FCC SAR Test Report

APPLICANT	:	ASUSTeK COMPUTER INC.
EQUIPMENT	:	ASUS Phone
BRAND NAME	:	ASUS
MODEL NAME	:	ASUS_Z016D
FCC ID	:	MSQZ016D
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)

Table of Contents

1. Statement of Compliance **4**
2. Administration Data **5**
3. Guidance Standard **5**
4. Equipment Under Test (EUT) Information **6**
4.1 General Information 6
4.2 Maximum Tune-up Limit 7
4.3 General LTE SAR Test and Reporting Considerations 8
5. RF Exposure Limits **11**
5.1 Uncontrolled Environment 11
5.2 Controlled Environment 11
6. Specific Absorption Rate (SAR) **12**
6.1 Introduction 12
6.2 SAR Definition 12
7. System Description and Setup **13**
7.1 E-Field Probe 14
7.2 Data Acquisition Electronics (DAE) 14
7.3 Phantom 15
7.4 Device Holder 16
8. Measurement Procedures **17**
8.1 Spatial Peak SAR Evaluation 17
8.2 Power Reference Measurement 18
8.3 Area Scan 18
8.4 Zoom Scan 19
8.5 Volume Scan Procedures 19
8.6 Power Drift Monitoring 19
9. Test Equipment List **20**
10. System Verification **21**
10.1 Tissue Verification 21
10.2 System Performance Check Results 23
11. RF Exposure Positions **25**
11.1 Ear and handset reference point 25
11.2 Definition of the cheek position 26
11.3 Definition of the tilt position 27
11.4 Body Worn Accessory 27
11.5 Product Specific 28
11.6 Wireless Router 28
12. Conducted RF Output Power (Unit: dBm) **29**
13. Antenna Location **127**
14. SAR Test Results **128**
14.1 Head SAR 130
14.2 Hotspot SAR 136
14.3 Product specific SAR 143
14.4 Body Worn Accessory SAR 144
14.5 Repeated SAR Measurement 148
15. Simultaneous Transmission Analysis **149**
15.1 Head Exposure Conditions 150
15.2 Hotspot Exposure Conditions 152
15.3 Product specific Exposure Conditions 154
15.4 Body-Worn Accessory Exposure Conditions 155
16. Supplemental tuner tests results **156**
16.1 Supplemental Head SAR results 156
16.2 Supplemental Body SAR results 157
17. Uncertainty Assessment **158**
18. References **161**
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement
Appendix C. DASY Calibration Certificate
Appendix D. SAR System Validation
Appendix E. Test Setup Photos

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA641901	Rev. 01	Initial issue of report	Aug. 16, 2016

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ASUSTeK COMPUTER INC., ASUS Phone, ASUS_Z016D**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary			
		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 10mm)	Product Specific (Separation 0mm)
		1g SAR (W/kg)			10g SAR (W/kg)
Licensed	GSM850	0.97	0.58	0.58	
	GSM1900	0.76	1.19	1.19	
	WCDMA II	0.49	0.74	0.69	
	WCDMA IV	0.79	1.10	1.01	
	WCDMA V	0.57	0.46	0.46	
	CDMA BC0	0.87	0.63	0.52	
	LTE Band 2	0.96	1.19	1.11	
	LTE Band 4	0.42	0.60	0.58	
	LTE Band 5	0.80	0.35	0.35	
	LTE Band 7	0.12	0.27	0.25	
	LTE Band 12	0.65	0.16	0.16	
	LTE Band 17				
	LTE Band 26	0.78	0.40	0.40	
	LTE Band 30	0.02	0.20	0.20	
	LTE Band 38	0.11	0.38	0.28	
	LTE Band 41	0.03	0.11	0.11	
DTS	2.4GHz WLAN	0.59	0.13	0.13	
U-NII	5GHz WLAN	0.40	0.10	0.13	1.47
DSS	Bluetooth			0.02	
Date of Testing:		2016/7/15 ~ 2016/8/6			

Highest Simultaneous Transmission SAR (W/kg)	RF Exposure Conditions			
	Head	Hotspot	Body worm	Product Specific
	1g SAR (W/kg)			10g SAR (W/kg)
Licensed	1.57	1.35	1.37	1.82
DTS	1.57	1.35	1.37	0.34
U-NII	1.57	1.35	1.37	1.82
DSS			1.26	0.49

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body, 4.0 W/kg for Product Specific) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	ASUSTeK COMPUTER INC.
Address	4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN

Manufacturer	
Company Name	COTEK ELECTRONICS (SUZHOU) CO., LTD.
Address	No.288, Mayun Road, Suzhou New District, Jiangsu, PRC

3. Guidance Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	ASUS Phone
Brand Name	ASUS
Model Name	ASUS_Z016D
FCC ID	MSQZ016D
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2545 MHz ~ 2655 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	· GSM/GPRS/EGPRS/DTM · RMC/AMR 12.2Kbps · HSDPA · HSUPA · DC-HSDPA · CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) · LTE: QPSK, 16QAM · 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 · Bluetooth : V4.2 with BR/EDR/LE · NFC:ASK
HW Version	REV2.0
SW Version	4.0.20.270
GSM / (E)GPRS Dual Transfer mode	Class A – EUT can support Packet Switched and Circuit Switched Network simultaneously.
EUT Stage	Production Unit

Remark:

1. WLAN operation in 5600 MHz ~ 5650 MHz is notched.
2. This device has two antennas. The Primary Cellular Antenna (LAT) is location on the bottom edge of the device and the Secondary Cellular Antenna (UAT) is location on the top edge of the device.
3. This device WLAN 2.4GHz / 5.2GHz (U-NII-1) / 5.8GHz (U-NII-3) supports Hotspot operation.
4. For WWAN LAT and UAT antennas will not transmit simultaneous at the same time and when the two antennas operating in the Head and Body exposure configuration, this device will limit different maximum output powers in several frequency bands. The detail descriptions of the power control of the mechanisms are included in the operational description.
5. For WLAN operating in the Head and Body exposure configuration, this device will limit different maximum output powers. The detail descriptions of the power control of the mechanisms are included in the operational description.
6. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the WCDMA, CDMA and LTE modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner are included in the operational description and supplemental data for additional information on section16.

4.2 Maximum Tune-up Limit

Band / Ant & configuration	WWAN LAT Head (dBm)	WWAN LAT Body (dBm)	WWAN UAT Head (dBm)	WWAN UAT Body (dBm)
GSM 850	32.5	32.5	29.5	32.5
GPRS 850, 1TX (GMSK)	32.5	32.5	29.5	32.5
GPRS 850, 2TX (GMSK)	29.5	29.5	26.5	29.5
GPRS 850, 3TX (GMSK)	29	29	26	29
GPRS 850, 4TX (GMSK)	26.5	26.5	23.5	26.5
EDGE 850, 1TX (8PSK)	27.5	27.5	24.5	27.5
EDGE 850, 2TX (8PSK)	27.5	27.5	24.5	27.5
EDGE 850, 3TX (8PSK)	27	27	24	27
EDGE 850, 4TX (8PSK)	26.5	26.5	23.5	26.5
GSM 1900	30	28.5	28	30
GPRS 1900, 1TX (GMSK)	30	28.5	28	30
GPRS 1900, 2TX (GMSK)	28	26.5	26	28
GPRS 1900, 3TX (GMSK)	28	26.5	26	28
GPRS 1900, 4TX (GMSK)	25.5	24	23.5	25.5
EDGE 1900, 1TX (8PSK)	26	24.5	24	26
EDGE 1900, 2TX (8PSK)	26	24.5	24	26
EDGE 1900, 3TX (8PSK)	25.5	24	23.5	25.5
EDGE 1900, 4TX (8PSK)	25	23.5	23	25
CDMA BC0	25	25	21	25
WCDMA II	23	19.5	19.5	23
WCDMA IV	23	23	22.5	23
WCDMA V	23	23	20	23
LTE 2	24	21	21	24
LTE 4	21.5	21.5	21.5	21.5
LTE 5	23.5	23.5	22	23.5
LTE 7	21.5	21.5		
LTE 12	23.5	23.5	23.5	23.5
LTE 17	23.5	23.5	23.5	23.5
LTE 26	23	23	22	23
LTE 30	18	18		
LTE 38	22.5	22.5		
LTE 41	18.5	18.5		

Band / configuration		Head (dBm)	Body (dBm)
Bluetooth (BR/EDR)	1Mbps	9.5	9.5
	2Mbps	6	6
	3Mbps	6	6
Bluetooth (LE)	GFSK	4	4

Band / configuration	Head (dBm)	Body (dBm)
WLAN 2.4 GHz Ant	14	18
WLAN 5GHz Ant 1	16	16
WLAN 5GHz Ant 2	11.5	16

4.3 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	MSQZ016D
Equipment Name	ASUS Phone
Operating Frequency Range of each LTE transmission band	LTE Band 02: 1850 MHz ~ 1910 MHz LTE Band 04: 1710 MHz ~ 1755 MHz LTE Band 05: 824 MHz ~ 849 MHz LTE Band 07: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2545 MHz ~ 2655 MHz
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK, 16QAM
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3** Modulation | Channel bandwidth / Transmission bandwidth (RB) | MPR (dB) 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz QPSK | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to section 12.
LTE Carrier Aggregation Additional Information	This device support CA features on 3GPP Release 11. It supports a maximum of 3 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

LTE Band 7

	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 12

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

LTE Band 17

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

LTE Band 26

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	40165	2547.5	40190	2550	40215	2552.5	40240	2555
LM	40515	2582.5	40523	2583.3	40532	2584.2	40540	2585
HM	40865	2617.5	40857	2616.7	40848	2615.8	40840	2615
H	41215	2652.5	41190	2650	41165	2647.5	41140	2645

5. RF Exposure Limits

5.1 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.

5.2 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. The 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.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

6. Specific Absorption Rate (SAR)

6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

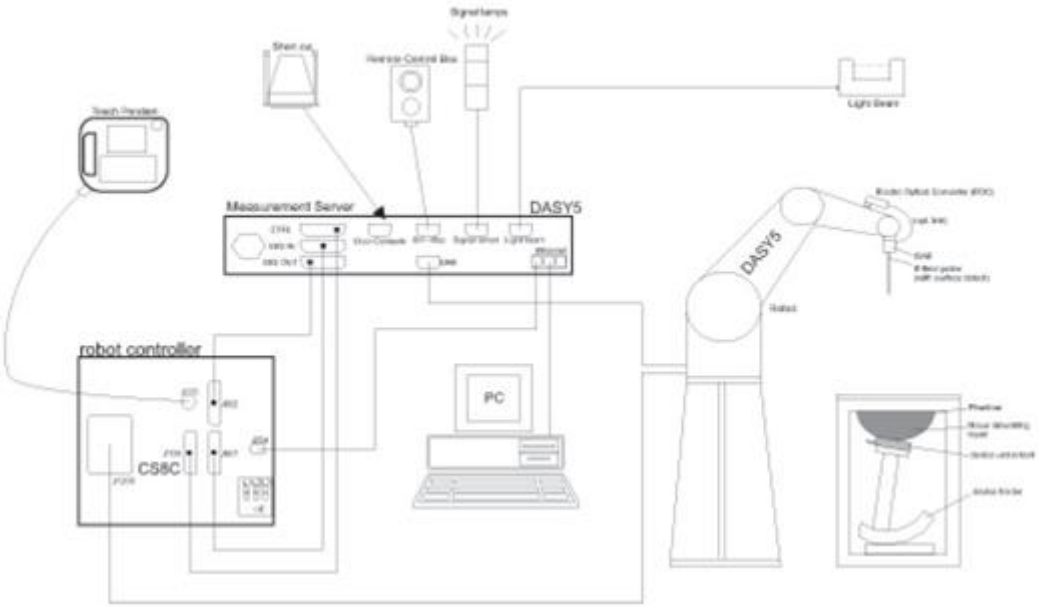
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

7. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

7.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

7.2 Data Acquisition Electronics (DAE)

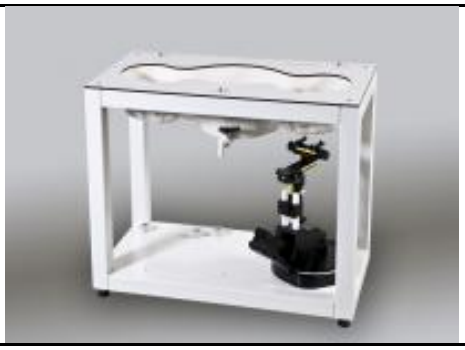
The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

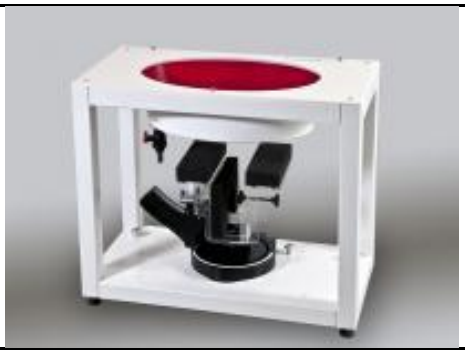
7.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix E demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

8.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 18, 2016	May. 17, 2017
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 21, 2016	Mar. 20, 2017
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 23, 2015	Nov. 22, 2016
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Oct. 22, 2015	Oct. 21, 2016
SPEAG	2300MHz System Validation Kit	D2300V2	1006	Jan. 21, 2016	Jan. 20, 2017
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 20, 2015	Aug. 19, 2016
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 19, 2015	Aug. 18, 2016
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Oct. 06, 2015	Oct. 05, 2016
SPEAG	5GHz System Validation Kit	D5GHzV2	1113	Nov. 26, 2015	Nov. 25, 2016
SPEAG	Data Acquisition Electronics	DAE3	495	May. 27, 2016	May. 26, 2017
SPEAG	Data Acquisition Electronics	DAE4	778	May. 12, 2016	May. 11, 2017
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 24, 2015	Sep. 23, 2016
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 23, 2015	Nov. 22, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 26, 2016	May. 25, 2017
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 28, 2015	Sep. 27, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 01, 2015	Sep. 30, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 24, 2015	Nov. 23, 2016
WonDer	Thermometer	WD-5015	TM642	Oct. 16, 2015	Oct. 15, 2016
WonDer	Thermometer	WD-5015	TM281	Oct. 16, 2015	Oct. 15, 2016
Wisewind	Thermometer	HTC-1	TM560	Oct. 16, 2015	Oct. 15, 2016
Wisewind	Thermometer	HTC-1	TM225	Oct. 16, 2015	Oct. 15, 2016
Anritsu	Radio Communication Analyzer	MT8820C	6201341950	Dec. 18, 2015	Dec. 17, 2016
Anritsu	Radio Communication Analyzer	MT8820C	6201381760	May. 10, 2016	May. 09, 2017
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 17, 2016	May. 16, 2017
Keysight	LTE Wireless Communication Test Set	E7515A	MY56040319	Feb. 26, 2016	Feb. 25, 2017
R&S	BT Base Station	CBT	101136	Sep. 17, 2015	Sep. 16, 2016
SPEAG	Device Holder	N/A	N/A	N/A	N/A
R&S	Signal Generator	MG3710A	6201502524	Dec. 18, 2015	Dec. 17, 2016
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 12, 2016	Jan. 11, 2017
SPEAG	Dielectric Probe Kit	DAKS-3.5	0004	Mar. 23, 2016	Mar. 22, 2017
LINE SEIKI	Digital Thermometer	LKMelectronic	DTM3000SPEZIAL/90900	Aug. 26, 2015	Aug. 25, 2016
Anritsu	Power Meter	ML2495A	1419002	May. 10, 2016	May. 09, 2017
Anritsu	Power Sensor	MA2411B	1339124	May. 10, 2016	May. 09, 2017
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 24, 2015	Aug. 23, 2016
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 16, 2016	Mar. 15, 2017
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 16, 2016	Mar. 15, 2017
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

10. System Verification

10.1 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	HSL	22.5	0.895	40.400	0.89	41.90	0.56	-3.58	±5	2016/7/19
750	HSL	22.2	0.896	43.300	0.89	41.90	0.67	3.34	±5	2016/7/22
750	MSL	22.8	0.957	56.100	0.96	55.50	-0.31	1.08	±5	2016/7/16
750	MSL	22.5	0.955	56.900	0.96	55.50	-0.52	2.52	±5	2016/7/24
835	HSL	22.6	0.872	42.900	0.90	41.50	-3.11	3.37	±5	2016/7/19
835	HSL	22.6	0.872	42.900	0.90	41.50	-3.11	3.37	±5	2016/7/19
835	HSL	22.2	0.924	40.900	0.90	41.50	2.67	-1.45	±5	2016/7/22
835	HSL	22.5	0.874	43.200	0.90	41.50	-2.89	4.10	±5	2016/7/24
835	MSL	22.8	0.961	56.300	0.97	55.20	-0.93	1.99	±5	2016/7/16
835	MSL	22.3	0.961	55.400	0.97	55.20	-0.93	0.36	±5	2016/7/23
835	MSL	22.2	0.980	57.500	0.97	55.20	1.03	4.17	±5	2016/7/26
1750	HSL	22.6	1.370	39.500	1.37	40.10	0.00	-1.50	±5	2016/7/20
1750	HSL	22.4	1.380	38.800	1.37	40.10	0.73	-3.24	±5	2016/7/21
1750	HSL	22.2	1.351	40.922	1.37	40.10	-1.39	2.05	±5	2016/8/6
1750	MSL	22.1	1.490	55.000	1.49	53.40	0.00	3.00	±5	2016/7/15
1750	MSL	22.1	1.490	55.000	1.49	53.40	0.00	3.00	±5	2016/7/15
1750	MSL	22.3	1.470	55.000	1.49	53.40	-1.34	3.00	±5	2016/7/22
1750	MSL	22.2	1.450	53.727	1.49	53.40	-2.68	0.61	±5	2016/8/6
1900	HSL	22.4	1.430	41.100	1.40	40.00	2.14	2.75	±5	2016/7/21
1900	HSL	22.5	1.420	41.100	1.40	40.00	1.43	2.75	±5	2016/7/24
1900	HSL	22.4	1.400	41.000	1.40	40.00	0.00	2.50	±5	2016/7/25
1900	MSL	22.3	1.550	54.100	1.52	53.30	1.97	1.50	±5	2016/7/22
1900	MSL	22.4	1.530	54.000	1.52	53.30	0.66	1.31	±5	2016/7/25
1900	MSL	22.5	1.560	52.600	1.52	53.30	2.63	-1.31	±5	2016/8/1
2300	HSL	22.5	1.600	38.700	1.67	39.50	-4.19	-2.03	±5	2016/8/1
2300	MSL	22.5	1.770	53.400	1.81	52.90	-2.21	0.95	±5	2016/7/26
2450	HSL	22.4	1.752	40.344	1.80	39.20	-2.67	2.92	±5	2016/7/21
2450	MSL	22.4	1.954	52.109	1.95	52.70	0.21	-1.12	±5	2016/7/21
2450	MSL	22.5	1.885	50.700	1.95	52.70	-3.33	-3.80	±5	2016/8/1
2600	HSL	22.5	1.920	38.200	1.96	39.00	-2.04	-2.05	±5	2016/7/18
2600	HSL	22.3	1.917	38.096	1.96	39.00	-2.19	-2.32	±5	2016/7/30
2600	HSL	22.6	1.909	38.431	1.96	39.00	-2.60	-1.46	±5	2016/7/31
2600	MSL	22.7	2.170	51.600	2.16	52.50	0.46	-1.71	±5	2016/7/17
2600	MSL	22.6	2.181	52.210	2.16	52.50	0.97	-0.55	±5	2016/7/30
2600	MSL	22.5	2.133	52.085	2.16	52.50	-1.25	-0.79	±5	2016/8/1
5250	HSL	22.2	4.482	37.682	4.71	35.95	-4.84	4.82	±5	2016/7/23
5250	MSL	22.3	5.275	46.904	5.36	48.95	-1.59	-4.18	±5	2016/7/24
5250	MSL	22.3	5.275	46.904	5.36	48.95	-1.59	-4.18	±5	2016/7/24
5250	MSL	22.3	5.270	46.900	5.36	48.95	-1.68	-4.19	±5	2016/8/1
5600	HSL	22.2	4.828	37.228	5.07	35.50	-4.77	4.87	±5	2016/7/23
5600	HSL	22.2	4.876	35.926	5.07	35.50	-3.83	1.20	±5	2016/7/25
5600	MSL	22.1	5.931	46.259	5.77	48.50	2.79	-4.62	±5	2016/7/26
5600	MSL	22.9	5.850	46.200	5.77	48.50	1.39	-4.74	±5	2016/7/28
5600	MSL	22.3	5.710	46.300	5.77	48.50	-1.04	-4.54	±5	2016/8/1
5750	HSL	22.2	5.126	36.120	5.22	35.35	-1.80	2.18	±5	2016/7/23
5800	HSL	22.9	5.090	35.100	5.27	35.30	-3.42	-0.57	±5	2016/7/28
5800	MSL	22.9	6.100	45.900	6.00	48.20	1.67	-4.77	±5	2016/7/28

10.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

<System Verification for 1g SAR Results >

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2016/7/19	750	HSL	250	D750V3-1012	ES3DV3 - SN3270	DAE4 Sn1399	2.20	8.21	8.80	7.19
2016/7/22	750	HSL	250	D750V3-1012	ES3DV3 - SN3270	DAE4 Sn1399	2.17	8.21	8.68	5.72
2016/7/16	750	MSL	250	D750V3-1012	ES3DV3 - SN3270	DAE4 Sn1399	2.32	8.72	9.28	6.42
2016/7/24	750	MSL	250	D750V3-1012	EX3DV4 - SN3925	DAE3 Sn495	2.15	8.72	8.60	-1.38
2016/7/19	835	HSL	250	D835V2-499	EX3DV4 - SN3931	DAE3 Sn577	2.33	9.14	9.32	1.97
2016/7/19	835	HSL	250	D835V2-499	ES3DV3 - SN3270	DAE4 Sn1399	2.39	9.14	9.56	4.60
2016/7/22	835	HSL	250	D835V2-499	ES3DV3 - SN3270	DAE4 Sn1399	2.32	9.14	9.28	1.53
2016/7/24	835	HSL	250	D835V2-499	EX3DV4 - SN3925	DAE3 Sn495	2.37	9.14	9.48	3.72
2016/7/16	835	MSL	250	D835V2-499	ES3DV3 - SN3270	DAE4 Sn1399	2.47	9.52	9.88	3.78
2016/7/23	835	MSL	250	D835V2-499	EX3DV4 - SN3925	DAE3 Sn495	2.34	9.52	9.36	-1.68
2016/7/26	835	MSL	250	D835V2-499	EX3DV4 - SN3931	DAE3 Sn577	2.33	9.52	9.32	-2.10
2016/7/20	1750	HSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1399	9.31	36.80	37.24	1.20
2016/7/21	1750	HSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1399	9.37	36.80	37.48	1.85
2016/8/6	1750	HSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.17	36.80	36.68	-0.33
2016/7/15	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.66	35.70	38.64	8.24
2016/7/15	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1399	8.56	35.70	34.24	-4.09
2016/7/22	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.54	35.70	38.16	6.89
2016/8/6	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	8.84	35.70	35.36	-0.95
2016/7/21	1900	HSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1399	10.10	39.80	40.40	1.51
2016/7/24	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.40	39.80	41.60	4.52
2016/7/25	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.40	39.80	41.60	4.52
2016/7/22	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.30	40.00	41.20	3.00
2016/7/25	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	10.20	40.00	40.80	2.00
2016/8/1	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE3 Sn577	10.00	40.00	40.00	0.00
2016/8/1	2300	HSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE3 Sn577	12.00	48.70	48.00	-1.44
2016/7/26	2300	MSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE3 Sn577	11.70	47.70	46.80	-1.89
2016/7/21	2450	HSL	250	D2450V2-736	EX3DV4 - SN3925	DAE3 Sn495	13.10	53.40	52.40	-1.87
2016/7/21	2450	MSL	250	D2450V2-736	EX3DV4 - SN3925	DAE3 Sn495	12.20	51.90	48.80	-5.97
2016/8/1	2450	MSL	250	D2450V2-736	EX3DV4 - SN3925	DAE3 Sn495	12.10	51.90	44.80	-6.74
2016/7/18	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3931	DAE3 Sn577	14.70	56.30	58.80	4.44
2016/7/30	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	14.40	56.30	57.60	2.31
2016/7/31	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	14.70	56.30	58.80	4.44
2016/7/17	2600	MSL	250	D2600V2-1008	ES3DV3 - SN3270	DAE4 Sn1399	14.30	55.80	57.20	2.51
2016/7/30	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	14.50	55.80	58.00	3.94
2016/8/1	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	13.10	55.80	52.40	-6.09
2016/7/23	5250	HSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	7.97	80.70	79.70	-1.24
2016/7/24	5250	MSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	7.55	76.50	75.50	-1.31
2016/7/24	5250	MSL	100	D5GHzV2-1113	EX3DV4 - SN3955	DAE4 Sn778	7.48	76.50	74.80	-2.22
2016/8/1	5250	MSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	7.44	76.50	74.40	-2.75
2016/7/23	5600	HSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	8.28	83.70	82.80	-1.08
2016/7/25	5600	HSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	8.54	83.70	85.40	2.03
2016/7/26	5600	MSL	100	D5GHzV2-1113	EX3DV4 - SN3925	DAE3 Sn495	8.44	82.40	84.40	2.43
2016/7/28	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3925	DAE4 Sn1399	8.28	82.30	82.80	0.61
2016/8/1	5600	MSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	7.57	82.40	75.70	-8.13
2016/7/23	5750	HSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	7.95	80.80	79.50	-1.61
2016/7/28	5800	HSL	100	D5GHzV2-1006	EX3DV4 - SN3925	DAE4 Sn1399	7.97	82.00	79.70	-2.80
2016/7/28	5800	MSL	100	D5GHzV2-1006	EX3DV4 - SN3925	DAE4 Sn1399	8.64	79.00	86.40	9.37

<System Verification for 10g SAR Results

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2016/7/24	5250	MSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	2.10	21.50	21.00	-2.33
2016/7/24	5250	MSL	100	D5GHzV2-1113	EX3DV4 - SN3955	DAE4 Sn778	2.05	21.50	20.50	-4.65
2016/8/1	5250	MSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	2.03	21.50	20.30	-5.58
2016/7/26	5600	MSL	100	D5GHzV2-1113	EX3DV4 - SN3925	DAE3 Sn495	2.25	23.00	22.50	-2.17
2016/7/28	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3925	DAE4 Sn1399	2.18	23.00	21.80	-5.22
2016/8/1	5600	MSL	100	D5GHzV2-1113	EX3DV4 - SN3931	DAE3 Sn577	2.08	23.00	20.10	-9.57

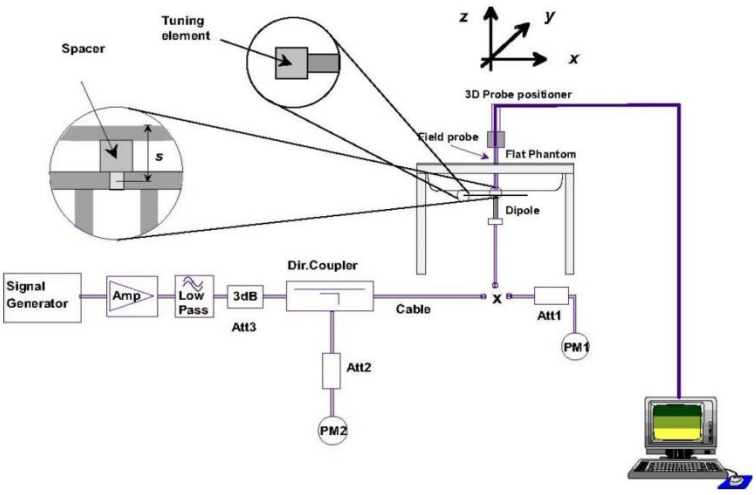


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

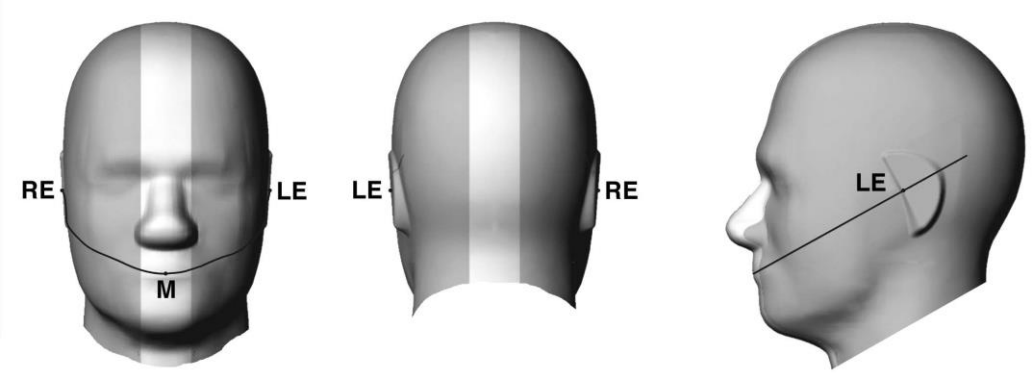


Fig 9.1.1 Front, back, and side views of SAM twin phantom

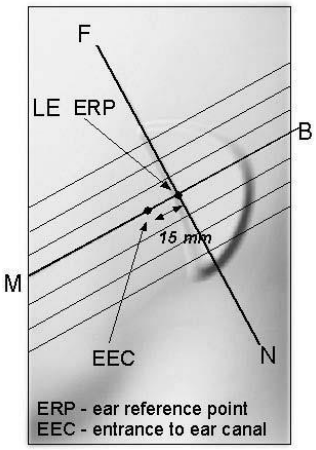


Fig 9.1.2 Close-up side view of phantom showing the ear region.

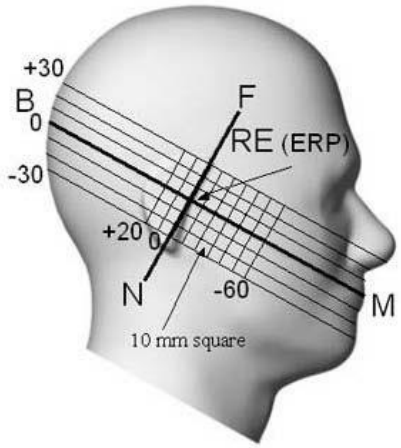


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

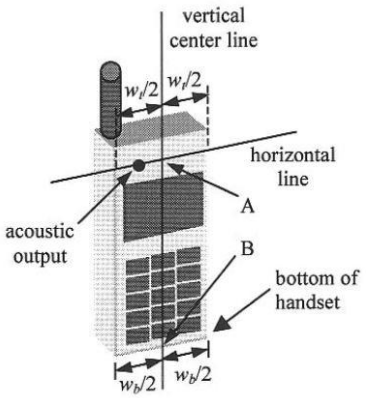


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

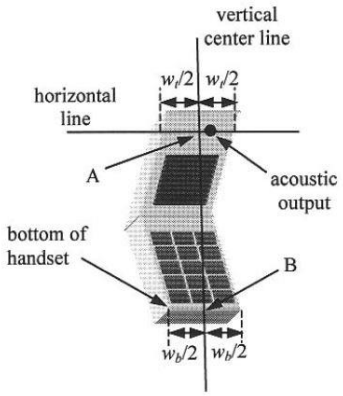


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

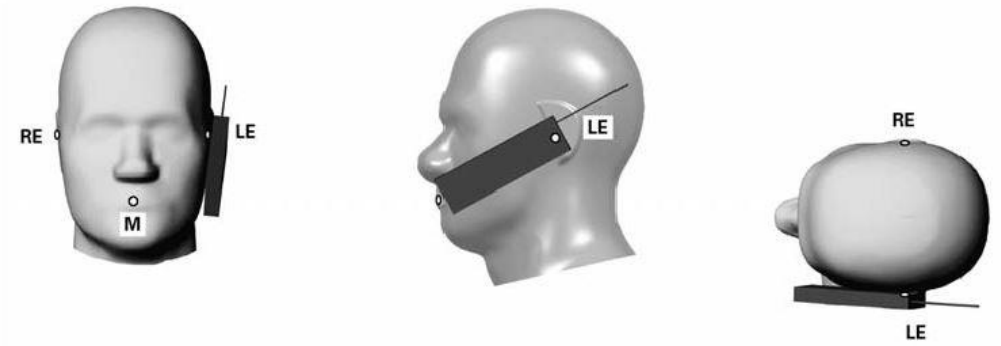


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

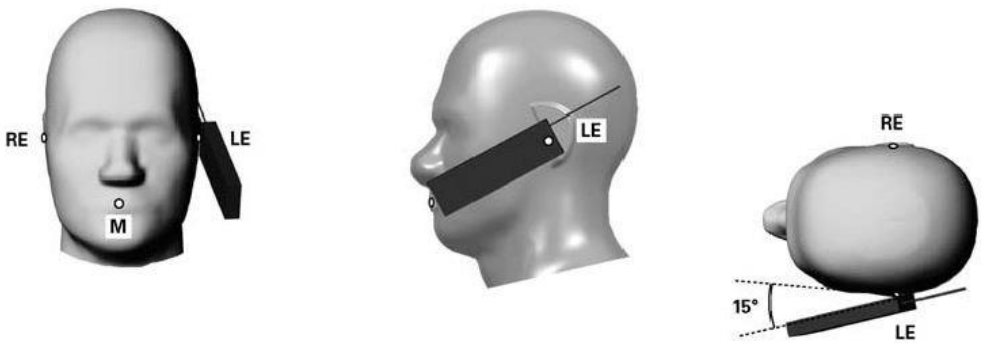


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is < 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

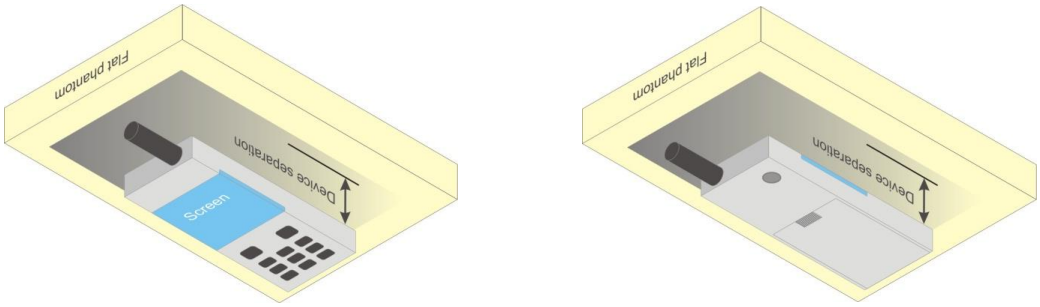


Fig 9.4 Body Worn Position

11.5 Product Specific

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g Product Specific SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g Product Specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

11.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. For DTM multi-slot class mode, the device was linked with base station simulator (Agilent E5515C) and transmit maximum power on maximum number of TX slots, i.e. one CS timeslot, and additional PS timeslots (1 for DTM class 5 and 9, 2 for DTM class 11) in one TDMA frame.
2. Agilent E5515C was used to setup the device operated under DTM mode for power measurement and SAR testing. For conducted power, the power of the burst for voice and the power of the bursts for data was reported separately in the table above, and the frame-average power is derived below to determine SAR testing.

   *DTM frame average power (dBm) = 10*log [∑(power of each slot, in mW)/8]*
3. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE / DTM modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the DTM Multi-slot class 11 for GSM850/GSM1900 is considered as the primary mode.
5. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<Head mode for WWAN UAT>

Band GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		128	189	251		128	189	251	
Frequency (MHz)		824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot		29.49	29.41	29.16	29.50	20.49	20.41	20.16	20.50
GPRS 1 Tx slot		29.36	29.22	28.93	29.50	20.36	20.22	19.93	20.50
GPRS 2 Tx slots		26.36	26.24	25.97	26.50	20.36	20.24	19.97	20.50
GPRS 3 Tx slots		25.52	25.28	25.07	26.00	21.26	21.02	20.81	21.74
GPRS 4 Tx slots		23.37	23.18	22.89	23.50	20.37	20.18	19.89	20.50
EDGE 1 Tx slot		24.32	24.07	23.86	24.50	15.32	15.07	14.86	15.50
EDGE 2 Tx slots		24.12	23.82	23.58	24.50	18.12	17.82	17.58	18.50
EDGE 3 Tx slots		23.86	23.57	23.38	24.00	19.60	19.31	19.12	19.74
EDGE 4 Tx slots		23.13	22.86	22.64	23.50	20.13	19.86	19.64	20.50
DTM 5 (2Tx slots)	GSM 1 Tx slot	26.22	26.14	25.83	26.50	20.24	20.15	19.83	20.48
	GPRS 1 Tx slot	26.30	26.21	25.88	26.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	26.14	26.13	25.72	26.50	20.15	20.10	19.74	20.48
	GPRS 1 Tx slot	26.20	26.11	25.80	26.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	25.54	25.30	25.11	26.00	21.27	21.03	20.82	21.74
	GPRS 2 Tx slots	25.52	25.28	25.07	26.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	26.18	26.04	25.86	26.50	19.20	19.00	18.81	19.59
	EDGE 1 Tx slot	23.99	23.69	23.48	24.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	26.12	25.96	25.80	26.50	19.13	18.91	18.74	19.59
	EDGE 1 Tx slot	23.91	23.59	23.38	24.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	25.40	25.15	24.97	26.00	20.15	19.84	19.71	20.51
	EDGE 2 Tx slots	23.82	23.46	23.36	24.00				

Band GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot		27.23	27.34	27.72	28.00	18.23	18.34	18.72	19.00
GPRS 1 Tx slot		27.26	27.34	27.66	28.00	18.26	18.34	18.66	19.00
GPRS 2 Tx slots		25.42	25.39	25.78	26.00	19.42	19.39	19.78	20.00
GPRS 3 Tx slots		25.19	25.12	25.54	26.00	20.93	20.86	21.28	21.74
GPRS 4 Tx slots		22.77	22.78	23.01	23.50	19.77	19.78	20.01	20.50
EDGE 1 Tx slot		23.55	23.40	23.73	24.00	14.55	14.40	14.73	15.00
EDGE 2 Tx slots		23.27	23.17	23.46	24.00	17.27	17.17	17.46	18.00
EDGE 3 Tx slots		22.95	22.80	23.17	23.50	18.69	18.54	18.91	19.24
EDGE 4 Tx slots		22.68	22.48	22.78	23.00	19.68	19.48	19.78	20.00
DTM 5 (2Tx slots)	GSM 1 Tx slot	25.28	25.24	25.60	26.00	19.29	19.27	19.62	19.98
	GPRS 1 Tx slot	25.35	25.34	25.69	26.00				
DTM 9 (2Tx slots)	GSM 1 Tx slot	25.20	25.21	25.54	26.00	19.23	19.22	19.58	19.98
	GPRS 1 Tx slot	25.31	25.28	25.67	26.00				
DTM 11 (3Tx slots)	GSM 1 Tx slot	25.21	25.16	25.59	26.00	20.94	20.87	21.30	21.74
	GPRS 2 Tx slots	25.19	25.12	25.54	26.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	25.30	25.19	25.67	26.00	18.31	18.23	18.65	19.09
	EDGE 1 Tx slot	23.08	23.04	23.36	24.00				
DTM 9 (2Tx slots)	GSM 1 Tx slot	25.22	25.09	25.65	26.00	18.23	18.14	18.60	19.09
	EDGE 1 Tx slot	23.01	22.97	23.28	24.00				
DTM 11 (3Tx slots)	GSM 1 Tx slot	25.06	25.01	25.44	26.00	19.45	19.40	19.76	20.24
	EDGE 2 Tx slots	22.84	22.79	23.08	23.50				

<Head mode for WWAN LAT>

Band GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		128	189	251		128	189	251	
Frequency (MHz)		824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot		31.88	32.05	32.20	32.50	22.88	23.05	23.20	23.50
GPRS 1 Tx slot		32.03	32.24	32.32	32.50	23.03	23.24	23.32	23.50
GPRS 2 Tx slots		29.31	29.30	29.37	29.50	23.31	23.30	23.37	23.50
GPRS 3 Tx slots		28.96	28.92	28.91	29.00	24.70	24.66	24.65	24.74
GPRS 4 Tx slots		26.49	26.43	26.50	26.50	23.49	23.43	23.50	23.50
EDGE 1 Tx slot		27.28	27.26	27.23	27.50	18.28	18.26	18.23	18.50
EDGE 2 Tx slots		27.05	27.02	27.01	27.50	21.05	21.02	21.01	21.50
EDGE 3 Tx slots		26.81	26.78	26.68	27.00	22.55	22.52	22.42	22.74
EDGE 4 Tx slots		26.50	26.46	26.43	26.50	23.50	23.46	23.43	23.50
DTM 5 (2Tx slots)	GSM 1 Tx slot	29.21	29.19	29.31	29.50	23.24	23.20	23.31	23.48
	GPRS 1 Tx slot	29.31	29.26	29.36	29.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	29.22	29.21	29.31	29.50	23.24	23.22	23.32	23.48
	GPRS 1 Tx slot	29.30	29.27	29.37	29.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	28.98	28.94	28.93	29.00	24.71	24.67	24.66	24.74
	GPRS 2 Tx slots	28.96	28.92	28.91	29.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	29.23	29.24	29.28	29.50	22.24	22.25	22.27	22.59
	EDGE 1 Tx slot	27.02	27.01	27.00	27.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	29.22	29.21	29.26	29.50	22.22	22.21	22.25	22.59
	EDGE 1 Tx slot	26.98	26.97	26.99	27.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	28.91	28.86	28.88	29.00	23.34	23.30	23.27	23.51
	EDGE 2 Tx slots	26.76	26.72	26.66	27.00				

Band GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot		29.57	29.28	29.06	30.00	20.57	20.28	20.06	21.00
GPRS 1 Tx slot		29.63	29.33	29.09	30.00	20.63	20.33	20.09	21.00
GPRS 2 Tx slots		27.71	27.75	27.80	28.00	21.71	21.75	21.80	22.00
GPRS 3 Tx slots		27.34	27.42	27.45	28.00	23.08	23.16	23.19	23.74
GPRS 4 Tx slots		25.14	25.24	25.41	25.50	22.14	22.24	22.41	22.50
EDGE 1 Tx slot		25.98	25.97	25.99	26.00	16.98	16.97	16.99	17.00
EDGE 2 Tx slots		25.73	25.72	25.77	26.00	19.73	19.72	19.77	20.00
EDGE 3 Tx slots		25.50	25.43	25.38	25.50	21.24	21.17	21.12	21.24
EDGE 4 Tx slots		24.73	24.67	24.77	25.00	21.73	21.67	21.77	22.00
DTM 5 (2Tx slots)	GSM 1 Tx slot	27.61	27.71	27.72	28.00	21.62	21.70	21.73	21.98
	GPRS 1 Tx slot	27.68	27.74	27.78	28.00				
DTM 9 (2Tx slots)	GSM 1 Tx slot	27.58	27.68	27.70	28.00	21.61	21.69	21.71	21.98
	GPRS 1 Tx slot	27.69	27.75	27.77	28.00				
DTM 11 (3Tx slots)	GSM 1 Tx slot	27.36	27.44	27.46	28.00	23.09	23.17	23.19	23.74
	GPRS 2 Tx slots	27.34	27.42	27.45	28.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	27.65	27.72	27.75	28.00	20.77	20.81	20.84	21.09
	EDGE 1 Tx slot	25.72	25.71	25.73	26.00				
DTM 9 (2Tx slots)	GSM 1 Tx slot	27.63	27.71	27.73	28.00	20.75	20.80	20.82	21.09
	EDGE 1 Tx slot	25.70	25.71	25.73	26.00				
DTM 11 (3Tx slots)	GSM 1 Tx slot	27.29	27.38	27.42	28.00	21.90	21.91	21.90	22.24
	EDGE 2 Tx slots	25.46	25.41	25.36	25.50				

<Body mode for WWAN UAT>

Band GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		128	189	251		128	189	251	
Frequency (MHz)		824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot		31.88	32.05	32.20	32.50	22.88	23.05	23.20	23.50
GPRS 1 Tx slot		32.03	32.24	32.32	32.50	23.03	23.24	23.32	23.50
GPRS 2 Tx slots		29.31	29.30	29.37	29.50	23.31	23.30	23.37	23.50
GPRS 3 Tx slots		28.96	28.92	28.91	29.00	24.70	24.66	24.65	24.74
GPRS 4 Tx slots		26.49	26.43	26.50	26.50	23.49	23.43	23.50	23.50
EDGE 1 Tx slot		27.28	27.26	27.23	27.50	18.28	18.26	18.23	18.50
EDGE 2 Tx slots		27.05	27.02	27.01	27.50	21.05	21.02	21.01	21.50
EDGE 3 Tx slots		26.81	26.78	26.68	27.00	22.55	22.52	22.42	22.74
EDGE 4 Tx slots		26.50	26.46	26.43	26.50	23.50	23.46	23.43	23.50
DTM 5 (2Tx slots)	GSM 1 Tx slot	29.21	29.19	29.31	29.50	23.24	23.20	23.31	23.48
	GPRS 1 Tx slot	29.31	29.26	29.36	29.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	29.22	29.21	29.31	29.50	23.24	23.22	23.32	23.48
	GPRS 1 Tx slot	29.30	29.27	29.37	29.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	28.98	28.94	28.93	29.00	24.71	24.67	24.66	24.74
	GPRS 2 Tx slots	28.96	28.92	28.91	29.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	29.23	29.24	29.28	29.50	22.24	22.25	22.27	22.59
	EDGE 1 Tx slot	27.02	27.01	27.00	27.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	29.22	29.21	29.26	29.50	22.22	22.21	22.25	22.59
	EDGE 1 Tx slot	26.98	26.97	26.99	27.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	28.91	28.86	28.88	29.00	23.34	23.30	23.27	23.51
	EDGE 2 Tx slots	26.76	26.72	26.66	27.00				

Band GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot		29.57	29.28	29.06	30.00	20.57	20.28	20.06	21.00
GPRS 1 Tx slot		29.63	29.33	29.09	30.00	20.63	20.33	20.09	21.00
GPRS 2 Tx slots		27.71	27.75	27.80	28.00	21.71	21.75	21.80	22.00
GPRS 3 Tx slots		27.34	27.42	27.45	28.00	23.08	23.16	23.19	23.74
GPRS 4 Tx slots		25.14	25.24	25.41	25.50	22.14	22.24	22.41	22.50
EDGE 1 Tx slot		25.98	25.97	25.99	26.00	16.98	16.97	16.99	17.00
EDGE 2 Tx slots		25.73	25.72	25.77	26.00	19.73	19.72	19.77	20.00
EDGE 3 Tx slots		25.50	25.43	25.38	25.50	21.24	21.17	21.12	21.24
EDGE 4 Tx slots		24.73	24.67	24.77	25.00	21.73	21.67	21.77	22.00
DTM 5 (2Tx slots)	GSM 1 Tx slot	27.61	27.71	27.72	28.00	21.62	21.70	21.73	21.98
	GPRS 1 Tx slot	27.68	27.74	27.78	28.00				
DTM 9 (2Tx slots)	GSM 1 Tx slot	27.58	27.68	27.70	28.00	21.61	21.69	21.71	21.98
	GPRS 1 Tx slot	27.69	27.75	27.77	28.00				
DTM 11 (3Tx slots)	GSM 1 Tx slot	27.36	27.44	27.46	28.00	23.09	23.17	23.19	23.74
	GPRS 2 Tx slots	27.34	27.42	27.45	28.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	27.65	27.72	27.75	28.00	20.77	20.81	20.84	21.09
	EDGE 1 Tx slot	25.72	25.71	25.73	26.00				
DTM 9 (2Tx slots)	GSM 1 Tx slot	27.63	27.71	27.73	28.00	20.75	20.80	20.82	21.09
	EDGE 1 Tx slot	25.70	25.71	25.73	26.00				
DTM 11 (3Tx slots)	GSM 1 Tx slot	27.29	27.38	27.42	28.00	21.90	21.91	21.90	22.24
	EDGE 2 Tx slots	25.46	25.41	25.36	25.50				

<Body mode for WWAN LAT>

Band GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		128	189	251		128	189	251	
Frequency (MHz)		824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot		31.88	32.05	32.20	32.50	22.88	23.05	23.20	23.50
GPRS 1 Tx slot		32.03	32.24	32.32	32.50	23.03	23.24	23.32	23.50
GPRS 2 Tx slots		29.31	29.30	29.37	29.50	23.31	23.30	23.37	23.50
GPRS 3 Tx slots		28.96	28.92	28.91	29.00	24.70	24.66	24.65	24.74
GPRS 4 Tx slots		26.49	26.43	26.50	26.50	23.49	23.43	23.50	23.50
EDGE 1 Tx slot		27.28	27.26	27.23	27.50	18.28	18.26	18.23	18.50
EDGE 2 Tx slots		27.05	27.02	27.01	27.50	21.05	21.02	21.01	21.50
EDGE 3 Tx slots		26.81	26.78	26.68	27.00	22.55	22.52	22.42	22.74
EDGE 4 Tx slots		26.50	26.46	26.43	26.50	23.50	23.46	23.43	23.50
DTM 5 (2Tx slots)	GSM 1 Tx slot	29.21	29.19	29.31	29.50	23.24	23.20	23.31	23.48
	GPRS 1 Tx slot	29.31	29.26	29.36	29.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	29.22	29.21	29.31	29.50	23.24	23.22	23.32	23.48
	GPRS 1 Tx slot	29.30	29.27	29.37	29.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	28.98	28.94	28.93	29.00	24.71	24.67	24.66	24.74
	GPRS 2 Tx slots	28.96	28.92	28.91	29.00				
DTM 5 (2Tx slots)	GSM 1 Tx slot	29.23	29.24	29.28	29.50	22.24	22.25	22.27	22.59
	EDGE 1 Tx slot	27.02	27.01	27.00	27.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	29.22	29.21	29.26	29.50	22.22	22.21	22.25	22.59
	EDGE 1 Tx slot	26.98	26.97	26.99	27.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	28.91	28.86	28.88	29.00	23.34	23.30	23.27	23.51
	EDGE 2 Tx slots	26.76	26.72	26.66	27.00				

Band GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot		27.73	27.39	28.03	28.50	18.73	18.39	19.03	19.50
GPRS 1 Tx slot		27.77	27.40	28.06	28.50	18.77	18.40	19.06	19.50
GPRS 2 Tx slots		26.04	25.95	26.37	26.50	20.04	19.95	20.37	20.50
GPRS 3 Tx slots		25.91	25.85	26.18	26.50	21.65	21.59	21.92	22.24
GPRS 4 Tx slots		23.20	23.14	23.51	24.00	20.20	20.14	20.51	21.00
EDGE 1 Tx slot		24.05	23.88	24.20	24.50	15.05	14.88	15.20	15.50
EDGE 2 Tx slots		23.76	23.65	23.94	24.50	17.76	17.65	17.94	18.50
EDGE 3 Tx slots		23.46	23.32	23.56	24.00	19.20	19.06	19.30	19.74
EDGE 4 Tx slots		23.90	23.05	23.31	23.50	20.90	20.05	20.31	20.50
DTM 5 (2Tx slots)	GSM 1 Tx slot	25.71	25.75	26.09	26.50	19.73	19.75	20.11	20.48
	GPRS 1 Tx slot	25.79	25.79	26.17	26.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	25.63	25.72	26.04	26.50	19.67	19.72	20.07	20.48
	GPRS 1 Tx slot	25.76	25.77	26.15	26.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	25.93	25.88	26.21	26.50	21.66	21.60	21.93	22.24
	GPRS 2 Tx slots	25.91	25.85	26.18	26.50				
DTM 5 (2Tx slots)	GSM 1 Tx slot	25.76	25.70	26.15	26.50	18.77	18.74	19.12	19.59
	EDGE 1 Tx slot	23.53	23.55	23.81	24.50				
DTM 9 (2Tx slots)	GSM 1 Tx slot	25.67	25.60	26.13	26.50	18.69	18.65	19.09	19.59
	EDGE 1 Tx slot	23.48	23.49	23.78	24.50				
DTM 11 (3Tx slots)	GSM 1 Tx slot	25.51	25.52	25.92	26.50	21.10	19.91	20.24	20.74
	EDGE 2 Tx slots	25.29	23.30	23.57	24.00				

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, Note 2)*	**CM** (dB) *(Note 3)*	**MPR** (dB) *(Note 3)*
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 *(Note 4)*	15/15 *(Note 4)*	64	12/15 *(Note 4)*	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

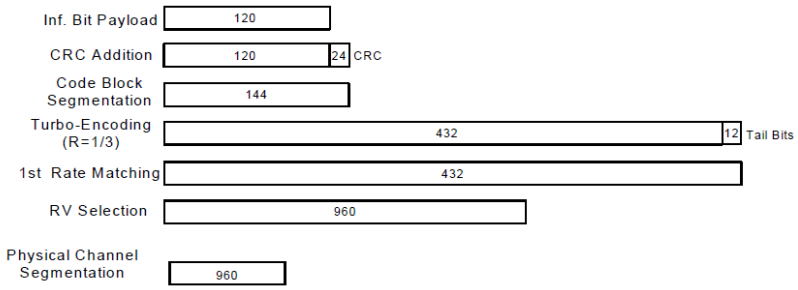


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

<Head mode for WWNA UAT>

Band		WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel		4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	19.76	19.65	19.52	20.00	19.30	19.36	19.48	19.50	22.11	22.05	22.06	22.50
3GPP Rel 99	RMC 12.2Kbps	19.77	19.68	19.54	20.00	19.32	19.38	19.49	19.50	22.46	22.38	22.39	22.50
3GPP Rel 6	HSDPA Subtest-1	18.72	18.69	18.47	20.00	18.28	18.36	18.48	19.50	21.15	21.03	21.04	22.00
3GPP Rel 6	HSDPA Subtest-2	18.71	18.66	18.45	20.00	18.26	18.34	18.46	19.50	21.13	21.00	21.09	22.00
3GPP Rel 6	HSDPA Subtest-3	18.22	18.18	18.06	19.50	17.65	17.78	17.88	19.00	20.67	20.59	20.54	21.50
3GPP Rel 6	HSDPA Subtest-4	18.21	18.18	18.06	19.50	17.63	17.76	17.87	19.00	20.66	20.58	20.56	21.50
3GPP Rel 8	DC-HSDPA Subtest-1	18.70	18.68	18.45	20.00	18.26	18.35	18.47	19.50	21.14	21.03	21.04	22.00
3GPP Rel 8	DC-HSDPA Subtest-2	18.69	18.66	18.45	20.00	18.26	18.34	18.46	19.50	21.08	21.02	21.01	22.00
3GPP Rel 8	DC-HSDPA Subtest-3	18.20	18.16	18.05	19.50	17.63	17.77	17.86	19.00	20.51	20.51	20.54	21.50
3GPP Rel 8	DC-HSDPA Subtest-4	18.20	18.16	18.05	19.50	17.63	17.75	17.85	19.00	20.65	20.57	20.51	21.50
3GPP Rel 6	HSUPA Subtest-1	18.83	18.64	18.51	20.00	18.28	18.24	18.42	19.50	21.04	21.02	21.00	22.00
3GPP Rel 6	HSUPA Subtest-2	16.85	16.66	16.54	18.00	16.29	16.27	16.38	17.50	19.07	19.02	19.13	20.00
3GPP Rel 6	HSUPA Subtest-3	17.82	17.64	17.53	19.00	17.26	17.24	17.35	18.50	20.11	20.03	20.10	21.00
3GPP Rel 6	HSUPA Subtest-4	16.88	16.67	16.59	18.00	16.30	16.28	16.39	17.50	19.07	19.02	19.11	20.00
3GPP Rel 6	HSUPA Subtest-5	18.78	18.68	18.55	20.00	18.27	18.24	18.51	19.50	21.13	21.05	21.07	22.00

<Head mode for WWNA LAT>

Band		WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel		4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	22.38	22.31	22.47	23.00	22.07	22.26	22.48	23.00	22.11	22.05	22.06	23.00
3GPP Rel 99	RMC 12.2Kbps	22.40	22.35	22.49	23.00	22.08	22.28	22.50	23.00	22.46	22.38	22.39	23.00
3GPP Rel 6	HSDPA Subtest-1	21.30	21.35	21.48	23.00	21.09	21.29	21.53	23.00	21.15	21.03	21.04	23.00
3GPP Rel 6	HSDPA Subtest-2	21.27	21.32	21.48	23.00	21.07	21.30	21.52	23.00	21.13	21.00	21.09	23.00
3GPP Rel 6	HSDPA Subtest-3	20.82	20.87	21.01	22.50	20.60	20.81	21.05	22.50	20.67	20.59	20.54	22.50
3GPP Rel 6	HSDPA Subtest-4	20.80	20.86	21.01	22.50	20.55	20.80	21.04	22.50	20.66	20.58	20.56	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.12	21.27	21.29	23.00	21.03	21.26	21.47	23.00	21.14	21.03	21.04	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.18	21.14	21.46	23.00	21.07	21.17	21.46	23.00	21.08	21.02	21.01	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	20.71	20.72	20.98	22.50	20.53	20.62	21.00	22.50	20.51	20.51	20.54	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	20.80	20.77	20.92	22.50	20.51	20.63	20.84	22.50	20.65	20.57	20.51	22.50
3GPP Rel 6	HSUPA Subtest-1	21.38	21.32	21.47	23.00	21.09	21.27	21.51	23.00	21.04	21.02	21.00	23.00
3GPP Rel 6	HSUPA Subtest-2	19.35	19.36	19.50	21.00	19.10	19.30	19.52	21.00	19.07	19.02	19.13	21.00
3GPP Rel 6	HSUPA Subtest-3	20.39	20.34	20.48	22.00	20.07	20.27	20.53	22.00	20.11	20.03	20.10	22.00
3GPP Rel 6	HSUPA Subtest-4	19.33	19.38	19.51	21.00	19.10	19.30	19.53	21.00	19.07	19.02	19.11	21.00
3GPP Rel 6	HSUPA Subtest-5	21.33	21.30	21.52	23.00	21.07	21.38	21.52	23.00	21.13	21.05	21.07	23.00

<Body mode for WWNA UAT>

Band		WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel		4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	22.38	22.31	22.47	23.00	22.07	22.26	22.48	23.00	22.11	22.05	22.06	23.00
3GPP Rel 99	RMC 12.2Kbps	22.40	22.35	22.49	23.00	22.08	22.28	22.50	23.00	22.46	22.38	22.39	23.00
3GPP Rel 6	HSDPA Subtest-1	21.30	21.35	21.48	23.00	21.09	21.29	21.53	23.00	21.15	21.03	21.04	23.00
3GPP Rel 6	HSDPA Subtest-2	21.27	21.32	21.48	23.00	21.07	21.30	21.52	23.00	21.13	21.00	21.09	23.00
3GPP Rel 6	HSDPA Subtest-3	20.82	20.87	21.01	22.50	20.60	20.81	21.05	22.50	20.67	20.59	20.54	22.50
3GPP Rel 6	HSDPA Subtest-4	20.80	20.86	21.01	22.50	20.55	20.80	21.04	22.50	20.66	20.58	20.56	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.12	21.27	21.29	23.00	21.03	21.26	21.47	23.00	21.14	21.03	21.04	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.18	21.14	21.46	23.00	21.07	21.17	21.46	23.00	21.08	21.02	21.01	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	20.71	20.72	20.98	22.50	20.53	20.62	21.00	22.50	20.51	20.51	20.54	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	20.80	20.77	20.92	22.50	20.51	20.63	20.84	22.50	20.65	20.57	20.51	22.50
3GPP Rel 6	HSUPA Subtest-1	21.38	21.32	21.47	23.00	21.09	21.27	21.51	23.00	21.04	21.02	21.00	23.00
3GPP Rel 6	HSUPA Subtest-2	19.35	19.36	19.50	21.00	19.10	19.30	19.52	21.00	19.07	19.02	19.13	21.00
3GPP Rel 6	HSUPA Subtest-3	20.39	20.34	20.48	22.00	20.07	20.27	20.53	22.00	20.11	20.03	20.10	22.00
3GPP Rel 6	HSUPA Subtest-4	19.33	19.38	19.51	21.00	19.10	19.30	19.53	21.00	19.07	19.02	19.11	21.00
3GPP Rel 6	HSUPA Subtest-5	21.33	21.30	21.52	23.00	21.07	21.38	21.52	23.00	21.13	21.05	21.07	23.00

<Body mode for WWNA LAT>

Band		WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel		4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	22.38	22.31	22.47	23.00	19.30	19.36	19.48	19.50	22.11	22.05	22.06	23.00
3GPP Rel 99	RMC 12.2Kbps	22.40	22.35	22.49	23.00	19.32	19.38	19.49	19.50	22.46	22.38	22.39	23.00
3GPP Rel 6	HSDPA Subtest-1	21.30	21.35	21.48	23.00	18.28	18.36	18.48	19.50	21.15	21.03	21.04	23.00
3GPP Rel 6	HSDPA Subtest-2	21.27	21.32	21.48	23.00	18.26	18.34	18.46	19.50	21.13	21.00	21.09	23.00
3GPP Rel 6	HSDPA Subtest-3	20.82	20.87	21.01	22.50	17.65	17.78	17.88	19.00	20.67	20.59	20.54	22.50
3GPP Rel 6	HSDPA Subtest-4	20.80	20.86	21.01	22.50	17.63	17.76	17.87	19.00	20.66	20.58	20.56	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.12	21.27	21.29	23.00	18.26	18.35	18.47	19.50	21.14	21.03	21.04	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.18	21.14	21.46	23.00	18.26	18.34	18.46	19.50	21.08	21.02	21.01	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	20.71	20.72	20.98	22.50	17.63	17.77	17.86	19.00	20.51	20.51	20.54	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	20.80	20.77	20.92	22.50	17.63	17.75	17.85	19.00	20.65	20.57	20.51	22.50
3GPP Rel 6	HSUPA Subtest-1	21.38	21.32	21.47	23.00	18.28	18.24	18.42	19.50	21.04	21.02	21.00	23.00
3GPP Rel 6	HSUPA Subtest-2	19.35	19.36	19.50	21.00	16.29	16.27	16.38	17.50	19.07	19.02	19.13	21.00
3GPP Rel 6	HSUPA Subtest-3	20.39	20.34	20.48	22.00	17.26	17.24	17.35	18.50	20.11	20.03	20.10	22.00
3GPP Rel 6	HSUPA Subtest-4	19.33	19.38	19.51	21.00	16.30	16.28	16.39	17.50	19.07	19.02	19.11	21.00
3GPP Rel 6	HSUPA Subtest-5	21.33	21.30	21.52	23.00	18.27	18.24	18.51	19.50	21.13	21.05	21.07	23.00

<CDMA2000 Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, SAR for head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

<Head mode for WWAN UAT>

Band	CDMA2000 BC0			Tune-up Limit (dBm)
TX Channel	1013	384	777	
Frequency (MHz)	824.7	836.52	848.31	
RC1 SO55	20.99	20.73	20.49	21.00
RC3 SO55	21.00	20.74	20.56	21.00
RC3 SO32(F+SCH)	20.98	20.83	20.58	21.00
RC3 SO32(+SCH)	21.00	20.83	20.52	21.00
RTAP 153.6Kbps	20.99	20.89	20.63	21.00
RETAP 4096Bits	21.00	20.86	20.65	21.00

<Head mode for LAT / Body mode for UAT and LAT>

Band	CDMA2000 BC0			Tune-up Limit (dBm)
TX Channel	1013	384	777	
Frequency (MHz)	824.7	836.52	848.31	
RC1 SO55	24.54	24.40	24.74	25.00
RC3 SO55	24.51	24.38	24.76	25.00
RC3 SO32(F+SCH)	24.50	24.41	24.78	25.00
RC3 SO32(+SCH)	24.51	24.37	24.75	25.00
RTAP 153.6Kbps	24.48	24.40	24.72	25.00
RETAP 4096Bits	24.52	24.40	24.70	25.00

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C / Keysight E7515A base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 17 SAR test was covered by Band 12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
    a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
    b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

<Head mode for WWAN UAT>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	20.90	20.89	21.00	21	0
20	QPSK	1	49	20.72	20.72	20.99		
20	QPSK	1	99	20.79	20.78	20.94		
20	QPSK	50	0	19.78	19.98	20.00	20	1
20	QPSK	50	24	19.75	19.91	19.94		
20	QPSK	50	50	19.60	19.85	19.98		
20	QPSK	100	0	19.79	19.93	19.85		
20	16QAM	1	0	20.18	20.06	20.42	21	0
20	16QAM	1	49	19.95	20.03	20.30		
20	16QAM	1	99	19.99	20.16	20.15		
20	16QAM	50	0	18.80	18.93	19.02	20	1
20	16QAM	50	24	18.81	18.88	19.09		
20	16QAM	50	50	18.70	18.82	19.20		
20	16QAM	100	0	18.91	18.88	19.10		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	20.80	20.80	20.98	21	0
15	QPSK	1	37	20.51	20.76	20.87		
15	QPSK	1	74	20.54	20.81	20.81		
15	QPSK	36	0	19.77	19.87	19.95	20	1
15	QPSK	36	20	19.71	19.81	19.99		
15	QPSK	36	39	19.70	19.82	19.87		
15	QPSK	75	0	19.73	19.85	19.95		
15	16QAM	1	0	19.97	20.03	20.12	21	0
15	16QAM	1	37	19.93	19.98	20.15		
15	16QAM	1	74	19.81	20.05	20.14		
15	16QAM	36	0	18.72	18.79	19.07	20	1
15	16QAM	36	20	18.71	18.79	19.00		
15	16QAM	36	39	18.62	18.77	18.95		
15	16QAM	75	0	18.74	18.84	18.96		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	20.91	20.95	20.99	21	0
10	QPSK	1	25	20.74	20.82	20.98		
10	QPSK	1	49	20.76	20.79	20.96		
10	QPSK	25	0	19.84	19.96	19.97	20	1
10	QPSK	25	12	19.77	19.88	19.97		
10	QPSK	25	25	19.71	19.88	19.90		
10	QPSK	50	0	19.80	19.94	19.98		
10	16QAM	1	0	20.24	20.38	20.56	21	0
10	16QAM	1	25	19.95	20.05	20.30		
10	16QAM	1	49	19.95	20.04	20.30		
10	16QAM	25	0	18.81	18.94	19.12	20	1
10	16QAM	25	12	18.74	18.85	19.12		
10	16QAM	25	25	18.70	18.85	19.07		
10	16QAM	50	0	18.80	18.89	19.18		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.85	20.94	20.96	21	0
5	QPSK	1	12	20.67	20.85	20.91		
5	QPSK	1	24	20.73	20.89	20.90		
5	QPSK	12	0	19.74	19.92	19.97	20	1
5	QPSK	12	7	19.66	19.88	19.99		
5	QPSK	12	13	19.68	19.81	19.96		
5	QPSK	25	0	19.65	19.83	19.97		
5	16QAM	1	0	20.04	20.11	20.48	21	0
5	16QAM	1	12	19.92	20.07	20.35		
5	16QAM	1	24	19.88	20.12	20.32		
5	16QAM	12	0	18.76	18.93	19.12	20	1
5	16QAM	12	7	18.69	18.87	19.15		
5	16QAM	12	13	18.70	18.81	19.12		
5	16QAM	25	0	18.65	18.85	19.14		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.73	20.94	20.96	21	0
3	QPSK	1	8	20.77	20.92	20.95		
3	QPSK	1	14	20.64	20.76	20.90		
3	QPSK	8	0	19.70	19.79	19.98	20	1
3	QPSK	8	4	19.69	19.85	20.00		
3	QPSK	8	7	19.69	19.78	19.94		
3	QPSK	15	0	19.66	19.81	19.97		
3	16QAM	1	0	19.96	20.13	20.37	21	0
3	16QAM	1	8	20.02	20.15	20.44		
3	16QAM	1	14	19.84	19.97	20.28		
3	16QAM	8	0	18.74	18.87	19.17	20	1
3	16QAM	8	4	18.74	18.88	19.15		
3	16QAM	8	7	18.71	18.86	19.14		
3	16QAM	15	0	18.72	18.87	19.13		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.65	20.72	20.98	21	0
1.4	QPSK	1	3	20.72	20.88	20.95		
1.4	QPSK	1	5	20.60	20.75	20.92		
1.4	QPSK	3	0	20.71	20.88	20.90		
1.4	QPSK	3	1	20.75	20.88	20.91		
1.4	QPSK	3	3	20.74	20.88	20.89		
1.4	QPSK	6	0	19.59	19.74	19.99	20	1
1.4	16QAM	1	0	19.91	20.00	20.28	21	0
1.4	16QAM	1	3	19.95	20.11	20.32		
1.4	16QAM	1	5	19.85	19.96	20.24		
1.4	16QAM	3	0	19.69	19.84	20.15		
1.4	16QAM	3	1	19.75	19.89	20.12		
1.4	16QAM	3	3	19.75	19.86	20.17		
1.4	16QAM	6	0	18.69	18.82	19.08	20	1

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.48	21.50	21.47	21.5	0
20	QPSK	1	49	21.43	21.47	21.44		
20	QPSK	1	99	21.23	21.23	21.04		
20	QPSK	50	0	20.47	20.49	20.43	20.5	1
20	QPSK	50	24	20.44	20.48	20.42		
20	QPSK	50	50	20.43	20.36	20.34		
20	QPSK	100	0	20.49	20.47	20.34		
20	16QAM	1	0	20.42	20.48	20.41	21.5	0
20	16QAM	1	49	20.41	20.47	20.40		
20	16QAM	1	99	20.44	20.44	20.34		
20	16QAM	50	0	19.50	19.49	19.34	20.5	1
20	16QAM	50	24	19.44	19.46	19.42		
20	16QAM	50	50	19.43	19.41	19.32		
20	16QAM	100	0	19.49	19.48	19.31		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.49	21.50	21.48	21.5	0
15	QPSK	1	37	21.23	21.29	21.26		
15	QPSK	1	74	21.24	21.47	21.02		
15	QPSK	36	0	20.50	20.50	20.49	20.5	1
15	QPSK	36	20	20.41	20.46	20.50		
15	QPSK	36	39	20.49	20.50	20.35		
15	QPSK	75	0	20.50	20.45	20.44		
15	16QAM	1	0	20.47	20.50	20.43	21.5	0
15	16QAM	1	37	20.46	20.48	20.47		
15	16QAM	1	74	20.49	20.44	20.25		
15	16QAM	36	0	19.48	19.45	19.37	20.5	1
15	16QAM	36	20	19.44	19.40	19.42		
15	16QAM	36	39	19.44	19.43	19.33		
15	16QAM	75	0	19.48	19.41	19.43		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.48	21.50	21.49	21.5	0
10	QPSK	1	25	21.44	21.48	21.46		
10	QPSK	1	49	21.48	21.44	21.40		
10	QPSK	25	0	20.43	20.46	20.49	20.5	1
10	QPSK	25	12	20.48	20.49	20.43		
10	QPSK	25	25	20.47	20.50	20.44		
10	QPSK	50	0	20.44	20.42	20.46		
10	16QAM	1	0	20.48	20.50	20.47	21.5	0
10	16QAM	1	25	20.45	20.44	20.48		
10	16QAM	1	49	20.47	20.49	20.44		
10	16QAM	25	0	19.43	19.50	19.42	20.5	1
10	16QAM	25	12	19.44	19.46	19.43		
10	16QAM	25	25	19.46	19.45	19.47		
10	16QAM	50	0	19.43	19.49	19.48		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.42	21.50	21.48	21.5	0
5	QPSK	1	12	21.44	21.49	21.42		
5	QPSK	1	24	21.41	21.48	21.42		
5	QPSK	12	0	20.48	20.50	20.50	20.5	1
5	QPSK	12	7	20.46	20.49	20.47		
5	QPSK	12	13	20.42	20.46	20.44		
5	QPSK	25	0	20.45	20.49	20.45		
5	16QAM	1	0	20.46	20.50	20.44	21.5	0
5	16QAM	1	12	20.42	20.48	20.46		
5	16QAM	1	24	20.40	20.47	20.43		
5	16QAM	12	0	19.48	19.50	19.42	20.5	1
5	16QAM	12	7	19.41	19.48	19.47		
5	16QAM	12	13	19.44	19.48	19.43		
5	16QAM	25	0	19.48	19.49	19.50		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.49	21.50	21.46	21.5	0
3	QPSK	1	8	21.48	21.49	21.47		
3	QPSK	1	14	21.47	21.48	21.33		
3	QPSK	8	0	20.49	20.50	20.43	20.5	1
3	QPSK	8	4	20.45	20.49	20.43		
3	QPSK	8	7	20.40	20.49	20.30		
3	QPSK	15	0	20.45	20.47	20.41		
3	16QAM	1	0	20.47	20.50	20.40	21.5	0
3	16QAM	1	8	20.49	20.45	20.49		
3	16QAM	1	14	20.42	20.42	20.41		
3	16QAM	8	0	19.49	19.50	19.49	20.5	1
3	16QAM	8	4	19.45	19.49	19.43		
3	16QAM	8	7	19.50	19.48	19.45		
3	16QAM	15	0	19.49	19.50	19.45		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.40	21.50	21.49	21.5	0
1.4	QPSK	1	3	21.48	21.49	21.47		
1.4	QPSK	1	5	21.37	21.45	21.33		
1.4	QPSK	3	0	21.49	21.46	21.43		
1.4	QPSK	3	1	21.48	21.49	21.49		
1.4	QPSK	3	3	21.49	21.48	21.45		
1.4	QPSK	6	0	20.36	20.46	20.29	20.5	1
1.4	16QAM	1	0	20.48	20.50	20.49	21.5	0
1.4	16QAM	1	3	20.44	20.48	20.48		
1.4	16QAM	1	5	20.34	20.33	20.39		
1.4	16QAM	3	0	20.30	20.35	20.37		
1.4	16QAM	3	1	20.47	20.48	20.47		
1.4	16QAM	3	3	20.41	20.42	20.41		
1.4	16QAM	6	0	19.49	19.50	19.33	20.5	1

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	21.99	22.00	21.98	22	0
10	QPSK	1	25	21.88	21.93	21.96		
10	QPSK	1	49	21.79	21.82	21.83		
10	QPSK	25	0	20.94	20.96	20.94	21	1
10	QPSK	25	12	20.83	20.90	20.93		
10	QPSK	25	25	20.82	20.80	20.87		
10	QPSK	50	0	20.92	20.98	20.92		
10	16QAM	1	0	21.26	21.31	21.26	22	0
10	16QAM	1	25	21.18	21.23	21.29		
10	16QAM	1	49	21.07	21.10	21.15		
10	16QAM	25	0	20.11	20.07	20.06	21	1
10	16QAM	25	12	20.00	20.05	20.05		
10	16QAM	25	25	20.02	20.04	20.01		
10	16QAM	50	0	20.07	20.03	20.16		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.00	21.99	21.98	22	0
5	QPSK	1	12	21.99	21.91	21.79		
5	QPSK	1	24	21.98	21.89	21.86		
5	QPSK	12	0	20.97	20.77	20.74	21	1
5	QPSK	12	7	20.96	20.76	20.73		
5	QPSK	12	13	20.92	20.73	20.74		
5	QPSK	25	0	21.00	20.73	20.71		
5	16QAM	1	0	21.46	21.24	21.14	22	0
5	16QAM	1	12	21.51	21.24	21.20		
5	16QAM	1	24	21.33	21.14	21.10		
5	16QAM	12	0	20.35	20.09	20.09	21	1
5	16QAM	12	7	20.25	20.09	20.05		
5	16QAM	12	13	20.16	20.03	20.03		
5	16QAM	25	0	20.21	20.07	20.02		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.99	21.97	21.91	22	0
3	QPSK	1	8	21.96	21.94	21.88		
3	QPSK	1	14	21.93	21.94	21.85		
3	QPSK	8	0	20.98	20.82	20.75	21	1
3	QPSK	8	4	20.96	20.83	20.73		
3	QPSK	8	7	20.90	20.79	20.74		
3	QPSK	15	0	20.94	20.81	20.71		
3	16QAM	1	0	21.51	21.23	21.10	22	0
3	16QAM	1	8	21.66	21.37	21.18		
3	16QAM	1	14	21.39	21.17	21.07		
3	16QAM	8	0	20.29	20.05	20.08	21	1
3	16QAM	8	4	20.31	20.06	20.06		
3	16QAM	8	7	20.18	20.02	20.05		
3	16QAM	15	0	20.23	20.07	20.05		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.00	21.99	21.81	22	0
1.4	QPSK	1	3	21.98	21.93	21.81		
1.4	QPSK	1	5	21.96	21.87	21.75		
1.4	QPSK	3	0	21.94	21.91	21.80		
1.4	QPSK	3	1	21.95	21.94	21.83		
1.4	QPSK	3	3	21.99	21.97	21.85		
1.4	QPSK	6	0	21.00	20.85	20.82	21	1
1.4	16QAM	1	0	21.43	21.17	21.01	22	0
1.4	16QAM	1	3	21.48	21.21	21.08		
1.4	16QAM	1	5	21.45	21.16	21.02		
1.4	16QAM	3	0	21.18	20.92	20.83		
1.4	16QAM	3	1	21.25	20.97	20.90		
1.4	16QAM	3	3	21.23	20.98	20.89		
1.4	16QAM	6	0	20.15	20.05	20.05	21	1

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.12	23.16	23.13	23.5	0
10	QPSK	1	25	22.99	23.00	22.89		
10	QPSK	1	49	22.94	23.02	22.93		
10	QPSK	25	0	22.26	22.29	22.17	22.5	1
10	QPSK	25	12	22.20	22.24	22.11		
10	QPSK	25	25	22.24	22.17	22.09		
10	QPSK	50	0	22.24	22.29	22.10		
10	16QAM	1	0	22.27	22.27	22.21	22.5	1
10	16QAM	1	25	22.38	22.38	22.30		
10	16QAM	1	49	22.40	22.43	22.39		
10	16QAM	25	0	21.16	21.27	21.18	21.5	2
10	16QAM	25	12	21.24	21.33	21.12		
10	16QAM	25	25	21.27	21.20	21.04		
10	16QAM	50	0	21.26	21.25	21.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.05	23.10	23.09	23.5	0
5	QPSK	1	12	23.07	23.09	22.88		
5	QPSK	1	24	23.09	23.02	22.87		
5	QPSK	12	0	22.17	22.24	22.07	22.5	1
5	QPSK	12	7	22.13	22.35	22.05		
5	QPSK	12	13	22.10	22.32	22.00		
5	QPSK	25	0	22.09	22.31	22.06		
5	16QAM	1	0	22.38	22.49	22.18	22.5	1
5	16QAM	1	12	22.36	22.45	22.24		
5	16QAM	1	24	22.37	22.35	22.33		
5	16QAM	12	0	21.28	21.28	21.18	21.5	2
5	16QAM	12	7	21.24	21.35	21.06		
5	16QAM	12	13	21.20	21.34	20.96		
5	16QAM	25	0	21.11	21.37	21.04		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.03	23.05	23.09	23.5	0
3	QPSK	1	8	23.01	23.08	22.87		
3	QPSK	1	14	22.99	23.01	22.92		
3	QPSK	8	0	22.25	22.11	22.08	22.5	1
3	QPSK	8	4	22.19	22.22	22.04		
3	QPSK	8	7	22.17	22.22	22.07		
3	QPSK	15	0	22.25	22.20	22.03		
3	16QAM	1	0	22.41	22.38	22.19	22.5	1
3	16QAM	1	8	22.41	22.45	22.20		
3	16QAM	1	14	22.37	22.30	22.33		
3	16QAM	8	0	21.38	21.23	21.15	21.5	2
3	16QAM	8	4	21.31	21.34	21.02		
3	16QAM	8	7	21.26	21.33	21.00		
3	16QAM	15	0	21.24	21.28	21.07		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.10	23.00	23.07	23.5	0
1.4	QPSK	1	3	23.03	23.12	22.82		
1.4	QPSK	1	5	23.04	23.04	22.93		
1.4	QPSK	3	0	23.00	23.03	23.01		
1.4	QPSK	3	1	23.03	23.07	23.04		
1.4	QPSK	3	3	23.09	23.08	23.06		
1.4	QPSK	6	0	22.16	22.18	22.01	22.5	1
1.4	16QAM	1	0	22.20	22.18	22.16	22.5	1
1.4	16QAM	1	3	22.30	22.40	22.20		
1.4	16QAM	1	5	22.31	22.30	22.38		
1.4	16QAM	3	0	22.13	22.07	22.03		
1.4	16QAM	3	1	22.27	22.13	22.13		
1.4	16QAM	3	3	22.25	22.09	22.08		
1.4	16QAM	6	0	21.27	21.24	21.04	21.5	2

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.11	23.16	23.13	23.5	0
10	QPSK	1	25	23.02	23.13	23.08		
10	QPSK	1	49	22.99	23.00	23.08		
10	QPSK	25	0	22.30	22.35	22.33	22.5	1
10	QPSK	25	12	22.23	22.28	22.26		
10	QPSK	25	25	22.24	22.32	22.22		
10	QPSK	50	0	22.30	22.37	22.31		
10	16QAM	1	0	22.32	22.49	22.31	22.5	1
10	16QAM	1	25	22.46	22.42	22.44		
10	16QAM	1	49	22.37	22.37	22.35		
10	16QAM	25	0	21.32	21.26	21.27	21.5	2
10	16QAM	25	12	21.33	21.37	21.28		
10	16QAM	25	25	21.33	21.33	21.25		
10	16QAM	50	0	21.30	21.32	21.40		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.10	23.17	23.01	23.5	0
5	QPSK	1	12	23.13	23.01	22.96		
5	QPSK	1	24	23.03	23.02	22.96		
5	QPSK	12	0	22.19	22.13	22.09	22.5	1
5	QPSK	12	7	22.19	22.14	22.09		
5	QPSK	12	13	22.29	22.18	22.11		
5	QPSK	25	0	22.24	22.13	22.10		
5	16QAM	1	0	22.40	22.42	22.24	22.5	1
5	16QAM	1	12	22.41	22.34	22.28		
5	16QAM	1	24	22.41	22.38	22.29		
5	16QAM	12	0	21.21	21.16	21.12	21.5	2
5	16QAM	12	7	21.20	21.19	21.14		
5	16QAM	12	13	21.31	21.23	21.12		
5	16QAM	25	0	21.34	21.18	21.09		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	21.71	21.89	21.81	22	0
15	QPSK	1	37	21.57	21.67	21.53		
15	QPSK	1	74	21.08	21.25	21.17		
15	QPSK	36	0	20.52	20.66	20.74	21	1
15	QPSK	36	20	20.71	20.93	20.78		
15	QPSK	36	39	20.72	20.66	20.56		
15	QPSK	75	0	20.68	20.69	20.56		
15	16QAM	1	0	20.51	20.86	20.85	22	0
15	16QAM	1	37	20.86	20.85	20.86		
15	16QAM	1	74	20.37	20.46	20.45		
15	16QAM	36	0	19.44	19.56	19.46	21	1
15	16QAM	36	20	19.64	19.73	19.62		
15	16QAM	36	39	19.73	19.55	19.55		
15	16QAM	75	0	19.78	19.63	19.61		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	21.82	21.83	21.79	22	0
10	QPSK	1	25	21.48	21.54	21.53		
10	QPSK	1	49	21.58	21.41	21.29		
10	QPSK	25	0	20.78	20.58	20.51	21	1
10	QPSK	25	12	20.68	20.78	20.56		
10	QPSK	25	25	20.65	20.54	20.49		
10	QPSK	50	0	20.92	20.69	20.57		
10	16QAM	1	0	20.85	21.08	20.74	22	0
10	16QAM	1	25	20.62	20.84	20.84		
10	16QAM	1	49	20.75	20.65	20.55		
10	16QAM	25	0	19.82	19.57	19.53	21	1
10	16QAM	25	12	19.79	19.70	19.52		
10	16QAM	25	25	19.63	19.56	19.47		
10	16QAM	50	0	19.86	19.64	19.62		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	21.98	21.87	21.81	22	0
5	QPSK	1	12	21.56	21.53	21.39		
5	QPSK	1	24	21.68	21.49	21.35		
5	QPSK	12	0	20.60	20.54	20.49	21	1
5	QPSK	12	7	20.69	20.63	20.48		
5	QPSK	12	13	20.67	20.51	20.48		
5	QPSK	25	0	20.58	20.58	20.46		
5	16QAM	1	0	20.87	20.80	20.74	22	0
5	16QAM	1	12	20.81	20.79	20.72		
5	16QAM	1	24	20.82	20.72	20.73		
5	16QAM	12	0	19.61	19.53	19.55	21	1
5	16QAM	12	7	19.54	19.61	19.52		
5	16QAM	12	13	19.62	19.50	19.49		
5	16QAM	25	0	19.71	19.62	19.47		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.00	21.83	21.74	22	0
3	QPSK	1	8	21.62	21.61	21.49		
3	QPSK	1	14	21.56	21.42	21.25		
3	QPSK	8	0	20.49	20.48	20.44	21	1
3	QPSK	8	4	20.66	20.55	20.47		
3	QPSK	8	7	20.67	20.51	20.48		
3	QPSK	15	0	20.55	20.54	20.44		
3	16QAM	1	0	20.83	20.79	20.67	22	0
3	16QAM	1	8	20.93	20.93	20.76		
3	16QAM	1	14	20.81	20.70	20.49		
3	16QAM	8	0	19.56	19.53	19.51	21	1
3	16QAM	8	4	19.71	19.63	19.57		
3	16QAM	8	7	19.70	19.60	19.55		
3	16QAM	15	0	19.54	19.63	19.51		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	21.92	21.83	21.64	22	0
1.4	QPSK	1	3	21.48	21.56	21.56		
1.4	QPSK	1	5	21.35	21.47	21.35		
1.4	QPSK	3	0	21.36	21.47	21.44		
1.4	QPSK	3	1	21.57	21.56	21.51		
1.4	QPSK	3	3	21.52	21.55	21.51		
1.4	QPSK	6	0	20.46	20.50	20.38	21	1
1.4	16QAM	1	0	20.75	20.74	20.61	22	0
1.4	16QAM	1	3	20.77	20.82	20.83		
1.4	16QAM	1	5	20.47	20.72	20.59		
1.4	16QAM	3	0	20.46	20.44	20.38		
1.4	16QAM	3	1	20.58	20.54	20.50		
1.4	16QAM	3	3	20.52	20.49	20.44		
1.4	16QAM	6	0	19.49	19.57	19.44	21	1

<Head mode for WWAN LAT>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.63	23.77	23.89	24	0
20	QPSK	1	49	23.42	23.67	23.83		
20	QPSK	1	99	23.58	23.64	23.78		
20	QPSK	50	0	22.64	22.92	22.96	23	1
20	QPSK	50	24	22.57	22.87	22.89		
20	QPSK	50	50	22.61	22.81	22.94		
20	QPSK	100	0	22.83	22.90	22.92		
20	16QAM	1	0	22.83	22.84	22.86	23	1
20	16QAM	1	49	22.74	22.80	22.84		
20	16QAM	1	99	22.81	22.78	22.81		
20	16QAM	50	0	21.54	21.71	21.85	22	2
20	16QAM	50	24	21.45	21.77	21.96		
20	16QAM	50	50	21.50	21.77	21.97		
20	16QAM	100	0	21.45	21.79	21.96		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.50	23.47	23.68	24	0
15	QPSK	1	37	23.70	23.77	23.79		
15	QPSK	1	74	23.31	23.63	23.78		
15	QPSK	36	0	22.53	22.74	22.77	23	1
15	QPSK	36	20	22.43	22.68	22.81		
15	QPSK	36	39	22.48	22.72	22.94		
15	QPSK	75	0	22.54	22.71	22.86		
15	16QAM	1	0	22.76	22.82	22.96	23	1
15	16QAM	1	37	22.74	22.88	22.95		
15	16QAM	1	74	22.57	22.91	22.93		
15	16QAM	36	0	21.47	21.70	21.77	22	2
15	16QAM	36	20	21.41	21.70	21.85		
15	16QAM	36	39	21.42	21.68	21.88		
15	16QAM	75	0	21.52	21.68	21.86		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.61	23.69	23.93	24	0
10	QPSK	1	25	23.32	23.42	23.67		
10	QPSK	1	49	23.30	23.47	23.58		
10	QPSK	25	0	22.60	22.68	22.95	23	1
10	QPSK	25	12	22.49	22.61	22.89		
10	QPSK	25	25	22.42	22.61	22.78		
10	QPSK	50	0	22.51	22.66	22.92		
10	16QAM	1	0	22.67	22.71	22.98	23	1
10	16QAM	1	25	22.80	22.88	22.92		
10	16QAM	1	49	22.76	22.90	22.91		
10	16QAM	25	0	21.68	21.77	21.97	22	2
10	16QAM	25	12	21.59	21.71	21.98		
10	16QAM	25	25	21.51	21.68	21.88		
10	16QAM	50	0	21.61	21.76	22.00		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.55	23.67	23.88	24	0
5	QPSK	1	12	23.45	23.53	23.75		
5	QPSK	1	24	23.38	23.56	23.75		
5	QPSK	12	0	22.54	22.71	22.94	23	1
5	QPSK	12	7	22.53	22.66	22.91		
5	QPSK	12	13	22.52	22.65	22.87		
5	QPSK	25	0	22.50	22.62	22.89		
5	16QAM	1	0	22.76	22.87	22.94	23	1
5	16QAM	1	12	22.72	22.87	22.91		
5	16QAM	1	24	22.70	22.87	22.93		
5	16QAM	12	0	21.57	21.75	21.97	22	2
5	16QAM	12	7	21.53	21.65	21.94		
5	16QAM	12	13	21.53	21.67	21.88		
5	16QAM	25	0	21.52	21.67	21.94		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.39	23.56	23.70	24	0
3	QPSK	1	8	23.51	23.59	23.77		
3	QPSK	1	14	23.31	23.44	23.66		
3	QPSK	8	0	22.49	22.63	22.85	23	1
3	QPSK	8	4	22.47	22.60	22.86		
3	QPSK	8	7	22.46	22.64	22.82		
3	QPSK	15	0	22.45	22.58	22.84		
3	16QAM	1	0	22.76	22.88	22.96	23	1
3	16QAM	1	8	22.83	22.94	22.91		
3	16QAM	1	14	22.66	22.75	22.89		
3	16QAM	8	0	21.56	21.71	21.96	22	2
3	16QAM	8	4	21.57	21.70	21.99		
3	16QAM	8	7	21.52	21.72	21.94		
3	16QAM	15	0	21.49	21.65	21.90		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.39	23.48	23.63	24	0
1.4	QPSK	1	3	23.48	23.54	23.76		
1.4	QPSK	1	5	23.34	23.41	23.66		
1.4	QPSK	3	0	23.39	23.54	23.85		
1.4	QPSK	3	1	23.44	23.56	23.84		
1.4	QPSK	3	3	23.42	23.55	23.79		
1.4	QPSK	6	0	22.43	22.55	22.83	23	1
1.4	16QAM	1	0	22.65	22.80	22.95	23	1
1.4	16QAM	1	3	22.72	22.86	22.96		
1.4	16QAM	1	5	22.61	22.71	22.94		
1.4	16QAM	3	0	22.45	22.58	22.77		
1.4	16QAM	3	1	22.50	22.63	22.82		
1.4	16QAM	3	3	22.48	22.61	22.81		
1.4	16QAM	6	0	21.51	21.65	21.89	22	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.48	21.50	21.47	21.5	0
20	QPSK	1	49	21.43	21.47	21.44		
20	QPSK	1	99	21.23	21.23	21.04		
20	QPSK	50	0	20.47	20.49	20.43	20.5	1
20	QPSK	50	24	20.44	20.48	20.42		
20	QPSK	50	50	20.43	20.36	20.34		
20	QPSK	100	0	20.49	20.47	20.34		
20	16QAM	1	0	20.42	20.48	20.41	21.5	0
20	16QAM	1	49	20.41	20.47	20.40		
20	16QAM	1	99	20.44	20.44	20.34		
20	16QAM	50	0	19.50	19.49	19.34	20.5	1
20	16QAM	50	24	19.44	19.46	19.42		
20	16QAM	50	50	19.43	19.41	19.32		
20	16QAM	100	0	19.49	19.48	19.31		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.49	21.50	21.48	21.5	0
15	QPSK	1	37	21.23	21.29	21.26		
15	QPSK	1	74	21.24	21.47	21.02		
15	QPSK	36	0	20.50	20.50	20.49	20.5	1
15	QPSK	36	20	20.41	20.46	20.50		
15	QPSK	36	39	20.49	20.50	20.35		
15	QPSK	75	0	20.50	20.45	20.44		
15	16QAM	1	0	20.47	20.50	20.43	21.5	0
15	16QAM	1	37	20.46	20.48	20.47		
15	16QAM	1	74	20.49	20.44	20.25		
15	16QAM	36	0	19.48	19.45	19.37	20.5	1
15	16QAM	36	20	19.44	19.40	19.42		
15	16QAM	36	39	19.44	19.43	19.33		
15	16QAM	75	0	19.48	19.41	19.43		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.48	21.50	21.49	21.5	0
10	QPSK	1	25	21.44	21.48	21.46		
10	QPSK	1	49	21.48	21.44	21.40		
10	QPSK	25	0	20.43	20.46	20.49	20.5	1
10	QPSK	25	12	20.48	20.49	20.43		
10	QPSK	25	25	20.47	20.50	20.44		
10	QPSK	50	0	20.44	20.42	20.46		
10	16QAM	1	0	20.48	20.50	20.47	21.5	0
10	16QAM	1	25	20.45	20.44	20.48		
10	16QAM	1	49	20.47	20.49	20.44		
10	16QAM	25	0	19.43	19.50	19.42	20.5	1
10	16QAM	25	12	19.44	19.46	19.43		
10	16QAM	25	25	19.46	19.45	19.47		
10	16QAM	50	0	19.43	19.49	19.48		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.42	21.50	21.48	21.5	0
5	QPSK	1	12	21.44	21.49	21.42		
5	QPSK	1	24	21.41	21.48	21.42		
5	QPSK	12	0	20.48	20.50	20.50	20.5	1
5	QPSK	12	7	20.46	20.49	20.47		
5	QPSK	12	13	20.42	20.46	20.44		
5	QPSK	25	0	20.45	20.49	20.45		
5	16QAM	1	0	20.46	20.50	20.44	21.5	0
5	16QAM	1	12	20.42	20.48	20.46		
5	16QAM	1	24	20.40	20.47	20.43		
5	16QAM	12	0	19.48	19.50	19.42	20.5	1
5	16QAM	12	7	19.41	19.48	19.47		
5	16QAM	12	13	19.44	19.48	19.43		
5	16QAM	25	0	19.48	19.49	19.50		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.49	21.50	21.46	21.5	0
3	QPSK	1	8	21.48	21.49	21.47		
3	QPSK	1	14	21.47	21.48	21.33		
3	QPSK	8	0	20.49	20.50	20.43	20.5	1
3	QPSK	8	4	20.45	20.49	20.43		
3	QPSK	8	7	20.40	20.49	20.30		
3	QPSK	15	0	20.45	20.47	20.41		
3	16QAM	1	0	20.47	20.50	20.40	21.5	0
3	16QAM	1	8	20.49	20.45	20.49		
3	16QAM	1	14	20.42	20.42	20.41		
3	16QAM	8	0	19.49	19.50	19.49	20.5	1
3	16QAM	8	4	19.45	19.49	19.43		
3	16QAM	8	7	19.50	19.48	19.45		
3	16QAM	15	0	19.49	19.50	19.45		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.40	21.50	21.49	21.5	0
1.4	QPSK	1	3	21.48	21.49	21.47		
1.4	QPSK	1	5	21.37	21.45	21.33		
1.4	QPSK	3	0	21.49	21.46	21.43		
1.4	QPSK	3	1	21.48	21.49	21.49		
1.4	QPSK	3	3	21.49	21.48	21.45		
1.4	QPSK	6	0	20.36	20.46	20.29	20.5	1
1.4	16QAM	1	0	20.48	20.50	20.49	21.5	0
1.4	16QAM	1	3	20.44	20.48	20.48		
1.4	16QAM	1	5	20.34	20.33	20.39		
1.4	16QAM	3	0	20.30	20.35	20.37		
1.4	16QAM	3	1	20.47	20.48	20.47		
1.4	16QAM	3	3	20.41	20.42	20.41		
1.4	16QAM	6	0	19.49	19.50	19.33	20.5	1

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.83	23.14	23.13	23.5	0
10	QPSK	1	25	22.76	22.90	23.05		
10	QPSK	1	49	22.74	22.88	23.03		
10	QPSK	25	0	22.05	22.36	22.35	22.5	1
10	QPSK	25	12	21.87	21.99	22.20		
10	QPSK	25	25	21.92	22.09	22.14		
10	QPSK	50	0	21.99	22.30	22.29		
10	16QAM	1	0	22.00	22.15	22.48	22.5	1
10	16QAM	1	25	22.13	22.33	22.39		
10	16QAM	1	49	22.05	22.23	22.34		
10	16QAM	25	0	20.92	20.99	21.20	21.5	2
10	16QAM	25	12	20.94	21.13	21.37		
10	16QAM	25	25	20.88	21.07	21.30		
10	16QAM	50	0	20.94	21.13	21.31		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.89	22.93	23.08	23.5	0
5	QPSK	1	12	22.85	22.86	23.07		
5	QPSK	1	24	22.92	23.05	23.03		
5	QPSK	12	0	21.87	21.97	22.14	22.5	1
5	QPSK	12	7	21.91	22.04	22.14		
5	QPSK	12	13	21.94	22.06	22.19		
5	QPSK	25	0	21.86	21.96	22.18		
5	16QAM	1	0	22.08	22.16	22.34	22.5	1
5	16QAM	1	12	22.11	22.25	22.42		
5	16QAM	1	24	22.19	22.34	22.36		
5	16QAM	12	0	20.91	21.02	21.17	21.5	2
5	16QAM	12	7	20.94	21.10	21.09		
5	16QAM	12	13	20.97	21.09	21.18		
5	16QAM	25	0	20.91	20.92	21.21		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.86	22.94	23.10	23.5	0
3	QPSK	1	8	22.87	22.99	23.14		
3	QPSK	1	14	22.86	22.94	22.98		
3	QPSK	8	0	21.90	21.91	22.15	22.5	1
3	QPSK	8	4	21.94	22.01	22.19		
3	QPSK	8	7	21.96	22.01	22.10		
3	QPSK	15	0	21.92	21.96	22.13		
3	16QAM	1	0	22.09	22.18	22.35	22.5	1
3	16QAM	1	8	22.17	22.35	22.47		
3	16QAM	1	14	22.11	22.29	22.31		
3	16QAM	8	0	20.96	21.07	21.15	21.5	2
3	16QAM	8	4	20.99	21.03	21.25		
3	16QAM	8	7	21.01	21.01	21.16		
3	16QAM	15	0	20.99	20.96	21.20		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.83	22.94	23.05	23.5	0
1.4	QPSK	1	3	22.87	23.00	23.06		
1.4	QPSK	1	5	22.70	22.93	22.98		
1.4	QPSK	3	0	22.67	22.90	23.07		
1.4	QPSK	3	1	22.82	23.01	23.08		
1.4	QPSK	3	3	22.79	22.97	23.09		
1.4	QPSK	6	0	21.77	21.87	22.05	22.5	1
1.4	16QAM	1	0	22.05	22.18	22.29	22.5	1
1.4	16QAM	1	3	22.11	22.27	22.33		
1.4	16QAM	1	5	22.00	22.23	22.28		
1.4	16QAM	3	0	21.77	21.92	22.06		
1.4	16QAM	3	1	21.88	22.06	22.12		
1.4	16QAM	3	3	21.82	22.03	22.11		
1.4	16QAM	6	0	20.86	20.95	21.13	21.5	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.07	21.08	21.04	21.5	0
20	QPSK	1	49	20.86	20.92	20.77		
20	QPSK	1	99	21.06	21.07	21.03		
20	QPSK	50	0	20.08	20.11	20.08	20.5	1
20	QPSK	50	24	20.00	19.94	20.03		
20	QPSK	50	50	20.07	20.10	20.07		
20	QPSK	100	0	20.05	20.07	19.97		
20	16QAM	1	0	20.18	20.16	20.14	20.5	1
20	16QAM	1	49	20.13	20.21	20.16		
20	16QAM	1	99	20.32	20.35	20.34		
20	16QAM	50	0	18.95	18.98	19.00	19.5	2
20	16QAM	50	24	19.00	19.00	19.10		
20	16QAM	50	50	19.07	19.10	19.05		
20	16QAM	100	0	19.02	18.99	19.10		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.80	20.83	20.90	21.5	0
15	QPSK	1	37	20.93	21.00	20.94		
15	QPSK	1	74	20.98	21.02	20.97		
15	QPSK	36	0	19.94	19.96	20.03	20.5	1
15	QPSK	36	20	19.91	20.04	19.98		
15	QPSK	36	39	20.02	20.13	20.06		
15	QPSK	75	0	19.97	20.07	19.99		
15	16QAM	1	0	20.06	20.09	20.17	20.5	1
15	16QAM	1	37	20.13	20.13	20.16		
15	16QAM	1	74	20.23	20.25	20.23		
15	16QAM	36	0	18.96	18.98	18.96	19.5	2
15	16QAM	36	20	18.94	19.04	19.00		
15	16QAM	36	39	19.01	19.09	19.02		
15	16QAM	75	0	18.96	19.06	19.01		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.08	21.22	21.20	21.5	0
10	QPSK	1	25	20.76	20.85	20.93		
10	QPSK	1	49	21.09	20.21	20.19		
10	QPSK	25	0	19.96	20.12	20.17	20.5	1
10	QPSK	25	12	19.88	20.00	20.10		
10	QPSK	25	25	19.93	20.09	20.09		
10	QPSK	50	0	19.97	20.06	20.14		
10	16QAM	1	0	20.36	20.49	20.47	20.5	1
10	16QAM	1	25	20.07	20.17	20.20		
10	16QAM	1	49	20.37	20.40	20.46		
10	16QAM	25	0	18.96	19.13	19.22	19.5	2
10	16QAM	25	12	18.90	19.00	19.10		
10	16QAM	25	25	18.96	19.10	19.19		
10	16QAM	50	0	18.99	19.11	19.16		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.82	21.00	20.99	21.5	0
5	QPSK	1	12	20.74	20.88	20.94		
5	QPSK	1	24	20.76	20.94	20.95		
5	QPSK	12	0	19.74	19.94	20.02	20.5	1
5	QPSK	12	7	19.81	19.94	20.04		
5	QPSK	12	13	19.82	19.95	20.00		
5	QPSK	25	0	19.78	19.91	19.97		
5	16QAM	1	0	20.09	20.32	20.27	20.5	1
5	16QAM	1	12	20.10	20.22	20.28		
5	16QAM	1	24	20.01	20.19	20.23		
5	16QAM	12	0	18.82	19.02	19.05	19.5	2
5	16QAM	12	7	18.86	18.98	19.04		
5	16QAM	12	13	18.88	19.03	19.02		
5	16QAM	25	0	18.82	18.95	19.01		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.12	23.16	23.13	23.5	0
10	QPSK	1	25	22.99	23.00	22.89		
10	QPSK	1	49	22.94	23.02	22.93		
10	QPSK	25	0	22.26	22.29	22.17	22.5	1
10	QPSK	25	12	22.20	22.24	22.11		
10	QPSK	25	25	22.24	22.17	22.09		
10	QPSK	50	0	22.24	22.29	22.10		
10	16QAM	1	0	22.27	22.27	22.21	22.5	1
10	16QAM	1	25	22.38	22.38	22.30		
10	16QAM	1	49	22.40	22.43	22.39		
10	16QAM	25	0	21.16	21.27	21.18	21.5	2
10	16QAM	25	12	21.24	21.33	21.12		
10	16QAM	25	25	21.27	21.20	21.04		
10	16QAM	50	0	21.26	21.25	21.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.05	23.10	23.09	23.5	0
5	QPSK	1	12	23.07	23.09	22.88		
5	QPSK	1	24	23.09	23.02	22.87		
5	QPSK	12	0	22.17	22.24	22.07	22.5	1
5	QPSK	12	7	22.13	22.35	22.05		
5	QPSK	12	13	22.10	22.32	22.00		
5	QPSK	25	0	22.09	22.31	22.06		
5	16QAM	1	0	22.38	22.49	22.18	22.5	1
5	16QAM	1	12	22.36	22.45	22.24		
5	16QAM	1	24	22.37	22.35	22.33		
5	16QAM	12	0	21.28	21.28	21.18	21.5	2
5	16QAM	12	7	21.24	21.35	21.06		
5	16QAM	12	13	21.20	21.34	20.96		
5	16QAM	25	0	21.11	21.37	21.04		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.03	23.05	23.09	23.5	0
3	QPSK	1	8	23.01	23.08	22.87		
3	QPSK	1	14	22.99	23.01	22.92		
3	QPSK	8	0	22.25	22.11	22.08	22.5	1
3	QPSK	8	4	22.19	22.22	22.04		
3	QPSK	8	7	22.17	22.22	22.07		
3	QPSK	15	0	22.25	22.20	22.03		
3	16QAM	1	0	22.41	22.38	22.19	22.5	1
3	16QAM	1	8	22.41	22.45	22.20		
3	16QAM	1	14	22.37	22.30	22.33		
3	16QAM	8	0	21.38	21.23	21.15	21.5	2
3	16QAM	8	4	21.31	21.34	21.02		
3	16QAM	8	7	21.26	21.33	21.00		
3	16QAM	15	0	21.24	21.28	21.07		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.10	23.00	23.07	23.5	0
1.4	QPSK	1	3	23.03	23.12	22.82		
1.4	QPSK	1	5	23.04	23.04	22.93		
1.4	QPSK	3	0	23.00	23.03	23.01		
1.4	QPSK	3	1	23.03	23.07	23.04		
1.4	QPSK	3	3	23.09	23.08	23.06		
1.4	QPSK	6	0	22.16	22.18	22.01	22.5	1
1.4	16QAM	1	0	22.20	22.18	22.16	22.5	1
1.4	16QAM	1	3	22.30	22.40	22.20		
1.4	16QAM	1	5	22.31	22.30	22.38		
1.4	16QAM	3	0	22.13	22.07	22.03		
1.4	16QAM	3	1	22.27	22.13	22.13		
1.4	16QAM	3	3	22.25	22.09	22.08		
1.4	16QAM	6	0	21.27	21.24	21.04	21.5	2

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.11	23.16	23.13	23.5	0
10	QPSK	1	25	23.02	23.13	23.08		
10	QPSK	1	49	22.99	23.00	23.08		
10	QPSK	25	0	22.30	22.35	22.33	22.5	1
10	QPSK	25	12	22.23	22.28	22.26		
10	QPSK	25	25	22.24	22.32	22.22		
10	QPSK	50	0	22.30	22.37	22.31		
10	16QAM	1	0	22.32	22.49	22.31	22.5	1
10	16QAM	1	25	22.46	22.42	22.44		
10	16QAM	1	49	22.37	22.37	22.35		
10	16QAM	25	0	21.32	21.26	21.27	21.5	2
10	16QAM	25	12	21.33	21.37	21.28		
10	16QAM	25	25	21.33	21.33	21.25		
10	16QAM	50	0	21.30	21.32	21.40		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.10	23.17	23.01	23.5	0
5	QPSK	1	12	23.13	23.01	22.96		
5	QPSK	1	24	23.03	23.02	22.96		
5	QPSK	12	0	22.19	22.13	22.09	22.5	1
5	QPSK	12	7	22.19	22.14	22.09		
5	QPSK	12	13	22.29	22.18	22.11		
5	QPSK	25	0	22.24	22.13	22.10		
5	16QAM	1	0	22.40	22.42	22.24	22.5	1
5	16QAM	1	12	22.41	22.34	22.28		
5	16QAM	1	24	22.41	22.38	22.29		
5	16QAM	12	0	21.21	21.16	21.12	21.5	2
5	16QAM	12	7	21.20	21.19	21.14		
5	16QAM	12	13	21.31	21.23	21.12		
5	16QAM	25	0	21.34	21.18	21.09		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.05	22.61	22.60	23	0
15	QPSK	1	37	22.02	22.28	22.46		
15	QPSK	1	74	21.89	22.18	22.32		
15	QPSK	36	0	21.09	21.52	21.66	22	1
15	QPSK	36	20	21.09	21.46	21.67		
15	QPSK	36	39	21.09	21.46	21.56		
15	QPSK	75	0	21.08	21.46	21.71		
15	16QAM	1	0	21.09	21.55	21.61	22	1
15	16QAM	1	37	21.18	21.49	21.78		
15	16QAM	1	74	21.11	21.41	21.53		
15	16QAM	36	0	20.01	20.41	20.57	21	2
15	16QAM	36	20	20.03	20.48	20.67		
15	16QAM	36	39	20.07	20.38	20.50		
15	16QAM	75	0	19.95	20.46	20.59		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.19	22.51	22.63	23	0
10	QPSK	1	25	22.14	22.49	22.52		
10	QPSK	1	49	22.11	22.39	22.49		
10	QPSK	25	0	21.37	21.54	21.49	22	1
10	QPSK	25	12	21.43	21.49	21.68		
10	QPSK	25	25	21.29	21.52	21.72		
10	QPSK	50	0	21.30	21.63	21.74		
10	16QAM	1	0	21.58	21.81	21.76	22	1
10	16QAM	1	25	21.52	21.80	21.85		
10	16QAM	1	49	21.41	21.67	21.70		
10	16QAM	25	0	20.34	20.46	20.47	21	2
10	16QAM	25	12	20.37	20.59	20.68		
10	16QAM	25	25	20.24	20.47	20.72		
10	16QAM	50	0	20.29	20.53	20.67		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.21	22.63	22.81	23	0
5	QPSK	1	12	22.12	22.46	22.62		
5	QPSK	1	24	22.14	22.47	22.64		
5	QPSK	12	0	21.24	21.59	21.73	22	1
5	QPSK	12	7	21.30	21.58	21.72		
5	QPSK	12	13	21.28	21.46	21.70		
5	QPSK	25	0	21.20	21.53	21.69		
5	16QAM	1	0	21.50	21.79	21.90	22	1
5	16QAM	1	12	21.51	21.78	21.91		
5	16QAM	1	24	21.49	21.72	21.90		
5	16QAM	12	0	20.30	20.45	20.69	21	2
5	16QAM	12	7	20.33	20.53	20.68		
5	16QAM	12	13	20.28	20.43	20.67		
5	16QAM	25	0	20.19	20.52	20.75		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.39	22.62	22.82	23	0
3	QPSK	1	8	22.27	22.55	22.68		
3	QPSK	1	14	22.21	22.40	22.58		
3	QPSK	8	0	21.27	21.51	21.64	22	1
3	QPSK	8	4	21.24	21.50	21.67		
3	QPSK	8	7	21.28	21.49	21.65		
3	QPSK	15	0	21.30	21.51	21.64		
3	16QAM	1	0	21.45	21.87	21.88	22	1
3	16QAM	1	8	21.63	21.86	21.98		
3	16QAM	1	14	21.50	21.67	21.84		
3	16QAM	8	0	20.35	20.47	20.70	21	2
3	16QAM	8	4	20.29	20.54	20.73		
3	16QAM	8	7	20.29	20.51	20.70		
3	16QAM	15	0	20.34	20.54	20.71		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.28	22.59	22.76	23	0
1.4	QPSK	1	3	22.17	22.51	22.65		
1.4	QPSK	1	5	22.13	22.45	22.70		
1.4	QPSK	3	0	22.16	22.54	22.64		
1.4	QPSK	3	1	22.27	22.53	22.68		
1.4	QPSK	3	3	22.22	22.52	22.72		
1.4	QPSK	6	0	21.17	21.46	21.61	22	1
1.4	16QAM	1	0	21.36	21.80	21.87	22	1
1.4	16QAM	1	3	21.58	21.79	21.90		
1.4	16QAM	1	5	21.44	21.74	21.98		
1.4	16QAM	3	0	21.18	21.45	21.61		
1.4	16QAM	3	1	21.36	21.57	21.67		
1.4	16QAM	3	3	21.28	21.53	21.67		
1.4	16QAM	6	0	20.25	20.51	20.66	21	2

<LTE Band 30>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	17.51			18.0	0
10	QPSK	1	25	17.32				
10	QPSK	1	49	17.32				
10	QPSK	25	0	16.55			17.0	1
10	QPSK	25	12	16.43				
10	QPSK	25	25	16.47				
10	QPSK	50	0	16.54				
10	16QAM	1	0	16.85			17.0	1
10	16QAM	1	25	16.63				
10	16QAM	1	49	16.61				
10	16QAM	25	0	15.56			16.0	2
10	16QAM	25	12	15.43				
10	16QAM	25	25	15.46				
10	16QAM	50	0	15.61				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	17.29	17.37	17.29	18.0	0
5	QPSK	1	12	17.25	17.20	17.26		
5	QPSK	1	24	17.28	17.29	17.23		
5	QPSK	12	0	16.30	16.32	16.35	17.0	1
5	QPSK	12	7	16.27	16.29	16.32		
5	QPSK	12	13	16.38	16.29	16.29		
5	QPSK	25	0	16.30	16.28	16.31		
5	16QAM	1	0	16.57	16.63	16.62	17.0	1
5	16QAM	1	12	16.52	16.56	16.54		
5	16QAM	1	24	16.51	16.56	16.49		
5	16QAM	12	0	15.36	15.39	15.39	16.0	2
5	16QAM	12	7	15.34	15.32	15.40		
5	16QAM	12	13	15.44	15.33	15.31		
5	16QAM	25	0	15.32	15.30	15.34		

<Body mode for WWAN UAT>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.63	23.77	23.89	24	0
20	QPSK	1	49	23.42	23.67	23.83		
20	QPSK	1	99	23.58	23.64	23.78		
20	QPSK	50	0	22.64	22.92	22.96	23	1
20	QPSK	50	24	22.57	22.87	22.89		
20	QPSK	50	50	22.61	22.81	22.94		
20	QPSK	100	0	22.83	22.90	22.92		
20	16QAM	1	0	22.83	22.84	22.86	23	1
20	16QAM	1	49	22.74	22.80	22.84		
20	16QAM	1	99	22.81	22.78	22.81		
20	16QAM	50	0	21.54	21.71	21.85	22	2
20	16QAM	50	24	21.45	21.77	21.96		
20	16QAM	50	50	21.50	21.77	21.97		
20	16QAM	100	0	21.45	21.79	21.96		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.50	23.47	23.68	24	0
15	QPSK	1	37	23.70	23.77	23.79		
15	QPSK	1	74	23.31	23.63	23.78		
15	QPSK	36	0	22.53	22.74	22.77	23	1
15	QPSK	36	20	22.43	22.68	22.81		
15	QPSK	36	39	22.48	22.72	22.94		
15	QPSK	75	0	22.54	22.71	22.86		
15	16QAM	1	0	22.76	22.82	22.96	23	1
15	16QAM	1	37	22.74	22.88	22.95		
15	16QAM	1	74	22.57	22.91	22.93		
15	16QAM	36	0	21.47	21.70	21.77	22	2
15	16QAM	36	20	21.41	21.70	21.85		
15	16QAM	36	39	21.42	21.68	21.88		
15	16QAM	75	0	21.52	21.68	21.86		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.61	23.69	23.93	24	0
10	QPSK	1	25	23.32	23.42	23.67		
10	QPSK	1	49	23.30	23.47	23.58		
10	QPSK	25	0	22.60	22.68	22.95	23	1
10	QPSK	25	12	22.49	22.61	22.89		
10	QPSK	25	25	22.42	22.61	22.78		
10	QPSK	50	0	22.51	22.66	22.92		
10	16QAM	1	0	22.67	22.71	22.98	23	1
10	16QAM	1	25	22.80	22.88	22.92		
10	16QAM	1	49	22.76	22.90	22.91		
10	16QAM	25	0	21.68	21.77	21.97	22	2
10	16QAM	25	12	21.59	21.71	21.98		
10	16QAM	25	25	21.51	21.68	21.88		
10	16QAM	50	0	21.61	21.76	22.00		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.55	23.67	23.88	24	0
5	QPSK	1	12	23.45	23.53	23.75		
5	QPSK	1	24	23.38	23.56	23.75		
5	QPSK	12	0	22.54	22.71	22.94	23	1
5	QPSK	12	7	22.53	22.66	22.91		
5	QPSK	12	13	22.52	22.65	22.87		
5	QPSK	25	0	22.50	22.62	22.89		
5	16QAM	1	0	22.76	22.87	22.94	23	1
5	16QAM	1	12	22.72	22.87	22.91		
5	16QAM	1	24	22.70	22.87	22.93		
5	16QAM	12	0	21.57	21.75	21.97	22	2
5	16QAM	12	7	21.53	21.65	21.94		
5	16QAM	12	13	21.53	21.67	21.88		
5	16QAM	25	0	21.52	21.67	21.94		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.39	23.56	23.70	24	0
3	QPSK	1	8	23.51	23.59	23.77		
3	QPSK	1	14	23.31	23.44	23.66		
3	QPSK	8	0	22.49	22.63	22.85	23	1
3	QPSK	8	4	22.47	22.60	22.86		
3	QPSK	8	7	22.46	22.64	22.82		
3	QPSK	15	0	22.45	22.58	22.84		
3	16QAM	1	0	22.76	22.88	22.96	23	1
3	16QAM	1	8	22.83	22.94	22.91		
3	16QAM	1	14	22.66	22.75	22.89		
3	16QAM	8	0	21.56	21.71	21.96	22	2
3	16QAM	8	4	21.57	21.70	21.99		
3	16QAM	8	7	21.52	21.72	21.94		
3	16QAM	15	0	21.49	21.65	21.90		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.39	23.48	23.63	24	0
1.4	QPSK	1	3	23.48	23.54	23.76		
1.4	QPSK	1	5	23.34	23.41	23.66		
1.4	QPSK	3	0	23.39	23.54	23.85		
1.4	QPSK	3	1	23.44	23.56	23.84		
1.4	QPSK	3	3	23.42	23.55	23.79		
1.4	QPSK	6	0	22.43	22.55	22.83	23	1
1.4	16QAM	1	0	22.65	22.80	22.95	23	1
1.4	16QAM	1	3	22.72	22.86	22.96		
1.4	16QAM	1	5	22.61	22.71	22.94		
1.4	16QAM	3	0	22.45	22.58	22.77		
1.4	16QAM	3	1	22.50	22.63	22.82		
1.4	16QAM	3	3	22.48	22.61	22.81		
1.4	16QAM	6	0	21.51	21.65	21.89	22	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.48	21.50	21.47	21.5	0
20	QPSK	1	49	21.43	21.47	21.44		
20	QPSK	1	99	21.23	21.23	21.04		
20	QPSK	50	0	20.47	20.49	20.43	20.5	1
20	QPSK	50	24	20.44	20.48	20.42		
20	QPSK	50	50	20.43	20.36	20.34		
20	QPSK	100	0	20.49	20.47	20.34		
20	16QAM	1	0	20.42	20.48	20.41	21.5	0
20	16QAM	1	49	20.41	20.47	20.40		
20	16QAM	1	99	20.44	20.44	20.34		
20	16QAM	50	0	19.50	19.49	19.34	20.5	1
20	16QAM	50	24	19.44	19.46	19.42		
20	16QAM	50	50	19.43	19.41	19.32		
20	16QAM	100	0	19.49	19.48	19.31		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.49	21.50	21.48	21.5	0
15	QPSK	1	37	21.23	21.29	21.26		
15	QPSK	1	74	21.24	21.47	21.02		
15	QPSK	36	0	20.50	20.50	20.49	20.5	1
15	QPSK	36	20	20.41	20.46	20.50		
15	QPSK	36	39	20.49	20.50	20.35		
15	QPSK	75	0	20.50	20.45	20.44		
15	16QAM	1	0	20.47	20.50	20.43	21.5	0
15	16QAM	1	37	20.46	20.48	20.47		
15	16QAM	1	74	20.49	20.44	20.25		
15	16QAM	36	0	19.48	19.45	19.37	20.5	1
15	16QAM	36	20	19.44	19.40	19.42		
15	16QAM	36	39	19.44	19.43	19.33		
15	16QAM	75	0	19.48	19.41	19.43		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.48	21.50	21.49	21.5	0
10	QPSK	1	25	21.44	21.48	21.46		
10	QPSK	1	49	21.48	21.44	21.40		
10	QPSK	25	0	20.43	20.46	20.49	20.5	1
10	QPSK	25	12	20.48	20.49	20.43		
10	QPSK	25	25	20.47	20.50	20.44		
10	QPSK	50	0	20.44	20.42	20.46		
10	16QAM	1	0	20.48	20.50	20.47	21.5	0
10	16QAM	1	25	20.45	20.44	20.48		
10	16QAM	1	49	20.47	20.49	20.44		
10	16QAM	25	0	19.43	19.50	19.42	20.5	1
10	16QAM	25	12	19.44	19.46	19.43		
10	16QAM	25	25	19.46	19.45	19.47		
10	16QAM	50	0	19.43	19.49	19.48		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.42	21.50	21.48	21.5	0
5	QPSK	1	12	21.44	21.49	21.42		
5	QPSK	1	24	21.41	21.48	21.42		
5	QPSK	12	0	20.48	20.50	20.50	20.5	1
5	QPSK	12	7	20.46	20.49	20.47		
5	QPSK	12	13	20.42	20.46	20.44		
5	QPSK	25	0	20.45	20.49	20.45		
5	16QAM	1	0	20.46	20.50	20.44	21.5	0
5	16QAM	1	12	20.42	20.48	20.46		
5	16QAM	1	24	20.40	20.47	20.43		
5	16QAM	12	0	19.48	19.50	19.42	20.5	1
5	16QAM	12	7	19.41	19.48	19.47		
5	16QAM	12	13	19.44	19.48	19.43		
5	16QAM	25	0	19.48	19.49	19.50		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.49	21.50	21.46	21.5	0
3	QPSK	1	8	21.48	21.49	21.47		
3	QPSK	1	14	21.47	21.48	21.33		
3	QPSK	8	0	20.49	20.50	20.43	20.5	1
3	QPSK	8	4	20.45	20.49	20.43		
3	QPSK	8	7	20.40	20.49	20.30		
3	QPSK	15	0	20.45	20.47	20.41		
3	16QAM	1	0	20.47	20.50	20.40	21.5	0
3	16QAM	1	8	20.49	20.45	20.49		
3	16QAM	1	14	20.42	20.42	20.41		
3	16QAM	8	0	19.49	19.50	19.49	20.5	1
3	16QAM	8	4	19.45	19.49	19.43		
3	16QAM	8	7	19.50	19.48	19.45		
3	16QAM	15	0	19.49	19.50	19.45		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.40	21.50	21.49	21.5	0
1.4	QPSK	1	3	21.48	21.49	21.47		
1.4	QPSK	1	5	21.37	21.45	21.33		
1.4	QPSK	3	0	21.49	21.46	21.43		
1.4	QPSK	3	1	21.48	21.49	21.49		
1.4	QPSK	3	3	21.49	21.48	21.45		
1.4	QPSK	6	0	20.36	20.46	20.29	20.5	1
1.4	16QAM	1	0	20.48	20.50	20.49	21.5	0
1.4	16QAM	1	3	20.44	20.48	20.48		
1.4	16QAM	1	5	20.34	20.33	20.39		
1.4	16QAM	3	0	20.30	20.35	20.37		
1.4	16QAM	3	1	20.47	20.48	20.47		
1.4	16QAM	3	3	20.41	20.42	20.41		
1.4	16QAM	6	0	19.49	19.50	19.33	20.5	1

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.83	23.14	23.13	23.5	0
10	QPSK	1	25	22.76	22.90	23.05		
10	QPSK	1	49	22.74	22.88	23.03		
10	QPSK	25	0	22.05	22.36	22.35	22.5	1
10	QPSK	25	12	21.87	21.99	22.20		
10	QPSK	25	25	21.92	22.09	22.14		
10	QPSK	50	0	21.99	22.30	22.29		
10	16QAM	1	0	22.00	22.15	22.48	22.5	1
10	16QAM	1	25	22.13	22.33	22.39		
10	16QAM	1	49	22.05	22.23	22.34		
10	16QAM	25	0	20.92	20.99	21.20	21.5	2
10	16QAM	25	12	20.94	21.13	21.37		
10	16QAM	25	25	20.88	21.07	21.30		
10	16QAM	50	0	20.94	21.13	21.31		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.89	22.93	23.08	23.5	0
5	QPSK	1	12	22.85	22.86	23.07		
5	QPSK	1	24	22.92	23.05	23.03		
5	QPSK	12	0	21.87	21.97	22.14	22.5	1
5	QPSK	12	7	21.91	22.04	22.14		
5	QPSK	12	13	21.94	22.06	22.19		
5	QPSK	25	0	21.86	21.96	22.18		
5	16QAM	1	0	22.08	22.16	22.34	22.5	1
5	16QAM	1	12	22.11	22.25	22.42		
5	16QAM	1	24	22.19	22.34	22.36		
5	16QAM	12	0	20.91	21.02	21.17	21.5	2
5	16QAM	12	7	20.94	21.10	21.09		
5	16QAM	12	13	20.97	21.09	21.18		
5	16QAM	25	0	20.91	20.92	21.21		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.86	22.94	23.10	23.5	0
3	QPSK	1	8	22.87	22.99	23.14		
3	QPSK	1	14	22.86	22.94	22.98		
3	QPSK	8	0	21.90	21.91	22.15	22.5	1
3	QPSK	8	4	21.94	22.01	22.19		
3	QPSK	8	7	21.96	22.01	22.10		
3	QPSK	15	0	21.92	21.96	22.13		
3	16QAM	1	0	22.09	22.18	22.35	22.5	1
3	16QAM	1	8	22.17	22.35	22.47		
3	16QAM	1	14	22.11	22.29	22.31		
3	16QAM	8	0	20.96	21.07	21.15	21.5	2
3	16QAM	8	4	20.99	21.03	21.25		
3	16QAM	8	7	21.01	21.01	21.16		
3	16QAM	15	0	20.99	20.96	21.20		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.83	22.94	23.05	23.5	0
1.4	QPSK	1	3	22.87	23.00	23.06		
1.4	QPSK	1	5	22.70	22.93	22.98		
1.4	QPSK	3	0	22.67	22.90	23.07		
1.4	QPSK	3	1	22.82	23.01	23.08		
1.4	QPSK	3	3	22.79	22.97	23.09		
1.4	QPSK	6	0	21.77	21.87	22.05	22.5	1
1.4	16QAM	1	0	22.05	22.18	22.29	22.5	1
1.4	16QAM	1	3	22.11	22.27	22.33		
1.4	16QAM	1	5	22.00	22.23	22.28		
1.4	16QAM	3	0	21.77	21.92	22.06		
1.4	16QAM	3	1	21.88	22.06	22.12		
1.4	16QAM	3	3	21.82	22.03	22.11		
1.4	16QAM	6	0	20.86	20.95	21.13	21.5	2

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.12	23.16	23.13	23.5	0
10	QPSK	1	25	22.99	23.00	22.89		
10	QPSK	1	49	22.94	23.02	22.93		
10	QPSK	25	0	22.26	22.29	22.17	22.5	1
10	QPSK	25	12	22.20	22.24	22.11		
10	QPSK	25	25	22.24	22.17	22.09		
10	QPSK	50	0	22.24	22.29	22.10		
10	16QAM	1	0	22.27	22.27	22.21	22.5	1
10	16QAM	1	25	22.38	22.38	22.30		
10	16QAM	1	49	22.40	22.43	22.39		
10	16QAM	25	0	21.16	21.27	21.18	21.5	2
10	16QAM	25	12	21.24	21.33	21.12		
10	16QAM	25	25	21.27	21.20	21.04		
10	16QAM	50	0	21.26	21.25	21.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.05	23.10	23.09	23.5	0
5	QPSK	1	12	23.07	23.09	22.88		
5	QPSK	1	24	23.09	23.02	22.87		
5	QPSK	12	0	22.17	22.24	22.07	22.5	1
5	QPSK	12	7	22.13	22.35	22.05		
5	QPSK	12	13	22.10	22.32	22.00		
5	QPSK	25	0	22.09	22.31	22.06		
5	16QAM	1	0	22.38	22.49	22.18	22.5	1
5	16QAM	1	12	22.36	22.45	22.24		
5	16QAM	1	24	22.37	22.35	22.33		
5	16QAM	12	0	21.28	21.28	21.18	21.5	2
5	16QAM	12	7	21.24	21.35	21.06		
5	16QAM	12	13	21.20	21.34	20.96		
5	16QAM	25	0	21.11	21.37	21.04		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.03	23.05	23.09	23.5	0
3	QPSK	1	8	23.01	23.08	22.87		
3	QPSK	1	14	22.99	23.01	22.92		
3	QPSK	8	0	22.25	22.11	22.08	22.5	1
3	QPSK	8	4	22.19	22.22	22.04		
3	QPSK	8	7	22.17	22.22	22.07		
3	QPSK	15	0	22.25	22.20	22.03		
3	16QAM	1	0	22.41	22.38	22.19	22.5	1
3	16QAM	1	8	22.41	22.45	22.20		
3	16QAM	1	14	22.37	22.30	22.33		
3	16QAM	8	0	21.38	21.23	21.15	21.5	2
3	16QAM	8	4	21.31	21.34	21.02		
3	16QAM	8	7	21.26	21.33	21.00		
3	16QAM	15	0	21.24	21.28	21.07		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.10	23.00	23.07	23.5	0
1.4	QPSK	1	3	23.03	23.12	22.82		
1.4	QPSK	1	5	23.04	23.04	22.93		
1.4	QPSK	3	0	23.00	23.03	23.01		
1.4	QPSK	3	1	23.03	23.07	23.04		
1.4	QPSK	3	3	23.09	23.08	23.06		
1.4	QPSK	6	0	22.16	22.18	22.01	22.5	1
1.4	16QAM	1	0	22.20	22.18	22.16	22.5	1
1.4	16QAM	1	3	22.30	22.40	22.20		
1.4	16QAM	1	5	22.31	22.30	22.38		
1.4	16QAM	3	0	22.13	22.07	22.03		
1.4	16QAM	3	1	22.27	22.13	22.13		
1.4	16QAM	3	3	22.25	22.09	22.08		
1.4	16QAM	6	0	21.27	21.24	21.04	21.5	2

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.11	23.16	23.13	23.5	0
10	QPSK	1	25	23.02	23.13	23.08		
10	QPSK	1	49	22.99	23.00	23.08		
10	QPSK	25	0	22.30	22.35	22.33	22.5	1
10	QPSK	25	12	22.23	22.28	22.26		
10	QPSK	25	25	22.24	22.32	22.22		
10	QPSK	50	0	22.30	22.37	22.31		
10	16QAM	1	0	22.32	22.49	22.31	22.5	1
10	16QAM	1	25	22.46	22.42	22.44		
10	16QAM	1	49	22.37	22.37	22.35		
10	16QAM	25	0	21.32	21.26	21.27	21.5	2
10	16QAM	25	12	21.33	21.37	21.28		
10	16QAM	25	25	21.33	21.33	21.25		
10	16QAM	50	0	21.30	21.32	21.40		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.10	23.17	23.01	23.5	0
5	QPSK	1	12	23.13	23.01	22.96		
5	QPSK	1	24	23.03	23.02	22.96		
5	QPSK	12	0	22.19	22.13	22.09	22.5	1
5	QPSK	12	7	22.19	22.14	22.09		
5	QPSK	12	13	22.29	22.18	22.11		
5	QPSK	25	0	22.24	22.13	22.10		
5	16QAM	1	0	22.40	22.42	22.24	22.5	1
5	16QAM	1	12	22.41	22.34	22.28		
5	16QAM	1	24	22.41	22.38	22.29		
5	16QAM	12	0	21.21	21.16	21.12	21.5	2
5	16QAM	12	7	21.20	21.19	21.14		
5	16QAM	12	13	21.31	21.23	21.12		
5	16QAM	25	0	21.34	21.18	21.09		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.05	22.61	22.60	23	0
15	QPSK	1	37	22.02	22.28	22.46		
15	QPSK	1	74	21.89	22.18	22.32		
15	QPSK	36	0	21.09	21.52	21.66	22	1
15	QPSK	36	20	21.09	21.46	21.67		
15	QPSK	36	39	21.09	21.46	21.56		
15	QPSK	75	0	21.08	21.46	21.71		
15	16QAM	1	0	21.09	21.55	21.61	22	1
15	16QAM	1	37	21.18	21.49	21.78		
15	16QAM	1	74	21.11	21.41	21.53		
15	16QAM	36	0	20.01	20.41	20.57	21	2
15	16QAM	36	20	20.03	20.48	20.67		
15	16QAM	36	39	20.07	20.38	20.50		
15	16QAM	75	0	19.95	20.46	20.59		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.19	22.51	22.63	23	0
10	QPSK	1	25	22.14	22.49	22.52		
10	QPSK	1	49	22.11	22.39	22.49		
10	QPSK	25	0	21.37	21.54	21.49	22	1
10	QPSK	25	12	21.43	21.49	21.68		
10	QPSK	25	25	21.29	21.52	21.72		
10	QPSK	50	0	21.30	21.63	21.74		
10	16QAM	1	0	21.58	21.81	21.76	22	1
10	16QAM	1	25	21.52	21.80	21.85		
10	16QAM	1	49	21.41	21.67	21.70		
10	16QAM	25	0	20.34	20.46	20.47	21	2
10	16QAM	25	12	20.37	20.59	20.68		
10	16QAM	25	25	20.24	20.47	20.72		
10	16QAM	50	0	20.29	20.53	20.67		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.21	22.63	22.81	23	0
5	QPSK	1	12	22.12	22.46	22.62		
5	QPSK	1	24	22.14	22.47	22.64		
5	QPSK	12	0	21.24	21.59	21.73	22	1
5	QPSK	12	7	21.30	21.58	21.72		
5	QPSK	12	13	21.28	21.46	21.70		
5	QPSK	25	0	21.20	21.53	21.69		
5	16QAM	1	0	21.50	21.79	21.90	22	1
5	16QAM	1	12	21.51	21.78	21.91		
5	16QAM	1	24	21.49	21.72	21.90		
5	16QAM	12	0	20.30	20.45	20.69	21	2
5	16QAM	12	7	20.33	20.53	20.68		
5	16QAM	12	13	20.28	20.43	20.67		
5	16QAM	25	0	20.19	20.52	20.75		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.39	22.62	22.82	23	0
3	QPSK	1	8	22.27	22.55	22.68		
3	QPSK	1	14	22.21	22.40	22.58		
3	QPSK	8	0	21.27	21.51	21.64	22	1
3	QPSK	8	4	21.24	21.50	21.67		
3	QPSK	8	7	21.28	21.49	21.65		
3	QPSK	15	0	21.30	21.51	21.64		
3	16QAM	1	0	21.45	21.87	21.88	22	1
3	16QAM	1	8	21.63	21.86	21.98		
3	16QAM	1	14	21.50	21.67	21.84		
3	16QAM	8	0	20.35	20.47	20.70	21	2
3	16QAM	8	4	20.29	20.54	20.73		
3	16QAM	8	7	20.29	20.51	20.70		
3	16QAM	15	0	20.34	20.54	20.71		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.28	22.59	22.76	23	0
1.4	QPSK	1	3	22.17	22.51	22.65		
1.4	QPSK	1	5	22.13	22.45	22.70		
1.4	QPSK	3	0	22.16	22.54	22.64		
1.4	QPSK	3	1	22.27	22.53	22.68		
1.4	QPSK	3	3	22.22	22.52	22.72		
1.4	QPSK	6	0	21.17	21.46	21.61	22	1
1.4	16QAM	1	0	21.36	21.80	21.87	22	1
1.4	16QAM	1	3	21.58	21.79	21.90		
1.4	16QAM	1	5	21.44	21.74	21.98		
1.4	16QAM	3	0	21.18	21.45	21.61		
1.4	16QAM	3	1	21.36	21.57	21.67		
1.4	16QAM	3	3	21.28	21.53	21.67		
1.4	16QAM	6	0	20.25	20.51	20.66	21	2

<Body mode for WWAN LAT>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	20.90	20.89	21.00	21	0
20	QPSK	1	49	20.72	20.72	20.99		
20	QPSK	1	99	20.79	20.78	20.94		
20	QPSK	50	0	19.78	19.98	20.00	20	1
20	QPSK	50	24	19.75	19.91	19.94		
20	QPSK	50	50	19.60	19.85	19.98		
20	QPSK	100	0	19.79	19.93	19.85		
20	16QAM	1	0	20.18	20.06	20.42	21	0
20	16QAM	1	49	19.95	20.03	20.30		
20	16QAM	1	99	19.99	20.16	20.15		
20	16QAM	50	0	18.80	18.93	19.02	20	1
20	16QAM	50	24	18.81	18.88	19.09		
20	16QAM	50	50	18.70	18.82	19.20		
20	16QAM	100	0	18.91	18.88	19.10		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	20.80	20.80	20.98	21	0
15	QPSK	1	37	20.51	20.76	20.87		
15	QPSK	1	74	20.54	20.81	20.81		
15	QPSK	36	0	19.77	19.87	19.95	20	1
15	QPSK	36	20	19.71	19.81	19.99		
15	QPSK	36	39	19.70	19.82	19.87		
15	QPSK	75	0	19.73	19.85	19.95		
15	16QAM	1	0	19.97	20.03	20.12	21	0
15	16QAM	1	37	19.93	19.98	20.15		
15	16QAM	1	74	19.81	20.05	20.14		
15	16QAM	36	0	18.72	18.79	19.07	20	1
15	16QAM	36	20	18.71	18.79	19.00		
15	16QAM	36	39	18.62	18.77	18.95		
15	16QAM	75	0	18.74	18.84	18.96		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	20.91	20.95	20.99	21	0
10	QPSK	1	25	20.74	20.82	20.98		
10	QPSK	1	49	20.76	20.79	20.96		
10	QPSK	25	0	19.84	19.96	19.97	20	1
10	QPSK	25	12	19.77	19.88	19.97		
10	QPSK	25	25	19.71	19.88	19.90		
10	QPSK	50	0	19.80	19.94	19.98		
10	16QAM	1	0	20.24	20.38	20.56	21	0
10	16QAM	1	25	19.95	20.05	20.30		
10	16QAM	1	49	19.95	20.04	20.30		
10	16QAM	25	0	18.81	18.94	19.12	20	1
10	16QAM	25	12	18.74	18.85	19.12		
10	16QAM	25	25	18.70	18.85	19.07		
10	16QAM	50	0	18.80	18.89	19.18		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.85	20.94	20.96	21	0
5	QPSK	1	12	20.67	20.85	20.91		
5	QPSK	1	24	20.73	20.89	20.90		
5	QPSK	12	0	19.74	19.92	19.97	20	1
5	QPSK	12	7	19.66	19.88	19.99		
5	QPSK	12	13	19.68	19.81	19.96		
5	QPSK	25	0	19.65	19.83	19.97		
5	16QAM	1	0	20.04	20.11	20.48	21	0
5	16QAM	1	12	19.92	20.07	20.35		
5	16QAM	1	24	19.88	20.12	20.32		
5	16QAM	12	0	18.76	18.93	19.12	20	1
5	16QAM	12	7	18.69	18.87	19.15		
5	16QAM	12	13	18.70	18.81	19.12		
5	16QAM	25	0	18.65	18.85	19.14		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.73	20.94	20.96	21	0
3	QPSK	1	8	20.77	20.92	20.95		
3	QPSK	1	14	20.64	20.76	20.90		
3	QPSK	8	0	19.70	19.79	19.98	20	1
3	QPSK	8	4	19.69	19.85	20.00		
3	QPSK	8	7	19.69	19.78	19.94		
3	QPSK	15	0	19.66	19.81	19.97		
3	16QAM	1	0	19.96	20.13	20.37	21	0
3	16QAM	1	8	20.02	20.15	20.44		
3	16QAM	1	14	19.84	19.97	20.28		
3	16QAM	8	0	18.74	18.87	19.17	20	1
3	16QAM	8	4	18.74	18.88	19.15		
3	16QAM	8	7	18.71	18.86	19.14		
3	16QAM	15	0	18.72	18.87	19.13		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.65	20.72	20.98	21	0
1.4	QPSK	1	3	20.72	20.88	20.95		
1.4	QPSK	1	5	20.60	20.75	20.92		
1.4	QPSK	3	0	20.71	20.88	20.90		
1.4	QPSK	3	1	20.75	20.88	20.91		
1.4	QPSK	3	3	20.74	20.88	20.89		
1.4	QPSK	6	0	19.59	19.74	19.99	20	1
1.4	16QAM	1	0	19.91	20.00	20.28	21	0
1.4	16QAM	1	3	19.95	20.11	20.32		
1.4	16QAM	1	5	19.85	19.96	20.24		
1.4	16QAM	3	0	19.69	19.84	20.15		
1.4	16QAM	3	1	19.75	19.89	20.12		
1.4	16QAM	3	3	19.75	19.86	20.17		
1.4	16QAM	6	0	18.69	18.82	19.08	20	1

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.48	21.50	21.47	21.5	0
20	QPSK	1	49	21.43	21.47	21.44		
20	QPSK	1	99	21.23	21.23	21.04		
20	QPSK	50	0	20.47	20.49	20.43	20.5	1
20	QPSK	50	24	20.44	20.48	20.42		
20	QPSK	50	50	20.43	20.36	20.34		
20	QPSK	100	0	20.49	20.47	20.34		
20	16QAM	1	0	20.42	20.48	20.41	21.5	0
20	16QAM	1	49	20.41	20.47	20.40		
20	16QAM	1	99	20.44	20.44	20.34		
20	16QAM	50	0	19.50	19.49	19.34	20.5	1
20	16QAM	50	24	19.44	19.46	19.42		
20	16QAM	50	50	19.43	19.41	19.32		
20	16QAM	100	0	19.49	19.48	19.31		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.49	21.50	21.48	21.5	0
15	QPSK	1	37	21.23	21.29	21.26		
15	QPSK	1	74	21.24	21.47	21.02		
15	QPSK	36	0	20.50	20.50	20.49	20.5	1
15	QPSK	36	20	20.41	20.46	20.50		
15	QPSK	36	39	20.49	20.50	20.35		
15	QPSK	75	0	20.50	20.45	20.44		
15	16QAM	1	0	20.47	20.50	20.43	21.5	0
15	16QAM	1	37	20.46	20.48	20.47		
15	16QAM	1	74	20.49	20.44	20.25		
15	16QAM	36	0	19.48	19.45	19.37	20.5	1
15	16QAM	36	20	19.44	19.40	19.42		
15	16QAM	36	39	19.44	19.43	19.33		
15	16QAM	75	0	19.48	19.41	19.43		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.48	21.50	21.49	21.5	0
10	QPSK	1	25	21.44	21.48	21.46		
10	QPSK	1	49	21.48	21.44	21.40		
10	QPSK	25	0	20.43	20.46	20.49	20.5	1
10	QPSK	25	12	20.48	20.49	20.43		
10	QPSK	25	25	20.47	20.50	20.44		
10	QPSK	50	0	20.44	20.42	20.46		
10	16QAM	1	0	20.48	20.50	20.47	21.5	0
10	16QAM	1	25	20.45	20.44	20.48		
10	16QAM	1	49	20.47	20.49	20.44		
10	16QAM	25	0	19.43	19.50	19.42	20.5	1
10	16QAM	25	12	19.44	19.46	19.43		
10	16QAM	25	25	19.46	19.45	19.47		
10	16QAM	50	0	19.43	19.49	19.48		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.42	21.50	21.48	21.5	0
5	QPSK	1	12	21.44	21.49	21.42		
5	QPSK	1	24	21.41	21.48	21.42		
5	QPSK	12	0	20.48	20.50	20.50	20.5	1
5	QPSK	12	7	20.46	20.49	20.47		
5	QPSK	12	13	20.42	20.46	20.44		
5	QPSK	25	0	20.45	20.49	20.45		
5	16QAM	1	0	20.46	20.50	20.44	21.5	0
5	16QAM	1	12	20.42	20.48	20.46		
5	16QAM	1	24	20.40	20.47	20.43		
5	16QAM	12	0	19.48	19.50	19.42	20.5	1
5	16QAM	12	7	19.41	19.48	19.47		
5	16QAM	12	13	19.44	19.48	19.43		
5	16QAM	25	0	19.48	19.49	19.50		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.49	21.50	21.46	21.5	0
3	QPSK	1	8	21.48	21.49	21.47		
3	QPSK	1	14	21.47	21.48	21.33		
3	QPSK	8	0	20.49	20.50	20.43	20.5	1
3	QPSK	8	4	20.45	20.49	20.43		
3	QPSK	8	7	20.40	20.49	20.30		
3	QPSK	15	0	20.45	20.47	20.41		
3	16QAM	1	0	20.47	20.50	20.40	21.5	0
3	16QAM	1	8	20.49	20.45	20.49		
3	16QAM	1	14	20.42	20.42	20.41		
3	16QAM	8	0	19.49	19.50	19.49	20.5	1
3	16QAM	8	4	19.45	19.49	19.43		
3	16QAM	8	7	19.50	19.48	19.45		
3	16QAM	15	0	19.49	19.50	19.45		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.40	21.50	21.49	21.5	0
1.4	QPSK	1	3	21.48	21.49	21.47		
1.4	QPSK	1	5	21.37	21.45	21.33		
1.4	QPSK	3	0	21.49	21.46	21.43		
1.4	QPSK	3	1	21.48	21.49	21.49		
1.4	QPSK	3	3	21.49	21.48	21.45		
1.4	QPSK	6	0	20.36	20.46	20.29	20.5	1
1.4	16QAM	1	0	20.48	20.50	20.49	21.5	0
1.4	16QAM	1	3	20.44	20.48	20.48		
1.4	16QAM	1	5	20.34	20.33	20.39		
1.4	16QAM	3	0	20.30	20.35	20.37		
1.4	16QAM	3	1	20.47	20.48	20.47		
1.4	16QAM	3	3	20.41	20.42	20.41		
1.4	16QAM	6	0	19.49	19.50	19.33	20.5	1

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.83	23.14	23.13	23.5	0
10	QPSK	1	25	22.76	22.90	23.05		
10	QPSK	1	49	22.74	22.88	23.03		
10	QPSK	25	0	22.05	22.36	22.35	22.5	1
10	QPSK	25	12	21.87	21.99	22.20		
10	QPSK	25	25	21.92	22.09	22.14		
10	QPSK	50	0	21.99	22.30	22.29		
10	16QAM	1	0	22.00	22.15	22.48	22.5	1
10	16QAM	1	25	22.13	22.33	22.39		
10	16QAM	1	49	22.05	22.23	22.34		
10	16QAM	25	0	20.92	20.99	21.20	21.5	2
10	16QAM	25	12	20.94	21.13	21.37		
10	16QAM	25	25	20.88	21.07	21.30		
10	16QAM	50	0	20.94	21.13	21.31		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.89	22.93	23.08	23.5	0
5	QPSK	1	12	22.85	22.86	23.07		
5	QPSK	1	24	22.92	23.05	23.03		
5	QPSK	12	0	21.87	21.97	22.14	22.5	1
5	QPSK	12	7	21.91	22.04	22.14		
5	QPSK	12	13	21.94	22.06	22.19		
5	QPSK	25	0	21.86	21.96	22.18		
5	16QAM	1	0	22.08	22.16	22.34	22.5	1
5	16QAM	1	12	22.11	22.25	22.42		
5	16QAM	1	24	22.19	22.34	22.36		
5	16QAM	12	0	20.91	21.02	21.17	21.5	2
5	16QAM	12	7	20.94	21.10	21.09		
5	16QAM	12	13	20.97	21.09	21.18		
5	16QAM	25	0	20.91	20.92	21.21		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.86	22.94	23.10	23.5	0
3	QPSK	1	8	22.87	22.99	23.14		
3	QPSK	1	14	22.86	22.94	22.98		
3	QPSK	8	0	21.90	21.91	22.15	22.5	1
3	QPSK	8	4	21.94	22.01	22.19		
3	QPSK	8	7	21.96	22.01	22.10		
3	QPSK	15	0	21.92	21.96	22.13		
3	16QAM	1	0	22.09	22.18	22.35	22.5	1
3	16QAM	1	8	22.17	22.35	22.47		
3	16QAM	1	14	22.11	22.29	22.31		
3	16QAM	8	0	20.96	21.07	21.15	21.5	2
3	16QAM	8	4	20.99	21.03	21.25		
3	16QAM	8	7	21.01	21.01	21.16		
3	16QAM	15	0	20.99	20.96	21.20		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.83	22.94	23.05	23.5	0
1.4	QPSK	1	3	22.87	23.00	23.06		
1.4	QPSK	1	5	22.70	22.93	22.98		
1.4	QPSK	3	0	22.67	22.90	23.07		
1.4	QPSK	3	1	22.82	23.01	23.08		
1.4	QPSK	3	3	22.79	22.97	23.09		
1.4	QPSK	6	0	21.77	21.87	22.05	22.5	1
1.4	16QAM	1	0	22.05	22.18	22.29	22.5	1
1.4	16QAM	1	3	22.11	22.27	22.33		
1.4	16QAM	1	5	22.00	22.23	22.28		
1.4	16QAM	3	0	21.77	21.92	22.06		
1.4	16QAM	3	1	21.88	22.06	22.12		
1.4	16QAM	3	3	21.82	22.03	22.11		
1.4	16QAM	6	0	20.86	20.95	21.13	21.5	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.07	21.08	21.04	21.5	0
20	QPSK	1	49	20.86	20.92	20.77		
20	QPSK	1	99	21.06	21.07	21.03		
20	QPSK	50	0	20.08	20.11	20.08	20.5	1
20	QPSK	50	24	20.00	19.94	20.03		
20	QPSK	50	50	20.07	20.10	20.07		
20	QPSK	100	0	20.05	20.07	19.97		
20	16QAM	1	0	20.18	20.16	20.14	20.5	1
20	16QAM	1	49	20.13	20.21	20.16		
20	16QAM	1	99	20.32	20.35	20.34		
20	16QAM	50	0	18.95	18.98	19.00	19.5	2
20	16QAM	50	24	19.00	19.00	19.10		
20	16QAM	50	50	19.07	19.10	19.05		
20	16QAM	100	0	19.02	18.99	19.10		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.80	20.83	20.90	21.5	0
15	QPSK	1	37	20.93	21.00	20.94		
15	QPSK	1	74	20.98	21.02	20.97		
15	QPSK	36	0	19.94	19.96	20.03	20.5	1
15	QPSK	36	20	19.91	20.04	19.98		
15	QPSK	36	39	20.02	20.13	20.06		
15	QPSK	75	0	19.97	20.07	19.99		
15	16QAM	1	0	20.06	20.09	20.17	20.5	1
15	16QAM	1	37	20.13	20.13	20.16		
15	16QAM	1	74	20.23	20.25	20.23		
15	16QAM	36	0	18.96	18.98	18.96	19.5	2
15	16QAM	36	20	18.94	19.04	19.00		
15	16QAM	36	39	19.01	19.09	19.02		
15	16QAM	75	0	18.96	19.06	19.01		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.08	21.22	21.20	21.5	0
10	QPSK	1	25	20.76	20.85	20.93		
10	QPSK	1	49	21.09	20.21	20.19		
10	QPSK	25	0	19.96	20.12	20.17	20.5	1
10	QPSK	25	12	19.88	20.00	20.10		
10	QPSK	25	25	19.93	20.09	20.09		
10	QPSK	50	0	19.97	20.06	20.14		
10	16QAM	1	0	20.36	20.49	20.47	20.5	1
10	16QAM	1	25	20.07	20.17	20.20		
10	16QAM	1	49	20.37	20.40	20.46		
10	16QAM	25	0	18.96	19.13	19.22	19.5	2
10	16QAM	25	12	18.90	19.00	19.10		
10	16QAM	25	25	18.96	19.10	19.19		
10	16QAM	50	0	18.99	19.11	19.16		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.82	21.00	20.99	21.5	0
5	QPSK	1	12	20.74	20.88	20.94		
5	QPSK	1	24	20.76	20.94	20.95		
5	QPSK	12	0	19.74	19.94	20.02	20.5	1
5	QPSK	12	7	19.81	19.94	20.04		
5	QPSK	12	13	19.82	19.95	20.00		
5	QPSK	25	0	19.78	19.91	19.97		
5	16QAM	1	0	20.09	20.32	20.27	20.5	1
5	16QAM	1	12	20.10	20.22	20.28		
5	16QAM	1	24	20.01	20.19	20.23		
5	16QAM	12	0	18.82	19.02	19.05	19.5	2
5	16QAM	12	7	18.86	18.98	19.04		
5	16QAM	12	13	18.88	19.03	19.02		
5	16QAM	25	0	18.82	18.95	19.01		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.12	23.16	23.13	23.5	0
10	QPSK	1	25	22.99	23.00	22.89		
10	QPSK	1	49	22.94	23.02	22.93		
10	QPSK	25	0	22.26	22.29	22.17	22.5	1
10	QPSK	25	12	22.20	22.24	22.11		
10	QPSK	25	25	22.24	22.17	22.09		
10	QPSK	50	0	22.24	22.29	22.10		
10	16QAM	1	0	22.27	22.27	22.21	22.5	1
10	16QAM	1	25	22.38	22.38	22.30		
10	16QAM	1	49	22.40	22.43	22.39		
10	16QAM	25	0	21.16	21.27	21.18	21.5	2
10	16QAM	25	12	21.24	21.33	21.12		
10	16QAM	25	25	21.27	21.20	21.04		
10	16QAM	50	0	21.26	21.25	21.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.05	23.10	23.09	23.5	0
5	QPSK	1	12	23.07	23.09	22.88		
5	QPSK	1	24	23.09	23.02	22.87		
5	QPSK	12	0	22.17	22.24	22.07	22.5	1
5	QPSK	12	7	22.13	22.35	22.05		
5	QPSK	12	13	22.10	22.32	22.00		
5	QPSK	25	0	22.09	22.31	22.06		
5	16QAM	1	0	22.38	22.49	22.18	22.5	1
5	16QAM	1	12	22.36	22.45	22.24		
5	16QAM	1	24	22.37	22.35	22.33		
5	16QAM	12	0	21.28	21.28	21.18	21.5	2
5	16QAM	12	7	21.24	21.35	21.06		
5	16QAM	12	13	21.20	21.34	20.96		
5	16QAM	25	0	21.11	21.37	21.04		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.03	23.05	23.09	23.5	0
3	QPSK	1	8	23.01	23.08	22.87		
3	QPSK	1	14	22.99	23.01	22.92		
3	QPSK	8	0	22.25	22.11	22.08	22.5	1
3	QPSK	8	4	22.19	22.22	22.04		
3	QPSK	8	7	22.17	22.22	22.07		
3	QPSK	15	0	22.25	22.20	22.03		
3	16QAM	1	0	22.41	22.38	22.19	22.5	1
3	16QAM	1	8	22.41	22.45	22.20		
3	16QAM	1	14	22.37	22.30	22.33		
3	16QAM	8	0	21.38	21.23	21.15	21.5	2
3	16QAM	8	4	21.31	21.34	21.02		
3	16QAM	8	7	21.26	21.33	21.00		
3	16QAM	15	0	21.24	21.28	21.07		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.10	23.00	23.07	23.5	0
1.4	QPSK	1	3	23.03	23.12	22.82		
1.4	QPSK	1	5	23.04	23.04	22.93		
1.4	QPSK	3	0	23.00	23.03	23.01		
1.4	QPSK	3	1	23.03	23.07	23.04		
1.4	QPSK	3	3	23.09	23.08	23.06		
1.4	QPSK	6	0	22.16	22.18	22.01	22.5	1
1.4	16QAM	1	0	22.20	22.18	22.16	22.5	1
1.4	16QAM	1	3	22.30	22.40	22.20		
1.4	16QAM	1	5	22.31	22.30	22.38		
1.4	16QAM	3	0	22.13	22.07	22.03		
1.4	16QAM	3	1	22.27	22.13	22.13		
1.4	16QAM	3	3	22.25	22.09	22.08		
1.4	16QAM	6	0	21.27	21.24	21.04	21.5	2

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.11	23.16	23.13	23.5	0
10	QPSK	1	25	23.02	23.13	23.08		
10	QPSK	1	49	22.99	23.00	23.08		
10	QPSK	25	0	22.30	22.35	22.33	22.5	1
10	QPSK	25	12	22.23	22.28	22.26		
10	QPSK	25	25	22.24	22.32	22.22		
10	QPSK	50	0	22.30	22.37	22.31		
10	16QAM	1	0	22.32	22.49	22.31	22.5	1
10	16QAM	1	25	22.46	22.42	22.44		
10	16QAM	1	49	22.37	22.37	22.35		
10	16QAM	25	0	21.32	21.26	21.27	21.5	2
10	16QAM	25	12	21.33	21.37	21.28		
10	16QAM	25	25	21.33	21.33	21.25		
10	16QAM	50	0	21.30	21.32	21.40		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.10	23.17	23.01	23.5	0
5	QPSK	1	12	23.13	23.01	22.96		
5	QPSK	1	24	23.03	23.02	22.96		
5	QPSK	12	0	22.19	22.13	22.09	22.5	1
5	QPSK	12	7	22.19	22.14	22.09		
5	QPSK	12	13	22.29	22.18	22.11		
5	QPSK	25	0	22.24	22.13	22.10		
5	16QAM	1	0	22.40	22.42	22.24	22.5	1
5	16QAM	1	12	22.41	22.34	22.28		
5	16QAM	1	24	22.41	22.38	22.29		
5	16QAM	12	0	21.21	21.16	21.12	21.5	2
5	16QAM	12	7	21.20	21.19	21.14		
5	16QAM	12	13	21.31	21.23	21.12		
5	16QAM	25	0	21.34	21.18	21.09		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.05	22.61	22.60	23	0
15	QPSK	1	37	22.02	22.28	22.46		
15	QPSK	1	74	21.89	22.18	22.32		
15	QPSK	36	0	21.09	21.52	21.66	22	1
15	QPSK	36	20	21.09	21.46	21.67		
15	QPSK	36	39	21.09	21.46	21.56		
15	QPSK	75	0	21.08	21.46	21.71		
15	16QAM	1	0	21.09	21.55	21.61	22	1
15	16QAM	1	37	21.18	21.49	21.78		
15	16QAM	1	74	21.11	21.41	21.53		
15	16QAM	36	0	20.01	20.41	20.57	21	2
15	16QAM	36	20	20.03	20.48	20.67		
15	16QAM	36	39	20.07	20.38	20.50		
15	16QAM	75	0	19.95	20.46	20.59		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.19	22.51	22.63	23	0
10	QPSK	1	25	22.14	22.49	22.52		
10	QPSK	1	49	22.11	22.39	22.49		
10	QPSK	25	0	21.37	21.54	21.49	22	1
10	QPSK	25	12	21.43	21.49	21.68		
10	QPSK	25	25	21.29	21.52	21.72		
10	QPSK	50	0	21.30	21.63	21.74		
10	16QAM	1	0	21.58	21.81	21.76	22	1
10	16QAM	1	25	21.52	21.80	21.85		
10	16QAM	1	49	21.41	21.67	21.70		
10	16QAM	25	0	20.34	20.46	20.47	21	2
10	16QAM	25	12	20.37	20.59	20.68		
10	16QAM	25	25	20.24	20.47	20.72		
10	16QAM	50	0	20.29	20.53	20.67		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.21	22.63	22.81	23	0
5	QPSK	1	12	22.12	22.46	22.62		
5	QPSK	1	24	22.14	22.47	22.64		
5	QPSK	12	0	21.24	21.59	21.73	22	1
5	QPSK	12	7	21.30	21.58	21.72		
5	QPSK	12	13	21.28	21.46	21.70		
5	QPSK	25	0	21.20	21.53	21.69		
5	16QAM	1	0	21.50	21.79	21.90	22	1
5	16QAM	1	12	21.51	21.78	21.91		
5	16QAM	1	24	21.49	21.72	21.90		
5	16QAM	12	0	20.30	20.45	20.69	21	2
5	16QAM	12	7	20.33	20.53	20.68		
5	16QAM	12	13	20.28	20.43	20.67		
5	16QAM	25	0	20.19	20.52	20.75		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.39	22.62	22.82	23	0
3	QPSK	1	8	22.27	22.55	22.68		
3	QPSK	1	14	22.21	22.40	22.58		
3	QPSK	8	0	21.27	21.51	21.64	22	1
3	QPSK	8	4	21.24	21.50	21.67		
3	QPSK	8	7	21.28	21.49	21.65		
3	QPSK	15	0	21.30	21.51	21.64		
3	16QAM	1	0	21.45	21.87	21.88	22	1
3	16QAM	1	8	21.63	21.86	21.98		
3	16QAM	1	14	21.50	21.67	21.84		
3	16QAM	8	0	20.35	20.47	20.70	21	2
3	16QAM	8	4	20.29	20.54	20.73		
3	16QAM	8	7	20.29	20.51	20.70		
3	16QAM	15	0	20.34	20.54	20.71		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.28	22.59	22.76	23	0
1.4	QPSK	1	3	22.17	22.51	22.65		
1.4	QPSK	1	5	22.13	22.45	22.70		
1.4	QPSK	3	0	22.16	22.54	22.64		
1.4	QPSK	3	1	22.27	22.53	22.68		
1.4	QPSK	3	3	22.22	22.52	22.72		
1.4	QPSK	6	0	21.17	21.46	21.61	22	1
1.4	16QAM	1	0	21.36	21.80	21.87	22	1
1.4	16QAM	1	3	21.58	21.79	21.90		
1.4	16QAM	1	5	21.44	21.74	21.98		
1.4	16QAM	3	0	21.18	21.45	21.61		
1.4	16QAM	3	1	21.36	21.57	21.67		
1.4	16QAM	3	3	21.28	21.53	21.67		
1.4	16QAM	6	0	20.25	20.51	20.66	21	2

<LTE Band 30>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	17.51			18.0	0
10	QPSK	1	25	17.32				
10	QPSK	1	49	17.32				
10	QPSK	25	0	16.55			17.0	1
10	QPSK	25	12	16.43				
10	QPSK	25	25	16.47				
10	QPSK	50	0	16.54				
10	16QAM	1	0	16.85			17.0	1
10	16QAM	1	25	16.63				
10	16QAM	1	49	16.61				
10	16QAM	25	0	15.56			16.0	2
10	16QAM	25	12	15.43				
10	16QAM	25	25	15.46				
10	16QAM	50	0	15.61				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	17.29	17.37	17.29	18.0	0
5	QPSK	1	12	17.25	17.20	17.26		
5	QPSK	1	24	17.28	17.29	17.23		
5	QPSK	12	0	16.30	16.32	16.35	17.0	1
5	QPSK	12	7	16.27	16.29	16.32		
5	QPSK	12	13	16.38	16.29	16.29		
5	QPSK	25	0	16.30	16.28	16.31		
5	16QAM	1	0	16.57	16.63	16.62	17.0	1
5	16QAM	1	12	16.52	16.56	16.54		
5	16QAM	1	24	16.51	16.56	16.49		
5	16QAM	12	0	15.36	15.39	15.39	16.0	2
5	16QAM	12	7	15.34	15.32	15.40		
5	16QAM	12	13	15.44	15.33	15.31		
5	16QAM	25	0	15.32	15.30	15.34		

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C / Keysight E7515A (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

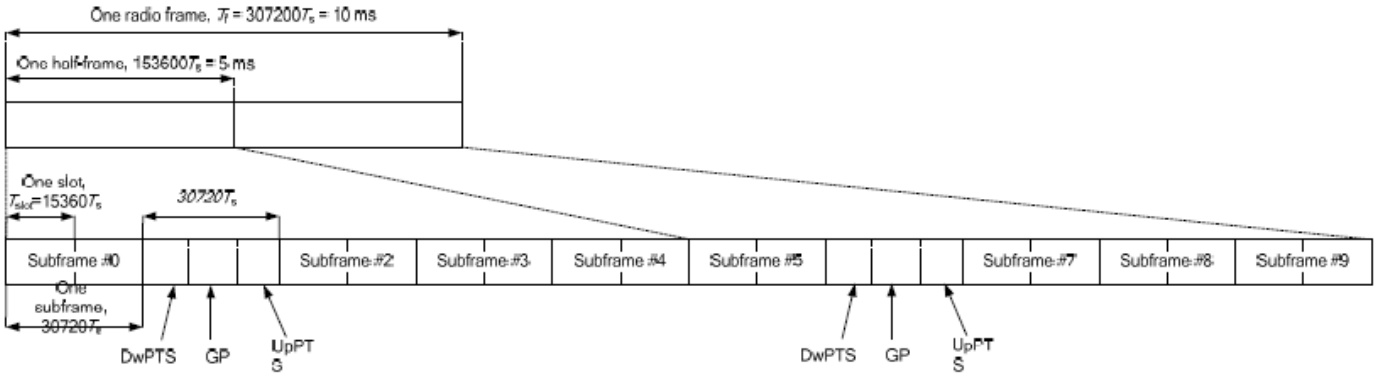


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<Head mode and Body mode for WWAN LAT>

<LTE Band 38>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	21.38	21.65	21.59	22.5	0
20	QPSK	1	49	21.09	21.10	21.07		
20	QPSK	1	99	21.34	21.40	21.36		
20	QPSK	50	0	20.32	20.51	20.49	21.5	1
20	QPSK	50	24	20.23	20.34	20.41		
20	QPSK	50	50	20.29	20.33	20.38		
20	QPSK	100	0	20.38	20.43	20.41		
20	16QAM	1	0	20.62	20.75	20.74	21.5	1
20	16QAM	1	49	20.31	20.24	20.21		
20	16QAM	1	99	20.40	20.39	20.37		
20	16QAM	50	0	19.38	19.48	19.51	20.5	2
20	16QAM	50	24	19.27	19.36	19.39		
20	16QAM	50	50	19.37	19.39	19.38		
20	16QAM	100	0	19.40	19.42	19.42		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	21.18	21.54	21.52	22.5	0
15	QPSK	1	37	20.91	21.07	20.90		
15	QPSK	1	74	21.33	21.30	21.32		
15	QPSK	36	0	20.26	20.48	20.42	21.5	1
15	QPSK	36	20	20.31	20.30	20.22		
15	QPSK	36	39	20.32	20.27	20.24		
15	QPSK	75	0	20.23	20.39	20.38		
15	16QAM	1	0	20.49	20.61	20.56	21.5	1
15	16QAM	1	37	20.19	20.28	20.21		
15	16QAM	1	74	20.36	20.38	20.32		
15	16QAM	36	0	19.06	19.37	19.38	20.5	2
15	16QAM	36	20	19.25	19.25	19.25		
15	16QAM	36	39	19.24	19.21	19.17		
15	16QAM	75	0	19.19	19.35	19.37		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	20.99	21.31	21.23	22.5	0
10	QPSK	1	25	21.03	21.15	20.95		
10	QPSK	1	49	21.21	21.14	21.01		
10	QPSK	25	0	20.19	20.28	20.12	21.5	1
10	QPSK	25	12	20.27	20.31	20.08		
10	QPSK	25	25	20.15	20.25	20.04		
10	QPSK	50	0	20.35	20.35	20.12		
10	16QAM	1	0	20.19	20.37	20.27	21.5	1
10	16QAM	1	25	20.34	20.21	20.00		
10	16QAM	1	49	20.24	20.11	19.96		
10	16QAM	25	0	19.08	19.25	19.16	20.5	2
10	16QAM	25	12	19.21	19.33	19.12		
10	16QAM	25	25	19.26	19.19	19.09		
10	16QAM	50	0	19.38	19.36	19.18		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	20.96	21.22	21.05	22.5	0
5	QPSK	1	12	21.00	21.18	21.01		
5	QPSK	1	24	21.12	21.15	20.89		
5	QPSK	12	0	20.11	20.19	20.07	21.5	1
5	QPSK	12	7	20.17	20.28	20.03		
5	QPSK	12	13	20.18	20.18	20.05		
5	QPSK	25	0	20.17	20.23	19.98		
5	16QAM	1	0	20.04	20.23	20.02	21.5	1
5	16QAM	1	12	20.09	20.25	20.05		
5	16QAM	1	24	20.21	20.22	19.98		
5	16QAM	12	0	19.09	19.20	19.05	20.5	2
5	16QAM	12	7	19.18	19.27	19.02		
5	16QAM	12	13	19.18	19.13	19.04		
5	16QAM	25	0	19.22	19.28	19.08		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40240	40540	40840	41140		
Frequency (MHz)				2555	2585	2615	2645		
20	QPSK	1	0	17.80	18.06	17.98	18.47	18.5	0
20	QPSK	1	49	17.54	18.05	17.61	18.11		
20	QPSK	1	99	17.76	18.05	17.88	17.64		
20	QPSK	50	0	17.00	17.98	17.20	18.00	18.0	0.5
20	QPSK	50	24	16.85	17.74	17.08	17.31		
20	QPSK	50	50	16.78	17.72	17.10	17.30		
20	QPSK	100	0	16.90	17.26	17.14	17.36		
20	16QAM	1	0	17.29	17.38	17.15	17.69	18.0	0.5
20	16QAM	1	49	16.79	17.01	17.29	17.39		
20	16QAM	1	99	16.90	16.72	17.20	17.00		
20	16QAM	50	0	16.03	16.36	16.29	16.85	17.5	1
20	16QAM	50	24	15.84	16.22	16.12	16.82		
20	16QAM	50	50	15.77	15.94	16.10	16.17		
20	16QAM	100	0	15.92	16.27	16.16	16.36		
Channel				40215	40532	40848	41165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2552.5	2584.2	2615.8	2647.5		
15	QPSK	1	0	17.84	18.05	17.75	18.30	18.5	0
15	QPSK	1	37	17.62	18.03	17.69	17.99		
15	QPSK	1	74	17.67	17.72	17.90	18.02		
15	QPSK	36	0	16.99	17.25	17.17	17.42	18.0	0.5
15	QPSK	36	20	16.96	17.21	16.98	17.89		
15	QPSK	36	39	16.96	17.07	17.07	17.88		
15	QPSK	75	0	16.85	17.21	17.10	17.35		
15	16QAM	1	0	16.79	17.24	17.38	17.56	18.0	0.5
15	16QAM	1	37	16.56	17.37	16.81	17.30		
15	16QAM	1	74	16.89	17.01	17.21	16.98		
15	16QAM	36	0	15.97	16.11	16.05	16.32	17.5	1
15	16QAM	36	20	15.78	16.18	15.96	16.30		
15	16QAM	36	39	15.68	16.11	15.93	16.26		
15	16QAM	75	0	15.81	16.14	16.02	16.26		

Channel				40190	40523	40857	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2550	2583.3	2616.7	2650		
10	QPSK	1	0	17.45	17.78	17.90	18.05	18.5	0
10	QPSK	1	25	17.48	17.68	17.81	17.99		
10	QPSK	1	49	17.59	17.95	17.86	18.02		
10	QPSK	25	0	16.86	17.79	16.95	17.80	18.0	0.5
10	QPSK	25	12	16.83	17.77	16.92	17.80		
10	QPSK	25	25	16.82	17.73	16.91	17.48		
10	QPSK	50	0	16.89	16.77	16.96	17.73		
10	16QAM	1	0	17.12	16.97	17.14	17.92	18.0	0.5
10	16QAM	1	25	17.05	17.07	17.26	17.89		
10	16QAM	1	49	17.01	17.19	17.03	17.61		
10	16QAM	25	0	16.09	17.08	16.34	16.91	17.5	1
10	16QAM	25	12	16.03	17.02	16.31	16.84		
10	16QAM	25	25	16.05	16.64	16.30	16.87		
10	16QAM	50	0	16.06	16.98	16.35	16.96		
Channel				40165	40515	40865	41215	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2547.5	2582.5	2617.50	2652.5		
5	QPSK	1	0	17.38	17.72	17.89	18.26	18.5	0
5	QPSK	1	12	17.49	17.74	17.65	18.17		
5	QPSK	1	24	17.55	17.66	17.78	17.85		
5	QPSK	12	0	16.80	17.04	16.90	17.74	18.0	0.5
5	QPSK	12	7	16.84	16.98	16.91	17.71		
5	QPSK	12	13	16.74	16.90	16.88	17.63		
5	QPSK	25	0	16.56	16.89	16.88	17.13		
5	16QAM	1	0	16.66	16.96	17.32	17.43	18.0	0.5
5	16QAM	1	12	16.51	16.67	16.77	17.28		
5	16QAM	1	24	17.09	17.35	17.04	16.95		
5	16QAM	12	0	15.78	15.91	15.83	16.77	17.5	1
5	16QAM	12	7	15.74	15.83	15.83	16.65		
5	16QAM	12	13	15.77	15.82	15.82	16.55		
5	16QAM	25	0	15.90	15.96	15.95	16.64		

<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. All permutations exist. No restrictions on Pcell & Scell combinations. Only LTE Band 29A is limited to Scell.
3. This device supported inter-band two and three carrier aggregation, for intra-band supported non-contiguous and contiguous configuration.

<Two Carrier combination>

E-UTRA CA Configuration	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]
CA_2A-4A	2	Yes	Yes	Yes	Yes	Yes	Yes	40
	4			Yes	Yes	Yes	Yes	
CA_2A-5A	2			Yes	Yes	Yes	Yes	30
	5			Yes	Yes			
CA_2A-12A	2			Yes	Yes	Yes	Yes	30
	12		Yes	Yes	Yes			
CA_2A-17A	2			Yes	Yes			20
	17			Yes	Yes			
CA_2A-29A	2			Yes	Yes	Yes	Yes	30
	29			Yes	Yes			
CA_2A-30A	2			Yes	Yes	Yes	Yes	30
	30			Yes	Yes			
CA_4A-5A	4			Yes	Yes	Yes	Yes	30
	5			Yes	Yes			
CA_4A-12A	4	Yes	Yes	Yes	Yes	Yes	Yes	30
	12			Yes	Yes			
CA_4A-17A	4			Yes	Yes			20
	17			Yes	Yes			
CA_4A-29A	4			Yes	Yes	Yes	Yes	30
	29			Yes	Yes			
CA_4A-30A	4			Yes	Yes	Yes	Yes	30
	30			Yes	Yes			
CA_5A-30A	5			Yes	Yes			20
	30			Yes	Yes			
CA_12A-30A	12			Yes	Yes			20
	30			Yes	Yes			
CA_29A-30A	29			Yes	Yes			20
	30			Yes	Yes			

<Three Carrier combination>

E-UTRA CA Configuration	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]
CA_2A-2A-5A	2			Yes	Yes	Yes	Yes	50
	2			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
CA_2A-2A-12A	2						Yes	50
	2						Yes	
	12				Yes			
CA_2A-4A-5A	2			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
CA_2A-4A-12A	2			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_2A-4A-29A	2			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
CA_2A-5A-30A	2			Yes	Yes	Yes	Yes	40
	5			Yes	Yes			
	30			Yes	Yes			
CA_2A-12A-30A	2			Yes	Yes	Yes	Yes	40
	12			Yes	Yes			
	30			Yes	Yes			
CA_2A-29A-30A	2			Yes	Yes	Yes	Yes	40
	29			Yes	Yes			
	30			Yes	Yes			
CA_4A-4A-5A	4			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
CA_4A-4A-12A	4			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			

E-UTRA CA Configuration	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]
CA_4A-5A-30A	4			Yes	Yes	Yes	Yes	40
	5			Yes	Yes			
	30			Yes	Yes			
CA_4A-12A-30A	4			Yes	Yes	Yes	Yes	40
	12			Yes	Yes			
	30			Yes	Yes			
CA_4A-29A-30A	4			Yes	Yes	Yes	Yes	40
	29			Yes	Yes			
	30			Yes	Yes			

E-UTRA CA Configuration	Component carriers in order of increasing carrier frequency		Maximum aggregates bandwidth[MHz]
	Channel bandwidths for carrier[MHz]	Channel bandwidths for carrier[MHz]	
CA_2A-2A	5,10,15,20	5,10,15,20	40
CA_4A-4A	5,10,15,20	5,10,15,20	40
CA_41A-41A	10,15,20	10,15,20	40
	5,10,15,20	5,10,15,20	40

E-UTRA CA Configuration	Component carriers in order of increasing carrier frequency		Maximum aggregates bandwidth[MHz]
	Channel bandwidths for carrier[MHz]	Channel bandwidths for carrier[MHz]	
CA_2C	5	20	40
	10	15,20	
	15	10,15,20	
	20	5,10,15,20	
CA_7C	10	20	40
	15	15,20	
	20	10,15,20	
CA_38C	15	15	40
	20	20	
CA_41C	10	20	40
	15	15,20	
	20	10,15,20	

<LTE Carrier Aggregation Power verification>

General Note:

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink carrier aggregation only. Uplink carrier aggregation is not supported. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vi. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band.

vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \quad [\text{MHz}]$$

<Maximum output power for Two Carrier power verification>

Configuration		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Modulation	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band Configuration		Band 2	10	1905	19150	QPSK	1	0	Band 4	20	2132.5	2175	23.90	23.93
		Band 4	10	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	21.49	21.50
		Band 2	10	1905	19150	QPSK	1	0	Band 5	10	881.5	2525	23.90	23.93
		Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	23.11	23.14
		Band 2	10	1905	19150	QPSK	1	0	Band 12	10	737.5	5095	23.91	23.93
		Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	23.15	23.16
		Band 2	10	1905	19150	QPSK	1	0	Band 17	10	740	5790	23.90	23.93
		Ban 17	5	710	23790	QPSK	1	0	Band 2	10	1960	900	23.15	23.17
		Band 2	10	1905	19150	QPSK	1	0	Band 29	10	722.5	9715	23.90	23.93
		Band 2	10	1905	19150	QPSK	1	0	Band 30	10	2355	9820	23.91	23.93
		Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	21.58	21.60
		Band 4	10	1732.5	20175	QPSK	1	0	Band 5	10	881.5	2525	21.50	21.50
		Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	23.11	23.14
		Band 4	10	1732.5	20175	QPSK	1	0	Band 12	10	737.5	5095	21.48	21.50
		Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	23.14	23.16
		Band 4	10	1732.5	20175	QPSK	1	0	Band 17	10	740	5790	21.47	21.50
		Ban 17	5	710	23790	QPSK	1	0	Band 4	10	2132.5	2175	23.14	23.17
		Band 4	10	1732.5	20175	QPSK	1	0	Band 29	10	722.5	9715	21.44	21.50
		Band 4	10	1732.5	20175	QPSK	1	0	Band 30	10	2355	9820	21.45	21.50
		Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	21.58	21.60
		Band 5	10	836.5	20525	QPSK	1	0	Band 30	10	2355	9820	23.13	23.14
		Band 30	10	2310	27710	QPSK	1	0	Band 5	10	881.5	2525	21.55	21.60
		Band 12	10	707.5	23095	QPSK	1	0	Band 30	10	2355	9820	23.15	23.16
		Band 30	10	2310	27710	QPSK	1	0	Band 12	10	737.5	5095	21.57	21.60
		Band 30	10	2310	27710	QPSK	1	0	Band 29	10	722.5	9715	21.58	21.60
Intra-Band	Non-Configuration	Band 2	10	1905	19150	QPSK	1	0	Band 2	5	1932.5	625	23.93	23.93
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	21.50	23.87
		Band 41	20	2645	41140	QPSK	1	0	Band 41	5	2547.5	40165	22.08	22.08
	Configuration	Band 2	10	1905	19150	QPSK	1	0	Band 2	20	1970.6	1006	23.93	23.93
		Band 7	10	2535	21100	QPSK	1	0	Band 7	20	2669.4	3244	21.22	21.22
		Band 38	20	2610	38150	QPSK	1	0	Band 38	20	2590.2	37952	21.65	21.65
		Band 41	20	2645	41140	QPSK	1	0	Band 41	20	2625.2	40942	22.08	22.08

<Maximum output power for Three Carrier power verification>

Configuration		PCC							SCC1				SCC2				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Pow (dBm)
Inter-Band Configuration		Band 2	10	1905	19150	QPSK	1	0	Band 4	20	2132.5	2175	Band 5	10	881.5	2525	23.90	23.93
		Band 4	10	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	21.44	21.50
		Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	Band 2	20	1960	900	23.11	23.14
		Band 2	10	1905	19150	QPSK	1	0	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	23.91	23.93
		Band 4	10	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	21.50	21.50
		Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 2	20	1960	900	23.13	23.16
		Band 2	10	1905	19150	QPSK	1	0	Band 4	20	2132.5	2175	Band 29	10	722.5	9715	23.88	23.93
		Band 4	10	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 29	10	722.5	9715	21.48	21.50
		Band 2	10	1905	19150	QPSK	1	0	Band 5	10	881.5	2525	Band 30	10	2355	9820	23.90	23.93
		Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 30	10	2355	9820	23.11	23.14
		Band 30	10	2310	27710	QPSK	1	0	Band 5	10	881.5	2525	Band 2	20	1960	900	17.50	17.51
		Band 2	10	1905	19150	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	23.91	23.93
		Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 30	10	2355	9820	23.15	23.16
		Band 30	10	2310	27710	QPSK	1	0	Band 12	10	737.5	5095	Band 2	20	1960	900	17.49	17.51
		Band 2	10	1905	19150	QPSK	1	0	Band 29	10	722.5	9715	Band 30	10	2355	9820	23.90	23.93
		Band 30	10	2310	27710	QPSK	1	0	Band 29	10	722.5	9715	Band 2	20	1960	900	17.50	17.51
		Band 4	10	1732.5	20175	QPSK	1	0	Band 5	10	881.5	2525	Band 30	10	2355	9820	21.47	21.50
		Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	Band 30	10	2355	9820	23.10	23.14
		Band 30	10	2310	27710	QPSK	1	0	Band 5	10	881.5	2525	Band 4	20	2132.5	2175	17.48	17.51
		Band 4	10	1732.5	20175	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	21.49	21.50
		Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 30	10	2355	9820	23.16	23.16
		Band 30	10	2310	27710	QPSK	1	0	Band 12	10	737.5	5095	Band 4	20	2132.5	2175	17.45	17.51
		Band 4	10	1732.5	20175	QPSK	1	0	Band 29	10	722.5	9715	Band 30	10	2355	9820	21.49	21.50
		Band 30	10	2310	27710	QPSK	1	0	Band 29	10	722.5	9715	Band 4	20	2132.5	2175	17.48	17.51
Intra-Band	Non-Configuration	Band 2	10	1905	19150	QPSK	1	0	Band 2	5	1932.5	625	Band 5	10	881.5	2525	23.90	23.93
		Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	23.14	23.14
		Band 2	20	1900	19100	QPSK	1	0	Band 2	20	1940	700	Band 12	10	737.5	5095	23.85	23.89
		Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 2	20	1980	1100	23.15	23.16
		Band 4	10	1732.5	20175	QPSK	1	0	Band 4	5	2150	2350	Band 5	10	881.5	2525	21.48	21.50
		Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2150	2350	23.10	23.14
		Band 4	10	1732.5	20175	QPSK	1	0	Band 4	5	2150	2350	Band 12	10	737.5	5095	21.47	21.50
		Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2150	2350	23.15	23.16

<WLAN Conducted Power>

General Note:

1. For 5GHz WLAN antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio ≤ 0.04, no additional SAR measurements for MIMO.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<Head mode for WLAN transmitter>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b	CH 1	2412	1Mbps	13.95	14.00	98.62
		CH 6	2437		13.97	14.00	
		CH 11	2462		13.99	14.00	
	802.11g	CH 1	2412	6Mbps	13.51	14.00	92.83
		CH 6	2437		13.53	14.00	
		CH 11	2462		13.56	14.00	
	802.11n-HT20	CH 1	2412	MCS0	13.59	14.00	92.41
		CH 6	2437		13.72	14.00	
		CH 11	2462		13.81	14.00	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1	802.11a	CH 36	5180	6Mbps	15.28	16.00	100.00
		CH 40	5200		15.88	16.00	
		CH 44	5220		15.58	16.00	
		CH 48	5240		15.02	16.00	
	802.11n-HT20	CH 36	5180	MCS0	15.27	16.00	100.00
		CH 40	5200		15.72	16.00	
		CH 44	5220		15.48	16.00	
		CH 48	5240		15.05	16.00	
	802.11n-HT40	CH 38	5190	MCS0	13.92	14.50	97.93
		CH 46	5230		15.41	16.00	
	802.11ac-VHT20	CH 36	5180	MCS0	15.26	16.00	100.00
		CH 40	5200		15.62	16.00	
		CH 44	5220		15.39	16.00	
		CH 48	5240		15.06	16.00	
	802.11ac-VHT40	CH 38	5190	MCS0	15.74	16.00	97.95
		CH 46	5230		15.39	16.00	
	802.11ac-VHT80	CH 42	5210	MCS0	14.31	14.50	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1	802.11a	CH 52	5260	6Mbps	15.07	16.00	100.00
		CH 56	5280		15.53	16.00	
		CH 60	5300		15.22	16.00	
		CH 64	5320		15.65	16.00	
	802.11n-HT20	CH 52	5260	MCS0	15.04	16.00	100.00
		CH 56	5280		15.47	16.00	
		CH 60	5300		15.44	16.00	
		CH 64	5320		15.50	16.00	
	802.11n-HT40	CH 54	5270	MCS0	15.42	16.00	97.93
		CH 62	5310		15.47	16.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.96	16.00	100.00
		CH 56	5280		15.41	16.00	
		CH 60	5300		15.15	16.00	
		CH 64	5320		14.77	16.00	
	802.11ac-VHT40	CH 54	5270	MCS0	15.44	16.00	97.95
		CH 62	5310		15.22	16.00	
	802.11ac-VHT80	CH 58	5290	MCS0	13.08	14.50	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1	802.11a	CH 100	5500	6Mbps	15.02	16.00	100.00
		CH 116	5580		15.58	16.00	
		CH 132	5660		15.76	16.00	
		CH 140	5700		15.28	16.00	
		CH 144	5720		14.43	16.00	
	802.11n-HT20	CH 100	5500	MCS0	15.65	16.00	100.00
		CH 116	5580		15.64	16.00	
		CH 132	5660		15.72	16.00	
		CH 140	5700		15.40	16.00	
		CH 144	5720		15.55	16.00	
	802.11n-HT40	CH 102	5510	MCS0	15.40	16.00	97.93
		CH 110	5550		15.39	16.00	
		CH 134	5670		15.02	16.00	
		CH 142	5710		15.96	16.00	
	802.11ac-VHT20	CH 100	5500	MCS0	15.62	16.00	100.00
		CH 116	5580		15.42	16.00	
		CH 132	5660		15.54	16.00	
		CH 140	5700		15.31	16.00	
		CH 144	5720		15.54	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	15.41	16.00	97.95
		CH 110	5550		14.95	16.00	
		CH 134	5670		15.03	16.00	
		CH 142	5710		14.42	16.00	
	802.11ac-VHT80	CH 106	5530	MCS0	15.57	16.00	96.58
		CH 138	5690		14.93	16.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a	CH 149	5745	MCS0	15.54	16.00	100.00
		CH 157	5785		15.51	16.00	
		CH 165	5825		15.66	16.00	
	802.11n-HT20	CH 149	5745	MCS0	15.51	16.00	100.00
		CH 157	5785		15.55	16.00	
		CH 165	5825		15.57	16.00	
	802.11n-HT40	CH 151	5755	MCS0	15.20	16.00	97.93
		CH 159	5795		15.26	16.00	
	802.11ac-VHT20	CH 149	5745	MCS0	15.52	16.00	100.00
		CH 157	5785		15.57	16.00	
		CH 165	5825		15.51	16.00	
	802.11ac-VHT40	CH 151	5755	MCS0	15.11	16.00	97.95
		CH 159	5795		15.20	16.00	
	802.11ac-VHT80	CH 155	5775	MCS0	15.52	16.00	96.58

<5GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 2	802.11a	CH 36	5180	6Mbps	11.35	11.50	100.00
		CH 40	5200		11.36	11.50	
		CH 44	5220		11.30	11.50	
		CH 48	5240		11.31	11.50	
	802.11n-HT20	CH 36	5180	MCS0	11.16	11.50	100.00
		CH 40	5200		11.21	11.50	
		CH 44	5220		11.26	11.50	
		CH 48	5240		11.23	11.50	
	802.11n-HT40	CH 38	5190	MCS0	11.03	11.50	97.93
		CH 46	5230		11.07	11.50	
	802.11ac-VHT20	CH 36	5180	MCS0	11.16	11.50	100.00
		CH 40	5200		11.21	11.50	
		CH 44	5220		11.26	11.50	
		CH 48	5240		11.34	11.50	
	802.11ac-VHT40	CH 38	5190	MCS0	11.06	11.50	97.95
		CH 46	5230		11.04	11.50	
	802.11ac-VHT80	CH 42	5210	MCS0	11.37	11.50	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 2	802.11a	CH 52	5260	6Mbps	11.11	11.50	100.00
		CH 56	5280		11.19	11.50	
		CH 60	5300		11.20	11.50	
		CH 64	5320		11.10	11.50	
	802.11n-HT20	CH 52	5260	MCS0	11.10	11.50	100.00
		CH 56	5280		11.14	11.50	
		CH 60	5300		11.12	11.50	
		CH 64	5320		11.13	11.50	
	802.11n-HT40	CH 54	5270	MCS0	11.04	11.50	97.93
		CH 62	5310		11.08	11.50	
	802.11ac-VHT20	CH 52	5260	MCS0	11.15	11.50	100.00
		CH 56	5280		11.14	11.50	
		CH 60	5300		11.28	11.50	
		CH 64	5320		11.05	11.50	
	802.11ac-VHT40	CH 54	5270	MCS0	11.07	11.50	97.95
		CH 62	5310		11.13	11.50	
	802.11ac-VHT80	CH 58	5290	MCS0	11.39	11.50	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 2	802.11a	CH 100	5500	6Mbps	11.32	11.50	100.00
		CH 116	5580		11.33	11.50	
		CH 132	5660		11.28	11.50	
		CH 140	5700		11.36	11.50	
		CH 144	5720		11.32	11.50	
	802.11n-HT20	CH 100	5500	MCS0	11.34	11.50	100.00
		CH 116	5580		11.38	11.50	
		CH 132	5660		11.27	11.50	
		CH 140	5700		11.14	11.50	
		CH 144	5720		11.19	11.50	
	802.11n-HT40	CH 102	5510	MCS0	11.29	11.50	97.93
		CH 110	5550		11.34	11.50	
		CH 134	5670		11.10	11.50	
		CH 142	5710		11.11	11.50	
	802.11ac-VHT20	CH 100	5500	MCS0	11.31	11.50	100.00
		CH 116	5580		11.35	11.50	
		CH 132	5660		11.18	11.50	
		CH 140	5700		11.06	11.50	
		CH 144	5720		11.09	11.50	
	802.11ac-VHT40	CH 102	5510	MCS0	11.31	11.50	97.95
		CH 110	5550		11.34	11.50	
		CH 134	5670		11.14	11.50	
		CH 142	5710		11.12	11.50	
	802.11ac-VHT80	CH 106	5530	MCS0	11.48	11.50	96.58
		CH 138	5690		11.42	11.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 2	802.11a	CH 149	5745	MCS0	11.05	11.50	100.00
		CH 157	5785		11.01	11.50	
		CH 165	5825		11.08	11.50	
	802.11n-HT20	CH 149	5745	MCS0	11.03	11.50	100.00
		CH 157	5785		11.01	11.50	
		CH 165	5825		11.13	11.50	
	802.11n-HT40	CH 151	5755	MCS0	11.05	11.50	97.93
		CH 159	5795		11.08	11.50	
	802.11ac-VHT20	CH 149	5745	MCS0	11.06	11.50	100.00
		CH 157	5785		11.01	11.50	
		CH 165	5825		11.13	11.50	
	802.11ac-VHT40	CH 151	5755	MCS0	11.02	11.50	97.95
		CH 159	5795		11.07	11.50	
	802.11ac-VHT80	CH 155	5775	MCS0	11.15	11.50	96.58

<5GHz WLAN ANT 1+2>

General Note:

1. MIMO Ant. 1+2 average power is a combined result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1+2	802.11n-HT20	CH 36	5180	MCS0	11.22	11.50	98.01
		CH 40	5200		11.36	11.50	
		CH 44	5220		11.44	11.50	
		CH 48	5240		11.43	11.50	
	802.11n-HT40	CH 38	5190	MCS0	11.44	11.50	96.80
		CH 46	5230		11.49	11.50	
	802.11ac-VHT20	CH 36	5180	MCS0	11.31	11.50	98.01
		CH 40	5200		11.45	11.50	
		CH 44	5220		11.48	11.50	
		CH 48	5240		11.39	11.50	
	802.11ac-VHT40	CH 38	5190	MCS0	11.46	11.50	96.59
		CH 46	5230		11.44	11.50	
	802.11ac-VHT80	CH 42	5210	MCS0	11.31	11.50	93.26

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1+2	802.11n-HT20	CH 52	5260	MCS0	11.48	11.50	98.01
		CH 56	5280		11.42	11.50	
		CH 60	5300		11.37	11.50	
		CH 64	5320		11.18	11.50	
	802.11n-HT40	CH 54	5270	MCS0	11.48	11.50	96.80
		CH 62	5310		11.43	11.50	
	802.11ac-VHT20	CH 52	5260	MCS0	11.47	11.50	98.01
		CH 56	5280		11.43	11.50	
		CH 60	5300		11.42	11.50	
		CH 64	5320		11.25	11.50	
	802.11ac-VHT40	CH 54	5270	MCS0	11.48	11.50	96.59
		CH 62	5310		11.49	11.50	
	802.11ac-VHT80	CH 58	5290	MCS0	11.34	11.50	93.26

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1+2	802.11n-HT20	CH 100	5500	MCS0	11.47	11.50	98.01
		CH 116	5580		11.41	11.50	
		CH 132	5660		11.26	11.50	
		CH 140	5700		11.10	11.50	
		CH 144	5720		11.50	11.50	
	802.11n-HT40	CH 102	5510	MCS0	11.49	11.50	96.80
		CH 110	5550		11.48	11.50	
		CH 134	5670		11.34	11.50	
		CH 142	5710		11.29	11.50	
	802.11ac-VHT20	CH 100	5500	MCS0	11.37	11.50	98.01
		CH 116	5580		11.44	11.50	
		CH 132	5660		11.39	11.50	
		CH 140	5700		11.29	11.50	
		CH 144	5720		11.26	11.50	
	802.11ac-VHT40	CH 102	5510	MCS0	11.17	11.50	96.59
		CH 110	5550		11.19	11.50	
		CH 134	5670		11.45	11.50	
		CH 142	5710		11.36	11.50	
	802.11ac-VHT80	CH 106	5530	MCS0	11.45	11.50	93.26
		CH 138	5690		11.44	11.50	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1+2	802.11n-HT20	CH 149	5745	MCS0	11.43	11.50	98.01
		CH 157	5785		11.49	11.50	
		CH 165	5825		11.49	11.50	
	802.11n-HT40	CH 151	5755	MCS0	11.09	11.50	96.80
		CH 159	5795		11.20	11.50	
	802.11ac-VHT20	CH 149	5745	MCS0	11.49	11.50	98.01
		CH 157	5785		11.47	11.50	
		CH 165	5825		11.48	11.50	
	802.11ac-VHT40	CH 151	5755	MCS0	11.15	11.50	96.59
		CH 159	5795		11.26	11.50	
	802.11ac-VHT80	CH 155	5775	MCS0	11.49	11.50	93.26

<Body mode for WLAN Transmitter>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b	CH 1	2412	1Mbps	17.63	18.00	98.62
		CH 6	2437		17.97	18.00	
		CH 11	2462		17.99	18.00	
	802.11g	CH 1	2412	6Mbps	17.88	18.00	92.83
		CH 6	2437		17.34	18.00	
		CH 11	2462		17.55	18.00	
	802.11n-HT20	CH 1	2412	MCS0	16.78	18.00	92.41
		CH 6	2437		16.92	18.00	
		CH 11	2462		16.85	18.00	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1	802.11a	CH 36	5180	6Mbps	15.28	16.00	100.00
		CH 40	5200		15.88	16.00	
		CH 44	5220		15.58	16.00	
		CH 48	5240		15.02	16.00	
	802.11n-HT20	CH 36	5180	MCS0	15.27	16.00	100.00
		CH 40	5200		15.72	16.00	
		CH 44	5220		15.48	16.00	
		CH 48	5240		15.05	16.00	
	802.11n-HT40	CH 38	5190	MCS0	13.92	14.50	97.93
		CH 46	5230		15.41	16.00	
	802.11ac-VHT20	CH 36	5180	MCS0	15.26	16.00	100.00
		CH 40	5200		15.62	16.00	
		CH 44	5220		15.39	16.00	
		CH 48	5240		15.06	16.00	
	802.11ac-VHT40	CH 38	5190	MCS0	15.74	16.00	97.95
		CH 46	5230		15.39	16.00	
	802.11ac-VHT80	CH 42	5210	MCS0	14.31	14.50	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1	802.11a	CH 52	5260	6Mbps	15.07	16.00	100.00
		CH 56	5280		15.53	16.00	
		CH 60	5300		15.22	16.00	
		CH 64	5320		15.65	16.00	
	802.11n-HT20	CH 52	5260	MCS0	15.04	16.00	100.00
		CH 56	5280		15.47	16.00	
		CH 60	5300		15.44	16.00	
		CH 64	5320		15.50	16.00	
	802.11n-HT40	CH 54	5270	MCS0	15.42	16.00	97.93
		CH 62	5310		15.47	16.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.96	16.00	100.00
		CH 56	5280		15.41	16.00	
		CH 60	5300		15.15	16.00	
		CH 64	5320		14.77	16.00	
	802.11ac-VHT40	CH 54	5270	MCS0	15.44	16.00	97.95
		CH 62	5310		15.22	16.00	
	802.11ac-VHT80	CH 58	5290	MCS0	13.08	14.50	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1	802.11a	CH 100	5500	6Mbps	15.02	16.00	100.00
		CH 116	5580		15.58	16.00	
		CH 132	5660		15.76	16.00	
		CH 140	5700		15.28	16.00	
		CH 144	5720		14.43	16.00	
	802.11n-HT20	CH 100	5500	MCS0	15.65	16.00	100.00
		CH 116	5580		15.64	16.00	
		CH 132	5660		15.72	16.00	
		CH 140	5700		15.40	16.00	
		CH 144	5720		15.55	16.00	
	802.11n-HT40	CH 102	5510	MCS0	15.40	16.00	97.93
		CH 110	5550		15.39	16.00	
		CH 134	5670		15.02	16.00	
		CH 142	5710		15.96	16.00	
	802.11ac-VHT20	CH 100	5500	MCS0	15.62	16.00	100.00
		CH 116	5580		15.42	16.00	
		CH 132	5660		15.54	16.00	
		CH 140	5700		15.31	16.00	
		CH 144	5720		15.54	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	15.41	16.00	97.95
		CH 110	5550		14.95	16.00	
		CH 134	5670		15.03	16.00	
		CH 142	5710		14.42	16.00	
	802.11ac-VHT80	CH 106	5530	MCS0	15.57	16.00	96.58
		CH 138	5690		14.93	16.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a	CH 149	5745	MCS0	15.54	16.00	100.00
		CH 157	5785		15.51	16.00	
		CH 165	5825		15.66	16.00	
	802.11n-HT20	CH 149	5745	MCS0	15.51	16.00	100.00
		CH 157	5785		15.55	16.00	
		CH 165	5825		15.57	16.00	
	802.11n-HT40	CH 151	5755	MCS0	15.20	16.00	97.93
		CH 159	5795		15.26	16.00	
	802.11ac-VHT20	CH 149	5745	MCS0	15.52	16.00	100.00
		CH 157	5785		15.57	16.00	
		CH 165	5825		15.51	16.00	
	802.11ac-VHT40	CH 151	5755	MCS0	15.11	16.00	97.95
		CH 159	5795		15.20	16.00	
	802.11ac-VHT80	CH 155	5775	MCS0	15.52	16.00	96.58

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 2	802.11a	CH 36	5180	6Mbps	15.02	16.00	100.00
		CH 40	5200		15.40	16.00	
		CH 44	5220		15.28	16.00	
		CH 48	5240		15.13	16.00	
	802.11n-HT20	CH 36	5180	MCS0	15.03	16.00	100.00
		CH 40	5200		15.46	16.00	
		CH 44	5220		15.25	16.00	
		CH 48	5240		15.05	16.00	
	802.11n-HT40	CH 38	5190	MCS0	15.39	16.00	97.93
		CH 46	5230		15.21	16.00	
	802.11ac-VHT20	CH 36	5180	MCS0	15.01	16.00	100.00
		CH 40	5200		15.51	16.00	
		CH 44	5220		15.24	16.00	
		CH 48	5240		15.00	16.00	
	802.11ac-VHT40	CH 38	5190	MCS0	15.20	16.00	97.95
		CH 46	5230		15.34	16.00	
	802.11ac-VHT80	CH 42	5210	MCS0	15.55	16.00	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 2	802.11a	CH 52	5260	6Mbps	15.55	16.00	100.00
		CH 56	5280		15.23	16.00	
		CH 60	5300		15.03	16.00	
		CH 64	5320		15.52	16.00	
	802.11n-HT20	CH 52	5260	MCS0	15.55	16.00	100.00
		CH 56	5280		15.17	16.00	
		CH 60	5300		15.22	16.00	
		CH 64	5320		15.55	16.00	
	802.11n-HT40	CH 54	5270	MCS0	15.00	16.00	97.93
		CH 62	5310		14.49	16.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.75	16.00	100.00
		CH 56	5280		15.11	16.00	
		CH 60	5300		15.06	16.00	
		CH 64	5320		14.55	16.00	
	802.11ac-VHT40	CH 54	5270	MCS0	15.21	16.00	97.95
		CH 62	5310		15.26	16.00	
	802.11ac-VHT80	CH 58	5290	MCS0	15.67	16.00	96.58

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 2	802.11a	CH 100	5500	6Mbps	15.29	16.00	100.00
		CH 116	5580		15.13	16.00	
		CH 132	5660		15.26	16.00	
		CH 140	5700		15.10	16.00	
		CH 144	5720		15.35	16.00	
	802.11n-HT20	CH 100	5500	MCS0	15.25	16.00	100.00
		CH 116	5580		15.27	16.00	
		CH 132	5660		15.07	16.00	
		CH 140	5700		15.13	16.00	
		CH 144	5720		15.93	16.00	
	802.11n-HT40	CH 102	5510	MCS0	15.41	16.00	97.93
		CH 110	5550		15.43	16.00	
		CH 134	5670		14.88	16.00	
		CH 142	5710		15.20	16.00	
	802.11ac-VHT20	CH 100	5500	MCS0	15.17	16.00	100.00
		CH 116	5580		15.55	16.00	
		CH 132	5660		15.75	16.00	
		CH 140	5700		15.10	16.00	
		CH 144	5720		15.96	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	15.46	16.00	97.95
		CH 110	5550		15.45	16.00	
		CH 134	5670		15.29	16.00	
		CH 142	5710		14.77	16.00	
	802.11ac-VHT80	CH 106	5530	MCS0	15.88	16.00	96.58
		CH 138	5690		14.80	16.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 2	802.11a	CH 149	5745	MCS0	15.57	16.00	100.00
		CH 157	5785		15.54	16.00	
		CH 165	5825		15.75	16.00	
	802.11n-HT20	CH 149	5745	MCS0	15.52	16.00	100.00
		CH 157	5785		15.51	16.00	
		CH 165	5825		15.54	16.00	
	802.11n-HT40	CH 151	5755	MCS0	15.10	16.00	97.93
		CH 159	5795		15.13	16.00	
	802.11ac-VHT20	CH 149	5745	MCS0	15.56	16.00	100.00
		CH 157	5785		15.51	16.00	
		CH 165	5825		15.65	16.00	
	802.11ac-VHT40	CH 151	5755	MCS0	15.12	16.00	97.95
		CH 159	5795		15.17	16.00	
	802.11ac-VHT80	CH 155	5775	MCS0	15.51	16.00	96.58

<5GHz WLAN ANT1+2>

General Note:

1. MIMO Ant. 1+2 average power is a combined result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1+2	802.11n-HT20	CH 36	5180	MCS0	15.07	16.00	98.01
		CH 40	5200		15.61	16.00	
		CH 44	5220		15.29	16.00	
		CH 48	5240		14.94	16.00	
	802.11n-HT40	CH 38	5190	MCS0	15.02	16.00	96.80
		CH 46	5230		14.99	16.00	
	802.11ac-VHT20	CH 36	5180	MCS0	15.04	16.00	98.01
		CH 40	5200		15.64	16.00	
		CH 44	5220		15.24	16.00	
		CH 48	5240		14.93	16.00	
	802.11ac-VHT40	CH 38	5190	MCS0	14.99	16.00	96.59
		CH 46	5230		15.04	16.00	
	802.11ac-VHT80	CH 42	5210	MCS0	14.13	16.00	93.26

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1+2	802.11n-HT20	CH 52	5260	MCS0	14.92	16.00	98.01
		CH 56	5280		15.53	16.00	
		CH 60	5300		14.44	16.00	
		CH 64	5320		14.21	16.00	
	802.11n-HT40	CH 54	5270	MCS0	15.01	16.00	96.80
		CH 62	5310		15.22	16.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.90	16.00	98.01
		CH 56	5280		15.57	16.00	
		CH 60	5300		15.15	16.00	
		CH 64	5320		14.70	16.00	
	802.11ac-VHT40	CH 54	5270	MCS0	15.04	16.00	96.59
		CH 62	5310		15.04	16.00	
	802.11ac-VHT80	CH 58	5290	MCS0	14.07	16.00	93.26

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1+2	802.11n-HT20	CH 100	5500	MCS0	14.99	16.00	98.01
		CH 116	5580		15.12	16.00	
		CH 132	5660		15.24	16.00	
		CH 140	5700		14.71	16.00	
		CH 144	5720		15.39	16.00	
	802.11n-HT40	CH 102	5510	MCS0	15.02	16.00	96.80
		CH 110	5550		15.00	16.00	
		CH 134	5670		14.87	16.00	
		CH 142	5710		15.21	16.00	
	802.11ac-VHT20	CH 100	5500	MCS0	14.96	16.00	98.01
		CH 116	5580		15.09	16.00	
		CH 132	5660		15.89	16.00	
		CH 140	5700		14.70	16.00	
		CH 144	5720		15.40	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	14.54	16.00	96.59
		CH 110	5550		14.99	16.00	
		CH 134	5670		14.99	16.00	
		CH 142	5710		15.39	16.00	
	802.11ac-VHT80	CH 106	5530	MCS0	14.20	16.00	93.26
		CH 138	5690		15.74	16.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1+2	802.11n-HT20	CH 149	5745	MCS0	15.73	16.00	98.01
		CH 157	5785		15.69	16.00	
		CH 165	5825		15.78	16.00	
	802.11n-HT40	CH 151	5755	MCS0	15.38	16.00	96.80
		CH 159	5795		15.51	16.00	
	802.11ac-VHT20	CH 149	5745	MCS0	15.55	16.00	98.01
		CH 157	5785		15.54	16.00	
		CH 165	5825		15.60	16.00	
	802.11ac-VHT40	CH 151	5755	MCS0	15.52	16.00	96.59
		CH 159	5795		15.62	16.00	
	802.11ac-VHT80	CH 155	5775	MCS0	15.85	16.00	93.26

<2.4GHz Bluetooth>

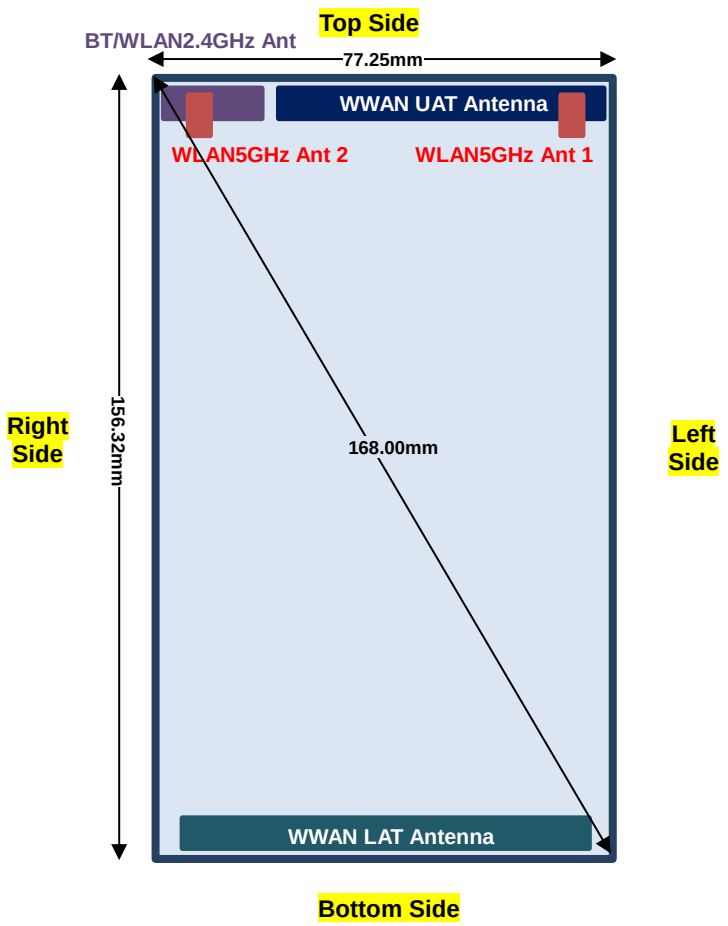
General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR/EDR	CH 00	2402	7.82	4.32	4.34
	CH 39	2441	9.48	5.76	5.83
	CH 78	2480	9.11	5.51	5.52
Tune-up Limit			9.50	6.00	6.00

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	2.06
	CH 19	2440	3.79
	CH 39	2480	2.79
Tune-up Limit			4.00

13. Antenna Location



Back View

Antenna	Support Band
WWAN UAT Antenna	GSM 850 / 1900, WCDMA B2 / B4 / B5 ,CDMA BC0 LTE B2 / B4 / B5 / B12 / B17 / B26
WWAN LAT Antenna	GSM 850 / 1900, WCDMA B2 / B4 / B5 ,CDMA BC0 LTE B2 / B4 / B5 / B7 / B12 / B17 / B26 / B30 / B38 / B41

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN UAT Antenna	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	≤ 25mm
WWAN LAT Antenna	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	≤ 25mm	≤ 25mm
BT / 2.4GHz WLAN Antenna	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	> 25mm
WLAN5GHz Antenna 1	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	> 25mm
WLAN5GHz Antenna 2	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	> 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN UAT Antenna	Yes	Yes	Yes	No	Yes	Yes
WWAN LAT Antenna	Yes	Yes	No	Yes	Yes	Yes
BT / 2.4GHz WLAN Antenna	Yes	Yes	Yes	No	Yes	No
WLAN5GHz Antenna 1	Yes	Yes	Yes	No	Yes	No
WLAN5GHz Antenna 2	Yes	Yes	Yes	No	No	Yes

General Note:

1. Referring to KDB 941225 D06 v02r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15cm or an overall diagonal dimension > 16cm, when hotspot mode applies, 10-g Product Specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, in this report all the hotspot mode results are < 1.2W/kg.
6. Per KDB648474 D04v01r03, for 5.3GHz / 5.5GHz WLAN product specific SAR is necessary, due to an overall diagonal dimension is > 16cm.
7. For WWAN LAT and UAT antennas will not transmit simultaneous at the same time and when the two antennas operating in the Head and Body exposure configuration, this device will limit different maximum output powers in several frequency bands. The detail descriptions of the power control of the mechanisms are included in the operational description.
8. For WLAN operating in the Head and Body exposure configuration, this device will limit different maximum output powers. The detail descriptions of the power control of the mechanisms are included in the operational description.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE / DTM modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the DTM Multi-slot class 11 for GSM850/GSM1900 is considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.
3. For DTM 3 time slots mode, the relatively lowest burst power selected from GSM (voice) and GMSK (GPRS) will be used for scaled SAR.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

CMDA Note:

1. Per KDB 941225 D01v03r01, SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 17 SAR test was covered by Band 12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, for U-NII-1 Head and Body-worn SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN5GHz SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio ≤ 0.04, no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	DTM Multi-slot class 11	Right Cheek	0mm	LAT	128	824.2	28.96	29.00	1.009	-0.106	0.056	0.057
	GSM850	DTM Multi-slot class 11	Right Cheek	0mm	LAT	189	836.4	28.92	29.00	1.019	0.136	0.055	0.056
	GSM850	DTM Multi-slot class 11	Right Cheek	0mm	LAT	251	848.8	28.91	29.00	1.021	0.189	0.048	0.049
	GSM850	DTM Multi-slot class 11	Right Tilted	0mm	LAT	128	824.2	28.96	29.00	1.009	0.044	0.027	0.027
	GSM850	DTM Multi-slot class 11	Left Cheek	0mm	LAT	128	824.2	28.96	29.00	1.009	0.038	0.039	0.039
	GSM850	DTM Multi-slot class 11	Left Tilted	0mm	LAT	128	824.2	28.96	29.00	1.009	0.045	0.029	0.029
	GSM850	DTM Multi-slot class 11	Right Cheek	0mm	UAT	128	824.2	25.52	26.00	1.117	-0.122	0.592	0.661
	GSM850	DTM Multi-slot class 11	Right Cheek	0mm	UAT	189	836.4	25.28	26.00	1.180	0.082	0.693	0.818
01	GSM850	DTM Multi-slot class 11	Right Cheek	0mm	UAT	251	848.8	25.07	26.00	1.239	0.106	0.779	0.965
	GSM850	DTM Multi-slot class 11	Right Tilted	0mm	UAT	128	824.2	25.52	26.00	1.117	0.102	0.462	0.516
	GSM850	DTM Multi-slot class 11	Left Cheek	0mm	UAT	128	824.2	25.52	26.00	1.117	0.195	0.511	0.571
	GSM850	DTM Multi-slot class 11	Left Tilted	0mm	UAT	128	824.2	25.52	26.00	1.117	0.016	0.579	0.647
	GSM1900	DTM Multi-slot class 11	Right Cheek	0mm	LAT	810	1909.8	27.45	28.00	1.135	-0.108	0.114	0.129
	GSM1900	DTM Multi-slot class 11	Right Cheek	0mm	LAT	512	1850.2	27.34	28.00	1.164	0.116	0.114	0.133
	GSM1900	DTM Multi-slot class 11	Right Cheek	0mm	LAT	661	1880	27.42	28.00	1.143	-0.003	0.104	0.119
	GSM1900	DTM Multi-slot class 11	Right Tilted	0mm	LAT	810	1909.8	27.45	28.00	1.135	0.177	0.050	0.057
	GSM1900	DTM Multi-slot class 11	Left Cheek	0mm	LAT	810	1909.8	27.45	28.00	1.135	0.114	0.081	0.092
	GSM1900	DTM Multi-slot class 11	Left Tilted	0mm	LAT	810	1909.8	27.45	28.00	1.135	-0.063	0.052	0.059
	GSM1900	DTM Multi-slot class 11	Right Cheek	0mm	UAT	810	1909.8	25.54	26.00	1.112	0.053	0.613	0.681
	GSM1900	DTM Multi-slot class 11	Right Cheek	0mm	UAT	512	1850.2	25.19	26.00	1.205	0.042	0.627	0.756
02	GSM1900	DTM Multi-slot class 11	Right Cheek	0mm	UAT	661	1880	25.12	26.00	1.225	0.186	0.622	0.762
	GSM1900	DTM Multi-slot class 11	Right Tilted	0mm	UAT	810	1909.8	25.54	26.00	1.112	0.057	0.472	0.525
	GSM1900	DTM Multi-slot class 11	Left Cheek	0mm	UAT	810	1909.8	25.54	26.00	1.112	-0.107	0.542	0.603
	GSM1900	DTM Multi-slot class 11	Left Tilted	0mm	UAT	810	1909.8	25.54	26.00	1.112	-0.187	0.350	0.389

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	LAT	9538	1907.6	22.50	23.00	1.122	0.066	0.137	0.154
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	LAT	9262	1852.4	22.08	23.00	1.236	0.176	0.153	0.189
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	LAT	9400	1880	22.28	23.00	1.180	0.05	0.152	0.179
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	LAT	9538	1907.6	22.50	23.00	1.122	0.082	0.081	0.091
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	LAT	9538	1907.6	22.50	23.00	1.122	0.19	0.125	0.140
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	LAT	9538	1907.6	22.50	23.00	1.122	0.009	0.086	0.096
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	UAT	9538	1907.6	19.49	19.50	1.002	0.002	0.415	0.416
03	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	UAT	9262	1852.4	19.32	19.50	1.042	0.11	0.472	0.492
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	UAT	9400	1880	19.38	19.50	1.028	0.128	0.473	0.486
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	UAT	9538	1907.6	19.49	19.50	1.002	0.011	0.370	0.371
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	UAT	9538	1907.6	19.49	19.50	1.002	-0.188	0.379	0.380
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	UAT	9538	1907.6	19.49	19.50	1.002	-0.174	0.275	0.276
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	LAT	1312	1712.4	22.46	23.00	1.132	0.114	0.057	0.065
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	LAT	1413	1732.6	22.38	23.00	1.153	0.13	0.086	0.099
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	LAT	1513	1752.6	22.39	23.00	1.151	0.011	0.106	0.122
	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	LAT	1312	1712.4	22.46	23.00	1.132	0.147	0.034	0.039
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	LAT	1312	1712.4	22.46	23.00	1.132	-0.065	0.044	0.050
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	LAT	1312	1712.4	22.46	23.00	1.132	0.104	0.032	0.036
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	UAT	1312	1712.4	22.46	22.50	1.009	0.148	0.685	0.691
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	UAT	1413	1732.6	22.38	22.50	1.028	0.019	0.644	0.662
04	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	UAT	1513	1752.6	22.39	22.50	1.026	0.128	0.770	0.790
	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	UAT	1312	1712.4	22.46	22.50	1.009	0.121	0.467	0.471
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	UAT	1312	1712.4	22.46	22.50	1.009	-0.006	0.306	0.309
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	UAT	1312	1712.4	22.46	22.50	1.009	-0.069	0.261	0.263
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	LAT	4233	846.6	22.49	23.00	1.125	0.024	0.016	0.018
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	LAT	4132	826.4	22.40	23.00	1.148	0.056	0.029	0.033
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	LAT	4182	836.4	22.35	23.00	1.161	0.061	0.020	0.023
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	LAT	4233	846.6	22.49	23.00	1.125	0.111	0.015	0.017
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	LAT	4233	846.6	22.49	23.00	1.125	-0.092	0.010	0.011
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	LAT	4233	846.6	22.49	23.00	1.125	0.182	0.015	0.017
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	UAT	4132	826.4	19.77	20.00	1.054	0.105	0.400	0.422
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	UAT	4132	826.4	19.77	20.00	1.054	-0.143	0.410	0.432
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	UAT	4132	826.4	19.77	20.00	1.054	-0.109	0.423	0.446
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	UAT	4132	826.4	19.77	20.00	1.054	-0.028	0.443	0.467
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	UAT	4182	836.4	19.68	20.00	1.076	-0.006	0.498	0.536
05	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	UAT	4233	846.6	19.54	20.00	1.112	-0.007	0.515	0.573

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	LAT	777	848.31	24.76	25.00	1.057	0.039	0.054	0.057
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	LAT	1013	824.7	24.51	25.00	1.119	-0.021	0.077	0.086
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	LAT	384	836.52	24.38	25.00	1.153	-0.036	0.060	0.069
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	LAT	777	848.31	24.76	25.00	1.057	0.192	0.021	0.022
	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	LAT	777	848.31	24.76	25.00	1.057	0.121	0.034	0.036
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	LAT	777	848.31	24.76	25.00	1.057	0.188	0.023	0.024
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	UAT	1013	824.7	21.00	21.00	1.000	0.114	0.656	0.656
	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	UAT	384	836.52	20.74	21.00	1.062	0.102	0.772	0.820
06	CDMA BC0	1xRTT RC3 SO55	Right Cheek	0mm	UAT	777	848.31	20.56	21.00	1.107	-0.112	0.788	0.872
	CDMA BC0	1xRTT RC3 SO55	Right Tilted	0mm	UAT	1013	824.7	21.00	21.00	1.000	0.185	0.577	0.577
	CDMA BC0	1xRTT RC3 SO55	Left Cheek	0mm	UAT	1013	824.7	21.00	21.00	1.000	-0.022	0.492	0.492
	CDMA BC0	1xRTT RC3 SO55	Left Tilted	0mm	UAT	1013	824.7	21.00	21.00	1.000	0.193	0.649	0.649

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	LAT	19100	1900	23.89	24.00	1.026	0.016	0.155	0.159
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	LAT	18700	1860	23.63	24.00	1.089	0.035	0.159	0.173
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	LAT	18900	1880	23.77	24.00	1.054	0.187	0.151	0.159
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	LAT	19100	1900	22.96	23.00	1.009	0.022	0.115	0.116
	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	LAT	19100	1900	23.89	24.00	1.026	0.184	0.096	0.098
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	LAT	19100	1900	22.96	23.00	1.009	0.093	0.055	0.056
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	LAT	19100	1900	23.89	24.00	1.026	0.172	0.128	0.131
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	LAT	19100	1900	22.96	23.00	1.009	0.073	0.093	0.094
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	LAT	19100	1900	23.89	24.00	1.026	0.17	0.083	0.085
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	LAT	19100	1900	22.96	23.00	1.009	0.058	0.059	0.060
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	UAT	19100	1900	21.00	21.00	1.000	0.039	0.874	0.874
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	UAT	18700	1860	20.90	21.00	1.023	0.08	0.926	0.948
07	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	UAT	18900	1880	20.89	21.00	1.026	0.038	0.932	0.956
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	UAT	19100	1900	20.00	20.00	1.000	-0.044	0.588	0.588
	LTE Band 2	20M	QPSK	100	0	Right Cheek	0mm	UAT	18900	1880	19.93	20.00	1.016	0.138	0.638	0.648
	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	UAT	19100	1900	21.00	21.00	1.000	-0.021	0.632	0.632
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	UAT	19100	1900	20.00	20.00	1.000	0.024	0.429	0.429
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	UAT	19100	1900	21.00	21.00	1.000	-0.123	0.652	0.652
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	UAT	19100	1900	20.00	20.00	1.000	-0.123	0.478	0.478
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	UAT	19100	1900	21.00	21.00	1.000	-0.069	0.493	0.493
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	UAT	19100	1900	20.00	20.00	1.000	0.111	0.369	0.369
	LTE Band 4	20M	QPSK	1	0	Right Cheek	0mm	LAT	20175	1732.5	21.50	21.50	1.000	-0.08	0.042	0.042
	LTE Band 4	20M	QPSK	50	0	Right Cheek	0mm	LAT	20175	1732.5	20.49	20.50	1.002	0.13	0.032	0.032
	LTE Band 4	20M	QPSK	1	0	Right Tilted	0mm	LAT	20175	1732.5	21.50	21.50	1.000	0.08	0.022	0.022
	LTE Band 4	20M	QPSK	50	0	Right Tilted	0mm	LAT	20175	1732.5	20.49	20.50	1.002	-0.16	0.018	0.018
	LTE Band 4	20M	QPSK	1	0	Left Cheek	0mm	LAT	20175	1732.5	21.50	21.50	1.000	-0.13	0.033	0.033
	LTE Band 4	20M	QPSK	50	0	Left Cheek	0mm	LAT	20175	1732.5	20.49	20.50	1.002	-0.01	0.025	0.025
	LTE Band 4	20M	QPSK	1	0	Left Tilted	0mm	LAT	20175	1732.5	21.50	21.50	1.000	-0.04	0.022	0.022
	LTE Band 4	20M	QPSK	50	0	Left Tilted	0mm	LAT	20175	1732.5	20.49	20.50	1.002	0.1	0.016	0.016

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
08	LTE Band 4	20M	QPSK	1	0	Right Cheek	0mm	UAT	20175	1732.5	21.50	21.50	1.000	-0.08	0.424	0.424
	LTE Band 4	20M	QPSK	50	0	Right Cheek	0mm	UAT	20175	1732.5	20.49	20.50	1.002	0.04	0.339	0.340
	LTE Band 4	20M	QPSK	1	0	Right Tilted	0mm	UAT	20175	1732.5	21.50	21.50	1.000	-0.1	0.288	0.288
	LTE Band 4	20M	QPSK	50	0	Right Tilted	0mm	UAT	20175	1732.5	20.49	20.50	1.002	0.03	0.229	0.230
	LTE Band 4	20M	QPSK	1	0	Left Cheek	0mm	UAT	20175	1732.5	21.50	21.50	1.000	-0.12	0.282	0.282
	LTE Band 4	20M	QPSK	50	0	Left Cheek	0mm	UAT	20175	1732.5	20.49	20.50	1.002	0.06	0.228	0.229
	LTE Band 4	20M	QPSK	1	0	Left Tilted	0mm	UAT	20175	1732.5	21.50	21.50	1.000	0.16	0.211	0.211
	LTE Band 4	20M	QPSK	50	0	Left Tilted	0mm	UAT	20175	1732.5	20.49	20.50	1.002	0.03	0.171	0.171
	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	LAT	20525	836.5	23.14	23.50	1.086	-0.194	0.039	0.042
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	LAT	20525	836.5	22.36	22.50	1.033	0.19	0.031	0.032
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	LAT	20525	836.5	23.14	23.50	1.086	-0.023	0.018	0.020
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	LAT	20525	836.5	22.36	22.50	1.033	0.157	0.015	0.015
	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	LAT	20525	836.5	23.14	23.50	1.086	-0.05	0.008	0.009
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	LAT	20525	836.5	22.36	22.50	1.033	-0.108	0.007	0.007
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	LAT	20525	836.5	23.14	23.50	1.086	0.191	0.004	0.004
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	LAT	20525	836.5	22.36	22.50	1.033	0.103	0.010	0.010
09	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	UAT	20525	836.5	22.00	22.00	1.000	0.197	0.799	0.799
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	UAT	20525	836.5	20.96	21.00	1.009	-0.156	0.733	0.740
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	UAT	20525	836.5	22.00	22.00	1.000	-0.05	0.739	0.739
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	UAT	20525	836.5	20.96	21.00	1.009	-0.036	0.639	0.645
	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	UAT	20525	836.5	22.00	22.00	1.000	0.06	0.648	0.648
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	UAT	20525	836.5	20.96	21.00	1.009	-0.041	0.550	0.555
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	UAT	20525	836.5	22.00	22.00	1.000	0.141	0.717	0.717
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	UAT	20525	836.5	20.96	21.00	1.009	0.184	0.627	0.633
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	LAT	21100	2535	21.08	21.50	1.102	0.117	0.081	0.089
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	LAT	20850	2510	21.07	21.50	1.104	0.144	0.086	0.095
10	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	LAT	21350	2560	21.04	21.50	1.112	0.155	0.106	0.118
	LTE Band 7	20M	QPSK	50	0	Right Cheek	0mm	LAT	21100	2535	20.11	20.50	1.094	0.121	0.061	0.067
	LTE Band 7	20M	QPSK	1	0	Right Tilted	0mm	LAT	21100	2535	21.08	21.50	1.102	-0.061	0.021	0.023
	LTE Band 7	20M	QPSK	50	0	Right Tilted	0mm	LAT	21100	2535	20.11	20.50	1.094	-0.18	0.007	0.007
	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	LAT	21100	2535	21.08	21.50	1.102	-0.165	0.057	0.063
	LTE Band 7	20M	QPSK	50	0	Left Cheek	0mm	LAT	21100	2535	20.11	20.50	1.094	-0.166	0.039	0.043
	LTE Band 7	20M	QPSK	1	0	Left Tilted	0mm	LAT	21100	2535	21.08	21.50	1.102	-0.185	0.023	0.025
	LTE Band 7	20M	QPSK	50	0	Left Tilted	0mm	LAT	21100	2535	20.11	20.50	1.094	0.16	0.016	0.018
	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	LAT	23095	707.5	23.16	23.50	1.081	0.11	0.035	0.038
	LTE Band 12	10M	QPSK	25	0	Right Cheek	0mm	LAT	23095	707.5	22.29	22.50	1.050	0.082	0.031	0.033
	LTE Band 12	10M	QPSK	1	0	Right Tilted	0mm	LAT	23095	707.5	23.16	23.50	1.081	0.196	0.014	0.015
	LTE Band 12	10M	QPSK	25	0	Right Tilted	0mm	LAT	23095	707.5	22.29	22.50	1.050	0.11	0.013	0.014
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	LAT	23095	707.5	23.16	23.50	1.081	0.105	0.030	0.032
	LTE Band 12	10M	QPSK	25	0	Left Cheek	0mm	LAT	23095	707.5	22.29	22.50	1.050	0.068	0.026	0.027
	LTE Band 12	10M	QPSK	1	0	Left Tilted	0mm	LAT	23095	707.5	23.16	23.50	1.081	0.175	0.013	0.014
	LTE Band 12	10M	QPSK	25	0	Left Tilted	0mm	LAT	23095	707.5	22.29	22.50	1.050	0.058	0.012	0.013
11	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	UAT	23095	707.5	23.16	23.50	1.081	0.147	0.603	0.652
	LTE Band 12	10M	QPSK	25	0	Right Cheek	0mm	UAT	23095	707.5	22.29	22.50	1.050	0.064	0.536	0.563
	LTE Band 12	10M	QPSK	1	0	Right Tilted	0mm	UAT	23095	707.5	23.16	23.50	1.081	0.129	0.514	0.556
	LTE Band 12	10M	QPSK	25	0	Right Tilted	0mm	UAT	23095	707.5	22.29	22.50	1.050	0.135	0.455	0.478
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	UAT	23095	707.5	23.16	23.50	1.081	-0.072	0.272	0.294
	LTE Band 12	10M	QPSK	25	0	Left Cheek	0mm	UAT	23095	707.5	22.29	22.50	1.050	0.06	0.249	0.261
	LTE Band 12	10M	QPSK	1	0	Left Tilted	0mm	UAT	23095	707.5	23.16	23.50	1.081	0.037	0.390	0.422
	LTE Band 12	10M	QPSK	25	0	Left Tilted	0mm	UAT	23095	707.5	22.29	22.50	1.050	0.029	0.344	0.361

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26	15M	QPSK	1	0	Right Cheek	0mm	LAT	26865	831.5	22.61	23.00	1.094	0.082	0.049	0.054
	LTE Band 26	15M	QPSK	36	0	Right Cheek	0mm	LAT	26865	831.5	21.52	22.00	1.117	0.046	0.038	0.042
	LTE Band 26	15M	QPSK	1	0	Right Tilted	0mm	LAT	26865	831.5	22.61	23.00	1.094	0.088	0.022	0.024
	LTE Band 26	15M	QPSK	36	0	Right Tilted	0mm	LAT	26865	831.5	21.52	22.00	1.117	0.098	0.017	0.019
	LTE Band 26	15M	QPSK	1	0	Left Cheek	0mm	LAT	26865	831.5	22.61	23.00	1.094	-0.021	0.035	0.038
	LTE Band 26	15M	QPSK	36	0	Left Cheek	0mm	LAT	26865	831.5	21.52	22.00	1.117	0	0.027	0.030
	LTE Band 26	15M	QPSK	1	0	Left Tilted	0mm	LAT	26865	831.5	22.61	23.00	1.094	0.122	0.016	0.018
	LTE Band 26	15M	QPSK	36	0	Left Tilted	0mm	LAT	26865	831.5	21.52	22.00	1.117	0.027	0.012	0.013
12	LTE Band 26	15M	QPSK	1	0	Right Cheek	0mm	UAT	26865	831.5	21.89	22.00	1.026	0.166	0.762	0.782
	LTE Band 26	15M	QPSK	36	20	Right Cheek	0mm	UAT	26865	831.5	20.93	21.00	1.016	0.182	0.678	0.689
	LTE Band 26	15M	QPSK	1	0	Right Tilted	0mm	UAT	26865	831.5	21.89	22.00	1.026	0.175	0.642	0.658
	LTE Band 26	15M	QPSK	36	20	Right Tilted	0mm	UAT	26865	831.5	20.93	21.00	1.016	0.089	0.573	0.582
	LTE Band 26	15M	QPSK	1	0	Left Cheek	0mm	UAT	26865	831.5	21.89	22.00	1.026	0.038	0.541	0.555
	LTE Band 26	15M	QPSK	36	20	Left Cheek	0mm	UAT	26865	831.5	20.93	21.00	1.016	0.01	0.504	0.512
	LTE Band 26	15M	QPSK	1	0	Left Tilted	0mm	UAT	26865	831.5	21.89	22.00	1.026	0.029	0.664	0.681
	LTE Band 26	15M	QPSK	36	20	Left Tilted	0mm	UAT	26865	831.5	20.93	21.00	1.016	-0.033	0.576	0.585
13	LTE Band 30	10M	QPSK	1	0	Right Cheek	0mm	LAT	27710	2310	17.51	18.00	1.119	-0.034	0.014	0.016
	LTE Band 30	10M	QPSK	25	0	Right Cheek	0mm	LAT	27710	2310	16.55	17.00	1.109	-0.046	0.009	0.010
	LTE Band 30	10M	QPSK	1	0	Right Tilted	0mm	LAT	27710	2310	17.51	18.00	1.119	0.06	0.007	0.007
	LTE Band 30	10M	QPSK	25	0	Right Tilted	0mm	LAT	27710	2310	16.55	17.00	1.109	0.13	0.005	0.006
	LTE Band 30	10M	QPSK	1	0	Left Cheek	0mm	LAT	27710	2310	17.51	18.00	1.119	0.09	0.012	0.013
	LTE Band 30	10M	QPSK	25	0	Left Cheek	0mm	LAT	27710	2310	16.55	17.00	1.109	0.15	0.012	0.013
	LTE Band 30	10M	QPSK	1	0	Left Tilted	0mm	LAT	27710	2310	17.51	18.00	1.119	0.05	0.003	0.003
	LTE Band 30	10M	QPSK	25	0	Left Tilted	0mm	LAT	27710	2310	16.55	17.00	1.109	0.04	0.002	0.002

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
14	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	0.09	0.086	0.105
	LTE Band 38	20M	QPSK	50	0	Right Cheek	0mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.06	0.057	0.072
	LTE Band 38	20M	QPSK	1	0	Right Tilted	0mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	-0.02	0.016	0.020
	LTE Band 38	20M	QPSK	50	0	Right Tilted	0mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.04	0.009	0.011
	LTE Band 38	20M	QPSK	1	0	Left Cheek	0mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	0.17	0.053	0.065
	LTE Band 38	20M	QPSK	50	0	Left Cheek	0mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	-0.02	0.031	0.039
	LTE Band 38	20M	QPSK	1	0	Left Tilted	0mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	0.15	0.027	0.033
	LTE Band 38	20M	QPSK	50	0	Left Tilted	0mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	-0.04	0.019	0.024
15	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0.07	0.028	0.028
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	LAT	40240	2555	17.80	18.50	1.175	62.9	1.006	0.15	0.019	0.022
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	LAT	40540	2585	18.06	18.50	1.107	62.9	1.006	-0.07	0.018	0.020
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	LAT	40840	2615	17.98	18.50	1.127	62.9	1.006	0.13	0.017	0.019
	LTE Band 41	20M	QPSK	50	0	Right Cheek	0mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	-0.12	0.021	0.021
	LTE Band 41	20M	QPSK	1	0	Right Tilted	0mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0.12	0.004	0.004
	LTE Band 41	20M	QPSK	50	0	Right Tilted	0mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	0.1	0.002	0.002
	LTE Band 41	20M	QPSK	1	0	Left Cheek	0mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0.17	0.013	0.013
	LTE Band 41	20M	QPSK	50	0	Left Cheek	0mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	0.18	0.009	0.009
	LTE Band 41	20M	QPSK	1	0	Left Tilted	0mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0.13	0.003	0.003
	LTE Band 41	20M	QPSK	50	0	Left Tilted	0mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	-0.16	0.001	0.001

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	-	11	2462	13.99	14.00	1.002	98.62	1.014	0.03	0.196	0.199
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	-	11	2462	13.99	14.00	1.002	98.62	1.014	-0.14	0.156	0.159
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	-	11	2462	13.99	14.00	1.002	98.62	1.014	0.02	0.503	0.511
16	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	-	1	2412	13.95	14.00	1.012	98.62	1.014	-0.03	0.571	0.586
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	-	6	2437	13.97	14.00	1.007	98.62	1.014	0.02	0.558	0.570
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	-	11	2462	13.99	14.00	1.002	98.62	1.014	0.04	0.458	0.465
17	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.17	0.287	0.331
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 1	54	5270	15.42	16.00	1.143	97.93	1.021	0.12	0.257	0.300
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.16	0.189	0.218
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	-0.01	0.151	0.174
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.16	0.089	0.103
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	58	5290	11.39	11.50	1.025	96.58	1.035	0.16	0.093	0.099
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	58	5290	11.39	11.50	1.025	96.58	1.035	0.16	0.080	0.085
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	58	5290	11.39	11.50	1.025	96.58	1.035	0.13	0.249	0.264
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	58	5290	11.39	11.50	1.025	96.58	1.035	0.12	0.194	0.206
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.04	0.286	0.327
18	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	138	5690	14.93	16.00	1.279	96.58	1.035	0	0.304	0.403
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.08	0.248	0.283
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	0.13	0.192	0.219
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	0.11	0.032	0.037
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	106	5530	11.48	11.50	1.004	96.58	1.035	-0.16	0.174	0.181
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	106	5530	11.48	11.50	1.004	96.58	1.035	-0.13	0.162	0.168
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	106	5530	11.48	11.50	1.004	96.58	1.035	0.06	0.368	0.383
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	138	5690	11.42	11.50	1.019	96.58	1.035	0.01	0.265	0.279
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	106	5530	11.48	11.50	1.004	96.58	1.035	0.14	0.310	0.322
19	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0.122	0.235	0.272
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0.04	0.144	0.166
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0.129	0.187	0.216
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0.137	0.153	0.177
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	155	5775	11.15	11.50	1.084	96.58	1.035	0.13	0.036	0.040
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	155	5775	11.15	11.50	1.084	96.58	1.035	-0.17	0.030	0.034
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	155	5775	11.15	11.50	1.084	96.58	1.035	-0.12	0.083	0.093
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	155	5775	11.15	11.50	1.084	96.58	1.035	-0.1	0.079	0.089

14.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	DTM Multi-slot class 11	Front	10mm	LAT	128	824.2	28.96	29.00	1.009	0.023	0.397	0.401
20	GSM850	DTM Multi-slot class 11	Front	10mm	LAT	189	836.4	28.92	29.00	1.019	0.039	0.572	0.583
	GSM850	DTM Multi-slot class 11	Front	10mm	LAT	251	848.8	28.91	29.00	1.021	-0.043	0.377	0.385
	GSM850	DTM Multi-slot class 11	Back	10mm	LAT	128	824.2	28.96	29.00	1.009	0.059	0.116	0.117
	GSM850	DTM Multi-slot class 11	Left Side	10mm	LAT	128	824.2	28.96	29.00	1.009	0.077	0.032	0.032
	GSM850	DTM Multi-slot class 11	Right Side	10mm	LAT	128	824.2	28.96	29.00	1.009	-0.026	0.098	0.099
	GSM850	DTM Multi-slot class 11	Bottom Side	10mm	LAT	128	824.2	28.96	29.00	1.009	0.031	0.198	0.200
	GSM850	DTM Multi-slot class 11	Front	10mm	UAT	128	824.2	28.96	29.00	1.009	-0.091	0.124	0.125
	GSM850	DTM Multi-slot class 11	Front	10mm	UAT	189	836.4	28.92	29.00	1.019	-0.179	0.167	0.170
	GSM850	DTM Multi-slot class 11	Front	10mm	UAT	251	848.8	28.91	29.00	1.021	-0.12	0.232	0.237
	GSM850	DTM Multi-slot class 11	Back	10mm	UAT	128	824.2	28.96	29.00	1.009	0.027	0.029	0.029
	GSM850	DTM Multi-slot class 11	Left Side	10mm	UAT	128	824.2	28.96	29.00	1.009	0.1	0.019	0.019
	GSM850	DTM Multi-slot class 11	Right Side	10mm	UAT	128	824.2	28.96	29.00	1.009	0.194	0.036	0.036
	GSM850	DTM Multi-slot class 11	Top Side	10mm	UAT	128	824.2	28.96	29.00	1.009	0.061	0.062	0.063
	GSM1900	DTM Multi-slot class 11	Front	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.025	0.972	1.046
21	GSM1900	DTM Multi-slot class 11	Front	10mm	LAT	512	1850.2	25.91	26.50	1.146	0.13	1.040	1.191
	GSM1900	DTM Multi-slot class 11	Front	10mm	LAT	661	1880	25.85	26.50	1.161	-0.083	1.010	1.173
	GSM1900	DTM Multi-slot class 11	Back	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.057	0.156	0.168
	GSM1900	DTM Multi-slot class 11	Left Side	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.02	0.140	0.151
	GSM1900	DTM Multi-slot class 11	Right Side	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.119	0.085	0.091
	GSM1900	DTM Multi-slot class 11	Bottom Side	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.168	1.100	1.184
	GSM1900	DTM Multi-slot class 11	Bottom Side	10mm	LAT	512	1850.2	25.91	26.50	1.146	-0.106	1.020	1.168
	GSM1900	DTM Multi-slot class 11	Bottom Side	10mm	LAT	661	1880	25.85	26.50	1.161	-0.162	0.973	1.130
	GSM1900	DTM Multi-slot class 11	Front	10mm	UAT	810	1909.8	27.45	28.00	1.135	-0.17	0.100	0.114
	GSM1900	DTM Multi-slot class 11	Front	10mm	UAT	512	1850.2	27.34	28.00	1.164	0.181	0.115	0.134
	GSM1900	DTM Multi-slot class 11	Front	10mm	UAT	661	1880	27.42	28.00	1.143	0.081	0.107	0.122
	GSM1900	DTM Multi-slot class 11	Back	10mm	UAT	810	1909.8	27.45	28.00	1.135	-0.098	0.033	0.037
	GSM1900	DTM Multi-slot class 11	Left Side	10mm	UAT	810	1909.8	27.45	28.00	1.135	0.03	0.013	0.015
	GSM1900	DTM Multi-slot class 11	Right Side	10mm	UAT	810	1909.8	27.45	28.00	1.135	0.163	0.006	0.006
	GSM1900	DTM Multi-slot class 11	Top Side	10mm	UAT	810	1909.8	27.45	28.00	1.135	0.181	0.075	0.085

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	10mm	LAT	9538	1907.6	19.49	19.50	1.002	0.135	0.492	0.493
	WCDMA II	RMC 12.2Kbps	Back	10mm	LAT	9538	1907.6	19.49	19.50	1.002	0.137	0.088	0.088
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	LAT	9538	1907.6	19.49	19.50	1.002	-0.049	0.061	0.061
	WCDMA II	RMC 12.2Kbps	Right Side	10mm	LAT	9538	1907.6	19.49	19.50	1.002	-0.138	0.039	0.039
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	LAT	9538	1907.6	19.49	19.50	1.002	-0.066	0.617	0.618
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	LAT	9262	1852.4	19.32	19.50	1.042	-0.096	0.659	0.687
22	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	LAT	9400	1880	19.38	19.50	1.028	-0.09	0.719	0.739
	WCDMA II	RMC 12.2Kbps	Front	10mm	UAT	9538	1907.6	22.50	23.00	1.122	-0.184	0.151	0.169
	WCDMA II	RMC 12.2Kbps	Front	10mm	UAT	9262	1852.4	22.08	23.00	1.236	-0.032	0.090	0.111
	WCDMA II	RMC 12.2Kbps	Front	10mm	UAT	9400	1880	22.28	23.00	1.180	0.184	0.131	0.155
	WCDMA II	RMC 12.2Kbps	Back	10mm	UAT	9538	1907.6	22.50	23.00	1.122	0.042	0.053	0.059
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	UAT	9538	1907.6	22.50	23.00	1.122	0.093	0.026	0.029
	WCDMA II	RMC 12.2Kbps	Right Side	10mm	UAT	9538	1907.6	22.50	23.00	1.122	-0.121	0.009	0.010
	WCDMA II	RMC 12.2Kbps	Top Side	10mm	UAT	9538	1907.6	22.50	23.00	1.122	0.123	0.110	0.123
	WCDMA IV	RMC 12.2Kbps	Front	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.163	0.802	0.908
	WCDMA IV	RMC 12.2Kbps	Front	10mm	LAT	1413	1732.6	22.38	23.00	1.153	-0.01	0.810	0.934
	WCDMA IV	RMC 12.2Kbps	Front	10mm	LAT	1513	1752.6	22.39	23.00	1.151	-0.009	0.879	1.012
	WCDMA IV	RMC 12.2Kbps	Back	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.072	0.128	0.145
	WCDMA IV	RMC 12.2Kbps	Left Side	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.021	0.079	0.089
	WCDMA IV	RMC 12.2Kbps	Right Side	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.048	0.052	0.059
	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.014	0.756	0.856
	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	LAT	1413	1732.6	22.38	23.00	1.153	-0.041	0.860	0.992
23	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	LAT	1513	1752.6	22.39	23.00	1.151	-0.055	0.959	1.104
	WCDMA IV	RMC 12.2Kbps	Front	10mm	UAT	1312	1712.4	22.46	23.00	1.132	-0.114	0.038	0.043
	WCDMA IV	RMC 12.2Kbps	Front	10mm	UAT	1413	1732.6	22.38	23.00	1.153	0.061	0.039	0.045
	WCDMA IV	RMC 12.2Kbps	Front	10mm	UAT	1513	1752.6	22.39	23.00	1.151	-0.154	0.045	0.052
	WCDMA IV	RMC 12.2Kbps	Back	10mm	UAT	1312	1712.4	22.46	23.00	1.132	0.165	0.015	0.017
	WCDMA IV	RMC 12.2Kbps	Left Side	10mm	UAT	1312	1712.4	22.46	23.00	1.132	-0.077	0.008	0.009
	WCDMA IV	RMC 12.2Kbps	Right Side	10mm	UAT	1312	1712.4	22.46	23.00	1.132	-0.143	0.003	0.003
	WCDMA IV	RMC 12.2Kbps	Top Side	10mm	UAT	1312	1712.4	22.46	23.00	1.132	-0.036	0.010	0.011
	WCDMA V	RMC 12.2Kbps	Front	10mm	LAT	4233	846.6	22.49	23.00	1.125	0.016	0.365	0.410
24	WCDMA V	RMC 12.2Kbps	Front	10mm	LAT	4132	826.4	22.40	23.00	1.148	-0.054	0.402	0.462
	WCDMA V	RMC 12.2Kbps	Front	10mm	LAT	4182	836.4	22.35	23.00	1.161	0.05	0.381	0.443
	WCDMA V	RMC 12.2Kbps	Back	10mm	LAT	4233	846.6	22.49	23.00	1.125	-0.004	0.070	0.079
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	LAT	4233	846.6	22.49	23.00	1.125	-0.025	0.011	0.012
	WCDMA V	RMC 12.2Kbps	Right Side	10mm	LAT	4233	846.6	22.49	23.00	1.125	-0.07	0.046	0.052
	WCDMA V	RMC 12.2Kbps	Bottom Side	10mm	LAT	4233	846.6	22.49	23.00	1.125	-0.03	0.174	0.196
	WCDMA V	RMC 12.2Kbps	Front	10mm	UAT	4233	846.6	22.49	23.00	1.125	-0.113	0.230	0.259
	WCDMA V	RMC 12.2Kbps	Front	10mm	UAT	4132	826.4	22.40	23.00	1.148	-0.136	0.126	0.145
	WCDMA V	RMC 12.2Kbps	Front	10mm	UAT	4182	836.4	22.35	23.00	1.161	-0.069	0.165	0.192
	WCDMA V	RMC 12.2Kbps	Back	10mm	UAT	4233	846.6	22.49	23.00	1.125	-0.05	0.056	0.063
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	UAT	4233	846.6	22.49	23.00	1.125	0.003	0.027	0.030
	WCDMA V	RMC 12.2Kbps	Right Side	10mm	UAT	4233	846.6	22.49	23.00	1.125	0.065	0.050	0.056
	WCDMA V	RMC 12.2Kbps	Top Side	10mm	UAT	4233	846.6	22.49	23.00	1.125	0.085	0.131	0.147

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	LAT	777	848.31	24.72	25.00	1.067	-0.154	0.291	0.310
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	LAT	384	836.52	24.48	25.00	1.127	-0.007	0.468	0.528
25	CDMA BC0	RTAP 153.6Kbps	Front	10mm	LAT	1013	824.7	24.40	25.00	1.148	-0.092	0.545	0.626
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	LAT	777	848.31	24.72	25.00	1.067	-0.054	0.085	0.091
	CDMA BC0	RTAP 153.6Kbps	Left Side	10mm	LAT	777	848.31	24.72	25.00	1.067	0.15	0.020	0.021
	CDMA BC0	RTAP 153.6Kbps	Right Side	10mm	LAT	777	848.31	24.72	25.00	1.067	0.022	0.069	0.074
	CDMA BC0	RTAP 153.6Kbps	Bottom Side	10mm	LAT	777	848.31	24.72	25.00	1.067	0.003	0.163	0.174
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	UAT	777	848.31	24.72	25.00	1.067	0.032	0.297	0.317
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	UAT	1013	824.7	24.48	25.00	1.127	-0.003	0.137	0.154
	CDMA BC0	RTAP 153.6Kbps	Front	10mm	UAT	384	836.52	24.40	25.00	1.148	-0.045	0.197	0.226
	CDMA BC0	RTAP 153.6Kbps	Back	10mm	UAT	777	848.31	24.72	25.00	1.067	0.013	0.070	0.075
	CDMA BC0	RTAP 153.6Kbps	Left Side	10mm	UAT	777	848.31	24.72	25.00	1.067	-0.19	0.038	0.041
	CDMA BC0	RTAP 153.6Kbps	Right Side	10mm	UAT	777	848.31	24.72	25.00	1.067	0.038	0.061	0.065
	CDMA BC0	RTAP 153.6Kbps	Top Side	10mm	UAT	777	848.31	24.72	25.00	1.067	-0.045	0.153	0.163

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	10mm	LAT	19100	1900	21.00	21.00	1.000	0.082	0.956	0.956
	LTE Band 2	20M	QPSK	1	0	Front	10mm	LAT	18700	1860	20.90	21.00	1.023	-0.047	1.060	1.085
	LTE Band 2	20M	QPSK	1	0	Front	10mm	LAT	18900	1880	20.89	21.00	1.026	0.003	1.080	1.108
	LTE Band 2	20M	QPSK	50	0	Front	10mm	LAT	19100	1900	20.00	20.00	1.000	0.01	0.685	0.685
	LTE Band 2	20M	QPSK	100	0	Front	10mm	LAT	18900	1880	19.93	20.00	1.016	0.011	0.671	0.682
	LTE Band 2	20M	QPSK	1	0	Back	10mm	LAT	19100	1900	21.00	21.00	1.000	-0.101	0.174	0.174
	LTE Band 2	20M	QPSK	50	0	Back	10mm	LAT	19100	1900	20.00	20.00	1.000	-0.061	0.119	0.119
	LTE Band 2	20M	QPSK	1	0	Left Side	10mm	LAT	19100	1900	21.00	21.00	1.000	-0.007	0.191	0.191
	LTE Band 2	20M	QPSK	50	0	Left Side	10mm	LAT	19100	1900	20.00	20.00	1.000	0.058	0.146	0.146
	LTE Band 2	20M	QPSK	1	0	Right Side	10mm	LAT	19100	1900	21.00	21.00	1.000	-0.107	0.113	0.113
	LTE Band 2	20M	QPSK	50	0	Right Side	10mm	LAT	19100	1900	20.00	20.00	1.000	0.172	0.082	0.082
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	LAT	19100	1900	21.00	21.00	1.000	-0.002	1.130	1.130
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	LAT	18700	1860	20.90	21.00	1.023	-0.005	1.160	1.187
26	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	LAT	18900	1880	20.89	21.00	1.026	-0.031	1.160	1.190
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	LAT	19100	1900	20.00	20.00	1.000	-0.018	0.821	0.821
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	LAT	18700	1860	19.78	20.00	1.052	-0.009	0.829	0.872
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	LAT	18900	1880	19.98	20.00	1.005	-0.031	0.828	0.832
	LTE Band 2	20M	QPSK	100	0	Bottom Side	10mm	LAT	18900	1880	19.93	20.00	1.016	-0.023	0.804	0.817
	LTE Band 2	20M	QPSK	1	0	Front	10mm	UAT	19100	1900	23.89	24.00	1.026	-0.137	0.186	0.191
	LTE Band 2	20M	QPSK	1	0	Front	10mm	UAT	18700	1860	23.63	24.00	1.089	-0.079	0.091	0.099
	LTE Band 2	20M	QPSK	1	0	Front	10mm	UAT	18900	1880	23.77	24.00	1.054	0.106	0.129	0.136
	LTE Band 2	20M	QPSK	50	0	Front	10mm	UAT	19100	1900	22.96	23.00	1.009	0.182	0.140	0.141
	LTE Band 2	20M	QPSK	1	0	Back	10mm	UAT	19100	1900	23.89	24.00	1.026	-0.16	0.066	0.068
	LTE Band 2	20M	QPSK	50	0	Back	10mm	UAT	19100	1900	22.96	23.00	1.009	0.056	0.046	0.046
	LTE Band 2	20M	QPSK	1	0	Left Side	10mm	UAT	19100	1900	23.89	24.00	1.026	-0.175	0.029	0.030
	LTE Band 2	20M	QPSK	50	0	Left Side	10mm	UAT	19100	1900	22.96	23.00	1.009	0.101	0.021	0.021
	LTE Band 2	20M	QPSK	1	0	Right Side	10mm	UAT	19100	1900	23.89	24.00	1.026	-0.114	0.010	0.010
	LTE Band 2	20M	QPSK	50	0	Right Side	10mm	UAT	19100	1900	22.96	23.00	1.009	0.105	0.005	0.005
	LTE Band 2	20M	QPSK	1	0	Top Side	10mm	UAT	19100	1900	23.89	24.00	1.026	0.018	0.065	0.067
	LTE Band 2	20M	QPSK	50	0	Top Side	10mm	UAT	19100	1900	22.96	23.00	1.009	-0.065	0.047	0.047

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 4	20M	QPSK	1	0	Front	10mm	LAT	20175	1732.5	21.5	21.50	1.000	0.18	0.581	0.581
	LTE Band 4	20M	QPSK	50	0	Front	10mm	LAT	20175	1732.5	20.49	20.50	1.002	0.12	0.457	0.458
	LTE Band 4	20M	QPSK	1	0	Back	10mm	LAT	20175	1732.5	21.5	21.50	1.000	-0.1	0.087	0.087
	LTE Band 4	20M	QPSK	50	0	Back	10mm	LAT	20175	1732.5	20.49	20.50	1.002	-0.13	0.071	0.071
	LTE Band 4	20M	QPSK	1	0	Left Side	10mm	LAT	20175	1732.5	21.5	21.50	1.000	-0.13	0.067	0.067
	LTE Band 4	20M	QPSK	50	0	Left Side	10mm	LAT	20175	1732.5	20.49	20.50	1.002	0.09	0.052	0.052
	LTE Band 4	20M	QPSK	1	0	Right Side	10mm	LAT	20175	1732.5	21.5	21.50	1.000	-0.02	0.038	0.038
	LTE Band 4	20M	QPSK	50	0	Right Side	10mm	LAT	20175	1732.5	20.49	20.50	1.002	-0.13	0.029	0.029
27	LTE Band 4	20M	QPSK	1	0	Bottom Side	10mm	LAT	20175	1732.5	21.5	21.50	1.000	-0.13	0.597	0.597
	LTE Band 4	20M	QPSK	50	0	Bottom Side	10mm	LAT	20175	1732.5	20.49	20.50	1.002	-0.15	0.473	0.474
	LTE Band 4	20M	QPSK	1	0	Front	10mm	UAT	20175	1732.5	21.5	21.50	1.000	-0.18	0.018	0.018
	LTE Band 4	20M	QPSK	50	0	Front	10mm	UAT	20175	1732.5	20.49	20.50	1.002	-0.11	0.020	0.020
	LTE Band 4	20M	QPSK	1	0	Back	10mm	UAT	20175	1732.5	21.5	21.50	1.000	0.17	0.010	0.010
	LTE Band 4	20M	QPSK	50	0	Back	10mm	UAT	20175	1732.5	20.49	20.50	1.002	0.14	0.008	0.008
	LTE Band 4	20M	QPSK	1	0	Left Side	10mm	UAT	20175	1732.5	21.5	21.50	1.000	-0.05	0.008	0.008
	LTE Band 4	20M	QPSK	50	0	Left Side	10mm	UAT	20175	1732.5	20.49	20.50	1.002	0.19	0.006	0.006
	LTE Band 4	20M	QPSK	1	0	Right Side	10mm	UAT	20175	1732.5	21.5	21.50	1.000	0.16	0.001	0.001
	LTE Band 4	20M	QPSK	50	0	Right Side	10mm	UAT	20175	1732.5	20.49	20.50	1.002	0.18	0.001	0.001
	LTE Band 4	20M	QPSK	1	0	Top Side	10mm	UAT	20175	1732.5	21.5	21.50	1.000	-0.14	0.006	0.006
	LTE Band 4	20M	QPSK	50	0	Top Side	10mm	UAT	20175	1732.5	20.49	20.5	1.002	-0.11	0.005	0.005
28	LTE Band 5	10M	QPSK	1	0	Front	10mm	LAT	20525	836.5	23.14	23.50	1.086	0.051	0.324	0.352
	LTE Band 5	10M	QPSK	25	0	Front	10mm	LAT	20525	836.5	22.36	22.50	1.033	0.016	0.270	0.279
	LTE Band 5	10M	QPSK	1	0	Back	10mm	LAT	20525	836.5	23.14	23.50	1.086	0.021	0.076	0.083
	LTE Band 5	10M	QPSK	25	0	Back	10mm	LAT	20525	836.5	22.36	22.50	1.033	0.034	0.060	0.062
	LTE Band 5	10M	QPSK	1	0	Left Side	10mm	LAT	20525	836.5	23.14	23.50	1.086	-0.046	0.031	0.034
	LTE Band 5	10M	QPSK	25	0	Left Side	10mm	LAT	20525	836.5	22.36	22.50	1.033	-0.034	0.025	0.026
	LTE Band 5	10M	QPSK	1	0	Right Side	10mm	LAT	20525	836.5	23.14	23.50	1.086	0.06	0.070	0.076
	LTE Band 5	10M	QPSK	25	0	Right Side	10mm	LAT	20525	836.5	22.36	22.50	1.033	0.047	0.055	0.057
	LTE Band 5	10M	QPSK	1	0	Bottom Side	10mm	LAT	20525	836.5	23.14	23.50	1.086	0.037	0.196	0.213
	LTE Band 5	10M	QPSK	25	0	Bottom Side	10mm	LAT	20525	836.5	22.36	22.50	1.033	0.015	0.161	0.166
	LTE Band 5	10M	QPSK	1	0	Front	10mm	UAT	20525	836.5	23.14	23.50	1.086	-0.108	0.131	0.142
	LTE Band 5	10M	QPSK	25	0	Front	10mm	UAT	20525	836.5	22.36	22.50	1.033	-0.138	0.116	0.120
	LTE Band 5	10M	QPSK	1	0	Back	10mm	UAT	20525	836.5	23.14	23.50	1.086	-0.114	0.033	0.036
	LTE Band 5	10M	QPSK	25	0	Back	10mm	UAT	20525	836.5	22.36	22.50	1.033	-0.144	0.030	0.031
	LTE Band 5	10M	QPSK	1	0	Left Side	10mm	UAT	20525	836.5	23.14	23.50	1.086	-0.143	0.015	0.016
	LTE Band 5	10M	QPSK	25	0	Left Side	10mm	UAT	20525	836.5	22.36	22.50	1.033	0.107	0.013	0.013
	LTE Band 5	10M	QPSK	1	0	Right Side	10mm	UAT	20525	836.5	23.14	23.50	1.086	0.167	0.026	0.028
	LTE Band 5	10M	QPSK	25	0	Right Side	10mm	UAT	20525	836.5	22.36	22.50	1.033	0.024	0.024	0.025
	LTE Band 5	10M	QPSK	1	0	Top Side	10mm	UAT	20525	836.5	23.14	23.50	1.086	0.115	0.063	0.068
	LTE Band 5	10M	QPSK	25	0	Top Side	10mm	UAT	20525	836.5	22.36	22.50	1.033	-0.085	0.057	0.059
	LTE Band 7	20M	QPSK	1	0	Front	10mm	LAT	21100	2535	21.08	21.50	1.102	-0.068	0.201	0.221
	LTE Band 7	20M	QPSK	50	0	Front	10mm	LAT	21100	2535	20.11	20.50	1.094	0.162	0.144	0.158
	LTE Band 7	20M	QPSK	1	0	Back	10mm	LAT	21100	2535	21.08	21.50	1.102	0.037	0.175	0.193
	LTE Band 7	20M	QPSK	50	0	Back	10mm	LAT	21100	2535	20.11	20.50	1.094	0.061	0.124	0.136
	LTE Band 7	20M	QPSK	1	0	Left Side	10mm	LAT	21100	2535	21.08	21.50	1.102	0.027	0.059	0.065
	LTE Band 7	20M	QPSK	50	0	Left Side	10mm	LAT	21100	2535	20.11	20.50	1.094	0.034	0.043	0.047
	LTE Band 7	20M	QPSK	1	0	Right Side	10mm	LAT	21100	2535	21.08	21.50	1.102	-0.099	0.175	0.193
	LTE Band 7	20M	QPSK	50	0	Right Side	10mm	LAT	21100	2535	20.11	20.50	1.094	0.036	0.133	0.145
	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	LAT	21100	2535	21.08	21.50	1.102	0.005	0.214	0.236
	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	LAT	20850	2510	21.07	21.50	1.104	0.037	0.184	0.203
29	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	LAT	21350	2560	21.04	21.50	1.112	0.069	0.244	0.271
	LTE Band 7	20M	QPSK	50	0	Bottom Side	10mm	LAT	21100	2535	20.11	20.50	1.094	0.041	0.155	0.170

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
30	LTE Band 12	10M	QPSK	1	0	Front	10mm	LAT	23095	707.5	23.16	23.50	1.081	-0.101	0.147	0.159
	LTE Band 12	10M	QPSK	25	0	Front	10mm	LAT	23095	707.5	22.29	22.50	1.050	-0.023	0.147	0.154
	LTE Band 12	10M	QPSK	1	0	Back	10mm	LAT	23095	707.5	23.16	23.50	1.081	0.063	0.016	0.017
	LTE Band 12	10M	QPSK	25	0	Back	10mm	LAT	23095	707.5	22.29	22.50	1.050	0.132	0.012	0.013
	LTE Band 12	10M	QPSK	1	0	Left Side	10mm	LAT	23095	707.5	23.16	23.50	1.081	-0.059	0.041	0.044
	LTE Band 12	10M	QPSK	25	0	Left Side	10mm	LAT	23095	707.5	22.29	22.50	1.050	0.064	0.037	0.039
	LTE Band 12	10M	QPSK	1	0	Right Side	10mm	LAT	23095	707.5	23.16	23.50	1.081	-0.06	0.052	0.056
	LTE Band 12	10M	QPSK	25	0	Right Side	10mm	LAT	23095	707.5	22.29	22.50	1.050	0.053	0.051	0.054
	LTE Band 12	10M	QPSK	1	0	Bottom Side	10mm	LAT	23095	707.5	23.16	23.50	1.081	-0.101	0.077	0.083
	LTE Band 12	10M	QPSK	25	0	Bottom Side	10mm	LAT	23095	707.5	22.29	22.50	1.050	0.028	0.070	0.073
	LTE Band 12	10M	QPSK	1	0	Front	10mm	UAT	23095	707.5	23.16	23.50	1.081	-0.093	0.038	0.041
	LTE Band 12	10M	QPSK	25	0	Front	10mm	UAT	23095	707.5	22.29	22.50	1.050	-0.051	0.033	0.035
	LTE Band 12	10M	QPSK	1	0	Back	10mm	UAT	23095	707.5	23.16	23.50	1.081	-0.056	0.010	0.011
	LTE Band 12	10M	QPSK	25	0	Back	10mm	UAT	23095	707.5	22.29	22.50	1.050	0.028	0.009	0.009
	LTE Band 12	10M	QPSK	1	0	Left Side	10mm	UAT	23095	707.5	23.16	23.50	1.081	0.105	0.009	0.009
	LTE Band 12	10M	QPSK	25	0	Left Side	10mm	UAT	23095	707.5	22.29	22.50	1.050	0.156	0.008	0.008
	LTE Band 12	10M	QPSK	1	0	Right Side	10mm	UAT	23095	707.5	23.16	23.50	1.081	0.164	0.006	0.006
	LTE Band 12	10M	QPSK	25	0	Right Side	10mm	UAT	23095	707.5	22.29	22.50	1.050	-0.133	0.005	0.005
	LTE Band 12	10M	QPSK	1	0	Top Side	10mm	UAT	23095	707.5	23.16	23.50	1.081	0.086	0.015	0.016
	LTE Band 12	10M	QPSK	25	0	Top Side	10mm	UAT	23095	707.5	22.29	22.50	1.050	-0.055	0.013	0.014
31	LTE Band 26	15M	QPSK	1	0	Front	10mm	LAT	26865	831.5	22.61	23.00	1.094	-0.149	0.369	0.404
	LTE Band 26	15M	QPSK	36	0	Front	10mm	LAT	26865	831.5	21.52	22.00	1.117	-0.002	0.346	0.386
	LTE Band 26	15M	QPSK	1	0	Back	10mm	LAT	26865	831.5	22.61	23.00	1.094	-0.041	0.076	0.083
	LTE Band 26	15M	QPSK	36	0	Back	10mm	LAT	26865	831.5	21.52	22.00	1.117	0.049	0.053	0.059
	LTE Band 26	15M	QPSK	1	0	Left Side	10mm	LAT	26865	831.5	22.61	23.00	1.094	0.023	0.035	0.038
	LTE Band 26	15M	QPSK	36	0	Left Side	10mm	LAT	26865	831.5	21.52	22.00	1.117	0.037	0.024	0.027
	LTE Band 26	15M	QPSK	1	0	Right Side	10mm	LAT	26865	831.5	22.61	23.00	1.094	0.022	0.077	0.084
	LTE Band 26	15M	QPSK	36	0	Right Side	10mm	LAT	26865	831.5	21.52	22.00	1.117	0.02	0.057	0.064
	LTE Band 26	15M	QPSK	1	0	Bottom Side	10mm	LAT	26865	831.5	22.61	23.00	1.094	-0.025	0.204	0.223
	LTE Band 26	15M	QPSK	36	0	Bottom Side	10mm	LAT	26865	831.5	21.52	22.00	1.117	-0.003	0.160	0.179
	LTE Band 26	15M	QPSK	1	0	Front	10mm	UAT	26865	831.5	22.61	23.00	1.094	0.059	0.108	0.118
	LTE Band 26	15M	QPSK	36	0	Front	10mm	UAT	26865	831.5	21.52	22.00	1.117	0.049	0.092	0.103
	LTE Band 26	15M	QPSK	1	0	Back	10mm	UAT	26865	831.5	22.61	23.00	1.094	-0.086	0.024	0.026
	LTE Band 26	15M	QPSK	36	0	Back	10mm	UAT	26865	831.5	21.52	22.00	1.117	0.162	0.022	0.025
	LTE Band 26	15M	QPSK	1	0	Left Side	10mm	UAT	26865	831.5	22.61	23.00	1.094	-0.166	0.012	0.013
	LTE Band 26	15M	QPSK	36	0	Left Side	10mm	UAT	26865	831.5	21.52	22.00	1.117	0.051	0.011	0.012
	LTE Band 26	15M	QPSK	1	0	Right Side	10mm	UAT	26865	831.5	22.61	23.00	1.094	0.193	0.022	0.024
	LTE Band 26	15M	QPSK	36	0	Right Side	10mm	UAT	26865	831.5	21.52	22.00	1.117	-0.056	0.019	0.021
	LTE Band 26	15M	QPSK	1	0	Top Side	10mm	UAT	26865	831.5	22.61	23.00	1.094	-0.125	0.050	0.055
	LTE Band 26	15M	QPSK	36	0	Top Side	10mm	UAT	26865	831.5	21.52	22.00	1.117	0.004	0.044	0.049

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
32	LTE Band 30	10M	QPSK	1	0	Front	10mm	LAT	27710	2310	17.51	18.00	1.119	0.192	0.176	0.197
	LTE Band 30	10M	QPSK	25	0	Front	10mm	LAT	27710	2310	16.55	17.00	1.109	0.001	0.138	0.153
	LTE Band 30	10M	QPSK	1	0	Back	10mm	LAT	27710	2310	17.51	18.00	1.119	-0.005	0.083	0.093
	LTE Band 30	10M	QPSK	25	0	Back	10mm	LAT	27710	2310	16.55	17.00	1.109	-0.168	0.066	0.073
	LTE Band 30	10M	QPSK	1	0	Left Side	10mm	LAT	27710	2310	17.51	18.00	1.119	-0.076	0.027	0.030
	LTE Band 30	10M	QPSK	25	0	Left Side	10mm	LAT	27710	2310	16.55	17.00	1.109	0.022	0.021	0.023
	LTE Band 30	10M	QPSK	1	0	Right Side	10mm	LAT	27710	2310	17.51	18.00	1.119	-0.007	0.073	0.082
	LTE Band 30	10M	QPSK	25	0	Right Side	10mm	LAT	27710	2310	16.55	17.00	1.109	-0.176	0.058	0.064
	LTE Band 30	10M	QPSK	1	0	Bottom Side	10mm	LAT	27710	2310	17.51	18.00	1.119	0.161	0.083	0.093
	LTE Band 30	10M	QPSK	25	0	Bottom Side	10mm	LAT	27710	2310	16.55	17.00	1.109	-0.126	0.066	0.073

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 38	20M	QPSK	1	0	Front	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	-0.08	0.200	0.245
	LTE Band 38	20M	QPSK	50	0	Front	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.12	0.224	0.283
	LTE Band 38	20M	QPSK	1	0	Back	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	-0.04	0.211	0.258
	LTE Band 38	20M	QPSK	50	0	Back	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.05	0.137	0.173
	LTE Band 38	20M	QPSK	1	0	Left Side	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	0.14	0.055	0.067
	LTE Band 38	20M	QPSK	50	0	Left Side	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	-0.08	0.038	0.048
	LTE Band 38	20M	QPSK	1	0	Right Side	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	0.1	0.206	0.252
	LTE Band 38	20M	QPSK	50	0	Right Side	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	-0.07	0.134	0.169
33	LTE Band 38	20M	QPSK	1	0	Bottom Side	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	0.01	0.312	0.382
	LTE Band 38	20M	QPSK	50	0	Bottom Side	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.03	0.205	0.259
	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0	0.108	0.109
	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	40240	2555	17.80	18.50	1.175	62.9	1.006	-0.03	0.080	0.095
	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	40540	2585	18.06	18.50	1.107	62.9	1.006	0.12	0.098	0.109
34	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	40840	2615	17.98	18.50	1.127	62.9	1.006	0.14	0.100	0.113
	LTE Band 41	20M	QPSK	50	0	Front	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	-0.04	0.072	0.072
	LTE Band 41	20M	QPSK	1	0	Back	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	-0.14	0.053	0.054
	LTE Band 41	20M	QPSK	50	0	Back	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	0.07	0.035	0.035
	LTE Band 41	20M	QPSK	1	0	Left Side	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0.01	0.010	0.010
	LTE Band 41	20M	QPSK	50	0	Left Side	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	-0.08	0.005	0.005
	LTE Band 41	20M	QPSK	1	0	Right Side	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	-0.05	0.053	0.054
	LTE Band 41	20M	QPSK	50	0	Right Side	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	0.08	0.035	0.035
	LTE Band 41	20M	QPSK	1	0	Bottom Side	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0.15	0.086	0.087
	LTE Band 41	20M	QPSK	50	0	Bottom Side	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	0.14	0.056	0.056

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	11	2462	17.99	18.00	1.002	98.62	1.014	0.02	0.115	0.117
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	1	2412	17.63	18.00	1.089	98.62	1.014	-0.02	0.108	0.119
35	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	6	2437	17.97	18.00	1.007	98.62	1.014	-0.1	0.127	0.130
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	11	2462	17.99	18.00	1.002	98.62	1.014	-0.08	0.032	0.033
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	-	11	2462	17.99	18.00	1.002	98.62	1.014	-0.03	0.022	0.022
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	-	11	2462	17.99	18.00	1.002	98.62	1.014	0.09	0.078	0.079
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	46	5230	15.41	16.00	1.145	97.93	1.021	0.03	0.025	0.029
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	38	5190	13.92	14.50	1.143	97.93	1.021	0.09	0.006	0.007
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	46	5230	15.41	16.00	1.145	97.93	1.021	0	0.001	0.001
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 1	46	5230	15.41	16.00	1.145	97.93	1.021	0.08	0.010	0.012
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Side	10mm	Ant 1	46	5230	15.41	16.00	1.145	97.93	1.021	0.06	0.005	0.006
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 1	46	5230	15.41	16.00	1.145	97.93	1.021	-0.07	0.013	0.015
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	42	5210	15.55	16.00	1.109	96.58	1.035	-0.14	0.061	0.070
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	42	5210	15.55	16.00	1.109	96.58	1.035	0.13	0.012	0.014
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 2	42	5210	15.55	16.00	1.109	96.58	1.035	0.04	0.011	0.013
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 2	42	5210	15.55	16.00	1.109	96.58	1.035	-0.05	0.023	0.026
36	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 2	42	5210	15.55	16.00	1.109	96.58	1.035	-0.04	0.086	0.099
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0.138	0.024	0.028
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0	0.001	0.001
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left side	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0	0.001	0.001
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right side	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0	0.001	0.001
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0	0.001	0.001
37	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0.153	0.043	0.050
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0	0.001	0.001
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0	0.001	0.001
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0.137	0.005	0.006
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0.157	0.026	0.030

14.3 Product specific SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.03	0.296	0.341
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	54	5270	15.42	16.00	1.143	97.93	1.021	0.133	0.246	0.287
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.09	0.007	0.008
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.06	0.046	0.053
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.01	0.001	0.001
	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.05	0.017	0.020
	WLAN5.3GHz	802.11n-HT40 MCS0	Bottom Side	0mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.09	0.004	0.005
38	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.043	1.320	1.474
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.09	0.051	0.057
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.13	0.087	0.097
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.02	0.080	0.089
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.03	0.554	0.619
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.08	0.002	0.002
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	0.15	0.189	0.216
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	138	5690	14.93	16.00	1.279	96.58	1.035	0.06	0.156	0.207
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	0.17	0.003	0.004
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.11	0.010	0.011
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.18	0.001	0.001
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.13	0.009	0.010
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.11	0.001	0.001
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	-0.13	0.207	0.220
39	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	138	5690	14.80	16.00	1.318	96.58	1.035	0.021	0.461	0.629
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	-0.16	0.027	0.029
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	0.12	0.019	0.020
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	-0.15	0.031	0.033
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	-0.17	0.131	0.139
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Bottom Side	0mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	-0.13	0.001	0.001

14.4 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	DTM Multi-slot class 11	Front	10mm	LAT	128	824.2	28.96	29.00	1.009	0.023	0.397	0.401
40	GSM850	DTM Multi-slot class 11	Front	10mm	LAT	189	836.4	28.92	29.00	1.019	0.039	0.572	0.583
	GSM850	DTM Multi-slot class 11	Front	10mm	LAT	251	848.8	28.91	29.00	1.021	-0.043	0.377	0.385
	GSM850	DTM Multi-slot class 11	Back	10mm	LAT	128	824.2	28.96	29.00	1.009	0.059	0.116	0.117
	GSM850	DTM Multi-slot class 11	Front	10mm	UAT	128	824.2	28.96	29.00	1.009	-0.091	0.124	0.125
	GSM850	DTM Multi-slot class 11	Front	10mm	UAT	189	836.4	28.92	29.00	1.019	-0.179	0.167	0.170
	GSM850	DTM Multi-slot class 11	Front	10mm	UAT	251	848.8	28.91	29.00	1.021	-0.12	0.232	0.237
	GSM850	DTM Multi-slot class 11	Back	10mm	UAT	128	824.2	28.96	29.00	1.009	0.027	0.029	0.029
	GSM1900	DTM Multi-slot class 11	Front	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.025	0.972	1.046
41	GSM1900	DTM Multi-slot class 11	Front	10mm	LAT	512	1850.2	25.91	26.50	1.146	0.13	1.040	1.191
	GSM1900	DTM Multi-slot class 11	Front	10mm	LAT	661	1880	25.85	26.50	1.161	-0.083	1.010	1.173
	GSM1900	DTM Multi-slot class 11	Back	10mm	LAT	810	1909.8	26.18	26.50	1.076	0.057	0.156	0.168
	GSM1900	DTM Multi-slot class 11	Front	10mm	UAT	810	1909.8	27.45	28.00	1.135	-0.17	0.100	0.114
	GSM1900	DTM Multi-slot class 11	Front	10mm	UAT	512	1850.2	27.34	28.00	1.164	0.181	0.115	0.134
	GSM1900	DTM Multi-slot class 11	Front	10mm	UAT	661	1880	27.42	28.00	1.143	0.081	0.107	0.122
	GSM1900	DTM Multi-slot class 11	Back	10mm	UAT	810	1909.8	27.45	28.00	1.135	-0.098	0.033	0.037

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	10mm	LAT	9538	1907.6	19.49	19.50	1.002	0.135	0.492	0.493
42	WCDMA II	RMC 12.2Kbps	Front	10mm	LAT	9262	1852.4	19.32	19.50	1.042	-0.101	0.666	0.694
	WCDMA II	RMC 12.2Kbps	Front	10mm	LAT	9400	1880	19.38	19.50	1.028	-0.128	0.600	0.617
	WCDMA II	RMC 12.2Kbps	Back	10mm	LAT	9538	1907.6	19.49	19.50	1.002	0.137	0.088	0.088
	WCDMA II	RMC 12.2Kbps	Front	10mm	UAT	9538	1907.6	22.50	23.00	1.122	-0.184	0.151	0.169
	WCDMA II	RMC 12.2Kbps	Front	10mm	UAT	9262	1852.4	22.08	23.00	1.236	-0.032	0.090	0.111
	WCDMA II	RMC 12.2Kbps	Front	10mm	UAT	9400	1880	22.28	23.00	1.180	0.184	0.131	0.155
	WCDMA II	RMC 12.2Kbps	Back	10mm	UAT	9538	1907.6	22.50	23.00	1.122	0.042	0.053	0.059
	WCDMA IV	RMC 12.2Kbps	Front	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.163	0.802	0.908
	WCDMA IV	RMC 12.2Kbps	Front	10mm	LAT	1413	1732.6	22.38	23.00	1.153	-0.01	0.810	0.934
43	WCDMA IV	RMC 12.2Kbps	Front	10mm	LAT	1513	1752.6	22.39	23.00	1.151	-0.009	0.879	1.012
	WCDMA IV	RMC 12.2Kbps	Back	10mm	LAT	1312	1712.4	22.46	23.00	1.132	0.072	0.128	0.145
	WCDMA IV	RMC 12.2Kbps	Front	10mm	UAT	1312	1712.4	22.46	23.00	1.132	-0.114	0.038	0.043
	WCDMA IV	RMC 12.2Kbps	Front	10mm	UAT	1413	1732.6	22.38	23.00	1.153	0.061	0.039	0.045
	WCDMA IV	RMC 12.2Kbps	Front	10mm	UAT	1513	1752.6	22.39	23.00	1.151	-0.154	0.045	0.052
	WCDMA IV	RMC 12.2Kbps	Back	10mm	UAT	1312	1712.4	22.46	23.00	1.132	0.165	0.015	0.017
	WCDMA V	RMC 12.2Kbps	Front	10mm	LAT	4233	846.6	22.49	23.00	1.125	0.016	0.365	0.410
44	WCDMA V	RMC 12.2Kbps	Front	10mm	LAT	4132	826.4	22.40	23.00	1.148	-0.054	0.402	0.462
	WCDMA V	RMC 12.2Kbps	Front	10mm	LAT	4182	836.4	22.35	23.00	1.161	0.05	0.381	0.443
	WCDMA V	RMC 12.2Kbps	Back	10mm	LAT	4233	846.6	22.49	23.00	1.125	-0.004	0.070	0.079
	WCDMA V	RMC 12.2Kbps	Front	10mm	UAT	4233	846.6	22.49	23.00	1.125	-0.113	0.230	0.259
	WCDMA V	RMC 12.2Kbps	Front	10mm	UAT	4132	826.4	22.40	23.00	1.148	-0.136	0.126	0.145
	WCDMA V	RMC 12.2Kbps	Front	10mm	UAT	4182	836.4	22.35	23.00	1.161	-0.069	0.165	0.192
	WCDMA V	RMC 12.2Kbps	Back	10mm	UAT	4233	846.6	22.49	23.00	1.125	-0.05	0.056	0.063

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	LAT	777	848.31	24.78	25.00	1.052	0.075	0.358	0.377
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	LAT	384	836.52	24.50	25.00	1.122	0.061	0.404	0.453
45	CDMA BC0	1xRTT RC3 SO32	Front	10mm	LAT	1013	824.7	24.41	25.00	1.146	0.028	0.450	0.515
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	LAT	777	848.31	24.78	25.00	1.052	0.034	0.081	0.085
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	UAT	777	848.31	24.78	25.00	1.052	-0.1	0.323	0.340
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	UAT	384	836.52	24.50	25.00	1.122	-0.195	0.216	0.242
	CDMA BC0	1xRTT RC3 SO32	Front	10mm	UAT	1013	824.7	24.41	25.00	1.146	-0.191	0.122	0.140
	CDMA BC0	1xRTT RC3 SO32	Back	10mm	UAT	777	848.31	24.78	25.00	1.052	-0.126	0.070	0.074

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1	0	Front	10mm	LAT	19100	1900	21.00	21.00	1.000	0.082	0.956	0.956
	LTE Band 2	20M	QPSK	1	0	Front	10mm	LAT	18700	1860	20.90	21.00	1.023	-0.047	1.060	1.085
46	LTE Band 2	20M	QPSK	1	0	Front	10mm	LAT	18900	1880	20.89	21.00	1.026	0.003	1.080	1.108
	LTE Band 2	20M	QPSK	50	0	Front	10mm	LAT	19100	1900	20.00	20.00	1.000	0.01	0.685	0.685
	LTE Band 2	20M	QPSK	100	0	Front	10mm	LAT	18900	1880	19.93	20.00	1.016	0.011	0.671	0.682
	LTE Band 2	20M	QPSK	1	0	Back	10mm	LAT	19100	1900	21.00	21.00	1.000	-0.101	0.174	0.174
	LTE Band 2	20M	QPSK	50	0	Back	10mm	LAT	19100	1900	20.00	20.00	1.000	-0.061	0.119	0.119
	LTE Band 2	20M	QPSK	1	0	Front	10mm	UAT	19100	1900	23.89	24.00	1.026	-0.137	0.186	0.191
	LTE Band 2	20M	QPSK	1	0	Front	10mm	UAT	18700	1860	23.63	24.00	1.089	-0.079	0.091	0.099
	LTE Band 2	20M	QPSK	1	0	Front	10mm	UAT	18900	1880	23.77	24.00	1.054	0.106	0.129	0.136
	LTE Band 2	20M	QPSK	50	0	Front	10mm	UAT	19100	1900	22.96	23.00	1.009	0.182	0.140	0.141
	LTE Band 2	20M	QPSK	1	0	Back	10mm	UAT	19100	1900	23.89	24.00	1.026	-0.16	0.066	0.068
	LTE Band 2	20M	QPSK	50	0	Back	10mm	UAT	19100	1900	22.96	23.00	1.009	0.056	0.046	0.046
47	LTE Band 4	20M	QPSK	1	0	Front	10mm	LAT	20175	1732.5	21.5	21.5	1.000	0.18	0.581	0.581
	LTE Band 4	20M	QPSK	50	0	Front	10mm	LAT	20175	1732.5	20.49	20.5	1.002	0.12	0.457	0.458
	LTE Band 4	20M	QPSK	1	0	Back	10mm	LAT	20175	1732.5	21.5	21.5	1.000	-0.1	0.087	0.087
	LTE Band 4	20M	QPSK	50	0	Back	10mm	LAT	20175	1732.5	20.49	20.5	1.002	-0.13	0.071	0.071
	LTE Band 4	20M	QPSK	1	0	Front	10mm	UAT	20175	1732.5	21.5	21.5	1.000	-0.18	0.018	0.018
	LTE Band 4	20M	QPSK	50	0	Front	10mm	UAT	20175	1732.5	20.49	20.5	1.002	-0.11	0.020	0.020
	LTE Band 4	20M	QPSK	1	0	Back	10mm	UAT	20175	1732.5	21.5	21.5	1.000	0.17	0.010	0.010
	LTE Band 4	20M	QPSK	50	0	Back	10mm	UAT	20175	1732.5	20.49	20.5	1.002	0.14	0.008	0.008

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
48	LTE Band 5	10M	QPSK	1	0	Front	10mm	LAT	20525	836.5	23.14	23.50	1.086	0.051	0.324	0.352
	LTE Band 5	10M	QPSK	25	0	Front	10mm	LAT	20525	836.5	22.36	22.50	1.033	0.016	0.270	0.279
	LTE Band 5	10M	QPSK	1	0	Back	10mm	LAT	20525	836.5	23.14	23.50	1.086	0.021	0.076	0.083
	LTE Band 5	10M	QPSK	25	0	Back	10mm	LAT	20525	836.5	22.36	22.50	1.033	0.034	0.060	0.062
	LTE Band 5	10M	QPSK	1	0	Front	10mm	UAT	20525	836.5	23.14	23.50	1.086	-0.108	0.131	0.142
	LTE Band 5	10M	QPSK	25	0	Front	10mm	UAT	20525	836.5	22.36	22.50	1.033	-0.138	0.116	0.120
	LTE Band 5	10M	QPSK	1	0	Back	10mm	UAT	20525	836.5	23.14	23.50	1.086	-0.114	0.033	0.036
	LTE Band 5	10M	QPSK	25	0	Back	10mm	UAT	20525	836.5	22.36	22.50	1.033	-0.144	0.030	0.031
	LTE Band 7	20M	QPSK	1	0	Front	10mm	LAT	21100	2535	21.08	21.50	1.102	-0.068	0.201	0.221
49	LTE Band 7	20M	QPSK	1	0	Front	10mm	LAT	20850	2510	21.07	21.50	1.104	-0.06	0.227	0.251
	LTE Band 7	20M	QPSK	1	0	Front	10mm	LAT	21350	2560	21.04	21.50	1.112	-0.18	0.219	0.243
	LTE Band 7	20M	QPSK	50	0	Front	10mm	LAT	21100	2535	20.11	20.50	1.094	0.162	0.144	0.158
	LTE Band 7	20M	QPSK	1	0	Back	10mm	LAT	21100	2535	21.08	21.50	1.102	0.037	0.175	0.193
	LTE Band 7	20M	QPSK	50	0	Back	10mm	LAT	21100	2535	20.11	20.50	1.094	0.061	0.124	0.136
50	LTE Band 12	10M	QPSK	1	0	Front	10mm	LAT	23095	707.5	23.16	23.50	1.081	-0.101	0.147	0.159
	LTE Band 12	10M	QPSK	25	0	Front	10mm	LAT	23095	707.5	22.29	22.50	1.050	-0.023	0.147	0.154
	LTE Band 12	10M	QPSK	1	0	Back	10mm	LAT	23095	707.5	23.16	23.50	1.081	0.063	0.016	0.017
	LTE Band 12	10M	QPSK	25	0	Back	10mm	LAT	23095	707.5	22.29	22.50	1.050	0.132	0.012	0.013
	LTE Band 12	10M	QPSK	1	0	Front	10mm	UAT	23095	707.5	23.16	23.50	1.081	-0.093	0.038	0.041
	LTE Band 12	10M	QPSK	25	0	Front	10mm	UAT	23095	707.5	22.29	22.50	1.050	-0.051	0.033	0.035
	LTE Band 12	10M	QPSK	1	0	Back	10mm	UAT	23095	707.5	23.16	23.50	1.081	-0.056	0.010	0.011
	LTE Band 12	10M	QPSK	25	0	Back	10mm	UAT	23095	707.5	22.29	22.50	1.050	0.028	0.009	0.009
51	LTE Band 26	15M	QPSK	1	0	Front	10mm	LAT	26865	831.5	22.61	23.00	1.094	-0.149	0.369	0.404
	LTE Band 26	15M	QPSK	36	0	Front	10mm	LAT	26865	831.5	21.52	22.00	1.117	-0.002	0.346	0.386
	LTE Band 26	15M	QPSK	1	0	Back	10mm	LAT	26865	831.5	22.61	23.00	1.094	-0.041	0.076	0.083
	LTE Band 26	15M	QPSK	36	0	Back	10mm	LAT	26865	831.5	21.52	22.00	1.117	0.049	0.053	0.059
	LTE Band 26	15M	QPSK	1	0	Front	10mm	UAT	26865	831.5	22.61	23.00	1.094	0.059	0.108	0.118
	LTE Band 26	15M	QPSK	36	0	Front	10mm	UAT	26865	831.5	21.52	22.00	1.117	0.049	0.092	0.103
	LTE Band 26	15M	QPSK	1	0	Back	10mm	UAT	26865	831.5	22.61	23.00	1.094	-0.086	0.024	0.026
	LTE Band 26	15M	QPSK	36	0	Back	10mm	UAT	26865	831.5	21.52	22.00	1.117	0.162	0.022	0.025
52	LTE Band 30	10M	QPSK	1	0	Front	10mm	LAT	27710	2310	17.51	18.00	1.119	0.192	0.176	0.197
	LTE Band 30	10M	QPSK	25	0	Front	10mm	LAT	27710	2310	16.55	17.00	1.109	0.001	0.138	0.153
	LTE Band 30	10M	QPSK	1	0	Back	10mm	LAT	27710	2310	17.51	18.00	1.119	-0.005	0.083	0.093
	LTE Band 30	10M	QPSK	25	0	Back	10mm	LAT	27710	2310	16.55	17.00	1.109	-0.168	0.066	0.073

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 38	20M	QPSK	1	0	Front	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	-0.08	0.200	0.245
53	LTE Band 38	20M	QPSK	50	0	Front	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.12	0.224	0.283
	LTE Band 38	20M	QPSK	1	0	Back	10mm	LAT	38000	2595	21.65	22.50	1.216	62.9	1.006	-0.04	0.211	0.258
	LTE Band 38	20M	QPSK	50	0	Back	10mm	LAT	38000	2595	20.51	21.50	1.256	62.9	1.006	0.05	0.137	0.173
	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	0	0.108	0.109
	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	40240	2555	17.80	18.50	1.175	62.9	1.006	-0.03	0.080	0.095
	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	40540	2585	18.06	18.50	1.107	62.9	1.006	0.12	0.098	0.109
54	LTE Band 41	20M	QPSK	1	0	Front	10mm	LAT	40840	2615	17.98	18.50	1.127	62.9	1.006	0.14	0.100	0.113
	LTE Band 41	20M	QPSK	50	0	Front	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	-0.04	0.072	0.072
	LTE Band 41	20M	QPSK	1	0	Back	10mm	LAT	41140	2645	18.47	18.50	1.007	62.9	1.006	-0.14	0.053	0.054
	LTE Band 41	20M	QPSK	50	0	Back	10mm	LAT	41140	2645	18.00	18.00	1.000	62.9	1.006	0.07	0.035	0.035

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	11	2462	17.99	18.00	1.002	98.62	1.014	0.02	0.115	0.117
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	1	2412	17.63	18.00	1.089	98.62	1.014	-0.02	0.108	0.119
55	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	-	6	2437	17.97	18.00	1.007	98.62	1.014	-0.1	0.127	0.130
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	-	11	2462	17.99	18.00	1.002	98.62	1.014	-0.08	0.032	0.033
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.06	0.039	0.045
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	62	5310	15.47	16.00	1.130	97.93	1.021	0.04	0.014	0.016
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	54	5270	15.42	16.00	1.143	97.93	1.021	0.04	0.038	0.044
56	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	-0.03	0.114	0.127
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	58	5290	15.67	16.00	1.079	96.58	1.035	0.09	0.014	0.016
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	0.18	0.034	0.039
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	138	5690	14.93	16.00	1.279	96.58	1.035	0.09	0.036	0.048
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	106	5530	15.57	16.00	1.104	96.58	1.035	-0.14	0.001	0.001
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	0.153	0.072	0.077
57	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	138	5690	14.80	16.00	1.318	96.58	1.035	0.156	0.082	0.112
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	106	5530	15.88	16.00	1.028	96.58	1.035	-0.11	0.003	0.003
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0.138	0.024	0.028
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	15.52	16.00	1.117	96.58	1.035	0	0.001	0.001
58	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0.153	0.043	0.050
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	155	5775	15.51	16.00	1.119	96.58	1.035	0	0.001	0.001

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
59	Bluetooth	1Mbps	Front	10mm	39	2441	9.48	9.50	1.005	-0.12	0.016	0.016
	Bluetooth	1Mbps	Front	10mm	00	2402	7.82	9.50	1.472	0	0.011	0.016
	Bluetooth	1Mbps	Front	10mm	78	2480	9.11	9.50	1.094	0.13	0.008	0.009
	Bluetooth	1Mbps	Back	10mm	39	2441	9.48	9.50	1.005	-0.18	0.001	0.001

14.5 Repeated SAR Measurement

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	LAT	1513	1752.6	22.39	23.00	1.151	-0.055	0.959	-	1.104
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	LAT	1513	1752.6	22.39	23.00	1.151	-0.024	0.954	1.01	1.098
1st	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	LAT	18900	1880	20.89	21.00	1.026	-0.031	1.160	-	1.190
2nd	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	LAT	18900	1880	20.89	21.00	1.026	-0.058	1.142	1.02	1.171

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1	WWAN (Voice) + WLAN 2.4GHz + WLAN 5GHz Ant 1	Yes	Yes		Yes
2	WWAN (Data) + WLAN 2.4GHz + WLAN 5GHz Ant 1	Yes	Yes	Yes	Yes
3	WWAN (Voice) + Bluetooth + WLAN 5GHz Ant 1		Yes		Yes
4	WWAN (Data) + Bluetooth + WLAN 5GHz Ant 1		Yes		Yes
5	WWAN (Voice) + WLAN 5GHz Ant 1 + WLAN 5GHz Ant 2	Yes	Yes		Yes
6	WWAN (Data) + WLAN 5GHz Ant 1 + WLAN 5GHz Ant 2	Yes	Yes	Yes	Yes
7	WWAN (Voice) + Bluetooth		Yes		Yes
8	WWAN (Voice) + WLAN 2.4GHz	Yes	Yes		Yes
9	WWAN (Voice) + WLAN 5GHz Ant 1	Yes	Yes		Yes
10	WWAN (Voice) + WLAN 5GHz Ant 2	Yes	Yes		Yes
11	WWAN (Data) + Bluetooth		Yes		Yes
12	WWAN (Data) + WLAN 2.4GHz	Yes	Yes	Yes	Yes
13	WWAN (Data) + WLAN 5GHz Ant 1	Yes	Yes	Yes	Yes
14	WWAN (Data) + WLAN 5GHz Ant 2	Yes	Yes	Yes	Yes
15	Bluetooth + WLAN 5GHz Ant 1		Yes		Yes
16	WLAN 2.4GHz + WLAN 5GHz Ant 1	Yes	Yes		Yes
17	WLAN 5GHz Ant 1 + WLAN 5GHz Ant 2	Yes	Yes		Yes

General Note:

1. This device WLAN 2.4GHz / 5.2GHz (U-NII-1) / 5.8GHz (U-NII-3) supports Hotspot operation.
2. For WLAN5GHz SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
3. WLAN2.4GHz and Bluetooth share the same antenna, and cannot transmit simultaneously.
4. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
7. For Product specific simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

Bluetooth Max Power	Exposure Position	Product specific
	Test separation	5mm
9.5 dBm	Estimated SAR (W/kg)	0.151 W/kg

15.1 Head Exposure Conditions

General Note:

1. The worst case 5GHz WLAN results are taking from 5.3GHz (U-NII-2A) / 5.5GHz (U-NII-2C) and 5.8GHz (U-NII-3) perform head simultaneous transmission analysis.

WWAN Band		Exposure Position	1	2	3	4	5	1+3+4 Summed 1g SAR (W/kg)	2+3+4 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	2+4+5 Summed 1g SAR (W/kg)
			WWAN LAT	WWAN UAT	2.4GHz WLAN	5GHz WLAN Ant 1	5GHz WLAN Ant 2				
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM	GSM850	Right Cheek	0.057	0.965	0.199	0.403	0.181	**0.659**	**1.567**	**0.641**	**1.549**
		Right Tilted	0.027	0.516	0.159	0.283	0.168	**0.469**	**0.958**	**0.478**	**0.967**
		Left Cheek	0.039	0.571	0.586	0.219	0.383	**0.844**	**1.376**	**0.641**	**1.173**
		Left Tilted	0.029	0.647	0.465	0.103	0.322	**0.597**	**1.215**	**0.454**	**1.072**
	GSM1900	Right Cheek	0.133	0.762	0.199	0.403	0.181	**0.735**	**1.364**	**0.717**	**1.346**
		Right Tilted	0.057	0.525	0.159	0.283	0.168	**0.499**	**0.967**	**0.508**	**0.976**
		Left Cheek	0.092	0.603	0.586	0.219	0.383	**0.897**	**1.408**	**0.694**	**1.205**
		Left Tilted	0.059	0.389	0.465	0.103	0.322	**0.627**	**0.957**	**0.484**	**0.814**
WCDMA	WCDMA II	Right Cheek	0.189	0.492	0.199	0.403	0.181	**0.791**	**1.094**	**0.773**	**1.076**
		Right Tilted	0.091	0.371	0.159	0.283	0.168	**0.533**	**0.813**	**0.542**	**0.822**
		Left Cheek	0.140	0.380	0.586	0.219	0.383	**0.945**	**1.185**	**0.742**	**0.982**
		Left Tilted	0.096	0.276	0.465	0.103	0.322	**0.664**	**0.844**	**0.521**	**0.701**
	WCDMA IV	Right Cheek	0.122	0.790	0.199	0.403	0.181	**0.724**	**1.392**	**0.706**	**1.374**
		Right Tilted	0.039	0.471	0.159	0.283	0.168	**0.481**	**0.913**	**0.490**	**0.922**
		Left Cheek	0.050	0.309	0.586	0.219	0.383	**0.855**	**1.114**	**0.652**	**0.911**
		Left Tilted	0.036	0.263	0.465	0.103	0.322	**0.604**	**0.831**	**0.461**	**0.688**
	WCDMA V	Right Cheek	0.033	0.422	0.199	0.403	0.181	**0.635**	**1.024**	**0.617**	**1.006**
		Right Tilted	0.017	0.432	0.159	0.283	0.168	**0.459**	**0.874**	**0.468**	**0.883**
		Left Cheek	0.011	0.446	0.586	0.219	0.383	**0.816**	**1.251**	**0.613**	**1.048**
		Left Tilted	0.017	0.573	0.465	0.103	0.322	**0.585**	**1.141**	**0.442**	**0.998**
CDMA	CDMA BC0	Right Cheek	0.086	0.872	0.199	0.403	0.181	**0.688**	**1.474**	**0.670**	**1.456**
		Right Tilted	0.022	0.577	0.159	0.283	0.168	**0.464**	**1.019**	**0.473**	**1.028**
		Left Cheek	0.036	0.492	0.586	0.219	0.383	**0.841**	**1.297**	**0.638**	**1.094**
		Left Tilted	0.024	0.649	0.465	0.103	0.322	**0.592**	**1.217**	**0.449**	**1.074**

WWAN Band		Exposure Position	1 WWAN LAT 1g SAR (W/kg)	2 WWAN UAT 1g SAR (W/kg)	3 2.4GHz WLAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	2+3+4 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	2+4+5 Summed 1g SAR (W/kg)
LTE	LTE Band 2	Right Cheek	0.173	0.956	0.199	0.403	0.181	**0.775**	**1.558**	**0.757**	**1.540**
		Right Tilted	0.098	0.632	0.159	0.283	0.168	**0.540**	**1.074**	**0.549**	**1.083**
		Left Cheek	0.131	0.652	0.586	0.219	0.383	**0.936**	**1.457**	**0.733**	**1.254**
		Left Tilted	0.085	0.493	0.465	0.103	0.322	**0.653**	**1.061**	**0.510**	**0.918**
	LTE Band 4	Right Cheek	0.042	0.424	0.199	0.403	0.181	**0.644**	**1.026**	**0.626**	**1.008**
		Right Tilted	0.022	0.288	0.159	0.283	0.168	**0.464**	**0.730**	**0.473**	**0.739**
		Left Cheek	0.033	0.282	0.586	0.219	0.383	**0.838**	**1.087**	**0.635**	**0.884**
		Left Tilted	0.022	0.211	0.465	0.103	0.322	**0.590**	**0.779**	**0.447**	**0.636**
	LTE Band 5	Right Cheek	0.042	0.799	0.199	0.403	0.181	**0.644**	**1.401**	**0.626**	**1.383**
		Right Tilted	0.020	0.739	0.159	0.283	0.168	**0.462**	**1.181**	**0.471**	**1.190**
		Left Cheek	0.009	0.648	0.586	0.219	0.383	**0.814**	**1.453**	**0.611**	**1.250**
		Left Tilted	0.010	0.717	0.465	0.103	0.322	**0.578**	**1.285**	**0.435**	**1.142**
	LTE Band 7	Right Cheek	0.118		0.199	0.403	0.181	**0.720**		**0.702**	
		Right Tilted	0.023		0.159	0.283	0.168	**0.465**		**0.474**	
		Left Cheek	0.063		0.586	0.219	0.383	**0.868**		**0.665**	
		Left Tilted	0.025		0.465	0.103	0.322	**0.593**		**0.450**	
	LTE Band 12	Right Cheek	0.038	0.652	0.199	0.403	0.181	**0.640**	**1.254**	**0.622**	**1.236**
		Right Tilted	0.015	0.556	0.159	0.283	0.168	**0.457**	**0.998**	**0.466**	**1.007**
		Left Cheek	0.032	0.294	0.586	0.219	0.383	**0.837**	**1.099**	**0.634**	**0.896**
		Left Tilted	0.014	0.422	0.465	0.103	0.322	**0.582**	**0.990**	**0.439**	**0.847**
	LTE Band 26	Right Cheek	0.054	0.782	0.199	0.403	0.181	**0.656**	**1.384**	**0.638**	**1.366**
		Right Tilted	0.024	0.658	0.159	0.283	0.168	**0.466**	**1.100**	**0.475**	**1.109**
		Left Cheek	0.038	0.555	0.586	0.219	0.383	**0.843**	**1.360**	**0.640**	**1.157**
		Left Tilted	0.018	0.681	0.465	0.103	0.322	**0.586**	**1.249**	**0.443**	**1.106**
	LTE Band 30	Right Cheek	0.016		0.199	0.403	0.181	**0.618**		**0.600**	
		Right Tilted	0.007		0.159	0.283	0.168	**0.449**		**0.458**	
		Left Cheek	0.013		0.586	0.219	0.383	**0.818**		**0.615**	
		Left Tilted	0.003		0.465	0.103	0.322	**0.571**		**0.428**	
	LTE Band 38	Right Cheek	0.105		0.199	0.403	0.181	**0.707**		**0.689**	
		Right Tilted	0.020		0.159	0.283	0.168	**0.462**		**0.471**	
		Left Cheek	0.065		0.586	0.219	0.383	**0.870**		**0.667**	
		Left Tilted	0.033		0.465	0.103	0.322	**0.601**		**0.458**	
	LTE Band 41	Right Cheek	0.028		0.199	0.403	0.181	**0.630**		**0.612**	
		Right Tilted	0.004		0.159	0.283	0.168	**0.446**		**0.455**	
		Left Cheek	0.013		0.586	0.219	0.383	**0.818**		**0.615**	
		Left Tilted	0.003		0.465	0.103	0.322	**0.571**		**0.428**	

15.2 Hotspot Exposure Conditions

General Note:

1. The worst case 5GHz WLAN results are taking from 5.2GHz (U-NII-1) and 5.8GHz (U-NII-3) perform hotspot simultaneous transmission analysis.

WWAN Band		Exposure Position	1 WWAN LAT 1g SAR (W/kg)	2 WWAN UAT 1g SAR (W/kg)	3 2.4GHz WLAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	2+3+4 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	2+4+5 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.583	0.237	0.130	0.029	0.070	**0.742**	**0.396**	**0.682**	**0.336**
		Back	0.117	0.029	0.033	0.001	0.014	**0.151**	**0.063**	**0.132**	**0.044**
		Left side	0.032	0.019		0.012	0.013	**0.044**	**0.031**	**0.057**	**0.044**
		Right side	0.099	0.036	0.022	0.006	0.026	**0.127**	**0.064**	**0.131**	**0.068**
		Top side		0.063	0.079	0.015	0.099	**0.094**	**0.157**	**0.114**	**0.177**
		Bottom side	0.200					**0.200**	**0.000**	**0.200**	**0.000**
	GSM1900	Front	1.191	0.134	0.130	0.029	0.070	**1.350**	**0.293**	**1.290**	**0.233**
		Back	0.168	0.037	0.033	0.001	0.014	**0.202**	**0.071**	**0.183**	**0.052**
		Left side	0.151	0.015		0.012	0.013	**0.163**	**0.027**	**0.176**	**0.040**
		Right side	0.091	0.006	0.022	0.006	0.026	**0.119**	**0.034**	**0.123**	**0.038**
		Top side		0.085	0.079	0.015	0.099	**0.094**	**0.179**	**0.114**	**0.199**
		Bottom side	1.184					**1.184**	**0.000**	**1.184**	**0.000**
WCDMA	WCDMA II	Front	0.493	0.169	0.130	0.029	0.070	**0.652**	**0.328**	**0.592**	**0.268**
		Back	0.088	0.059	0.033	0.001	0.014	**0.122**	**0.093**	**0.103**	**0.074**
		Left side	0.061	0.029		0.012	0.013	**0.073**	**0.041**	**0.086**	**0.054**
		Right side	0.039	0.010	0.022	0.006	0.026	**0.067**	**0.038**	**0.071**	**0.042**
		Top side		0.123	0.079	0.015	0.099	**0.094**	**0.217**	**0.114**	**0.237**
		Bottom side	0.739					**0.739**	**0.000**	**0.739**	**0.000**
	WCDMA IV	Front	1.012	0.052	0.130	0.029	0.070	**1.171**	**0.211**	**1.111**	**0.151**
		Back	0.145	0.017	0.033	0.001	0.014	**0.179**	**0.051**	**0.160**	**0.032**
		Left side	0.089	0.009		0.012	0.013	**0.101**	**0.021**	**0.114**	**0.034**
		Right side	0.059	0.003	0.022	0.006	0.026	**0.087**	**0.031**	**0.091**	**0.035**
		Top side		0.011	0.079	0.015	0.099	**0.094**	**0.105**	**0.114**	**0.125**
		Bottom side	1.104					**1.104**	**0.000**	**1.104**	**0.000**
	WCDMA V	Front	0.462	0.259	0.130	0.029	0.070	**0.621**	**0.418**	**0.561**	**0.358**
		Back	0.079	0.063	0.033	0.001	0.014	**0.113**	**0.097**	**0.094**	**0.078**
		Left side	0.012	0.030		0.012	0.013	**0.024**	**0.042**	**0.037**	**0.055**
		Right side	0.052	0.056	0.022	0.006	0.026	**0.080**	**0.084**	**0.084**	**0.088**
		Top side		0.147	0.079	0.015	0.099	**0.094**	**0.241**	**0.114**	**0.261**
		Bottom side	0.196					**0.196**	**0.000**	**0.196**	**0.000**
CDMA	CDMA BC0	Front	0.626	0.317	0.130	0.029	0.070	**0.785**	**0.476**	**0.725**	**0.416**
		Back	0.091	0.075	0.033	0.001	0.014	**0.125**	**0.109**	**0.106**	**0.090**
		Left side	0.021	0.041		0.012	0.013	**0.033**	**0.053**	**0.046**	**0.066**
		Right side	0.074	0.065	0.022	0.006	0.026	**0.102**	**0.093**	**0.106**	**0.097**
		Top side		0.163	0.079	0.015	0.099	**0.094**	**0.257**	**0.114**	**0.277**
		Bottom side	0.174					**0.174**	**0.000**	**0.174**	**0.000**
LTE	LTE Band 2	Front	1.108	0.191	0.130	0.029	0.070	**1.267**	**0.350**	**1.207**	**0.290**
		Back	0.174	0.068	0.033	0.001	0.014	**0.208**	**0.102**	**0.189**	**0.083**
		Left side	0.191	0.030		0.012	0.013	**0.203**	**0.042**	**0.216**	**0.055**
		Right side	0.113	0.010	0.022	0.006	0.026	**0.141**	**0.038**	**0.145**	**0.042**
		Top side		0.067	0.079	0.015	0.099	**0.094**	**0.161**	**0.114**	**0.181**
		Bottom side	1.190					**1.190**	**0.000**	**1.190**	**0.000**
	LTE Band 4	Front	0.581	0.020	0.130	0.029	0.070	**0.740**	**0.179**	**0.680**	**0.119**
		Back	0.087	0.010	0.033	0.001	0.014	**0.121**	**0.044**	**0.102**	**0.025**
		Left side	0.067	0.008		0.012	0.013	**0.079**	**0.020**	**0.092**	**0.033**
		Right side	0.038	0.001	0.022	0.006	0.026	**0.066**	**0.029**	**0.070**	**0.033**
		Top side		0.006	0.079	0.015	0.099	**0.094**	**0.100**	**0.114**	**0.120**
		Bottom side	0.597					**0.597**	**0.000**	**0.597**	**0.000**

WWAN Band		Exposure Position	1 WWAN LAT 1g SAR (W/kg)	2 WWAN UAT 1g SAR (W/kg)	3 2.4GHz WLAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	2+3+4 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	2+4+5 Summed 1g SAR (W/kg)
LTE	LTE Band 5	Front	0.352	0.142	0.130	0.029	0.070	**0.511**	**0.301**	**0.451**	**0.241**
		Back	0.083	0.036	0.033	0.001	0.014	**0.117**	**0.070**	**0.098**	**0.051**
		Left side	0.034	0.016		0.012	0.013	**0.046**	**0.028**	**0.059**	**0.041**
		Right side	0.076	0.028	0.022	0.006	0.026	**0.104**	**0.056**	**0.108**	**0.060**
		Top side		0.068	0.079	0.015	0.099	**0.094**	**0.162**	**0.114**	**0.182**
		Bottom side	0.213					**0.213**	**0.000**	**0.213**	**0.000**
	LTE Band 7	Front	0.221		0.130	0.029	0.070	**0.380**		**0.320**	
		Back	0.193		0.033	0.001	0.014	**0.227**		**0.208**	
		Left side	0.065			0.012	0.013	**0.077**		**0.090**	
		Right side	0.193		0.022	0.006	0.026	**0.221**		**0.225**	
		Top side			0.079	0.015	0.099	**0.094**		**0.114**	
		Bottom side	0.271					**0.271**		**0.271**	
	LTE Band 12	Front	0.159	0.041	0.130	0.029	0.070	**0.318**	**0.200**	**0.258**	**0.140**
		Back	0.017	0.011	0.033	0.001	0.014	**0.051**	**0.045**	**0.032**	**0.026**
		Left side	0.044	0.009		0.012	0.013	**0.056**	**0.021**	**0.069**	**0.034**
		Right side	0.056	0.006	0.022	0.006	0.026	**0.084**	**0.034**	**0.088**	**0.038**
		Top side		0.016	0.079	0.015	0.099	**0.094**	**0.110**	**0.114**	**0.130**
		Bottom side	0.083					**0.083**	**0.000**	**0.083**	**0.000**
	LTE Band 26	Front	0.404	0.118	0.130	0.029	0.070	**0.563**	**0.277**	**0.503**	**0.217**
		Back	0.083	0.026	0.033	0.001	0.014	**0.117**	**0.060**	**0.098**	**0.041**
		Left side	0.038	0.013		0.012	0.013	**0.050**	**0.025**	**0.063**	**0.038**
		Right side	0.084	0.024	0.022	0.006	0.026	**0.112**	**0.052**	**0.116**	**0.056**
		Top side		0.055	0.079	0.015	0.099	**0.094**	**0.149**	**0.114**	**0.169**
		Bottom side	0.223					**0.223**	**0.000**	**0.223**	**0.000**
	LTE Band 30	Front	0.197		0.130	0.029	0.070	**0.356**		**0.296**	
		Back	0.093		0.033	0.001	0.014	**0.127**		**0.108**	
		Left side	0.030			0.012	0.013	**0.042**		**0.055**	
		Right side	0.082		0.022	0.006	0.026	**0.110**		**0.114**	
		Top side			0.079	0.015	0.099	**0.094**		**0.114**	
		Bottom side	0.093					**0.093**		**0.093**	
	LTE Band 38	Front	0.283		0.130	0.029	0.070	**0.442**		**0.382**	
		Back	0.258		0.033	0.001	0.014	**0.292**		**0.273**	
		Left side	0.067			0.012	0.013	**0.079**		**0.092**	
		Right side	0.252		0.022	0.006	0.026	**0.280**		**0.284**	
		Top side			0.079	0.015	0.099	**0.094**		**0.114**	
		Bottom side	0.382					**0.382**		**0.382**	
	LTE Band 41	Front	0.113		0.130	0.029	0.070	**0.272**		**0.212**	
		Back	0.054		0.033	0.001	0.014	**0.088**		**0.069**	
		Left side	0.010			0.012	0.013	**0.022**		**0.035**	
		Right side	0.054		0.022	0.006	0.026	**0.082**		**0.086**	
		Top side			0.079	0.015	0.099	**0.094**		**0.114**	
		Bottom side	0.087					**0.087**		**0.087**	

15.3 Product specific Exposure Conditions

General Note:

1. The worst case 5GHz WLAN results are taking from 5.3GHz (U-NII-2A) and 5.5GHz (U-NII-2C) perform product specific simultaneous transmission analysis.
2. According to KDB 648474 D04v01r03, for WWAN and 2.4GHz WLAN SAR ("-") was excluded, due to Body SAR was < 1.2W/kg.
3. According to KDB 941225 D06 v02r01, for Bluetooth and 5GHz WLAN SAR ("-") was excluded, due to transmitting antenna located larger 25mm from that surface or edge

Exposure Position	1	2	3	4	5	6	1+3+4 Summed 10g SAR (W/kg)	2+3+4 Summed 10g SAR (W/kg)	1+4+5 Summed 10g SAR (W/kg)	2+4+5 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	2+4+6 Summed 10g SAR (W/kg)
	WWAN LAT	WWAN UAT	2.4GHz WLAN	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth						
	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	Estimated 10g SAR (W/kg)						
Front	-	-	-	0.341	1.474	0.151	**0.341**	**0.341**	**1.815**	**1.815**	**0.492**	**0.492**
Back	-	-	-	0.008	0.057	0.151	**0.008**	**0.008**	**0.065**	**0.065**	**0.159**	**0.159**
Left side	-	-	-	0.053	0.097	-	**0.053**	**0.053**	**0.150**	**0.150**	**0.053**	**0.053**
Right side	-	-	-	0.001	0.089	0.151	**0.001**	**0.001**	**0.090**	**0.090**	**0.152**	**0.152**
Top side	-	-	-	0.020	0.619	0.151	**0.020**	**0.020**	**0.639**	**0.639**	**0.171**	**0.171**
Bottom side	-	-	-	-	-	-						

15.4 Body-Worn Accessory Exposure Conditions

General Note:

1. The worst case 5GHz WLAN results are taking from 5.3GHz (U-NII-2A) / 5.5GHz (U-NII-2C) and 5.8GHz (U-NII-3) perform body-worn simultaneous transmission analysis.

WWAN Band		Exposure Position	1 WWAN LAT 1g SAR (W/kg)	2 WWAN UAT 1g SAR (W/kg)	3 2.4GHz WLAN 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	6 Bluetooth 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	2+3+4 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	2+4+5 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	2+4+6 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.583	0.237	0.130	0.048	0.127	0.016	**0.761**	**0.415**	**0.758**	**0.412**	**0.647**	**0.301**
		Back	0.117	0.029	0.033	0.016	0.016	0.001	**0.166**	**0.078**	**0.149**	**0.061**	**0.134**	**0.046**
	GSM1900	Front	1.191	0.134	0.130	0.048	0.127	0.016	**1.369**	**0.312**	**1.366**	**0.309**	**1.255**	**0.198**
		Back	0.168	0.037	0.033	0.016	0.016	0.001	**0.217**	**0.086**	**0.200**	**0.069**	**0.185**	**0.054**
WCDMA	WCDMA II	Front	0.694	0.169	0.130	0.048	0.127	0.016	**0.872**	**0.347**	**0.869**	**0.344**	**0.758**	**0.233**
		Back	0.088	0.059	0.033	0.016	0.016	0.001	**0.137**	**0.108**	**0.120**	**0.091**	**0.105**	**0.076**
	WCDMA IV	Front	1.012	0.052	0.130	0.048	0.127	0.016	**1.190**	**0.230**	**1.187**	**0.227**	**1.076**	**0.116**
		Back	0.145	0.017	0.033	0.016	0.016	0.001	**0.194**	**0.066**	**0.177**	**0.049**	**0.162**	**0.034**
	WCDMA V	Front	0.462	0.259	0.130	0.048	0.127	0.016	**0.640**	**0.437**	**0.637**	**0.434**	**0.526**	**0.323**
		Back	0.079	0.063	0.033	0.016	0.016	0.001	**0.128**	**0.112**	**0.111**	**0.095**	**0.096**	**0.080**
CDMA	CDMA BC0	Front	0.515	0.340	0.130	0.048	0.127	0.016	**0.693**	**0.518**	**0.690**	**0.515**	**0.579**	**0.404**
		Back	0.085	0.074	0.033	0.016	0.016	0.001	**0.134**	**0.123**	**0.117**	**0.106**	**0.102**	**0.091**
LTE	LTE Band 2	Front	1.108	0.191	0.130	0.048	0.127	0.016	**1.286**	**0.369**	**1.283**	**0.366**	**1.172**	**0.255**
		Back	0.174	0.068	0.033	0.016	0.016	0.001	**0.223**	**0.117**	**0.206**	**0.100**	**0.191**	**0.085**
	LTE Band 4	Front	0.581	0.020	0.130	0.048	0.127	0.016	**0.759**	**0.198**	**0.756**	**0.195**	**0.645**	**0.084**
		Back	0.087	0.010	0.033	0.016	0.016	0.001	**0.136**	**0.059**	**0.119**	**0.042**	**0.104**	**0.027**
	LTE Band 5	Front	0.352	0.142	0.130	0.048	0.127	0.016	**0.530**	**0.320**	**0.527**	**0.317**	**0.416**	**0.206**
		Back	0.083	0.036	0.033	0.016	0.016	0.001	**0.132**	**0.085**	**0.115**	**0.068**	**0.100**	**0.053**
	LTE Band 7	Front	0.251		0.130	0.048	0.127	0.016	**0.429**		**0.426**		**0.315**	
		Back	0.193		0.033	0.016	0.016	0.001	**0.242**		**0.225**		**0.210**	
	LTE Band 12	Front	0.159	0.041	0.130	0.048	0.127	0.016	**0.337**	**0.219**	**0.334**	**0.216**	**0.223**	**0.105**
		Back	0.017	0.011	0.033	0.016	0.016	0.001	**0.066**	**0.060**	**0.049**	**0.043**	**0.034**	**0.028**
	LTE Band 26	Front	0.404	0.118	0.130	0.048	0.127	0.016	**0.582**	**0.296**	**0.579**	**0.293**	**0.468**	**0.182**
		Back	0.083	0.026	0.033	0.016	0.016	0.001	**0.132**	**0.075**	**0.115**	**0.058**	**0.100**	**0.043**
	LTE Band 30	Front	0.197		0.130	0.048	0.127	0.016	**0.375**		**0.372**		**0.261**	
		Back	0.093		0.033	0.016	0.016	0.001	**0.142**		**0.125**		**0.110**	
	LTE Band 38	Front	0.283		0.130	0.048	0.127	0.016	**0.461**		**0.458**		**0.175**	
		Back	0.258		0.033	0.016	0.016	0.001	**0.307**		**0.290**		**0.032**	
	LTE Band 41	Front	0.113		0.130	0.048	0.127	0.016	**0.291**		**0.288**		**0.175**	
		Back	0.054		0.033	0.016	0.016	0.001	**0.103**		**0.086**		**0.032**	

16. Supplemental tuner tests results

General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. The tuning state determined by the auto tune was verified before and after SAR measurement for the highest reported SAR configuration for each band (LTE, UMTS, EVDO), wireless mode combination and exposure condition, and it's confirmed that they are the same and also listed alongside in the table below. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. The tuner state was established remotely through Wi-Fi so that the device is not moved for the entire series of single point SAR for the tuner states in each combination (band, mode, exposure conditions).
3. To evaluate all of the tuner states, the 144 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
4. The operation description contains more information about the design and implementation of the dynamic antenna tuning.
5. Following table for LTE Band 17 SAR voluntary was performed testing at worst position of LTE Band 12.

<LTE Band 17 SAR Test results>

Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Transmit Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
LTE Band 17	10M	QPSK	1	0	Right Cheek	0mm	LAT	23790	710	23.16	23.50	1.081	0.149	0.037	0.040
LTE Band 17	10M	QPSK	1	0	Front	10mm	LAT	23790	710	23.16	23.50	1.081	0.008	0.154	0.167

16.1 Supplemental Head SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 19)	Default OL	State 1	State 11	State 21	State 31	State 41	State 51	State 61	State 71	State 81	State 91	State 101	State 111	State 121	State 131	State 141
WCDMA B2	RMC 12.2Kbps	1852.4	9262	NA	NA	Right Cheek	0mm	0.153	0.174	0.153	0.128	0.083	0.161	0.087	0.002	0.006	0.009	0.003	0.025	0.011	0.007	0.003	0.004	0.000	0.004
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 16)	Default OL	State 2	State 12	State 22	State 32	State 42	State 52	State 62	State 72	State 82	State 92	State 102	State 112	State 122	State 132	State 142
WCDMA B4	RMC 12.2Kbps	1752.6	1513	NA	NA	Right Cheek	0mm	0.106	0.127	0.124	0.104	0.117	0.089	0.120	0.000	0.002	0.000	0.002	0.055	0.007	0.000	0.009	0.015	0.000	0.002
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 39)	Default OL	State 3	State 13	State 23	State 33	State 43	State 53	State 63	State 73	State 83	State 93	State 103	State 113	State 123	State 133	State 143
WCDMA B5	RMC 12.2Kbps	826.4	4132	NA	NA	Right Cheek	0mm	0.029	0.060	0.057	0.043	0.013	0.008	0.026	0.013	0.023	0.000	0.026	0.018	0.039	0.029	0.031	0.014	0.015	0.025
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 39)	Default OL	State 4	State 14	State 24	State 34	State 44	State 54	State 64	State 74	State 84	State 94	State 104	State 114	State 124	State 134	State 144
CDMA BC0	RC3 SO55	824.7	1013	NA	NA	Right Cheek	0mm	0.077	0.089	0.086	0.056	0.018	0.007	0.033	0.004	0.029	0.04	0.035	0.024	0.048	0.037	0.023	0.02	0.007	0.03
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 19)	Default OL	State 5	State 15	State 25	State 35	State 45	State 55	State 65	State 75	State 85	State 95	State 105	State 115	State 125	State 135	State 1
LTE B2	QPSK	1860	18700	1	0	Right Cheek	0mm	0.159	0.325	0.285	0.179	0.273	0.209	0.277	0.000	0.020	0.012	0.301	0.160	0.043	0.003	0.002	0.019	0.002	0.249
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 14)	Default OL	State 6	State 16	State 26	State 36	State 46	State 56	State 66	State 76	State 86	State 96	State 106	State 116	State 126	State 136	State 2
LTE B4	QPSK	1732.5	20175	1	0	Right Cheek	0mm	0.042	0.057	0.046	0.038	0.055	0.015	0.039	0	0.002	0	0.012	0.02	0.001	0	0.0026	0.0073	0	0.042
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 40)	Default OL	State 7	State 17	State 27	State 37	State 47	State 57	State 67	State 77	State 87	State 97	State 107	State 117	State 127	State 137	State 3
LTE B5	QPSK	836.5	20525	1	0	Right Cheek	0mm	0.039	0.054	0.052	0.008	0.012	0.001	0.040	0.022	0.019	0.041	0.019	0.015	0.014	0.029	0.001	0.040	0.023	0.038
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 77)	Default OL	State 8	State 18	State 28	State 38	State 48	State 58	State 68	State 78	State 88	State 98	State 108	State 118	State 128	State 138	State 4
LTE B12	QPSK	707.5	23095	1	0	Right Cheek	0mm	0.035	0.041	0.037	0.001	0.002	0.005	0.007	0.007	0.013	0.013	0.015	0.003	0.005	0.010	0.003	0.007	0.008	0.037
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 77)	Default OL	State 9	State 19	State 29	State 39	State 49	State 59	State 69	State 79	State 89	State 99	State 109	State 119	State 129	State 139	State 5
LTE B17	QPSK	710	23790	1	0	Right Cheek	0mm	0.037	0.047	0.043	0.001	0.011	0.005	0.006	0.007	0.011	0.016	0.006	0.003	0.002	0.007	0.003	0.007	0.009	0.045
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 39)	Default OL	State 10	State 20	State 30	State 40	State 50	State 60	State 70	State 80	State 90	State 100	State 110	State 120	State 130	State 140	State 6
LTE B26	QPSK	836.5	26865	1	0	Right Cheek	0mm	0.049	0.062	0.061	0.014	0.017	0.027	0.061	0.025	0.007	0.041	0.005	0.019	0.031	0.036	0.016	0.055	0.026	0.016

16.2 Supplemental Body SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 19)	Default OL	State 1	State 11	State 21	State 31	State 41	State 51	State 61	State 71	State 81	State 91	State 101	State 111	State 121	State 131	State 141
WCDMA B2	RMC 12.2Kbps	1880	9400	N/A	N/A	Bottom side	10 mm	0.719	1.041	0.797	0.86	0.574	1.024	0.626	0.031	0.057	0.067	0.032	0.238	0.096	0.069	0.029	0.022	0.01	0.02
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 16)	Default OL	State 2	State 12	State 22	State 32	State 42	State 52	State 62	State 72	State 82	State 92	State 102	State 112	State 122	State 132	State 142
WCDMA B4	RMC 12.2Kbps	1752.6	1513	N/A	N/A	Bottom side	10 mm	0.959	1.25	1.15	1.092	1.16	0.914	1.107	0.103	0.037	0.022	0.07	0.583	0.121	0.014	0.129	0.171	0.003	0.044
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 39)	Default OL	State 3	State 13	State 23	State 33	State 43	State 53	State 63	State 73	State 83	State 93	State 103	State 113	State 123	State 133	State 143
WCDMA B5	RMC 12.2Kbps	826.4	4132	N/A	N/A	Front	10mm	0.402	0.59	0.575	0.521	0.21	0.113	0.33	0.134	0.285	0.015	0.33	0.249	0.379	0.331	0.373	0.224	0.147	0.3
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 39)	Default OL	State 4	State 14	State 24	State 34	State 44	State 54	State 64	State 74	State 84	State 94	State 104	State 114	State 124	State 134	State 144
CDMA BC0	RETAP 153.6kbps	824.7	1013	NA	NA	Front	10mm	0.545	0.625	0.615	0.487	0.173	0.074	0.305	0.064	0.277	0.413	0.315	0.217	0.434	0.344	0.222	0.187	0.073	0.3
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 19)	Default OL	State 5	State 15	State 25	State 35	State 45	State 55	State 65	State 75	State 85	State 95	State 105	State 115	State 125	State 135	State 1
LTE B2	QPSK	1880	18900	1	0	Bottom side	10mm	1.16	1.818	1.328	1.087	1.555	1.202	1.589	0.0017	0.151	0.113	1.701	0.981	0.261	0.045	0.0279	0.096	0.027	1.499
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 14)	Default OL	State 6	State 16	State 26	State 36	State 46	State 56	State 66	State 76	State 86	State 96	State 106	State 116	State 126	State 136	State 2
LTE B4	QPSK	1732.5	20175	1	0	Bottom Side	10 mm	0.597	0.712	0.658	0.52	0.64	0.227	0.433	0.021	0.049	0.008	0.2	0.222	0.028	0.015	0.232	0.133	0.007	0.598
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 40)	Default OL	State 7	State 17	State 27	State 37	State 47	State 57	State 67	State 77	State 87	State 97	State 107	State 117	State 127	State 137	State 3
LTE B5	QPSK	836.5	20525	1	0	Front	10 mm	0.324	0.369	0.347	0.07	0.089	0.01	0.263	0.158	0.14	0.266	0.136	0.116	0.11	0.208	0.017	0.265	0.171	0.252
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 77)	Default OL	State 8	State 18	State 28	State 38	State 48	State 58	State 68	State 78	State 88	State 98	State 108	State 118	State 128	State 138	State 4
LTE B12	QPSK	707.5	23095	1	0	Front	10 mm	0.147	0.24	0.23	0.009	0.0197	0.034	0.047	0.05	0.087	0.097	0.1	0.025	0.03	0.069	0.02	0.052	0.056	0.226
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 77)	Default OL	State 9	State 19	State 29	State 39	State 49	State 59	State 69	State 79	State 89	State 99	State 109	State 119	State 129	State 139	State 5
LTE B17	QPSK	710	23790	1	0	Front	10 mm	0.154	0.27	0.252	0.005	0.07	0.037	0.045	0.053	0.076	0.099	0.041	0.027	0.02	0.052	0.023	0.051	0.06	0.245
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																	
									Auto-Tune (State 39)	Default OL	State 10	State 20	State 30	State 40	State 50	State 60	State 70	State 80	State 90	State 100	State 110	State 120	State 130	State 140	State 6
LTE B26	QPSK	831.5	26865	1	0	Front	10mm	0.369	0.431	0.426	0.119	0.144	0.218	0.428	0.193	0.063	0.31	0.046	0.158	0.244	0.261	0.129	0.392	0.208	0.136

Test Engineer： Ken Lee, Poa Pan, Nick Yu, Jeff Lee, Thomas Wang, Lee Lee, Jeff Lee, Aaron Chen, Lawrence Chen, Tom Jiang and Iran Wang

17. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[(a)]	1/k[(b)]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 17.1. Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.0	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	1.0	R	1.732	1	1	0.6	0.6
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	2.9	R	1.732	1	1	1.7	1.7
Max. SAR Eval.	2.0	R	1.732	1	1	1.2	1.2
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.5	3.5
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						11.4%	11.4%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						22.9%	22.7%

Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	7.0	N	1	1	1	7.0	7.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.8%	12.7%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.5%	25.4%

Table 17.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

18. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[7] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[8] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[9] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[10] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

[12] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[13] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.