	1:1	-0.06	836.50	20525	1.0	24.0	23.72	35	25	Right Cheek	0	1	0.072	1.183	0.077	0.520	0.356	36.1			
Head	LTE Band5	10	QPSK	A	1431M	1:1	0.06	836.50	20525	0.0	25.0	24.35	1	49	Right Tilt	0	1	0.063	1.161	0.073	0.431	0.269	36.3			
Head	LTE Band5	10	QPSK	A	1431M	1:1	-0.04	836.50	20525	1.0	24.0	23.72	25	25	Right Tilt	0	1	0.052	1.183	0.062	0.656	0.285	36.1			
Head	LTE Band5	10	QPSK	A	1431M	1:1	0.04	836.50	20525	1.0	25.0	24.35	1	49	Left Cheek	0	0	0.063	1.161	0.068	0.462	0.376	34.5	34.9	32.7	
Head	LTE Band5	10	QPSK	A	1431M	1:1	-0.03	836.50	20525	1.0	24.0	23.72	25	25	Left Cheek	0	1	0.060	1.183	0.071	0.526	0.329	35.4			
Head	LTE Band5	10	QPSK	A	1431M	1:1	0.05	836.50	20525	0.0	25.0	24.35	1	49	Left Tilt	0	1	0.059	1.161	0.068	0.404	0.253	36.6			
Head	LTE Band5	10	QPSK	A	1431M	1:1	0.03	836.50	20525	1.0	24.0	23.72	25	25	Left Tilt	0	1	0.046	1.183	0.056	0.620	0.269	36.3			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																			Head					1.6 W/kg (mW/g)		
Spatial Peak																			6.0 W/kg (mW/g)					General use 1.6 W/kg		
Uncontrolled Exposure (General Population)																			0.08 W/kg (mW/g)					General use 0.08 W/kg		

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 79 of 107

REV 22.0
03/30/2022

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Table 12-20

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	RF5 Plimit [dBm]
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.02	836.50	20525	0.0	22.0	21.57	1	25	Right Cheek	0	0.673	1.156	0.778	0.778	0.486		23.0		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.02	836.50	20525	0.0	22.0	21.37	25	0	Right Cheek	0	0.681	1.156	0.787	0.787	0.492		23.0		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.04	836.50	20525	0.0	22.0	21.37	1	25	Right Tit	0	0.540	1.156	0.647	0.647	0.404		23.8		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.02	836.50	20525	0.0	22.0	21.57	25	0	Right Tit	0	0.549	1.156	0.635	0.635	0.397		23.8		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	-0.14	836.50	20525	0.0	22.0	21.37	1	25	Left Cheek	0	0.973	1.156	1.125	1.125	0.703	A16	21.4		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.01	836.50	20525	0.0	22.0	21.37	25	0	Left Cheek	0	0.527	1.156	1.083	1.083	0.677		21.6		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.02	836.50	20525	0.0	22.0	21.57	30	0	Left Cheek	0	0.943	1.156	1.102	1.102	0.689		21.5		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.01	836.50	20525	0.0	22.0	21.37	1	25	Left Tit	0	0.849	1.156	0.981	0.981	0.613		22.0		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.00	836.50	20525	0.0	22.0	21.37	25	0	Left Tit	0	0.849	1.156	0.981	0.981	0.613		22.0		
Head	LTE Band 5	10	QPSK	E	1431M	1:1	0.00	836.50	20525	0.0	22.0	21.57	30	0	Left Tit	0	0.869	1.156	1.016	1.016	0.635		21.9		
ANSI/IEEE C63.1 (1992) - SAFETY LIMIT																	Head		1.6 W/kg (mW/g)						
Spatial Peak																	Body		averaged over 1 gram						
Uncontrolled Exposure/General Population																									

Table 12-21

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dbm]	Conducted Power [dbm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dbm]	Overall Plimit [dbm]	RF5 Plimit [dbm]
Body worn/Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	-0.06	836.50	20525	0.0	25.0	24.35	1	49	Back	10	1	0.277	1.161	0.322	0.534	0.134		29.9		
Body worn/Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	-0.01	836.50	20525	1.0	24.0	23.27	25	25	Back	10	1	0.224	1.183	0.265	0.554	0.146		29.7		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.04	836.50	20525	0.0	25.0	24.35	1	49	Front	10	1	0.144	1.161	0.167	0.278	0.174		32.7		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.04	836.50	20525	1.0	24.0	23.27	25	25	Front	10	1	0.113	1.183	0.134	0.279	0.174		32.7		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.05	836.50	20525	0.0	25.0	24.35	1	49	Bottom	10	1	0.064	1.161	0.074	0.133	0.077		36.2		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	-0.05	836.50	20525	1.0	24.0	23.27	25	25	Bottom	10	1	0.053	1.183	0.063	0.111	0.092		36.0		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.06	836.50	20525	0.0	25.0	24.35	1	49	Right	10	1	0.073	1.161	0.085	0.141	0.088		35.7		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.03	836.50	20525	1.0	24.0	23.27	25	25	Right	10	1	0.056	1.183	0.066	0.118	0.099		35.7		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.07	836.50	20525	0.0	25.0	24.35	1	49	Left	10	1	0.096	1.161	0.111	0.185	0.116		34.5		
Hotspot	LTE Band 5	10	QPSK	A	1431M	1:1	0.10	836.50	20525	1.0	24.0	23.27	25	25	Left	10	1	0.077	1.183	0.093	0.190	0.119		34.4		
ANSI/IEEE C63.1 (1992) - SAFETY LIMIT																		Body		1.6 W/kg (mW/g)						
Spatial Peak																				averaged over 1 gram						
Uncontrolled Exposure/General Population																										

Table 12-22

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	RF5 Plimit [dBm]
Body worn/Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	-0.03	836.50	20525	0.0	25.0	24.75	1	49	Back	10	0.517	1.059	0.548	0.773	0.483	A17	27.6		
Body worn/Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	-0.01	836.50	20525	1.0	24.0	23.75	25	0	Back	10	0.509	1.064	0.502	0.979	0.624		28.1		
Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	0.16	836.50	20525	0.0	25.0	24.75	1	49	Front	10	0.570	1.059	0.604	0.853	0.533		27.1		
Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	0.00	836.50	20525	1.0	24.0	23.75	25	0	Front	10	0.408	1.064	0.434	0.772	0.483		27.6		
Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	-0.05	836.50	20525	0.0	25.0	24.75	1	49	Top	10	0.454	1.059	0.493	0.978	0.621	A18	26.5	26.5	
Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	-0.03	836.50	20525	1.0	24.0	23.75	25	0	Top	10	0.455	1.064	0.484	0.861	0.538		27.1		
Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	-0.19	836.50	20525	0.0	25.0	24.75	1	49	Right	10	0.389	1.059	0.391	0.552	0.345		29.0		
Hotspot	LTE Band 5	10	QPSK	E	1431M	1:1	0.01	836.50	20525	1.0	24.0	23.75	25	0	Right	10	0.388	1.064	0.396	0.545	0.341		28.1		
ANSI/IEEE C63.1 (1992) - SAFETY LIMIT																	Body		1.6 W/kg (mW/g)						
Spatial Peak																			averaged over 1 gram						
Uncontrolled Exposure/General Population																									

12.7 LTE Band 66 (AWS) Standalone SAR

Table 12-23

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	RF5 Plimit [dBm]
Head	LTE Band 66	20	QPSK	A	0455M	1:1	0.21	1770.00	132572	0.0	24.5	23.61	1	99	Right Cheek	0	99	0.151	1.227	0.185	0.995	0.622	A19	31.8		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	0.05	1770.00	132572	1.0	23.5	22.51	50	50	Right Cheek	0	100	0.112	1.256	0.141	0.951	0.594		32.0		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	0.01	1770.00	132572	0.0	24.5	23.61	1	99	Right Tit	0	101	0.042	1.227	0.052	0.277	0.173		37.3		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	-0.09	1770.00	132572	1.0	23.5	22.51	50	50	Right Tit	0	100	0.036	1.256	0.048	0.323	0.202		36.1		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	0.07	1770.00	132572	0.0	24.5	23.61	1	99	Left Cheek	0	99	0.062	1.227	0.076	0.499	0.326		36.6		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	-0.19	1770.00	132572	1.0	23.5	22.51	50	50	Left Cheek	0	99	0.044	1.256	0.055	0.374	0.234		36.0		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	0.01	1770.00	132572	0.0	24.5	23.61	1	99	Left Tit	0	100	0.026	1.227	0.029	0.369	0.231		36.1		
Head	LTE Band 66	20	QPSK	A	0455M	1:1	-0.05	1770.00	132572	1.0	23.5	22.51	50	50	Left Tit	0	100	0.040	1.256	0.062	0.416	0.260		35.6		
ANSI/IEEE C63.1 (1992) - SAFETY LIMIT																	Head		1.6 W/kg (mW/g)							
Spatial Peak																	Body		averaged over 1 gram							
Uncontrolled Exposure/General Population																										

Table 12-24

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #
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12.8 LTE Band 2 (PCS) Standalone SAR

Table 12-25

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EFS Pinnt [dBm]
Head	LTE Band 2	20	QPSK	A	0455M	1:1	-0.03	1860.00	18700	0.0	24.5	23.54	1	99	Right Cheek	0	100	0.076	1.247	0.095	0.585	0.666	A22	34.7		
Head	LTE Band 2	20	QPSK	A	0455M	1:1	0.08	1860.00	18700	1.0	23.5	22.52	50	0	Right Cheek	0	100	0.089	1.253	0.085	0.671	0.619		34.1	32.4	
Head	LTE Band 2	20	QPSK	A	0455M	1:1	-0.00	1860.00	18700	0.0	24.5	23.54	1	99	Right Tilt	0	100	0.064	1.247	0.067	0.451	0.398		36.1		
Head	LTE Band 2	20	QPSK	A	0455M	1:1	0.18	1860.00	18700	1.0	23.5	22.52	50	0	Right Tilt	0	100	0.047	1.253	0.059	0.457	0.286		35.2		
Head	LTE Band 2	20	QPSK	A	0455M	1:1	0.01	1860.00	18700	0.0	24.5	23.54	1	99	Left Cheek	0	100	0.076	1.247	0.087	0.538	0.346		35.0		
Head	LTE Band 2	20	QPSK	A	0455M	1:1	-0.09	1860.00	18700	1.0	23.5	22.52	50	0	Left Cheek	0	100	0.063	1.253	0.076	0.593	0.371		34.6		
Head	LTE Band 2	20	QPSK	A	0455M	1:1	-0.10	1860.00	18700	0.0	24.5	23.54	1	99	Left Tilt	0	100	0.067	1.247	0.084	0.515	0.322		35.2		
Head	LTE Band 2	20	QPSK	A	0455M	1:1	0.03	1860.00	18700	1.0	23.5	22.52	50	0	Left Tilt	0	100	0.066	1.253	0.066	0.438	0.274		35.5		
ANSI/IEEE C63.1982 - SAFETY LIMIT																			Head							
Spatial Peak																			1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																			averaged over 1 gram							

Table 12-26

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EFS Pinnt [dBm]
Body worn/Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.03	1860.00	18700	0.0	19.0	18.47	1	99	Back	10	100	0.419	1.130	0.473	0.473	0.296		22.2		
Body worn/Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.02	1860.00	18700	0.0	19.0	18.37	50	25	Back	10	100	0.434	1.156	0.502	0.502	0.314	A23	21.0		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.00	1860.00	18700	0.0	19.0	18.47	1	99	Front	10	100	0.419	1.130	0.473	0.473	0.296		22.2		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.02	1860.00	18700	0.0	19.0	18.37	50	25	Front	10	99	0.238	1.156	0.264	0.264	0.165		24.7		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.04	1860.00	18700	0.0	19.0	18.47	1	99	Bottom	10	100	0.738	1.130	0.831	0.831	0.519		19.8		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.17	1860.00	18700	0.0	19.0	18.47	1	99	Bottom	10	100	0.717	1.130	0.881	0.881	0.551		19.5		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.02	1860.00	18700	0.0	19.0	18.40	1	50	Bottom	10	100	0.813	1.148	0.911	0.911	0.582	A24	19.3		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.00	1860.00	18700	0.0	19.0	18.37	50	25	Bottom	10	100	0.720	1.156	0.867	0.867	0.542		19.6		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.00	1860.00	18700	0.0	19.0	18.24	50	0	Bottom	10	100	0.787	1.191	0.949	0.949	0.593		19.2		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.01	1860.00	18700	0.0	19.0	18.34	50	25	Bottom	10	100	0.795	1.247	0.991	0.991	0.619		19.0		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.00	1860.00	18700	0.0	19.0	18.30	100	0	Bottom	10	100	0.754	1.175	0.862	0.862	0.539		19.5		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.12	1860.00	18700	0.0	19.0	18.47	1	99	Right	10	99	0.040	1.130	0.045	0.045	0.036		32.4		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	0.03	1860.00	18700	0.0	19.0	18.37	50	25	Right	10	99	0.046	1.156	0.053	0.053	0.033		31.7		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.19	1860.00	18700	0.0	19.0	18.47	1	99	Left	10	99	0.049	1.130	0.053	0.053	0.034		31.5		
Hotspot	LTE Band 2	20	QPSK	A	0455M	1:1	-0.10	1860.00	18700	0.0	19.0	18.37	50	25	Left	10	99	0.046	1.156	0.053	0.053	0.033		31.7		
ANSI/IEEE C63.1982 - SAFETY LIMIT																			Body							
Spatial Peak																			1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																			averaged over 1 gram							

Note: Blue entry represents variability measurement

12.9 LTE Band 41 Standalone SAR

Table 12-27

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Adt1 Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EFS Pinnt [dBm]
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	0.06	2680.00	41490	0.0	25.0	23.97	1	99	Right Cheek	0	N/A	0.038	1.268	0.048	0.665	0.416		36.1		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	0.03	2680.00	41490	1.0	25.0	23.74	1	0	Right Cheek	0	N/A	0.040	1.337	0.062	0.849	0.531		35.1		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	-0.07	2680.00	41490	1.0	24.0	23.15	50	25	Right Cheek	0	N/A	0.033	1.236	0.039	0.676	0.423		36.1		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	0.09	2680.00	41490	0.0	25.0	23.97	1	99	Right Tilt	0	N/A	0.036	1.268	0.020	0.280	0.175		36.9		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	-0.12	2680.00	41490	0.0	25.0	23.97	50	25	Right Tilt	0	N/A	0.031	1.236	0.023	0.232	0.146		40.2		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	-0.10	2680.00	41490	0.0	25.0	23.97	50	25	Left Cheek	0	N/A	0.035	1.268	0.033	0.252	0.164		40.2		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	0.04	2680.00	41490	1.0	24.0	23.15	50	25	Left Cheek	0	N/A	0.030	1.216	0.024	0.423	0.264		38.8		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	-0.07	2680.00	41490	0.0	25.0	23.97	1	99	Left Tilt	0	N/A	0.037	1.268	0.028	0.285	0.241		38.3		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	0.03	2680.00	41490	1.0	24.0	23.15	50	25	Left Tilt	0	N/A	0.034	1.216	0.017	0.296	0.185		39.7		
Head	LTE Band 41	20	QPSK	B	1432M	1:1.58	-0.03	2680.00	41490	0.0	25.0	23.20	1	99	Right Cheek	0	ULICA 41C	0.048	1.514	0.073	1.003	0.627		34.4		
ANSI/IEEE C63.1982 - SAFETY LIMIT																			Head							
Spatial Peak																			1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																			averaged over 1 gram							

Table 12-28

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Adt1 Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Pinnt [dBm]	Overall Pinnt [dBm]	EFS Pinnt [dBm]
Head	LTE Band 41	20	QPSK	F	1432M	1:1.58	-0.02	2106.00	39750	0.0	19.0	18.35	1	99	Right Cheek	0	N/A	0.719	1.161	0.835	0.835	0.522		17.7		
Head	LTE Band 41	20	QPSK	F	1432M	1:1.58	0.06	2149.00	40185	0.0	19.0	18.28	1	99	Right Cheek	0	N/A	0.693	1.180	0.712	0.712	0.445		18.4		
Head	LTE Band 41	20	QPSK	F	1432M	1:1.58	-0.07	2093.00	40030	0.0	19.0	18.01	1	99	Right Cheek	0	N/A	0.602	1.256	0.631	0.631	0.394		19.0		
Head	LTE Band 41	20	QPSK	F	1432M	1:1.58	0.03	2636.00	41055	0.0	19.0	17.99	1	0	Right Cheek	0	N/A	0.443	1.262	0.499	0.549	0.343		19.6		
Head	LTE Band 41	20	QPSK	F	1432M	1:1.58	0.07	2680.00	41490	0.0	19.0	18.04	1	0	Right Cheek	0	N/A	0.469	1.247	0.541	0.541	0.331		19.3		
Head	LTE Band 41	20	QPSK	F	1432M	1:1.58	-0.03	2106.00	39750	0.0	19.0	18.12	50	50	Right Cheek	0	N/A	0.795	1.117	0.848	0.848	0.530		17.6		



Table 12-29

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plmit [dBm]	Overall Plmit [dBm]	EF5 Plmit [dBm]
Body worn/Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.12	2593.00	40620	0.0	23.0	22.23	1	50	Back	10	N/A	0.360	1.194	0.430	0.430	0.209		24.6		
Body worn/Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.06	2593.00	40620	0.0	23.0	22.32	50	25	Back	10	N/A	0.363	1.169	0.424	0.424	0.265	A26	24.7		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.06	2593.00	40620	0.0	23.0	22.23	1	50	Front	10	N/A	0.313	1.194	0.254	0.254	0.159		26.1		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.06	2593.00	40620	0.0	23.0	22.32	50	25	Front	10	N/A	0.246	1.169	0.253	0.253	0.158		26.9		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.01	2593.00	40620	0.0	23.0	22.23	1	50	Bottom	10	N/A	0.415	1.194	0.496	0.496	0.310		24.0		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.02	2593.00	40620	0.0	23.0	22.86	1	99	Bottom	10	N/A	0.426	1.242	0.529	0.529	0.331		23.7		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.09	2593.00	40620	0.0	23.0	22.32	50	25	Bottom	10	N/A	0.412	1.169	0.482	0.482	0.301		24.3		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.01	2593.00	40620	0.0	23.0	22.32	50	25	Right	10	N/A	0.337	1.194	0.402	0.402	0.261		24.2		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.01	2593.00	40620	0.0	23.0	22.32	50	25	Right	10	N/A	0.337	1.169	0.394	0.394	0.246		25.0		
Hotspot	LTE Band 41	20	QPSK	B	14132M	1:1.58	-0.01	2593.00	40620	0.0	23.0	22.72	1	99	Bottom	10	ULICA 41C	0.415	1.067	0.443	0.443	0.277		24.5		
ANSI/IEEE C95.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 12-30

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EF5 Plimit [dBm]
Body worn/Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.02	2506.00	39750	0.0	22.5	21.95	1	99	Back	10	N/A	0.184	1.135	0.209	0.209	0.131		27.3		
Body worn/Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.02	2506.00	39750	0.0	22.5	22.02	50	50	Back	10	N/A	0.197	1.117	0.220	0.220	0.138		27.0		
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.06	2506.00	39750	0.0	22.5	21.96	1	99	Front	10	N/A	0.177	1.135	0.201	0.201	0.126		27.4		
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.02	2506.00	39750	0.0	22.5	22.02	50	50	Front	10	N/A	0.225	1.117	0.251	0.251	0.157		26.5		
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.01	2506.00	39750	0.0	22.5	21.95	1	99	Top	10	N/A	0.120	1.135	0.190	0.190	0.109		33.9		
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.01	2506.00	39750	0.0	22.5	22.02	50	50	Top	10	N/A	0.103	1.117	0.192	0.192	0.103		33.1		19.5
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.20	2506.00	39750	0.0	22.5	21.95	1	99	Left	10	N/A	0.048	1.135	0.054	0.054	0.034		33.8		
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.06	2506.00	39750	0.0	22.5	22.02	50	50	Left	10	N/A	0.050	1.117	0.056	0.056	0.035		33.0		
Hotspot	LTE Band 41	20	QPSK	F	14132M	1:1.58	-0.04	2506.00	39750	0.0	22.5	21.97	50	0	Top	10	ULICA 41C	0.140	1.13	0.612	0.612	0.383	A27	22.6		
ANSI/IEEE C95.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Body 1.6 W/kg (mW/g) averaged over 1 gram								

12.10 NR Band n5 Standalone SAR

Table 12-31

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dbm]	Conducted Power [dbm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plmit [dbm]	Overall Plmit [dbm]	EF5 Plmit [dbm]
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Right Cheek	0	1	0.073	1.343	0.008	0.409	0.287		35.0		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.19	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.78	50	28	Right Cheek	0	1	0.072	1.324	0.095	0.446	0.279		35.2		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.02	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Right Tit	0	1	0.061	1.343	0.082	0.389	0.319		35.3		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.78	50	28	Right Tit	0	1	0.061	1.343	0.082	0.389	0.319		35.3		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.04	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Left Cheek	0	0	0.096	1.343	0.128	0.597	0.372		33.9		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.02	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.78	50	28	Left Cheek	0	0	0.096	1.324	0.127	0.595	0.372		33.9		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	CP-OFDM	1.5	23.5	22.31	1	1	Left Cheek	0	0	0.062	1.315	0.082	0.339	0.337		34.3		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.06	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Left Tit	0	0	0.096	1.343	0.080	0.415	0.259		35.3		
Head	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.78	50	28	Left Tit	0	0	0.067	1.324	0.089	0.415	0.259		35.3		
ANSI/IEEE C95.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 12-32

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EF5 Plimit [dBm]
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.11	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.46	1	53	Right Cheek	0	0.663	1.132	0.751	0.751	0.469		23.2		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.02	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.46	50	28	Right Cheek	0	0.654	1.135	0.742	0.742	0.464		23.2		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.10	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.46	1	53	Right Tit	0	0.613	1.132	0.684	0.684	0.434		23.5		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.02	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.45	50	28	Right Tit	0	0.612	1.135	0.703	0.703	0.439		23.9		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.03	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.46	1	53	Left Cheek	0	1.030	1.132	1.106	1.096	0.729		21.3		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.45	50	28	Left Cheek	0	1.030	1.135	1.096	1.096	0.725	A28	21.3		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.45	50	28	Left Cheek	0	0.907	1.135	1.036	1.036	0.702		21.3	21.2	
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.09	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.39	100	0	Left Cheek	0	0.989	1.151	1.138	1.138	0.711		21.4		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.05	836.50	167000	CP-OFDM	0.0	22.0	21.39	50	1	Left Cheek	0	0.973	1.160	1.130	1.130	0.706		21.4		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.46	1	53	Left Tit	0	0.886	1.132	1.008	1.008	0.627		21.9		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.08	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.45	50	28	Left Tit	0	0.883	1.135	1.002	1.002	0.626		21.9		
Head	NR Band n5	20	QPSK	E	14131M	1:1	-0.06	836.50	167000	OFDM + CP-OFDM	0.0	22.0	21.39	100	0	Left Tit	0	0.885	1.151	1.019	1.019	0.637		21.9		
ANSI/IEEE C95.1-1992 - SAFETY LIMIT																		Head								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

Notes: Blue asterisks represent accessibility measurement

Note: Blue entry represents variability measurement

Table 12-33

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Dfth [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plmit [dBm]	Overall Plmit [dBm]	EF5 Plmit [dBm]
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.05	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Back	10	0	0.247	1.343	0.132	0.417	0.261		29.7		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	2	23.72	1	53	Back	10	0	0.247	1.343	0.132	0.417	0.261		29.7		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.05	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Back	10	0	0.247	1.343	0.132	0.417	0.261		29.7		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	2	23.72	1	53	Back	10	0	0.247	1.343	0.132	0.417	0.261		29.7		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.05	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Front	10	0	0.137	1.343	0.211	0.265	0.196		31.1		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	2	23.72	1	53	Front	10	0	0.137	1.343	0.211	0.265	0.196		31.1		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.05	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Bottom	10	2	0.058	1.343	0.078	0.085	0.061		36.0		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	2	23.72	1	53	Bottom	10	2	0.058	1.343	0.078	0.085	0.061		36.0		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.05	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Right	10	0	0.071	1.343	0.097	0.122	0.076		35.1		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	2	23.72	1	53	Right	10	0	0.071	1.343	0.097	0.122	0.076		35.1		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.05	836.50	167000	OFDM + CP-OFDM	0.0	25.0	23.72	1	53	Left	10	0	0.006	1.343	0.129	0.160	0.100		33.0		
Body worn/Hotspot	NR Band n5	20	QPSK	A	14289M	1:1	-0.01	836.50	167000	OFDM + CP-OFDM	0.0	2	23.72	1	53	Left	10	0	0.006	1.343	0.129	0.160	0.100		33.0		
Unintentional Exposure (1.5W - SAR1 Limit)																											
Spatial Peak																											
1.5 W/kg (mW/g)																											
1.5 W/kg (mW/g) 1.5 W/kg (mW/g)																											

Table 12-34

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DfR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Pink [dBm]	Overall Pink [dBm]	EFS Pink [dBm]
Body worn/Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	-0.02	836.50	167300	DFT-s-OFDM	0.0	25.0	23.85	1	53	Back	10	0.448	1.303	0.584	0.718	0.449		27.5		
Body worn/Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	0.02	836.50	167300	DFT-s-OFDM	0.0	25.0	23.99	50	28	Back	10	0.450	1.262	0.568	0.698	0.436	A20	27.4		
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	-0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.85	1	53	Front	10	0.446	1.303	0.581	0.715	0.447		27.5		
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	-0.02	836.50	167300	DFT-s-OFDM	0.0	25.0	23.99	50	28	Front	10	0.445	1.262	0.562	0.691	0.432		27.5		
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	0.09	836.50	167300	DFT-s-OFDM	0.0	25.0	23.85	1	53	Top	10	0.612	1.303	0.797	0.961	0.613		26.5		
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	-0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.85	1	53	Right	10	0.589	1.309	0.795	0.978	0.611	A30	26.5		25.0
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	0.00	836.50	167300	CP-OFDM	1.5	23.5	23.50	1	1	Top	10	0.379	1.239	0.477	0.629	0.518		26.2		
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	-0.03	836.50	167300	DFT-s-OFDM	0.0	25.0	23.85	1	53	Right	10	0.569	1.309	0.468	0.575	0.559		26.2		
Hotspot	NR Band n5	20	QPSK	E	1431M	1:1	0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.99	50	28	Right	10	0.588	1.262	0.454	0.559	0.549		26.4		
ANSI/IEEE C63.1.102 - SAFETY LIMIT																		Body								
Uncontrolled Exposure/General Population																		Spatial Peak								
																		1.6 W/kg (mW/g)								
																		averaged over 1 gram								

12.11 NR Band n66 Standalone SAR

Table 12-35

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DfR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dbm]	Conducted Power [dbm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Pink [dbm]	Overall Pink [dbm]	EFS Pink [dbm]
Head	NR Band n66	45	QPSK	A	1429M	1:1	-0.18	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.92	1	1	Right Cheek	0	106	0.516	1.439	0.167	0.836	0.523		32.2		
Head	NR Band n66	45	QPSK	A	1429M	1:1	-0.08	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.78	130	61	Right Cheek	0	106	0.520	1.466	0.178	0.894	0.555		31.9		
Head	NR Band n66	45	QPSK	A	1429M	1:1	0.00	1745.00	349000	CP-OFDM	1.5	23.0	21.27	1	1	Right Cheek	0	106	0.509	1.507	0.140	0.992	0.620		31.5		
Head	NR Band n66	45	QPSK	A	1429M	1:1	-0.00	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.92	1	1	Right Ttr	0	106	0.504	1.439	0.078	0.889	0.443		30.5		
Head	NR Band n66	45	QPSK	A	1429M	1:1	-0.11	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.78	130	61	Right Ttr	0	106	0.504	1.486	0.095	0.477	0.298		34.7		
Head	NR Band n66	45	QPSK	A	1429M	1:1	-0.05	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.92	1	1	Left Cheek	0	106	0.505	1.453	0.103	0.488	0.275		35.9		31.5
Head	NR Band n66	45	QPSK	A	1435M	1:1	-0.00	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.78	130	61	Left Cheek	0	106	0.508	1.486	0.101	0.526	0.336		34.4		
Head	NR Band n66	45	QPSK	A	1435M	1:1	-0.05	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.92	1	1	Left Ttr	0	106	0.504	1.499	0.106	0.534	0.334		34.2		
Head	NR Band n66	45	QPSK	A	1435M	1:1	-0.17	1745.00	349000	DFT-s-OFDM	0.0	24.5	22.78	130	61	Left Ttr	0	106	0.508	1.466	0.101	0.506	0.335		34.4		
ANSI/IEEE C63.1.102 - SAFETY LIMIT																			Head								
Spatial Peak																			1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																			averaged over 1 gram								

Table 12-36

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DfR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Pink [dBm]	Overall Pink [dBm]	EFS Pink [dBm]
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.21	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	1	121	Right Cheek	0	0.571	1.297	0.741	0.741	0.463		20.8		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.05	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.36	120	61	Right Cheek	0	0.583	1.300	0.735	0.735	0.459		20.8		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.00	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	1	121	Right Ttr	0	0.581	1.300	0.734	0.734	0.460		19.2		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.04	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.36	120	61	Right Ttr	0	0.587	1.300	1.023	1.023	0.639		19.4		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.34	240	0	Right Ttr	0	0.790	1.306	1.032	1.032	0.645		19.3		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.01	1745.00	349000	CP-OFDM	0.0	19.5	18.36	120	1	Right Ttr	0	0.649	1.300	1.172	1.172	0.733	A11	18.1		18.5
Head	NR Band n66	45	QPSK	F	1429M	1:1	0.06	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	1	121	Left Cheek	0	0.660	1.297	0.726	0.726	0.454		20.4		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.00	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.36	120	61	Left Cheek	0	0.545	1.300	0.709	0.709	0.443		20.4		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	1	121	Left Ttr	0	0.606	1.297	0.786	0.786	0.491		20.5		
Head	NR Band n66	45	QPSK	F	1429M	1:1	-0.18	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.36	120	61	Left Ttr	0	0.614	1.300	0.798	0.798	0.489		20.4		
ANSI/IEEE C63.1.102 - SAFETY LIMIT																			Head							
Spatial Peak																			1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population																			averaged over 1 gram							

Table 12-37

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power DfR [dB]	Frequency [MHz]	Channel #	Waveform	MPE [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Pink [dBm]	Overall Pink [dBm]	EFS Pink [dBm]
Body worn/Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.14	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.90	1	1	Back	10	0.4	0.314	1.288	0.482	0.482	0.303		23.1		
Body worn/Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.84	120	0	Back	10	107	0.387	1.306	0.505	0.505	0.316	A32	22.9		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	-0.03	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.90	1	1	Front	10	101	0.251	1.288	0.523	0.523	0.293		24.9		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.84	120	0	Front	10	101	0.261	1.306	0.541	0.541	0.313		24.6		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.90	1	1	Bottom	10	107	0.629	1.288	1.008	1.008	0.688		19.7		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.84	120	0	Bottom	10	107	0.605	1.306	0.980	0.980	0.700	A33	19.3	19.0	
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.82	240	0	Bottom	10	107	0.507	1.312	1.128	1.128	0.705		19.4		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	-0.02	1745.00	349000	CP-OFDM	0.0	20.0	18.89	1	1	Bottom	10	28	0.889	1.291	1.148	1.148	0.718		19.4		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	-0.08	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.90	1	1	Right	10	100	0.695	1.288	1.109	1.109	0.688		29.6		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	-0.00	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.84	120	0	Right	10	100	0.591	1.306	0.119	0.119	0.078		29.2		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	-0.02	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.90	1	1	Left	10	106	0.640	1.288	0.652	0.652	0.033		36.8		
Hotspot	NR Band n66	45	QPSK	A	1429M	1:1	0.10	1745.00	349000	DFT-s-OFDM	0.0	20.0	18.84	120	0	Left	10	106	0.691	1.306	0.654	0.654	0.034		32.7		
ANSI/CES E1.19-2: SAFETY LIMIT																											
Special Focus																											
Uncontrolled Exposure: General Population																											
1.4 W/kg (mW/g) averaged over 1 gram																											



12.12 NR Band n41 Standalone SAR

Table 12-39

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MFR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	P1mkt [dBm]	Overall P1mkt [dBm]	EPS P1mkt [dBm]
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.01	2592.99	518998	DFT-s-OFDM	0.0	17.5	16.84	1	273	Right Cheek	0	0.588	1.164	0.661	0.661	0.413		19.2		
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.03	2592.99	518998	DFT-s-OFDM	0.0	17.5	16.80	135	138	Right Cheek	0	0.578	1.175	0.707	0.707	0.442		19.2		
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.03	2592.99	518998	DFT-s-OFDM	0.0	17.5	16.84	1	273	Right TIR	0	0.538	1.164	0.743	0.743	0.464		18.7		
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.03	2592.99	518998	DFT-s-CP-OFDM	0.0	17.5	16.80	135	138	Right TIR	0	0.678	1.175	0.797	0.797	0.498		18.4		
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.01	2592.99	518998	CP-OFDM	0.0	17.5	16.87	1	1	Right TIR	0	0.565	1.211	1.049	1.049	0.656	A34	17.2		
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.02	2592.99	518998	CP-OFDM	0.0	17.5	16.83	1	1	Right TIR	0	0.605	1.211	1.048	1.048	0.605		17.4		16.5
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.02	2592.99	518998	DFT-s-OFDM	0.0	17.5	16.84	1	273	Left Cheek	0	0.777	1.164	0.322	0.322	0.201		22.4		
Head	NR Band n41	100	QPSK	F	1431M	1:1	-0.02	2592.99	518998	DFT-s-CP-OFDM	0.0	17.5	16.80	135	138	Left Cheek	0	0.701	1.175	0.342	0.342	0.214		22.1		
Head	NR Band n41	100	QPSK	F	1431M	1:1	0.04	2592.99	518998	DFT-s-OFDM	0.0	17.5	16.84	1	273	Left TIR	0	0.293	1.164	0.341	0.341	0.213		22.3		
Head	NR Band n41	100	QPSK	F	1431M	1:1	0.03	2592.99	518998	DFT-s-CP-OFDM	0.0	17.5	16.80	135	138	Left TIR	0	0.282	1.175	0.331	0.331	0.207		22.2		
Spatial Peak																			1.6 W/kg (mW/g) averaged over 1 gram							
Uncontrolled Exposure/General Population																										
ANSI C63.19-2019 - SAR LIMIT																										

Table 12-45
2.4 GHz WIFI Antenna J Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]	Reported 1g SAR for reference model [W/kg]	
Head	2.4 GHz WIF / IEEE 802.11b	22	DSSS	J	0629M	97.51	0.01	2412.00	1	1	17.0	16.70	Left Cheek	0	0.242	1.072	1.026	0.266	0.266	0.166		22.7	22.7	16.0	0.431	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure / General Population													1.6 W/kg (mW/g) averaged over 1 gram													

Table 12-46
2.4 GHz WIFI Antenna J Body-worn/Hotspot Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Body-worn/Hotspot, Hotspot	2.4 GHz WLAN / IEEE 802.11b	22	DSSS	J	0629M	97.51	-0.05	2412.00	1	1	30.0	19.78	Back	30	0.050	1.052	1.026	0.054	0.578	0.361		32.6			0.071
	2.4 GHz WLAN / IEEE 802.11b	22	DSSS	J	0629M	97.51	-0.02	2412.00	1	1	20.0	19.78	Front	30	0.086	1.052	1.026	0.093	0.995	0.622		30.3	30.3	30.3	0.079
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																									
Spatial Peak													Body												
Uncontrolled Exposure / General Population													1.6 W/kg (mW/g) averaged over 1 gram												

12.14 2.4 GHz WIFI MIMO Standalone SAR

Table 12-47
2.4 GHz WIFI MIMO Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Cont [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Head	2.4 GHz WPFI / IEEE 802.11g	20	OFDM	MIMO	0629M	97.64	0.02	2412.00	1	1	17.0	16.94	17.0	16.97	Right Cheek	0	0.050	1.054	1.026	0.571	0.571	0.357		18.4	18.4	16.0	0.635
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure / General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram														
Note: To achieve the 20 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17 dBm.																											

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

Table 12-48
2.4 GHz WIFI MIMO Body-worn/Hotspot Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Pilot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Body-worn/hotspot	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0629M	97.64	-0.02	2412.00	1	1	18.0	17.27	18.0	17.17	Back	10	0.147	1.211	1.024	0.182	0.355	0.222		25.3	20.9	20.9	0.271
	2.4 GHz WIFI / IEEE 802.11g	20	OFDM	MIMO	0629M	97.64	0.01	2412.00	1	1	18.0	17.27	18.0	17.17	Left	10	0.407	1.211	1.024	0.505	0.984	0.615		20.9			0.467
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																											
Spatial Peak													Body														
Uncontrolled Exposure / General Population													1.6 W/kg (mW/g) averaged over 1 gram														

Note: To achieve the 21 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18 dBm.

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 85 of 107

REV 22.0
03/30/2022

12.15 5 GHz WIFI SISO Standalone SAR

Table 12-49

5 GHz WIFI Antenna H Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference Model [W/kg]
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	0629M	91.35	-0.14	5610.00	122	U-NII-2C	29.3	16.0	14.96	Right Cheek	0	0.712	1.271	1.095	0.991	0.991	0.619	A40	16.0	16.0	15.0	0.798
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 12-50

5 GHz WIFI Antenna H Body-worn/Hotspot Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Body-worn	5 GHz WIFI / IEEE 802.11ac	80	OFDM	H	0629M	91.35	0.20	5610.00	122	U-NII-2C	29.3	16.0	14.96	Back	10	0.213	1.271	1.095	0.295	0.184	A40	21.3	18.3	15.0	0.232
Hotspot	5 GHz WIFI / IEEE 802.11ac	80	OFDM	H	0629M	91.35	-0.04	5775.00	155	U-NII-3	29.3	16.0	14.80	Left	10	0.405	1.318	1.095	0.386	0.366	A40	18.3	18.3	15.0	0.401
ANQ/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram									

Table 12-51

5 GHz WIFI Antenna H Phablet Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Phablet	5 GHz WIFI / IEEE 802.11ac	80	OFDM	H	0629M	91.35	-0.03	5610.00	122	U-NII-2C	29.3	16.0	14.96	Left	0	1.880	1.271	1.095	2.616	0.654	A40	15.8	15.8	15.0	1.871
ANQ/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams									

Table 12-52

5 GHz WIFI Antenna E Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Head	5 GHz WIFI / IEEE 802.11ac	80	OFDM	E	0629M	96.96	0.06	5285.00	58	U-NII-2A	29.3	16.0	14.10	Right Temp	0	0.381	1.548	1.031	0.608	0.380		18.1	18.1	15.0	0.507
ANQ/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 12-53

5 GHz WIFI Antenna E Body-worn/Hotspot Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Body-worn	5 GHz WIFI / IEEE 802.11ac	80	OFDM	E	0629M	96.96	0.03	5855.00	171	U-NII-4	29.3	16.0	15.32	Back	10	0.404	1.169	1.031	0.487	0.304	A41	19.1	19.1	15.0	0.383
Body-worn/Hotspot	5 GHz WIFI / IEEE 802.11ac	80	OFDM	E	0629M	96.96	0.07	5775.00	155	U-NII-3	29.3	16.0	15.20	Back	10	0.331	1.303	1.031	0.410	0.256		19.8	19.8	15.0	0.289
ANQ/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram									

Table 12-54

5 GHz WIFI Antenna E Phablet Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Phablet	5 GHz WIFI / IEEE 802.11ac	80	OFDM	E	0629M	96.96	-0.10	5855.00	171	U-NII-4	29.3	16.0	15.32	Back	0	0.435	1.169	1.031	0.534	0.131		22.7	22.7	15.0	0.383
ANQ/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams									

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT																		Approved by: Technical Manager				
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset																		Page 86 of 107				

REV 22.0
03/30/2022



12.16 5 GHz WIFI MIMO Standalone SAR

Table 12-55

5 GHz WIFI MIMO Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Head	5 GHz WIFI / IEEE 802.11ac	80	OFDM	MIMO	0620M	92.29	-0.13	5690.00	138	U-NII-2C	58.5	16.0	15.42	16.0	15.58	Right Cheek	0	0.620	1.143	1.084	0.805	0.503		16.9	16.9	15.0	0.969
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram											

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

Table 12-56

5 GHz WIFI MIMO Body-worn/Hotspot Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 10g SAR for Reference model [W/kg]
Body-worn	5 GHz WIFI / IEEE 802.11ac	80	OFDM	MIMO	0620M	92.29	-0.06	5850.00	171	U-NII-4	58.5	16.0	13.00	16.0	13.60	Back	10	0.333	1.233	1.084	0.452	0.283		19.4	19.4	15.0	0.496
Body-worn/Hotspot	5 GHz WIFI / IEEE 802.11ac	80	OFDM	MIMO	0620M	92.29	-0.10	6270.00	135	U-NII-3	58.5	16.0	13.14	16.0	13.40	Back	10	0.309	1.222	1.084	0.408	0.235		19.8	19.8		0.410
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram											

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

Table 12-57

5 GHz WIFI MIMO Phablet Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 10g SAR for Reference model [W/kg]
Phablet	5 GHz WIFI / IEEE 802.11ac	80	OFDM	MIMO	0620M	92.29	-0.03	5610.00	122	U-NII-2C	58.5	16.0	13.19	16.0	13.50	Left	0	1.690	1.167	1.084	2.138	0.535		16.6	16.6	15.0	1.836
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

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

12.17 6 GHz WIFI SISO Standalone SAR and APD

Table 12-58

6 GHz WIFI Antenna H Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]	
Head	6 GHz WIFI / IEEE 802.11ax	40	OFDM	H	0584M	99.67	-0.01	6285.00	67	16.3	17.0	16.81	Right Cheek	0	0.670	1.045	1.003	0.702	0.992	0.620	A44	18.5	18.5	18.5	0.623	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram										
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported APD for Reference model [W/kg]	
Head	6 GHz WIFI / IEEE 802.11ax	40	OFDM	H	0584M	99.67	-0.01	6285.00	67	16.3	17.0	16.81	Right Cheek	0	3.980	1.045	1.003	4.172	5.892	0.295	A44	22.8	22.8	18.5	4.116	

Table 12-59

6 GHz WIFI Antenna H Body-worn Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]		
Body worn	6 GHz WIFI / IEEE 802.11ax	160	OFDM	H	0584M	99.67	0.06	6985.00	207	68.1	9.0	8.35	Back	10	0.000	1.161	1.003	0.000	0.000	0.000		48.3	48.3	8.0	0.004		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Body 1.6 W/kg (mW/g) averaged over 1 gram											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported APD for Reference model [W/kg]		
Body worn	6 GHz WIFI / IEEE 802.11ax	160	OFDM	H	0584M	99.67	0.06	6985.00	207	68.1	9.0	8.35	Back	10	0.000	1.161	1.003	0.000	0.000	0.000		61.3	61.3	8.0	0.067		

Table 12-60

6 GHz WIFI Antenna H Phablet Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 10g SAR for Reference model [W/kg]		
Phablet	6 GHz WIFI / IEEE 802.11ax	160	OFDM	H	0584M	99.67	-0.01	6505.00	111	68.1	9.0	8.43	Left	0	0.313	1.140	1.003	0.358	0.358	0.000	A46	17.4	17.4	8.0	0.377		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported APD for Reference model [W/kg]		
Phablet	6 GHz WIFI / IEEE 802.11ax	160	OFDM	H	0584M	99.67	-0.01	6505.00	111	68.1	9.0	8.43	Left	0	7.390	1.140	1.003	8.450	8.450	0.423	A46	12.7	12.7	8.0	8.939		

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT																			Approved by: Technical Manager				
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset																			Page 87 of 107				

REV 22.0
03/30/2022

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Table 12-61
6 GHz WIFI Antenna E Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Head	6 GHz WIFI / IEEE 802.11aa	40	OFDM	E	0584M	99.67	0.03	6685.00	147	16.3	17.0	16.89	Right Cheek	0	0.145	1.026	1.003	0.149	0.580	0.363		25.2	25.2	22.9	0.256
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															1.6 W/kg (mW/g) averaged over 1 gram										
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reporte APD for Reference model [W/kg]
Head	6 GHz WIFI / IEEE 802.11aa	40	OFDM	E	0584M	99.67	0.03	6685.00	147	16.3	17.0	16.89	Right Cheek	0	0.919	1.026	1.003	0.946	3.678	0.184		29.3	29.3	22.9	1.482

Table 12-62
6 GHz WIFI Antenna E Body-worn Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Body-worn	6 GHz WIFI / IEEE 802.11aa	160	OFDM	E	0584M	99.67	0.09	6025.00	15	68.1	9.0	8.96	Back	10	0.067	1.107	1.003	0.074	0.074	0.046	A45	20.2	20.2	8.0	0.064
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															1.6 W/kg (mW/g) averaged over 1 gram										
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reporte APD for Reference model [W/kg]
Body-worn	6 GHz WIFI / IEEE 802.11aa	160	OFDM	E	0584M	99.67	0.09	6025.00	15	68.1	9.0	8.96	Back	10	0.521	1.107	1.003	0.578	0.578	0.029	A45	24.3	24.3	8.0	0.517

Table 12-63
6 GHz WIFI Antenna E Phablet Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Phablet	6 GHz WIFI / IEEE 802.11aa	160	OFDM	E	0584M	99.67	-0.07	6025.00	15	68.1	9.0	8.96	Back	0	0.103	1.107	1.003	0.114	0.114	0.029		22.3	22.3	8.0	0.095
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															4.0 W/kg (mW/g) averaged over 10 grams										
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reporte APD for Reference model [W/kg]
Phablet	6 GHz WIFI / IEEE 802.11aa	160	OFDM	E	0584M	99.67	-0.07	6025.00	15	68.1	9.0	8.96	Back	0	2.380	1.107	1.003	2.643	2.643	0.132		17.7	17.7	8.0	2.232

12.18 6 GHz WIFI MIMO Standalone SAR and APD

Table 12-64
6 GHz WIFI MIMO Head Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported 1g SAR for Reference model [W/kg]
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0584M	99.67	-0.01	6285.00	67	32.5	17.0	16.93	17.0	16.16	Right Cheek	0	0.579	1.216	1.003	0.706	0.998	0.624		18.5	18.5	18.5	0.806
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Head												
Spatial Peak															1.6 W/kg (mW/g) averaged over 1 gram												
Note: To achieve the 20 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17 dBm.																											
Uncontrolled Exposure/General Population																											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reporte APD for Reference model [W/kg]
Head	6 GHz WiFi / IEEE 802.11ax	40	OFDM	MIMO	0584M	99.67	-0.01	6285.00	67	32.5	17.0	16.93	17.0	16.16	Right Cheek	0	3.520	1.216	1.003	4.293	6.066	0.303		22.7	22.7	18.5	4.958
Note: To achieve the 20 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17 dBm.																											

Table 12-65
6 GHz WIFI MIMO Body-worn Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported SAR [W/kg]	Adjusted SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reported SAR for Reference model [W/kg]
Body-worn	6GHz WIFI / IEEE 802.11ax	160	OFDM	MIMO	0584M	99.67	-0.02	6025.00	15	136.1	9.0	8.23	9.0	8.90	Back	10	0.057	1.194	1.003	0.068	0.068	0.043		20.6	20.6	8.0	0.063
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															1.6 W/kg (mW/g) averaged over 1 gram												
Note: To achieve the 12 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 9 dBm.																											
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EFS PLimit [dBm]	Reporte APD for Reference model [W/kg]
Body-worn	6GHz WIFI / IEEE 802.11ax	160	OFDM	MIMO	0584M	99.67	-0.02	6025.00	15	136.1	9.0	8.23	9.0	8.90	Back	10	0.446	1.194	1.003	0.934	0.934	0.027		24.7	24.7	8.0	0.513
Note: To achieve the 12 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 9 dBm.																											

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT															Approved by: Technical Manager											
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset															Page 88 of 107											

REV 22.0
03/30/2022

Table 12-66
6 GHz WIFI MIMO Phablet Spot-check Verification for Data Referencing

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported 1g SAR for Reference model [W/kg]		
Phablet	6GHz WIFI / IEEE 802.11ax	160	OFDM	MIMO	0588M	99.67	0.07	6505.00	111	136.1	9.0	8.42	9.0	8.39	Left	0	0.249	1.151	1.093	0.287	0.287	0.072		18.3	18.3	8.0	0.346		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																Phablet Spatial Peak Uncontrolled Exposure/General Population										4.0 W/kg (mW/g) averaged over 10 grams			
Note: To achieve the 12dbm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 9dbm.																													
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured APO [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APO [W/m² (4cm²)]	Adjusted APO [W/m² (4cm²)]	APO Exposure Ratio	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	Reported APO for Reference model [W/kg]		
Phablet	6GHz WIFI / IEEE 802.11ax	160	OFDM	MIMO	0588M	99.67	0.07	6505.00	111	136.1	9.0	8.42	9.0	8.39	Left	0	3.849	1.151	1.093	6.742	6.742	0.337		13.7	13.7	8.0	8.158		
Note: To achieve the 12dbm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 9dbm.																													

12.19 2.4 GHz Bluetooth SISO Standalone SAR

Table 12-67
2.4 GHz Bluetooth Antenna H Head SAR

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	-0.04	2402.00	0	1	19.5	17.84	Right Cheek	0	0.623	1.466	1.016	0.928	0.928	0.580		18.7		
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.02	2441.00	39	1	19.5	18.69	Right Cheek	0	0.805	1.205	1.016	0.986	0.986	0.616	A47	18.4		
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	-0.16	2441.00	39	1	19.5	18.06	Right Cheek	0	0.702	1.205	1.016	0.921	0.921	0.576		18.7		
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	-0.01	2480.00	78	1	19.5	17.98	Right Cheek	0	0.642	1.419	1.016	0.926	0.926	0.579		18.7	18.4	18.4
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.02	2441.00	39	1	19.5	18.69	Right Tilt	0	0.459	1.205	1.016	0.562	0.562	0.351		20.9		
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.01	2441.00	39	1	19.5	18.69	Left Cheek	0	0.231	1.205	1.016	0.283	0.283	0.177		23.9		
Head	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.02	2441.00	39	1	19.5	18.69	Left Tilt	0	0.137	1.205	1.016	0.168	0.168	0.105		26.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Head									
														Spatial Peak									
														Uncontrolled Exposure/General Population									
														1.6 W/kg (mW/g)									
														averaged over 1 gram									
Note: Blue entry represents variability measurement																							

Table 12-68
2.4 GHz Bluetooth Antenna H Body-worn/Hotspot SAR

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]						
Body worn/Hotspot	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.02	2441.00	39	1	19.5	18.69	Back	10	0.138	1.205	1.016	0.169	0.244	0.153	A48	26.1	21.2	20.0						
Hotspot	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.01	2441.00	39	1	19.5	18.69	Front	10	0.177	1.205	1.016	0.217	0.313	0.266		25.0								
Hotspot	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	0.07	2441.00	39	1	19.5	18.69	Top	10	0.106	1.205	1.016	0.130	0.188	0.118		22.2								
Hotspot	2.4 GHz Bluetooth	FHSS	H	0629M	76.80	-0.02	2441.00	39	1	19.5	18.69	Left	10	0.430	1.205	1.016	0.526	0.761	0.476	A49	21.2								
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																Body Uncontrolled Exposure/General Population										1.6 W/kg (mW/g) averaged over 1 gram			

Table 12-69
2.4 GHz Bluetooth Antenna J Head SAR

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]						
Head	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.02	2441.00	39	1	19.5	18.59	Right Cheek	0	0.253	1.233	1.016	0.317	0.577	0.361		23.4								
Head	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.08	2441.00	39	1	19.5	18.59	Right Tilt	0	0.039	1.233	1.016	0.049	0.089	0.056		31.5								
Head	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	-0.01	2441.00	39	1	19.5	18.59	Left Cheek	0	0.437	1.233	1.016	0.547	0.996	0.623		21.0								
Head	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.02	2441.00	39	1	19.5	18.59	Left Tilt	0	0.062	1.233	1.016	0.078	0.141	0.088		29.5								
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																Head Spatial Peak Uncontrolled Exposure/General Population										1.6 W/kg (mW/g) averaged over 1 gram			

Table 12-70
2.4 GHz Bluetooth Antenna J Body-worn/Hotspot SAR

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]			
Body-worn/Hotspot	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.05	2441.00	39	1	19.5	18.59	Back	10	0.060	1.233	1.016	0.075	0.368	0.230		29.6					
Hotspot	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.00	2441.00	39	1	19.5	18.59	Front	10	0.096	1.233	1.016	0.120	0.589	0.368		27.6	27.6	25.3			
Hotspot	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.03	2441.00	39	1	19.5	18.59	Top	10	0.004	1.233	1.016	0.005	0.025	0.016		41.4					
Hotspot	2.4 GHz Bluetooth	FHSS	J	0629M	76.80	0.02	2441.00	39	1	19.5	18.59	Right	10	0.025	1.233	1.016	0.031	0.153	0.096		33.4					
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Body Uncontrolled Exposure/General Population									1.6 W/kg (mW/g) averaged over 1 gram			

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 89 of 107

REV 22.0
03/30/2022

12.20 2.4 GHz Bluetooth MIMO Standalone SAR

Table 12-71
2.4 GHz Bluetooth MIMO Head SAR

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]	
Head	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.03	2441.00	39	1	15.5	15.30	15.5	14.74	Right Cheek	0	0.355	1.191	1.025	0.433	0.999	0.621		18.1			
Head	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.00	2441.00	39	1	15.5	15.30	15.5	14.74	Right Tilt	0	0.176	1.191	1.025	0.215	0.492	0.308		21.1	18.1	18.1	
Head	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.03	2441.00	39	1	15.5	15.30	15.5	14.74	Left Cheek	0	0.157	1.191	1.025	0.192	0.429	0.214		21.6			
Head	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.00	2441.00	39	1	15.5	15.30	15.5	14.74	Left Tilt	0	0.069	1.191	1.025	0.084	0.193	0.121		25.2			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Head										1.6 W/kg (mW/g)		
Spatial Peak														Uncontrolled Exposure/General Population										averaged over 1 gram		

Note: To achieve the 18.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 15.5 dBm.

Note: To achieve the 18.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 15.5 dBm.

Table 12-72
2.4 GHz Bluetooth MIMO Body-worn/Hotspot SAR

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]	
Body worn/Hotspot	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	-0.02	2441.00	39	1	15.5	15.30	15.5	14.74	Back	10	0.067	1.191	1.025	0.082	0.277	0.173		25.3			
Hotspot	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.03	2441.00	39	1	15.5	15.30	15.5	14.74	Front	10	0.092	1.191	1.025	0.112	0.381	0.238		23.9	20.8	19.8	
Hotspot	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.00	2441.00	39	1	15.5	15.30	15.5	14.74	Top	10	0.044	1.191	1.025	0.054	0.182	0.114		27.1			
Hotspot	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.04	2441.00	39	1	15.5	15.30	15.5	14.74	Right	10	0.016	1.191	1.025	0.020	0.066	0.041		31.5			
Hotspot	2.4 GHz Bluetooth	FHSS	MIMO	0629M	77.07	0.00	2441.00	39	1	15.5	15.30	15.5	14.74	Left	10	0.190	1.191	1.025	0.232	0.786	0.491		20.8			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Body										1.6 W/kg (mW/g)		
Spatial Peak														Uncontrolled Exposure/General Population										averaged over 1 gram		

Note: To achieve the 18.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 15.5 dBm.

12.21 UWB Standalone SAR

Table 12-73
UWB Antenna 1 Phablet SAR and APD

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	UWB	CW	1	0501M	1:1	0.03	6489.60	5	Back	0	0.000	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.02	7987.20	9	Back	0	0.000	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.09	6489.60	5	Front	0	0.000	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.08	7987.20	9	Front	0	0.001	0.000	A50
Phablet	UWB	CW	1	0501M	1:1	0.03	6489.60	5	Top	0	0.000	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.03	7987.20	9	Top	0	0.000	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.09	6489.60	5	Left	0	0.000	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.14	7987.20	9	Left	0	0.000	0.000	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT										Phablet			
Spatial Peak										4.0 W/kg (mW/g)			
Uncontrolled Exposure/General Population										averaged over 10 grams			
Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #
Phablet	UWB	CW	1	0501M	1:1	0.03	6489.60	5	Back	0	0.001	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.02	7987.20	9	Back	0	0.015	0.001	
Phablet	UWB	CW	1	0501M	1:1	0.09	6489.60	5	Front	0	0.006	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.08	7987.20	9	Front	0	0.024	0.001	A50
Phablet	UWB	CW	1	0501M	1:1	0.03	6489.60	5	Top	0	0.012	0.001	
Phablet	UWB	CW	1	0501M	1:1	0.03	7987.20	9	Top	0	0.007	0.000	
Phablet	UWB	CW	1	0501M	1:1	0.09	6489.60	5	Left	0	0.011	0.001	
Phablet	UWB	CW	1	0501M	1:1	0.14	7987.20	9	Left	0	0.008	0.000	

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 90 of 107

REV 22.0
03/30/2022

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12.22 NFC Standalone SAR

Table 12-74
NFC Phablet SAR

Exposure	Band / Mode	Signal Type	Ant.	Serial Number	Power Drift [dB]	Frequency [MHz]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	NFC	B	NFC	1442M	-0.03	13.60	Back	0	0.014	0.004	A51
Phablet	NFC	B	NFC	1442M	0.01	13.60	Front	0	0.000	0.000	
Phablet	NFC	B	NFC	1442M	0.06	13.60	Top	0	0.000	0.000	
Phablet	NFC	B	NFC	1442M	0.02	13.60	Left	0	0.000	0.000	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams				

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 91 of 107

REV 22.0
03/30/2022

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, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the 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 Publication 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 Publication 648474 D01v06r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 14 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 7.7 for more details).
10. Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is > 150 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. This device supports dynamic antenna tuning for some bands. Per FCC Guidance, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 15 for supplemental data.
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the 1g thresholds for the equivalent test cases.
13. This device uses Qualcomm Smart Transmit for WWAN/WLAN/BT operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).
14. Per October 2020 TCB Workshop notes, absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements.

GSM Test Notes:

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 92 of 107

REV 22.0
03/30/2022

UMTS Notes:

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

LTE Notes:

1. LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 9.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported 1g SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for LTE B41, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

NR Notes:

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

WLAN Notes:

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 93 of 107

REV 22.0
03/30/2022

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 9.6.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 9.6.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Multi-TX and Antenna SAR Considerations Appendix for complete analysis.
5. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
7. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.
8. Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factor for WIFI 6E. Per October 2020 TCB Workshop notes, 5 channels were tested for WIFI 6E.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 79% transmission duty factor for Bluetooth and 87% transmission duty factor for Bluetooth LE to determine compliance. See RF Conducted Power Section for the time domain plot and calculation for the duty factor of the device.
2. Head and Hotspot Bluetooth SAR were evaluated for BT BDR tethering applications.

UWB Notes:

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 94 of 107

REV 22.0
03/30/2022

13 POWER DENSITY DATA SUMMARY

13.1 6 GHz WIFI Power Density Results

Table 13-1

MEASUREMENT RESULTS																										
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant H) (dBm)	Conducted Power (Ant H) (dBm)	Maximum Allowed Power (Ant E) (dBm)	Conducted Power (Ant E) (dBm)	Power D/B (dB)	Spacing (mm)	Antenna Config.	Peak	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	WPD (W/m²)	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal pAPD (W/m²)	Scaled Normal pAPD (W/m²)	Total pAPD (W/m²)	Scaled Total pAPD (W/m²)	Plot #
6345.00	79	802.11ax	OFDM	160	9.00	8.70	-	-	0.13	2	H	1	1433M	MCSD	Back	99.67	0.125	-	1.554	1.072	1.003	1.770	2.957	1.980	3.325	
6285.00	67	802.11ax	OFDM	40	17.00	16.81	-	-	0.00	2	H	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.045	1.003	3.520	5.733	3.900	6.352	
6345.00	79	802.11ax	OFDM	160	9.00	8.70	-	-	0.18	2	H	1	1433M	MCSD	Top	99.67	0.125	-	1.554	1.072	1.003	1.380	2.306	1.450	2.423	
6025.00	15	802.11ax	OFDM	160	9.00	8.32	-	-	-0.15	2	H	1	1433M	MCSD	Left	99.67	0.125	-	1.554	1.169	1.003	2.060	3.753	3.380	6.159	
6345.00	79	802.11ax	OFDM	160	9.00	8.70	-	-	-0.16	2	H	1	1433M	MCSD	Left	99.67	0.125	-	1.554	1.072	1.003	2.260	3.776	4.270	7.135	
6005.00	111	802.11ax	OFDM	160	9.00	8.43	-	-	0.02	2	H	1	1433M	MCSD	Left	99.67	0.125	-	1.554	1.140	1.003	2.400	4.264	3.710	6.592	
6825.00	175	802.11ax	OFDM	160	9.00	8.24	-	-	0.10	2	H	1	1433M	MCSD	Left	99.67	0.125	0.424	1.554	1.191	1.003	0.954	1.771	1.620	3.007	
6965.00	207	802.11ax	OFDM	160	9.00	8.35	-	-	-0.01	2	H	1	1433M	MCSD	Left	99.67	0.125	-	1.554	1.161	1.003	0.862	1.580	1.310	2.371	
6825.00	175	802.11ax	OFDM	160	9.00	8.24	-	-	0.14	8.78	H	1	1433M	MCSD	Left	99.67	0.125	0.454	1.554	1.191	1.003	0.385	0.715	0.482	0.895	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.56	0.13	2	E	1	1433M	MCSD	Back	99.67	0.125	-	1.554	1.107	1.003	2.300	3.989	2.560	4.417	
5965.00	3	802.11ax	OFDM	40	-	-	17.00	16.21	0.12	2	E	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.199	1.003	2.600	4.672	2.950	5.513	
6285.00	67	802.11ax	OFDM	40	-	-	17.00	16.76	0.11	2	E	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.057	1.003	1.750	2.883	2.760	4.547	
6885.00	147	802.11ax	OFDM	40	-	-	17.00	16.89	-0.12	2	E	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.026	1.003	2.200	3.518	2.650	4.238	
6465.00	103	802.11ax	OFDM	80	-	-	16.00	15.97	-0.03	2	E	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.007	1.003	2.220	3.484	3.190	5.007	
7025.00	215	802.11ax	OFDM	80	-	-	15.50	15.44	0.07	2	E	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.014	1.003	2.620	4.141	3.110	4.915	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.56	0.12	2	E	1	1433M	MCSD	Top	99.67	0.125	-	1.554	1.107	1.003	1.390	2.398	1.450	2.502	
6025.00	15	802.11ax	OFDM	160	-	-	9.00	8.56	0.16	2	E	1	1433M	MCSD	Right	99.67	0.125	-	1.554	1.107	1.003	0.900	1.553	1.000	1.725	
6825.00	175	802.11ax	OFDM	160	9.00	8.26	9.00	8.99	-0.14	2	MIMO	1	1433M	MCSD	Back	99.67	0.125	-	1.554	1.188	1.003	1.560	2.884	1.810	3.346	
6825.00	175	802.11ax	OFDM	160	9.00	8.26	9.00	8.99	0.12	2	MIMO	2	1433M	MCSD	Back	99.67	0.125	-	1.554	1.188	1.003	1.210	2.237	1.460	2.699	
5965.00	3	802.11ax	OFDM	40	17.00	16.99	17.00	16.41	0.19	2	MIMO	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.146	1.003	3.310	5.912	3.750	6.698	
5965.00	3	802.11ax	OFDM	40	17.00	16.99	17.00	16.41	4.18	2	MIMO	2	1433M	MCSD	Front	99.67	0.125	-	1.554	1.146	1.003	3.620	6.486	4.050	7.234	
6285.00	67	802.11ax	OFDM	40	17.00	16.93	17.00	16.45	0.17	2	MIMO	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.135	1.003	3.320	5.873	3.830	6.776	
6285.00	67	802.11ax	OFDM	40	17.00	16.93	17.00	16.45	2.46	2	MIMO	2	1433M	MCSD	Front	99.67	0.125	-	1.554	1.135	1.003	3.790	6.705	4.090	7.236	
6465.00	103	802.11ax	OFDM	80	16.00	15.80	16.00	15.99	0.14	2	MIMO	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.047	1.003	3.070	5.010	3.190	5.206	
6465.00	103	802.11ax	OFDM	80	16.00	15.80	16.00	15.99	0.19	2	MIMO	2	1433M	MCSD	Front	99.67	0.125	-	1.554	1.047	1.003	2.160	3.525	2.820	4.602	
6465.00	147	802.11ax	OFDM	40	17.00	16.98	17.00	16.70	-0.12	2	MIMO	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.072	1.003	2.340	3.910	2.820	4.712	
6885.00	147	802.11ax	OFDM	40	17.00	16.98	17.00	16.70	0.19	2	MIMO	2	1433M	MCSD	Front	99.67	0.125	-	1.554	1.072	1.003	3.910	6.533	4.280	7.151	A52
6885.00	215	802.11ax	OFDM	80	15.50	15.22	15.50	15.18	0.18	2	MIMO	1	1433M	MCSD	Front	99.67	0.125	-	1.554	1.076	1.003	1.740	2.918	2.090	3.505	
7025.00	215	802.11ax	OFDM	80	15.50	15.22	15.50	15.18	0.18	2	MIMO	2	1433M	MCSD	Front	99.67	0.125	-	1.554	1.076	1.003	0.943	1.582	1.040	1.744	
7025.00	175	802.11ax	OFDM	160	9.00	8.26	9.00	8.99	0.11	2	MIMO	1	1433M	MCSD	Top	99.67	0.125	-	1.554	1.188	1.003	0.627	1.159	0.847	1.196	
6825.00	175	802.11ax	OFDM	160	9.00	8.26	9.00	8.99	0.03	2	MIMO	1	1433M	MCSD	Left	99.67	0.125	-	1.554	1.188	1.003	2.230	4.122	2.740	5.065	
6825.00	175	802.11ax	OFDM	160	9.00	8.26	9.00	8.99	0.00	2	MIMO	1	1433M	MCSD	Right	99.67	0.125	-	1.554	1.188	1.003	0.572	1.057	0.840	1.183	
40 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population																			Power Density 10 W/m² averaged over 4 cm²/31							

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 95 of 107

13.2 UWB Power Density Results

Table 13-2

MEASUREMENT RESULTS															
Frequency (MHz)	Channel	Mode	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Side	Grid Step (λ)	iPD (W/m²)	Scaling Factor for Measurement Uncertainty per IEC 62479	Normal psPD (W/m²)	Scaled Normal psPD (W/m²)	Total psPD (W/m²)	Scaled Total psPD (W/m²)	Plot #
6489.60	5	CW	0.12	2	1	0501M	Back	0.125	-	1.554	1.230	1.911	1.290	2.005	A53
6489.60	5	CW	0.10	2	1	0501M	Front	0.125	-	1.554	0.762	1.184	0.785	1.220	
6489.60	5	CW	0.11	2	1	0501M	Top	0.125	-	1.554	0.903	1.403	0.937	1.456	
6489.60	5	CW	0.16	9.24	1	0501M	Left	0.125	0.435	1.554	0.246	0.382	0.254	0.395	
6489.60	5	CW	0.16	2	1	0501M	Left	0.125	0.465	1.554	0.203	0.315	0.224	0.348	
7987.20	9	CW	0.18	2	1	0501M	Back	0.125	-	1.554	1.040	1.616	1.080	1.678	
7987.20	9	CW	0.17	2	1	0501M	Front	0.125	-	1.554	0.460	0.715	0.492	0.765	
7987.20	9	CW	0.12	2	1	0501M	Top	0.125	-	1.554	0.778	1.209	0.813	1.263	
7987.20	9	CW	0.17	2	1	0501M	Left	0.125	-	1.554	0.278	0.432	0.287	0.446	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population						Power Density 10 W/m² averaged over 4 cm²									

Power Density General Notes

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 96 of 107

REV 22.0
03/30/2022

14 SAR MEASUREMENT VARIABILITY

14.1 Measurement Variability

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

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

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

Table 14-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Test Position	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)
750	782.00	23230	LTE Band 13, 10 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	Left	Cheek	E	1.020	1.000	1.02	N/A	N/A	N/A
835	836.50	167300	NR Band n5, 20 MHz Bandwidth	DFT-s-OFDM, QPSK, 50 RB, 28 RB Offset	Left	Cheek	E	1.050	1.020	1.03	N/A	N/A	N/A
2450	2441.00	39	2.4 GHz Bluetooth	FHSS	Right	Cheek	H	0.805	0.752	1.07	N/A	N/A	N/A
2600	2592.99	518598	NR Band n41, 100 MHz Bandwidth	CP-OFDM, 1 RB, 1 RB Offset	Right	Tilt	F	0.866	0.865	1.00	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 14-2
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)
1750	1745.00	132322	LTE Band 66, 20 MHz Bandwidth	QPSK, 1 RB, 99 RB Offset	Bottom	10	A	0.888	0.804	1.10	N/A	N/A	N/A
1900	1900.00	19100	LTE Band 2, 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	Bottom	10	A	0.811	0.766	1.06	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram							

14.2 Measurement Uncertainty

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 97 of 107

REV 22.0
03/30/2022

15 ADDITIONAL TESTING PER FCC GUIDANCE

15.1 Tuner Testing

Per April 2019 TCB Workshop Notes, the following test procedures were followed to demonstrate that the SAR results in Section 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. 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 measured SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was > 1.2 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.

Table 15-1
UMTS Supplemental Head SAR Data

UMTS B5	
RMC	
Test Position	Left Cheek
Frequency (MHz)	836.60
Channel	4183
Measured 1g SAR (W/kg)	0.086
Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.094
Default (State 0)	0.097
State 0	0.097
State 37	0.072
State 69	0.068
State 70	0.059
State 107	0.024
State 108	0.023

Table 15-2
LTE Supplemental Head SAR Data

LTE B12		LTE B13		LTE B5		LTE B66		LTE B2	
QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset	
Test Position	Right Cheek	Test Position	Left Cheek	Test Position	Left Cheek	Test Position	Right Cheek	Test Position	Right Cheek
Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	836.50	Frequency (MHz)	1770.00	Frequency (MHz)	1860.00
Channel	23095	Channel	23230	Channel	20525	Channel	132572	Channel	18700
Measured 1g SAR (W/kg)	0.089	Measured 1g SAR (W/kg)	0.094	Measured 1g SAR (W/kg)	0.088	Measured 1g SAR (W/kg)	0.151	Measured 1g SAR (W/kg)	0.076
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)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 137)	0.088	Auto-tune (State 0)	0.096	Auto-tune (State 0)	0.092	Auto-tune (State 99)	0.198	Auto-tune (State 100)	0.095
Default (State 0)	0.069	Default (State 0)	0.099	Default (State 0)	0.091	Default (State 99)	0.172	Default (State 113)	0.072
State 7	0.025	State 0	0.099	State 0	0.091	State 14	0.138	State 17	0.056
State 30	0.068	State 8	0.044	State 11	0.054	State 23	0.017	State 20	0.011
State 62	0.054	State 29	0.082	State 26	0.045	State 55	0.036	State 52	0.068
State 77	0.033	State 61	0.044	State 58	0.068	State 84	0.153	State 87	0.072
State 100	0.066	State 78	0.037	State 81	0.033	State 93	0.026	State 90	0.015
State 115	0.012	State 99	0.065	State 96	0.068	State 99	0.172	State 100	0.086
State 137	0.086	State 116	0.005	State 119	0.067	State 122	0.156	State 125	0.009

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 98 of 107

REV 22.0
03/30/2022

Table 15-3
NR Supplemental Head SAR Data

Supplemental Head SAR Data			
NR Band n5		NR Band n66	
DFT-s-OFDM QPSK, 20 MHz Bandwidth, 50 RB, 28 RB Offset		DFT-s-OFDM QPSK, 45 MHz Bandwidth, 120 RB, 61 RB Offset	
Test Position	Left Cheek	Test Position	Right Cheek
Frequency (MHz)	836.50	Frequency (MHz)	1745.00
Channel	167300	Channel	349000
Measured 1g SAR (W/kg)	0.096	Measured 1g SAR (W/kg)	0.120
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.091	Auto-tune (State 106)	0.122
Default (State 0)	0.100	Default (State 99)	0.130
State 0	0.100	State 13	0.101
State 15	0.052	State 24	0.014
State 22	0.076	State 45	0.099
State 47	0.570	State 83	0.104
State 85	0.069	State 94	0.024
State 92	0.074	State 106	0.129
State 130	0.099	State 132	0.025

Table 15-4
UMTS Supplemental Body SAR Data

UMTS B5	
RMC	
Test Position	Back
Spacing	10 mm
Frequency (MHz)	836.60
Channel	4183
Measured 1g SAR (W/kg)	0.210
Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.234
Default (State 0)	0.230
State 0	0.230
State 10	0.136
State 27	0.168
State 42	0.089
State 80	0.055
State 97	0.143
State 135	0.074

Table 15-5
LTE Supplemental Body SAR Data

LTE B12		LTE B13		LTE B5		LTE B66		LTE B2	
QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 50 RB Offset	
Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Bottom	Test Position	Bottom
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	836.50	Frequency (MHz)	1745.00	Frequency (MHz)	1900.00
Channel	23095	Channel	23230	Channel	20525	Channel	132322	Channel	19100
Measured 1g SAR (W/kg)	0.154	Measured 1g SAR (W/kg)	0.226	Measured 1g SAR (W/kg)	0.277	Measured 1g SAR (W/kg)	0.888	Measured 1g SAR (W/kg)	0.811
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)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 27)	0.173	Auto-tune (State 0)	0.250	Auto-tune (State 1)	0.304	Auto-tune (State 107)	0.989	Auto-tune (State 100)	0.952
Default (State 0)	0.151	Default (State 0)	0.255	Default (State 0)	0.316	Default (State 99)	0.218	Default (State 113)	0.701
State 0	0.151	State 0	0.255	State 0	0.316	State 3	0.659	State 6	0.581
State 3	0.100	State 2	0.226	State 1	0.310	State 28	0.930	State 25	0.098
State 27	0.168	State 34	0.125	State 31	0.241	State 41	0.160	State 44	0.106
State 34	0.098	State 35	0.098	State 38	0.232	State 66	0.833	State 63	0.776
State 35	0.076	State 72	0.229	State 69	0.241	State 107	0.943	State 100	0.946
State 73	0.109	State 105	0.112	State 108	0.088	State 111	0.77	State 114	0.708
State 104	0.108	State 142	0.080	State 139	0.270	State 136	0.265	State 133	0.795

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 99 of 107

Table 15-6
NR Supplemental Body SAR Data

Supplemental Body SAR Data			
NR Band n5		NR Band n66	
DFT-s-OFDM QPSK, 20 MHz Bandwidth, 50 RB, 28 RB Offset		DFT-s-OFDM QPSK, 45 MHz Bandwidth, 120 RB, 0 RB Offset	
Test Position	Back	Test Position	Bottom
Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	836.50	Frequency (MHz)	1745.00
Channel	167300	Channel	349000
Measured 1g SAR (W/kg)	0.253	Measured 1g SAR (W/kg)	0.895
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.275	Auto-tune (State 107)	0.965
Default (State 0)	0.266	Default (State 99)	0.801
State 0	0.266	State 13	0.584
State 11	0.155	State 18	0.180
State 20	0.213	State 51	0.543
State 49	0.185	State 56	0.244
State 58	0.196	State 107	0.845
State 119	0.197	State 121	0.126
State 128	0.146	State 126	0.570

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 100 of 107

REV 22.0
03/30/2022

16 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MY45113249
Agilent	E4438C	ESG Vector Signal Generator	3/25/2024	Annual	3/25/2025	MY47270002
Agilent	E4438C	ESG Vector Signal Generator	5/19/2024	Annual	5/19/2025	US51460739
Agilent	N5182A	MMG Vector Signal Generator	3/7/2024	Annual	3/7/2025	MM47420603
Agilent	N9020A	MMG Vector Signal Generator	7/8/2024	Annual	7/8/2025	MM48020233
Agilent	8753ES	S-Parameter Vector Network Analyzer	1/10/2024	Annual	1/10/2025	MY40001472
Agilent	E5515C	Wireless Communications Test Set	CBT	N/A	CBT	GB46310798
Agilent	E5515C	Wireless Communications Test Set	CBT	N/A	CBT	US41140256
Agilent	E5515C	Wireless Communications Test Set	1/10/2024	Annual	1/10/2025	MY50262130
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46310464
Amplifier Research	15516G	Amplifier	CBT	N/A	CBT	433973
Amplifier Research	15516G	Amplifier	CBT	N/A	CBT	433974
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	305132
Amplifier Research	15516G4B3	Amplifier	7/10/2024	Annual	7/10/2025	302682
Anritsu	MN8110B	I/O Adaptor	CBT	N/A	CBT	6261747881
Anritsu	ML2496A	Power Meter	6/24/2024	Annual	6/24/2025	1840005
Anritsu	ML2495A	Power Meter	7/8/2024	Annual	7/8/2025	1039008
Anritsu	MA2411B	Pulse Power Sensor	7/1/2024	Annual	7/1/2025	1911305
Anritsu	MA2411B	Pulse Power Sensor	10/21/2024	Annual	10/21/2025	1027268
Anritsu	MA2408A	Microwave Peak Power Sensor	4/8/2024	Annual	4/8/2025	11679
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	12/15/2023	Annual	12/15/2024	6200901190
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/15/2024	Annual	5/15/2025	6262150047
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/30/2024	Annual	5/30/2025	6262047115
Anritsu	MT8000A	Radio Communication Test Station	4/10/2024	Annual	4/10/2025	6261587983
Anritsu	MT8000A	Radio Communication Test Station	5/2/2024	Annual	5/2/2025	6272317436
Anritsu	MA24106A	USB Power Sensor	12/4/2023	Annual	12/4/2024	1520501
Anritsu	MA24106A	USB Power Sensor	4/15/2024	Annual	4/15/2025	1827528
Anritsu	MA24106A	USB Power Sensor	7/9/2024	Annual	7/9/2025	1344512
Anritsu	MA24106A	USB Power Sensor	1/10/2024	Annual	1/10/2025	1344557
Mini-Circuits	PWR-4GH5	USB Power Sensor	6/12/2024	Annual	6/12/2025	12001070013
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240174346
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240171096
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240171059
Control Company	4352	Ultra Long Stem Thermometer	1/15/2024	Annual	1/15/2025	160508097
Control Company	4040	Therm./ Clock/ Humidity Monitor	4/15/2024	Biennial	4/15/2026	240310280
Control Company	4040	Therm./ Clock/ Humidity Monitor	4/15/2024	Biennial	4/15/2026	240310282
Control Company	46027B	Therm./ Clock/ Humidity Monitor	2/16/2024	Biennial	2/16/2026	240310275
Testo	608-H1	ALARM-HYGROMETER	4/11/2024	Annual	4/11/2025	83318971
Testo	608-H1	ALARM-HYGROMETER	4/11/2024	Annual	4/11/2025	83318952
Testo	608-H1	ALARM-HYGROMETER	4/11/2024	Annual	4/11/2025	83318953
Mitsuba	S09-156-30	CD 4°x8 658 Green Optical Colliper	2/16/2022	Triennial	2/16/2025	A20318411
Keysight Technologies	N9020A	MXA Signal Analyzer	4/11/2024	Annual	4/11/2025	MY45600644
Agilent	N9020A	MXA Signal Analyzer	6/14/2024	Annual	6/14/2025	MY56470002
Keysight Technologies	N9020A	MXA Signal Analyzer	7/8/2024	Annual	7/8/2025	MY48010233
MCL	BW-N10W+5	10dB Attenuator	7/9/2024	Annual	7/9/2025	1167
MCL	BW-N6W+5	6dB Attenuator	CBT	N/A	CBT	1129
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	7/10/2024	Annual	7/10/2025	31634
Mini-Circuits	BW-N20W+5	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	7/10/2024	Annual	7/10/2025	UU13302538
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	7/10/2024	Annual	7/10/2025	UU19205507
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	CBT	N/A	CBT	2020
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	7/9/2024	Annual	7/9/2025	2111
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-33W2	Attenuator (3dB)	CBT	N/A	CBT	120
MCL	BW-N3W+5	Attenuator (3dB)	7/9/2024	Annual	7/9/2025	1468
Keysight Technologies	8710-1165	Torque Wrench	4/2/2024	Biennial	4/2/2026	821000633
Seekonk	NC-100	Torque Wrench	4/2/2024	Biennial	4/2/2026	1262
Rohde & Schwarz	CNV500	Wideband Radio Communication Tester	1/10/2024	Annual	1/10/2025	131454
Rohde & Schwarz	CNV500	Wideband Radio Communication Tester	7/8/2024	Annual	7/8/2025	166818
Rohde & Schwarz	CNV500	Wideband Radio Communication Tester	1/10/2024	Annual	1/10/2025	150117
Rohde & Schwarz	CNV500	Wideband Radio Communication Tester	1/11/2024	Annual	1/11/2025	171075
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/15/2024	Annual	10/15/2025	1091
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	7/8/2024	Annual	7/8/2025	1039
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1247
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1331
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1390
SPEAG	DAK-12	Dielectric Assessment Kit (4MHz - 3GHz)	3/11/2024	Annual	3/11/2025	1102
SPEAG	CLA-13	Confined Loop Antenna	9/4/2024	Annual	9/4/2025	1002
SPEAG	D750V2	750 MHz SAR Dipole	2/7/2024	Annual	2/7/2025	1006
SPEAG	D850V2	850 MHz SAR Dipole	4/8/2024	Annual	4/8/2025	46119
SPEAG	D1750V2	1750 MHz SAR Dipole	11/7/2024	Annual	11/7/2025	1150
SPEAG	D1750V2	1750 MHz SAR Dipole	1/8/2022	Triennial	1/8/2025	1148
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2022	Triennial	2/21/2025	56548
SPEAG	D1900V2	1900 MHz SAR Dipole	8/9/2022	Triennial	8/9/2025	56880
SPEAG	D1900V2	1900 MHz SAR Dipole	4/12/2024	Annual	4/12/2025	56141
SPEAG	D2450V2	2450 MHz SAR Dipole	2/8/2024	Annual	2/8/2025	882
SPEAG	D2600V2	2600 MHz SAR Dipole	8/7/2024	Annual	8/7/2025	1126
SPEAG	D2600V2	2600 MHz SAR Dipole	6/14/2024	Annual	6/14/2025	1009
SPEAG	D5GHV2	5 GHz SAR Dipole	4/9/2024	Annual	4/9/2025	1237
SPEAG	D6.5GHV2	6.5 GHz SAR Dipole	2/22/2024	Annual	2/22/2025	1111
SPEAG	D8GHV2	8GHz SAR Dipole	3/4/2024	Annual	3/4/2025	1007
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/10/2024	Annual	9/10/2025	1364
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/16/2024	Annual	1/16/2025	1466
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/18/2024	Annual	4/18/2025	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2024	Annual	2/9/2025	1645
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2024	Annual	5/8/2025	1502
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/12/2024	Annual	3/12/2025	1217
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/1/2024	Annual	3/1/2025	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2024	Annual	5/8/2025	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/16/2024	Annual	1/16/2025	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/10/2024	Annual	9/10/2025	1449
SPEAG	EK3DV4	SAR Probe	9/11/2024	Annual	9/11/2025	7558
SPEAG	EK3DV4	SAR Probe	1/16/2024	Annual	1/16/2025	7565
SPEAG	EK3DV4	SAR Probe	2/9/2024	Annual	2/9/2025	7640
SPEAG	EK3DV4	SAR Probe	5/10/2024	Annual	5/10/2025	7462
SPEAG	EK3DV4	SAR Probe	3/8/2024	Annual	3/8/2025	7517
SPEAG	EK3DV4	SAR Probe	4/17/2024	Annual	4/17/2025	7718
SPEAG	EK3DV4	SAR Probe	4/17/2024	Annual	4/17/2025	7659
SPEAG	EK3DV4	SAR Probe	5/10/2024	Annual	5/10/2025	3914
SPEAG	EK3DV4	SAR Probe	1/17/2024	Annual	1/17/2025	7713
SPEAG	ELIMMNV4	ELIMMNV4 Probe	2/2/2024	Annual	2/2/2025	9622

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 101 of 107

17 MEASUREMENT UNCERTAINTIES

Applicable for SAR measurements < 6GHz:

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E2.1	7	N	1	1	1	7.0	7.0	∞
Axial Isotropy	E2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E2.4	0.25	R	1.73	1	1	0.1	0.1	∞
Modulation Response	E2.5	4.8	R	1.73	1	1	2.8	2.8	∞
Readout Electronics	E2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E6.1	3	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E6.1	3	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E6.3	6.7	R	1.73	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E5	4	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E2.9	5	R	1.73	1	1	2.9	2.9	∞
SAR Scaling	E6.5	0	R	1.73	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E3.4	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E3.4	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)	RSS						12.2	12.0	191
Expanded Uncertainty (95% CONFIDENCE LEVEL)	k=2						24.4	24.0	

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 102 of 107

REV 22.0
03/30/2022

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Applicable for SAR measurements > 6GHz:

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 103 of 107

REV 22.0
03/30/2022

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Applicable for Power Density Measurements:

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 104 of 107

REV 22.0
03/30/2022

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18 CONCLUSION

18.1 Measurement Conclusion

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

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

FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 105 of 107

REV 22.0
03/30/2022

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FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 106 of 107

REV 22.0
03/30/2022

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FCC ID: A3LSMS938JPN	RF EXPOSURE PART 1 TEST REPORT	Approved by: Technical Manager
Document S/N: 1M2408260070-01.A3L	DUT Type: Portable Handset	Page 107 of 107

REV 22.0
03/30/2022