



SAR EVALUATION REPORT

Applicant Name:
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Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:
08/19/19 - 08/26/19
Test Site/Location:
PCTEST Lab, Morgan Hill, CA, USA
Document Serial No.:
1M1908150142-01-R1.A3L

FCC ID: A3LSMT547U

APPLICANT: SAMSUNG ELECTRONICS CO., LTD.

DUT Type: Portable Tablet
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-T547U

Equipment Class	Band & Mode	Tx Frequency	SAR
			1g Body (W/kg)
PCB	UMTS 850	826.40 - 846.60 MHz	0.60
PCB	UMTS 1750	1712.4 - 1752.6 MHz	0.76
PCB	UMTS 1900	1852.4 - 1907.6 MHz	1.13
PCB	LTE Band 71	665.5 - 695.5 MHz	0.26
PCB	LTE Band 12	699.7 - 715.3 MHz	0.38
PCB	LTE Band 17	706.5 - 713.5 MHz	0.29
PCB	LTE Band 13	779.5 - 784.5 MHz	0.41
PCB	LTE Band 14	790.5 - 795.5 MHz	0.60
PCB	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.65
PCB	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.71
PCB	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.80
PCB	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	0.80
PCB	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	1.11
PCB	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A
PCB	LTE Band 7	2502.5 - 2567.5 MHz	0.70
PCB	LTE Band 41	2498.5 - 2687.5 MHz	0.90
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.76
Nil	U-NII-1	5180 - 5240 MHz	1.37
Nil	U-NII-2A	5260 - 5320 MHz	1.34
Nil	U-NII-2C	5500 - 5720 MHz	0.58
Nil	U-NII-3	5745 - 5825 MHz	0.57
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.29
Simultaneous SAR per KDB 690783 D01v01r03:			1.59

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 1.8 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.

Note: This revised Test Report (S/N: 1M1908150142-01-R1.A3L) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.


Randy Ortanez
President



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FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 1 of 127	

T A B L E O F C O N T E N T S

1	DEVICE UNDER TEST	3
2	LTE INFORMATION	14
3	INTRODUCTION	15
4	DOSIMETRIC ASSESSMENT	16
5	TEST CONFIGURATION POSITIONS	17
6	RF EXPOSURE LIMITS	18
7	FCC MEASUREMENT PROCEDURES.....	19
8	RF CONDUCTED POWERS.....	24
9	SYSTEM VERIFICATION.....	100
10	SAR DATA SUMMARY	102
11	FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS.....	113
12	SAR MEASUREMENT VARIABILITY	121
13	ADDITIONAL TESTING PER FCC GUIDANCE	122
14	EQUIPMENT LIST.....	123
15	MEASUREMENT UNCERTAINTIES.....	124
16	CONCLUSION.....	125
17	REFERENCES	126
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: SAR SYSTEM VALIDATION		
APPENDIX F: DUT ANTENNA DIAGRAM & SAR TEST SETUP PHOTOGRAPHS		
APPENDIX G: POWER REDUCTION VERIFICATION		
APPENDIX H: DOWNLINK LTE CA RF CONDUCTED POWERS		

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 2 of 127

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
UMTS 850	Data	826.40 - 846.60 MHz
UMTS 1750	Data	1712.4 - 1752.6 MHz
UMTS 1900	Data	1852.4 - 1907.6 MHz
LTE Band 71	Data	665.5 - 695.5 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 17	Data	706.5 - 713.5 MHz
LTE Band 13	Data	779.5 - 784.5 MHz
LTE Band 14	Data	790.5 - 795.5 MHz
LTE Band 26 (Cell)	Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Data	1850.7 - 1909.3 MHz
LTE Band 7	Data	2502.5 - 2567.5 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Data	2412 - 2462 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. Detailed descriptions of the power reduction mechanism are included in the operational description.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 3 of 127

1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Output Power

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC-HSDPA
UMTS Band 5 (850 MHz)	Maximum	24.5	23.5	23.5	23.5
	Nominal	23.5	22.5	22.5	22.5
UMTS Band 4 (1750 MHz)	Maximum	24.5	23.5	23.5	23.5
	Nominal	23.5	22.5	22.5	22.5
UMTS Band 2 (1900 MHz)	Maximum	24.5	23.5	23.5	23.5
	Nominal	23.5	22.5	22.5	22.5

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 4 of 127	

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	25.0
	Nominal	24.0
LTE Band 12	Maximum	24.5
	Nominal	23.5
LTE Band 17	Maximum	25.0
	Nominal	24.0
LTE Band 13	Maximum	24.5
	Nominal	23.5
LTE Band 14	Maximum	25.0
	Nominal	24.0
LTE Band 26 (Cell)	Maximum	25.0
	Nominal	24.0
LTE Band 5 (Cell)	Maximum	25.0
	Nominal	24.0
LTE Band 66 (AWS)	Maximum	24.0
	Nominal	23.0
LTE Band 4 (AWS)	Maximum	25.0
	Nominal	24.0
LTE Band 25 (PCS)	Maximum	25.0
	Nominal	24.0
LTE Band 2 (PCS)	Maximum	25.0
	Nominal	24.0
LTE Band 7	Maximum	24.5
	Nominal	23.5
LTE Band 41 (PC3)	Maximum	24.5
	Nominal	23.5
LTE Band 41 (PC2)	Maximum	26.0
	Nominal	25.0

FCC ID: A3LSMT547U	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 5 of 127

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
Channel		1	2 - 10	11
IEEE 802.11b (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11g (2.4 GHz)	Maximum	18.0	19.0	17.0
	Nominal	17.0	18.0	16.0
IEEE 802.11n (2.4 GHz)	Maximum	18.0		17.0
	Nominal	17.0		16.0

Mode / Band		Modulated Average (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11n (5 GHz)	Maximum	16.0	13.0	
	Nominal	15.0	12.0	
IEEE 802.11ac (5 GHz)	Maximum	16.0	12.0	11.0
	Nominal	15.0	11.0	10.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)	
Bluetooth	Maximum	9.5	
	Nominal	8.5	
Bluetooth EDR	Maximum	8.5	
	Nominal	7.5	
Bluetooth LE	Maximum	7.5	
	Nominal	6.5	

FCC ID: A3LSMT547U	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 6 of 127

1.3.2 Reduced Output Power

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC-HSDPA
UMTS Band 5 (850 MHz)	Maximum	17.0	17.0	17.0	17.0
	Nominal	16.0	16.0	16.0	16.0
UMTS Band 4 (1750 MHz)	Maximum	14.0	14.0	14.0	14.0
	Nominal	13.0	13.0	13.0	13.0
UMTS Band 2 (1900 MHz)	Maximum	14.0	14.0	14.0	14.0
	Nominal	13.0	13.0	13.0	13.0

FCC ID: A3LSMT547U	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 7 of 127

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	17.0
	Nominal	16.0
LTE Band 12	Maximum	17.0
	Nominal	16.0
LTE Band 17	Maximum	17.0
	Nominal	16.0
LTE Band 13	Maximum	17.0
	Nominal	16.0
LTE Band 14	Maximum	17.0
	Nominal	16.0
LTE Band 26 (Cell)	Maximum	17.0
	Nominal	16.0
LTE Band 5 (Cell)	Maximum	17.0
	Nominal	16.0
LTE Band 66 (AWS)	Maximum	12.0
	Nominal	11.0
LTE Band 4 (AWS)	Maximum	14.0
	Nominal	13.0
LTE Band 25 (PCS)	Maximum	14.0
	Nominal	13.0
LTE Band 2 (PCS)	Maximum	14.0
	Nominal	13.0
LTE Band 7	Maximum	12.5
	Nominal	11.5
LTE Band 41 (PC3)	Maximum	15.0
	Nominal	14.0
LTE Band 41 (PC2)	Maximum	15.0
	Nominal	14.0

FCC ID: A3LSMT547U	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 8 of 127

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
Channel		1	2 - 10	11
IEEE 802.11b (2.4 GHz)	Maximum	12.0		
	Nominal	11.0		
IEEE 802.11g (2.4 GHz)	Maximum	12.0		
	Nominal	11.0		
IEEE 802.11n (2.4 GHz)	Maximum	12.0		
	Nominal	11.0		

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	9.0		
	Nominal	8.0		
IEEE 802.11n (5 GHz)	Maximum	9.0	9.0	
	Nominal	8.0	8.0	
IEEE 802.11ac (5 GHz)	Maximum	9.0	9.0	9.0
	Nominal	8.0	8.0	8.0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 9 of 127	

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix F.

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
UMTS 850	Yes	No	Yes	No	Yes	No
UMTS 1750	Yes	No	Yes	No	Yes	No
UMTS 1900	Yes	No	Yes	No	Yes	No
LTE Band 71	Yes	No	Yes	No	Yes	No
LTE Band 12	Yes	No	Yes	No	Yes	No
LTE Band 17	Yes	No	Yes	No	Yes	No
LTE Band 13	Yes	No	Yes	No	Yes	No
LTE Band 14	Yes	No	Yes	No	Yes	No
LTE Band 26 (Cell)	Yes	No	Yes	No	Yes	No
LTE Band 5 (Cell)	Yes	No	Yes	No	Yes	No
LTE Band 66 (AWS)	Yes	No	Yes	No	Yes	No
LTE Band 4 (AWS)	Yes	No	Yes	No	Yes	No
LTE Band 25 (PCS)	Yes	No	Yes	No	Yes	No
LTE Band 7	Yes	No	Yes	No	Yes	No
LTE Band 41	Yes	No	Yes	No	Yes	No
2.4 GHz WLAN	Yes	No	Yes	No	No	Yes
5 GHz WLAN	Yes	No	Yes	No	No	Yes
Bluetooth	Yes	No	Yes	No	No	Yes

Note: Per FCC KDB Publication 616217 D04v01r01, particular edges were not required to be evaluated for SAR based on the SAR exclusion threshold in KDB 447498 D01V06. Additional edges may have been evaluated for simultaneous transmission analysis.

1.5 Near Field Communications (NFC) Antenna

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

1.6 Simultaneous Transmission Capabilities

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

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 10 of 127	

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Body
1	UMTS + 2.4 GHz WI-FI	Yes
2	UMTS + 5 GHz WI-FI	Yes
3	UMTS + 2.4 GHz Bluetooth	Yes
4	LTE + 2.4 GHz WI-FI	Yes
5	LTE + 5 GHz WI-FI	Yes
6	LTE + 2.4 GHz Bluetooth	Yes

1. 2.4 GHz WLAN, 5 GHz WLAN, and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. This device supports Bluetooth Tethering.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 11 of 127	

1.7 Miscellaneous SAR Test Considerations

Per KDB Publication 616217, the non-metallic device edge protrusions were removed in order to allow for SAR measurement with the device in direct contact with the phantom.

(A) WIFI/BT

This device supports IEEE 802.11ac with the following features:

- a) Up to 80 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 1 Tx antenna output
- d) 256 QAM is supported
- e) TDWR and Band gap channels are supported

(B) Licensed Transmitter(s)

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 Appendix H.

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

This device supports both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class 2 condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 13.1).

This device supports LTE Carrier Aggregation (CA) for LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

This device supports 64QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per Section 5.1 of FCC KDB Publication 941225 D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64QAM is $\leq \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 12 of 127

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02 (2G/3G/4G)
- 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 616217 D04v01r02 (Tablet)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- May 2017 TCB Workshop Notes (LTE Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 10.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 13 of 127

2

LTE INFORMATION

LTE Information					
Form Factor	Portable Tablet				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 14 (790.5 - 795.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 7 (2502.5 - 2567.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
Channel Bandwidths	LTE Band 17: 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 14: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 7: 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
	665.5 (133147)	680.5 (133297)	695.5 (133447)		
LTE Band 71: 5 MHz	668 (133172)	680.5 (133297)	693 (133422)		
LTE Band 71: 10 MHz	670.5 (133197)	680.5 (133297)	690.5 (133397)		
LTE Band 71: 15 MHz	673 (133222)	680.5 (133297)	688 (133372)		
LTE Band 71: 20 MHz	679.7 (23017)	707.5 (23095)	715.3 (23173)		
LTE Band 12: 1.4 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)		
LTE Band 12: 3 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)		
LTE Band 12: 5 MHz	704 (23060)	707.5 (23095)	711 (23130)		
LTE Band 12: 10 MHz	706.5 (23755)	710 (23790)	713.5 (23825)		
LTE Band 17: 5 MHz	709 (23780)	710 (23790)	711 (23800)		
LTE Band 17: 10 MHz	779.5 (23205)	782 (23230)	784.5 (23255)		
LTE Band 13: 5 MHz	N/A	782 (23230)	N/A		
LTE Band 13: 10 MHz	790.5 (23305)	793 (23330)	795.5 (23355)		
LTE Band 14: 5 MHz	N/A	793 (23330)	N/A		
LTE Band 14: 10 MHz	814.7 (26697)	831.5 (26865)	848.3 (27033)		
LTE Band 26 (Cell): 1.4 MHz	815.5 (26705)	831.5 (26865)	847.5 (27025)		
LTE Band 26 (Cell): 3 MHz	816.5 (26715)	831.5 (26865)	846.5 (27015)		
LTE Band 26 (Cell): 5 MHz	819 (26740)	831.5 (26865)	844 (26990)		
LTE Band 26 (Cell): 10 MHz	821.5 (26765)	831.5 (26865)	841.5 (26965)		
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)	836.5 (20525)	848.3 (20643)		
LTE Band 5 (Cell): 3 MHz	825.5 (20415)	836.5 (20525)	847.5 (20635)		
LTE Band 5 (Cell): 5 MHz	826.5 (20425)	836.5 (20525)	846.5 (20625)		
LTE Band 5 (Cell): 10 MHz	829 (20450)	836.5 (20525)	844 (20600)		
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)	1745 (132322)	1779.3 (132665)		
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)	1745 (132322)	1778.5 (132657)		
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)	1745 (132322)	1777.5 (132647)		
LTE Band 66 (AWS): 10 MHz	1715 (132022)	1745 (132322)	1775 (132622)		
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)	1745 (132322)	1772.5 (132597)		
LTE Band 66 (AWS): 20 MHz	1720 (132072)	1745 (132322)	1770 (132572)		
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19967)	1732.5 (20175)	1754.3 (20393)		
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)	1732.5 (20175)	1753.5 (20385)		
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)	1732.5 (20175)	1752.5 (20375)		
LTE Band 4 (AWS): 10 MHz	1715 (20000)	1732.5 (20175)	1750 (20350)		
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)	1732.5 (20175)	1747.5 (20325)		
LTE Band 4 (AWS): 20 MHz	1720 (20050)	1732.5 (20175)	1745 (20300)		
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)	1882.5 (26365)	1914.3 (26683)		
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)	1882.5 (26365)	1913.5 (26675)		
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)	1882.5 (26365)	1912.5 (26665)		
LTE Band 25 (PCS): 10 MHz	1855 (26090)	1882.5 (26365)	1910 (26640)		
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)	1882.5 (26365)	1907.5 (26615)		
LTE Band 25 (PCS): 20 MHz	1860 (26140)	1882.5 (26365)	1905 (26590)		
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)	1880 (18900)	1909.3 (19193)		
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)	1880 (18900)	1908.5 (19185)		
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)	1880 (18900)	1907.5 (19175)		
LTE Band 2 (PCS): 10 MHz	1855 (18650)	1880 (18900)	1905 (19150)		
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)	1880 (18900)	1902.5 (19125)		
LTE Band 2 (PCS): 20 MHz	1860 (18700)	1880 (18900)	1900 (19100)		
LTE Band 7: 5 MHz	2502.5 (20775)	2535 (21100)	2567.5 (21425)	3 (3)	
LTE Band 7: 10 MHz	2505 (20800)	2535 (21100)	2565 (21400)	3 (3)	
LTE Band 7: 15 MHz	2507.5 (20825)	2535 (21100)	2562.5 (21375)	2562.5 (21375)	
LTE Band 7: 20 MHz	2510 (20850)	2535 (21100)	2560 (21350)	3 (3)	
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	DL UE Cat 12, UL UE Cat 13				
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 12. It supports carrier aggregation features as shown in Appendix H. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 12 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFi Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

FCC ID: A3LSMT547U		SAR EVALUATION REPORT			Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 14 of 127		

3 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.

3.1 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 3-1).

Equation 3-1
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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 15 of 127

4 DOSIMETRIC ASSESSMENT

4.1 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 4-1) 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 4-1) 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 4-1. 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.

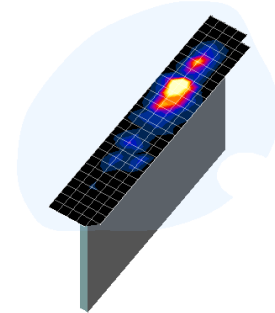


Figure 4-1
Sample SAR Area
Scan

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

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

*Also compliant to IEEE 1528-2013 Table 6

FCC ID: A3LSMT547U	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 16 of 127 REV 21.3 M 02/15/2019

5 TEST CONFIGURATION POSITIONS

5.1 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 $\delta = 0.02$.

5.2 SAR Testing for Tablet per KDB Publication 616217 D04v01r02

Per FCC KDB Publication 616217 D04v01r02, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

5.3 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antennas.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 17 of 127

6 RF EXPOSURE LIMITS

6.1 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.

6.2 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 6-1
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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 18 of 127

7 FCC MEASUREMENT PROCEDURES

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

7.1 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.

7.2 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.

7.3 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.

7.4 SAR Measurement Conditions for UMTS

7.4.1 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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 19 of 127

7.4.2 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.

7.4.3 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using 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.

7.4.4 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-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.

7.4.5 SAR Measurement Conditions for DC-HSDPA

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

7.5 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).

7.5.1 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 20 of 127

7.5.2 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.

7.5.3 A-MPR

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

7.5.4 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.

7.5.5 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.

7.5.6 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

FCC ID: A3LSMT547U	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 21 of 127

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.

7.6 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.

7.6.1 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.

7.6.2 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.

7.6.3 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.

7.6.4 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 22 of 127

- 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 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.

7.6.5 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. 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.

7.6.6 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 7.6.5). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.6.7 Subsequent Test Configuration Procedures

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

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 23 of 127

8 RF CONDUCTED POWERS

8.1 UMTS Conducted Powers

Table 8-1
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.99	23.91	23.72	23.90	23.83	23.83	23.86	23.95	23.67	-
6	HSDPA	Subtest 1	22.92	22.80	22.80	22.89	22.86	22.95	22.82	22.95	22.58	0
6		Subtest 2	22.92	22.86	22.82	22.88	22.86	22.93	22.85	22.90	22.56	0
6		Subtest 3	22.47	22.34	22.22	22.40	22.31	22.44	22.35	22.42	22.10	0.5
6		Subtest 4	22.42	22.30	22.30	22.35	22.32	22.50	22.20	22.41	22.14	0.5
6	HSUPA	Subtest 1	22.92	22.78	22.80	22.90	22.84	22.97	22.80	22.87	22.60	0
6		Subtest 2	20.91	20.77	20.78	20.91	20.86	20.96	20.80	20.88	20.60	2
6		Subtest 3	21.91	21.81	21.80	21.91	21.86	21.96	21.78	21.87	21.58	1
6		Subtest 4	20.90	20.80	20.81	20.87	20.84	20.95	20.80	20.87	20.55	2
6		Subtest 5	22.92	22.80	22.81	22.89	22.86	22.97	22.79	22.87	22.57	0
8	DC-HSDPA	Subtest 1	22.91	22.80	22.79	22.89	22.84	22.98	22.85	22.95	22.60	0
8		Subtest 2	22.93	22.80	22.79	22.86	22.81	22.95	22.76	22.84	22.52	0
8		Subtest 3	22.39	22.30	22.29	22.34	22.29	22.43	22.30	22.34	22.24	0.5
8		Subtest 4	22.40	22.32	22.30	22.38	22.31	22.45	22.31	22.22	22.25	0.5

Table 8-2
Reduced Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	16.42	16.31	16.11	13.33	13.21	13.22	13.30	13.40	13.05	-
6	HSDPA	Subtest 1	15.34	15.20	15.20	12.33	12.31	12.46	12.32	12.41	12.10	0
6		Subtest 2	15.34	15.19	15.24	12.30	12.24	12.43	12.31	12.33	12.12	0
6		Subtest 3	14.87	14.80	14.76	11.82	11.80	11.91	11.81	11.70	11.60	0.5
6		Subtest 4	14.87	14.73	14.75	11.80	11.79	11.95	11.85	11.91	11.58	0.5
6	HSUPA	Subtest 1	15.35	15.25	15.23	12.30	12.28	12.40	12.31	12.39	12.10	0
6		Subtest 2	13.35	13.28	13.22	10.35	10.23	10.40	10.29	10.35	10.05	2
6		Subtest 3	14.35	14.25	14.26	11.31	11.25	11.40	11.30	11.36	11.08	1
6		Subtest 4	13.37	13.26	13.24	10.32	10.25	10.43	10.29	10.35	10.10	2
6		Subtest 5	15.31	15.25	15.23	12.32	12.30	12.42	12.31	12.35	12.08	0
8	DC-HSDPA	Subtest 1	15.35	15.20	15.25	12.33	12.27	12.44	12.33	12.42	12.10	0
8		Subtest 2	15.30	15.24	15.18	12.29	12.23	12.39	12.25	12.39	12.05	0
8		Subtest 3	14.82	14.76	14.65	11.75	11.77	11.90	11.75	11.90	11.58	0.5
8		Subtest 4	14.82	14.72	14.68	11.80	11.75	11.95	11.74	11.91	11.58	0.5

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 24 of 127

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.

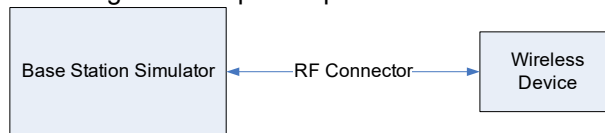


Figure 8-1
Power Measurement Setup

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 25 of 127	

8.2 LTE Conducted Powers

8.2.1

LTE Band 71

Table 8-3
LTE Band 71 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.33	0	0
	1	50	24.35		0
	1	99	24.24		0
	50	0	23.43	0-1	1
	50	25	23.37		1
	50	50	23.26		1
	100	0	23.33		1
16QAM	1	0	23.61	0-1	1
	1	50	23.68		1
	1	99	23.65		1
	50	0	22.50	0-2	2
	50	25	22.45		2
	50	50	22.36		2
	100	0	22.43		2
64QAM	1	0	22.80	0-2	2
	1	50	22.79		2
	1	99	22.71		2
	50	0	21.53	0-3	3
	50	25	21.52		3
	50	50	21.36		3
	100	0	21.47		3

Note: LTE Band 71 at 20 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 26 of 127

Table 8-4
LTE Band 71 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.25	0	0
	1	36	24.16		0
	1	74	24.00		0
	36	0	23.40	0-1	1
	36	18	23.35		1
	36	37	23.23		1
	75	0	23.31		1
16QAM	1	0	23.40	0-1	1
	1	36	23.42		1
	1	74	23.20		1
	36	0	22.48	0-2	2
	36	18	22.48		2
	36	37	22.37		2
	75	0	22.45		2
64QAM	1	0	22.58	0-2	2
	1	36	22.55		2
	1	74	22.26		2
	36	0	21.47	0-3	3
	36	18	21.49		3
	36	37	21.37		3
	75	0	21.37		3

Note: LTE Band 71 at 15 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 27 of 127	

Table 8-5
LTE Band 71 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.40	24.21	24.07	0	0
	1	25	24.29	24.11	24.05		0
	1	49	24.36	24.10	23.96		0
	25	0	23.42	23.37	23.21	0-1	1
	25	12	23.35	23.36	23.28		1
	25	25	23.39	23.25	23.17		1
	50	0	23.44	23.35	23.14		1
16QAM	1	0	23.46	23.60	23.29	0-1	1
	1	25	23.39	23.55	23.31		1
	1	49	23.45	23.39	23.16		1
	25	0	22.46	22.46	22.27	0-2	2
	25	12	22.45	22.47	22.31		2
	25	25	22.51	22.39	22.30		2
	50	0	22.55	22.43	22.22		2
64QAM	1	0	22.88	22.86	22.40	0-2	2
	1	25	22.74	22.77	22.31		2
	1	49	22.83	22.71	22.28		2
	25	0	21.52	21.37	21.33	0-3	3
	25	12	21.47	21.29	21.41		3
	25	25	21.58	21.25	21.32		3
	50	0	21.57	21.42	21.27		3

Table 8-6
LTE Band 71 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.35	24.23	24.18	0	0
	1	12	24.26	24.17	24.14		0
	1	24	24.22	24.13	24.12		0
	12	0	23.39	23.29	23.20	0-1	1
	12	6	23.34	23.33	23.19		1
	12	13	23.28	23.24	23.18		1
	25	0	23.39	23.27	23.18		1
16QAM	1	0	23.43	23.15	23.50	0-1	1
	1	12	23.39	23.18	23.49		1
	1	24	23.37	23.14	23.42		1
	12	0	22.46	22.38	22.34	0-2	2
	12	6	22.44	22.39	22.31		2
	12	13	22.42	22.36	22.30		2
	25	0	22.41	22.46	22.33		2
64QAM	1	0	23.00	22.93	22.71	0-2	2
	1	12	22.90	22.84	22.61		2
	1	24	22.87	22.84	22.55		2
	12	0	21.56	21.46	21.42	0-3	3
	12	6	21.52	21.43	21.45		3
	12	13	21.50	21.40	21.35		3
	25	0	21.38	21.37	21.26		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 28 of 127	

Table 8-7
LTE Band 71 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	16.28	0	0
	1	50	16.13		0
	1	99	16.01		0
	50	0	16.26	0-1	0
	50	25	16.20		0
	50	50	16.08		0
	100	0	16.17		0
16QAM	1	0	16.49	0-1	0
	1	50	16.38		0
	1	99	16.27		0
	50	0	16.36	0-2	0
	50	25	16.30		0
	50	50	16.18		0
	100	0	16.22		0
64QAM	1	0	16.39	0-2	0
	1	50	16.39		0
	1	99	16.28		0
	50	0	16.42	0-3	0
	50	25	16.33		0
	50	50	16.23		0
	100	0	16.29		0

Note: LTE Band 71 at 20 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 29 of 127	

Table 8-8
LTE Band 71 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	16.28	0	0
	1	36	16.18		0
	1	74	15.95		0
	36	0	16.22	0-1	0
	36	18	16.25		0
	36	37	16.13		0
	75	0	16.17		0
16QAM	1	0	16.50	0-1	0
	1	36	16.49		0
	1	74	16.25		0
	36	0	16.42	0-2	0
	36	18	16.29		0
	36	37	16.27		0
	75	0	16.28		0
64QAM	1	0	16.63	0-2	0
	1	36	16.59		0
	1	74	16.46		0
	36	0	16.49	0-3	0
	36	18	16.47		0
	36	37	16.36		0
	75	0	16.33		0

Note: LTE Band 71 at 15 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 30 of 127

Table 8-9
LTE Band 71 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	16.27	16.27	16.04	0	0	
	1	25	16.22	16.16	15.99		0	
	1	49	16.18	16.06	15.97		0	
	25	0	16.31	16.25	16.09	0-1	0	
	25	12	16.30	16.26	16.17		0	
	25	25	16.33	16.15	16.08		0	
16QAM	50	0	16.35	16.24	16.04	0	0	
	1	0	16.54	16.35	16.59		0-1	0
	1	25	16.50	16.26	16.63			0
	1	49	16.50	16.22	16.53	0-2		0
	25	0	16.39	16.34	16.17		0	
	25	12	16.35	16.28	16.26		0	
64QAM	25	25	16.40	16.21	16.20	0	0	
	50	0	16.44	16.28	16.14		0-2	0
	1	0	16.27	16.68	16.59			0
	1	25	16.24	16.49	16.53	0-3		0
	1	49	16.30	16.43	16.43		0	
	25	0	16.45	16.46	16.18		0	
64QAM	25	12	16.38	16.43	16.28	0	0	
	25	25	16.46	16.36	16.18		0	
	50	0	16.44	16.41	16.17		0	

Table 8-10
LTE Band 71 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.25	16.16	15.99	0	0
	1	12	16.20	16.07	15.88		0
	1	24	16.11	16.07	15.79		0
	12	0	16.29	16.22	16.10	0-1	0
	12	6	16.31	16.21	16.09		0
	12	13	16.25	16.14	16.01		0
	25	0	16.30	16.19	16.10		0
16QAM	1	0	16.53	16.65	16.42	0-1	0
	1	12	16.43	16.58	16.38		0
	1	24	16.63	16.61	16.40		0
	12	0	16.38	16.37	16.19	0-2	0
	12	6	16.36	16.38	16.22		0
	12	13	16.30	16.29	16.15		0
	25	0	16.47	16.28	16.16		0
64QAM	1	0	16.60	16.58	16.56	0-2	0
	1	12	16.56	16.45	16.46		0
	1	24	16.65	16.51	16.53		0
	12	0	16.44	16.42	16.26	0-3	0
	12	6	16.46	16.41	16.25		0
	12	13	16.49	16.35	16.22		0
	25	0	16.40	16.27	16.11		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 31 of 127	

8.2.2

LTE Band 12

Table 8-11
LTE Band 12 Maximum Conducted Powers - 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	23.63	0	0
	1	25	23.42		0
	1	49	23.37		0
	25	0	22.56	0-1	1
	25	12	22.57		1
	25	25	22.50		1
	50	0	22.52		1
16QAM	1	0	22.80	0-1	1
	1	25	22.67		1
	1	49	22.59		1
	25	0	21.70	0-2	2
	25	12	21.69		2
	25	25	21.64		2
	50	0	21.62		2
64QAM	1	0	22.07	0-2	2
	1	25	21.88		2
	1	49	21.75		2
	25	0	20.65	0-3	3
	25	12	20.63		3
	25	25	20.58		3
	50	0	20.61		3

Note: LTE Band 12 at 10 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 32 of 127

Table 8-12
LTE Band 12 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23035 (701.5 MHz)	23095 (707.5 MHz)	23155 (713.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.70	23.45	23.40	0	0
	1	12	23.68	23.36	23.34		0
	1	24	23.54	23.35	23.34		0
	12	0	22.80	22.58	22.47	0-1	1
	12	6	22.80	22.57	22.48		1
	12	13	22.66	22.51	22.44		1
	25	0	22.69	22.58	22.48		1
16QAM	1	0	23.12	22.76	22.40	0-1	1
	1	12	23.02	22.67	22.31		1
	1	24	22.88	22.66	22.35		1
	12	0	21.97	21.74	21.63	0-2	2
	12	6	21.94	21.72	21.60		2
	12	13	21.82	21.67	21.55		2
	25	0	21.69	21.66	21.55		2
64QAM	1	0	22.50	22.11	21.92	0-2	2
	1	12	22.43	22.05	21.89		2
	1	24	22.30	21.99	21.83		2
	12	0	20.90	20.69	20.68	0-3	3
	12	6	20.92	20.70	20.65		3
	12	13	20.73	20.61	20.61		3
	25	0	20.61	20.59	20.56		3

Table 8-13
LTE Band 12 Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.69	23.44	23.36	0	0
	1	7	23.77	23.50	23.45		0
	1	14	23.66	23.38	23.32		0
	8	0	22.74	22.55	22.45	0-1	1
	8	4	22.74	22.59	22.41		1
	8	7	22.72	22.54	22.41		1
	15	0	22.73	22.54	22.45		1
16QAM	1	0	23.08	23.14	22.94	0-1	1
	1	7	23.20	23.19	23.00		1
	1	14	23.10	23.08	22.87		1
	8	0	21.92	21.49	21.58	0-2	2
	8	4	21.92	21.54	21.61		2
	8	7	21.89	21.47	21.58		2
	15	0	21.89	21.61	21.56		2
64QAM	1	0	22.26	21.98	21.60	0-2	2
	1	7	22.34	22.01	21.64		2
	1	14	22.22	21.89	21.53		2
	8	0	20.72	20.70	20.51	0-3	3
	8	4	20.74	20.69	20.51		3
	8	7	20.71	20.69	20.52		3
	15	0	20.80	20.63	20.55		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 33 of 127

Table 8-14
LTE Band 12 Maximum Conducted Powers - 1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.59	23.46	23.27	0	0
	1	2	23.64	23.52	23.29		0
	1	5	23.57	23.44	23.22		0
	3	0	23.64	23.36	23.30		0
	3	2	23.69	23.36	23.33		0
	3	3	23.62	23.32	23.30		0
	6	0	22.69	22.52	22.36	0-1	1
16QAM	1	0	23.10	23.06	22.86	0-1	1
	1	2	23.20	23.08	22.93		1
	1	5	23.15	23.05	22.82		1
	3	0	22.88	22.57	22.52		1
	3	2	22.91	22.63	22.53		1
	3	3	22.87	22.61	22.56		1
	6	0	21.69	21.58	21.36	0-2	2
64QAM	1	0	22.45	21.93	22.22	0-2	2
	1	2	22.45	22.01	22.15		2
	1	5	22.43	21.95	22.17		2
	3	0	22.06	21.76	21.63		2
	3	2	22.15	21.78	21.70		2
	3	3	22.09	21.81	21.64		2
	6	0	20.65	20.59	20.32	0-3	3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 34 of 127

Table 8-15
LTE Band 12 Reduced Conducted Powers - 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	16.01	0	0
	1	25	15.84		0
	1	49	15.75		0
	25	0	15.99	0-1	0
	25	12	15.95		0
	25	25	15.86		0
	50	0	15.91		0
16QAM	1	0	16.29	0-1	0
	1	25	16.10		0
	1	49	16.00		0
	25	0	16.03	0-2	0
	25	12	15.98		0
	25	25	15.90		0
	50	0	15.95		0
64QAM	1	0	15.98	0-2	0
	1	25	15.77		0
	1	49	15.69		0
	25	0	16.08	0-3	0
	25	12	16.06		0
	25	25	16.01		0
	50	0	16.06		0

Note: LTE Band 12 at 10 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 35 of 127

Table 8-16
LTE Band 12 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23035 (701.5 MHz)	23095 (707.5 MHz)	23155 (713.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.10	15.84	15.83	0	0
	1	12	16.00	15.78	15.73		0
	1	24	15.88	15.76	15.72		0
	12	0	16.13	15.91	15.87	0-1	0
	12	6	16.14	15.91	15.89		0
	12	13	15.99	15.87	15.84		0
	25	0	16.01	15.90	15.87		0
16QAM	1	0	16.42	16.49	16.05	0-1	0
	1	12	16.40	16.40	15.96		0
	1	24	16.30	16.39	15.97		0
	12	0	16.19	15.99	15.95	0-2	0
	12	6	16.19	16.00	15.95		0
	12	13	16.03	15.96	15.88		0
	25	0	16.16	15.90	15.94		0
64QAM	1	0	16.07	15.91	15.66	0-2	0
	1	12	15.99	15.80	15.61		0
	1	24	15.86	15.80	15.53		0
	12	0	16.23	16.07	15.94	0-3	0
	12	6	16.23	16.05	15.93		0
	12	13	16.07	16.01	15.90		0
	25	0	16.11	15.92	15.81		0

Table 8-17
LTE Band 12 Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.07	15.89	15.75	0	0
	1	7	16.14	15.93	15.80		0
	1	14	16.01	15.84	15.71		0
	8	0	16.10	15.93	15.86	0-1	0
	8	4	16.09	15.89	15.84		0
	8	7	16.05	15.90	15.85		0
	15	0	16.10	15.93	15.89		0
16QAM	1	0	16.47	16.24	16.31	0-1	0
	1	7	16.46	16.27	16.35		0
	1	14	16.36	16.20	16.24		0
	8	0	16.17	15.91	16.00	0-2	0
	8	4	16.18	15.89	16.03		0
	8	7	16.13	15.89	16.00		0
	15	0	16.33	16.00	15.90		0
64QAM	1	0	16.10	15.84	15.82	0-2	0
	1	7	16.15	15.91	15.84		0
	1	14	16.05	15.73	15.71		0
	8	0	16.36	16.06	16.06	0-3	0
	8	4	16.36	16.06	16.06		0
	8	7	16.33	16.02	16.03		0
	15	0	16.19	15.95	15.88		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 36 of 127	

Table 8-18
LTE Band 12 Reduced Conducted Powers – 1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.02	15.76	15.70	0	0
	1	2	16.03	15.81	15.70		0
	1	5	15.93	15.75	15.68		0
	3	0	16.10	15.82	15.78		0
	3	2	16.11	15.83	15.78		0
	3	3	16.07	15.79	15.79		0
	6	0	16.03	15.80	15.76	0-1	0
16QAM	1	0	16.40	16.35	16.05	0-1	0
	1	2	16.42	16.38	16.10		0
	1	5	16.36	16.32	16.06		0
	3	0	16.00	16.08	15.73		0
	3	2	16.05	16.08	15.78		0
	3	3	16.00	16.05	15.75		0
	6	0	15.98	16.11	15.70	0-2	0
64QAM	1	0	16.22	15.78	15.96	0-2	0
	1	2	16.27	15.81	15.92		0
	1	5	16.17	15.79	15.91		0
	3	0	16.22	16.02	15.94		0
	3	2	16.22	16.02	16.00		0
	3	3	16.24	15.99	15.96		0
	6	0	16.30	15.88	16.03	0-3	0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 37 of 127

8.2.3

LTE Band 17

Table 8-19
LTE Band 17 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 17 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23790 (710.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.10	0	0
	1	25	23.95		0
	1	49	23.78		0
	25	0	23.00	0-1	1
	25	12	22.99		1
	25	25	22.96		1
	50	0	22.98		1
16QAM	1	0	23.28	0-1	1
	1	25	23.18		1
	1	49	23.00		1
	25	0	22.10	0-2	2
	25	12	22.13		2
	25	25	22.04		2
	50	0	22.03		2
64QAM	1	0	22.31	0-2	2
	1	25	22.14		2
	1	49	21.96		2
	25	0	21.12	0-3	3
	25	12	21.09		3
	25	25	21.01		3
	50	0	21.06		3

Note: LTE Band 17 at 10 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 38 of 127

Table 8-20
LTE Band 17 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 17 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23790 (710.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.10	0	0
	1	12	24.05		0
	1	24	24.00		0
	12	0	23.04	0-1	1
	12	6	23.08		1
	12	13	23.00		1
	25	0	23.05		1
16QAM	1	0	23.44	0-1	1
	1	12	23.32		1
	1	24	23.27		1
	12	0	22.23	0-2	2
	12	6	22.23		2
	12	13	22.17		2
	25	0	22.08		2
64QAM	1	0	22.13	0-2	2
	1	12	22.10		2
	1	24	22.01		2
	12	0	21.18	0-3	3
	12	6	21.18		3
	12	13	21.15		3
	25	0	21.04		3

Note: LTE Band 17 at 5 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 39 of 127

Table 8-21
LTE Band 17 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 17 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23790 (710.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	16.05	0	0
	1	25	15.87		0
	1	49	15.68		0
	25	0	15.89	0-1	0
	25	12	15.91		0
	25	25	15.80		0
	50	0	15.84		0
16QAM	1	0	16.31	0-1	0
	1	25	16.08		0
	1	49	15.95		0
	25	0	15.98	0-2	0
	25	12	15.94		0
	25	25	15.89		0
	50	0	15.92		0
64QAM	1	0	16.09	0-2	0
	1	25	15.87		0
	1	49	15.69		0
	25	0	16.02	0-3	0
	25	12	16.00		0
	25	25	15.94		0
	50	0	15.98		0

Note: LTE Band 17 at 10 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 40 of 127

Table 8-22
LTE Band 17 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 17 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23790 (710.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	15.90	0	0
	1	12	15.86		0
	1	24	15.69		0
	12	0	15.96	0-1	0
	12	6	15.98		0
	12	13	15.94		0
	25	0	15.98		0
16QAM	1	0	16.15	0-1	0
	1	12	16.10		0
	1	24	15.92		0
	12	0	16.05	0-2	0
	12	6	16.08		0
	12	13	16.03		0
	25	0	16.02		0
64QAM	1	0	16.17	0-2	0
	1	12	16.10		0
	1	24	16.00		0
	12	0	15.96	0-3	0
	12	6	15.97		0
	12	13	15.92		0
	25	0	15.84		0

Note: LTE Band 17 at 5 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 41 of 127

8.2.4

LTE Band 13

Table 8-23
LTE Band 13 Maximum Conducted Powers - 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	23.68	0	0
	1	25	23.47		0
	1	49	23.49		0
	25	0	22.50	0-1	1
	25	12	22.46		1
	25	25	22.44		1
	50	0	22.47		1
16QAM	1	0	22.86	0-1	1
	1	25	22.85		1
	1	49	22.93		1
	25	0	21.60	0-2	2
	25	12	21.61		2
	25	25	21.56		2
	50	0	21.51		2
64QAM	1	0	21.59	0-2	2
	1	25	21.57		2
	1	49	21.60		2
	25	0	20.63	0-3	3
	25	12	20.66		3
	25	25	20.59		3
	50	0	20.54		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 42 of 127

Table 8-24
LTE Band 13 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 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	23.44	0	0
	1	12	23.43		0
	1	24	23.40		0
	12	0	22.53	0-1	1
	12	6	22.53		1
	12	13	22.51		1
	25	0	22.56		1
16QAM	1	0	22.65	0-1	1
	1	12	22.61		1
	1	24	22.65		1
	12	0	21.68	0-2	2
	12	6	21.67		2
	12	13	21.64		2
	25	0	21.64		2
64QAM	1	0	22.07	0-2	2
	1	12	22.05		2
	1	24	22.00		2
	12	0	20.66	0-3	3
	12	6	20.64		3
	12	13	20.60		3
	25	0	20.55		3

Note: LTE Band 13 at 5 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 43 of 127

Table 8-25
LTE Band 13 Reduced Conducted Powers - 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	15.88	0	0
	1	25	15.81		0
	1	49	15.87		0
	25	0	15.93	0-1	0
	25	12	15.91		0
	25	25	15.82		0
	50	0	15.84		0
16QAM	1	0	16.28	0-1	0
	1	25	16.18		0
	1	49	16.19		0
	25	0	16.01	0-2	0
	25	12	15.98		0
	25	25	15.92		0
	50	0	15.92		0
64QAM	1	0	16.26	0-2	0
	1	25	16.15		0
	1	49	16.18		0
	25	0	16.02	0-3	0
	25	12	16.04		0
	25	25	15.96		0
	50	0	16.03		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 44 of 127

Table 8-26
LTE Band 13 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 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	15.84	0	0
	1	12	15.76		0
	1	24	15.77		0
	12	0	15.94	0-1	0
	12	6	15.98		0
	12	13	15.92		0
	25	0	15.95		0
16QAM	1	0	16.16	0-1	0
	1	12	16.11		0
	1	24	16.10		0
	12	0	16.09	0-2	0
	12	6	16.06		0
	12	13	16.01		0
	25	0	16.03		0
64QAM	1	0	16.25	0-2	0
	1	12	16.20		0
	1	24	16.19		0
	12	0	15.89	0-3	0
	12	6	15.92		0
	12	13	15.88		0
	25	0	15.80		0

Note: LTE Band 13 at 5 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 45 of 127

8.2.5

LTE Band 14

Table 8-27
LTE Band 14 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.04	0	0
	1	25	24.05		0
	1	49	24.12		0
	25	0	23.17	0-1	1
	25	12	23.18		1
	25	25	23.13		1
	50	0	23.13		1
16QAM	1	0	23.27	0-1	1
	1	25	23.34		1
	1	49	23.40		1
	25	0	22.26	0-2	2
	25	12	22.27		2
	25	25	22.21		2
	50	0	22.19		2
64QAM	1	0	22.38	0-2	2
	1	25	22.47		2
	1	49	22.47		2
	25	0	21.18	0-3	3
	25	12	21.19		3
	25	25	21.15		3
	50	0	21.19		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 46 of 127

Table 8-28
LTE Band 14 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 14 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.12	0	0
	1	12	24.05		0
	1	24	24.04		0
	12	0	23.17	0-1	1
	12	6	23.16		1
	12	13	23.09		1
	25	0	23.13		1
16QAM	1	0	23.20	0-1	1
	1	12	23.19		1
	1	24	23.14		1
	12	0	22.26	0-2	2
	12	6	22.30		2
	12	13	22.23		2
	25	0	22.23		2
64QAM	1	0	22.23	0-2	2
	1	12	22.19		2
	1	24	22.19		2
	12	0	21.24	0-3	3
	12	6	21.22		3
	12	13	21.16		3
	25	0	21.23		3

Note: LTE Band 14 at 5 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 47 of 127	

Table 8-29
LTE Band 14 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	15.99	0	0
	1	25	16.00		0
	1	49	16.04		0
	25	0	16.09	0-1	0
	25	12	16.06		0
	25	25	16.02		0
	50	0	16.03		0
16QAM	1	0	16.44	0-1	0
	1	25	16.45		0
	1	49	16.47		0
	25	0	16.15	0-2	0
	25	12	16.19		0
	25	25	16.09		0
	50	0	16.13		0
64QAM	1	0	16.30	0-2	0
	1	25	16.31		0
	1	49	16.33		0
	25	0	16.19	0-3	0
	25	12	16.21		0
	25	25	16.12		0
	50	0	16.17		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 48 of 127

Table 8-30
LTE Band 14 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 14 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	16.00	0	0
	1	12	15.98		0
	1	24	15.97		0
	12	0	16.14	0-1	0
	12	6	16.13		0
	12	13	16.08		0
	25	0	16.11		0
16QAM	1	0	16.31	0-1	0
	1	12	16.24		0
	1	24	16.26		0
	12	0	16.20	0-2	0
	12	6	16.21		0
	12	13	16.19		0
	25	0	16.19		0
64QAM	1	0	16.34	0-2	0
	1	12	16.26		0
	1	24	16.27		0
	12	0	15.91	0-3	0
	12	6	15.95		0
	12	13	15.91		0
	25	0	15.84		0

Note: LTE Band 14 at 5 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 49 of 127	

8.2.6

LTE Band 26 (Cell)

Table 8-31
LTE Band 26 (Cell) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.15	0	0
	1	36	24.01		0
	1	74	23.87		0
	36	0	23.10	0-1	1
	36	18	23.08		1
	36	37	22.95		1
	75	0	23.02		1
16QAM	1	0	23.10	0-1	1
	1	36	23.08		1
	1	74	22.95		1
	36	0	22.24	0-2	2
	36	18	22.22		2
	36	37	22.10		2
	75	0	22.12		2
64QAM	1	0	22.51	0-2	2
	1	36	22.46		2
	1	74	22.32		2
	36	0	21.17	0-3	3
	36	18	21.12		3
	36	37	21.08		3
	75	0	21.14		3

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 50 of 127

Table 8-32
LTE Band 26 (Cell) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26740 (819.0 MHz)	26865 (831.5 MHz)	26990 (844.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.30	24.09	24.11	0	0
	1	25	24.21	23.98	24.05		0
	1	49	24.15	23.93	24.01		0
	25	0	23.24	23.10	23.05	0-1	1
	25	12	23.21	23.14	23.04		1
	25	25	23.16	23.08	23.00		1
16QAM	50	0	23.20	23.11	23.07	0-1	1
	1	0	23.76	23.40	23.23		1
	1	25	23.67	23.36	23.13		1
	1	49	23.55	23.29	23.06	0-2	1
	25	0	22.35	22.27	22.14		2
	25	12	22.34	22.28	22.15		2
64QAM	25	25	22.27	22.22	22.07	0-2	2
	50	0	22.29	22.16	22.08		2
	1	0	22.14	22.09	22.63		0-2
	1	25	22.11	22.05	22.54	2	
	1	49	22.06	22.01	22.44	0-3	
	25	0	21.45	21.31	21.17		3
25	12	21.41	21.26	21.14	3		
	25	25	21.35	21.21	21.09	0-3	3
	50	0	21.36	21.18	21.10		3

Table 8-33
LTE Band 26 (Cell) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	24.32	24.11	23.93	0	0	
	1	12	24.27	24.02	23.86		0	
	1	24	24.25	24.04	23.93		0	
	12	0	23.28	23.09	23.03	0-1	1	
	12	6	23.29	23.06	23.01		1	
	12	13	23.24	23.03	22.95		1	
16QAM	25	0	23.25	23.04	23.00	0-1	1	
	1	0	23.87	23.03	23.06		1	
	1	12	23.86	23.04	23.01		1	
	1	24	23.83	23.05	22.98	0-2	1	
	12	0	22.43	22.24	22.12		2	
	12	6	22.43	22.21	22.14		2	
64QAM	12	13	22.36	22.17	22.03	0-2	2	
	25	0	22.41	22.11	22.04		2	
	64QAM	1	0	22.42	22.43	22.09	0-2	2
		1	12	22.40	22.40	22.05		2
		1	24	22.36	22.38	22.02		2
		12	0	21.37	21.17	21.05	0-3	3
12		6	21.41	21.23	21.07	3		
12		13	21.33	21.17	21.02	3		
	25	0	21.42	21.11	21.06		3	

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 51 of 127	

Table 8-34
LTE Band 26 (Cell) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.20	23.98	23.94	0	0
	1	7	24.30	23.99	24.01		0
	1	14	24.17	23.91	23.96		0
	8	0	23.24	23.04	23.02	0-1	1
	8	4	23.23	23.07	23.02		1
	8	7	23.16	22.99	22.97		1
	15	0	23.24	23.00	23.01		1
16QAM	1	0	23.58	22.83	22.87	0-1	1
	1	7	23.68	22.90	22.95		1
	1	14	23.59	22.80	22.77		1
	8	0	22.40	22.05	22.06	0-2	2
	8	4	22.42	22.10	22.07		2
	8	7	22.33	21.99	21.99		2
	15	0	22.32	22.06	22.06		2
64QAM	1	0	22.12	22.07	22.53	0-2	2
	1	7	22.23	22.16	22.58		2
	1	14	22.11	22.07	22.38		2
	8	0	21.38	21.14	21.14	0-3	3
	8	4	21.41	21.11	21.18		3
	8	7	21.35	21.07	21.12		3
	15	0	21.37	21.15	21.07		3

Table 8-35
LTE Band 26 (Cell) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.14	23.87	24.02	0	0
	1	2	24.17	23.92	24.06		0
	1	5	24.12	23.87	24.02		0
	3	0	24.13	23.96	23.78		0
	3	2	24.19	24.02	23.87		0
	3	3	24.12	23.94	23.77		0
	6	0	23.12	22.96	22.93	0-1	1
16QAM	1	0	23.56	22.76	22.68	0-1	1
	1	2	23.60	22.78	22.70		1
	1	5	23.53	22.79	22.69		1
	3	0	23.49	23.10	22.96		1
	3	2	23.55	23.20	23.00		1
	3	3	23.47	23.12	22.95	1	
6	0	22.15	22.17	22.10	0-2	2	
64QAM	1	0	22.02	21.99	22.22	0-2	2
	1	2	22.11	22.02	22.31		2
	1	5	21.97	22.01	22.16		2
	3	0	22.27	21.99	21.91		2
	3	2	22.40	22.06	21.99		2
	3	3	22.32	21.98	21.89		2
	6	0	21.17	21.04	20.94	0-3	3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 52 of 127	

Table 8-36
LTE Band 26 (Cell) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	16.04	0	0
	1	36	15.94		0
	1	74	15.87		0
	36	0	16.01	0-1	0
	36	18	16.00		0
	36	37	15.91		0
	75	0	15.99		0
16QAM	1	0	16.02	0-1	0
	1	36	15.96		0
	1	74	15.83		0
	36	0	16.23	0-2	0
	36	18	16.21		0
	36	37	16.15		0
	75	0	16.12		0
64QAM	1	0	16.29	0-2	0
	1	36	16.21		0
	1	74	16.08		0
	36	0	16.15	0-3	0
	36	18	16.13		0
	36	37	16.07		0
	75	0	16.10		0

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 53 of 127

Table 8-37
LTE Band 26 (Cell) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26740 (819.0 MHz)	26865 (831.5 MHz)	26990 (844.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.22	16.02	15.97	0	0
	1	25	16.14	15.94	15.87		0
	1	49	16.09	15.87	15.81		0
	25	0	16.19	15.99	15.98	0-1	0
	25	12	16.18	16.00	16.00		0
	25	25	16.11	15.94	15.94		0
	50	0	16.16	15.95	15.95		0
16QAM	1	0	16.47	16.51	15.97	0-1	0
	1	25	16.41	16.41	15.90		0
	1	49	16.35	16.35	15.84		0
	25	0	16.24	16.14	16.03	0-2	0
	25	12	16.22	16.09	16.07		0
	25	25	16.17	16.04	15.99		0
	50	0	16.20	16.08	16.03		0
64QAM	1	0	16.25	16.34	15.93	0-2	0
	1	25	16.19	16.23	15.82		0
	1	49	16.16	16.16	15.77		0
	25	0	16.31	16.16	16.11	0-3	0
	25	12	16.29	16.11	16.07		0
	25	25	16.24	16.06	16.02		0
	50	0	16.27	16.14	16.02		0

Table 8-38
LTE Band 26 (Cell) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.15	15.99	15.88	0	0
	1	12	16.09	15.93	15.81		0
	1	24	16.07	15.93	15.81		0
	12	0	16.24	16.06	16.00	0-1	0
	12	6	16.25	16.08	16.01		0
	12	13	16.18	16.04	16.00		0
	25	0	16.24	16.02	16.03		0
16QAM	1	0	16.46	16.53	16.23	0-1	0
	1	12	16.50	16.47	16.16		0
	1	24	16.48	16.48	16.17		0
	12	0	16.30	16.16	16.07	0-2	0
	12	6	16.31	16.20	16.11		0
	12	13	16.26	16.16	16.04		0
	25	0	16.40	16.14	16.02		0
64QAM	1	0	16.40	16.22	16.01	0-2	0
	1	12	16.29	16.16	15.95		0
	1	24	16.30	16.15	15.95		0
	12	0	16.35	16.23	16.08	0-3	0
	12	6	16.35	16.22	16.12		0
	12	13	16.32	16.18	16.09		0
	25	0	16.31	16.11	16.00		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 54 of 127	

Table 8-39
LTE Band 26 (Cell) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.18	15.98	15.90	0	0
	1	7	16.20	16.03	15.94		0
	1	14	16.13	15.90	15.84		0
	8	0	16.22	16.03	15.95	0-1	0
	8	4	16.20	16.02	15.94		0
	8	7	16.20	16.00	15.92		0
	15	0	16.20	16.03	15.98		0
16QAM	1	0	16.40	16.35	16.36	0-1	0
	1	7	16.41	16.39	16.37		0
	1	14	16.39	16.38	16.40		0
	8	0	16.24	16.25	15.99	0-2	0
	8	4	16.21	16.24	16.00		0
	8	7	16.20	16.22	15.98		0
	15	0	16.32	16.19	16.17		0
64QAM	1	0	16.27	16.46	16.45	0-2	0
	1	7	16.31	16.54	16.51		0
	1	14	16.21	16.39	16.41		0
	8	0	16.40	16.30	16.16	0-3	0
	8	4	16.39	16.33	16.13		0
	8	7	16.35	16.29	16.11		0
	15	0	16.27	16.16	16.13		0

Table 8-40
LTE Band 26 (Cell) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.08	15.87	15.91	0	0
	1	2	16.15	15.92	15.95		0
	1	5	16.07	15.89	15.89		0
	3	0	16.18	15.93	15.91		0
	3	2	16.20	15.94	15.93		0
	3	3	16.15	15.90	15.87		0
	6	0	16.12	15.91	15.92	0-1	0
16QAM	1	0	16.35	16.36	16.06	0-1	0
	1	2	16.43	16.44	16.07		0
	1	5	16.37	16.39	16.01		0
	3	0	16.14	16.22	16.13		0
	3	2	16.16	16.20	16.19		0
	3	3	16.15	16.19	16.11	0	
6	0	16.09	16.24	16.05	0-2	0	
64QAM	1	0	16.44	16.06	16.43	0-2	0
	1	2	16.43	16.10	16.48		0
	1	5	16.37	16.02	16.39		0
	3	0	16.36	16.23	16.06		0
	3	2	16.39	16.24	16.09		0
	3	3	16.38	16.21	16.06		0
	6	0	16.24	16.24	16.20	0-3	0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 55 of 127	

8.2.7

LTE Band 5 (Cell)

Table 8-41
LTE Band 5 (Cell) Maximum Conducted Powers - 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	24.13	0	0
	1	25	24.05		0
	1	49	23.98		0
	25	0	23.06	0-1	1
	25	12	23.07		1
	25	25	22.99		1
	50	0	23.04		1
16QAM	1	0	23.61	0-1	1
	1	25	23.54		1
	1	49	23.37		1
	25	0	22.24	0-2	2
	25	12	22.20		2
	25	25	22.18		2
	50	0	22.12		2
64QAM	1	0	22.26	0-2	2
	1	25	22.15		2
	1	49	22.06		2
	25	0	21.12	0-3	3
	25	12	21.06		3
	25	25	21.04		3
	50	0	21.06		3

Note: LTE Band 5 (Cell) at 10 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 56 of 127

Table 8-42
LTE Band 5 (Cell) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20425 (826.5 MHz)	20525 (836.5 MHz)	20625 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.20	24.03	23.85	0	0
	1	12	24.17	23.99	23.84		0
	1	24	24.14	24.00	23.86		0
	12	0	23.20	23.11	22.97	0-1	1
	12	6	23.20	23.11	22.95		1
	12	13	23.14	23.04	22.95		1
	25	0	23.15	23.05	22.95		1
16QAM	1	0	23.71	23.06	22.98	0-1	1
	1	12	23.73	23.00	22.96		1
	1	24	23.70	22.97	22.91		1
	12	0	22.35	22.22	22.06	0-2	2
	12	6	22.35	22.23	22.08		2
	12	13	22.29	22.17	22.03		2
	25	0	22.32	22.13	22.01		2
64QAM	1	0	22.28	22.40	21.99	0-2	2
	1	12	22.28	22.35	21.96		2
	1	24	22.21	22.32	21.93		2
	12	0	21.27	21.14	20.98	0-3	3
	12	6	21.29	21.18	20.98		3
	12	13	21.23	21.13	20.92		3
	25	0	21.31	21.05	20.97		3

Table 8-43
LTE Band 5 (Cell) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20415 (825.5 MHz)	20525 (836.5 MHz)	20635 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.11	23.88	23.82	0	0
	1	7	24.18	23.94	23.94		0
	1	14	24.07	23.86	23.89		0
	8	0	23.15	23.00	22.94	0-1	1
	8	4	23.15	23.05	22.95		1
	8	7	23.11	22.98	22.92		1
	15	0	23.13	22.98	22.94		1
16QAM	1	0	23.45	22.83	22.78	0-1	1
	1	7	23.53	22.88	22.83		1
	1	14	23.46	22.76	22.69		1
	8	0	22.25	22.06	21.97	0-2	2
	8	4	22.32	22.10	22.02		2
	8	7	22.24	22.05	21.95		2
	15	0	22.24	22.02	21.97		2
64QAM	1	0	21.98	22.10	22.44	0-2	2
	1	7	22.07	22.13	22.47		2
	1	14	21.98	21.99	22.33		2
	8	0	21.32	21.13	21.07	0-3	3
	8	4	21.31	21.12	21.14		3
	8	7	21.30	21.03	21.03		3
	15	0	21.31	21.13	21.01		3

FCC ID: A3LSMT547U	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 57 of 127	

Table 8-44
LTE Band 5 (Cell) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20407 (824.7 MHz)	20525 (836.5 MHz)	20643 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.15	23.88	23.74	0	0
	1	2	24.19	23.98	23.77		0
	1	5	24.16	23.88	23.77		0
	3	0	24.03	23.88	23.73		0
	3	2	24.11	23.96	23.74		0
	3	3	24.03	23.92	23.71		0
	6	0	23.03	22.89	22.91	0-1	1
16QAM	1	0	22.83	23.29	22.50	0-1	1
	1	2	22.88	23.32	22.52		1
	1	5	22.90	23.28	22.53		1
	3	0	23.19	23.24	22.84		1
	3	2	23.29	23.32	22.90		1
	3	3	23.23	23.20	22.81		1
	6	0	22.29	21.89	22.00	0-2	2
64QAM	1	0	22.47	21.82	21.80	0-2	2
	1	2	22.58	21.90	21.80		2
	1	5	22.39	21.76	21.78		2
	3	0	22.17	22.10	21.78		2
	3	2	22.19	22.15	21.84		2
	3	3	22.14	22.08	21.78		2
	6	0	21.15	20.97	20.90	0-3	3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 58 of 127

Table 8-45
LTE Band 5 (Cell) Reduced Conducted Powers - 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	16.01	0	0
	1	25	15.92		0
	1	49	15.83		0
	25	0	16.01	0-1	0
	25	12	15.99		0
	25	25	15.91		0
	50	0	15.98		0
16QAM	1	0	16.35	0-1	0
	1	25	16.34		0
	1	49	16.25		0
	25	0	16.14	0-2	0
	25	12	16.11		0
	25	25	16.04		0
	50	0	16.04		0
64QAM	1	0	16.23	0-2	0
	1	25	16.16		0
	1	49	16.10		0
	25	0	16.05	0-3	0
	25	12	16.06		0
	25	25	16.03		0
	50	0	16.06		0

Note: LTE Band 5 (Cell) at 10 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 59 of 127

Table 8-46
LTE Band 5 (Cell) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20425 (826.5 MHz)	20525 (836.5 MHz)	20625 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.13	15.95	15.73	0	0
	1	12	16.11	15.91	15.69		0
	1	24	16.07	15.92	15.68		0
	12	0	16.11	16.02	15.88	0-1	0
	12	6	16.15	16.02	15.86		0
	12	13	16.06	15.94	15.80		0
	25	0	16.08	15.95	15.87		0
16QAM	1	0	16.39	16.03	15.95	0-1	0
	1	12	16.30	15.99	15.93		0
	1	24	16.31	16.01	15.89		0
	12	0	16.29	16.14	16.04	0-2	0
	12	6	16.32	16.17	16.00		0
	12	13	16.27	16.10	15.95		0
	25	0	16.27	16.05	15.95		0
64QAM	1	0	16.33	16.41	15.99	0-2	0
	1	12	16.27	16.33	15.97		0
	1	24	16.21	16.35	15.95		0
	12	0	16.28	16.18	15.96	0-3	0
	12	6	16.28	16.16	15.99		0
	12	13	16.25	16.11	15.92		0
	25	0	16.30	16.07	15.99		0

Table 8-47
LTE Band 5 (Cell) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20415 (825.5 MHz)	20525 (836.5 MHz)	20635 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.05	15.83	15.78	0	0
	1	7	16.14	15.89	15.84		0
	1	14	15.99	15.84	15.74		0
	8	0	16.08	15.95	15.86	0-1	0
	8	4	16.10	15.92	15.88		0
	8	7	16.08	15.91	15.85		0
	15	0	16.09	15.95	15.87		0
16QAM	1	0	16.27	15.84	15.83	0-1	0
	1	7	16.33	15.86	15.92		0
	1	14	16.24	15.74	15.74		0
	8	0	16.14	16.00	15.93	0-2	0
	8	4	16.15	16.02	15.99		0
	8	7	16.12	15.97	15.90		0
	15	0	16.05	16.02	15.98		0
64QAM	1	0	15.97	16.09	16.10	0-2	0
	1	7	16.10	16.12	16.16		0
	1	14	16.00	15.98	16.02		0
	8	0	16.29	16.08	15.91	0-3	0
	8	4	16.31	16.10	15.96		0
	8	7	16.27	16.05	15.88		0
	15	0	16.29	16.13	15.99		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 60 of 127

Table 8-48
LTE Band 5 (Cell) Reduced Conducted Powers – 1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20407 (824.7 MHz)	20525 (836.5 MHz)	20643 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	16.08	15.87	15.64	0	0
	1	2	16.16	15.89	15.67		0
	1	5	16.06	15.84	15.65		0
	3	0	16.01	15.86	15.76		0
	3	2	16.03	15.96	15.82		0
	3	3	16.00	15.86	15.73		0
	6	0	15.97	15.80	15.80	0-1	0
16QAM	1	0	15.87	16.29	15.55	0-1	0
	1	2	15.91	16.36	15.62		0
	1	5	15.88	16.25	15.56		0
	3	0	16.21	16.26	15.94		0
	3	2	16.30	16.27	16.01		0
	3	3	16.24	16.24	15.91		0
	6	0	16.28	15.84	16.04	0-2	0
64QAM	1	0	15.93	15.81	15.80	0-2	0
	1	2	16.03	15.87	15.85		0
	1	5	15.90	15.76	15.81		0
	3	0	16.14	16.07	15.81		0
	3	2	16.22	16.12	15.87		0
	3	3	16.14	16.08	15.79		0
	6	0	16.11	15.96	15.86	0-3	0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 61 of 127

8.2.8

LTE Band 66 (AWS)

Table 8-49
LTE Band 66 (AWS) Maximum Conducted Powers - 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	23.29	23.02	23.22	0	0
	1	50	23.07	22.82	22.98		0
	1	99	22.99	22.82	22.99		0
	50	0	22.35	22.07	22.06	0-1	1
	50	25	22.22	21.98	21.99		1
	50	50	22.04	21.93	21.98		1
	100	0	22.10	21.97	22.04		1
16QAM	1	0	22.73	22.64	22.37	0-1	1
	1	50	22.54	22.42	22.19		1
	1	99	22.41	22.36	22.19		1
	50	0	21.35	21.06	21.18	0-2	2
	50	25	21.29	21.02	21.06		2
	50	50	21.12	20.98	21.02		2
	100	0	21.15	21.05	21.05		2
64QAM	1	0	21.51	21.05	21.50	0-2	2
	1	50	21.30	20.83	21.34		2
	1	99	21.21	20.86	21.30		2
	50	0	20.38	20.14	20.16	0-3	3
	50	25	20.29	20.11	20.08		3
	50	50	20.16	20.02	20.06		3
	100	0	20.19	20.10	20.10		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 62 of 127

Table 8-50
LTE Band 66 (AWS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.39	23.07	23.00	0	0
	1	36	23.26	22.99	22.93		0
	1	74	23.21	22.91	22.88		0
	36	0	22.27	22.10	22.11	0-1	1
	36	18	22.27	22.07	22.07		1
	36	37	22.20	21.98	21.95		1
	75	0	22.25	22.07	22.03		1
16QAM	1	0	22.44	21.88	22.37	0-1	1
	1	36	22.36	21.73	22.16		1
	1	74	22.27	21.73	22.23		1
	36	0	21.43	21.20	21.21	0-2	2
	36	18	21.39	21.15	21.17		2
	36	37	21.36	21.12	21.16		2
	75	0	21.31	21.16	21.19		2
64QAM	1	0	21.85	21.03	21.79	0-2	2
	1	36	21.73	20.93	21.62		2
	1	74	21.69	20.86	21.63		2
	36	0	20.39	20.29	20.29	0-3	3
	36	18	20.36	20.27	20.30		3
	36	37	20.33	20.22	20.24		3
	75	0	20.42	20.21	20.16		3

Table 8-51
LTE Band 66 (AWS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.11	22.99	22.94	0	0
	1	25	23.07	22.90	22.88		0
	1	49	22.99	22.91	22.85		0
	25	0	22.25	22.01	22.05	0-1	1
	25	12	22.24	22.01	22.01		1
	25	25	22.22	21.95	22.02		1
	50	0	22.23	22.02	22.06		1
16QAM	1	0	22.41	21.83	22.35	0-1	1
	1	25	22.32	21.76	22.25		1
	1	49	22.30	21.68	22.18		1
	25	0	21.32	21.17	21.16	0-2	2
	25	12	21.35	21.16	21.17		2
	25	25	21.27	21.14	21.12		2
	50	0	21.30	21.12	21.15		2
64QAM	1	0	21.29	20.97	21.75	0-2	2
	1	25	21.24	20.88	21.65		2
	1	49	21.15	20.89	21.64		2
	25	0	20.47	20.22	20.18	0-3	3
	25	12	20.44	20.23	20.17		3
	25	25	20.40	20.20	20.13		3
	50	0	20.34	20.17	20.15		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 63 of 127	

Table 8-52
LTE Band 66 (AWS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.22	23.06	22.86	0	0
	1	12	23.18	23.02	22.82		0
	1	24	23.22	23.01	22.82		0
	12	0	22.28	22.04	22.01	0-1	1
	12	6	22.26	22.07	22.02		1
	12	13	22.24	21.98	21.96		1
	25	0	22.21	22.04	22.02		1
16QAM	1	0	22.28	22.26	22.16	0-1	1
	1	12	22.22	22.21	22.12		1
	1	24	22.24	22.22	22.06		1
	12	0	21.34	21.15	21.12	0-2	2
	12	6	21.34	21.13	21.13		2
	12	13	21.30	21.13	21.07		2
	25	0	21.35	21.10	21.12		2
64QAM	1	0	21.63	21.16	21.10	0-2	2
	1	12	21.55	21.15	21.06		2
	1	24	21.51	21.10	21.11		2
	12	0	20.38	20.12	20.07	0-3	3
	12	6	20.36	20.17	20.10		3
	12	13	20.35	20.08	20.04		3
	25	0	20.30	20.16	20.09		3

Table 8-53
LTE Band 66 (AWS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.08	22.93	22.87	0	0
	1	7	23.15	23.02	22.98		0
	1	14	23.03	22.88	22.81		0
	8	0	22.18	21.95	21.95	0-1	1
	8	4	22.22	21.98	22.01		1
	8	7	22.16	21.93	21.93		1
	15	0	22.23	21.96	22.00		1
16QAM	1	0	22.40	21.78	22.18	0-1	1
	1	7	22.44	21.77	22.30		1
	1	14	22.32	21.65	22.17		1
	8	0	21.17	20.92	21.10	0-2	2
	8	4	21.20	20.94	21.11		2
	8	7	21.13	20.87	21.13		2
	15	0	21.29	21.02	21.12		2
64QAM	1	0	21.31	20.87	21.64	0-2	2
	1	7	21.33	20.98	21.72		2
	1	14	21.22	20.87	21.57		2
	8	0	20.31	20.16	20.19	0-3	3
	8	4	20.29	20.18	20.19		3
	8	7	20.27	20.15	20.16		3
	15	0	20.33	20.14	20.12		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 64 of 127

Table 8-54
LTE Band 66 (AWS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.09	22.99	22.79	0	0
	1	2	23.12	23.05	22.81		0
	1	5	23.03	23.01	22.78		0
	3	0	23.10	22.90	22.89		0
	3	2	23.15	22.94	22.94		0
	3	3	23.08	22.88	22.87		0
	6	0	22.08	21.85	21.92	0-1	1
16QAM	1	0	21.84	21.99	22.03	0-1	1
	1	2	21.90	22.06	22.11		1
	1	5	21.88	22.08	22.04		1
	3	0	22.29	22.01	21.96		1
	3	2	22.35	22.09	22.05		1
	3	3	22.30	22.07	21.99		1
	6	0	21.11	20.89	20.99	0-2	2
64QAM	1	0	21.13	20.79	20.89	0-2	2
	1	2	21.23	20.87	20.95		2
	1	5	21.17	20.71	20.91		2
	3	0	21.13	21.01	20.93		2
	3	2	21.22	21.15	20.97		2
	3	3	21.19	21.02	20.91		2
	6	0	20.26	19.98	19.97	0-3	3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 65 of 127

Table 8-55
LTE Band 66 (AWS) Reduced Conducted Powers - 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	11.23	11.03	10.98	0	0
	1	50	11.02	10.83	10.81		0
	1	99	10.95	10.84	10.79		0
	50	0	11.17	11.03	11.02	0-1	0
	50	25	11.11	10.93	10.94		0
	50	50	11.01	10.90	10.93		0
	100	0	11.09	10.95	10.96		0
16QAM	1	0	11.55	11.25	11.43	0-1	0
	1	50	11.36	11.23	11.23		0
	1	99	11.27	11.15	11.22		0
	50	0	11.32	11.17	11.11	0-2	0
	50	25	11.27	11.09	11.05		0
	50	50	11.10	11.04	10.97		0
	100	0	11.15	11.06	11.08		0
64QAM	1	0	11.54	11.32	11.06	0-2	0
	1	50	11.34	11.13	10.85		0
	1	99	11.23	11.14	10.84		0
	50	0	11.37	11.15	11.13	0-3	0
	50	25	11.27	11.06	11.07		0
	50	50	11.15	11.02	11.04		0
	100	0	11.15	11.08	11.09		0

Table 8-56
LTE Band 66 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.14	11.06	11.04	0	0
	1	36	11.00	10.92	10.96		0
	1	74	10.95	10.86	10.88		0
	36	0	11.27	11.06	11.07	0-1	0
	36	18	11.25	11.01	11.08		0
	36	37	11.18	10.96	11.01		0
	75	0	11.20	10.96	11.00		0
16QAM	1	0	11.49	11.21	11.49	0-1	0
	1	36	11.39	11.25	11.39		0
	1	74	11.33	11.22	11.31		0
	36	0	11.48	11.21	11.23	0-2	0
	36	18	11.41	11.23	11.19		0
	36	37	11.35	11.15	11.14		0
	75	0	11.31	11.16	11.19		0
64QAM	1	0	11.43	11.12	11.28	0-2	0
	1	36	11.33	11.03	11.14		0
	1	74	11.27	10.95	11.11		0
	36	0	11.29	11.16	11.18	0-3	0
	36	18	11.25	11.16	11.14		0
	36	37	11.25	11.06	11.08		0
	75	0	11.24	11.11	11.08		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 66 of 127	

Table 8-57
LTE Band 66 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.18	10.98	10.97	0	0
	1	25	11.11	10.90	10.93		0
	1	49	11.08	10.89	10.87		0
	25	0	11.23	11.04	11.06	0-1	0
	25	12	11.22	11.02	11.00		0
	25	25	11.22	11.03	11.03		0
	50	0	11.20	11.07	11.00	0	
16QAM	1	0	11.60	11.36	11.43	0-1	0
	1	25	11.59	11.28	11.33		0
	1	49	11.55	11.25	11.31		0
	25	0	11.33	11.17	11.18	0-2	0
	25	12	11.32	11.13	11.13		0
	25	25	11.27	11.08	11.08		0
	50	0	11.34	11.14	11.15	0	
64QAM	1	0	11.42	11.10	11.25	0-2	0
	1	25	11.29	10.99	11.12		0
	1	49	11.29	10.98	11.12		0
	25	0	11.42	11.29	11.18	0-3	0
	25	12	11.38	11.26	11.18		0
	25	25	11.36	11.21	11.12		0
	50	0	11.33	11.23	11.21	0	

Table 8-58
LTE Band 66 (AWS) Reduced Conducted Powers – 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.10	10.91	10.87	0	0
	1	12	11.01	10.85	10.81		0
	1	24	11.06	10.88	10.82		0
	12	0	11.20	10.99	11.02	0-1	0
	12	6	11.21	11.00	11.02		0
	12	13	11.19	10.96	10.94		0
16QAM	25	0	11.20	10.96	10.99	0-1	0
	1	0	11.57	11.57	11.32		0
	1	12	11.49	11.49	11.20		0
	1	24	11.50	11.51	11.21	0-2	0
	12	0	11.26	11.17	11.10		0
	12	6	11.27	11.18	11.10		0
64QAM	12	13	11.23	11.14	11.10	0-2	0
	25	0	11.38	11.09	11.08		0
	1	0	11.42	11.28	11.10	0-2	0
	1	12	11.33	11.17	11.00		0
	1	24	11.38	11.18	11.05		0
	12	0	11.35	11.15	11.15	0-3	0
	12	6	11.36	11.16	11.14		0
	12	13	11.35	11.11	11.08		0
	25	0	11.32	11.09	11.02		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 67 of 127	

Table 8-59
LTE Band 66 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.11	10.89	10.91	0	0
	1	7	11.19	10.99	10.96		0
	1	14	11.11	10.85	10.88		0
	8	0	11.20	10.98	10.93	0-1	0
	8	4	11.19	10.97	10.93		0
	8	7	11.20	10.98	10.96		0
	15	0	11.22	11.01	10.96		0
16QAM	1	0	11.49	11.53	11.31	0-1	0
	1	7	11.57	11.57	11.33		0
	1	14	11.49	11.50	11.26		0
	8	0	11.20	11.24	10.98	0-2	0
	8	4	11.23	11.22	10.98		0
	8	7	11.19	11.17	10.97		0
	15	0	11.34	11.15	11.12		0
64QAM	1	0	11.26	10.62	11.13	0-2	0
	1	7	11.31	10.70	11.19		0
	1	14	11.20	10.58	11.10		0
	8	0	11.41	11.15	11.24	0-3	0
	8	4	11.41	11.15	11.28		0
	8	7	11.39	11.14	11.22		0
	15	0	11.40	11.07	11.11		0

Table 8-60
LTE Band 66 (AWS) Reduced Conducted Powers – 1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.06	10.92	10.84	0	0
	1	2	11.14	10.98	10.89		0
	1	5	11.08	10.93	10.83		0
	3	0	11.14	10.90	10.90		0
	3	2	11.18	10.93	10.93		0
	3	3	11.13	10.89	10.89		0
	6	0	11.12	10.92	10.86	0-1	0
16QAM	1	0	11.45	11.21	11.21	0-1	0
	1	2	11.51	11.25	11.25		0
	1	5	11.43	11.22	11.22		0
	3	0	11.09	11.23	10.88		0
	3	2	11.18	11.27	10.94		0
	3	3	11.09	11.19	10.88		0
	6	0	11.09	11.16	10.89	0-2	0
64QAM	1	0	11.17	11.23	11.06	0-2	0
	1	2	11.25	11.31	11.10		0
	1	5	11.16	11.22	11.05		0
	3	0	11.36	11.11	11.14		0
	3	2	11.42	11.16	11.19		0
	3	3	11.34	11.11	11.15		0
	6	0	11.25	11.20	11.16	0-3	0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 68 of 127	

8.2.9

LTE Band 4 (AWS)

Table 8-61
LTE Band 4 (AWS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20175 (1732.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.14	0	0
	1	50	23.95		0
	1	99	23.94		0
	50	0	23.13	0-1	1
	50	25	23.07		1
	50	50	23.03		1
	100	0	23.07		1
16QAM	1	0	23.59	0-1	1
	1	50	23.42		1
	1	99	23.38		1
	50	0	22.24	0-2	2
	50	25	22.21		2
	50	50	22.14		2
	100	0	22.16		2
64QAM	1	0	22.38	0-2	2
	1	50	22.21		2
	1	99	22.15		2
	50	0	21.27	0-3	3
	50	25	21.18		3
	50	50	21.15		3
	100	0	21.19		3

Note: LTE Band 4 (AWS) at 20 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 69 of 127

Table 8-62
LTE Band 4 (AWS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 4 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20025 (1717.5 MHz)	20175 (1732.5 MHz)	20325 (1747.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.17	24.13	23.94	0	0
	1	36	24.10	24.06	23.96		0
	1	74	23.91	23.96	23.89		0
	36	0	23.20	23.07	23.02	0-1	1
	36	18	23.17	23.06	23.11		1
	36	37	23.05	22.98	23.03		1
	75	0	23.08	23.04	22.96		1
16QAM	1	0	23.00	23.25	23.35	0-1	1
	1	36	22.92	23.13	23.34		1
	1	74	22.75	23.06	23.30		1
	36	0	22.32	22.26	22.19	0-2	2
	36	18	22.31	22.22	22.28		2
	36	37	22.20	22.18	22.21		2
	75	0	22.25	22.18	22.12		2
64QAM	1	0	22.18	22.68	22.71	0-2	2
	1	36	22.10	22.57	22.73		2
	1	74	21.91	22.52	22.68		2
	36	0	21.47	21.24	21.28	0-3	3
	36	18	21.44	21.22	21.36		3
	36	37	21.27	21.15	21.28		3
	75	0	21.23	21.23	21.12		3

Table 8-63
LTE Band 4 (AWS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 4 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20000 (1715.0 MHz)	20175 (1732.5 MHz)	20350 (1750.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.17	23.91	23.98	0	0
	1	25	24.07	23.81	23.89		0
	1	49	24.02	23.81	23.85		0
	25	0	23.16	23.09	23.04	0-1	1
	25	12	23.15	23.03	23.09		1
	25	25	23.12	22.99	23.03		1
	50	0	23.17	23.05	23.04		1
16QAM	1	0	22.99	23.22	23.36	0-1	1
	1	25	22.88	23.11	23.28		1
	1	49	22.83	23.11	23.26		1
	25	0	22.34	22.15	22.21	0-2	2
	25	12	22.32	22.12	22.21		2
	25	25	22.27	22.06	22.15		2
	50	0	22.29	22.10	22.18		2
64QAM	1	0	22.14	22.12	22.74	0-2	2
	1	25	22.06	22.04	22.68		2
	1	49	22.04	22.01	22.65		2
	25	0	21.40	21.30	21.23	0-3	3
	25	12	21.39	21.28	21.20		3
	25	25	21.35	21.22	21.19		3
	50	0	21.32	21.19	21.18		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 70 of 127	

Table 8-64
LTE Band 4 (AWS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 4 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19975 (1712.5 MHz)	20175 (1732.5 MHz)	20375 (1752.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.17	23.96	23.86	0	0
	1	12	24.17	23.95	23.83		0
	1	24	24.21	23.92	23.84		0
	12	0	23.21	23.03	23.01	0-1	1
	12	6	23.24	23.06	23.00		1
	12	13	23.20	22.99	22.97		1
16QAM	25	0	23.21	23.03	23.03	0-1	1
	1	0	23.45	23.09	23.20		1
	1	12	23.41	23.04	23.13		1
	1	24	23.42	23.07	23.14	0-2	1
	12	0	22.33	22.18	22.11		2
	12	6	22.35	22.19	22.16		2
64QAM	12	13	22.32	22.10	22.10	0-2	2
	25	0	22.27	22.10	22.16		2
	1	0	22.34	22.40	22.16		0-2
	1	12	22.33	22.31	22.13	2	
	1	24	22.28	22.32	22.13	2	
	64QAM	12	0	21.30	21.18	21.11	0-3
12		6	21.34	21.17	21.14	3	
12		13	21.25	21.18	21.04	3	
25		0	21.35	21.12	21.13		3

Table 8-65
LTE Band 4 (AWS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 4 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19965 (1711.5 MHz)	20175 (1732.5 MHz)	20385 (1753.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.08	23.86	23.87	0	0
	1	7	24.16	23.91	23.98		0
	1	14	24.07	23.77	23.87		0
	8	0	23.11	22.96	23.01	0-1	1
	8	4	23.15	22.97	23.03		1
	8	7	23.12	22.95	22.97		1
16QAM	15	0	23.15	22.99	23.01	0-1	1
	1	0	22.98	23.16	23.25		1
	1	7	22.96	23.22	23.35		1
	1	14	22.86	23.08	23.15	0-2	1
	8	0	22.12	21.97	22.18		2
	8	4	22.13	22.01	22.17		2
64QAM	8	7	22.06	21.94	22.14	0-2	2
	15	0	22.25	22.10	22.20		2
	1	0	22.02	22.09	22.67		0-2
	1	7	22.14	22.11	22.77	2	
	1	14	22.01	21.98	22.65	2	
	8	0	21.34	21.10	21.23	0-3	3
8	4	21.38	21.12	21.25	3		
8	7	21.33	21.10	21.19	3		
	15	0	21.37	21.12	21.17		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 71 of 127	

Table 8-66
LTE Band 4 (AWS) Maximum Conducted Powers - 1.4 MHz Bandwidth

LTE Band 4 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19957 (1710.7 MHz)	20175 (1732.5 MHz)	20393 (1754.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.04	23.74	23.96	0	0
	1	2	24.09	23.84	24.05		0
	1	5	24.01	23.75	23.99		0
	3	0	24.05	23.85	23.89		0
	3	2	24.11	23.93	23.97		0
	3	3	24.04	23.86	23.87		0
	6	0	23.03	22.89	22.87	0-1	1
16QAM	1	0	23.24	22.66	23.06	0-1	1
	1	2	23.29	22.71	23.11		1
	1	5	23.20	22.63	23.09		1
	3	0	23.17	23.04	22.98		1
	3	2	23.27	23.11	23.08		1
	3	3	23.20	23.05	23.02		1
	6	0	22.11	21.92	22.02	0-2	2
64QAM	1	0	21.95	21.94	22.43	0-2	2
	1	2	22.05	22.00	22.52		2
	1	5	21.97	21.98	22.37		2
	3	0	22.23	21.91	22.04		2
	3	2	22.31	21.99	22.10		2
	3	3	22.24	21.94	22.04		2
	6	0	21.14	21.01	21.02	0-3	3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 72 of 127

Table 8-67
LTE Band 4 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20175 (1732.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	13.11	0	0
	1	50	12.91		0
	1	99	12.96		0
	50	0	13.08	0-1	0
	50	25	13.03		0
	50	50	12.98		0
	100	0	13.01		0
16QAM	1	0	13.26	0-1	0
	1	50	13.08		0
	1	99	13.07		0
	50	0	13.23	0-2	0
	50	25	13.15		0
	50	50	13.07		0
	100	0	13.14		0
64QAM	1	0	13.39	0-2	0
	1	50	13.22		0
	1	99	13.23		0
	50	0	13.27	0-3	0
	50	25	13.19		0
	50	50	13.13		0
	100	0	13.16		0

Note: LTE Band 4 (AWS) at 20 MHz bandwidth does 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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 73 of 127

Table 8-68
LTE Band 4 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 4 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20025 (1717.5 MHz)	20175 (1732.5 MHz)	20325 (1747.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.13	13.06	13.00	0	0
	1	36	12.99	12.98	13.01		0
	1	74	12.82	12.88	12.92		0
	36	0	13.23	13.07	13.04	0-1	0
	36	18	13.17	13.05	13.11		0
	36	37	13.04	12.99	13.03		0
	75	0	13.06	13.02	13.00		0
16QAM	1	0	13.37	13.32	13.33	0-1	0
	1	36	13.28	13.21	13.34		0
	1	74	13.18	13.24	13.28		0
	36	0	13.32	13.27	13.20	0-2	0
	36	18	13.30	13.23	13.31		0
	36	37	13.21	13.17	13.21		0
	75	0	13.18	13.19	13.16		0
64QAM	1	0	13.35	13.27	13.14	0-2	0
	1	36	13.34	13.21	13.11		0
	1	74	13.17	13.17	13.05		0
	36	0	13.33	13.24	13.29	0-3	0
	36	18	13.34	13.23	13.36		0
	36	37	13.27	13.17	13.26		0
	75	0	13.22	13.21	13.21		0

Table 8-69
LTE Band 4 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 4 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20000 (1715.0 MHz)	20175 (1732.5 MHz)	20350 (1750.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.16	13.02	13.06	0	0
	1	25	13.07	12.92	12.96		0
	1	49	13.04	12.92	12.94		0
	25	0	13.25	13.06	13.12	0-1	0
	25	12	13.23	13.06	13.14		0
	25	25	13.19	13.02	13.09		0
	50	0	13.21	13.04	13.12		0
16QAM	1	0	13.38	13.36	13.50	0-1	0
	1	25	13.28	13.29	13.41		0
	1	49	13.30	13.25	13.39		0
	25	0	13.33	13.17	13.23	0-2	0
	25	12	13.30	13.15	13.21		0
	25	25	13.27	13.12	13.18		0
	50	0	13.34	13.16	13.24		0
64QAM	1	0	13.39	13.38	13.31	0-2	0
	1	25	13.35	13.27	13.21		0
	1	49	13.32	13.23	13.19		0
	25	0	13.41	13.31	13.27	0-3	0
	25	12	13.41	13.31	13.25		0
	25	25	13.38	13.25	13.21		0
	50	0	13.33	13.26	13.29		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 74 of 127	

Table 8-70
LTE Band 4 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 4 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19975 (1712.5 MHz)	20175 (1732.5 MHz)	20375 (1752.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.09	12.97	12.93	0	0
	1	12	13.00	12.90	12.83		0
	1	24	13.04	12.92	12.85		0
	12	0	13.24	13.06	13.07	0-1	0
	12	6	13.22	13.08	13.10		0
	12	13	13.15	13.03	13.05		0
16QAM	25	0	13.23	13.03	13.09	0-1	0
	1	0	13.38	13.44	13.34		0
	1	12	13.34	13.37	13.28		0
	1	24	13.33	13.37	13.30	0-2	0
	12	0	13.31	13.20	13.15		0
	12	6	13.28	13.21	13.21		0
64QAM	12	13	13.24	13.17	13.18	0-2	0
	25	0	13.38	13.14	13.20		0
	1	0	13.42	13.29	13.15	0-2	0
	1	12	13.35	13.24	13.04		0
	1	24	13.38	13.25	13.10	0-3	0
	12	0	13.37	13.24	13.20		0
12	6	13.40	13.24	13.19	0		
12	13	13.33	13.18	13.15	0		
	25	0	13.33	13.14	13.07		0

Table 8-71
LTE Band 4 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 4 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19965 (1711.5 MHz)	20175 (1732.5 MHz)	20385 (1753.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.16	12.97	12.99	0	0
	1	7	13.20	13.04	13.04		0
	1	14	13.09	12.95	12.94		0
	8	0	13.16	13.03	13.04	0-1	0
	8	4	13.20	13.04	13.07		0
	8	7	13.13	13.00	13.00		0
16QAM	15	0	13.19	13.07	13.07	0-1	0
	1	0	13.38	13.26	13.28		0
	1	7	13.41	13.30	13.29		0
	1	14	13.35	13.21	13.25	0-2	0
	8	0	13.27	13.03	13.28		0
	8	4	13.29	13.05	13.31		0
64QAM	8	7	13.24	13.04	13.24	0-2	0
	15	0	13.44	13.17	13.20		0
	1	0	13.27	13.38	13.27		0-2
	1	7	13.35	13.45	13.34	0	
	1	14	13.21	13.36	13.24	0-3	
	8	0	13.42	13.34	13.29		0
	8	4	13.41	13.39	13.27		0
	8	7	13.40	13.31	13.28	0-3	0
	15	0	13.33	13.17	13.28		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 75 of 127	

Table 8-72
LTE Band 4 (AWS) Reduced Conducted Powers – 1.4 MHz Bandwidth

LTE Band 4 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			19957 (1710.7 MHz)	20175 (1732.5 MHz)	20393 (1754.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.08	12.91	12.99	0	0
	1	2	13.12	12.97	13.09		0
	1	5	13.05	12.86	12.98		0
	3	0	13.13	12.92	12.95		0
	3	2	13.15	12.93	12.98		0
	3	3	13.12	12.92	12.94		0
	6	0	13.12	12.94	12.97	0-1	0
16QAM	1	0	13.33	13.37	13.26	0-1	0
	1	2	13.38	13.41	13.34		0
	1	5	13.34	13.36	13.25		0
	3	0	13.10	13.23	13.26		0
	3	2	13.16	13.27	13.31		0
	3	3	13.07	13.21	13.26		0
	6	0	13.10	13.23	13.19	0-2	0
64QAM	1	0	13.30	13.28	13.34	0-2	0
	1	2	13.39	13.34	13.40		0
	1	5	13.30	13.28	13.30		0
	3	0	13.36	13.22	13.20		0
	3	2	13.45	13.28	13.27		0
	3	3	13.39	13.19	13.21		0
	6	0	13.45	13.10	13.29	0-3	0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 76 of 127

8.2.10

LTE Band 25 (PCS)

Table 8-73
LTE Band 25 (PCS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.92	23.91	23.61	0	0
	1	50	23.74	23.63	23.41		0
	1	99	23.93	23.71	23.34		0
	50	0	22.85	22.83	22.60	0-1	1
	50	25	22.79	22.79	22.57		1
	50	50	22.73	22.76	22.51		1
	100	0	22.78	22.80	22.51		1
16QAM	1	0	23.44	23.46	23.33	0-1	1
	1	50	23.30	23.16	23.15		1
	1	99	23.55	23.27	22.92		1
	50	0	21.95	21.97	21.68	0-2	2
	50	25	21.92	21.88	21.62		2
	50	50	21.87	21.83	21.59		2
	100	0	21.91	21.88	21.67		2
64QAM	1	0	22.16	22.25	21.63	0-2	2
	1	50	21.97	22.04	21.45		2
	1	99	22.18	22.07	21.35		2
	50	0	20.95	20.91	20.69	0-3	3
	50	25	20.92	20.89	20.63		3
	50	50	20.90	20.82	20.61		3
	100	0	20.90	20.88	20.66		3

Table 8-74
LTE Band 25 (PCS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.80	23.84	23.54	0	0
	1	36	23.73	23.73	23.36		0
	1	74	23.77	23.63	23.30		0
	36	0	22.67	22.80	22.57	0-1	1
	36	18	22.76	22.80	22.59		1
	36	37	22.73	22.72	22.43		1
	75	0	22.79	22.75	22.54		1
16QAM	1	0	23.30	23.01	23.20	0-1	1
	1	36	23.22	22.99	23.11		1
	1	74	23.24	22.93	23.08		1
	36	0	21.87	21.89	21.68	0-2	2
	36	18	21.96	21.93	21.72		2
	36	37	21.86	21.83	21.57		2
	75	0	21.84	21.91	21.67		2
64QAM	1	0	22.22	21.70	21.57	0-2	2
	1	36	22.16	21.68	21.47		2
	1	74	22.13	21.52	21.44		2
	36	0	20.77	20.97	20.79	0-3	3
	36	18	20.90	20.99	20.73		3
	36	37	20.81	20.91	20.64		3
	75	0	20.94	20.88	20.62		3

FCC ID: A3LSMT547U



SAR EVALUATION REPORT



Approved by:
Quality Manager

Document S/N:

Test Dates:

DUT Type:

Page 77 of 127

1M1908150142-01-R1.A3L

08/19/19 - 08/26/19

Portable Tablet

Table 8-75
LTE Band 25 (PCS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.68	23.94	23.51	0	0
	1	25	23.40	23.63	23.25		0
	1	49	23.74	23.82	23.29		0
	25	0	22.67	22.75	22.51	0-1	1
	25	12	22.68	22.78	22.39		1
	25	25	22.75	22.72	22.40		1
	50	0	22.80	22.78	22.46		1
16QAM	1	0	23.27	22.98	22.92	0-1	1
	1	25	23.01	22.72	22.79		1
	1	49	23.27	22.87	22.73		1
	25	0	21.75	21.93	21.60	0-2	2
	25	12	21.78	21.88	21.49		2
	25	25	21.81	21.81	21.51		2
	50	0	21.85	21.86	21.57		2
64QAM	1	0	21.93	21.91	21.79	0-2	2
	1	25	21.67	21.63	21.68		2
	1	49	21.91	21.79	21.66		2
	25	0	20.90	20.96	20.64	0-3	3
	25	12	20.88	20.92	20.51		3
	25	25	20.97	20.90	20.52		3
	50	0	20.90	20.87	20.59		3

Table 8-76
LTE Band 25 (PCS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.69	23.82	23.27	0	0
	1	12	23.64	23.77	23.21		0
	1	24	23.69	23.83	23.23		0
	12	0	22.73	22.78	22.39	0-1	1
	12	6	22.66	22.75	22.41		1
	12	13	22.65	22.76	22.36		1
	25	0	22.67	22.76	22.39		1
16QAM	1	0	23.16	23.52	22.97	0-1	1
	1	12	23.15	23.46	22.96		1
	1	24	23.16	23.44	22.92		1
	12	0	21.83	21.91	21.49	0-2	2
	12	6	21.77	21.89	21.52		2
	12	13	21.76	21.84	21.48		2
	25	0	21.73	21.82	21.45		2
64QAM	1	0	22.02	21.91	21.47	0-2	2
	1	12	21.99	21.85	21.41		2
	1	24	21.98	21.88	21.44		2
	12	0	20.80	20.86	20.43	0-3	3
	12	6	20.81	20.84	20.42		3
	12	13	20.75	20.85	20.40		3
	25	0	20.74	20.88	20.47		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 78 of 127	

Table 8-77
LTE Band 25 (PCS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	23.52	23.70	23.29	0	0	
	1	7	23.62	23.83	23.38		0	
	1	14	23.48	23.70	23.24		0	
	8	0	22.63	22.72	22.38	0-1	1	
	8	4	22.64	22.73	22.41		1	
	8	7	22.58	22.72	22.34		1	
16QAM	15	0	22.64	22.74	22.40	0-1	1	
	1	0	23.26	22.98	22.99		0-1	1
	1	7	23.32	23.04	23.09			1
	1	14	23.24	22.91	22.95	0-2		1
	8	0	21.84	21.92	21.50		2	
	8	4	21.86	21.96	21.60		2	
64QAM	8	7	21.85	21.87	21.59	0-2	2	
	15	0	21.78	21.90	21.53		2	
	1	0	21.66	21.58	21.69		0-2	2
	1	7	21.77	21.69	21.78	2		
	1	14	21.60	21.54	21.67	0-3		2
	8	0	20.76	20.87	20.57		3	
8	4	20.76	20.91	20.61	3			
64QAM	8	7	20.75	20.84	20.55	0-3	3	
	15	0	20.74	20.85	20.51		3	

Table 8-78
LTE Band 25 (PCS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.67	23.81	23.63	0	0
	1	2	23.71	23.86	23.70		0
	1	5	23.67	23.79	23.64		0
	3	0	23.77	23.80	23.52		0
	3	2	23.84	23.86	23.57		0
	3	3	23.74	23.81	23.52		0
	6	0	22.77	22.82	22.51	0-1	1
16QAM	1	0	22.95	22.55	22.65	0-1	1
	1	2	22.93	22.60	22.72		1
	1	5	22.96	22.59	22.66		1
	3	0	22.82	22.93	22.59		1
	3	2	22.87	23.01	22.68		1
	3	3	22.84	22.95	22.64	1	
6	0	21.88	21.88	21.55	0-2	2	
64QAM	1	0	21.44	21.57	21.41	0-2	2
	1	2	21.54	21.63	21.48		2
	1	5	21.40	21.59	21.39		2
	3	0	21.65	21.59	21.42		2
	3	2	21.73	21.63	21.46		2
	3	3	21.69	21.59	21.38		2
	6	0	20.60	20.68	20.35	0-3	3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 79 of 127

Table 8-79
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.38	13.34	13.07	0	0
	1	50	13.19	13.12	12.91		0
	1	99	13.34	13.16	12.87		0
	50	0	13.30	13.36	13.05	0-1	0
	50	25	13.27	13.31	12.99		0
	50	50	13.22	13.24	12.93		0
	100	0	13.26	13.30	12.97		0
16QAM	1	0	13.67	13.67	13.24	0-1	0
	1	50	13.50	13.54	13.02		0
	1	99	13.66	13.58	12.97		0
	50	0	13.38	13.39	13.12	0-2	0
	50	25	13.37	13.35	13.05		0
	50	50	13.31	13.28	13.01		0
	100	0	13.34	13.37	13.05		0
64QAM	1	0	13.63	13.42	13.46	0-2	0
	1	50	13.44	13.17	13.29		0
	1	99	13.55	13.22	13.16		0
	50	0	13.43	13.43	13.10	0-3	0
	50	25	13.39	13.41	13.04		0
	50	50	13.37	13.35	13.03		0
	100	0	13.37	13.42	13.06		0

Table 8-80
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.14	13.17	13.03	0	0
	1	36	13.09	13.07	12.85		0
	1	74	13.11	13.04	12.81		0
	36	0	13.22	13.32	13.05	0-1	0
	36	18	13.25	13.33	13.02		0
	36	37	13.24	13.24	12.91		0
	75	0	13.25	13.24	13.02		0
16QAM	1	0	13.54	13.54	13.37	0-1	0
	1	36	13.47	13.47	13.18		0
	1	74	13.53	13.40	13.12		0
	36	0	13.31	13.51	13.21	0-2	0
	36	18	13.42	13.47	13.19		0
	36	37	13.37	13.42	13.05		0
	75	0	13.37	13.32	13.13		0
64QAM	1	0	13.67	13.48	13.50	0-2	0
	1	36	13.63	13.40	13.34		0
	1	74	13.64	13.33	13.34		0
	36	0	13.31	13.58	13.22	0-3	0
	36	18	13.41	13.54	13.21		0
	36	37	13.36	13.45	13.11		0
	75	0	13.40	13.46	13.14		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 80 of 127	

Table 8-81
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.32	13.44	12.91	0	0
	1	25	13.04	13.19	12.78		0
	1	49	13.37	13.38	12.78		0
	25	0	13.21	13.34	13.03	0-1	0
	25	12	13.19	13.34	12.89		0
	25	25	13.24	13.29	12.86		0
	50	0	13.26	13.35	12.97	0	
16QAM	1	0	13.50	13.84	13.74	0-1	0
	1	25	13.20	13.52	13.57		0
	1	49	13.57	13.77	13.57		0
	25	0	13.27	13.40	13.10	0-2	0
	25	12	13.24	13.40	12.96		0
	25	25	13.35	13.34	12.92		0
	50	0	13.38	13.44	13.06	0	
64QAM	1	0	13.32	13.44	13.43	0-2	0
	1	25	13.11	13.13	13.30		0
	1	49	13.39	13.36	13.30		0
	25	0	13.33	13.51	13.12	0-3	0
	25	12	13.37	13.54	13.01		0
	25	25	13.44	13.48	13.00		0
	50	0	13.36	13.52	13.13	0	

Table 8-82
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.09	13.27	12.73	0	0
	1	12	13.01	13.16	12.67		0
	1	24	13.06	13.22	12.72		0
	12	0	13.17	13.27	12.88	0-1	0
	12	6	13.22	13.31	12.91		0
	12	13	13.15	13.27	12.84		0
	25	0	13.19	13.26	12.88		0
16QAM	1	0	13.49	13.86	13.14	0-1	0
	1	12	13.42	13.78	13.08		0
	1	24	13.48	13.82	13.09		0
	12	0	13.20	13.40	12.97	0-2	0
	12	6	13.25	13.44	13.01		0
	12	13	13.19	13.38	12.95		0
	25	0	13.32	13.35	12.95		0
64QAM	1	0	13.43	13.40	13.27	0-2	0
	1	12	13.38	13.32	13.20		0
	1	24	13.39	13.35	13.23		0
	12	0	13.32	13.45	13.01	0-3	0
	12	6	13.35	13.44	13.01		0
	12	13	13.32	13.44	12.98		0
	25	0	13.31	13.36	12.89		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 81 of 127	

Table 8-83
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.09	13.26	12.83	0	0
	1	7	13.18	13.30	12.90		0
	1	14	13.08	13.20	12.78		0
	8	0	13.14	13.27	12.92	0-1	0
	8	4	13.15	13.28	12.90		0
	8	7	13.13	13.22	12.91		0
	15	0	13.15	13.32	12.89		0
16QAM	1	0	13.43	13.60	13.15	0-1	0
	1	7	13.47	13.62	13.23		0
	1	14	13.43	13.62	13.14		0
	8	0	13.10	13.49	12.84	0-2	0
	8	4	13.15	13.46	12.88		0
	8	7	13.12	13.48	12.84		0
	15	0	13.25	13.39	13.01		0
64QAM	1	0	13.46	13.37	13.50	0-2	0
	1	7	13.54	13.53	13.53		0
	1	14	13.44	13.38	13.42		0
	8	0	13.22	13.42	13.05	0-3	0
	8	4	13.24	13.46	13.10		0
	8	7	13.20	13.38	13.04		0
	15	0	13.26	13.36	12.93		0

Table 8-84
LTE Band 25 (PCS) Reduced Conducted Powers – 1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	13.01	13.09	12.81	0	0
	1	2	13.13	13.14	12.89		0
	1	5	13.05	13.07	12.84		0
	3	0	13.07	13.11	12.81		0
	3	2	13.13	13.15	12.81		0
	3	3	13.07	13.09	12.78		0
	6	0	13.06	13.16	12.79	0-1	0
16QAM	1	0	13.44	13.66	13.08	0-1	0
	1	2	13.47	13.70	13.11		0
	1	5	13.43	13.64	13.07		0
	3	0	13.01	13.41	13.07		0
	3	2	13.08	13.44	13.07		0
	3	3	13.02	13.39	13.04		0
	6	0	13.02	13.41	12.97	0-2	0
64QAM	1	0	13.55	13.40	13.33	0-2	0
	1	2	13.66	13.46	13.44		0
	1	5	13.47	13.41	13.33		0
	3	0	13.12	13.05	12.87		0
	3	2	13.19	13.16	12.96		0
	3	3	13.05	13.08	12.90		0
	6	0	13.18	13.22	12.84	0-3	0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 82 of 127

8.2.11

LTE Band 7

Table 8-85
LTE Band 7 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.43	23.50	23.62	0	0
	1	50	23.29	23.44	23.47		0
	1	99	23.27	23.35	23.42		0
	50	0	22.56	22.52	22.59	0-1	1
	50	25	22.58	22.47	22.57		1
	50	50	22.48	22.41	22.51		1
	100	0	22.57	22.44	22.52		1
16QAM	1	0	22.83	22.91	23.12	0-1	1
	1	50	22.62	22.84	23.01		1
	1	99	22.65	22.71	22.99		1
	50	0	21.61	21.59	21.62	0-2	2
	50	25	21.70	21.52	21.59		2
	50	50	21.60	21.43	21.57		2
	100	0	21.64	21.53	21.62		2
64QAM	1	0	21.87	21.63	21.69	0-2	2
	1	50	21.66	21.55	21.55		2
	1	99	21.67	21.49	21.47		2
	50	0	20.60	20.66	20.69	0-3	3
	50	25	20.68	20.58	20.65		3
	50	50	20.57	20.55	20.61		3
	100	0	20.61	20.59	20.66		3

Table 8-86
LTE Band 7 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20825 (2507.5 MHz)	21100 (2535.0 MHz)	21375 (2562.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.43	23.48	23.36	0	0
	1	36	23.38	23.47	23.33		0
	1	74	23.25	23.33	23.21		0
	36	0	22.51	22.44	22.49	0-1	1
	36	18	22.52	22.46	22.52		1
	36	37	22.42	22.36	22.44		1
	75	0	22.50	22.38	22.47		1
16QAM	1	0	22.73	22.65	22.52	0-1	1
	1	36	22.78	22.62	22.66		1
	1	74	22.64	22.46	22.53		1
	36	0	21.60	21.60	21.65	0-2	2
	36	18	21.62	21.63	21.64		2
	36	37	21.52	21.53	21.58		2
	75	0	21.55	21.51	21.58		2
64QAM	1	0	22.20	21.70	21.39	0-2	2
	1	36	22.19	21.69	21.36		2
	1	74	22.07	21.53	21.23		2
	36	0	20.63	20.58	20.64	0-3	3
	36	18	20.58	20.57	20.64		3
	36	37	20.51	20.48	20.57		3
	75	0	20.57	20.56	20.54		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 83 of 127	

Table 8-87
LTE Band 7 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.37	23.48	23.35	0	0
	1	25	23.36	23.44	23.34		0
	1	49	23.26	23.36	23.32		0
	25	0	22.49	22.51	22.51	0-1	1
	25	12	22.49	22.50	22.49		1
	25	25	22.48	22.42	22.49		1
16QAM	50	0	22.48	22.43	22.53	0-1	1
	1	0	22.76	22.55	22.63		1
	1	25	22.69	22.57	22.63		1
	1	49	22.66	22.47	22.53	0-2	2
	25	0	21.61	21.56	21.54		2
	25	12	21.63	21.55	21.56		2
64QAM	25	25	21.56	21.49	21.55	0-2	2
	50	0	21.63	21.51	21.54		2
	1	0	22.19	21.62	21.35		0-2
	1	25	22.16	21.63	21.34	2	
	1	49	22.14	21.50	21.28	0-3	
	25	0	20.56	20.44	20.57		3
25	12	20.53	20.47	20.60	3		
25	25	20.46	20.40	20.54	3		
	50	0	20.59	20.44	20.52		3

Table 8-88
LTE Band 7 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.41	23.33	23.47	0	0
	1	12	23.41	23.36	23.51		0
	1	24	23.36	23.27	23.46		0
	12	0	22.56	22.44	22.53	0-1	1
	12	6	22.55	22.43	22.53		1
	12	13	22.51	22.43	22.53		1
	25	0	22.49	22.46	22.47		1
16QAM	1	0	22.35	22.56	22.81	0-1	1
	1	12	22.41	22.55	22.84		1
	1	24	22.38	22.49	22.78		1
	12	0	21.63	21.54	21.63	0-2	2
	12	6	21.59	21.54	21.64		2
	12	13	21.57	21.51	21.57		2
	25	0	21.64	21.50	21.62		2
64QAM	1	0	22.09	21.80	21.61	0-2	2
	1	12	22.16	21.81	21.63		2
	1	24	22.11	21.72	21.59		2
	12	0	20.56	20.64	20.61	0-3	3
	12	6	20.58	20.61	20.64		3
	12	13	20.51	20.57	20.55		3
	25	0	20.55	20.40	20.61		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 84 of 127	

Table 8-89
LTE Band 7 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.56	11.80	11.83	0	0
	1	50	11.39	11.67	11.69		0
	1	99	11.43	11.62	11.67		0
	50	0	11.70	11.79	11.80	0-1	0
	50	25	11.77	11.74	11.77		0
	50	50	11.67	11.65	11.72		0
	100	0	11.75	11.72	11.77		0
16QAM	1	0	12.01	12.12	12.32	0-1	0
	1	50	11.77	11.99	12.19		0
	1	99	11.78	11.95	12.14		0
	50	0	11.79	11.80	11.80	0-2	0
	50	25	11.84	11.73	11.82		0
	50	50	11.80	11.69	11.74		0
	100	0	11.86	11.77	11.83		0
64QAM	1	0	12.04	11.84	11.91	0-2	0
	1	50	11.86	11.76	11.70		0
	1	99	11.84	11.68	11.65		0
	50	0	11.82	11.90	11.91	0-3	0
	50	25	11.91	11.84	11.85		0
	50	50	11.78	11.71	11.77		0
	100	0	11.80	11.80	11.82		0

Table 8-90
LTE Band 7 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20825 (2507.5 MHz)	21100 (2535.0 MHz)	21375 (2562.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.68	11.76	11.64	0	0
	1	36	11.70	11.70	11.63		0
	1	74	11.53	11.54	11.53		0
	36	0	11.74	11.68	11.74	0-1	0
	36	18	11.74	11.62	11.72		0
	36	37	11.67	11.52	11.65		0
	75	0	11.67	11.62	11.69		0
16QAM	1	0	11.49	11.83	11.94	0-1	0
	1	36	11.51	11.73	11.92		0
	1	74	11.33	11.63	11.83		0
	36	0	11.84	11.79	11.85	0-2	0
	36	18	11.84	11.81	11.89		0
	36	37	11.79	11.72	11.82		0
	75	0	11.79	11.70	11.81		0
64QAM	1	0	11.68	12.20	12.29	0-2	0
	1	36	11.63	12.15	12.30		0
	1	74	11.51	12.01	12.17		0
	36	0	11.97	11.76	11.87	0-3	0
	36	18	11.96	11.78	11.92		0
	36	37	11.87	11.67	11.88		0
	75	0	11.86	11.73	11.79		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 85 of 127

Table 8-91
LTE Band 7 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.73	11.55	11.65	0	0
	1	25	11.66	11.49	11.60		0
	1	49	11.63	11.42	11.57		0
	25	0	11.76	11.69	11.71	0-1	0
	25	12	11.72	11.68	11.73		0
	25	25	11.66	11.62	11.67		0
	50	0	11.70	11.63	11.67		0
16QAM	1	0	11.53	11.79	11.93	0-1	0
	1	25	11.51	11.75	11.89		0
	1	49	11.38	11.67	11.85		0
	25	0	11.89	11.74	11.75	0-2	0
	25	12	11.88	11.71	11.77		0
	25	25	11.82	11.67	11.74		0
	50	0	11.83	11.67	11.76		0
64QAM	1	0	11.69	11.74	12.33	0-2	0
	1	25	11.63	11.67	12.27		0
	1	49	11.60	11.55	12.23		0
	25	0	11.90	11.88	11.80	0-3	0
	25	12	11.90	11.86	11.80		0
	25	25	11.84	11.80	11.74		0
	50	0	11.85	11.71	11.74		0

Table 8-92
LTE Band 7 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	11.56	11.65	11.68	0	0
	1	12	11.57	11.64	11.66		0
	1	24	11.56	11.65	11.66		0
	12	0	11.73	11.65	11.73	0-1	0
	12	6	11.75	11.68	11.73		0
	12	13	11.70	11.62	11.67		0
	25	0	11.71	11.64	11.67		0
16QAM	1	0	11.98	11.65	11.78	0-1	0
	1	12	11.97	11.61	11.77		0
	1	24	11.92	11.61	11.72		0
	12	0	11.83	11.72	11.72	0-2	0
	12	6	11.85	11.73	11.75		0
	12	13	11.78	11.66	11.67		0
	25	0	11.76	11.69	11.69		0
64QAM	1	0	11.89	11.97	11.75	0-2	0
	1	12	11.84	11.93	11.75		0
	1	24	11.84	11.91	11.73		0
	12	0	11.82	11.74	11.69	0-3	0
	12	6	11.84	11.76	11.71		0
	12	13	11.81	11.72	11.64		0
	25	0	11.88	11.66	11.69		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 86 of 127

8.2.12

LTE Band 41

Table 8-93
LTE Band 41 Maximum PC3 Conducted Powers - 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	23.97	23.56	23.53	23.46	23.59	0	0
	1	50	23.74	23.50	23.36	23.31	23.52		0
	1	99	23.69	23.41	23.31	23.30	23.51		0
	50	0	23.10	22.72	22.50	22.50	22.60	0-1	1
	50	25	22.87	22.70	22.47	22.44	22.68		1
	50	50	22.81	22.56	22.41	22.43	22.66		1
16QAM	100	0	22.87	22.67	22.46	22.47	22.59	0-1	1
	1	0	22.99	22.82	22.22	22.16	22.81		1
	1	50	22.80	22.75	22.06	22.02	22.77		1
	1	99	22.70	22.70	22.03	22.01	22.76	0-2	1
	50	0	22.00	21.71	21.59	21.55	21.74		2
	50	25	21.96	21.79	21.52	21.50	21.80		2
64QAM	50	50	21.88	21.70	21.48	21.47	21.73	0-2	2
	100	0	21.96	21.74	21.52	21.51	21.68		2
	1	0	22.05	21.27	21.87	21.84	21.29	0-2	2
	1	50	21.84	21.23	21.77	21.71	21.26		2
	1	99	21.77	21.17	21.66	21.66	21.28		2
	64QAM	50	0	20.94	20.80	20.57	20.55	20.70	0-3
50		25	21.02	20.74	20.51	20.52	20.77	3	
50		50	20.94	20.65	20.48	20.54	20.74	3	
100		0	20.95	20.75	20.56	20.54	20.69	3	

Table 8-94
LTE Band 41 Maximum PC3 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 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	23.80	23.58	23.51	23.54	23.52	0	0
	1	36	23.75	23.53	23.46	23.48	23.49		0
	1	74	23.58	23.40	23.35	23.47	23.48		0
	36	0	22.78	22.63	22.53	22.45	22.50	0-1	1
	36	18	22.75	22.56	22.54	22.47	22.48		1
	36	37	22.67	22.48	22.46	22.42	22.42		1
16QAM	75	0	22.73	22.51	22.46	22.44	22.46	0-1	1
	1	0	22.85	22.29	22.64	22.61	22.61		1
	1	36	22.80	22.24	22.60	22.57	22.55		1
	1	74	22.66	22.15	22.45	22.54	22.55	0-2	1
	36	0	21.90	21.71	21.64	21.57	21.58		2
	36	18	21.86	21.71	21.65	21.63	21.63		2
64QAM	36	37	21.82	21.61	21.58	21.57	21.55	0-2	2
	75	0	21.78	21.63	21.57	21.52	21.53		2
	1	0	21.57	21.50	21.64	21.29	21.30		2
	1	36	21.50	21.47	21.59	21.25	21.24	0-2	2
	1	74	21.37	21.37	21.48	21.23	21.22		2
	36	0	20.85	20.75	20.57	20.57	20.55		0-3
36	18	20.84	20.76	20.56	20.57	20.59	3		
36	37	20.75	20.70	20.52	20.48	20.50	3		
	75	0	20.77	20.68	20.60	20.52	20.52		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 87 of 127	

Table 8-95
LTE Band 41 Maximum PC3 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 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	23.81	23.68	23.50	23.53	23.81	0	0	
	1	25	23.72	23.60	23.44	23.48	23.68		0-1	0
	1	49	23.64	23.55	23.41	23.52	23.68			0
	25	0	22.78	22.64	22.55	22.49	22.67	1		
	25	12	22.77	22.62	22.53	22.47	22.68	1		
	25	25	22.70	22.54	22.50	22.45	22.63	1		
	50	0	22.77	22.61	22.57	22.49	22.62	1		
16QAM	1	0	22.83	22.64	22.66	22.57	22.68	0-1	1	
	1	25	22.76	22.56	22.57	22.52	22.64		1	
	1	49	22.71	22.52	22.52	22.55	22.64		1	
	25	0	21.88	21.72	21.66	21.60	21.76	0-2	2	
	25	12	21.87	21.70	21.65	21.61	21.74		2	
	25	25	21.80	21.66	21.62	21.55	21.76		2	
	50	0	21.88	21.65	21.62	21.59	21.73		2	
64QAM	1	0	21.54	21.26	21.66	21.28	21.38	0-2	2	
	1	25	21.47	21.22	21.60	21.22	21.26		2	
	1	49	21.40	21.13	21.55	21.30	21.27		2	
	25	0	20.86	20.71	20.57	20.57	20.77	0-3	3	
	25	12	20.86	20.70	20.57	20.57	20.72		3	
	25	25	20.80	20.64	20.51	20.54	20.71		3	
	50	0	20.86	20.67	20.60	20.60	20.69		3	

Table 8-96
LTE Band 41 Maximum PC3 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 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	23.69	23.61	23.47	23.45	23.66	0	0	
	1	12	23.69	23.60	23.44	23.41	23.67		0-1	0
	1	24	23.65	23.59	23.44	23.40	23.67			0
	12	0	22.72	22.60	22.55	22.50	22.68	1		
	12	6	22.70	22.61	22.51	22.48	22.67	1		
	12	13	22.69	22.56	22.51	22.49	22.60	1		
	25	0	22.73	22.60	22.52	22.48	22.64	1		
16QAM	1	0	22.93	22.62	22.77	22.72	22.67	0-1	1	
	1	12	22.90	22.58	22.78	22.67	22.62		0-2	1
	1	24	22.87	22.57	22.72	22.69	22.63			1
	12	0	21.84	21.71	21.65	21.56	21.71	2		
	12	6	21.84	21.69	21.65	21.58	21.76	2		
	12	13	21.78	21.65	21.61	21.55	21.67	2		
	25	0	21.76	21.63	21.60	21.51	21.67	2		
64QAM	1	0	21.50	21.55	21.64	21.27	21.64	0-2	2	
	1	12	21.51	21.52	21.64	21.26	21.60		0-3	2
	1	24	21.44	21.50	21.60	21.24	21.60			2
	12	0	20.92	20.70	20.63	20.62	20.75	3		
	12	6	20.91	20.70	20.63	20.65	20.73	3		
	12	13	20.87	20.67	20.58	20.61	20.70	3		
	25	0	20.81	20.63	20.57	20.55	20.67	3		

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 88 of 127

Table 8-97
LTE Band 41 Reduced PC3 Conducted Powers - 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	14.44	14.11	14.08	13.98	14.13	0	0
	1	50	14.23	14.04	13.90	13.82	14.08		0
	1	99	14.18	13.97	13.85	13.83	14.10		0
	50	0	14.41	14.21	14.05	13.97	14.12	0-1	0
	50	25	14.33	14.19	13.98	13.96	14.21		0
	50	50	14.23	14.12	13.95	13.91	14.17		0
	100	0	14.35	14.18	14.00	13.93	14.10		0
16QAM	1	0	14.18	14.34	14.10	14.22	14.16	0-1	0
	1	50	13.94	14.23	13.94	14.06	14.15		0
	1	99	13.87	14.21	13.90	14.05	14.13		0
	50	0	14.50	14.36	14.08	14.14	14.23	0-2	0
	50	25	14.40	14.31	14.03	14.11	14.21		0
	50	50	14.33	14.19	14.01	14.05	14.24		0
	100	0	14.39	14.25	14.03	14.02	14.17		0
64QAM	1	0	14.72	13.80	14.05	13.68	14.18	0-2	0
	1	50	14.55	13.71	13.90	13.55	14.15		0
	1	99	14.46	13.65	13.85	13.54	14.15		0
	50	0	14.45	14.29	14.14	14.12	14.29	0-3	0
	50	25	14.37	14.23	14.10	14.08	14.34		0
	50	50	14.36	14.12	14.03	14.01	14.30		0
	100	0	14.43	14.26	14.06	14.07	14.20		0

Table 8-98
LTE Band 41 Reduced PC3 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 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	14.29	14.15	13.99	13.99	14.00	0	0
	1	36	14.26	14.19	13.95	13.91	14.12		0
	1	74	14.09	14.08	13.79	13.88	13.99		0
	36	0	14.29	14.17	13.98	13.92	13.99	0-1	0
	36	18	14.26	14.19	13.95	13.95	14.09		0
	36	37	14.16	14.08	13.86	13.86	14.09		0
	75	0	14.22	14.12	13.90	13.91	13.97		0
16QAM	1	0	14.21	14.29	13.82	14.20	13.90	0-1	0
	1	36	14.12	14.34	13.79	14.19	14.03		0
	1	74	14.01	14.23	13.70	14.05	13.92		0
	36	0	14.50	14.26	14.09	14.00	14.18	0-2	0
	36	18	14.44	14.27	14.13	14.05	14.28		0
	36	37	14.37	14.20	14.06	13.93	14.19		0
	75	0	14.34	14.17	14.00	14.01	14.06		0
64QAM	1	0	14.11	13.86	13.75	14.04	13.87	0-2	0
	1	36	14.01	13.90	13.66	14.03	13.90		0
	1	74	13.89	13.81	13.55	13.91	13.81		0
	36	0	14.45	14.23	14.08	14.00	14.16	0-3	0
	36	18	14.42	14.22	14.06	13.98	14.27		0
	36	37	14.35	14.19	14.03	13.93	14.26		0
	75	0	14.31	14.20	14.01	14.11	14.14		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 89 of 127

Table 8-99
LTE Band 41 Reduced PC3 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 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	14.39	14.14	14.13	13.91	14.12	0	0
	1	25	14.32	14.19	14.03	13.89	14.19		0
	1	49	14.26	14.13	13.97	13.85	14.16		0
	25	0	14.32	14.18	14.03	13.93	14.13	0-1	0
	25	12	14.31	14.21	14.03	13.98	14.15		0
	25	25	14.21	14.10	14.00	13.90	14.11		0
	50	0	14.25	14.13	13.99	13.94	14.12		0
16QAM	1	0	14.14	14.31	13.82	14.21	13.94	0-1	0
	1	25	14.07	14.35	13.76	14.14	13.88		0
	1	49	14.02	14.29	13.71	14.09	13.88		0
	25	0	14.41	14.27	14.07	13.95	14.24	0-2	0
	25	12	14.37	14.23	14.08	13.95	14.22		0
	25	25	14.32	14.19	14.05	13.91	14.22		0
	50	0	14.37	14.24	14.03	13.96	14.18		0
64QAM	1	0	14.31	13.90	14.02	14.03	14.22	0-2	0
	1	25	14.27	13.94	13.93	14.00	14.14		0
	1	49	14.24	13.84	13.89	13.94	14.12		0
	25	0	14.40	14.31	14.06	13.98	14.24	0-3	0
	25	12	14.38	14.27	14.10	14.00	14.20		0
	25	25	14.37	14.25	14.03	13.91	14.19		0
	50	0	14.33	14.23	14.03	14.03	14.20		0

Table 8-100
LTE Band 41 Reduced PC3 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 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	14.37	14.16	14.08	13.89	14.08	0	0
	1	12	14.29	14.16	14.04	13.87	14.15		0
	1	24	14.30	14.14	14.03	13.82	14.16		0
	12	0	14.28	14.17	14.00	13.99	14.12	0-1	0
	12	6	14.29	14.20	13.99	14.01	14.10		0
	12	13	14.24	14.13	13.98	13.96	14.07		0
	25	0	14.29	14.17	13.99	13.97	14.07		0
16QAM	1	0	14.38	14.15	14.08	13.70	14.09	0-1	0
	1	12	14.31	13.90	14.03	13.70	14.14		0
	1	24	14.28	13.90	14.02	13.63	14.16		0
	12	0	14.42	14.24	14.17	14.10	14.22	0-2	0
	12	6	14.43	14.26	14.15	14.12	14.26		0
	12	13	14.42	14.26	14.14	14.09	14.24		0
	25	0	14.27	14.19	14.00	14.07	14.08		0
64QAM	1	0	14.71	14.20	14.40	14.09	14.09	0-2	0
	1	12	14.69	14.13	14.37	14.08	14.53		0
	1	24	14.61	14.09	14.36	14.04	14.50		0
	12	0	14.38	14.30	14.07	14.08	14.20		0
	12	6	14.40	14.30	14.11	14.07	14.26	0-3	0
	12	13	14.33	14.25	14.03	14.04	14.18		0
	25	0	14.23	14.19	13.94	14.04	14.11		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 90 of 127	

Table 8-101
LTE Band 41 Maximum PC2 Conducted Powers - 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	25.27	25.17	25.20	25.02	25.13	0	0
	1	50	25.15	25.02	25.00	24.86	24.97		0
	1	99	25.03	24.93	24.93	24.93	24.96		0
	50	0	24.33	24.18	24.03	23.90	24.14	0-1	1
	50	25	24.27	24.13	23.98	23.86	24.13		1
	50	50	24.16	24.02	23.91	23.81	24.08		1
	100	0	24.25	24.11	23.99	23.87	24.13		1
16QAM	1	0	24.47	24.29	24.21	24.55	24.48	0-1	1
	1	50	24.31	24.13	24.02	24.34	24.30		1
	1	99	24.18	24.11	23.96	24.37	24.35		1
	50	0	23.40	23.25	23.12	23.07	23.22	0-2	2
	50	25	23.34	23.20	23.07	22.99	23.21		2
	50	50	23.28	23.10	23.01	22.93	23.19		2
	100	0	23.32	23.18	23.06	22.96	23.22		2
64QAM	1	0	23.99	23.91	23.75	22.91	23.56	0-2	2
	1	50	23.85	23.74	23.54	22.77	23.46		2
	1	99	23.79	23.66	23.48	22.89	23.41		2
	50	0	22.40	22.25	22.13	22.02	22.30	0-3	3
	50	25	22.33	22.18	22.07	21.96	22.29		3
	50	50	22.29	22.12	22.01	21.88	22.24		3
	100	0	22.31	22.21	22.05	21.96	22.23		3

Table 8-102
LTE Band 41 Maximum PC2 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 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	25.25	25.24	25.17	25.16	25.23	0	0
	1	36	25.20	25.21	25.08	25.15	25.24		0
	1	74	25.12	25.06	24.95	25.11	25.18		0
	36	0	24.37	24.18	24.06	24.00	24.23	0-1	1
	36	18	24.36	24.18	24.05	23.98	24.27		1
	36	37	24.30	24.10	24.00	23.90	24.15		1
	75	0	24.29	24.10	24.02	23.90	24.20		1
16QAM	1	0	24.99	24.65	24.80	24.33	24.91	0-1	1
	1	36	24.98	24.61	24.73	24.32	24.91		1
	1	74	24.89	24.49	24.61	24.30	24.79		1
	36	0	23.47	23.26	23.21	23.16	23.36	0-2	2
	36	18	23.45	23.24	23.18	23.18	23.35		2
	36	37	23.39	23.16	23.12	23.09	23.29		2
	75	0	23.43	23.19	23.15	23.07	23.32		2
64QAM	1	0	23.53	23.73	23.25	23.39	23.36	0-2	2
	1	36	23.47	23.65	23.22	23.33	23.30		2
	1	74	23.30	23.52	23.06	23.30	23.28		2
	36	0	22.46	22.21	22.19	22.14	22.32	0-3	3
	36	18	22.46	22.22	22.18	22.16	22.36		3
	36	37	22.36	22.11	22.10	22.11	22.34		3
	75	0	22.38	22.32	22.11	22.12	22.27		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 91 of 127	

Table 8-103
LTE Band 41 Maximum PC2 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 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	25.24	25.22	25.18	25.13	25.26	0	0
	1	25	25.22	25.21	25.07	25.07	25.22		0
	1	49	25.23	25.16	25.03	25.12	25.24		0
	25	0	24.39	24.26	24.11	24.03	24.23	0-1	1
	25	12	24.36	24.21	24.07	24.03	24.24		1
	25	25	24.29	24.15	24.07	24.01	24.24		1
	50	0	24.30	24.20	24.08	23.99	24.24		1
16QAM	1	0	24.75	24.66	24.80	24.36	24.63	0-1	1
	1	25	24.71	24.60	24.74	24.34	24.54		1
	1	49	24.65	24.57	24.65	24.40	24.57		1
	25	0	23.40	23.25	23.20	23.15	23.40	0-2	2
	25	12	23.37	23.20	23.14	23.14	23.35		2
	25	25	23.28	23.14	23.08	23.10	23.34		2
	50	0	23.42	23.24	23.17	23.05	23.34		2
	64QAM	1	0	23.85	23.72	23.29	23.54	23.65	0-2
1		25	23.76	23.67	23.18	23.39	23.56	2	
1		49	23.74	23.57	23.11	23.49	23.63	2	
25		0	22.39	22.27	22.25	22.12	22.36	0-3	3
25		12	22.38	22.20	22.22	22.13	22.39		3
25		25	22.29	22.15	22.19	22.11	22.32		3
50		0	22.40	22.22	22.21	22.08	22.34		3

Table 8-104
LTE Band 41 Maximum PC2 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 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	25.26	25.14	25.08	25.02	25.21	0	0
	1	12	25.24	25.06	25.01	25.00	25.21		0
	1	24	25.24	25.10	25.00	25.01	25.16		0
	12	0	24.36	24.18	24.10	24.00	24.26	0-1	1
	12	6	24.35	24.17	24.10	24.04	24.30		1
	12	13	24.28	24.19	24.06	24.02	24.21		1
	25	0	24.33	24.16	24.06	24.02	24.27		1
16QAM	1	0	24.40	24.33	24.15	24.48	24.60	0-1	1
	1	12	24.42	24.30	24.11	24.37	24.56		1
	1	24	24.36	24.24	24.05	24.34	24.57		1
	12	0	23.49	23.36	23.17	23.22	23.43	0-2	2
	12	6	23.49	23.39	23.22	23.22	23.47		2
	12	13	23.46	23.32	23.12	23.20	23.40		2
	25	0	23.38	23.28	23.10	23.00	23.25		2
64QAM	1	0	23.78	24.00	23.51	23.65	23.99	0-2	2
	1	12	23.67	23.93	23.44	23.60	23.99		2
	1	24	23.66	23.94	23.43	23.65	23.98		2
	12	0	22.49	22.27	22.23	22.10	22.35	0-3	3
	12	6	22.54	22.29	22.23	22.16	22.37		3
	12	13	22.49	22.26	22.21	22.10	22.33		3
	25	0	22.41	22.22	22.09	22.02	22.25		3

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 92 of 127

Table 8-105
LTE Band 41 Reduced PC2 Conducted Powers - 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	14.37	14.18	13.96	14.06	14.07	0	0	
	1	50	14.21	14.11	13.78	13.89	14.06		0-1	0
	1	99	14.11	14.05	13.77	13.91	14.05			0
	50	0	14.41	14.24	14.01	14.00	14.11	0		
	50	25	14.36	14.22	13.99	13.95	14.22	0		0
	50	50	14.26	14.10	13.91	13.92	14.17		0	
	100	0	14.34	14.17	13.94	13.94	14.05		0	
16QAM	1	0	14.61	14.66	14.19	14.50	14.43	0-1	0	
	1	50	14.37	14.58	14.00	14.37	14.42		0-2	0
	1	99	14.29	14.52	13.98	14.36	14.43			0
	50	0	14.50	14.35	14.08	14.15	14.17	0		0
	50	25	14.42	14.30	14.06	14.10	14.25			0
	50	50	14.36	14.22	13.97	14.05	14.24		0	
	100	0	14.43	14.26	14.01	14.03	14.16	0		
64QAM	1	0	14.57	13.88	14.20	13.78	14.25	0-2	0	
	1	50	14.55	13.80	14.18	13.62	14.20		0-3	0
	1	99	14.49	13.76	14.12	13.64	14.18			0
	50	0	14.49	14.29	14.09	14.14	14.31	0		
	50	25	14.42	14.23	14.01	14.07	14.38	0		0
	50	50	14.35	14.13	13.97	14.03	14.32		0	
	100	0	14.43	14.26	14.02	14.05	14.22		0	

Table 8-106
LTE Band 41 Reduced PC2 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 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	14.31	14.17	14.04	14.14	14.04	0	0
	1	36	14.28	14.24	14.00	14.11	14.15		0
	1	74	14.16	14.14	13.88	14.01	14.08		0
	36	0	14.31	14.15	13.98	13.96	14.00	0-1	0
	36	18	14.30	14.13	13.95	13.98	14.14		0
	36	37	14.17	14.05	13.93	13.94	14.11		0
	75	0	14.23	14.09	13.97	13.89	14.03		0
16QAM	1	0	14.84	14.36	14.57	14.61	14.66	0-1	0
	1	36	14.81	14.36	14.50	14.60	14.81		0
	1	74	14.65	14.24	14.36	14.52	14.69		0
	36	0	14.38	14.32	14.04	14.09	14.14	0-2	0
	36	18	14.34	14.33	14.02	14.09	14.24		0
	36	37	14.26	14.25	13.92	14.04	14.24		0
	75	0	14.33	14.19	13.97	14.03	14.07		0
64QAM	1	0	14.51	14.17	14.13	14.49	14.19	0-2	0
	1	36	14.44	14.22	14.11	14.44	14.22		0
	1	74	14.35	14.13	14.01	14.32	14.11		0
	36	0	14.45	14.23	14.13	14.02	14.12	0-3	0
	36	18	14.47	14.24	14.12	14.05	14.22		0
	36	37	14.34	14.18	14.04	13.97	14.19		0
	75	0	14.36	14.23	14.04	14.12	14.12		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 93 of 127	

Table 8-107
LTE Band 41 Reduced PC2 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 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	14.34	14.14	14.05	14.03	14.12	0	0
	1	25	14.25	14.13	13.99	13.96	14.06		0
	1	49	14.19	14.09	13.96	13.92	14.10		0
	25	0	14.29	14.16	14.03	13.96	14.15	0-1	0
	25	12	14.32	14.18	14.04	13.96	14.11		0
	25	25	14.26	14.13	13.97	13.95	14.07		0
	50	0	14.23	14.13	13.99	13.96	14.13		0
16QAM	1	0	14.68	14.45	14.57	14.51	14.67	0-1	0
	1	25	14.60	14.46	14.47	14.45	14.57		0
	1	49	14.56	14.41	14.45	14.39	14.58		0
	25	0	14.42	14.30	14.02	13.93	14.13	0-2	0
	25	12	14.40	14.24	13.98	13.98	14.16		0
	25	25	14.32	14.21	13.98	13.95	14.12		0
	50	0	14.36	14.25	14.03	13.97	14.10		0
64QAM	1	0	14.69	14.58	14.14	14.37	14.26	0-2	0
	1	25	14.63	14.60	14.09	14.33	14.18		0
	1	49	14.57	14.53	14.02	14.29	14.22		0
	25	0	14.41	14.19	14.13	14.08	14.26	0-3	0
	25	12	14.43	14.13	14.14	14.11	14.25		0
	25	25	14.38	14.08	14.06	14.04	14.22		0
	50	0	14.35	14.19	14.09	14.03	14.24		0

Table 8-108
LTE Band 41 Reduced PC2 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 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	14.16	14.17	13.95	13.95	14.09	0	0
	1	12	14.12	14.12	13.95	13.94	13.98		0
	1	24	14.07	14.10	13.91	13.94	13.92		0
	12	0	14.29	14.18	13.98	13.98	14.10	0-1	0
	12	6	14.31	14.20	14.02	14.00	14.12		0
	12	13	14.21	14.14	13.96	13.95	14.04		0
	25	0	14.26	14.17	14.02	13.99	14.12		0
16QAM	1	0	14.33	14.16	14.29	14.30	14.10	0-1	0
	1	12	14.30	14.47	14.24	14.28	14.40		0
	1	24	14.28	14.44	14.24	14.28	14.41		0
	12	0	14.37	14.36	14.19	14.17	14.30	0-2	0
	12	6	14.43	14.37	14.18	14.19	14.28		0
	12	13	14.35	14.34	14.18	14.11	14.27		0
	25	0	14.34	14.18	13.99	14.00	14.12		0
64QAM	1	0	14.87	14.15	14.64	14.83	14.16	0-2	0
	1	12	14.86	14.13	14.64	14.81	14.79		0
	1	24	14.84	14.15	14.61	14.79	14.80		0
	12	0	14.35	14.25	14.06	14.12	14.19	0-3	0
	12	6	14.36	14.30	14.07	14.14	14.22		0
	12	13	14.31	14.25	14.04	14.09	14.16		0
	25	0	14.28	14.14	14.01	13.97	14.15		0

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 94 of 127	

8.2.13 LTE Uplink Carrier Aggregation Conducted Powers

Table 8-109
LTE Uplink Carrier Aggregation Conducted Powers

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	41055	2636.5	QPSK	1	0	LTE B41	20	40857	2616.7	QPSK	1	99	13.66	13.98

Notes:

1. This device supports uplink carrier aggregation for LTE CA_41C with a maximum of two 20 MHz 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.
3. Uplink carrier aggregation is only possible when the device is operating with Power Class 3 for LTE Band 41.

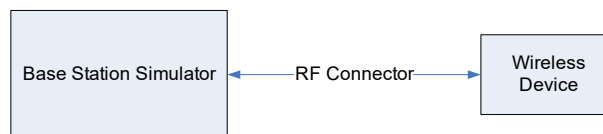


Figure 8-2
Power Measurement Setup

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 95 of 127

8.3 WLAN Conducted Powers

Table 8-110
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11b	802.11g
2412	1	19.97	17.55
2417	2		18.61
2437	6	19.99	18.92
2457	10		18.62
2462	11	19.93	16.55

Table 8-111
5 GHz WLAN Maximum Average RF Power

5GHz (20MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11a
5180	36	16.76
5200	40	16.75
5220	44	16.73
5240	48	16.68
5260	52	16.90
5280	56	16.71
5300	60	16.78
5320	64	16.98
5500	100	16.99
5600	120	16.80
5620	124	16.91
5720	144	16.69
5745	149	16.86
5785	157	16.92
5825	165	16.97

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 96 of 127

Table 8-112
2.4 GHz WLAN Reduced Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	11.98	11.69	11.97
2437	6	11.67	11.80	11.63
2462	11	11.91	11.58	11.93

Table 8-113
5 GHz WLAN Reduced Average RF Power

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
5210	42	8.67
5290	58	8.98
5530	106	8.86
5610	122	8.89
5690	138	8.76
5775	155	8.98

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.

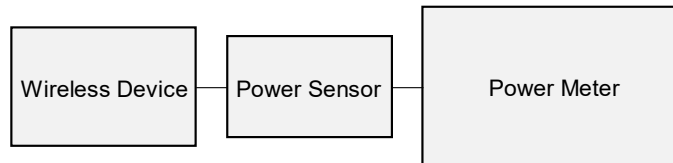


Figure 8-3
Power Measurement Setup

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 97 of 127	

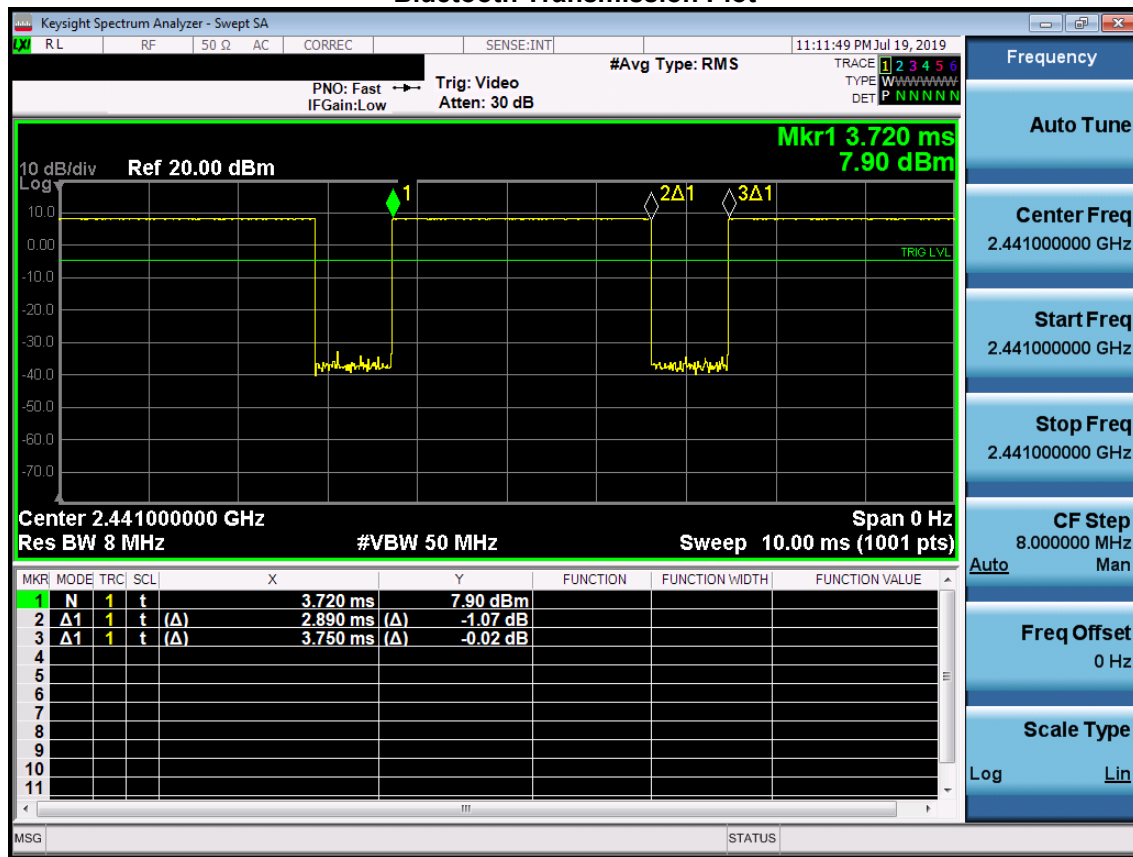
8.4 Bluetooth Conducted Powers

Table 8-114
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	9.01	7.961
2441	1.0	39	7.93	6.205
2480	1.0	78	8.54	7.144
2402	2.0	0	8.38	6.893
2441	2.0	39	7.37	5.451
2480	2.0	78	7.93	6.206
2402	3.0	0	8.45	6.992
2441	3.0	39	7.42	5.526
2480	3.0	78	7.99	6.290

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 98 of 127

Figure 8-4
Bluetooth Transmission Plot



Equation 8-1
Bluetooth Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.89\text{ms}}{3.75\text{ms}} * 100\% = 77.1\%$$

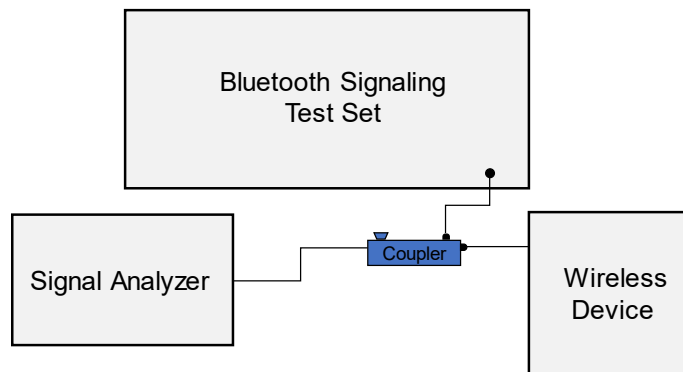


Figure 8-5
Power Measurement Setup

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 99 of 127

9 SYSTEM VERIFICATION

9.1 Tissue Verification

Table 9-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ'	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ'	% dev σ	% dev ϵ'
8/20/2019	750B	23.0	680	0.911	53.849	0.958	55.804	-4.91%	-3.50%
			695	0.916	53.814	0.959	55.745	-4.48%	-3.46%
			700	0.918	53.804	0.959	55.726	-4.28%	-3.45%
			710	0.921	53.787	0.960	55.687	-4.06%	-3.41%
			720	0.924	53.774	0.961	55.648	-3.85%	-3.37%
			725	0.925	53.764	0.961	55.629	-3.75%	-3.35%
			740	0.931	53.731	0.963	55.570	-3.32%	-3.31%
			755	0.936	53.701	0.964	55.512	-2.90%	-3.26%
			770	0.941	53.670	0.965	55.453	-2.49%	-3.22%
			785	0.947	53.639	0.966	55.395	-1.97%	-3.17%
8/20/2019	750B	24.2	800	0.953	53.594	0.967	55.336	-1.45%	-3.15%
			725	0.932	52.953	0.961	55.629	-3.02%	-4.81%
			740	0.937	52.920	0.963	55.570	-2.70%	-4.77%
			755	0.942	52.882	0.964	55.512	-2.28%	-4.74%
			770	0.947	52.846	0.965	55.453	-1.87%	-4.70%
			785	0.952	52.809	0.966	55.395	-1.45%	-4.67%
			800	0.957	52.763	0.967	55.336	-1.03%	-4.65%
			700	0.916	53.518	0.959	55.726	-4.48%	-3.96%
			710	0.918	53.504	0.960	55.687	-4.37%	-3.92%
			720	0.920	53.484	0.961	55.648	-4.27%	-3.89%
8/21/2019	750B	24.3	725	0.922	53.472	0.961	55.629	-3.06%	-3.88%
			740	0.925	53.422	0.963	55.570	-3.64%	-3.87%
			755	0.931	53.377	0.964	55.512	-3.42%	-3.85%
			700	0.928	54.684	0.959	55.726	-3.23%	-1.87%
			710	0.932	54.636	0.960	55.687	-2.92%	-1.89%
			720	0.936	54.614	0.961	55.648	-2.60%	-1.86%
			725	0.937	54.609	0.961	55.629	-2.50%	-1.83%
			740	0.942	54.635	0.963	55.570	-2.78%	-1.68%
			755	0.947	54.659	0.964	55.512	-1.76%	-1.54%
			820	0.989	53.822	0.969	55.258	2.08%	-2.60%
8/19/2019	835B	20.7	835	1.004	53.659	0.970	55.200	3.51%	-2.79%
			850	1.020	53.503	0.988	55.154	3.24%	-2.99%
			1710	1.456	51.959	1.463	53.537	-0.48%	-2.95%
			1750	1.494	51.834	1.488	53.432	0.40%	-2.99%
			1790	1.533	51.725	1.514	53.326	1.25%	-3.00%
			1850	1.463	52.238	1.520	53.300	-3.95%	-1.99%
			1880	1.482	52.228	1.520	53.300	-2.50%	-2.01%
			1910	1.500	52.192	1.520	53.300	-1.32%	-2.08%
			2400	1.925	50.990	1.902	52.767	1.21%	-3.37%
			2450	1.967	50.939	1.950	52.700	0.87%	-3.34%
8/19/2019	2450B	21.3	2500	2.016	50.838	2.021	52.636	-0.25%	-3.42%
			2400	1.992	52.218	1.902	52.767	4.73%	-1.04%
			2450	2.016	52.289	1.950	52.700	3.49%	-0.82%
			2500	2.076	52.051	2.021	52.636	2.72%	-1.11%
			2550	2.116	52.153	2.092	52.573	1.15%	-0.80%
			2600	2.164	51.899	2.163	52.509	0.05%	-1.16%
			2650	2.218	51.983	2.234	52.445	-0.72%	-0.88%
			2700	2.254	51.743	2.305	52.382	-2.21%	-1.22%
			2400	1.915	52.992	1.902	52.767	0.68%	0.43%
			2450	1.963	52.882	1.950	52.700	0.92%	0.38%
8/21/2019	2450B	19.5	2501	2.013	52.833	2.021	52.636	-0.40%	0.37%
			2550	2.063	52.714	2.092	52.573	-1.39%	0.27%
			2600	2.112	52.661	2.163	52.509	-2.36%	0.29%
			2650	2.163	52.521	2.234	52.445	-3.18%	0.14%
			2700	2.214	52.477	2.305	52.382	-3.95%	0.18%
			5180	5.308	48.593	5.276	49.041	0.61%	-0.91%
			5200	5.333	48.559	5.299	49.014	0.64%	-0.93%
			5220	5.353	48.501	5.323	48.987	0.56%	-0.99%
			5240	5.396	48.433	5.346	48.960	0.75%	-1.08%
			5260	5.424	48.416	5.369	48.933	1.02%	-1.06%
08/19/2019	5200B-5800B	21.4	5280	5.453	48.371	5.393	48.906	1.11%	-1.09%
			5300	5.476	48.355	5.416	48.879	1.11%	-1.07%
			5320	5.504	48.310	5.439	48.851	1.20%	-1.11%
			5500	5.770	47.940	5.650	48.607	2.12%	-1.37%
			5520	5.795	47.903	5.673	48.580	2.29%	-1.36%
			5540	5.822	47.881	5.696	48.553	2.21%	-1.38%
			5560	5.851	47.818	5.720	48.526	2.29%	-1.46%
			5580	5.887	47.778	5.743	48.499	2.51%	-1.49%
			5600	5.918	47.764	5.766	48.471	2.64%	-1.46%
			5620	5.946	47.734	5.790	48.444	2.69%	-1.47%
			5640	5.975	47.670	5.813	48.417	2.79%	-1.54%
			5660	5.998	47.629	5.837	48.390	2.76%	-1.57%
			5680	6.034	47.595	5.860	48.363	2.97%	-1.65%
			5700	6.067	47.527	5.883	48.336	3.13%	-1.67%
			5745	6.138	47.494	5.936	48.275	3.40%	-1.62%
			5765	6.170	47.414	5.959	48.248	3.54%	-1.73%
			5785	6.193	47.383	5.982	48.220	3.53%	-1.74%
			5800	6.222	47.351	6.000	48.200	3.70%	-1.74%
			5805	6.230	47.351	6.006	48.193	3.73%	-1.75%
			5825	6.262	47.326	6.029	48.166	3.88%	-1.74%

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: A3LSMT547U		SAR EVALUATION REPORT			Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 100 of 127	

9.2 Test System Verification

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

Table 9-2
System Verification Results – 1g

System Verification												
TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
AM2	750	BODY	08/20/2019	22.1	23.0	0.200	1097	7490	1.680	8.560	8.400	-1.87%
AM4	750	BODY	08/20/2019	23.3	22.6	0.200	1034	7532	1.610	8.570	8.050	-6.07%
AM4	750	BODY	08/21/2019	22.2	23.1	0.200	1034	7532	1.620	8.570	8.100	-5.48%
AM8	750	BODY	08/26/2019	21.3	21.0	0.200	1057	7416	1.640	8.640	8.200	-5.09%
AM8	835	BODY	08/19/2019	20.3	20.7	0.200	4d180	7416	1.960	9.590	9.800	2.19%
AM6	1750	BODY	08/19/2019	21.9	21.0	0.100	1104	7427	3.850	36.600	38.500	5.19%
AM4	1900	BODY	08/19/2019	21.5	20.7	0.100	5d030	7532	4.290	39.900	42.900	7.52%
AM2	2450	BODY	08/19/2019	22.3	21.3	0.100	921	7490	5.190	50.800	51.900	2.17%
AM8	2450	BODY	08/20/2019	21.3	21.4	0.100	921	7416	4.880	50.800	48.800	-3.94%
AM6	2450	BODY	08/21/2019	21.0	19.8	0.100	921	7427	5.470	50.800	54.700	7.68%
AM8	2600	BODY	08/20/2019	21.3	21.4	0.100	1069	7416	5.130	55.300	51.300	-7.23%
AM6	2600	BODY	08/21/2019	21.0	19.8	0.100	1069	7427	5.370	55.300	53.700	-2.89%
AM7	5250	BODY	08/19/2019	21.6	21.6	0.050	1123	3837	3.870	74.000	77.400	4.59%
AM7	5600	BODY	08/19/2019	21.6	21.6	0.050	1123	3837	3.920	77.600	78.400	1.03%
AM7	5750	BODY	08/19/2019	21.6	21.6	0.050	1123	3837	3.580	74.700	71.600	-4.15%

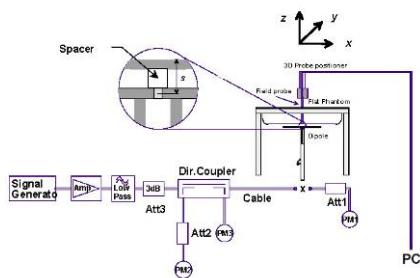


Figure 9-1
System Verification Setup Diagram



Figure 9-2
System Verification Setup Photo

FCC ID: A3LSMT547U	 SAR EVALUATION REPORT 		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 101 of 127

10 SAR DATA SUMMARY

10.1 Standalone Body SAR Data

Table 10-1
UMTS Body SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	24.5	23.91	-0.01	15 mm	06619	1:1	back	0.342	1.146	0.392	
836.60	4183	UMTS 850	RMC	24.5	23.91	0.05	15 mm	06619	1:1	top	0.142	1.146	0.163	
836.60	4183	UMTS 850	RMC	24.5	23.91	0.00	0 mm	06619	1:1	bottom	0.061	1.146	0.070	
826.40	4132	UMTS 850	RMC	24.5	23.99	0.01	0 mm	06619	1:1	right	0.531	1.125	0.597	A1
836.60	4183	UMTS 850	RMC	24.5	23.91	0.04	0 mm	06619	1:1	right	0.524	1.146	0.601	
846.60	4233	UMTS 850	RMC	24.5	23.72	0.00	0 mm	06619	1:1	right	0.437	1.197	0.523	
836.60	4183	UMTS 850	RMC	24.5	23.91	0.12	0 mm	06619	1:1	left	0.132	1.146	0.151	
836.60	4183	UMTS 850	RMC	17.0	16.31	0.00	0 mm	06619	1:1	back	0.258	1.172	0.302	
836.60	4183	UMTS 850	RMC	17.0	16.31	-0.11	0 mm	06619	1:1	top	0.101	1.172	0.118	
1712.40	1312	UMTS 1750	RMC	24.5	23.90	-0.07	15 mm	06742	1:1	back	0.526	1.148	0.604	
1732.40	1412	UMTS 1750	RMC	24.5	23.83	-0.04	15 mm	06742	1:1	back	0.651	1.167	0.760	A2
1752.60	1513	UMTS 1750	RMC	24.5	23.83	-0.05	15 mm	06742	1:1	back	0.620	1.167	0.724	
1732.40	1412	UMTS 1750	RMC	24.5	23.83	-0.04	15 mm	06742	1:1	top	0.574	1.167	0.670	
1732.40	1412	UMTS 1750	RMC	24.5	23.83	0.03	0 mm	06742	1:1	right	0.307	1.167	0.358	
1732.40	1412	UMTS 1750	RMC	14.0	13.21	-0.07	0 mm	06742	1:1	back	0.354	1.199	0.424	
1732.40	1412	UMTS 1750	RMC	14.0	13.21	-0.01	0 mm	06742	1:1	top	0.536	1.199	0.643	
1852.40	9262	UMTS 1900	RMC	24.5	23.86	0.02	15 mm	06734	1:1	back	0.888	1.159	1.029	
1880.00	9400	UMTS 1900	RMC	24.5	23.95	0.00	15 mm	06734	1:1	back	0.944	1.135	1.071	A3
1907.60	9538	UMTS 1900	RMC	24.5	23.67	0.00	15 mm	06734	1:1	back	0.929	1.211	1.125	
1852.40	9262	UMTS 1900	RMC	24.5	23.86	0.00	15 mm	06734	1:1	top	0.813	1.159	0.942	
1880.00	9400	UMTS 1900	RMC	24.5	23.95	-0.02	15 mm	06734	1:1	top	0.843	1.135	0.957	
1907.60	9538	UMTS 1900	RMC	24.5	23.67	0.00	15 mm	06734	1:1	top	0.850	1.211	1.029	
1880.00	9400	UMTS 1900	RMC	24.5	23.95	0.02	0 mm	06734	1:1	right	0.054	1.135	0.061	
1880.00	9400	UMTS 1900	RMC	14.0	13.40	0.07	0 mm	06734	1:1	back	0.476	1.148	0.546	
1852.40	9262	UMTS 1900	RMC	14.0	13.30	-0.14	0 mm	06734	1:1	top	0.669	1.175	0.786	
1880.00	9400	UMTS 1900	RMC	14.0	13.40	-0.02	0 mm	06734	1:1	top	0.732	1.148	0.840	
1907.60	9538	UMTS 1900	RMC	14.0	13.05	-0.05	0 mm	06734	1:1	top	0.714	1.245	0.889	
1880.00	9400	UMTS 1900	RMC	24.5	23.95	-0.02	15 mm	06734	1:1	back	0.866	1.135	0.983	
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: Blue entry represents variability measurement

FCC ID: A3LSMT547U			SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 102 of 127	

Table 10-2
LTE Band 71 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
680.50	133297	Mid	LTE Band 71	20	25.0	24.35	0.00	0	06742	QPSK	1	50	15 mm	back	1:1	0.174	1.161	0.202	
680.50	133297	Mid	LTE Band 71	20	24.0	23.43	-0.03	1	06742	QPSK	50	0	15 mm	back	1:1	0.141	1.140	0.161	
680.50	133297	Mid	LTE Band 71	20	25.0	24.35	0.17	0	06742	QPSK	1	50	15 mm	top	1:1	0.042	1.161	0.049	
680.50	133297	Mid	LTE Band 71	20	24.0	23.43	0.02	1	06742	QPSK	50	0	15 mm	top	1:1	0.038	1.140	0.043	
680.50	133297	Mid	LTE Band 71	20	25.0	24.35	-0.10	0	06742	QPSK	1	50	0 mm	bottom	1:1	0.026	1.161	0.030	
680.50	133297	Mid	LTE Band 71	20	24.0	23.43	-0.09	1	06742	QPSK	50	0	0 mm	bottom	1:1	0.018	1.140	0.021	
680.50	133297	Mid	LTE Band 71	20	25.0	24.35	-0.02	0	06742	QPSK	1	50	0 mm	right	1:1	0.223	1.161	0.259	A4
680.50	133297	Mid	LTE Band 71	20	24.0	23.43	-0.02	1	06742	QPSK	50	0	0 mm	right	1:1	0.175	1.140	0.200	
680.50	133297	Mid	LTE Band 71	20	25.0	24.35	0.06	0	06742	QPSK	1	50	0 mm	left	1:1	0.059	1.161	0.068	
680.50	133297	Mid	LTE Band 71	20	24.0	23.43	-0.02	1	06742	QPSK	50	0	0 mm	left	1:1	0.050	1.140	0.057	
680.50	133297	Mid	LTE Band 71	20	17.0	16.28	0.14	0	06742	QPSK	1	0	0 mm	back	1:1	0.216	1.180	0.255	
680.50	133297	Mid	LTE Band 71	20	17.0	16.26	0.13	0	06742	QPSK	50	0	0 mm	back	1:1	0.217	1.186	0.257	
680.50	133297	Mid	LTE Band 71	20	17.0	16.28	-0.18	0	06742	QPSK	1	0	0 mm	top	1:1	0.113	1.180	0.133	
680.50	133297	Mid	LTE Band 71	20	17.0	16.26	-0.02	0	06742	QPSK	50	0	0 mm	top	1:1	0.112	1.186	0.133	
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 10-3
LTE Band 12 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
707.50	23095	Mid	LTE Band 12	10	24.5	23.63	0.04	0	06759	QPSK	1	0	15 mm	back	1:1	0.203	1.222	0.248	
707.50	23095	Mid	LTE Band 12	10	23.5	22.57	-0.02	1	06759	QPSK	25	12	15 mm	back	1:1	0.162	1.239	0.201	
707.50	23095	Mid	LTE Band 12	10	24.5	23.63	0.07	0	06759	QPSK	1	0	15 mm	top	1:1	0.039	1.222	0.048	
707.50	23095	Mid	LTE Band 12	10	23.5	22.57	0.06	1	06759	QPSK	25	12	15 mm	top	1:1	0.037	1.239	0.046	
707.50	23095	Mid	LTE Band 12	10	24.5	23.63	-0.03	0	06759	QPSK	1	0	0 mm	bottom	1:1	0.036	1.222	0.044	
707.50	23095	Mid	LTE Band 12	10	23.5	22.57	-0.03	1	06759	QPSK	25	12	0 mm	bottom	1:1	0.028	1.239	0.035	
707.50	23095	Mid	LTE Band 12	10	24.5	23.63	0.03	0	06759	QPSK	1	0	0 mm	right	1:1	0.161	1.222	0.197	
707.50	23095	Mid	LTE Band 12	10	23.5	22.57	0.02	1	06759	QPSK	25	12	0 mm	right	1:1	0.137	1.239	0.170	
707.50	23095	Mid	LTE Band 12	10	24.5	23.63	-0.03	0	06759	QPSK	1	0	0 mm	left	1:1	0.085	1.222	0.104	
707.50	23095	Mid	LTE Band 12	10	23.5	22.57	0.05	1	06759	QPSK	25	12	0 mm	left	1:1	0.065	1.239	0.081	
707.50	23095	Mid	LTE Band 12	10	17.0	16.01	-0.06	0	06759	QPSK	1	0	0 mm	back	1:1	0.303	1.256	0.381	A5
707.50	23095	Mid	LTE Band 12	10	17.0	15.99	0.15	0	06759	QPSK	25	0	0 mm	back	1:1	0.219	1.262	0.276	
707.50	23095	Mid	LTE Band 12	10	17.0	16.01	-0.03	0	06759	QPSK	1	0	0 mm	top	1:1	0.132	1.256	0.166	
707.50	23095	Mid	LTE Band 12	10	17.0	15.99	-0.10	0	06759	QPSK	25	0	0 mm	top	1:1	0.128	1.262	0.162	
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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 103 of 127	

Table 10-4
LTE Band 17 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
710.00	23790	Mid	LTE Band 17	10	25.0	24.10	-0.05	0	06734	QPSK	1	0	15 mm	back	1:1	0.207	1.230	0.255	
710.00	23790	Mid	LTE Band 17	10	24.0	23.00	-0.11	1	06734	QPSK	25	0	15 mm	back	1:1	0.173	1.259	0.218	
710.00	23790	Mid	LTE Band 17	10	25.0	24.10	-0.06	0	06734	QPSK	1	0	15 mm	top	1:1	0.051	1.230	0.063	
710.00	23790	Mid	LTE Band 17	10	24.0	23.00	-0.07	1	06734	QPSK	25	0	15 mm	top	1:1	0.039	1.259	0.049	
710.00	23790	Mid	LTE Band 17	10	25.0	24.10	0.00	0	06734	QPSK	1	0	0 mm	bottom	1:1	0.040	1.230	0.049	
710.00	23790	Mid	LTE Band 17	10	24.0	23.00	0.12	1	06734	QPSK	25	0	0 mm	bottom	1:1	0.032	1.259	0.040	
710.00	23790	Mid	LTE Band 17	10	25.0	24.10	0.04	0	06734	QPSK	1	0	0 mm	right	1:1	0.228	1.230	0.280	A6
710.00	23790	Mid	LTE Band 17	10	24.0	23.00	-0.01	1	06734	QPSK	25	0	0 mm	right	1:1	0.183	1.259	0.230	
710.00	23790	Mid	LTE Band 17	10	25.0	24.10	0.08	0	06734	QPSK	1	0	0 mm	left	1:1	0.086	1.230	0.106	
710.00	23790	Mid	LTE Band 17	10	24.0	23.00	0.01	1	06734	QPSK	25	0	0 mm	left	1:1	0.072	1.259	0.091	
710.00	23790	Mid	LTE Band 17	10	17.0	16.05	-0.08	0	06734	QPSK	1	0	0 mm	back	1:1	0.214	1.245	0.266	
710.00	23790	Mid	LTE Band 17	10	17.0	15.91	-0.04	0	06734	QPSK	25	12	0 mm	back	1:1	0.222	1.285	0.285	
710.00	23790	Mid	LTE Band 17	10	17.0	16.05	0.02	0	06734	QPSK	1	0	0 mm	top	1:1	0.107	1.245	0.133	
710.00	23790	Mid	LTE Band 17	10	17.0	15.91	-0.01	0	06734	QPSK	25	12	0 mm	top	1:1	0.104	1.285	0.134	
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 10-5
LTE Band 13 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
782.00	23230	Mid	LTE Band 13	10	24.5	23.68	0.02	0	06759	QPSK	1	0	15 mm	back	1:1	0.337	1.208	0.407	
782.00	23230	Mid	LTE Band 13	10	23.5	22.50	0.02	1	06759	QPSK	25	0	15 mm	back	1:1	0.270	1.259	0.340	
782.00	23230	Mid	LTE Band 13	10	24.5	23.68	-0.16	0	06759	QPSK	1	0	15 mm	top	1:1	0.103	1.208	0.124	
782.00	23230	Mid	LTE Band 13	10	23.5	22.50	-0.05	1	06759	QPSK	25	0	15 mm	top	1:1	0.076	1.259	0.096	
782.00	23230	Mid	LTE Band 13	10	24.5	23.68	-0.13	0	06759	QPSK	1	0	0 mm	bottom	1:1	0.066	1.208	0.080	
782.00	23230	Mid	LTE Band 13	10	23.5	22.50	-0.07	1	06759	QPSK	25	0	0 mm	bottom	1:1	0.048	1.259	0.060	
782.00	23230	Mid	LTE Band 13	10	24.5	23.68	0.02	0	06759	QPSK	1	0	0 mm	right	1:1	0.342	1.208	0.413	A7
782.00	23230	Mid	LTE Band 13	10	23.5	22.50	-0.01	1	06759	QPSK	25	0	0 mm	right	1:1	0.257	1.259	0.324	
782.00	23230	Mid	LTE Band 13	10	24.5	23.68	0.09	0	06759	QPSK	1	0	0 mm	left	1:1	0.118	1.208	0.143	
782.00	23230	Mid	LTE Band 13	10	23.5	22.50	0.05	1	06759	QPSK	25	0	0 mm	left	1:1	0.092	1.259	0.116	
782.00	23230	Mid	LTE Band 13	10	17.0	15.88	-0.02	0	06759	QPSK	1	0	0 mm	back	1:1	0.301	1.294	0.389	
782.00	23230	Mid	LTE Band 13	10	17.0	15.93	-0.04	0	06759	QPSK	25	0	0 mm	back	1:1	0.305	1.279	0.390	
782.00	23230	Mid	LTE Band 13	10	17.0	15.88	-0.09	0	06759	QPSK	1	0	0 mm	top	1:1	0.146	1.294	0.189	
782.00	23230	Mid	LTE Band 13	10	17.0	15.93	-0.05	0	06759	QPSK	25	0	0 mm	top	1:1	0.148	1.279	0.189	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 104 of 127

Table 10-6
LTE Band 14 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
793.00	23330	Mid	LTE Band 14	10	25.0	24.12	-0.01	0	06734	QPSK	1	49	15 mm	back	1:1	0.370	1.225	0.453	
793.00	23330	Mid	LTE Band 14	10	24.0	23.18	-0.01	1	06734	QPSK	25	12	15 mm	back	1:1	0.296	1.208	0.358	
793.00	23330	Mid	LTE Band 14	10	25.0	24.12	0.09	0	06734	QPSK	1	49	15 mm	top	1:1	0.107	1.225	0.131	
793.00	23330	Mid	LTE Band 14	10	24.0	23.18	0.06	1	06734	QPSK	25	12	15 mm	top	1:1	0.084	1.208	0.101	
793.00	23330	Mid	LTE Band 14	10	25.0	24.12	0.07	0	06734	QPSK	1	49	0 mm	bottom	1:1	0.085	1.225	0.104	
793.00	23330	Mid	LTE Band 14	10	24.0	23.18	-0.01	1	06734	QPSK	25	12	0 mm	bottom	1:1	0.078	1.208	0.094	
793.00	23330	Mid	LTE Band 14	10	25.0	24.12	0.00	0	06734	QPSK	1	49	0 mm	right	1:1	0.493	1.225	0.604	A8
793.00	23330	Mid	LTE Band 14	10	24.0	23.18	-0.03	1	06734	QPSK	25	12	0 mm	right	1:1	0.375	1.208	0.453	
793.00	23330	Mid	LTE Band 14	10	25.0	24.12	0.10	0	06734	QPSK	1	49	0 mm	left	1:1	0.122	1.225	0.149	
793.00	23330	Mid	LTE Band 14	10	24.0	23.18	0.01	1	06734	QPSK	25	12	0 mm	left	1:1	0.095	1.208	0.115	
793.00	23330	Mid	LTE Band 14	10	17.0	16.04	0.04	0	06734	QPSK	1	49	0 mm	back	1:1	0.095	1.247	0.118	
793.00	23330	Mid	LTE Band 14	10	17.0	16.09	0.02	0	06734	QPSK	25	0	0 mm	back	1:1	0.267	1.233	0.329	
793.00	23330	Mid	LTE Band 14	10	17.0	16.04	-0.02	0	06734	QPSK	1	49	0 mm	top	1:1	0.126	1.247	0.157	
793.00	23330	Mid	LTE Band 14	10	17.0	16.09	-0.01	0	06734	QPSK	25	0	0 mm	top	1:1	0.130	1.233	0.160	
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 10-7
LTE Band 26 (Cell) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.15	-0.06	0	06619	QPSK	1	0	15 mm	back	1:1	0.379	1.216	0.461	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.10	0.03	1	06619	QPSK	36	0	15 mm	back	1:1	0.295	1.230	0.363	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.15	-0.02	0	06619	QPSK	1	0	15 mm	top	1:1	0.101	1.216	0.123	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.10	0.08	1	06619	QPSK	36	0	15 mm	top	1:1	0.091	1.230	0.112	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.15	0.03	0	06619	QPSK	1	0	0 mm	bottom	1:1	0.065	1.216	0.079	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.10	0.15	1	06619	QPSK	36	0	0 mm	bottom	1:1	0.052	1.230	0.064	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.15	0.02	0	06619	QPSK	1	0	0 mm	right	1:1	0.532	1.216	0.647	A9
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.10	0.00	1	06619	QPSK	36	0	0 mm	right	1:1	0.438	1.230	0.539	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.15	-0.10	0	06619	QPSK	1	0	0 mm	left	1:1	0.133	1.216	0.162	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.10	-0.01	1	06619	QPSK	36	0	0 mm	left	1:1	0.103	1.230	0.127	
831.50	26865	Mid	LTE Band 26 (Cell)	15	17.0	16.04	-0.01	0	06619	QPSK	1	0	0 mm	back	1:1	0.282	1.247	0.352	
831.50	26865	Mid	LTE Band 26 (Cell)	15	17.0	16.01	-0.02	0	06619	QPSK	36	0	0 mm	back	1:1	0.270	1.256	0.339	
831.50	26865	Mid	LTE Band 26 (Cell)	15	17.0	16.04	-0.14	0	06619	QPSK	1	0	0 mm	top	1:1	0.086	1.247	0.107	
831.50	26865	Mid	LTE Band 26 (Cell)	15	17.0	16.01	-0.04	0	06619	QPSK	36	0	0 mm	top	1:1	0.090	1.256	0.113	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 105 of 127	

Table 10-8
LTE Band 5 (Cell) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.13	-0.01	0	06619	QPSK	1	0	15 mm	back	1:1	0.369	1.222	0.451	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.07	0.02	1	06619	QPSK	25	12	15 mm	back	1:1	0.285	1.239	0.353	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.13	0.11	0	06619	QPSK	1	0	15 mm	top	1:1	0.131	1.222	0.160	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.07	0.02	1	06619	QPSK	25	12	15 mm	top	1:1	0.122	1.239	0.151	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.13	-0.13	0	06619	QPSK	1	0	0 mm	bottom	1:1	0.073	1.222	0.089	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.07	0.02	1	06619	QPSK	25	12	0 mm	bottom	1:1	0.050	1.239	0.062	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.13	-0.10	0	06619	QPSK	1	0	0 mm	right	1:1	0.577	1.222	0.705	A10
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.07	-0.02	1	06619	QPSK	25	12	0 mm	right	1:1	0.422	1.239	0.523	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.13	0.01	0	06619	QPSK	1	0	0 mm	left	1:1	0.133	1.222	0.163	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.07	0.11	1	06619	QPSK	25	12	0 mm	left	1:1	0.112	1.239	0.139	
836.50	20525	Mid	LTE Band 5 (Cell)	10	17.0	16.01	0.06	0	06619	QPSK	1	0	0 mm	back	1:1	0.253	1.256	0.318	
836.50	20525	Mid	LTE Band 5 (Cell)	10	17.0	16.01	0.03	0	06619	QPSK	25	0	0 mm	back	1:1	0.250	1.256	0.314	
836.50	20525	Mid	LTE Band 5 (Cell)	10	17.0	16.01	0.07	0	06619	QPSK	1	0	0 mm	top	1:1	0.088	1.256	0.111	
836.50	20525	Mid	LTE Band 5 (Cell)	10	17.0	16.01	0.09	0	06619	QPSK	25	0	0 mm	top	1:1	0.092	1.256	0.116	
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 10-9
LTE Band 66 (AWS) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.29	0.04	0	06759	QPSK	1	0	15 mm	back	1:1	0.496	1.178	0.584	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.35	0.02	1	06759	QPSK	50	0	15 mm	back	1:1	0.395	1.161	0.459	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.29	0.00	0	06759	QPSK	1	0	15 mm	top	1:1	0.530	1.178	0.624	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	23.02	0.00	0	06759	QPSK	1	0	15 mm	top	1:1	0.586	1.253	0.734	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.0	23.22	0.00	0	06759	QPSK	1	0	15 mm	top	1:1	0.664	1.197	0.795	A11
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.35	0.00	1	06759	QPSK	50	0	15 mm	top	1:1	0.426	1.161	0.495	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.29	-0.08	0	06759	QPSK	1	0	0 mm	right	1:1	0.262	1.178	0.309	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.35	-0.08	1	06759	QPSK	50	0	0 mm	right	1:1	0.211	1.161	0.245	
1720.00	132072	Low	LTE Band 66 (AWS)	20	12.0	11.23	0.03	0	06759	QPSK	1	0	0 mm	back	1:1	0.215	1.194	0.257	
1720.00	132072	Low	LTE Band 66 (AWS)	20	12.0	11.17	-0.03	0	06759	QPSK	50	0	0 mm	back	1:1	0.214	1.211	0.259	
1720.00	132072	Low	LTE Band 66 (AWS)	20	12.0	11.23	-0.02	0	06759	QPSK	1	0	0 mm	top	1:1	0.334	1.194	0.399	
1720.00	132072	Low	LTE Band 66 (AWS)	20	12.0	11.17	-0.04	0	06759	QPSK	50	0	0 mm	top	1:1	0.338	1.211	0.409	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 106 of 127	

Table 10-10
LTE Band 4 (AWS) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.14	-0.08	0	06759	QPSK	1	0	15 mm	back	1:1	0.655	1.219	0.798	A12
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.13	-0.04	1	06759	QPSK	50	0	15 mm	back	1:1	0.539	1.222	0.659	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.14	-0.07	0	06759	QPSK	1	0	15 mm	top	1:1	0.658	1.219	0.802	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.13	-0.07	1	06759	QPSK	50	0	15 mm	top	1:1	0.526	1.222	0.643	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.07	0.00	1	06759	QPSK	100	0	15 mm	top	1:1	0.530	1.239	0.657	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	25.0	24.14	-0.04	0	06759	QPSK	1	0	0 mm	right	1:1	0.386	1.219	0.471	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.13	-0.02	1	06759	QPSK	50	0	0 mm	right	1:1	0.301	1.222	0.368	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	14.0	13.11	-0.06	0	06742	QPSK	1	0	0 mm	back	1:1	0.354	1.227	0.434	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	14.0	13.08	-0.07	0	06742	QPSK	50	0	0 mm	back	1:1	0.353	1.236	0.436	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	14.0	13.11	-0.09	0	06742	QPSK	1	0	0 mm	top	1:1	0.542	1.227	0.665	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	14.0	13.08	-0.06	0	06742	QPSK	50	0	0 mm	top	1:1	0.542	1.236	0.670	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

Table 10-11
LTE Band 25 (PCS) Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	23.93	0.00	0	06734	QPSK	1	99	15 mm	back	1:1	0.771	1.279	0.986	A13
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.0	23.91	-0.02	0	06734	QPSK	1	0	15 mm	back	1:1	0.818	1.285	1.051	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	23.61	0.06	0	06734	QPSK	1	0	15 mm	back	1:1	0.732	1.377	1.008	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	22.85	0.00	1	06734	QPSK	50	0	15 mm	back	1:1	0.550	1.303	0.717	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.80	0.01	1	06734	QPSK	100	0	15 mm	back	1:1	0.572	1.318	0.754	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	23.93	0.00	0	06734	QPSK	1	99	15 mm	top	1:1	0.703	1.279	0.899	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.0	23.91	0.01	0	06734	QPSK	1	0	15 mm	top	1:1	0.712	1.285	0.915	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.0	23.61	0.01	0	06734	QPSK	1	0	15 mm	top	1:1	0.804	1.377	1.107	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	22.85	-0.01	1	06734	QPSK	50	0	15 mm	top	1:1	0.557	1.303	0.726	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.80	-0.08	1	06734	QPSK	100	0	15 mm	top	1:1	0.552	1.318	0.728	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	23.93	0.06	0	06734	QPSK	1	99	0 mm	right	1:1	0.061	1.279	0.078	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	22.85	0.06	1	06734	QPSK	50	0	0 mm	right	1:1	0.055	1.303	0.072	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.38	-0.02	0	06734	QPSK	1	0	0 mm	back	1:1	0.456	1.153	0.526	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	13.36	-0.02	0	06734	QPSK	50	0	0 mm	back	1:1	0.485	1.159	0.562	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.38	-0.02	0	06734	QPSK	1	0	0 mm	top	1:1	0.696	1.153	0.802	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	13.34	-0.03	0	06734	QPSK	1	0	0 mm	top	1:1	0.753	1.164	0.876	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.07	-0.02	0	06734	QPSK	1	0	0 mm	top	1:1	0.743	1.239	0.921	
1860.00	26140	Low	LTE Band 25 (PCS)	20	14.0	13.30	-0.04	0	06734	QPSK	50	0	0 mm	top	1:1	0.678	1.175	0.797	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	13.36	-0.02	0	06734	QPSK	50	0	0 mm	top	1:1	0.750	1.159	0.869	
1905.00	26590	High	LTE Band 25 (PCS)	20	14.0	13.05	-0.04	0	06734	QPSK	50	0	0 mm	top	1:1	0.745	1.245	0.928	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	14.0	13.30	-0.03	0	06734	QPSK	100	0	0 mm	top	1:1	0.725	1.175	0.852	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 107 of 127

Table 10-12
LTE Band 7 Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)														(W/kg)			
2560.00	21350	High	LTE Band 7	20	24.5	23.62	-0.05	0	06742	QPSK	1	0	15 mm	back	1:1	0.323	1.225	0.396	
2560.00	21350	High	LTE Band 7	20	23.5	22.59	0.02	1	06742	QPSK	50	0	15 mm	back	1:1	0.263	1.233	0.324	
2560.00	21350	High	LTE Band 7	20	24.5	23.62	-0.03	0	06742	QPSK	1	0	15 mm	top	1:1	0.143	1.225	0.175	
2560.00	21350	High	LTE Band 7	20	23.5	22.59	-0.06	1	06742	QPSK	50	0	15 mm	top	1:1	0.112	1.233	0.138	
2560.00	21350	High	LTE Band 7	20	24.5	23.62	-0.03	0	06742	QPSK	1	0	0 mm	right	1:1	0.216	1.225	0.265	
2560.00	21350	High	LTE Band 7	20	23.5	22.59	-0.04	1	06742	QPSK	50	0	0 mm	right	1:1	0.170	1.233	0.210	
2510.00	20850	Low	LTE Band 7	20	12.5	11.56	-0.11	0	06742	QPSK	1	0	0 mm	back	1:1	0.509	1.242	0.632	
2535.00	21100	Mid	LTE Band 7	20	12.5	11.80	-0.18	0	06742	QPSK	1	0	0 mm	back	1:1	0.525	1.175	0.617	
2560.00	21350	High	LTE Band 7	20	12.5	11.83	-0.13	0	06742	QPSK	1	0	0 mm	back	1:1	0.602	1.167	0.703	A14
2560.00	21350	High	LTE Band 7	20	12.5	11.80	-0.09	0	06742	QPSK	50	0	0 mm	back	1:1	0.595	1.175	0.699	
2560.00	21350	High	LTE Band 7	20	12.5	11.83	-0.10	0	06742	QPSK	1	0	0 mm	top	1:1	0.161	1.167	0.188	
2560.00	21350	High	LTE Band 7	20	12.5	11.80	-0.12	0	06742	QPSK	50	0	0 mm	top	1:1	0.162	1.175	0.190	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 108 of 127

Table 10-13
LTE Band 41 Body SAR

MEASUREMENT RESULTS																					
1 CC Uplink / 2 CC Uplink, Power Class	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.														(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.5	23.97	-0.03	0	06619	QPSK	1	0	15 mm	back	1:1.58	0.190	1.130	0.215	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.5	23.10	-0.03	1	06619	QPSK	50	0	15 mm	back	1:1.58	0.149	1.096	0.163	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.5	23.97	0.01	0	06619	QPSK	1	0	15 mm	top	1:1.58	0.106	1.130	0.120	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.5	23.10	0.06	1	06619	QPSK	50	0	15 mm	top	1:1.58	0.075	1.096	0.082	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.5	23.97	0.05	0	06619	QPSK	1	0	0 mm	right	1:1.58	0.108	1.130	0.122	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.5	23.10	0.05	1	06619	QPSK	50	0	0 mm	right	1:1.58	0.088	1.096	0.096	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.44	0.00	0	06619	QPSK	1	0	0 mm	back	1:1.58	0.657	1.138	0.748	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	15.0	14.11	0.02	0	06619	QPSK	1	0	0 mm	back	1:1.58	0.691	1.227	0.848	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.08	0.02	0	06619	QPSK	1	0	0 mm	back	1:1.58	0.710	1.236	0.878	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	15.0	13.98	-0.03	0	06619	QPSK	1	0	0 mm	back	1:1.58	0.714	1.265	0.903	A15
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	15.0	14.13	0.01	0	06619	QPSK	1	0	0 mm	back	1:1.58	0.684	1.222	0.836	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.41	-0.01	0	06619	QPSK	50	0	0 mm	back	1:1.58	0.666	1.146	0.763	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	15.0	14.21	0.02	0	06619	QPSK	50	0	0 mm	back	1:1.58	0.700	1.199	0.839	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	15.0	14.05	0.02	0	06619	QPSK	50	0	0 mm	back	1:1.58	0.706	1.245	0.879	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	15.0	13.97	0.00	0	06619	QPSK	50	0	0 mm	back	1:1.58	0.709	1.268	0.899	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	15.0	14.21	0.00	0	06619	QPSK	50	25	0 mm	back	1:1.58	0.681	1.199	0.817	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.35	0.00	0	06619	QPSK	100	0	0 mm	back	1:1.58	0.662	1.161	0.769	
1 CC Uplink - Power Class 2	N/A	2636.50	41055	Mid-High	LTE Band 41	20	15.0	14.06	0.04	0	06619	QPSK	1	0	0 mm	back	1:2.31	0.464	1.242	0.576	
2 CC Uplink - Power Class 3	PCC	2636.50	41055	Mid-High	LTE Band 41	20	15.0	13.66	0.03	0	06619	QPSK	1	0	0 mm	back	1:1.58	0.631	1.361	0.859	
2 CC Uplink - Power Class 3	SCC	2616.70	40857	Mid-High	LTE Band 41								1	99							
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.44	-0.02	0	06619	QPSK	1	0	0 mm	top	1:1.58	0.142	1.138	0.162	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	15.0	14.41	0.03	0	06619	QPSK	50	0	0 mm	top	1:1.58	0.153	1.146	0.175	
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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 109 of 127

**Table 10-14
WLAN Body SAR**

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	20.0	19.99	-0.05	8 mm	06924	1	back	98.9	0.669	1.002	1.011	0.678	
2437	6	802.11b	DSSS	22	20.0	19.99	-0.02	6 mm	06924	1	top	98.9	0.473	1.002	1.011	0.479	
2437	6	802.11b	DSSS	22	20.0	19.99	0.00	0 mm	06924	1	left	98.9	0.170	1.002	1.011	0.172	
2412	1	802.11b	DSSS	22	12.0	11.98	0.02	0 mm	06924	1	back	98.9	0.744	1.005	1.011	0.756	A16
2437	6	802.11b	DSSS	22	12.0	11.67	-0.09	0 mm	06924	1	back	98.9	0.690	1.079	1.011	0.753	
2462	11	802.11b	DSSS	22	12.0	11.91	0.02	0 mm	06924	1	back	98.9	0.633	1.021	1.011	0.653	
2412	1	802.11b	DSSS	22	12.0	11.98	-0.09	0 mm	06924	1	top	98.9	0.122	1.005	1.011	0.124	
5180	36	802.11a	OFDM	20	17.0	16.76	-0.13	8 mm	06924	6	back	97.6	0.542	1.057	1.025	0.587	
5180	36	802.11a	OFDM	20	17.0	16.76	0.00	6 mm	06924	6	top	97.6	0.913	1.057	1.025	0.989	
5200	40	802.11a	OFDM	20	17.0	16.75	0.00	6 mm	06924	6	top	97.6	1.040	1.059	1.025	1.129	
5240	48	802.11a	OFDM	20	17.0	16.68	-0.08	6 mm	06924	6	top	97.6	1.240	1.076	1.025	1.368	
5180	36	802.11a	OFDM	20	17.0	16.76	-0.04	0 mm	06924	6	left	97.6	0.165	1.057	1.025	0.179	
5210	42	802.11ac	OFDM	80	9.0	8.67	0.03	0 mm	06924	29.3	back	90.3	0.787	1.079	1.107	0.940	
5210	42	802.11ac	OFDM	80	9.0	8.67	-0.06	0 mm	06924	29.3	top	90.3	0.598	1.079	1.107	0.714	
5320	64	802.11a	OFDM	20	17.0	16.98	0.03	8 mm	06924	6	back	97.6	0.584	1.005	1.025	0.602	
5260	52	802.11a	OFDM	20	17.0	16.90	-0.06	6 mm	06924	6	top	97.6	1.280	1.023	1.025	1.342	A17
5300	60	802.11a	OFDM	20	17.0	16.78	-0.02	6 mm	06924	6	top	97.6	1.110	1.052	1.025	1.197	
5320	64	802.11a	OFDM	20	17.0	16.98	0.00	6 mm	06924	6	top	97.6	1.050	1.005	1.025	1.082	
5320	64	802.11a	OFDM	20	17.0	16.98	-0.18	0 mm	06924	6	left	97.6	0.123	1.005	1.025	0.127	
5290	58	802.11ac	OFDM	80	9.0	8.98	0.10	0 mm	06924	29.3	back	90.3	0.557	1.005	1.107	0.620	
5290	58	802.11ac	OFDM	80	9.0	8.98	-0.14	0 mm	06924	29.3	top	90.3	0.642	1.005	1.107	0.714	
5500	100	802.11a	OFDM	20	17.0	16.99	0.03	8 mm	06924	6	back	97.6	0.451	1.002	1.025	0.463	
5500	100	802.11a	OFDM	20	17.0	16.99	0.00	6 mm	06924	6	top	97.6	0.566	1.002	1.025	0.581	
5500	100	802.11a	OFDM	20	17.0	16.99	0.11	0 mm	06924	6	left	97.6	0.139	1.002	1.025	0.143	
5610	122	802.11ac	OFDM	80	9.0	8.89	-0.18	0 mm	06924	29.3	back	90.3	0.391	1.026	1.107	0.444	
5610	122	802.11ac	OFDM	80	9.0	8.89	0.03	0 mm	06924	29.3	top	90.3	0.297	1.026	1.107	0.337	
5825	165	802.11a	OFDM	20	17.0	16.97	-0.03	8 mm	06924	6	back	97.6	0.495	1.007	1.025	0.511	
5825	165	802.11a	OFDM	20	17.0	16.97	0.00	6 mm	06924	6	top	97.6	0.549	1.007	1.025	0.567	
5825	165	802.11a	OFDM	20	17.0	16.97	-0.10	0 mm	06924	6	left	97.6	0.210	1.007	1.025	0.217	
5775	155	802.11ac	OFDM	80	9.0	8.98	0.03	0 mm	06924	29.3	back	90.3	0.205	1.005	1.107	0.228	
5775	155	802.11ac	OFDM	80	9.0	8.98	0.09	0 mm	06924	29.3	top	90.3	0.297	1.005	1.107	0.330	
5260	52	802.11a	OFDM	20	17.0	16.90	-0.02	6 mm	06924	6	top	97.6	1.150	1.023	1.025	1.206	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body									
Spatial Peak								1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population								averaged over 1 gram									

Note: Blue entry represents variability measurement

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 110 of 127

Table 10-15
DSS Body SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	9.5	9.01	-0.02	0 mm	06924	1	back	77.1	0.198	1.119	1.297	0.287	A18
2402	0	Bluetooth	FHSS	9.5	9.01	0.08	0 mm	06924	1	top	77.1	0.029	1.119	1.297	0.042	
2402	0	Bluetooth	FHSS	9.5	9.01	0.01	0 mm	06924	1	left	77.1	0.005	1.119	1.297	0.007	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

10.2 SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 616217 D04v01r02 and FCC KDB Publication 447498 D01v06.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
- 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 12 for variability analysis.
- FCC KDB Publication 616217 D04v01r02 Section 4.3, SAR tests are required for the back surface and edges of the tablet with the tablet touching the phantom. The SAR Exclusion Threshold in FCC KDB 447498 D01v06 was applied to determine SAR test exclusion for adjacent edge configurations.

UMTS Notes:

- UMTS mode in 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.
- Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

- LTE Considerations: 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 7.5.4.
- 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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 111 of 127

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 LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, 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.
7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 14 for linearity results.
8. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

WLAN Notes:

1. 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) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.6.4 for more information.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission 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 7.6.5 for more information.
3. 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.
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. 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.

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 100% transmission duty factor to determine compliance. See Section 8.4 for the time domain plot and calculation for the duty factor of the device.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 112 of 127

11 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

11.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built-in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

11.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is ≤ 1.6 W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

Table 11-1
Simultaneous Transmission Scenario with 2.4 GHz WLAN

Exposure Condition		Mode	3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
			1	2	1+2
Body SAR	UMTS 850	0.601	0.756	1.357	
	UMTS 1750	0.760	0.756	1.516	
	UMTS 1900	1.125	0.756	See Table Below	
	LTE Band 71	0.259	0.756	1.015	
	LTE Band 12	0.381	0.756	1.137	
	LTE Band 17	0.285	0.756	1.041	
	LTE Band 13	0.413	0.756	1.169	
	LTE Band 14	0.604	0.756	1.360	
	LTE Band 26 (Cell)	0.647	0.756	1.403	
	LTE Band 5 (Cell)	0.705	0.756	1.461	
	LTE Band 66 (AWS)	0.795	0.756	1.551	
	LTE Band 4 (AWS)	0.802	0.756	1.558	
	LTE Band 25 (PCS)	1.107	0.756	See Table Below	
	LTE Band 7	0.703	0.756	1.459	
LTE Band 41	0.903	0.756	See Table Below		

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Body SAR	Back	1.125	0.756	See Note 1	0.02	Body SAR	Back	1.051	0.756	See Note 1	0.02
	Top	1.029	0.479	1.508	N/A		Top	1.107	0.479	1.586	N/A
	Bottom	0.400	0.400	0.800	N/A		Bottom	0.400	0.400	0.800	N/A
	Right	0.061	0.400	0.461	N/A		Right	0.078	0.400	0.478	N/A
	Left	0.400	0.172	0.572	N/A		Left	0.400	0.172	0.572	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	0.903	0.756	See Note 1	0.01
	Top	0.175	0.479	0.654	N/A
	Bottom	0.400	0.400	0.800	N/A
	Right	0.122	0.400	0.522	N/A
	Left	0.400	0.172	0.572	N/A

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 113 of 127

Table 11-2
Simultaneous Transmission Scenario with 5 GHz WLAN

Exposure Condition	Mode	3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	UMTS 850	0.601	1.368	See Table Below
	UMTS 1750	0.760	1.368	See Table Below
	UMTS 1900	1.125	1.368	See Table Below
	LTE Band 71	0.259	1.368	See Table Below
	LTE Band 12	0.381	1.368	See Table Below
	LTE Band 17	0.285	1.368	See Table Below
	LTE Band 13	0.413	1.368	See Table Below
	LTE Band 14	0.604	1.368	See Table Below
	LTE Band 26 (Cell)	0.647	1.368	See Table Below
	LTE Band 5 (Cell)	0.705	1.368	See Table Below
	LTE Band 66 (AWS)	0.795	1.368	See Table Below
	LTE Band 4 (AWS)	0.802	1.368	See Table Below
	LTE Band 25 (PCS)	1.107	1.368	See Table Below
	LTE Band 7	0.703	1.368	See Table Below
	LTE Band 41	0.903	1.368	See Table Below

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	1+2
Body SAR	Back	0.392	0.940	1.332	Body SAR	Back	0.760	0.940	See Note 1	0.01
	Top	0.163	1.368	1.531		Top	0.670	1.368	See Note 1	0.02
	Bottom	0.070	0.400	0.470		Bottom	0.400	0.400	0.800	N/A
	Right	0.601	0.400	1.001		Right	0.358	0.400	0.758	N/A
	Left	0.151	0.217	0.368		Left	0.400	0.217	0.617	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 71 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2	1+2			1	2	1+2
Body SAR	Back	1.125	0.940	See Note 1	0.02	Body SAR	Back	0.257	0.940	1.197
	Top	1.029	1.368	See Note 1	0.02		Top	0.133	1.368	1.501
	Bottom	0.400	0.400	0.800	N/A		Bottom	0.030	0.400	0.430
	Right	0.061	0.400	0.461	N/A		Right	0.259	0.400	0.659
	Left	0.400	0.217	0.617	N/A		Left	0.068	0.217	0.285

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 17 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Body SAR	Back	0.381	0.940	1.321	Body SAR	Back	0.285	0.940	1.225
	Top	0.166	1.368	1.534		Top	0.134	1.368	1.502
	Bottom	0.044	0.400	0.444		Bottom	0.049	0.400	0.449
	Right	0.197	0.400	0.597		Right	0.280	0.400	0.680
	Left	0.104	0.217	0.321		Left	0.106	0.217	0.323

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 14 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Body SAR	Back	0.407	0.940	1.347	Body SAR	Back	0.453	0.940	1.393
	Top	0.189	1.368	1.557		Top	0.160	1.368	1.528
	Bottom	0.080	0.400	0.480		Bottom	0.104	0.400	0.504
	Right	0.413	0.400	0.813		Right	0.604	0.400	1.004
	Left	0.143	0.217	0.360		Left	0.149	0.217	0.366

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 114 of 127	

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
		1	2	1+2	
Body SAR	Back	0.461	0.940	1.401	
	Top	0.123	1.368	1.491	
	Bottom	0.079	0.400	0.479	
	Right	0.647	0.400	1.047	
	Left	0.162	0.217	0.379	

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	0.584	0.940	1.524	N/A
	Top	0.795	1.368	See Note 1	0.02
	Bottom	0.400	0.400	0.800	N/A
	Right	0.309	0.400	0.709	N/A
	Left	0.400	0.217	0.617	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	1.051	0.940	See Note 1	0.02
	Top	1.107	1.368	See Note 1	0.02
	Bottom	0.400	0.400	0.800	N/A
	Right	0.078	0.400	0.478	N/A
	Left	0.400	0.217	0.617	N/A

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	0.903	0.940	See Note 1	0.02
	Top	0.175	1.368	1.543	N/A
	Bottom	0.400	0.400	0.800	N/A
	Right	0.122	0.400	0.522	N/A
	Left	0.400	0.217	0.617	N/A

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
		1	2	1+2	
Body SAR	Back	0.451	0.940	1.391	
	Top	0.160	1.368	1.528	
	Bottom	0.089	0.400	0.489	
	Right	0.705	0.400	1.105	
	Left	0.163	0.217	0.380	

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	0.798	0.940	See Note 1	0.01
	Top	0.802	1.368	See Note 1	0.02
	Bottom	0.400	0.400	0.800	N/A
	Right	0.471	0.400	0.871	N/A
	Left	0.400	0.217	0.617	N/A

Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body SAR	Back	0.703	0.940	See Note 1	0.01
	Top	0.190	1.368	1.558	N/A
	Bottom	0.400	0.400	0.800	N/A
	Right	0.265	0.400	0.665	N/A
	Left	0.400	0.217	0.617	N/A

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 115 of 127

Table 11-3
Simultaneous Transmission Scenario with Bluetooth

Exposure Condition	Mode	3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	UMTS 850	0.601	0.287	0.888
	UMTS 1750	0.760	0.287	1.047
	UMTS 1900	1.125	0.287	1.412
	LTE Band 71	0.259	0.287	0.546
	LTE Band 12	0.381	0.287	0.668
	LTE Band 17	0.285	0.287	0.572
	LTE Band 13	0.413	0.287	0.700
	LTE Band 14	0.604	0.287	0.891
	LTE Band 26 (Cell)	0.647	0.287	0.934
	LTE Band 5 (Cell)	0.705	0.287	0.992
	LTE Band 66 (AWS)	0.795	0.287	1.082
	LTE Band 4 (AWS)	0.802	0.287	1.089
	LTE Band 25 (PCS)	1.107	0.287	1.394
	LTE Band 7	0.703	0.287	0.990
	LTE Band 41	0.903	0.287	1.190

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.3 for detailed SPLS ratio analysis.
2. When the antenna separation distance was > 50 mm, an estimated SAR of 0.4 W/kg was used to determine the simultaneous transmission SAR exclusion for test positions excluded per FCC KDB Publication 447498 D01v06.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 116 of 127	

11.3 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v06, when the sum of the standalone transmitters is more than 1.6 W/kg for 1g, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair of antennas is ≤ 0.04 for 1g, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

$$\text{Distance}_{\text{Tx1} - \text{Tx2}} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \text{ (Body)}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

11.3.1 Back Side SPLSR Evaluation and Analysis

Table 11-4
Peak SAR Locations for Body Back Side

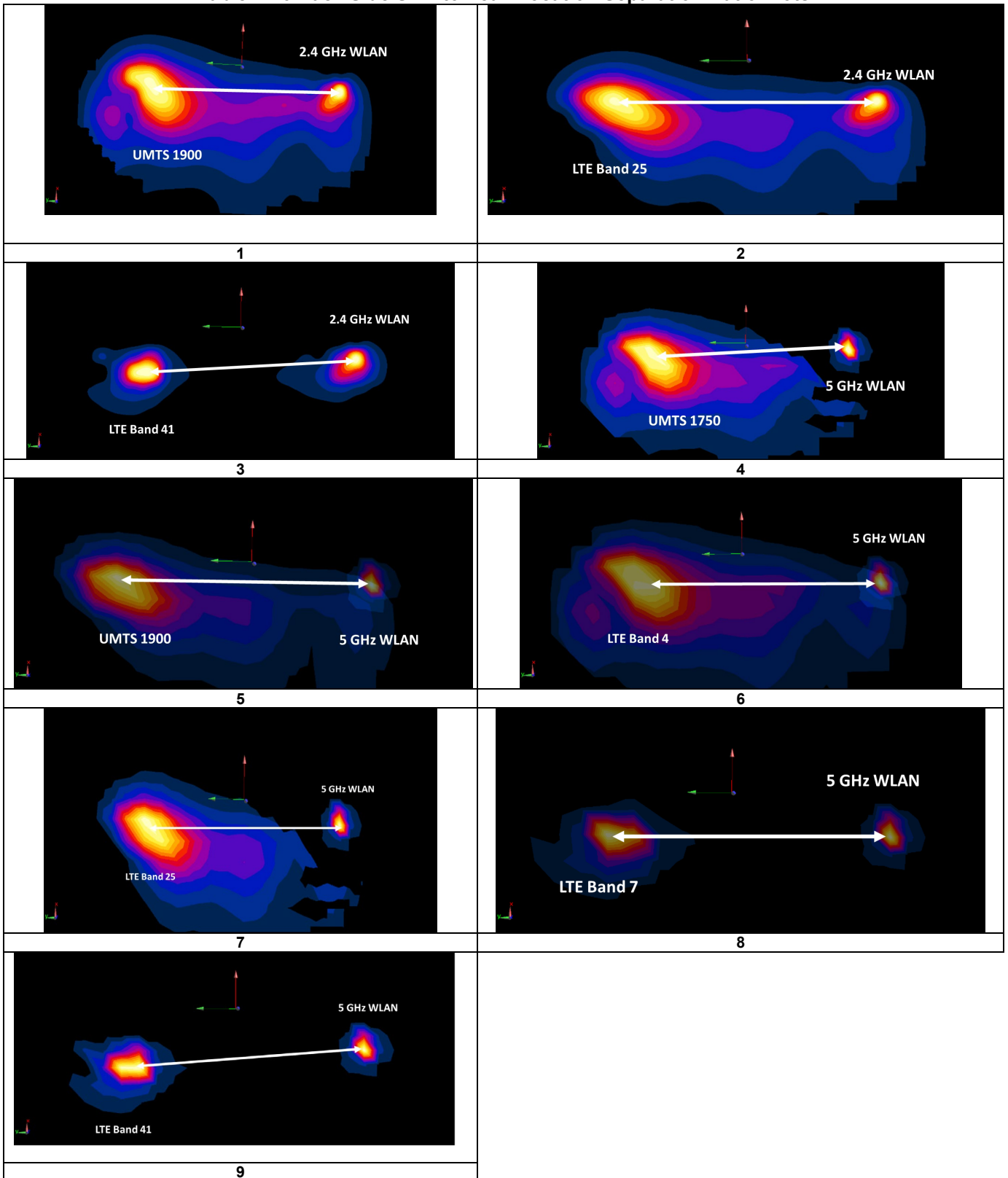
Mode/Band	x (mm)	y (mm)
2.4 GHz WLAN	-30.40	-90.80
5 GHz WLAN	-24.00	-99.99
UMTS 1750	-18.50	70.50
UMTS 1900	-29.52	73.49
LTE Band 4 (AWS)	-18.50	67.00
LTE Band 25 (PCS)	-28.02	70.46
LTE Band 7	-25.00	50.50
LTE Band 41	-37.60	54.30

Table 11-5
Back Side SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D _{a-b}	(a+b) ^{1.5} /D _{a-b}	
UMTS 1900	2.4 GHz WLAN	1.125	0.756	1.881	164.29	0.02	1
LTE Band 25 (PCS)	2.4 GHz WLAN	1.051	0.756	1.807	161.28	0.02	2
LTE Band 41	2.4 GHz WLAN	0.903	0.756	1.659	145.28	0.01	3
UMTS 1750	5 GHz WLAN	0.760	0.940	1.7	170.58	0.01	4
UMTS 1900	5 GHz WLAN	1.125	0.940	2.065	173.57	0.02	5
LTE Band 4 (AWS)	5 GHz WLAN	0.798	0.940	1.738	167.08	0.01	6
LTE Band 25 (PCS)	5 GHz WLAN	1.051	0.940	1.991	170.50	0.02	7
LTE Band 7	5 GHz WLAN	0.703	0.940	1.643	150.49	0.01	8
LTE Band 41	5 GHz WLAN	0.903	0.940	1.843	154.89	0.02	9

FCC ID: A3LSMT547U		SAR EVALUATION REPORT			Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet			Page 117 of 127

Table 11-6 Back Side SAR to Peak Location Separation Ratio Plots



FCC ID: A3LSMT547U



SAR EVALUATION REPORT



Approved by:
Quality Manager

Document S/N:

Test Dates:

DUT Type:

Page 118 of 127

1M1908150142-01-R1.A3L

08/19/19 - 08/26/19

Portable Tablet

11.3.2

Top Edge SPLSR Evaluation and Analysis

Table 11-7
Peak SAR Locations for Body Top Edge

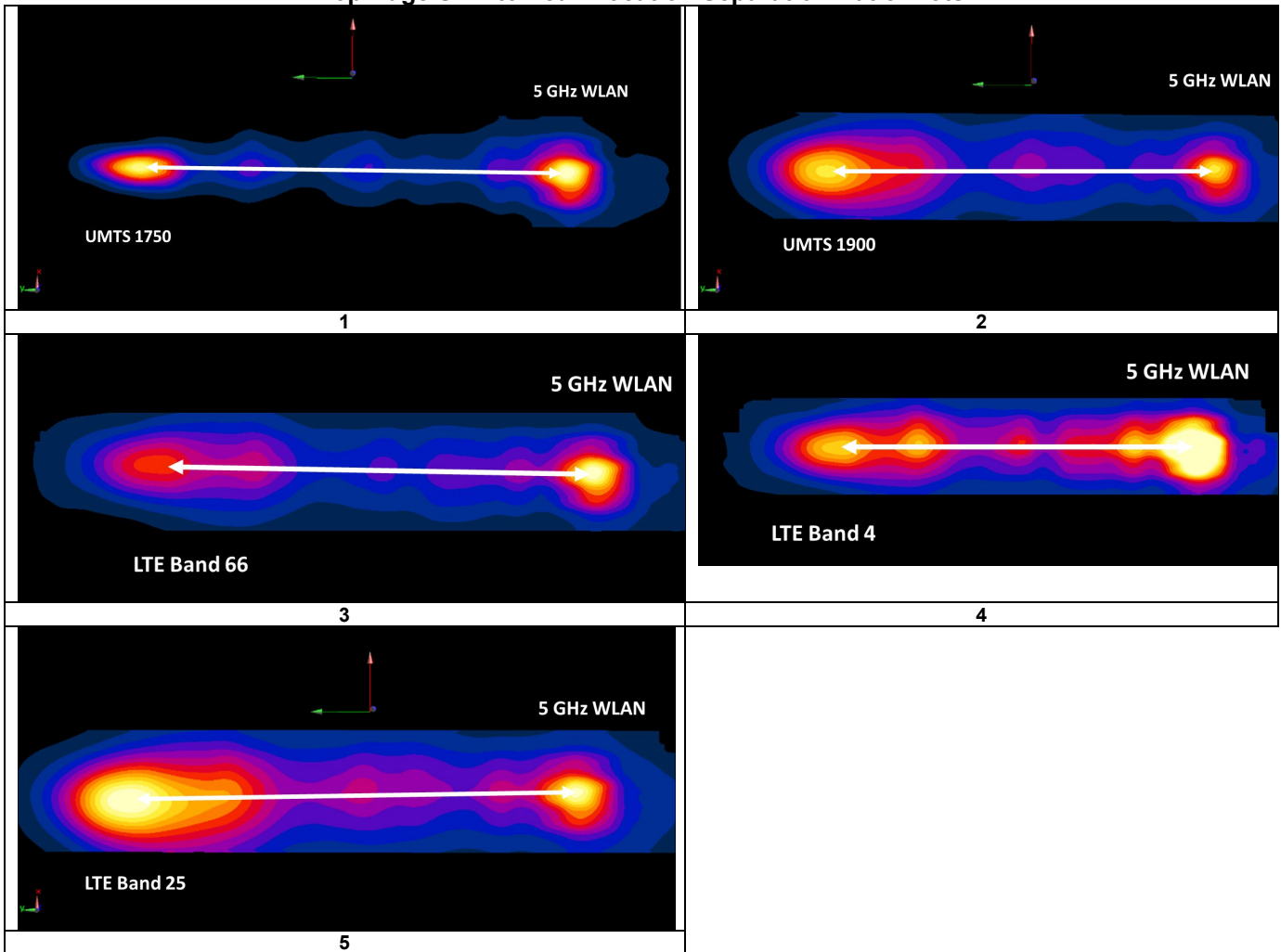
Mode/Band	x (mm)	y (mm)
5 GHz WLAN	-21.01	-86.99
UMTS 1750	-16.50	81.00
UMTS 1900	-27.50	75.00
LTE Band 66 (AWS)	-14.00	78.00
LTE Band 4 (AWS)	-17.00	76.50
LTE Band 25 (PCS)	-28.48	74.97

Table 11-8
Top Edge SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLSR Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
UMTS 1750	5 GHz WLAN	0.670	1.368	2.038	168.05	0.02	1
UMTS 1900	5 GHz WLAN	1.029	1.368	2.397	162.12	0.02	2
LTE Band 66 (AWS)	5 GHz WLAN	0.795	1.368	2.163	165.14	0.02	3
LTE Band 4 (AWS)	5 GHz WLAN	0.802	1.368	2.17	163.54	0.02	4
LTE Band 25 (PCS)	5 GHz WLAN	1.107	1.368	2.475	162.13	0.02	5

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 119 of 127

Table 11-9
Top Edge SAR to Peak Location Separation Ratio Plots



11.4 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLSR analysis are sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 120 of 127	

12 SAR MEASUREMENT VARIABILITY

12.1 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

Table 12-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1880.00	9400	UMTS 1900	RMC	N/A	back	15 mm	0.944	0.866	1.09	N/A	N/A	N/A	N/A
5250	5260.00	52	802.11a, 20 MHz Bandwidth	OFDM	6	top	6 mm	1.280	1.150	1.11	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT							Body							
Spatial Peak							1.6 W/kg (mW/g)							
Uncontrolled Exposure/General Population							averaged over 1 gram							

12.2 Measurement Uncertainty

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

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 121 of 127

13 ADDITIONAL TESTING PER FCC GUIDANCE

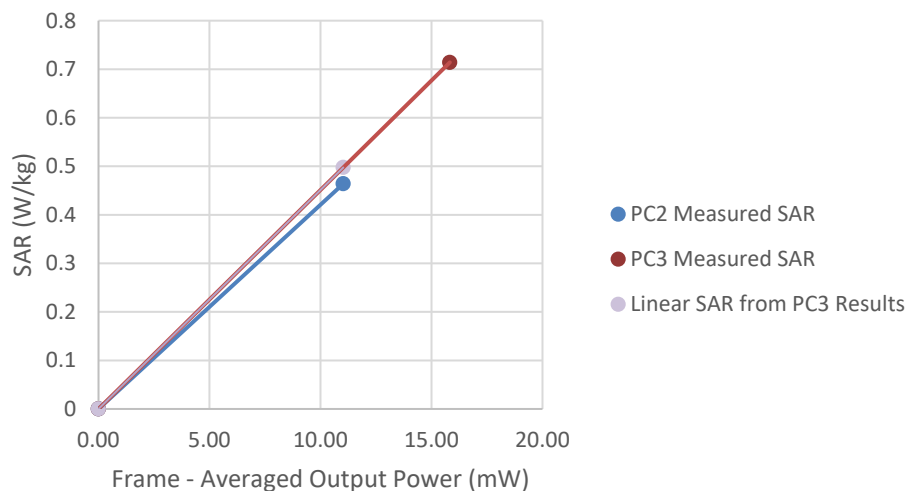
13.1 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear. Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes was < 10% and all reported SAR values were < 1.4 W/kg for 1g.

Table 13-1
LTE Band 41 Body Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	15	15
Measured Output Power (dBm)	13.98	14.06
Measured SAR (W/kg)	0.714	0.464
Measured Power (mW)	25.00	25.47
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	15.83	11.03
% deviation from expected linearity		-6.73%

LTE B41 SAR for PC2 and PC3 Operations



FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 122 of 127

14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	Network Analyzer	3/19/2019	Annual	3/19/2020	MY40001472
Agilent	8753ES	S-Parameter Network Analyzer	10/2/2018	Annual	10/2/2019	US539170118
Agilent	E4438C	ESG Vector Signal Generator	6/27/2019	Annual	6/27/2020	MY45093852
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N5182A	MXG Vector Signal Generator	6/27/2019	Annual	6/27/2020	US46240505
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	343972
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MA24106A	USB Power Sensor	6/21/2019	Annual	6/21/2020	1244515
Anritsu	MA24106A	USB Power Sensor	7/8/2019	Annual	7/8/2020	1248508
Anritsu	MA24106A	USB Power Sensor	1/31/2019	Annual	1/31/2020	1520503
Anritsu	MA24106A	USB Power Sensor	1/31/2019	Annual	1/31/2020	1520501
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	MA2411B	Pulse Power Sensor	11/20/2018	Annual	11/20/2019	1339007
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	ML2495A	Power Meter	11/20/2018	Annual	11/20/2019	1039008
Anritsu	ML2496A	Power Meter	10/21/2018	Annual	10/21/2019	1138001
Control Company	4040	Temperature / Humidity Monitor	2/28/2018	Biennial	2/28/2020	150761911
Control Company	4352	Ultra Long Stem Thermometer	2/28/2018	Biennial	2/28/2020	170330160
Control Company	4352	Ultra Long Stem Thermometer	2/28/2018	Biennial	2/28/2020	170330158
Control Company	4352	Ultra Long Stem Thermometer	8/2/2018	Biennial	8/2/2020	181292054
Control Company	4352	Ultra Long Stem Thermometer	8/2/2018	Biennial	8/2/2020	181292061
Control Company	4352	Ultra Long Stem Thermometer	8/2/2018	Biennial	8/2/2020	181334698
Control Company	4352	Ultra Long Stem Thermometer	8/2/2018	Biennial	8/2/2020	181292000
MiniCircuits	NLP-1.9+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	NLP-1.9+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
MiniCircuits	NLP-1.9+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-53W2	Attenuator (3dB)	CBT	N/A	CBT	120
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	11/1/2017	Biennial	11/1/2019	N/A
Pasternack	NC-100	Torque Wrench	5/23/2018	Biennial	5/23/2020	N/A
Rohde & Schwarz	CMW500	Radio Communication Tester	6/24/2019	Annual	6/24/2020	101699
Rohde & Schwarz	CMW500	Radio Communication Tester	6/26/2019	Annual	6/26/2020	108843
Rohde & Schwarz	CMW500	Radio Communication Tester	4/15/2019	Annual	4/15/2020	167284
Rohde & Schwarz	CMW500	Radio Communication Tester	4/17/2019	Annual	4/17/2020	167285
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/7/2019	Annual	5/7/2020	1070
SPEAG	DAE4	Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	1532
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/17/2019	Annual	4/17/2020	501
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/14/2019	Annual	6/14/2020	701
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	1403
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	793
SPEAG	D750V3	750 MHz SAR Dipole	9/8/2017	Biennial	9/8/2019	1097
SPEAG	D750V3	750 MHz SAR Dipole	5/18/2018	Biennial	5/18/2020	1034
SPEAG	D750V3	750 MHz SAR Dipole	6/20/2019	Annual	6/20/2020	1057
SPEAG	D835V2	835 MHz SAR Dipole	5/18/2018	Biennial	5/18/2020	4d180
SPEAG	D1750V2	1750 MHz SAR Dipole	9/7/2017	Biennial	9/7/2019	1104
SPEAG	D1900V2	1900 MHz SAR Dipole	6/19/2019	Annual	6/19/2020	5d030
SPEAG	D2450V2	2450 MHz SAR Dipole	11/12/2018	Annual	11/12/2019	921
SPEAG	D2600V2	2600 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	1069
SPEAG	D5GHzV2	5 GHz SAR Dipole	3/13/2018	Biennial	3/13/2020	1123
SPEAG	EX3DV4	SAR Probe	1/24/2019	Annual	1/24/2020	7490
SPEAG	EX3DV4	SAR Probe	4/12/2019	Annual	4/12/2020	7532
SPEAG	EX3DV4	SAR Probe	6/19/2019	Annual	6/19/2020	7416
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7427
SPEAG	EX3DV4	SAR Probe	1/28/2019	Annual	1/28/2020	3837

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.

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 123 of 127

15 MEASUREMENT UNCERTAINTIES

a	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System								
Probe Calibration	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	2.0	R	1.73	1.0	1.0	1.2	1.2	∞
Linearity	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	0.25	R	1.73	1.0	1.0	0.1	0.1	∞
Readout Electronics	0.3	N	1	1.0	1.0	0.3	0.3	∞
Response Time	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions - Noise	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	6.7	R	1.73	1.0	1.0	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.7	N	1	1.0	1.0	2.7	2.7	35
Device Holder Uncertainty	1.67	N	1	1.0	1.0	1.7	1.7	5
Output Power Variation - SAR drift measurement	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
SAR Scaling	0.0	R	1.73	1.0	1.0	0.0	0.0	∞
Phantom & Tissue Parameters								
Phantom Uncertainty (Shape & Thickness tolerances)	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	4.2	N	1	0.78	0.71	3.3	3.0	10
Liquid Permittivity - measurement uncertainty	4.1	N	1	0.23	0.26	1.0	1.1	10
Liquid Conductivity - Temperature Uncertainty	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)						RSS	11.5	11.3
Expanded Uncertainty (95% CONFIDENCE LEVEL)						k=2	23.0	22.6

FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 124 of 127

16 CONCLUSION

16.1 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: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 125 of 127

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FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet		Page 126 of 127

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FCC ID: A3LSMT547U		SAR EVALUATION REPORT		Approved by: Quality Manager
Document S/N: 1M1908150142-01-R1.A3L	Test Dates: 08/19/19 - 08/26/19	DUT Type: Portable Tablet	Page 127 of 127	

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06619

Communication System: UID 0, _UMTS; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body; Medium parameters used (interpolated):

$f = 826.4 \text{ MHz}$; $\sigma = 0.995 \text{ S/m}$; $\epsilon_r = 53.752$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-19-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 826.4 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 850, Body SAR, Right Edge, Low.ch

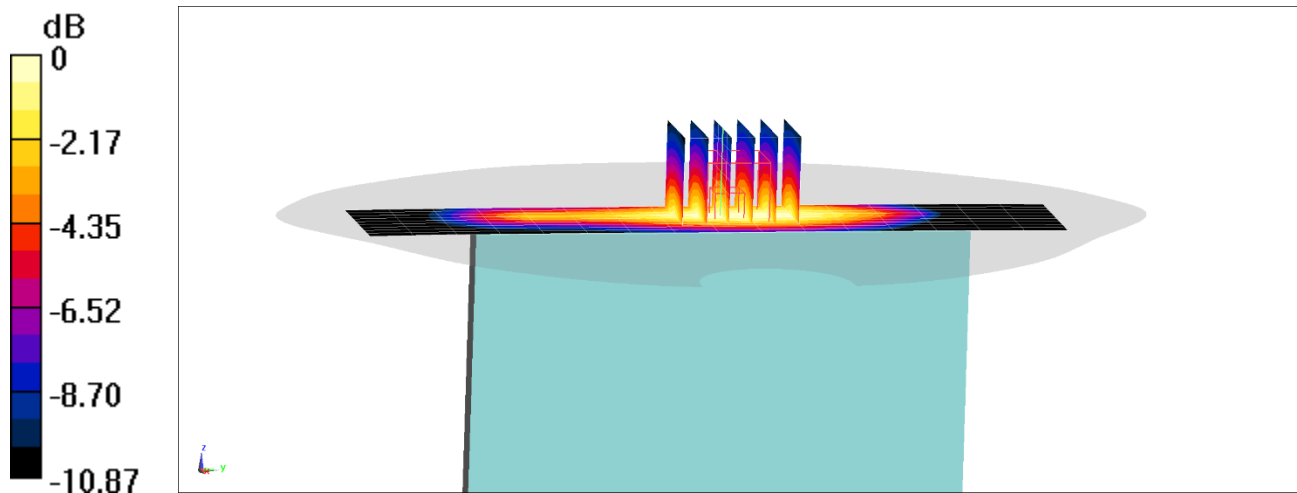
Area Scan (10x17x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.89 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.851 W/kg

SAR(1 g) = 0.531 W/kg



0 dB = 0.742 W/kg = -1.30 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06742

Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body; Medium parameters used (interpolated):

$f = 1732.4 \text{ MHz}$; $\sigma = 1.477 \text{ S/m}$; $\epsilon_r = 51.889$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-19-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7427; ConvF(8.14, 8.14, 8.14) @ 1732.4 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1750, Body SAR, Back side, Mid.ch

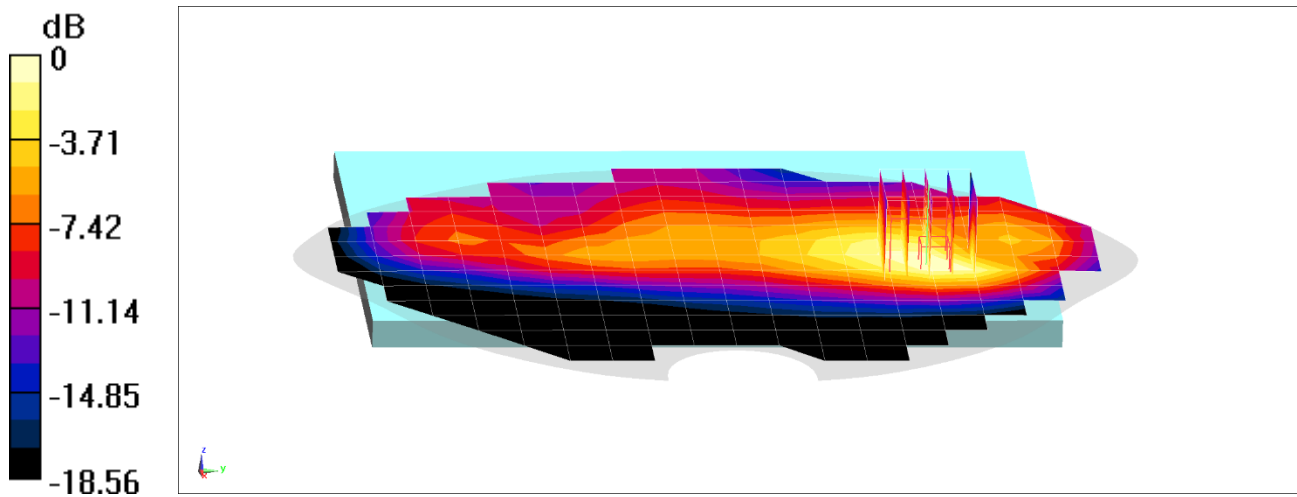
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.83 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.651 W/kg



0 dB = 0.732 W/kg = -1.35 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06734

Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.482 \text{ S/m}$; $\epsilon_r = 52.228$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-19-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7532; ConvF(8.03, 8.03, 8.03) @ 1880 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: UMTS 1900, Body SAR, Back side, Mid.ch

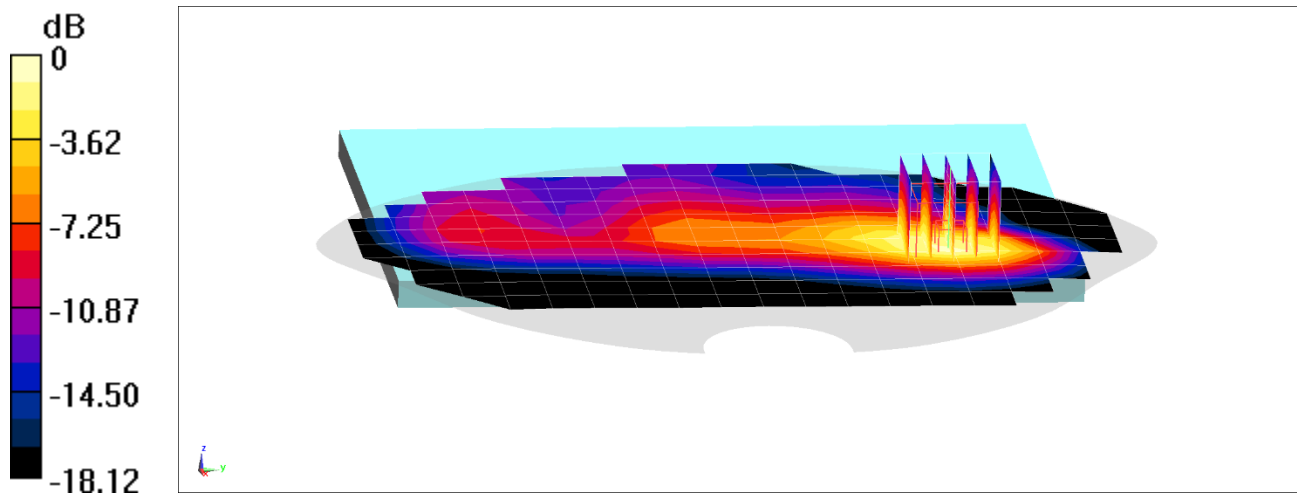
Area Scan (21x21x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.57 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.53 W/kg

SAR(1 g) = 0.944 W/kg



0 dB = 1.34 W/kg = 1.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06742

Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body; Medium parameters used (interpolated):

$f = 680.5 \text{ MHz}$; $\sigma = 0.911 \text{ S/m}$; $\epsilon_r = 53.848$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-20-2019; Ambient Temp: 22.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7490; ConvF(10.49, 10.49, 10.49) @ 680.5 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 71, Body SAR, Right Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset**

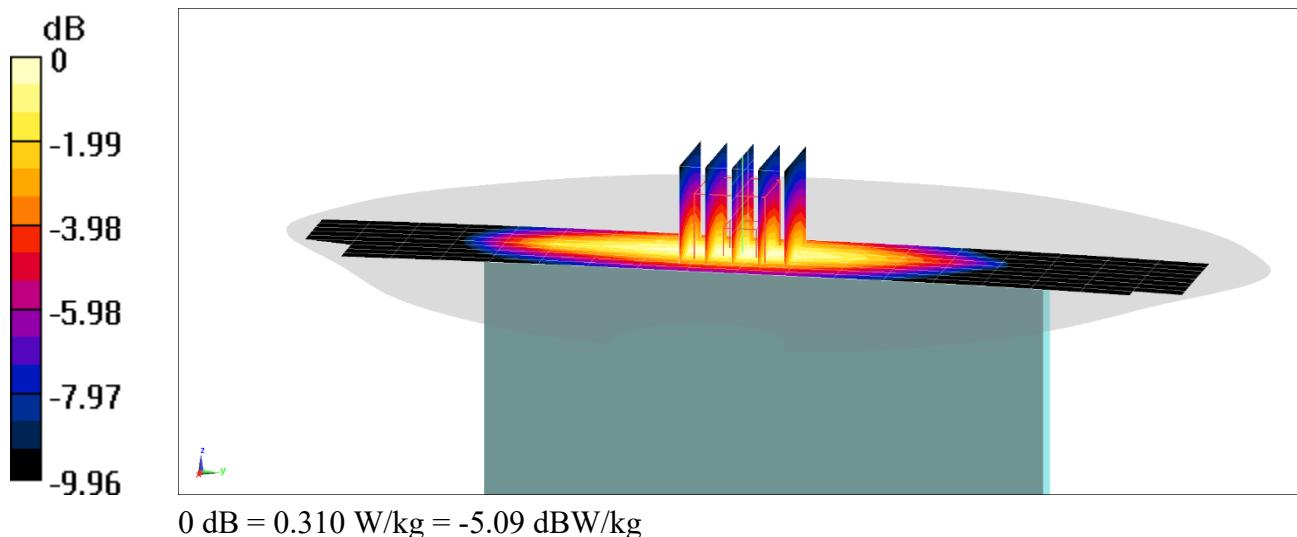
Area Scan (10x19x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.20 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.355 W/kg

SAR(1 g) = 0.223 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06742

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.931 \text{ S/m}$; $\epsilon_r = 54.648$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-26-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7416; ConvF(9.91, 9.91, 9.91) @ 707.5 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

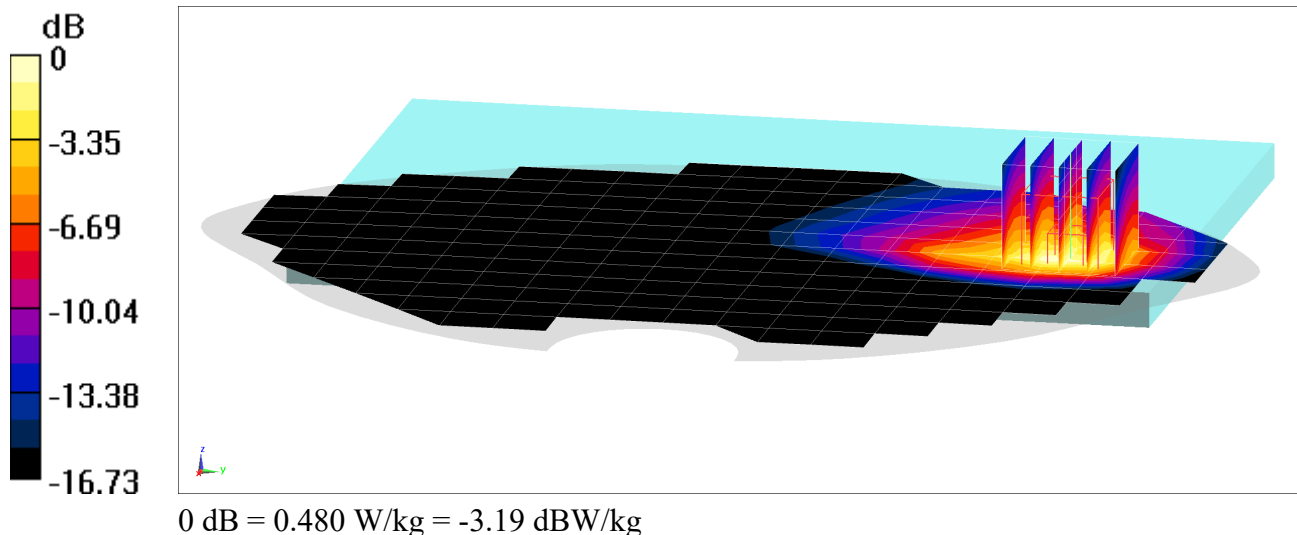
Area Scan (15x23x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.75 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.658 W/kg

SAR(1 g) = 0.303 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06734

Communication System: UID 0, LTE Band 17; Frequency: 710 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body; Medium parameters used:

$f = 710 \text{ MHz}$; $\sigma = 0.918 \text{ S/m}$; $\epsilon_r = 53.504$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-21-2019; Ambient Temp: 22.2°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7532; ConvF(10.6, 10.6, 10.6) @ 710 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 17, Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

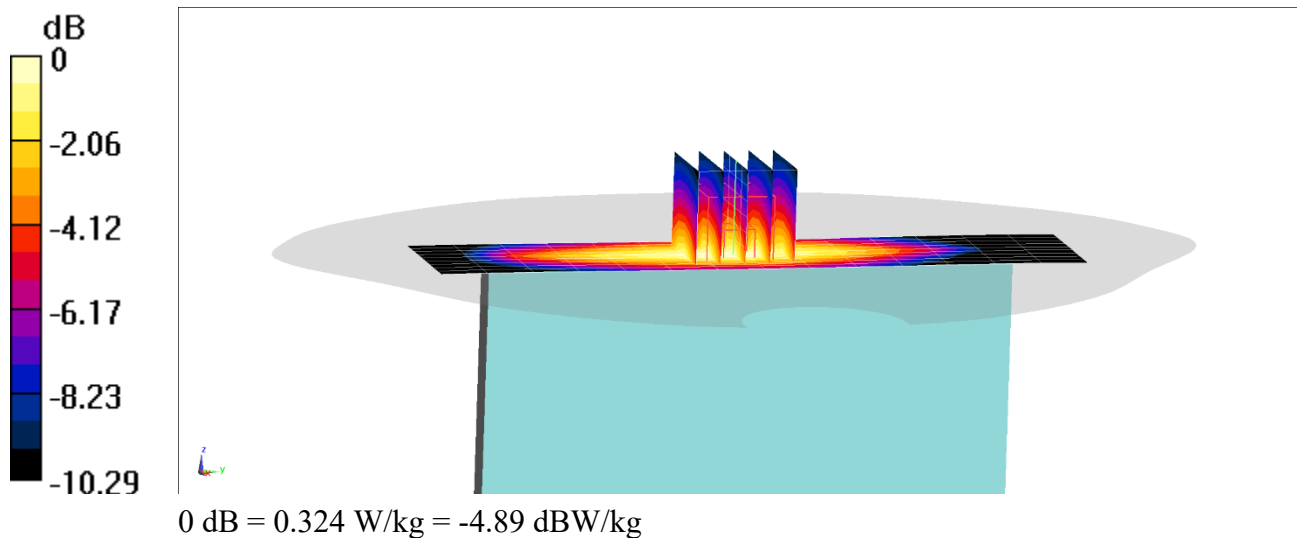
Area Scan (10x15x1): Measurement grid: $dx=5\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.25 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.374 W/kg

SAR(1 g) = 0.228 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06759

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body; Medium parameters used (interpolated):

$f = 782 \text{ MHz}$; $\sigma = 0.946 \text{ S/m}$; $\epsilon_r = 53.645$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-20-2019; Ambient Temp: 22.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7490; ConvF(10.49, 10.49, 10.49) @ 782 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 13, Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

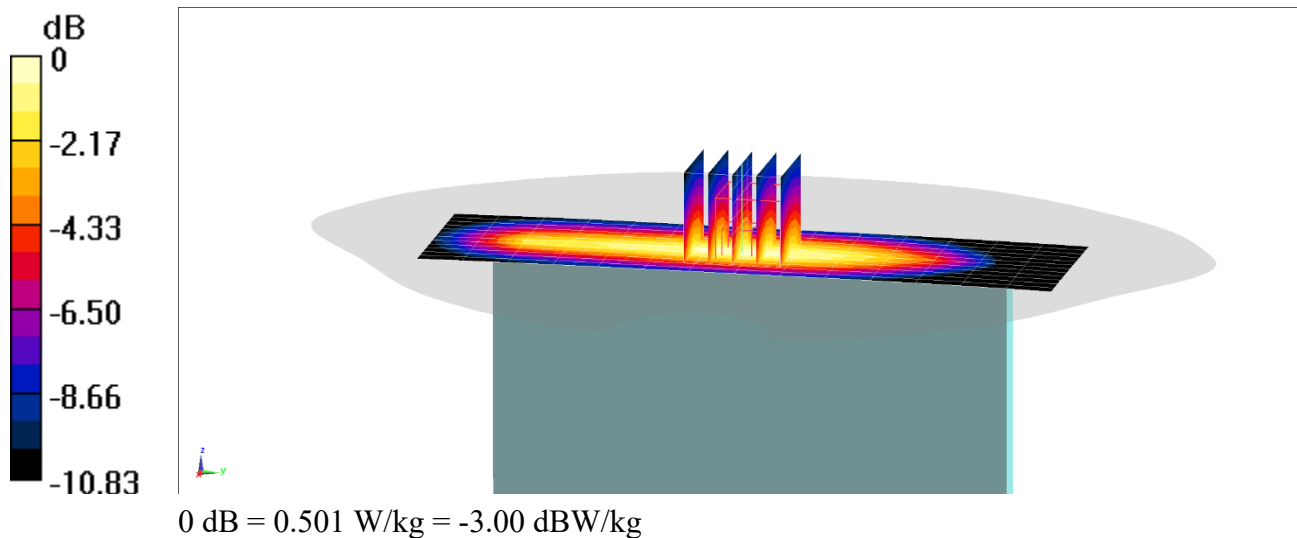
Area Scan (13x15x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.63 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.582 W/kg

SAR(1 g) = 0.342 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06734

Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body; Medium parameters used (interpolated):

$f = 793 \text{ MHz}$; $\sigma = 0.955 \text{ S/m}$; $\epsilon_r = 52.784$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-20-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7532; ConvF(10.6, 10.6, 10.6) @ 793 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 14, Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset**

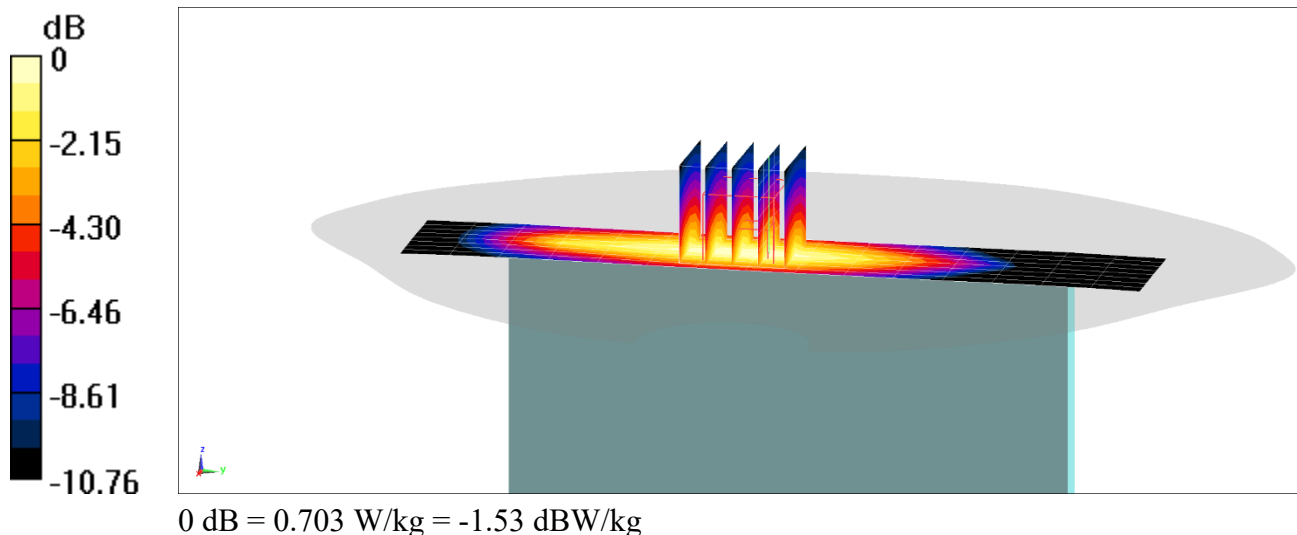
Area Scan (9x16x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.61 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.806 W/kg

SAR(1 g) = 0.493 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06619

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body; Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 1 \text{ S/m}$; $\epsilon_r = 53.697$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-19-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 831.5 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 26 (Cell.), Body SAR, Right Edge, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

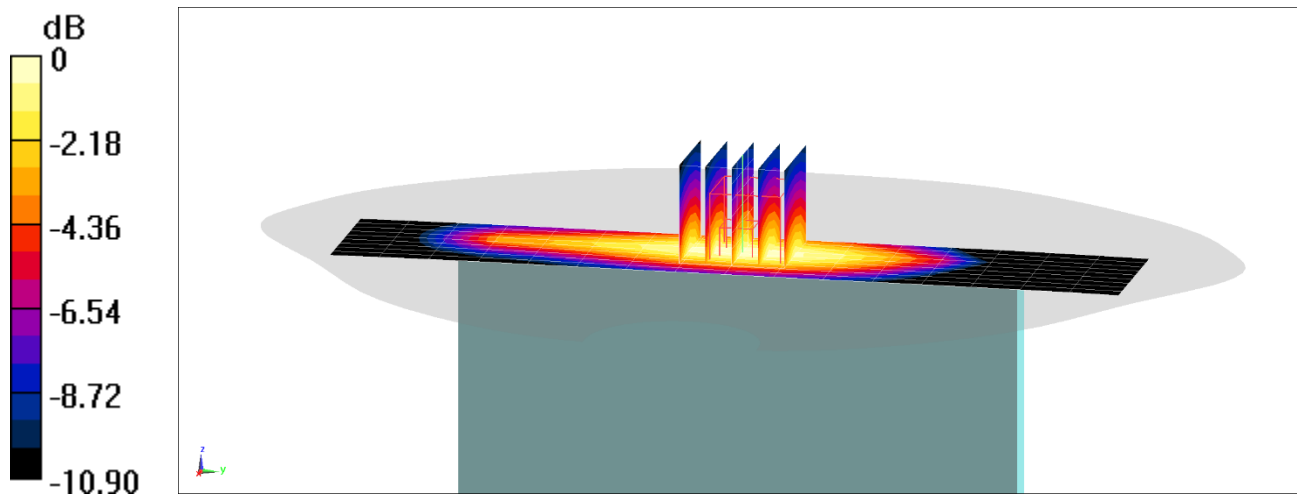
Area Scan (10x17x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.88 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.853 W/kg

SAR(1 g) = 0.532 W/kg



0 dB = 0.738 W/kg = -1.32 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06619

Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body; Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 1.006 \text{ S/m}$; $\epsilon_r = 53.643$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-19-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 836.5 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 5 (Cell.), Body SAR, Right Edge,Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

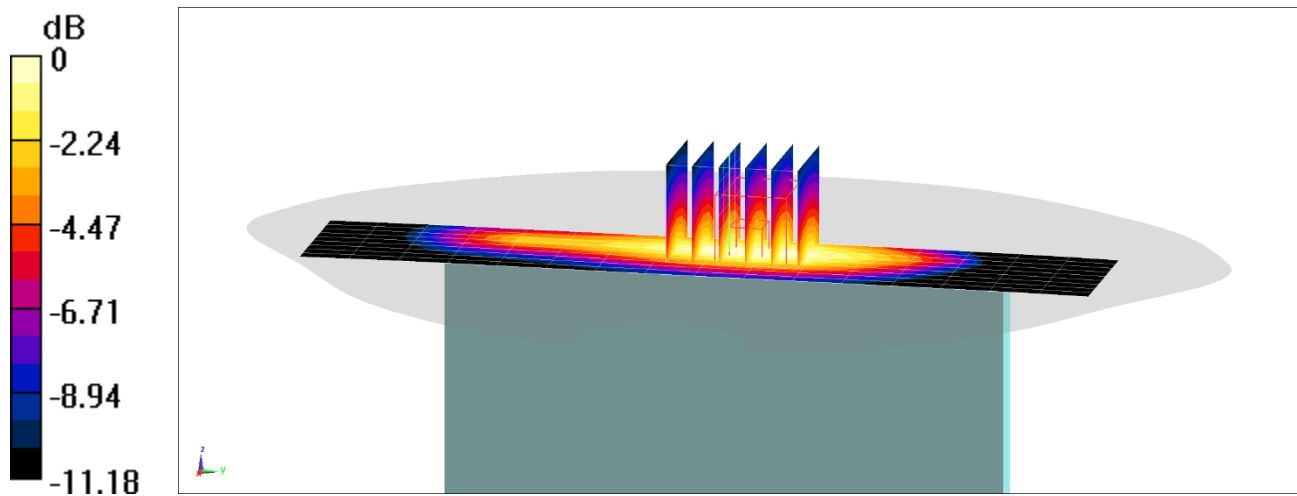
Area Scan (10x17x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.78 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.924 W/kg

SAR(1 g) = 0.577 W/kg



0 dB = 0.802 W/kg = -0.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06759

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body; Medium parameters used (interpolated):

$f = 1770 \text{ MHz}$; $\sigma = 1.513 \text{ S/m}$; $\epsilon_r = 51.78$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-19-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7427; ConvF(8.14, 8.14, 8.14) @ 1770 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 66 (AWS), Body SAR, Top Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

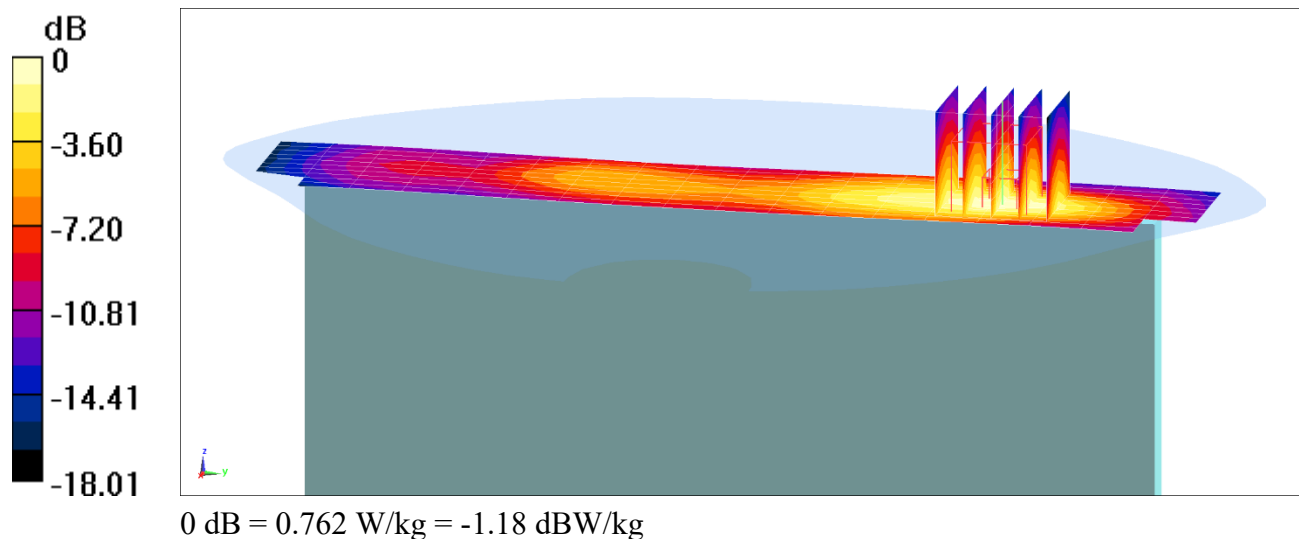
Area Scan (11x21x1): Measurement grid: $dx=5\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.04 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.664 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06759

Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body; Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.477 \text{ S/m}$; $\epsilon_r = 51.889$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-19-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7427; ConvF(8.14, 8.14, 8.14) @ 1732.5 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 4 (AWS), Body SAR, Top Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

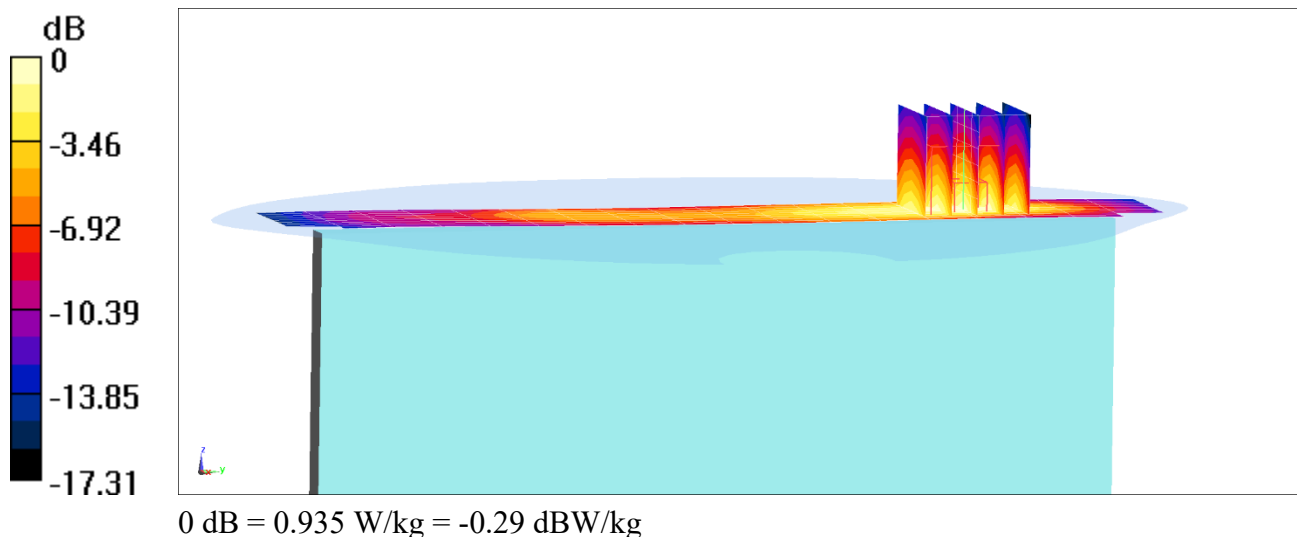
Area Scan (10x21x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.26 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.658 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06734

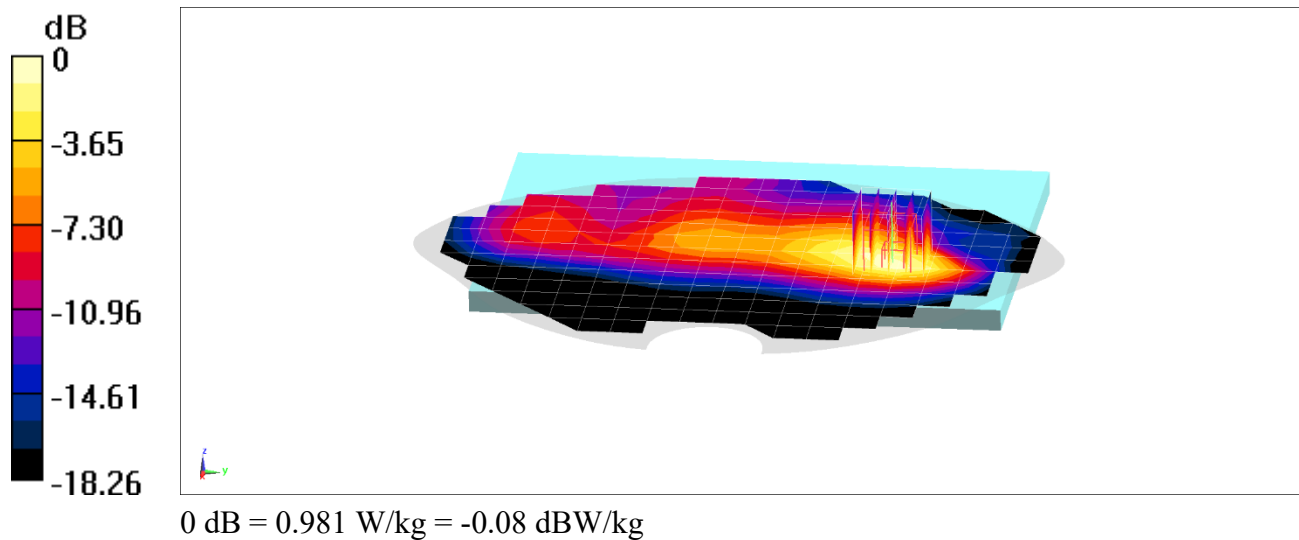
Communication System: UID 0, _LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 MHz Body; Medium parameters used (interpolated):
 $f = 1882.5 \text{ MHz}$; $\sigma = 1.484 \text{ S/m}$; $\epsilon_r = 52.225$; $\rho = 1000 \text{ kg/m}^3$,
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-19-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7532; ConvF(8.03, 8.03, 8.03) @ 1882.5 MHz; Calibrated: 4/12/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn501; Calibrated: 4/17/2019
Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 25 (PCS), Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

Area Scan (7x21x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 24.56 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.818 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06742

Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body; Medium parameters used (interpolated):

$f = 2560$ MHz; $\sigma = 2.073$ S/m; $\epsilon_r = 52.703$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF(7.35, 7.35, 7.35) @ 2560 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 7, Body SAR, Back side, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

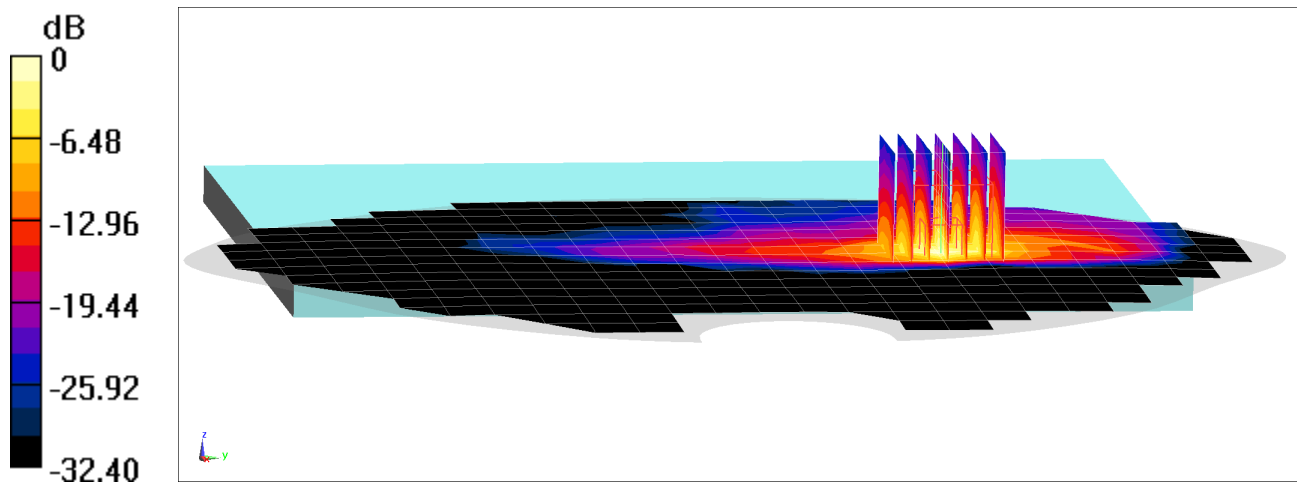
Area Scan (19x26x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.98 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.602 W/kg



0 dB = 1.57 W/kg = 1.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06619

Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2636.5 MHz; Duty Cycle: 1:1.58

Medium: 2450 MHz Body; Medium parameters used (interpolated):

$f = 2636.5$ MHz; $\sigma = 2.203$ S/m; $\epsilon_r = 51.96$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-20-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7416; ConvF(7.28, 7.28, 7.28) @ 2636.5 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

**Mode: LTE Band 41, Body SAR, Back side, Mid-High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

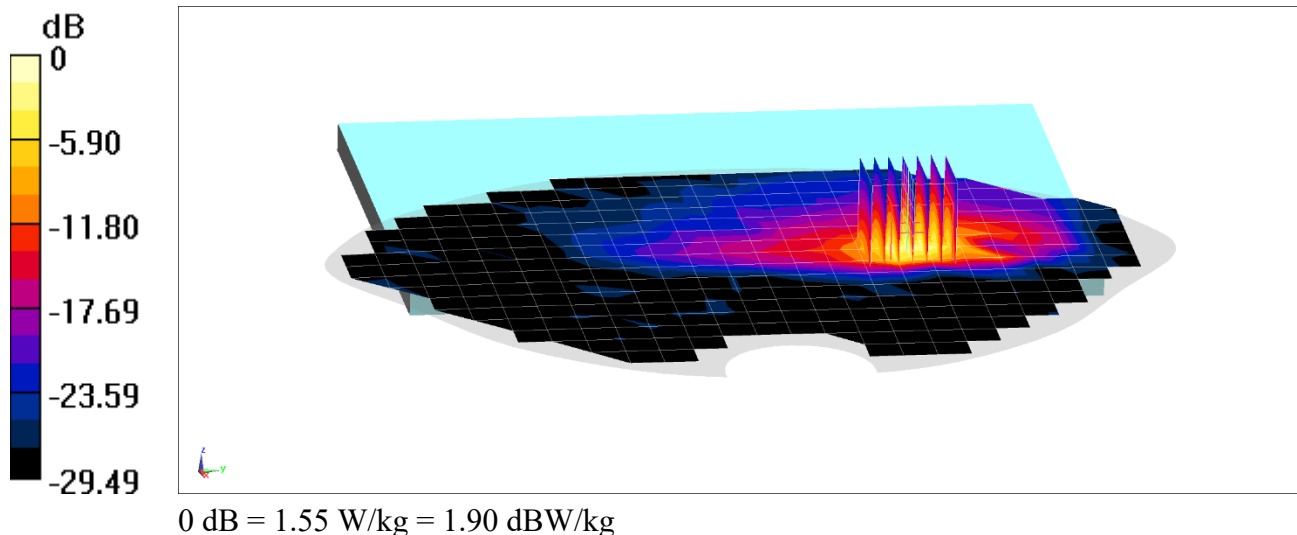
Area Scan (18x24x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.65 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.15 W/kg

SAR(1 g) = 0.714 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06924

Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body; Medium parameters used (interpolated):

$f = 2412 \text{ MHz}$; $\sigma = 1.935 \text{ S/m}$; $\epsilon_r = 50.978$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-19-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7490; ConvF(7.87, 7.87, 7.87) @ 2412 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR, Ch 1, 1 Mbps, Back Side

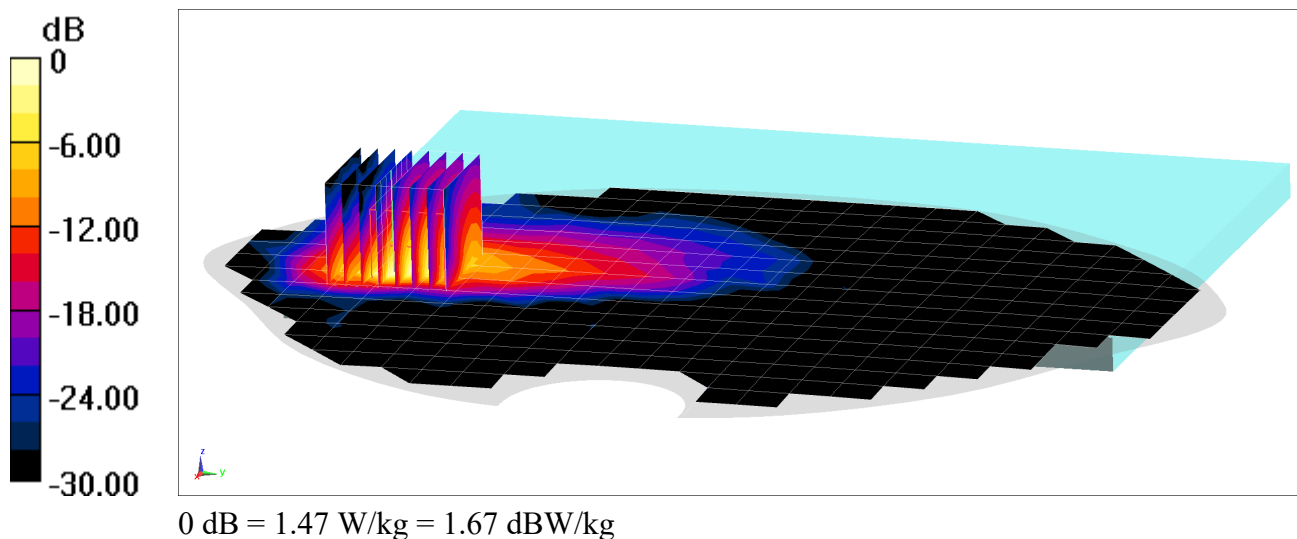
Area Scan (18x24x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.93 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 2.18 W/kg

SAR(1 g) = 0.744 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06924

Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: 5GHz Body; Medium parameters used:

$f = 5260 \text{ MHz}$; $\sigma = 5.424 \text{ S/m}$; $\epsilon_r = 48.416$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.6 cm

Test Date: 08-19-2019; Ambient Temp: 21.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3837; ConvF(4.77, 4.77, 4.77) @ 5260 MHz; Calibrated: 1/28/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/15/2019

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: IEEE 802.11a, U-NII-2A, 20 MHz Bandwidth, Body SAR, Ch 52, 6 Mbps, Top Edge

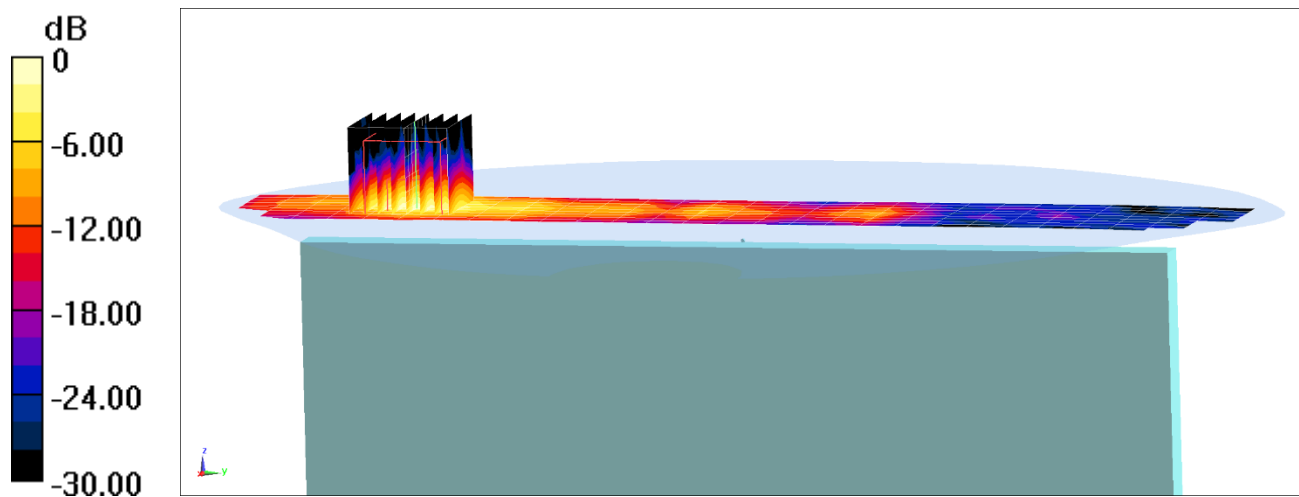
Area Scan (10x29x1): Measurement grid: dx=5mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 16.28 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 4.73 W/kg

SAR(1 g) = 1.28 W/kg



0 dB = 2.86 W/kg = 4.56 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMT547U; Type: Portable Tablet; Serial: 06924

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.297

Medium: 2450 MHz Body; Medium parameters used (interpolated):

$f = 2402 \text{ MHz}$; $\sigma = 1.993 \text{ S/m}$; $\epsilon_r = 52.22$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-20-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7416; ConvF(7.38, 7.38, 7.38) @ 2402 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

Mode: Bluetooth, Body SAR, Ch 0, 1 Mbps, Back Side

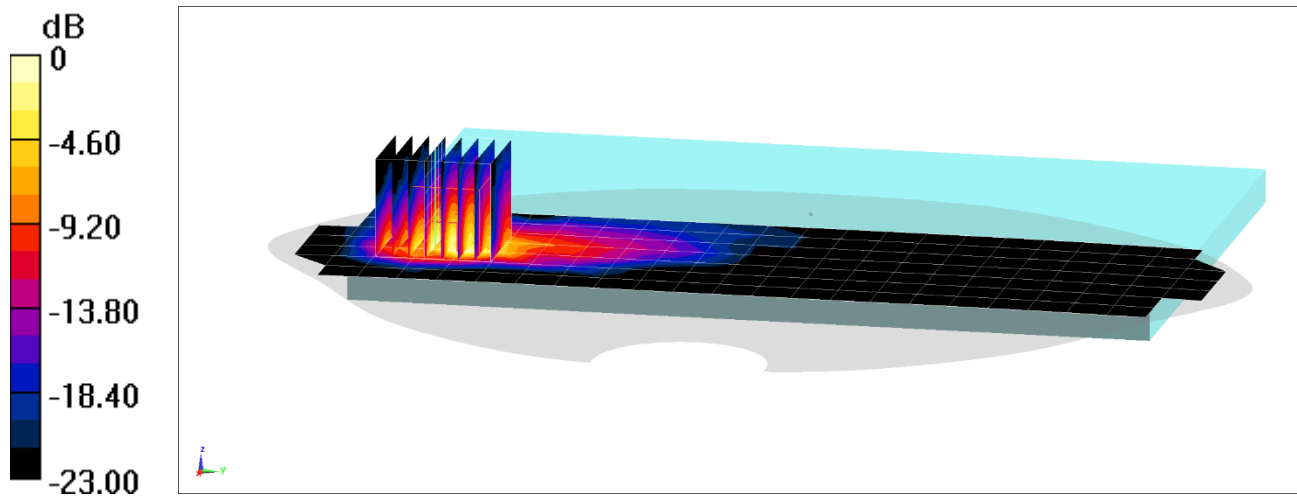
Area Scan (8x26x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x8x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.548 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.554 W/kg

SAR(1 g) = 0.198 W/kg



0 dB = 0.401 W/kg = -3.97 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1097

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.934 \text{ S/m}$; $\epsilon_r = 53.711$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-20-2019; Ambient Temp: 22.1°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7490; ConvF(10.49, 10.49, 10.49) @ 750 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

750 MHz System Verification at 23.0 dBm (200 mW)

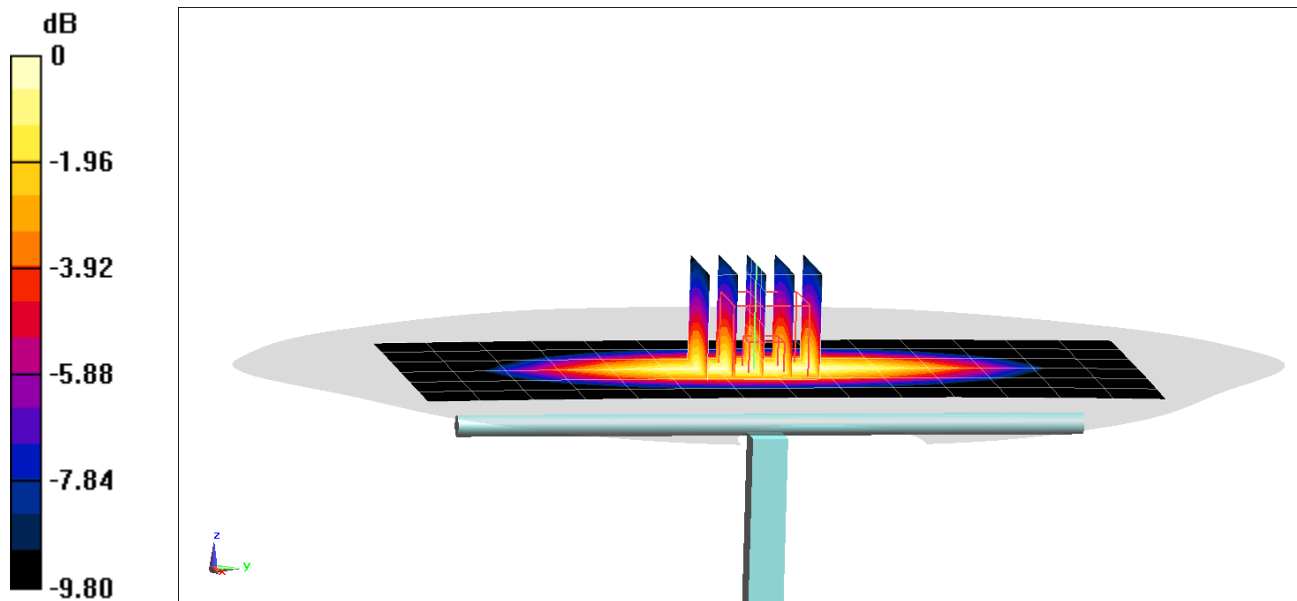
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.49 W/kg

SAR(1 g) = 1.68 W/kg

Deviation(1 g) = -1.87%



0 dB = 2.21 W/kg = 3.44 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1034

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.94 \text{ S/m}$; $\epsilon_r = 52.895$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-20-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7532; ConvF(10.6, 10.6, 10.6) @ 750 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

750 MHz System Verification at 23.0 dBm (200 mW)

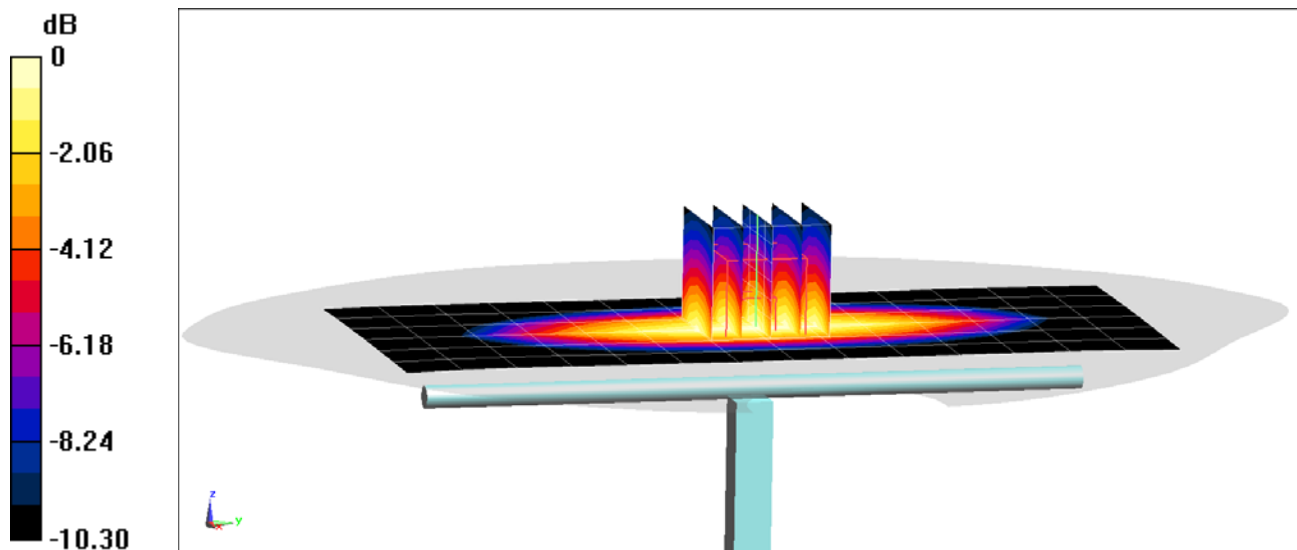
Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Peak SAR (extrapolated) = 2.40 W/kg

SAR(1 g) = 1.61 W/kg

Deviation(1 g) = -6.07%



0 dB = 2.13 W/kg = 3.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1034

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.929 \text{ S/m}$; $\epsilon_r = 53.392$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-21-2019; Ambient Temp: 22.2°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7532; ConvF(10.6, 10.6, 10.6) @ 750 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

750 MHz System Verification at 23.0 dBm (200 mW)

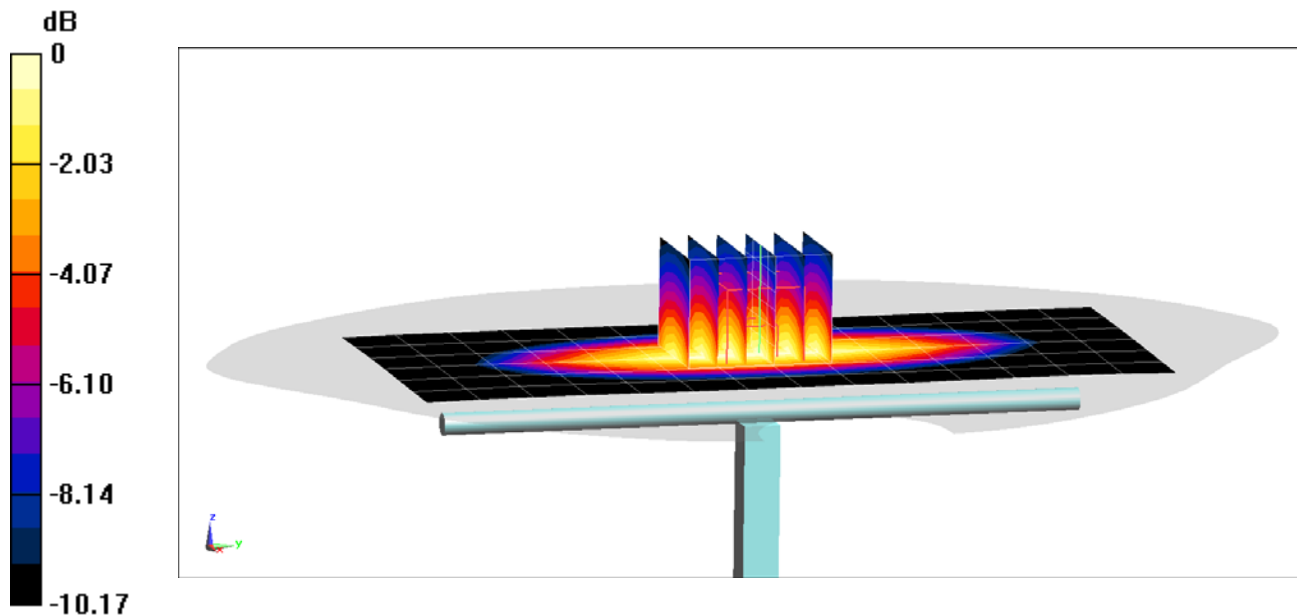
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.38 W/kg

SAR(1 g) = 1.62 W/kg

Deviation(1 g) = -5.48%



0 dB = 2.14 W/kg = 3.30 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1057

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.945 \text{ S/m}$; $\epsilon_r = 54.651$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-26-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7416; ConvF(9.91, 9.91, 9.91) @ 750 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

750 MHz System Verification at 23.0 dBm (200 mW)

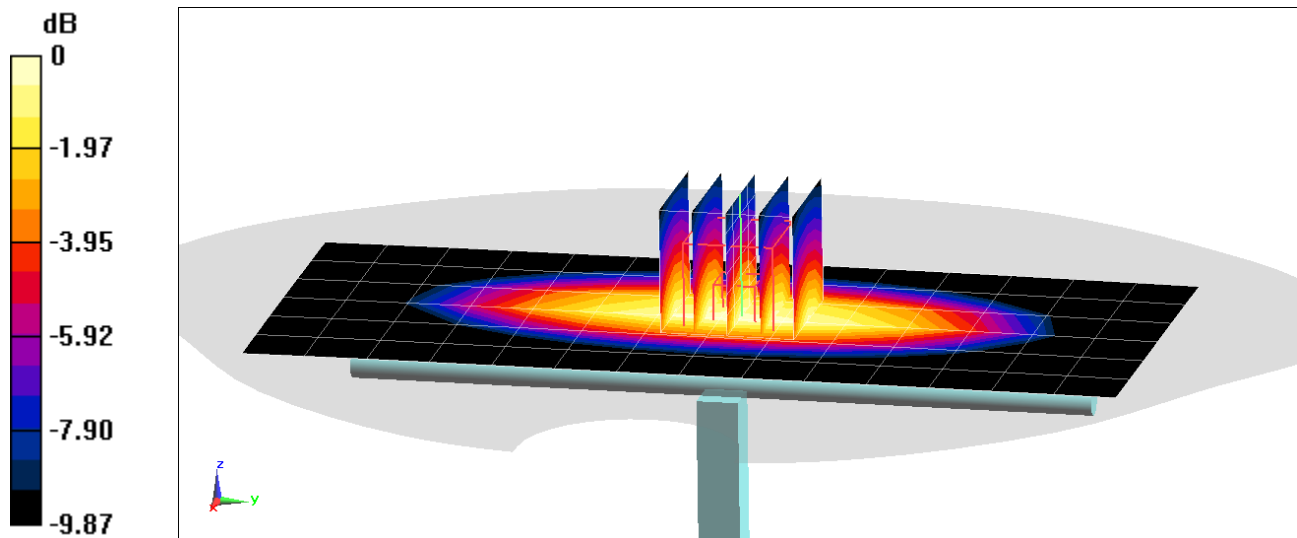
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.39 W/kg

SAR(1 g) = 1.64 W/kg

Deviation(1 g) = -5.09%



0 dB = 2.14 W/kg = 3.30 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d180

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 1.004 \text{ S/m}$; $\epsilon_r = 53.659$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-19-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 835 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

835 MHz System Verification at 23.0 dBm (200 mW)

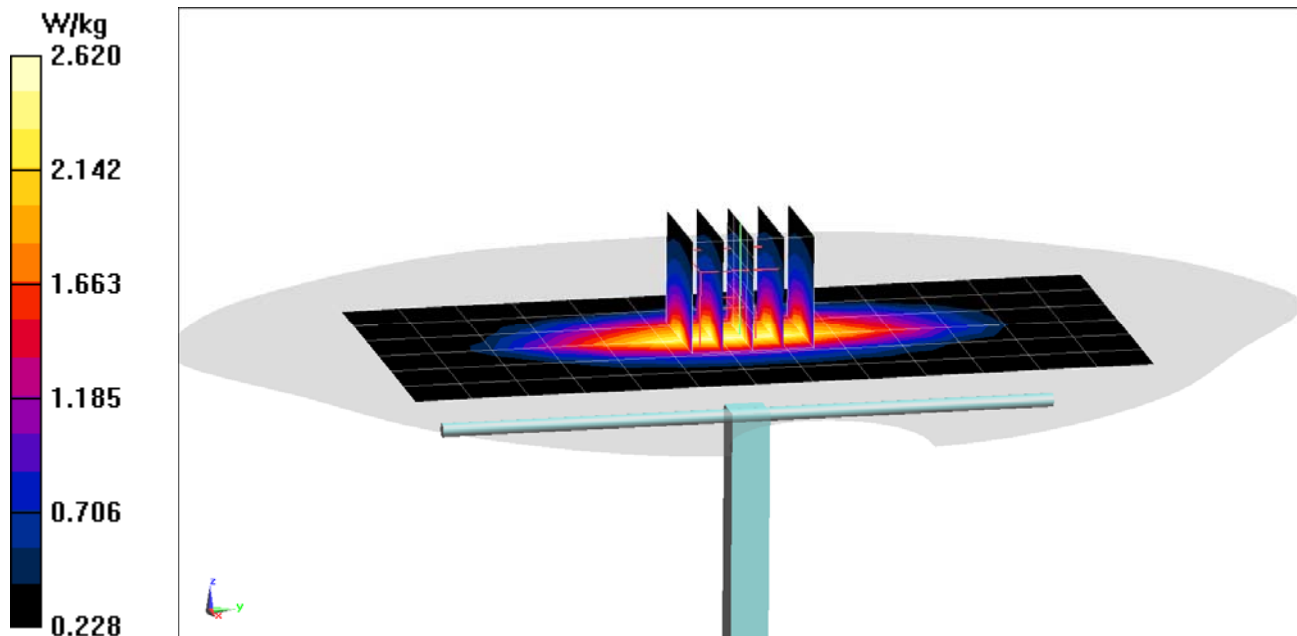
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.95 W/kg

SAR(1 g) = 1.96 W/kg

Deviation(1 g) = 2.19%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1104

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.494 \text{ S/m}$; $\epsilon_r = 51.834$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-19-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7427; ConvF(8.14, 8.14, 8.14) @ 1750 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

1750 MHz System Verification at 20.0 dBm (100 mW)

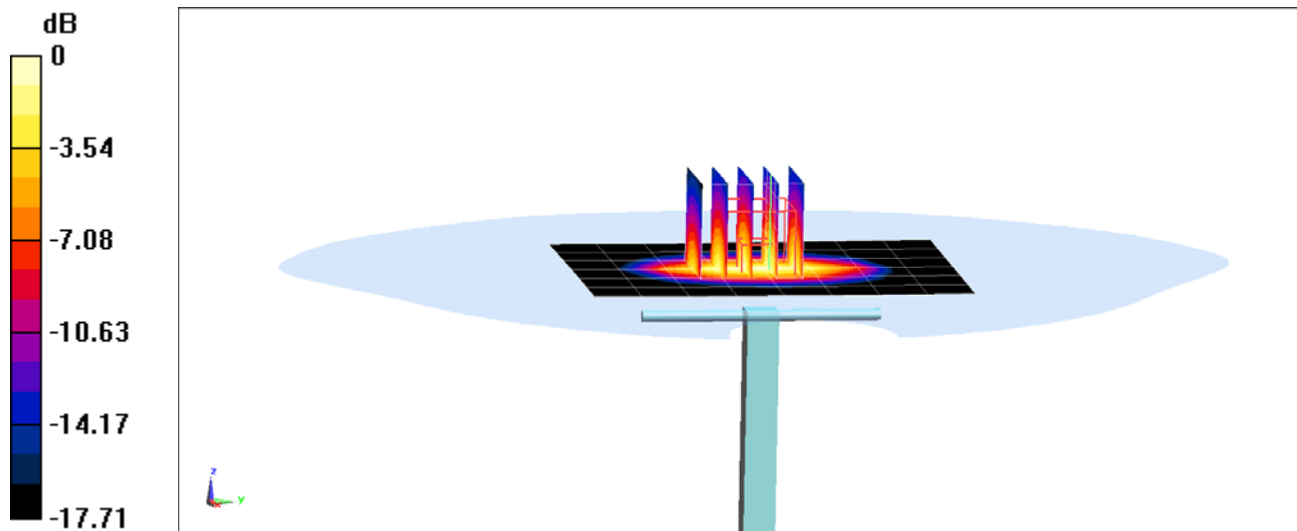
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Peak SAR (extrapolated) = 6.88 W/kg

SAR(1 g) = 3.85 W/kg

Deviation(1 g) = 5.19%



0 dB = 5.75 W/kg = 7.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d030

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.494 \text{ S/m}$; $\epsilon_r = 52.204$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-19-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7532; ConvF(8.03, 8.03, 8.03) @ 1900 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

1900 MHz System Verification at 20.0 dBm (100 mW)

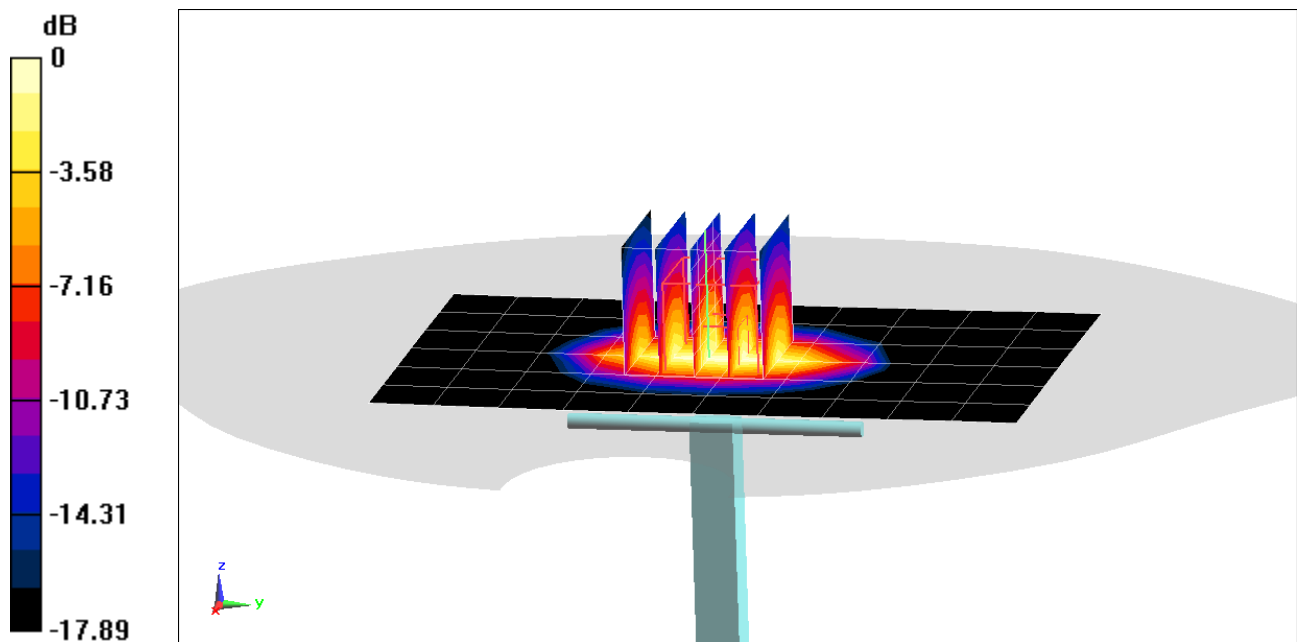
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.83 W/kg

SAR(1 g) = 4.29 W/kg

Deviation(1 g) = 7.52%



0 dB = 6.47 W/kg = 8.11 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.967 \text{ S/m}$; $\epsilon_r = 50.939$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-19-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7490; ConvF(7.87, 7.87, 7.87) @ 2450 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1532; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CA; Serial: 1275

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

2450 MHz System Verification at 20.0 dBm (100 mW)

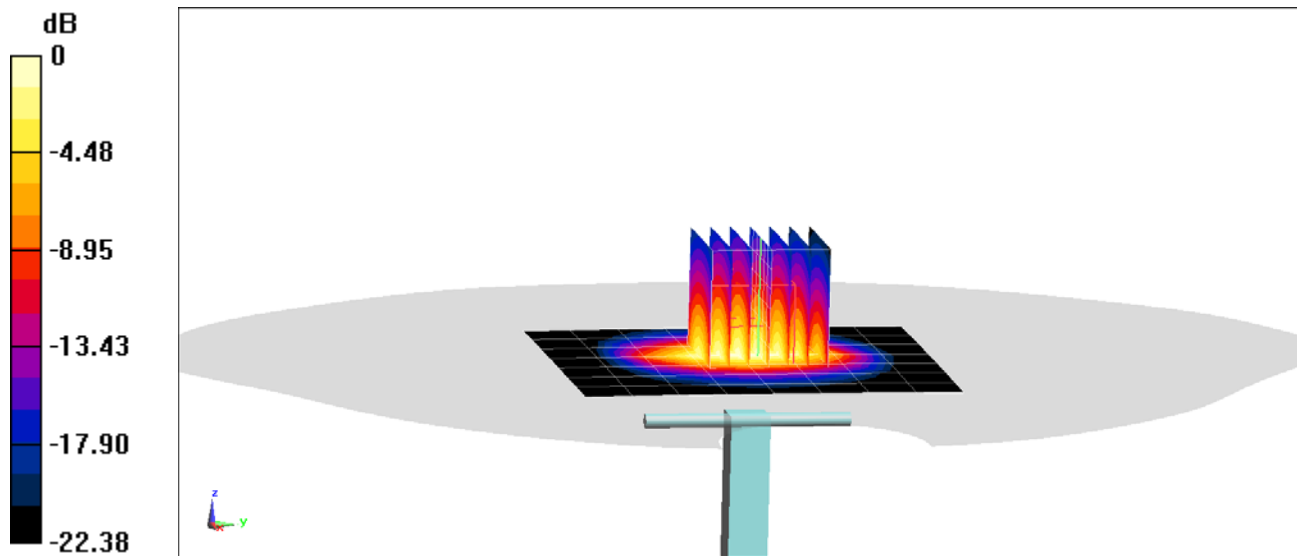
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 5.19 W/kg

Deviation(1 g) = 2.17%



0 dB = 8.65 W/kg = 9.37 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.018 \text{ S/m}$; $\epsilon_r = 52.269$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-20-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7416; ConvF(7.38, 7.38, 7.38) @ 2450 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

2450 MHz System Verification at 20.0 dBm (100 mW)

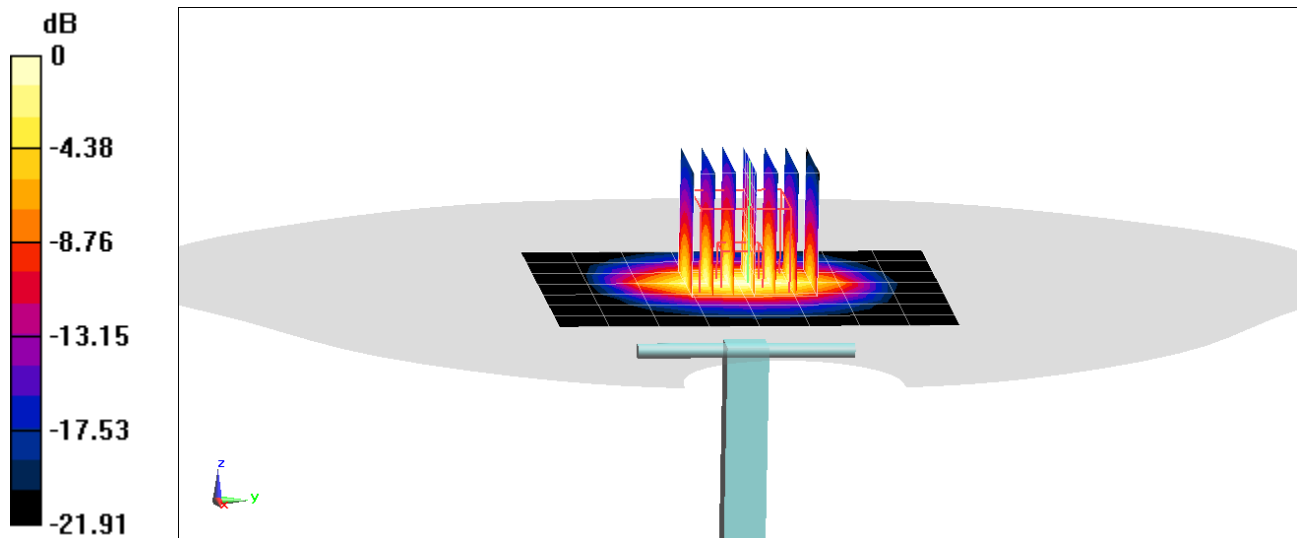
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 10.2 W/kg

SAR(1 g) = 4.88 W/kg

Deviation(1 g) = -3.94%



0 dB = 8.11 W/kg = 9.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body; Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.968 \text{ S/m}$; $\epsilon_r = 52.882$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF(7.47, 7.47, 7.47) @ 2450 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

2450 MHz System Verification at 20.0 dBm (100 mW)

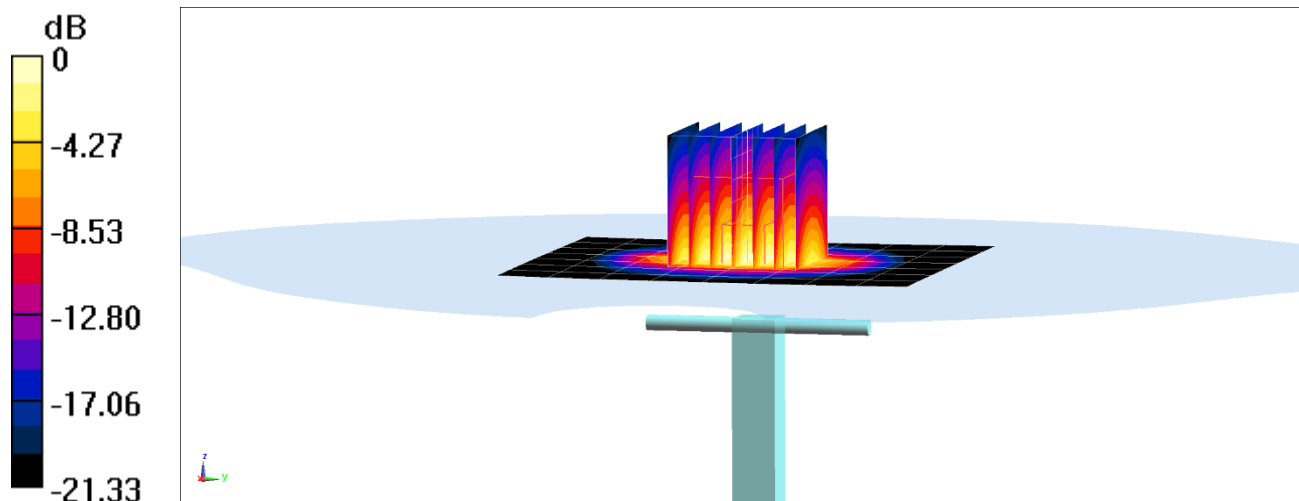
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 11.6 W/kg

SAR(1 g) = 5.47 W/kg

Deviation(1 g) = 7.68%



0 dB = 9.16 W/kg = 9.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1069

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 2.164 \text{ S/m}$; $\epsilon_r = 51.899$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-20-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7416; ConvF(7.28, 7.28, 7.28) @ 2600 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

2600 MHz System Verification at 20.0 dBm (100 mW)

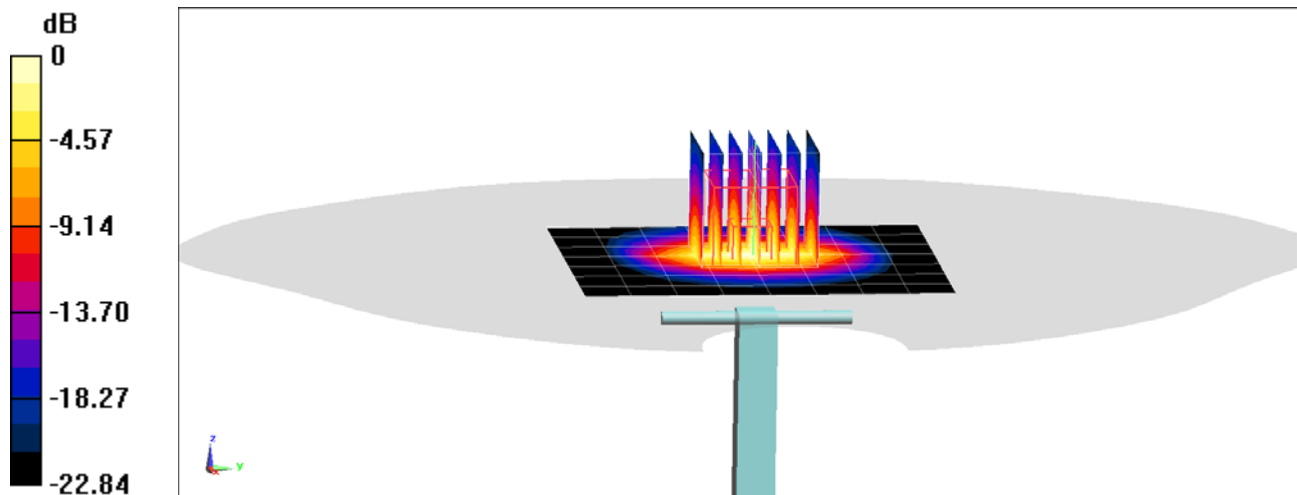
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 11.0 W/kg

SAR(1 g) = 5.13 W/kg

Deviation(1 g) = -7.23%



0 dB = 8.78 W/kg = 9.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1069

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2600$ MHz; $\sigma = 2.112$ S/m; $\epsilon_r = 52.661$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-21-2019; Ambient Temp: 21.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF(7.35, 7.35, 7.35) @ 2600 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1403; Calibrated: 2/13/2019

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

2600 MHz System Verification at 20.0 dBm (100 mW)

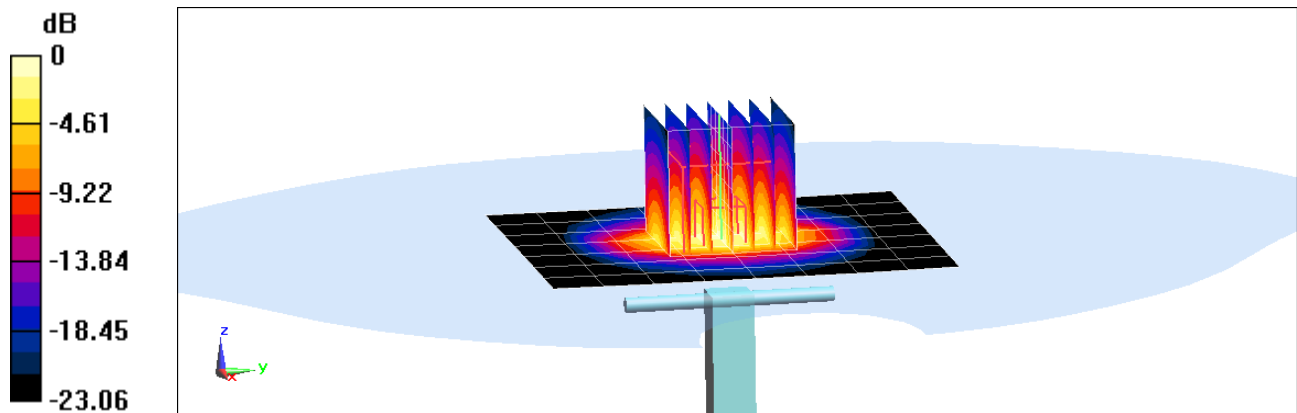
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 11.9 W/kg

SAR(1 g) = 5.37 W/kg

Deviation(1 g) = -2.89%



0 dB = 9.29 W/kg = 9.68 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used (interpolated):

$f = 5250 \text{ MHz}$; $\sigma = 5.405 \text{ S/m}$; $\epsilon_r = 48.425$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-19-2019; Ambient Temp: 21.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3837; ConvF(4.77, 4.77, 4.77) @ 5250 MHz; Calibrated: 1/28/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/15/2019

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

5250 MHz System Verification at 17.0 dBm (50 mW)

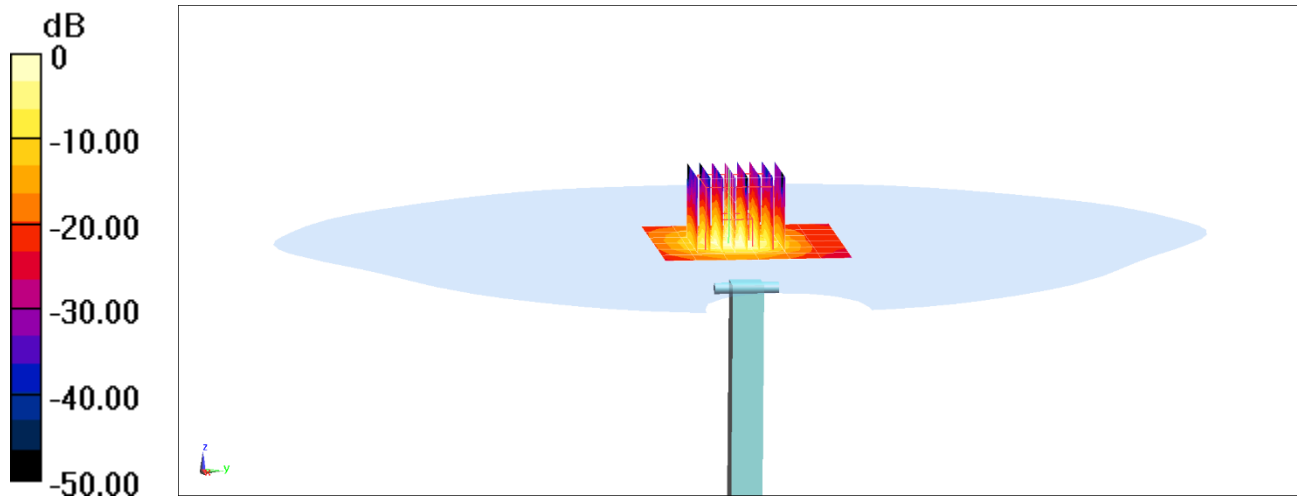
Area Scan (7x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Peak SAR (extrapolated) = 15.8 W/kg

SAR(1 g) = 3.87 W/kg

Deviation(1 g) = 4.59%



0 dB = 9.46 W/kg = 9.76 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used:

$f = 5600 \text{ MHz}$; $\sigma = 5.918 \text{ S/m}$; $\epsilon_r = 47.764$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-19-2019; Ambient Temp: 21.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3837; ConvF(4.08, 4.08, 4.08) @ 5600 MHz; Calibrated: 1/28/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/15/2019

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

5600 MHz System Verification at 17.0 dBm (50 mW)

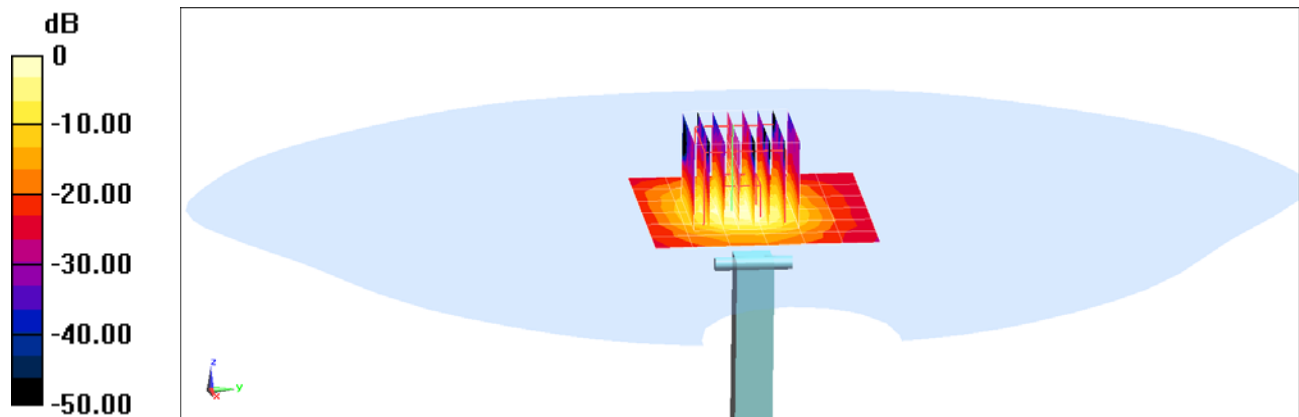
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.3 W/kg

SAR(1 g) = 3.92 W/kg

Deviation(1 g) = 1.03%



0 dB = 9.55 W/kg = 9.80 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used (interpolated):

$f = 5750 \text{ MHz}$; $\sigma = 6.146 \text{ S/m}$; $\epsilon_r = 47.474$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-19-2019; Ambient Temp: 21.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3837; ConvF(4.34, 4.34, 4.34) @ 5750 MHz; Calibrated: 1/28/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/15/2019

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7470)

5750 MHz System Verification at 17.0 dBm (50 mW)

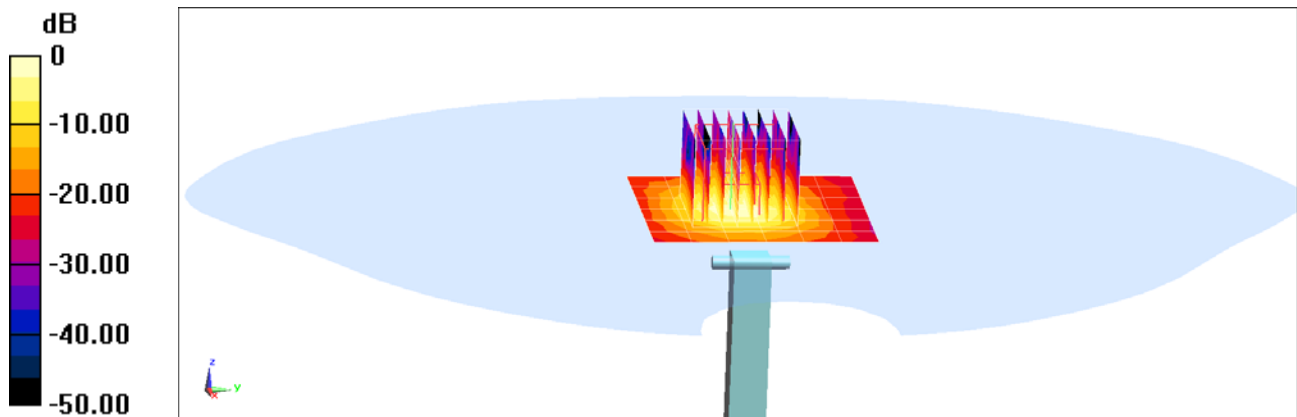
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 3.58 W/kg

Deviation(1 g) = -4.15%



0 dB = 8.98 W/kg = 9.53 dBW/kg

APPENDIX C: PROBE CALIBRATION



Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client: **PG Test**

Certificate No: **D750V3-1097_Sep17**

CALIBRATION CERTIFICATE

Object: **D750V3 - SN:1097**

Calibration procedure(s): **QA CAL-05.v9**
 Calibration procedure for dipole validation kits above 700 MHz

SC ✓
 10/03/2017

Calibration date: **September 08, 2017**

SC ✓
 9/8/2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-May-17 (No. EX3-7349_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

Calibrated by: **Claudio Leubler** Name: **Claudio Leubler** Function: **Laboratory Technician**

Signature:

Approved by: **Katja Pokojic** Name: **Katja Pokojic** Technical Manager:

Signature:

Issued: September 8, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.2 $\pm$ 6 %	0.90 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.08 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.22 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.39 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	55.5 $\pm$ 6 %	0.96 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.56 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.42 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.68 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.4 Ω - 0.6 j Ω
Return Loss	- 27.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.0 Ω - 3.6 j Ω
Return Loss	- 28.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.034 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 05, 2013

DASY5 Validation Report for Head TSL

Date: 08.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1097

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.9 \text{ S/m}$; $\epsilon_r = 41.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.49, 10.49, 10.49); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

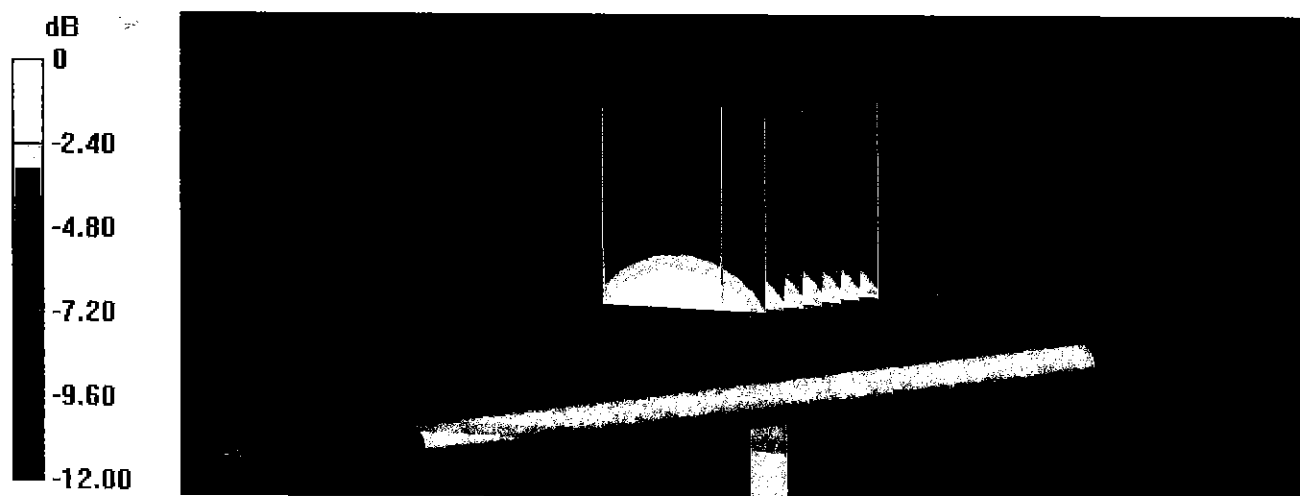
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 58.59 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.19 W/kg

SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.36 W/kg

Maximum value of SAR (measured) = 2.80 W/kg



0 dB = 2.80 W/kg = 4.47 dBW/kg

Impedance Measurement Plot for Head TSL

8 Sep 2017 13:09:24
 CH1 S11 1 U FS 1: 54.383 Ω -552.73 m Ω 383.92 pF 750.000 000 MHz

*

De1

CA

Avg
16

H1d

CH2 S11 LOG 5 dB/REF -20 dB 1:-27.463 dB 750.000 000 MHz

CA

Avg
16

H1d

START 550.000 000 MHz

STOP 950.000 000 MHz

DASY5 Validation Report for Body TSL

Date: 08.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1097

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used: $f = 750$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.35, 10.35, 10.35); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

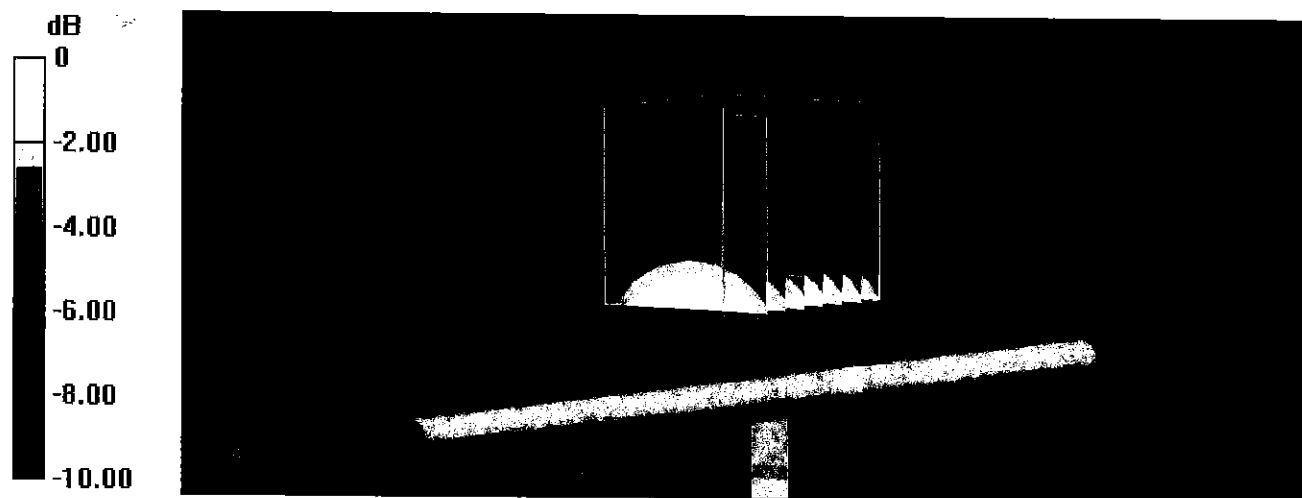
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.96 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.14 W/kg; SAR(10 g) = 1.42 W/kg

Maximum value of SAR (measured) = 2.81 W/kg



0 dB = 2.81 W/kg = 4.49 dBW/kg

Impedance Measurement Plot for Body TSL

8 Sep 2017 13:08:43
[CH1] S11 1 U FS 1: 49.951 Ω -3.6172 Ω 58.666 pF 750.000 000 MHz

*
De1
CA

Avg
15

H1d

CH2 S11 LOG 5 dB/REF -20 dB 1: -28.833 dB 750.000 000 MHz

CA

Avg
16

H1d

START 550.000 000 MHz

STOP 950.000 000 MHz

Certification of Calibration

Object D750V3 – SN: 1097

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

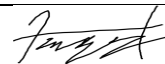
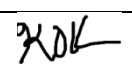
Extended Calibration date: September 08, 2018

Description: SAR Validation Dipole at 750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Network Analyzer	9/14/2017	Annual	9/14/2018	US39170118
Agilent	N5182A	MXG Vector Signal Generator	3/19/2018	Annual	3/19/2019	US46240505
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Anritsu	ML2496A	Power Meter	10/9/2017	Annual	10/9/2018	1138001
Anritsu	MA2411B	Pulse Power Sensor	11/15/2017	Annual	11/15/2018	1339007
Anritsu	MA2411B	Pulse Power Sensor	11/22/2017	Annual	11/22/2018	1339008
Control Company	4040	Temperature / Humidity Monitor	2/28/2018	Biennial	2/28/2020	150761911
Control Company	4352	Ultra Long Stem Thermometer	2/14/2017	Biennial	2/14/2019	170112507
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	ES3DV3	SAR Probe	9/18/2017	Annual	9/18/2018	3287
SPEAG	DAE4	Data Acquisition Electronics	1/26/2018	Annual	1/26/2019	1533
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7416
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/18/2018	Annual	1/18/2019	793

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Sangmin Cha	Team Lead Engineer	
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	

DIPOLE CALIBRATION EXTENSION

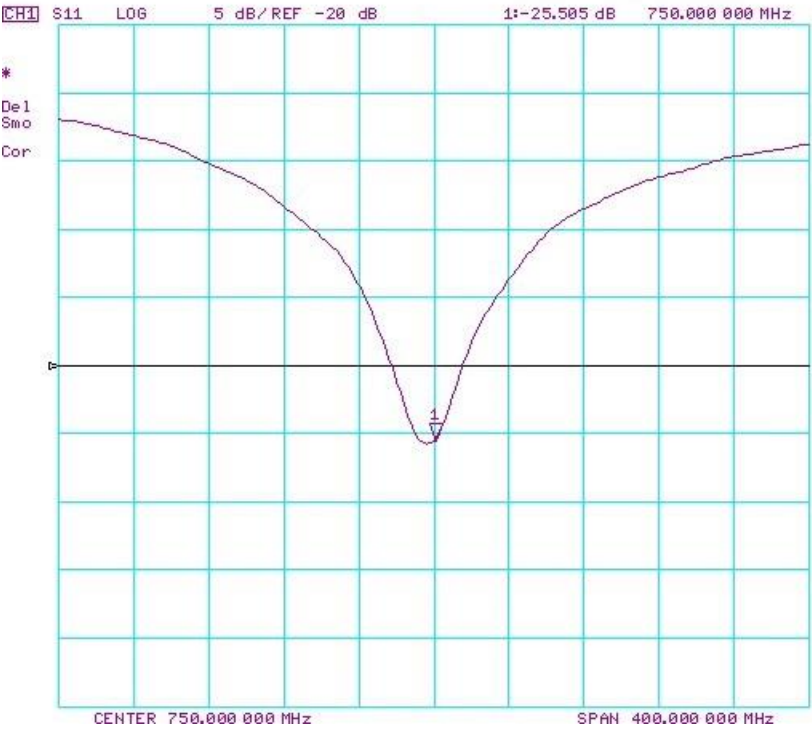
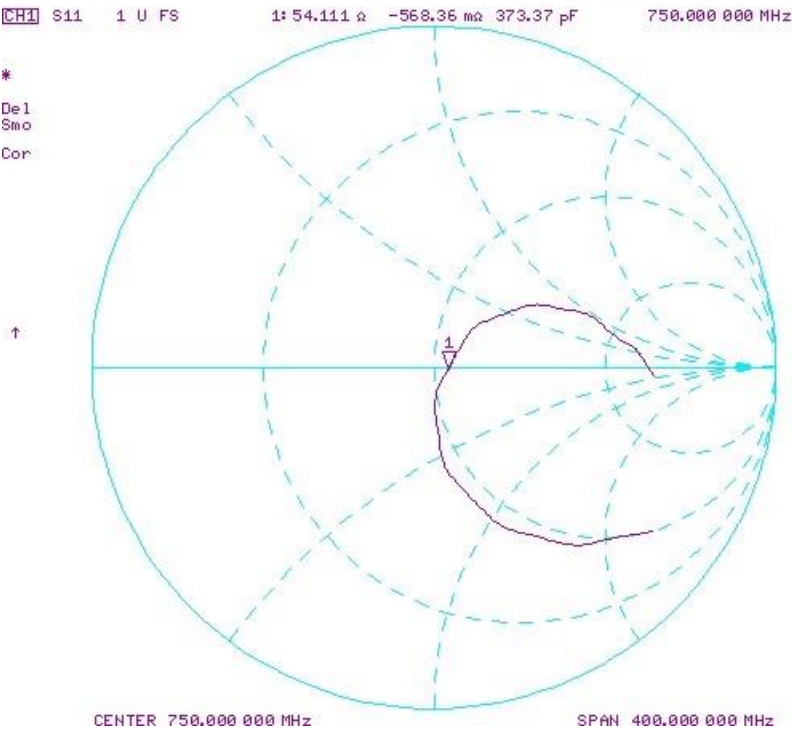
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

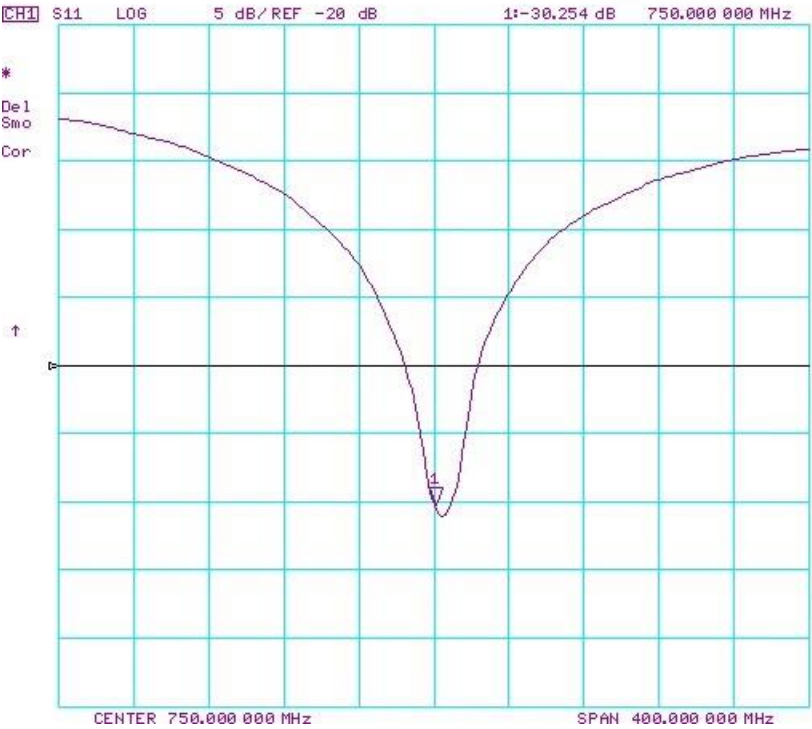
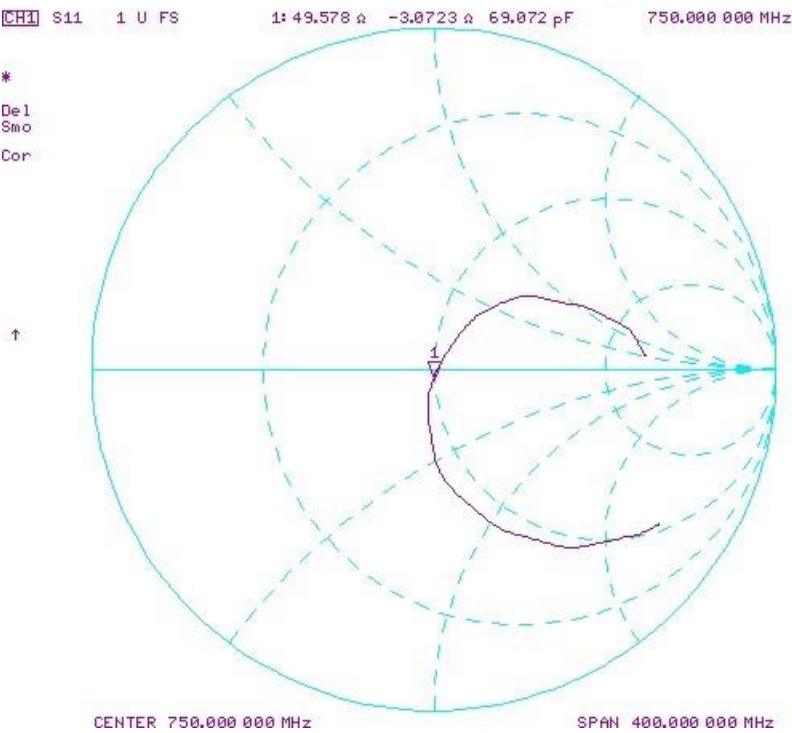
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 23.0 dBm	Measured Head SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
9/8/2017	9/8/2018	1.034	1.644	1.7	3.41%	1.078	1.12	3.90%	54.4	54.1	0.3	-0.6	-0.6	0	-27.5	-25.5	7.30%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 23.0 dBm	Measured Body SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
9/8/2017	9/8/2018	1.034	1.712	1.78	3.97%	1.136	1.17	2.99%	50	49.6	0.4	-3.6	-3.1	0.5	-28.8	-30.3	-5.20%	PASS

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D750V3-1034_May18**

CALIBRATION CERTIFICATE

Object **D750V3 - SN:1034**

Calibration procedure(s) **QA CAL-05.v10**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **May 18, 2018**

SC ✓
 5/31/2018
 BN ✓
 05/01/2019

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

Calibrated by:	Name Manu Seitz	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 22, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.0 $\pm$ 6 %	0.89 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.32 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.42 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	54.7 $\pm$ 6 %	0.96 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.15 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.57 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.42 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.67 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.3 Ω + 0.0 j Ω
Return Loss	- 26.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.0 Ω - 3.2 j Ω
Return Loss	- 29.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.034 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 06, 2011

DASY5 Validation Report for Head TSL

Date: 17.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1034

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used: $f = 750$ MHz; $\sigma = 0.89$ S/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.22, 10.22, 10.22) @ 750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

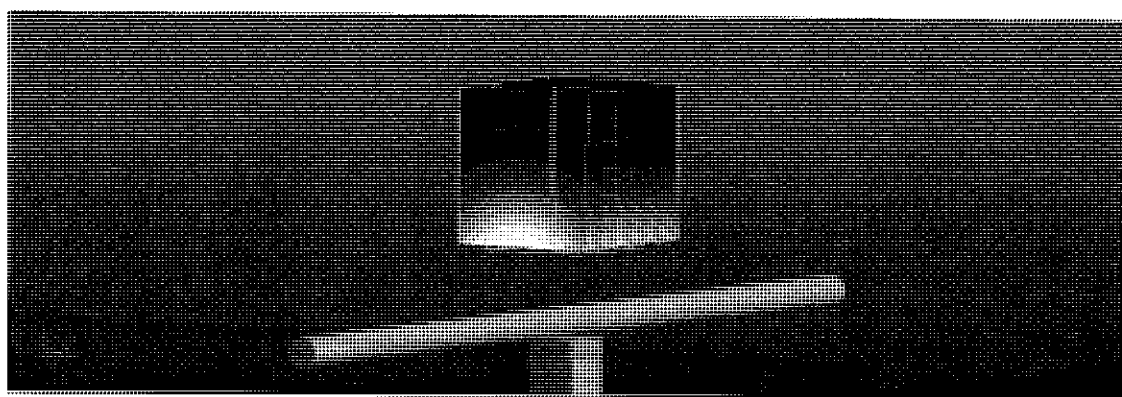
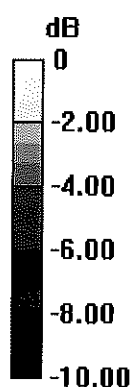
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.66 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.18 W/kg

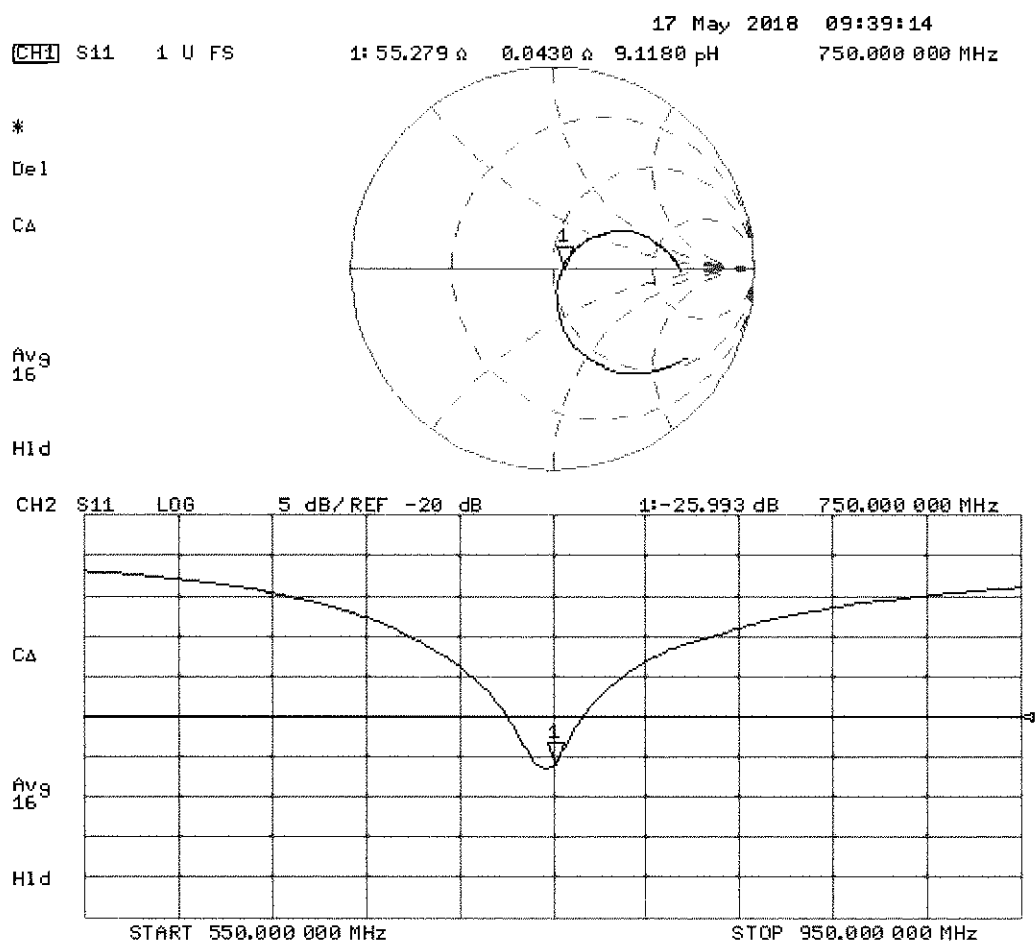
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.36 W/kg

Maximum value of SAR (measured) = 2.82 W/kg



0 dB = 2.82 W/kg = 4.50 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 18.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1034

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used: $f = 750$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.19, 10.19, 10.19) @ 750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

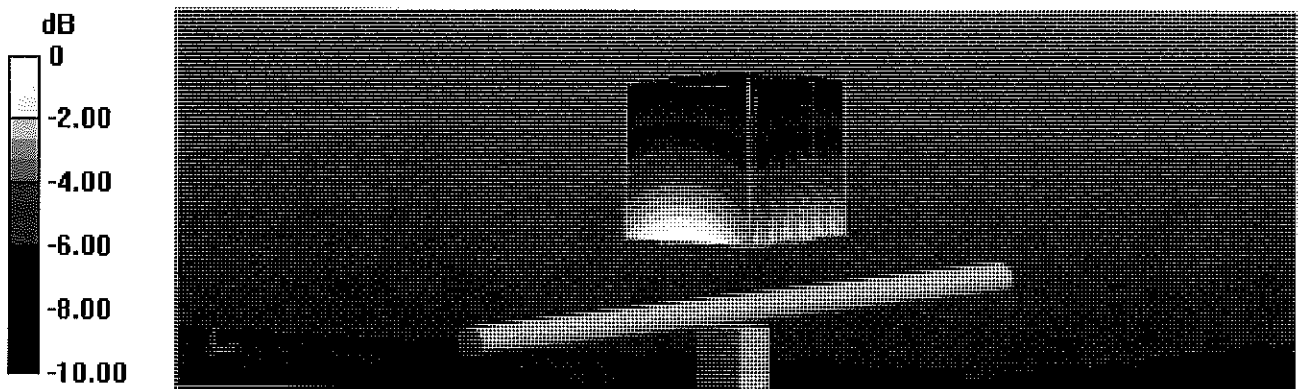
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.60 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.42 W/kg

Maximum value of SAR (measured) = 2.83 W/kg

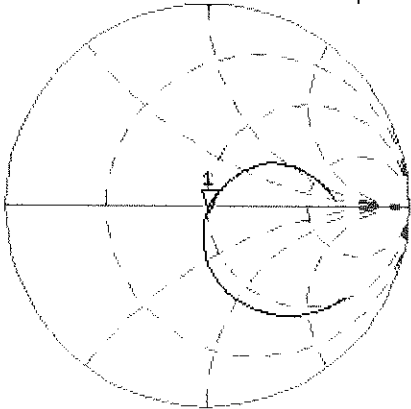


0 dB = 2.83 W/kg = 4.52 dBW/kg

Impedance Measurement Plot for Body TSL

18 May 2018 09:54:01
CH1 S11 1 U FS 1: 49.951 $\angle$ -3.2324 $\angle$ 65.649 pF 750.000 000 MHz

*
De1
Cor

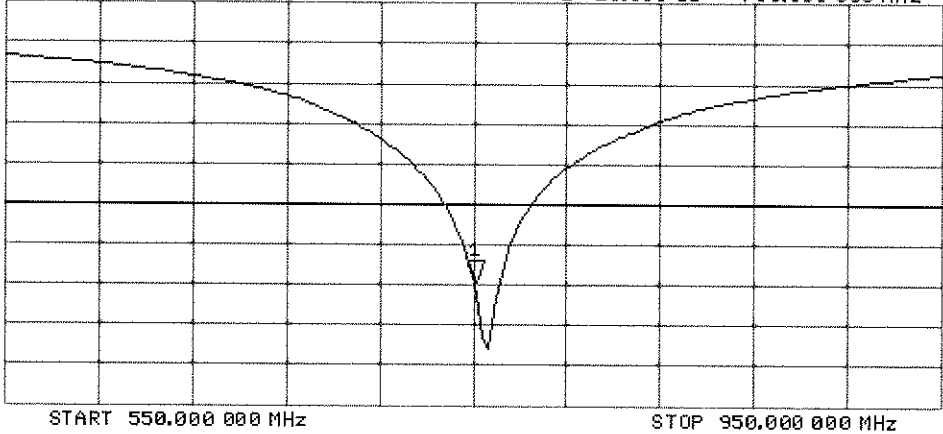


Avg
16
H1d

CH2 S11 LOG 5 dB/ REF -20 dB 1: -29.809 dB 750.000 000 MHz

Cor

Avg
16
H1d



Certification of Calibration

Object D750V3 – SN: 1034

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: May 16, 2019

Description: SAR Validation Dipole at 750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Network Analyzer	10/2/2018	Annual	10/2/2019	US39170118
Agilent	N5182A	MXG Vector Signal Generator	6/15/2018	Annual	6/15/2019	MY47420837
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	MA2411B	Pulse Power Sensor	11/20/2018	Annual	11/20/2019	1339007
Control Company	4040	Temperature / Humidity Monitor	2/28/2018	Biennial	2/28/2020	150761911
Control Company	4352	Ultra Long Stem Thermometer	2/28/2018	Biennial	2/28/2020	170330160
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
SPEAG	DAKS-3.5	Portable DAK	9/11/2018	Annual	9/11/2019	1045
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7416
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/10/2018	Annual	7/10/2019	1402

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Parker Jones	Team Lead Engineer	<i>Parker Jones</i>
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	<i>KOK</i>

DIPOLE CALIBRATION EXTENSION

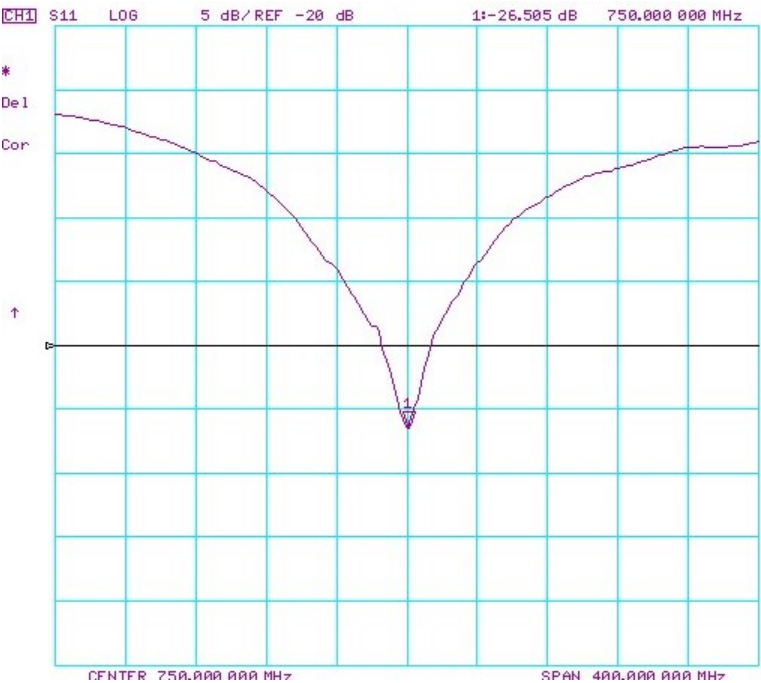
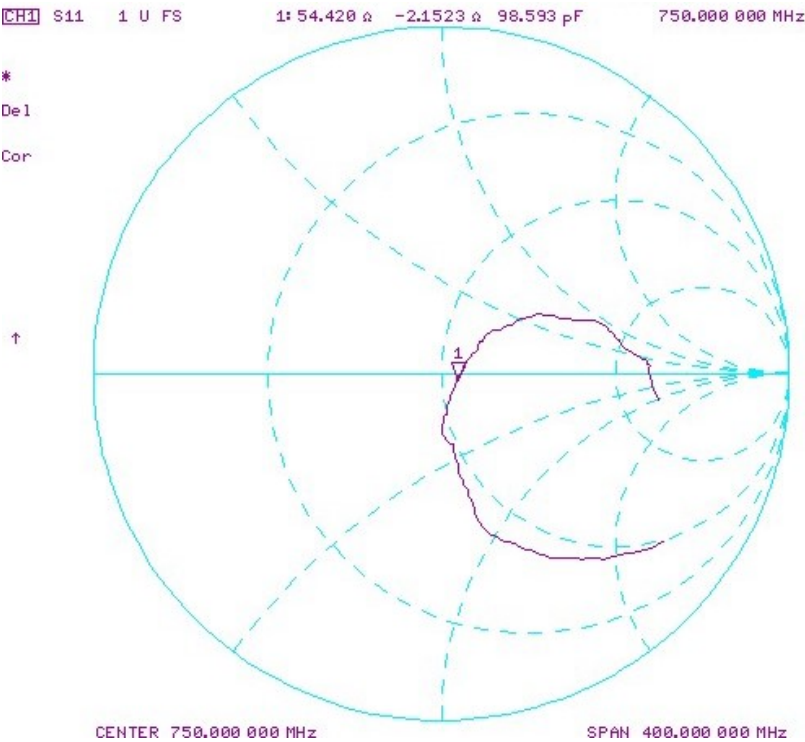
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

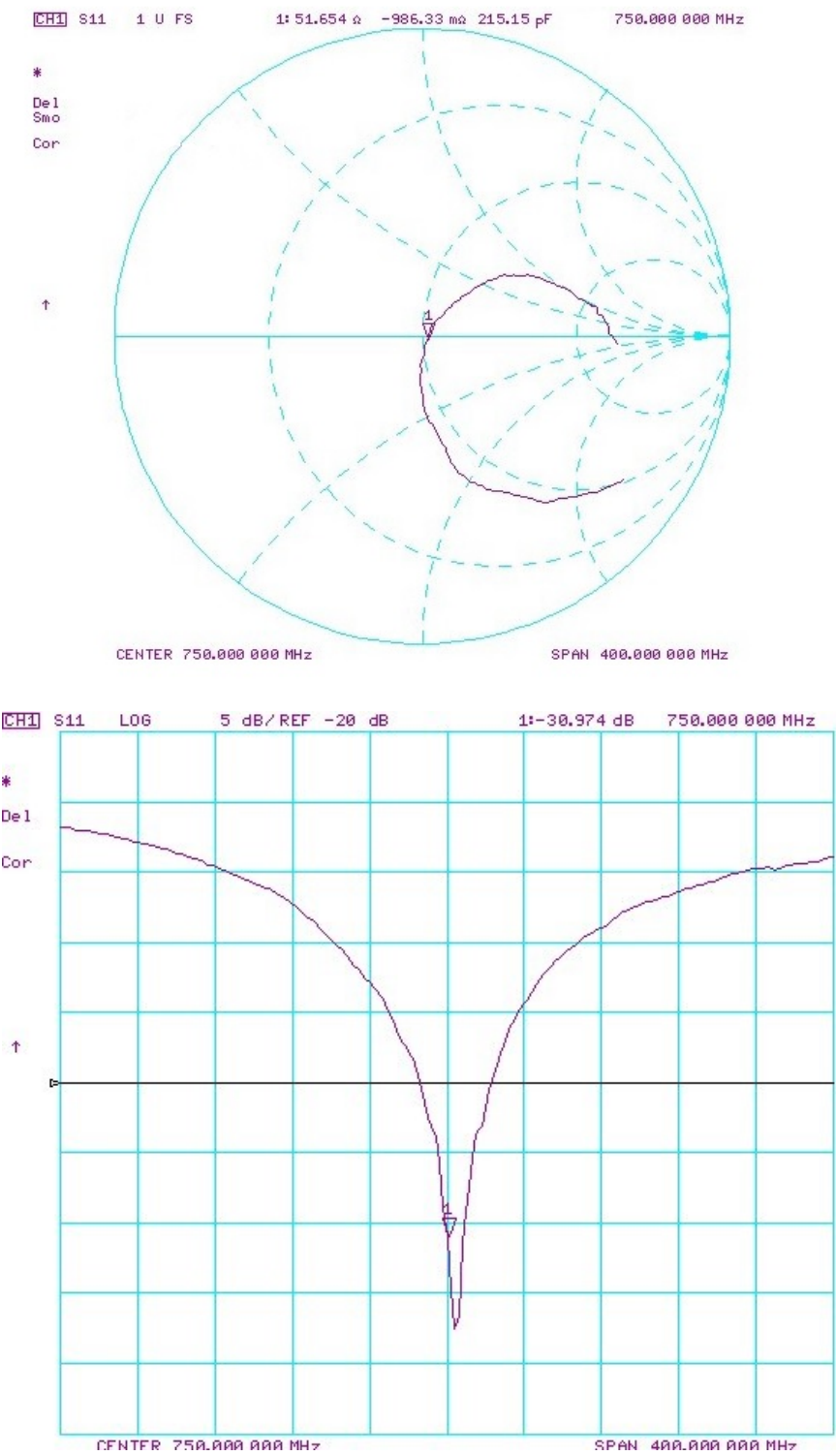
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 23.0 dBm	Measured Head SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5/18/2018	5/16/2019	1.034	1.664	1.65	-0.84%	1.064	1.08	-0.37%	55.3	54.4	0.9	0	-2.2	2.2	-26	-26.5	-1.90%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 23.0 dBm	Measured Body SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5/18/2018	5/16/2019	1.034	1.714	1.81	5.60%	1.134	1.19	4.94%	50	51.7	1.7	-3.2	-1	2.2	-29.8	-31	-3.90%	PASS

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D750V3-1057_Jun19**

CALIBRATION CERTIFICATE

Object **D750V3 - SN:1057**

Calibration procedure(s) **QA CAL-05.v11**
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

✓ ATM
 6/28/19

Calibration date: **June 20, 2019**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Reference Probe EX3DV4	SN: 7349	29-May-19 (No. EX3-7349_May19)	May-20
DAE4	SN: 601	30-Apr-19 (No. DAE4-601_Apr19)	Apr-20
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

Calibrated by: **Manu Seltz** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

[Signature of Manu Seltz]
[Signature of Katja Pokovic]

Issued: June 21, 2019

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

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Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	42.0 $\pm$ 6 %	0.88 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.11 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.52 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.52 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	55.5 $\pm$ 6 %	0.96 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.64 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.42 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.68 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$50.8 \Omega + 4.6 j\Omega$
Return Loss	- 26.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$50.5 \Omega - 3.5 j\Omega$
Return Loss	- 29.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.036 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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