FCC SAR Test Report

APPLICANT	:	ASUSTeK COMPUTER INC.
EQUIPMENT	:	ASUS Phone(Mobile phone)
BRAND NAME	:	ASUS
MODEL NAME	:	ASUS_Z01GS
FCC ID	:	MSQZ01GS
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 / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA740843	Rev. 01	Initial issue of report	Oct. 05, 2017

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for ASUSTeK COMPUTER INC., ASUS Phone(Mobile phone), ASUS_Z01GS, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation15mm)	Hotspot (Separation10mm)	Specific Product (Separation0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	1.19	0.32	0.53		1.56
	GSM1900	0.01	0.20	0.51		
	WCDMA II	0.06	0.50	0.79		
	WCDMA IV	0.05	0.43	0.81		
	WCDMA V	0.86	0.30	0.53		
	LTE Band 2	0.11	0.55	1.09	3.03	
	LTE Band 4	0.09	0.54	1.19	3.20	
	LTE Band 7	0.10	0.32	1.13		
	LTE Band 12 / 17	0.80	0.26	0.50		
	LTE Band 5 / 26	0.82	0.31	0.60		
	LTE Band 30	0.10	0.26	0.87		
	LTE Band 38 / 41	0.08	0.22	0.84		
DTS	2.4GHz WLAN	0.21	0.09	0.27		1.54
NII	5GHz WLAN	0.26	0.29	0.35	2.95	1.56
DSS	Bluetooth	0.11	0.01	0.02		1.56
Date of Testing:		2017/8/29 ~ 2017/9/16				

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

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

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 Hi-and-New Tech Park, Jiangsu, PRC

3. Guidance Applied

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(Mobile phone)
Brand Name	ASUS
Model Name	ASUS_Z01GS
FCC ID	MSQZ01GS
IMEI Code	359149080045505
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 LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 30: 2307.5 MHz ~ 2312.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2547.5 MHz ~ 2652.5 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 RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM 802.11 a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE v4.0/v5.0 NFC: ASK
HW Version	R2.1D
SW Version	v.14.2410.1707.45_170731
GSM / (E)GPRS Dual Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Production Unit

Remark:

1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
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. For WWAN LAT and UAT antennas will not transmit simultaneous at the same time and when the two antennas operating in the Head / Hotspot / Body worn / Product Specific 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.
4. For WLAN operating in the Head / Hotspot / Body worn / Product Specific 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.
5. 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 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

When WWAN LAT Ant Transmitter				
Mode / Exposure Position	Head (separation 0mm)	Hotspot Mode (separation 10mm)	Body-Worn (separation 15mm)	Product Specific (separation 0mm)
GSM 850	33.5	33.5	33.5	33.5
GPRS 850, 1 Tx slot	33.5	33.5	33.5	33.5
GPRS 850, 2 Tx slots	30.5	30.5	30.5	30.5
GPRS 850, 3 Tx slots	28.75	28.75	28.75	28.75
GPRS 850, 4 Tx slots	27.5	27.5	27.5	27.5
EDGE 850, 1 Tx slot	27.5	27.5	27.5	27.5
EDGE 850, 2 Tx slots	24.5	24.5	24.5	24.5
EDGE 850, 3 Tx slots	22.75	22.75	22.75	22.75
EDGE 850, 4 Tx slots	21.5	21.5	21.5	21.5
GSM 1900	30.5	30.5	30.5	30.5
GPRS 1900, 1 Tx slot	30.5	30.5	30.5	30.5
GPRS 1900, 2 Tx slots	27.5	27.5	27.5	27.5
GPRS 1900, 3 Tx slots	25.75	25.75	25.75	25.75
GPRS 1900, 4 Tx slots	24.5	24.5	24.5	24.5
EDGE 1900, 1 Tx slot	26.5	26.5	26.5	26.5
EDGE 1900, 2 Tx slots	23.5	23.5	23.5	23.5
EDGE 1900, 3 Tx slots	21.75	21.75	21.75	21.75
EDGE 1900, 4 Tx slots	20.5	20.5	20.5	20.5
WCDMA II	22.0	21.0	22.0	22.0
WCDMA IV	22.0	21.0	22.0	22.0
WCDMA V	24.0	24	24	24
LTE Band 2	22.5	22.0	22.5	22.5
LTE Band 4	24	23.0	24	24
LTE Band 5	24	24	24	24
LTE Band 7	23.5	23.5	23.5	23.5
LTE Band 12	24	24	24	24
LTE Band 17	24	24	24	24
LTE Band 26	24	24	24	24
LTE Band 30	24	24	24	24
LTE Band 38	24	24	24	24
LTE Band 41	24	24	24	24

When WWAN UAT Ant Transmitter				
Mode / Exposure Position	Head (separation 0mm)	Hotspot Mode (separation 10mm)	Body-Worn (separation 15mm)	Product Specific (separation 0mm)
GSM 850	33.5	33.5	33.5	33.5
GPRS 850, 1 Tx slot	33.5	33.5	33.5	33.5
GPRS 850, 2 Tx slots	30.5	30.5	30.5	30.5
GPRS 850, 3 Tx slots	28.75	28.75	28.75	28.75
GPRS 850, 4 Tx slots	27.5	27.5	27.5	27.5
EDGE 850, 1 Tx slot	27.5	27.5	27.5	27.5
EDGE 850, 2 Tx slots	24.5	24.5	24.5	24.5
EDGE 850, 3 Tx slots	22.75	22.75	22.75	22.75
EDGE 850, 4 Tx slots	21.5	21.5	21.5	21.5
WCDMA V	22.5	24	24	24
LTE Band 5	22.5	24	24	24
LTE Band 12	24	24	24	24
LTE Band 17	24	24	24	24
LTE Band 26	22.5	24	24	24

When WLAN / Bluetooth Transmitter for per chain				
Mode / Exposure Position	Head (separation 0mm)	Hotspot Mode (separation 10mm)	Body-Worn (separation 15mm)	Product Specific (separation 0mm)
2.4GHz WLAN	12.0	19.00	19.00	19.00
Bluetooth	11.50	11.50	11.50	11.50
5.2GHz WLAN	11.0	20.00	20.00	20.00
5.3GHz WLAN	11.0		20.00	20.00
5.5GHz WLAN	10.00		20.00	20.00
5.8GHz WLAN	9.50	19.00	19.00	19.00

4.3 General LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r05</th></tr>
<tr><td>FCC ID</td><td>MSQZ01GS</td></tr>
<tr><td>Equipment Name</td><td>ASUS Phone(Mobile phone)</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz
LTE Band 4: 1710.7 MHz ~ 1754.3 MHz
LTE Band 5: 824.7 MHz ~ 848.3 MHz
LTE Band 7: 2502.5 MHz ~ 2567.5 MHz
LTE Band 12: 699.7 MHz ~ 715.3 MHz
LTE Band 17: 706.5 MHz ~ 713.5 MHz
LTE Band 26: 814.7 MHz ~ 848.3 MHz
LTE Band 30: 2307.5 MHz ~ 2312.5 MHz
LTE Band 38: 2572.5 MHz ~ 2617.5 MHz
LTE Band 41: 2547.5 MHz ~ 2652.5 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>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</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Data only</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table>
Table 6.2.3_3.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth configuration [RB]</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
</table>
</td></tr>
<tr><td>LTE A-MPR</td><td>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)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>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.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to section 12.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device does not support full CA features on 3GPP Release 11. It supports a maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

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	40485	2579.5	40490	2580	40495	2580.5	40500	2581
HM	40805	2611.5	40790	2610	40780	2609.5	40770	2608
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:

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

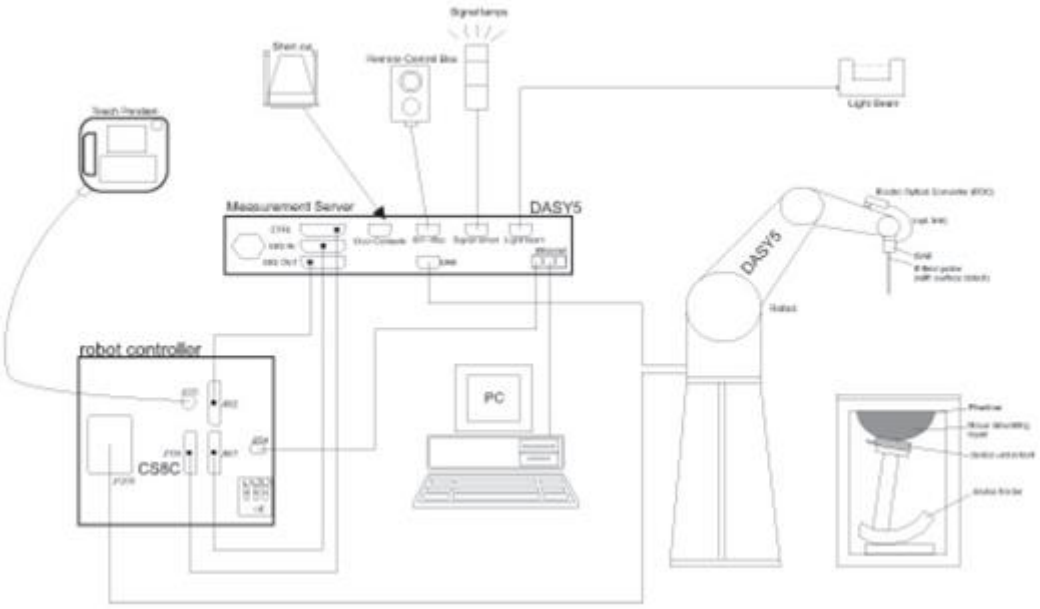
SAR is expressed in units of Watts per kilogram (W/kg)

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

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.

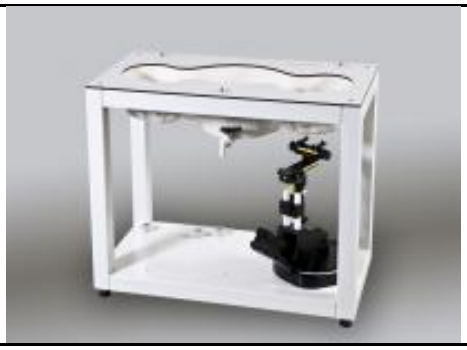
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

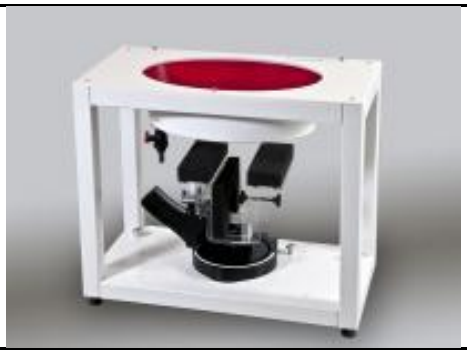
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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 D 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	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
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. 22, 2017	May. 21, 2018
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 21, 2017	Mar. 20, 2018
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 16, 2016	Nov. 15, 2017
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 30, 2016	Sep. 29, 2017
SPEAG	2300MHz System Validation Kit	D2300V2	1006	Jan. 25, 2017	Jan. 24, 2018
SPEAG	2450MHz System Validation Kit	D2450V2	735	Dec. 23, 2016	Dec. 22, 2017
SPEAG	2600MHz System Validation Kit	D2600V2	1058	Jun. 27, 2017	Jun. 26, 2018
SPEAG	5GHz System Validation Kit	D5GHzV2	1171	Jul. 18, 2017	Jul. 17, 2018
SPEAG	Data Acquisition Electronics	DAE4	1424	Feb. 16, 2017	Feb. 15, 2018
SPEAG	Data Acquisition Electronics	DAE3	495	May. 22, 2017	May. 21, 2018
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 17, 2016	Nov. 16, 2017
SPEAG	Data Acquisition Electronics	DAE4	778	May. 22, 2017	May. 21, 2018
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 28, 2016	Sep. 27, 2017
SPEAG	Data Acquisition Electronics	DAE4	854	May. 02, 2017	May. 01, 2018
SPEAG	Data Acquisition Electronics	DAE4	916	Dec. 15, 2016	Dec. 14, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Feb. 21, 2017	Feb. 20, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 24, 2017	May. 23, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3071	Dec. 08, 2016	Dec. 07, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 03, 2016	Oct. 02, 2017
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 11, 2017	May. 10, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	7346	Jun. 27, 2017	Jun. 26, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 24, 2017	Jul. 23, 2018
WonDer	Thermometer	WD-5016	TM642-2	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM281-1	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM281-2	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM560-1	Mar. 17, 2017	Mar. 16, 2018
WonDer	Thermometer	WD-5016	TM560-2	Mar. 17, 2017	Mar. 16, 2018
TECPEL	Thermometer	UL-A03	TM225-1	Mar. 21, 2017	Mar. 20, 2018
TECPEL	Thermometer	UL-A03	TM225-2	Mar. 21, 2017	Mar. 20, 2018
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 20, 2017	Apr. 19, 2018
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 30, 2017	May. 29, 2018
R&S	BT Base Station	CBT32	100522	Mar. 14, 2017	Mar. 13, 2018
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 09, 2016	Dec. 08, 2017
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 04, 2017	Jan. 03, 2018
SPEAG	Dielectric Probe Kit	DAK-3.5	1146	Jul. 18, 2017	Jul. 17, 2018
Anritsu	Power Meter	ML2495A	1438002	Dec. 06, 2016	Dec. 05, 2017
Anritsu	Power Sensor	MA2411B	1339195	Dec. 06, 2016	Dec. 05, 2017
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 26, 2017	Jun. 25, 2018
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 09, 2017	Mar. 08, 2018
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 09, 2017	Mar. 08, 2018
AR	Power Amplifier	5S1G4	0325228	Jul. 06, 2017	Jul. 05, 2018
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 Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

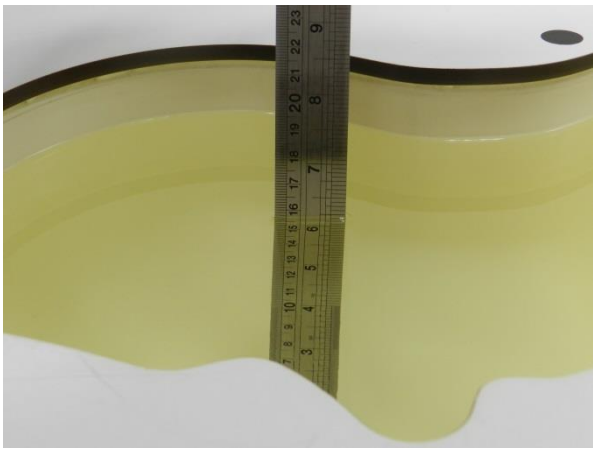


Fig 10.1Photo of Liquid Height for Head SAR

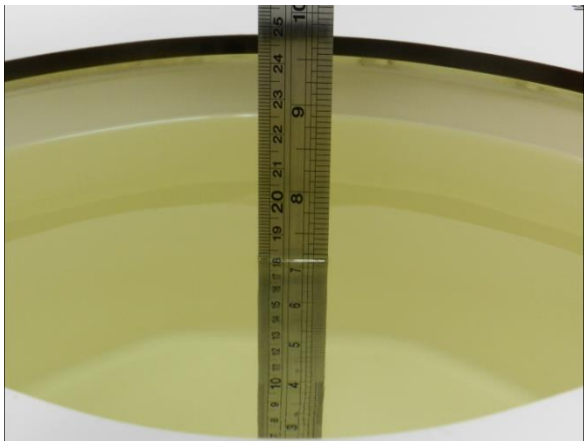


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 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	0.900	40.782	0.89	41.90	1.12	-2.67	±5	2017/8/30
750	HSL	22.2	0.895	43.154	0.89	41.90	0.56	2.99	±5	2017/9/5
750	MSL	22.5	0.972	54.534	0.96	55.50	1.25	-1.74	±5	2017/8/30
750	MSL	22.5	0.974	54.225	0.96	55.50	1.46	-2.30	±5	2017/9/4
835	HSL	22.5	0.921	42.937	0.90	41.50	2.33	3.46	±5	2017/8/30
835	HSL	22.2	0.886	40.933	0.90	41.50	-1.56	-1.37	±5	2017/9/5
835	HSL	22.4	0.898	41.790	0.90	41.50	-0.22	0.70	±5	2017/9/13
835	HSL	22.4	0.898	41.790	0.90	41.50	-0.22	0.70	±5	2017/9/13
835	MSL	22.5	0.959	55.498	0.97	55.20	-1.13	0.54	±5	2017/8/29
835	MSL	22.3	0.961	55.614	0.97	55.20	-0.93	0.75	±5	2017/8/31
835	MSL	22.5	0.988	56.802	0.97	55.20	1.86	2.90	±5	2017/9/4
1750	HSL	22.6	1.379	38.785	1.37	40.10	0.66	-3.28	±5	2017/9/4
1750	HSL	22.5	1.351	41.666	1.37	40.10	-1.39	3.91	±5	2017/9/13
1750	MSL	22.6	1.471	54.702	1.49	53.40	-1.28	2.44	±5	2017/9/7
1750	MSL	22.5	1.454	54.944	1.49	53.40	-2.42	2.89	±5	2017/9/14
1900	HSL	22.6	1.385	40.383	1.40	40.00	-1.07	0.96	±5	2017/9/4
1900	HSL	22.5	1.444	41.098	1.40	40.00	3.14	2.75	±5	2017/9/13
1900	HSL	22.6	1.442	41.160	1.40	40.00	3.00	2.90	±5	2017/9/14
1900	MSL	22.6	1.553	54.285	1.52	53.30	2.17	1.85	±5	2017/9/7
1900	MSL	22.5	1.563	54.437	1.52	53.30	2.83	2.13	±5	2017/9/13
1900	MSL	22.5	1.568	54.610	1.52	53.30	3.16	2.46	±5	2017/9/14
2300	HSL	22.4	1.647	41.240	1.67	39.50	-1.38	4.41	±5	2017/8/30
2300	MSL	22.2	1.785	54.969	1.81	52.90	-1.38	3.91	±5	2017/9/8
2300	MSL	22.7	1.827	53.917	1.81	52.90	0.94	1.92	±5	2017/9/15
2450	HSL	22.3	1.798	40.229	1.80	39.20	-0.11	2.62	±5	2017/9/11
2450	HSL	22.7	1.791	39.813	1.80	39.20	-0.50	1.56	±5	2017/9/16
2450	MSL	22.5	1.990	54.483	1.95	52.70	2.05	3.38	±5	2017/9/8
2450	MSL	22.7	1.968	54.054	1.95	52.70	0.92	2.57	±5	2017/9/16
2600	HSL	22.4	1.987	40.194	1.96	39.00	1.38	3.06	±5	2017/8/30
2600	HSL	22.6	2.003	39.429	1.96	39.00	2.19	1.10	±5	2017/9/5
2600	MSL	22.7	2.212	54.081	2.16	52.50	2.41	3.01	±5	2017/9/6
5250	HSL	22.2	4.597	36.888	4.71	35.95	-2.40	2.61	±5	2017/9/11
5250	MSL	22.5	5.447	47.441	5.36	48.95	1.62	-3.08	±5	2017/9/14
5600	HSL	22.2	4.944	36.412	5.07	35.50	-2.49	2.57	±5	2017/9/11
5600	MSL	22.5	5.905	46.888	5.77	48.50	2.34	-3.32	±5	2017/9/14
5750	HSL	22.2	5.101	36.194	5.22	35.35	-2.28	2.39	±5	2017/9/11
5750	MSL	22.5	6.103	46.614	5.94	48.28	2.74	-3.45	±5	2017/9/14

10.3 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 (%)
2017/8/30	750	HSL	250	D750V3-1012	EX3DV4 - SN3976	DAE4 Sn1424	1.96	8.22	7.84	-4.62
2017/9/5	750	HSL	250	D750V3-1012	ES3DV3 - SN3071	DAE4 Sn778	2.15	8.22	8.6	4.62
2017/8/30	750	MSL	250	D750V3-1012	EX3DV4 - SN3976	DAE4 Sn1424	2.16	8.71	8.64	-0.80
2017/9/4	750	MSL	250	D750V3-1012	ES3DV3 - SN3071	DAE4 Sn778	2.24	8.71	8.96	2.87
2017/8/30	835	HSL	250	D835V2-499	EX3DV4 - SN3976	DAE4 Sn1424	2.38	9.45	9.52	0.74
2017/9/5	835	HSL	250	D835V2-499	ES3DV3 - SN3071	DAE4 Sn778	2.49	9.45	9.96	5.40
2017/9/13	835	HSL	250	D835V2-499	EX3DV4 - SN3931	DAE4 Sn916	2.32	9.45	9.28	-1.80
2017/9/13	835	HSL	250	D835V2-499	EX3DV4 - SN7346	DAE4 Sn916	2.34	9.45	9.36	-0.95
2017/8/29	835	MSL	250	D835V2-499	EX3DV4 - SN3976	DAE4 Sn1424	2.31	9.67	9.24	-4.45
2017/8/31	835	MSL	250	D835V2-499	EX3DV4 - SN3976	DAE4 Sn1424	2.31	9.67	9.24	-4.45
2017/9/4	835	MSL	250	D835V2-499	ES3DV3 - SN3071	DAE4 Sn778	2.47	9.67	9.88	2.17
2017/9/4	1750	HSL	250	D1750V2-1068	EX3DV4 - SN7306	DAE4 Sn854	8.72	36.60	34.88	-4.70
2017/9/13	1750	HSL	250	D1750V2-1068	EX3DV4 - SN7346	DAE4 Sn916	9.47	36.60	37.88	3.50
2017/9/7	1750	MSL	250	D1750V2-1068	EX3DV4 - SN7306	DAE3 Sn577	9.30	36.20	37.20	2.76
2017/9/14	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3931	DAE4 Sn916	9.04	36.20	36.16	-0.11
2017/9/4	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN7306	DAE4 Sn854	10.50	40.50	42.00	3.70
2017/9/13	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN7346	DAE4 Sn916	10.40	40.50	41.60	2.72
2017/9/14	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn916	11.00	40.50	44.00	8.64
2017/9/7	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7306	DAE3 Sn577	10.00	38.80	40.00	3.09
2017/9/13	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn916	9.62	38.80	38.48	-0.82
2017/9/14	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn916	9.20	38.80	36.80	-5.15
2017/8/30	2300	HSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE3 Sn577	13.10	49.00	52.40	6.94
2017/9/8	2300	MSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE3 Sn577	12.20	47.90	48.80	1.88
2017/9/15	2300	MSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE4 Sn916	12.30	47.90	49.20	2.71
2017/9/11	2450	HSL	250	D2450V2-735	EX3DV4 - SN3931	DAE3 Sn577	12.60	50.90	50.40	-0.98
2017/9/16	2450	HSL	250	D2450V2-735	EX3DV4 - SN3925	DAE3 Sn495	12.50	50.90	50.00	-1.77
2017/9/8	2450	MSL	250	D2450V2-735	ES3DV3 - SN3169	DAE4 Sn1399	12.40	50.60	49.60	-1.98
2017/9/16	2450	MSL	250	D2450V2-735	EX3DV4 - SN3925	DAE3 Sn495	13.40	50.60	53.60	5.93
2017/8/30	2600	HSL	250	D2600V2-1058	ES3DV3 - SN3071	DAE4 Sn778	13.30	57.00	53.20	-6.67
2017/9/5	2600	HSL	250	D2600V2-1058	ES3DV3 - SN3071	DAE4 Sn778	13.80	57.00	55.20	-3.16
2017/9/6	2600	MSL	250	D2600V2-1058	ES3DV3 - SN3071	DAE4 Sn778	14.30	54.30	57.20	5.34
2017/9/11	5250	HSL	100	D5GHzV2-1171	EX3DV4 - SN3931	DAE3 Sn577	7.58	81.20	75.80	-6.65
2017/9/14	5250	MSL	100	D5GHzV2-1171	EX3DV4 - SN3925	DAE3 Sn495	8.31	78.10	83.10	6.40
2017/9/11	5600	HSL	100	D5GHzV2-1171	EX3DV4 - SN3931	DAE3 Sn577	8.22	84.90	82.20	-3.18
2017/9/14	5600	MSL	100	D5GHzV2-1171	EX3DV4 - SN3925	DAE3 Sn495	8.68	81.00	86.80	7.16
2017/9/11	5750	HSL	100	D5GHzV2-1171	EX3DV4 - SN7346	DAE4 Sn916	7.78	82.20	77.80	-5.35
2017/9/14	5750	MSL	100	D5GHzV2-1171	EX3DV4 - SN3925	DAE3 Sn495	8.15	78.70	81.50	3.56

<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 (%)
2017/9/7	1750	MSL	250	D1750V2-1068	EX3DV4 - SN7306	DAE3 Sn577	5.04	19.40	20.16	3.92
2017/9/13	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn916	5.10	20.60	20.40	-0.97
2017/9/14	5250	MSL	100	D5GHzV2-1171	EX3DV4 - SN3925	DAE3 Sn495	2.21	21.80	22.10	1.38
2017/9/14	5600	MSL	100	D5GHzV2-1171	EX3DV4 - SN3925	DAE3 Sn495	2.32	22.80	23.20	1.75

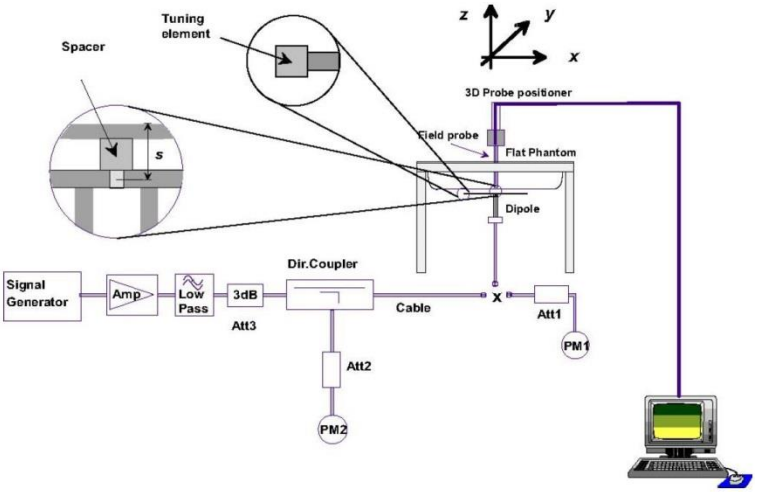


Fig 8.3.1 System Performance Check Setup

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.

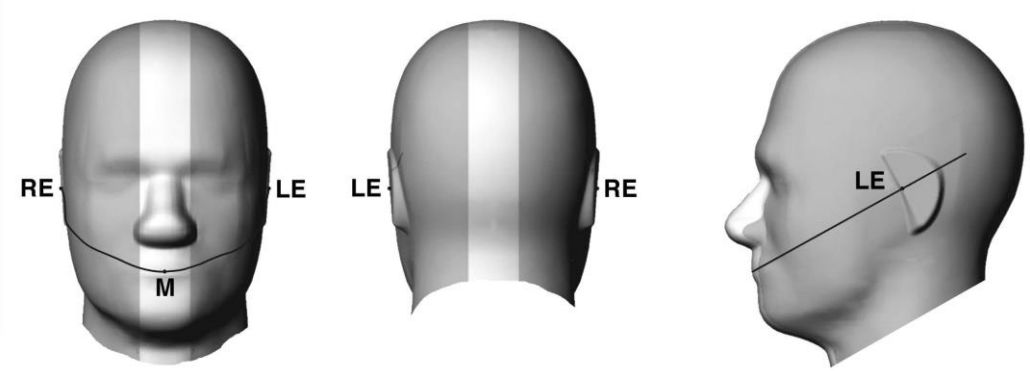


Fig 9.1.1 Front, back, and side views of SAM twin phantom

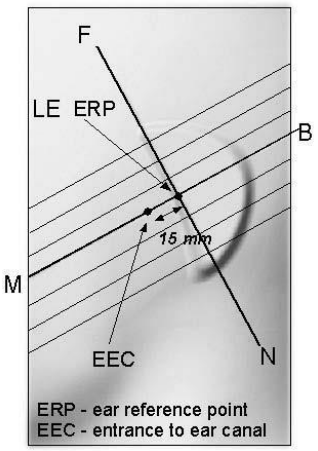


Fig 9.1.2 Close-up side view of phantom showing the ear region.

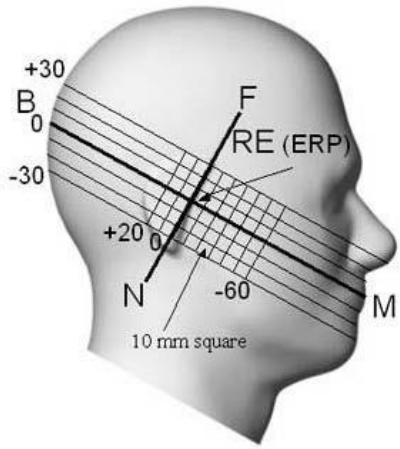


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

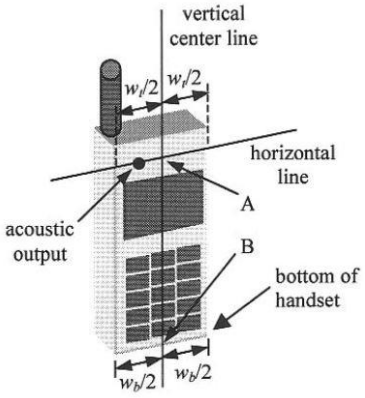


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

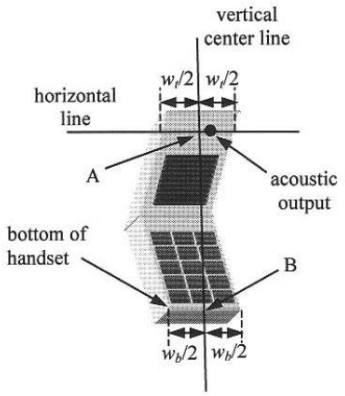


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

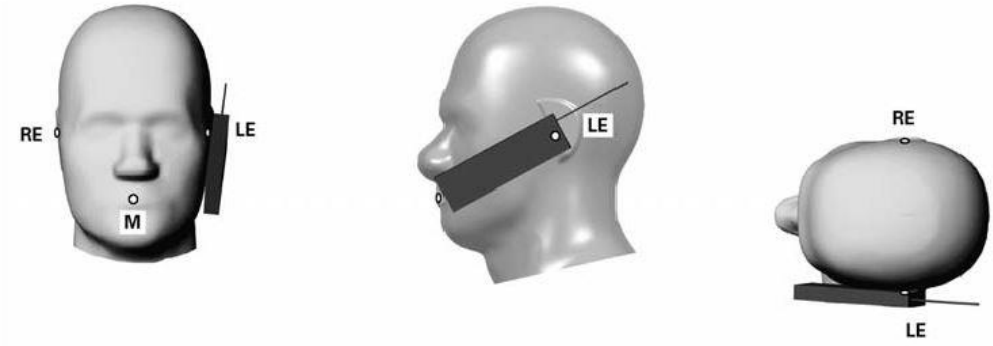


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

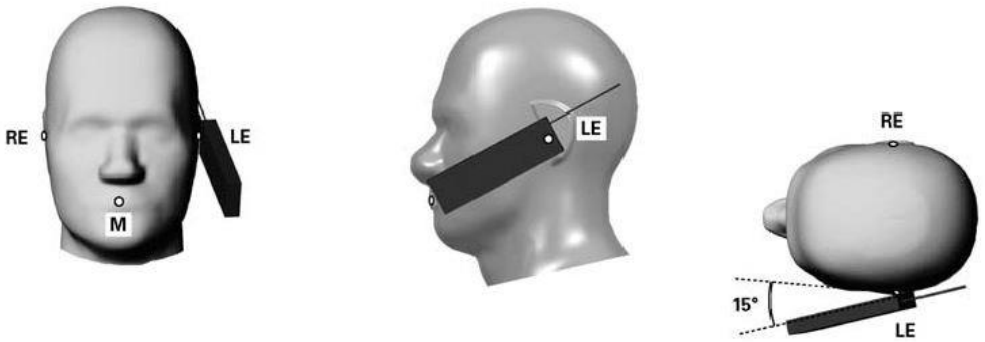


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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.

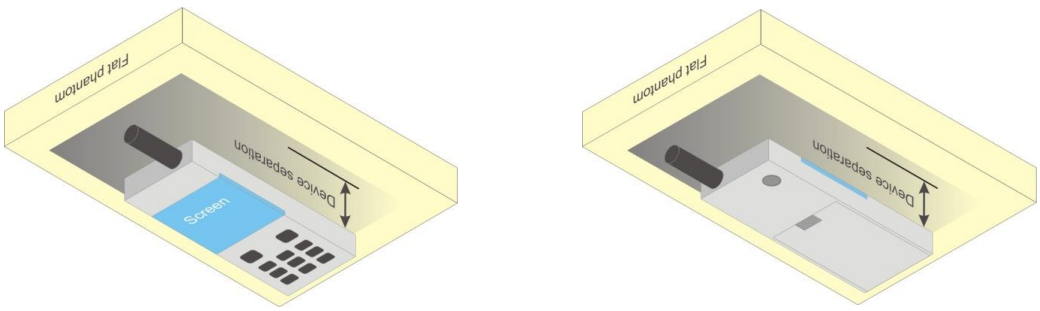


Fig 9.4 Body Worn Position

11.5 Extremity Exposure

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 extremity 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 extremity 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>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE 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 GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE 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/Hotspot/Body-worn/Product Specific mode for WWAN LAT>

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	32.85	32.85	33.00	33.50	23.85	23.85	24.00	24.50
GPRS 1 Tx slot	32.78	32.78	32.93	33.50	23.78	23.78	23.93	24.50
GPRS 2 Tx slots	29.86	30.00	30.31	30.50	23.86	24.00	24.31	24.50
GPRS 3 Tx slots	27.93	28.08	28.39	28.75	23.67	23.82	24.13	24.49
GPRS 4 Tx slots	26.48	26.69	26.74	27.50	23.48	23.69	23.74	24.50
EDGE 1 Tx slot	26.71	26.83	26.91	27.50	17.71	17.83	17.91	18.50
EDGE 2 Tx slots	23.53	23.65	23.74	24.50	17.53	17.65	17.74	18.50
EDGE 3 Tx slots	21.65	21.75	21.82	22.75	17.39	17.49	17.56	18.49
EDGE 4 Tx slots	20.27	20.30	20.41	21.50	17.27	17.30	17.41	18.50

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	29.52	29.57	29.96	30.50	20.52	20.57	20.96	21.50
GPRS 1 Tx slot	29.52	29.59	29.97	30.50	20.52	20.59	20.97	21.50
GPRS 2 Tx slots	26.96	26.99	27.14	27.50	20.96	20.99	21.14	21.50
GPRS 3 Tx slots	25.07	25.09	25.22	25.75	20.81	20.83	20.96	21.49
GPRS 4 Tx slots	23.59	23.63	23.82	24.50	20.59	20.63	20.82	21.50
EDGE 1 Tx slot	25.68	25.60	25.79	26.50	16.68	16.60	16.79	17.50
EDGE 2 Tx slots	22.62	22.58	22.82	23.50	16.62	16.58	16.82	17.50
EDGE 3 Tx slots	20.77	20.70	20.89	21.75	16.51	16.44	16.63	17.49
EDGE 4 Tx slots	19.35	19.32	19.52	20.50	16.35	16.32	16.52	17.50

<Head/Hotspot/Body-worn/Product Specific mode for WWAN UAT>

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	32.85	32.85	33.00	33.50	23.85	23.85	24.00	24.50
GPRS 1 Tx slot	32.78	32.78	32.93	33.50	23.78	23.78	23.93	24.50
GPRS 2 Tx slots	29.86	30.00	30.31	30.50	23.86	24.00	24.31	24.50
GPRS 3 Tx slots	27.93	28.08	28.39	28.75	23.67	23.82	24.13	24.49
GPRS 4 Tx slots	26.48	26.69	26.74	27.50	23.48	23.69	23.74	24.50
EDGE 1 Tx slot	26.71	26.83	26.91	27.50	17.71	17.83	17.91	18.50
EDGE 2 Tx slots	23.53	23.65	23.74	24.50	17.53	17.65	17.74	18.50
EDGE 3 Tx slots	21.65	21.75	21.82	22.75	17.39	17.49	17.56	18.49
EDGE 4 Tx slots	20.27	20.30	20.41	21.50	17.27	17.30	17.41	18.50

<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} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	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	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * 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: 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 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

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	Proces ses	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.		

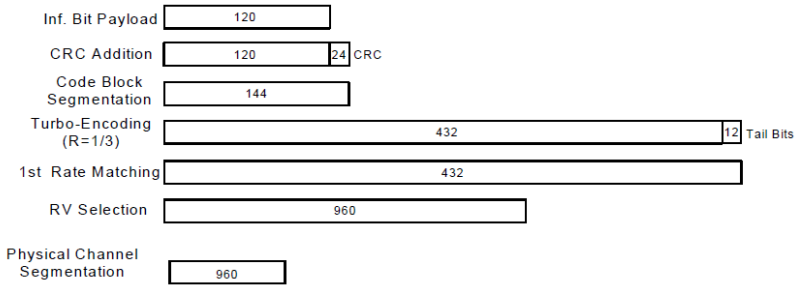


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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. 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, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

<Head/Body-worn/Product Specific mode for WWAN LAT>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.33	21.26	21.28	22.00	21.32	21.45	21.27	22.00	22.78	22.75	22.71	24.00
3GPP Rel 99	RMC 12.2Kbps	21.35	21.27	21.29	22.00	21.34	21.46	21.29	22.00	22.81	22.77	22.73	24.00
3GPP Rel 6	HSDPA Subtest-1	20.34	20.33	20.34	21.00	20.40	20.47	20.31	21.00	21.84	21.79	21.76	23.00
3GPP Rel 6	HSDPA Subtest-2	20.42	20.34	20.42	21.00	20.41	20.45	20.28	21.00	21.84	21.76	21.50	23.00
3GPP Rel 6	HSDPA Subtest-3	19.89	19.85	19.87	20.50	19.92	19.96	19.80	20.50	21.37	21.32	21.34	22.50
3GPP Rel 6	HSDPA Subtest-4	19.90	19.86	19.89	20.50	19.89	19.97	19.79	20.50	21.27	21.31	21.34	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	20.29	20.28	20.26	21.00	20.40	20.39	20.23	21.00	21.82	21.74	21.74	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	20.41	20.24	20.35	21.00	20.36	20.35	20.20	21.00	21.80	21.74	21.48	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	19.83	19.85	19.81	20.50	19.90	19.92	19.73	20.50	21.35	21.30	21.32	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	19.84	19.86	19.86	20.50	19.87	19.93	19.75	20.50	21.25	21.30	21.31	22.50
3GPP Rel 6	HSUPA Subtest-1	20.17	20.20	20.16	21.00	20.16	20.20	20.11	21.00	21.80	21.80	21.71	23.00
3GPP Rel 6	HSUPA Subtest-2	18.10	18.22	18.13	19.00	18.15	18.22	18.19	19.00	19.83	19.78	19.76	21.00
3GPP Rel 6	HSUPA Subtest-3	19.11	19.22	19.14	20.00	19.17	19.19	19.19	20.00	20.77	20.80	20.71	22.00
3GPP Rel 6	HSUPA Subtest-4	18.12	18.21	18.11	19.00	18.17	18.20	18.20	19.00	19.83	19.75	19.68	21.00
3GPP Rel 6	HSUPA Subtest-5	20.20	20.20	20.10	21.00	20.20	20.30	20.20	21.00	21.80	21.80	21.80	23.00

<Hotspot mode for WWAN LAT>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	20.15	20.03	20.18	21.00	20.11	20.32	20.17	21.00
3GPP Rel 99	RMC 12.2Kbps	20.16	20.05	20.21	21.00	20.12	20.33	20.19	21.00
3GPP Rel 6	HSDPA Subtest-1	19.29	19.35	19.17	20.00	19.29	19.28	19.18	20.00
3GPP Rel 6	HSDPA Subtest-2	19.33	19.40	19.20	20.00	19.28	19.27	19.19	20.00
3GPP Rel 6	HSDPA Subtest-3	18.85	18.82	18.71	19.50	18.77	18.78	18.72	19.50
3GPP Rel 6	HSDPA Subtest-4	18.85	18.85	18.71	19.50	18.79	18.74	18.70	19.50
3GPP Rel 8	DC-HSDPA Subtest-1	19.21	19.34	19.17	20.00	19.29	19.20	19.08	20.00
3GPP Rel 8	DC-HSDPA Subtest-2	19.26	19.35	19.15	20.00	19.21	19.23	19.15	20.00
3GPP Rel 8	DC-HSDPA Subtest-3	18.85	18.74	18.71	19.50	18.76	18.72	18.70	19.50
3GPP Rel 8	DC-HSDPA Subtest-4	18.77	18.78	18.70	19.50	18.73	18.65	18.61	19.50
3GPP Rel 6	HSUPA Subtest-1	19.16	19.23	19.22	20.00	19.26	19.23	19.15	20.00
3GPP Rel 6	HSUPA Subtest-2	17.22	17.26	17.18	18.00	17.29	17.27	17.15	18.00
3GPP Rel 6	HSUPA Subtest-3	18.18	18.23	18.18	19.00	18.28	18.23	18.22	19.00
3GPP Rel 6	HSUPA Subtest-4	17.16	17.19	17.09	18.00	17.30	17.21	17.18	18.00
3GPP Rel 6	HSUPA Subtest-5	19.20	19.20	19.20	20.00	19.30	19.30	19.20	20.00

<Head mode for WWAN UAT>

Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		4132	4182	4233	
Rx Channel		4357	4407	4458	
Frequency (MHz)		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.75	21.74	21.72	22.50
3GPP Rel 99	RMC 12.2Kbps	21.76	21.76	21.74	22.50
3GPP Rel 6	HSDPA Subtest-1	20.80	20.74	20.80	21.50
3GPP Rel 6	HSDPA Subtest-2	20.81	20.80	20.81	21.50
3GPP Rel 6	HSDPA Subtest-3	20.33	20.30	20.32	21.00
3GPP Rel 6	HSDPA Subtest-4	20.32	20.28	20.29	21.00
3GPP Rel 8	DC-HSDPA Subtest-1	20.75	20.73	20.77	21.50
3GPP Rel 8	DC-HSDPA Subtest-2	20.80	20.70	20.79	21.50
3GPP Rel 8	DC-HSDPA Subtest-3	20.25	20.25	20.31	21.00
3GPP Rel 8	DC-HSDPA Subtest-4	20.27	20.27	20.26	21.00
3GPP Rel 6	HSUPA Subtest-1	20.76	20.74	20.85	21.50
3GPP Rel 6	HSUPA Subtest-2	18.74	18.76	18.78	19.50
3GPP Rel 6	HSUPA Subtest-3	19.77	19.74	19.84	20.50
3GPP Rel 6	HSUPA Subtest-4	18.77	18.74	18.77	19.50
3GPP Rel 6	HSUPA Subtest-5	20.80	20.80	20.80	21.50

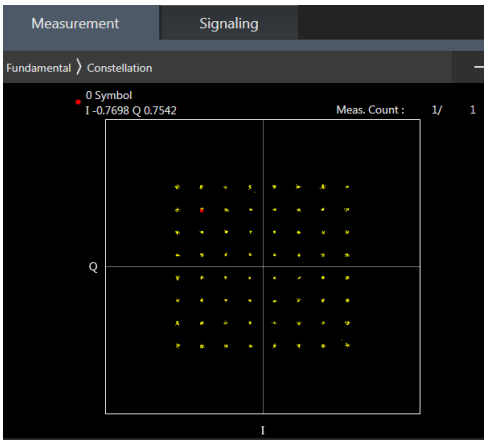
<Hotspot/Body-worn/Product Specific mode for WWAN UAT>

Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		4132	4182	4233	
Rx Channel		4357	4407	4458	
Frequency (MHz)		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	22.78	22.75	22.71	24.00
3GPP Rel 99	RMC 12.2Kbps	22.81	22.77	22.73	24.00
3GPP Rel 6	HSDPA Subtest-1	21.84	21.79	21.76	23.00
3GPP Rel 6	HSDPA Subtest-2	21.84	21.76	21.50	23.00
3GPP Rel 6	HSDPA Subtest-3	21.37	21.32	21.34	22.50
3GPP Rel 6	HSDPA Subtest-4	21.27	21.31	21.34	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.82	21.74	21.74	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.80	21.74	21.48	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.35	21.30	21.32	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.25	21.30	21.31	22.50
3GPP Rel 6	HSUPA Subtest-1	21.80	21.80	21.71	23.00
3GPP Rel 6	HSUPA Subtest-2	19.83	19.78	19.76	21.00
3GPP Rel 6	HSUPA Subtest-3	20.77	20.80	20.71	22.00
3GPP Rel 6	HSUPA Subtest-4	19.83	19.75	19.68	21.00
3GPP Rel 6	HSUPA Subtest-5	21.80	21.80	21.80	23.00

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C 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 / 64QAM 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 / 64QAM 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 / B12 / B26 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 5 / 17 / 38 SAR test was covered by Band 26 / 12 / 41; 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
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM

16QAM

<Head/Body-worn/Product Specific 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	21.67	21.57	21.62	22.5	0
20	QPSK	1	49	21.27	21.19	21.38		
20	QPSK	1	99	21.39	21.37	21.48		
20	QPSK	50	0	20.45	20.33	20.58	21.5	1
20	QPSK	50	24	20.35	20.30	20.50		
20	QPSK	50	50	20.33	20.19	20.55		
20	QPSK	100	0	20.40	20.31	20.61		
20	16QAM	1	0	20.95	20.85	20.98	21.5	1
20	16QAM	1	49	20.60	20.44	20.71		
20	16QAM	1	99	20.74	20.77	20.79		
20	16QAM	50	0	19.46	19.37	19.59	20.5	2
20	16QAM	50	24	19.39	19.28	19.50		
20	16QAM	50	50	19.33	19.24	19.54		
20	16QAM	100	0	19.37	19.28	19.57		
20	64QAM	1	0	19.44	19.46	19.39	20.5	2
20	64QAM	1	49	19.26	19.04	19.21		
20	64QAM	1	99	19.35	19.14	19.20		
20	64QAM	50	0	18.18	18.07	18.22	19.5	3
20	64QAM	50	24	18.07	18.05	18.14		
20	64QAM	50	50	18.00	17.85	18.08		
20	64QAM	100	0	18.09	18.05	18.24		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.50	21.37	21.61	22.5	0
15	QPSK	1	37	21.30	21.18	21.52		
15	QPSK	1	74	21.27	21.17	21.49		
15	QPSK	36	0	20.42	20.33	20.52	21.5	1
15	QPSK	36	20	20.35	20.25	20.60		
15	QPSK	36	39	20.29	20.22	20.53		
15	QPSK	75	0	20.36	20.25	20.59		
15	16QAM	1	0	20.76	20.62	20.95	21.5	1
15	16QAM	1	37	20.68	20.42	20.85		
15	16QAM	1	74	20.54	20.45	20.83		
15	16QAM	36	0	19.43	19.30	19.55	20.5	2
15	16QAM	36	20	19.35	19.28	19.58		
15	16QAM	36	39	19.34	19.20	19.52		
15	16QAM	75	0	19.35	19.24	19.56		
15	64QAM	1	0	19.41	19.50	19.46	20.5	2
15	64QAM	1	37	19.17	19.29	19.39		
15	64QAM	1	74	19.09	19.29	19.35		
15	64QAM	36	0	18.16	18.04	18.10	19.5	3
15	64QAM	36	20	18.08	18.03	18.18		
15	64QAM	36	39	18.01	17.89	18.15		
15	64QAM	75	0	18.07	17.93	18.22		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.58	21.45	21.37	22.5	0
10	QPSK	1	25	21.30	21.19	21.38		
10	QPSK	1	49	21.46	21.32	21.32		
10	QPSK	25	0	20.34	20.27	20.45	21.5	1
10	QPSK	25	12	20.32	20.21	20.44		
10	QPSK	25	25	20.31	20.19	20.40		
10	QPSK	50	0	20.33	20.23	20.42		
10	16QAM	1	0	20.89	20.84	20.66	21.5	1
10	16QAM	1	25	20.49	20.49	20.68		
10	16QAM	1	49	20.80	20.67	20.65		
10	16QAM	25	0	19.42	19.28	19.44	20.5	2
10	16QAM	25	12	19.41	19.24	19.45		
10	16QAM	25	25	19.32	19.22	19.38		
10	16QAM	50	0	19.38	19.25	19.44		
10	64QAM	1	0	19.28	19.05	19.23	20.5	2
10	64QAM	1	25	19.38	18.81	19.26		
10	64QAM	1	49	19.52	18.99	19.15		
10	64QAM	25	0	18.16	18.06	18.17	19.5	3
10	64QAM	25	12	18.17	18.03	18.18		
10	64QAM	25	25	18.06	18.03	18.11		
10	64QAM	50	0	18.03	17.97	18.15		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.35	21.23	21.46	22.5	0
5	QPSK	1	12	21.26	21.16	21.31		
5	QPSK	1	24	21.32	21.15	21.31		
5	QPSK	12	0	20.35	20.22	20.40	21.5	1
5	QPSK	12	7	20.34	20.21	20.37		
5	QPSK	12	13	20.30	20.17	20.36		
5	QPSK	25	0	20.32	20.17	20.38		
5	16QAM	1	0	20.73	20.58	20.71	21.5	1
5	16QAM	1	12	20.60	20.54	20.62		
5	16QAM	1	24	20.64	20.46	20.58		
5	16QAM	12	0	19.38	19.24	19.40	20.5	2
5	16QAM	12	7	19.37	19.23	19.43		
5	16QAM	12	13	19.33	19.18	19.34		
5	16QAM	25	0	19.35	19.18	19.41		
5	64QAM	1	0	19.23	19.29	19.22	20.5	2
5	64QAM	1	12	19.07	19.28	19.03		
5	64QAM	1	24	19.16	19.23	19.07		
5	64QAM	12	0	18.16	18.08	18.31	19.5	3
5	64QAM	12	7	18.16	18.05	18.37		
5	64QAM	12	13	18.11	18.07	18.24		
5	64QAM	25	0	18.12	18.09	18.27		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.32	21.17	21.41	22.5	0
3	QPSK	1	8	21.28	21.13	21.43		
3	QPSK	1	14	21.29	21.13	21.32		
3	QPSK	8	0	20.33	20.20	20.36	21.5	1
3	QPSK	8	4	20.32	20.17	20.35		
3	QPSK	8	7	20.30	20.13	20.32		
3	QPSK	15	0	20.32	20.16	20.35		
3	16QAM	1	0	20.63	20.52	20.75	21.5	1
3	16QAM	1	8	20.66	20.44	20.63		
3	16QAM	1	14	20.53	20.44	20.63		
3	16QAM	8	0	19.39	19.26	19.42	20.5	2
3	16QAM	8	4	19.40	19.25	19.47		
3	16QAM	8	7	19.37	19.25	19.40		
3	16QAM	15	0	19.34	19.17	19.37		
3	64QAM	1	0	19.43	19.29	19.46	20.5	2
3	64QAM	1	8	19.39	19.21	19.34		
3	64QAM	1	14	19.44	19.16	19.29		
3	64QAM	8	0	18.15	18.19	18.06	19.5	3
3	64QAM	8	4	18.21	18.14	18.19		
3	64QAM	8	7	18.17	18.09	18.10		
3	64QAM	15	0	18.19	17.87	18.15		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.24	21.12	21.33	22.5	0
1.4	QPSK	1	3	21.29	21.15	21.32		
1.4	QPSK	1	5	21.20	21.08	21.23		
1.4	QPSK	3	0	21.28	21.13	21.29		
1.4	QPSK	3	1	21.29	21.16	21.33		
1.4	QPSK	3	3	21.25	21.11	21.29		
1.4	QPSK	6	0	20.23	20.11	20.28	21.5	1
1.4	16QAM	1	0	20.54	20.34	20.52	21.5	1
1.4	16QAM	1	3	20.63	20.52	20.58		
1.4	16QAM	1	5	20.53	20.35	20.56		
1.4	16QAM	3	0	20.32	20.13	20.30		
1.4	16QAM	3	1	20.36	20.20	20.35		
1.4	16QAM	3	3	20.33	20.16	20.31		
1.4	16QAM	6	0	19.32	19.18	19.38	20.5	2
1.4	64QAM	1	0	19.12	19.29	19.19	20.5	2
1.4	64QAM	1	3	19.20	19.25	19.23		
1.4	64QAM	1	5	19.11	19.20	19.11		
1.4	64QAM	3	0	19.20	19.09	19.16		
1.4	64QAM	3	1	19.24	19.22	19.12		
1.4	64QAM	3	3	19.21	19.16	19.11		
1.4	64QAM	6	0	17.98	17.83	18.20	19.5	3

<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	22.92	23.12	22.95	24	0
20	QPSK	1	49	22.83	22.77	22.74		
20	QPSK	1	99	22.70	22.65	22.63		
20	QPSK	50	0	21.85	21.98	21.97	23	1
20	QPSK	50	24	21.83	21.81	21.87		
20	QPSK	50	50	21.63	21.70	21.75		
20	QPSK	100	0	21.73	21.89	21.82		
20	16QAM	1	0	21.92	21.98	21.95	23	1
20	16QAM	1	49	21.85	21.86	21.87		
20	16QAM	1	99	21.92	21.75	21.74		
20	16QAM	50	0	20.86	20.92	20.92	22	2
20	16QAM	50	24	20.85	20.83	20.84		
20	16QAM	50	50	20.79	20.87	20.75		
20	16QAM	100	0	20.79	20.89	20.87		
20	64QAM	1	0	20.85	20.92	20.90	22	2
20	64QAM	1	49	20.93	20.83	20.86		
20	64QAM	1	99	20.92	20.92	20.84		
20	64QAM	50	0	19.91	19.91	19.99	21	3
20	64QAM	50	24	19.84	19.94	19.90		
20	64QAM	50	50	19.74	19.83	19.78		
20	64QAM	100	0	19.80	19.93	19.86		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.81	22.98	22.96	24	0
15	QPSK	1	37	22.56	22.70	22.72		
15	QPSK	1	74	22.53	22.65	22.66		
15	QPSK	36	0	21.69	21.82	21.91	23	1
15	QPSK	36	20	21.71	21.76	21.83		
15	QPSK	36	39	21.62	21.67	21.77		
15	QPSK	75	0	21.74	21.79	21.87		
15	16QAM	1	0	21.99	21.99	21.89	23	1
15	16QAM	1	37	21.89	22.00	21.97		
15	16QAM	1	74	21.85	21.88	21.91		
15	16QAM	36	0	20.68	20.83	20.92	22	2
15	16QAM	36	20	20.71	20.79	20.82		
15	16QAM	36	39	20.65	20.69	20.77		
15	16QAM	75	0	20.69	20.78	20.85		
15	64QAM	1	0	20.86	20.87	20.95	22	2
15	64QAM	1	37	20.96	20.86	20.88		
15	64QAM	1	74	20.82	20.76	20.74		
15	64QAM	36	0	19.74	19.84	19.90	21	3
15	64QAM	36	20	19.92	19.89	19.87		
15	64QAM	36	39	19.78	19.79	19.76		
15	64QAM	75	0	19.87	19.87	19.81		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.88	22.97	22.88	24	0
10	QPSK	1	25	22.74	22.88	22.73		
10	QPSK	1	49	22.77	22.76	22.69		
10	QPSK	25	0	21.79	21.92	21.85	23	1
10	QPSK	25	12	21.72	21.89	21.80		
10	QPSK	25	25	21.79	21.85	21.75		
10	QPSK	50	0	21.72	21.87	21.82		
10	16QAM	1	0	21.85	21.95	21.96	23	1
10	16QAM	1	25	21.85	21.89	21.82		
10	16QAM	1	49	21.95	21.82	21.79		
10	16QAM	25	0	20.69	20.96	20.86	22	2
10	16QAM	25	12	20.69	20.94	20.83		
10	16QAM	25	25	20.73	20.88	20.77		
10	16QAM	50	0	20.76	20.91	20.80		
10	64QAM	1	0	21.00	20.89	20.88	22	2
10	64QAM	1	25	20.91	20.89	20.80		
10	64QAM	1	49	20.90	20.95	20.71		
10	64QAM	25	0	19.76	19.87	19.87	21	3
10	64QAM	25	12	19.75	19.85	19.82		
10	64QAM	25	25	19.79	19.78	19.77		
10	64QAM	50	0	19.74	19.92	19.85		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.77	22.86	22.87	24	0
5	QPSK	1	12	22.69	22.80	22.77		
5	QPSK	1	24	22.65	22.81	22.74		
5	QPSK	12	0	21.76	21.89	21.81	23	1
5	QPSK	12	7	21.78	21.88	21.81		
5	QPSK	12	13	21.72	21.84	21.78		
5	QPSK	25	0	21.75	21.88	21.84		
5	16QAM	1	0	22.00	21.87	21.98	23	1
5	16QAM	1	12	21.99	21.85	21.88		
5	16QAM	1	24	21.95	21.74	21.88		
5	16QAM	12	0	20.80	20.93	20.91	22	2
5	16QAM	12	7	20.72	20.90	20.89		
5	16QAM	12	13	20.66	20.86	20.84		
5	16QAM	25	0	20.73	20.84	20.92		
5	64QAM	1	0	20.92	21.00	20.84	22	2
5	64QAM	1	12	20.83	20.97	20.74		
5	64QAM	1	24	20.79	20.98	20.74		
5	64QAM	12	0	19.74	19.91	19.94	21	3
5	64QAM	12	7	19.75	19.92	19.97		
5	64QAM	12	13	19.70	19.87	19.91		
5	64QAM	25	0	19.73	19.90	19.77		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.76	22.79	22.72	24	0
3	QPSK	1	8	22.62	22.73	22.72		
3	QPSK	1	14	22.59	22.59	22.63		
3	QPSK	8	0	21.60	21.72	21.77	23	1
3	QPSK	8	4	21.63	21.72	21.82		
3	QPSK	8	7	21.59	21.68	21.78		
3	QPSK	15	0	21.62	21.71	21.79		
3	16QAM	1	0	21.76	21.85	21.88	23	1
3	16QAM	1	8	21.81	21.83	21.92		
3	16QAM	1	14	21.84	21.81	21.87		
3	16QAM	8	0	20.69	20.81	20.82	22	2
3	16QAM	8	4	20.74	20.92	20.86		
3	16QAM	8	7	20.72	20.87	20.81		
3	16QAM	15	0	20.70	20.91	20.79		
3	64QAM	1	0	20.92	20.67	20.88	22	2
3	64QAM	1	8	20.96	20.68	20.81		
3	64QAM	1	14	20.86	20.70	20.80		
3	64QAM	8	0	19.79	19.95	19.77	21	3
3	64QAM	8	4	19.80	19.92	19.80		
3	64QAM	8	7	19.76	19.90	19.75		
3	64QAM	15	0	19.64	19.86	19.71		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.58	22.71	22.63	24	0
1.4	QPSK	1	3	22.64	22.80	22.68		
1.4	QPSK	1	5	22.56	22.70	22.62		
1.4	QPSK	3	0	22.64	22.75	22.75		
1.4	QPSK	3	1	22.62	22.80	22.77		
1.4	QPSK	3	3	22.57	22.70	22.69		
1.4	QPSK	6	0	21.56	21.76	21.67	23	1
1.4	16QAM	1	0	21.87	21.98	21.91	23	1
1.4	16QAM	1	3	21.86	21.98	21.91		
1.4	16QAM	1	5	21.85	21.94	21.84		
1.4	16QAM	3	0	21.70	21.79	21.76		
1.4	16QAM	3	1	21.78	21.86	21.79		
1.4	16QAM	3	3	21.68	21.78	21.70		
1.4	16QAM	6	0	20.83	20.82	20.84	22	2
1.4	64QAM	1	0	20.87	20.82	20.95	22	2
1.4	64QAM	1	3	20.97	20.91	20.88		
1.4	64QAM	1	5	20.84	20.84	20.96		
1.4	64QAM	3	0	20.80	20.99	20.86		
1.4	64QAM	3	1	20.82	20.87	20.90		
1.4	64QAM	3	3	20.77	20.96	20.85		
1.4	64QAM	6	0	19.65	19.74	19.67	21	3

<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	22.56	22.78	22.63	24	0
10	QPSK	1	25	22.51	22.58	22.52		
10	QPSK	1	49	22.55	22.61	22.57		
10	QPSK	25	0	21.67	21.72	21.71	23	1
10	QPSK	25	12	21.66	21.63	21.66		
10	QPSK	25	25	21.60	21.68	21.70		
10	QPSK	50	0	21.60	21.75	21.74		
10	16QAM	1	0	21.75	21.98	21.92	23	1
10	16QAM	1	25	21.72	21.98	21.81		
10	16QAM	1	49	21.75	21.95	21.81		
10	16QAM	25	0	20.58	20.71	20.70	22	2
10	16QAM	25	12	20.69	20.72	20.68		
10	16QAM	25	25	20.60	20.74	20.66		
10	16QAM	50	0	20.62	20.70	20.77		
10	64QAM	1	0	20.86	20.57	20.80	22	2
10	64QAM	1	25	20.85	20.71	20.72		
10	64QAM	1	49	20.88	20.69	20.71		
10	64QAM	25	0	19.62	19.75	19.69	21	3
10	64QAM	25	12	19.72	19.76	19.68		
10	64QAM	25	25	19.65	19.77	19.69		
10	64QAM	50	0	19.63	19.67	19.74		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.60	22.66	22.59	24	0
5	QPSK	1	12	22.53	22.59	22.67		
5	QPSK	1	24	22.64	22.64	22.60		
5	QPSK	12	0	21.65	21.67	21.74	23	1
5	QPSK	12	7	21.64	21.72	21.70		
5	QPSK	12	13	21.68	21.62	21.65		
5	QPSK	25	0	21.59	21.62	21.77		
5	16QAM	1	0	21.56	21.81	21.88	23	1
5	16QAM	1	12	21.48	21.80	21.81		
5	16QAM	1	24	21.53	21.89	21.84		
5	16QAM	12	0	20.63	20.71	20.71	22	2
5	16QAM	12	7	20.60	20.69	20.68		
5	16QAM	12	13	20.63	20.65	20.66		
5	16QAM	25	0	20.64	20.63	20.78		
5	64QAM	1	0	20.66	20.94	20.54	22	2
5	64QAM	1	12	20.58	20.91	20.55		
5	64QAM	1	24	20.63	20.94	20.52		
5	64QAM	12	0	19.60	19.72	19.80	21	3
5	64QAM	12	7	19.61	19.70	19.80		
5	64QAM	12	13	19.67	19.66	19.76		
5	64QAM	25	0	19.61	19.71	19.80		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.50	22.61	22.74	24	0
3	QPSK	1	8	22.47	22.62	22.70		
3	QPSK	1	14	22.46	22.56	22.62		
3	QPSK	8	0	21.53	21.63	21.66	23	1
3	QPSK	8	4	21.60	21.65	21.69		
3	QPSK	8	7	21.56	21.60	21.65		
3	QPSK	15	0	21.56	21.59	21.67		
3	16QAM	1	0	21.84	21.98	21.57	23	1
3	16QAM	1	8	21.87	21.95	21.53		
3	16QAM	1	14	21.80	21.91	21.55		
3	16QAM	8	0	20.64	20.71	20.76	22	2
3	16QAM	8	4	20.64	20.74	20.78		
3	16QAM	8	7	20.59	20.73	20.79		
3	16QAM	15	0	20.53	20.76	20.72		
3	64QAM	1	0	20.91	20.89	20.90	22	2
3	64QAM	1	8	20.88	20.87	20.85		
3	64QAM	1	14	20.84	20.85	20.66		
3	64QAM	8	0	19.67	19.82	19.74	21	3
3	64QAM	8	4	19.65	19.82	19.78		
3	64QAM	8	7	19.61	19.79	19.72		
3	64QAM	15	0	19.63	19.59	19.69		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.49	22.48	22.54	24	0
1.4	QPSK	1	3	22.57	22.56	22.59		
1.4	QPSK	1	5	22.46	22.47	22.53		
1.4	QPSK	3	0	22.49	22.58	22.58		
1.4	QPSK	3	1	22.53	22.61	22.68		
1.4	QPSK	3	3	22.45	22.55	22.60		
1.4	QPSK	6	0	21.48	21.55	21.61	23	1
1.4	16QAM	1	0	21.93	21.64	21.63	23	1
1.4	16QAM	1	3	21.85	21.64	21.68		
1.4	16QAM	1	5	21.94	21.46	21.61		
1.4	16QAM	3	0	21.52	21.62	21.48		
1.4	16QAM	3	1	21.55	21.65	21.55		
1.4	16QAM	3	3	21.49	21.58	21.54		
1.4	16QAM	6	0	20.53	20.47	20.68	22	2
1.4	64QAM	1	0	20.64	20.86	20.80	22	2
1.4	64QAM	1	3	20.70	20.90	20.87		
1.4	64QAM	1	5	20.66	20.83	20.80		
1.4	64QAM	3	0	20.68	20.77	20.67		
1.4	64QAM	3	1	20.68	20.83	20.71		
1.4	64QAM	3	3	20.61	20.78	20.69		
1.4	64QAM	6	0	19.51	19.54	19.71	21	3

<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	21.52	22.25	21.82	23.5	0
20	QPSK	1	49	22.25	22.48	22.09		
20	QPSK	1	99	22.00	22.27	21.50		
20	QPSK	50	0	21.34	21.50	21.49	22.5	1
20	QPSK	50	24	21.29	21.49	21.43		
20	QPSK	50	50	21.32	21.45	21.37		
20	QPSK	100	0	21.33	21.49	21.48		
20	16QAM	1	0	20.50	21.02	21.08	22.5	1
20	16QAM	1	49	21.35	21.47	21.46		
20	16QAM	1	99	21.26	21.43	21.13		
20	16QAM	50	0	20.35	20.47	20.48	21.5	2
20	16QAM	50	24	20.33	20.45	20.41		
20	16QAM	50	50	20.28	20.45	20.37		
20	16QAM	100	0	20.29	20.46	20.49		
20	64QAM	1	0	19.75	20.45	20.48	21.5	2
20	64QAM	1	49	20.50	20.49	20.41		
20	64QAM	1	99	20.50	20.44	20.25		
20	64QAM	50	0	19.38	19.48	19.42	20.5	3
20	64QAM	50	24	19.37	19.41	19.41		
20	64QAM	50	50	19.35	19.47	19.39		
20	64QAM	100	0	19.36	19.47	19.47		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.50	22.43	21.92	23.5	0
15	QPSK	1	37	22.19	22.41	22.18		
15	QPSK	1	74	22.15	22.35	21.67		
15	QPSK	36	0	21.31	21.34	21.48	22.5	1
15	QPSK	36	20	21.34	21.40	21.39		
15	QPSK	36	39	21.29	21.37	21.39		
15	QPSK	75	0	21.31	21.36	21.39		
15	16QAM	1	0	20.84	21.49	20.97	22.5	1
15	16QAM	1	37	21.48	21.32	21.22		
15	16QAM	1	74	21.47	21.31	20.86		
15	16QAM	36	0	20.36	20.49	20.50	21.5	2
15	16QAM	36	20	20.34	20.49	20.43		
15	16QAM	36	39	20.27	20.46	20.40		
15	16QAM	75	0	20.31	20.42	20.39		
15	64QAM	1	0	20.05	20.46	20.34	21.5	2
15	64QAM	1	37	20.41	20.40	20.35		
15	64QAM	1	74	20.48	20.45	20.25		
15	64QAM	36	0	19.37	19.48	19.41	20.5	3
15	64QAM	36	20	19.35	19.40	19.43		
15	64QAM	36	39	19.34	19.48	19.39		
15	64QAM	75	0	19.36	19.43	19.41		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.50	22.44	21.99	23.5	0
10	QPSK	1	25	22.06	22.41	22.13		
10	QPSK	1	49	22.10	22.44	21.69		
10	QPSK	25	0	21.26	21.43	21.41	22.5	1
10	QPSK	25	12	21.29	21.46	21.38		
10	QPSK	25	25	21.26	21.47	21.37		
10	QPSK	50	0	21.28	21.46	21.38		
10	16QAM	1	0	21.01	21.42	21.48	22.5	1
10	16QAM	1	25	21.39	21.41	21.41		
10	16QAM	1	49	21.39	21.42	21.26		
10	16QAM	25	0	20.33	20.48	20.33	21.5	2
10	16QAM	25	12	20.35	20.40	20.35		
10	16QAM	25	25	20.30	20.41	20.32		
10	16QAM	50	0	20.33	20.43	20.35		
10	64QAM	1	0	19.61	20.41	20.40	21.5	2
10	64QAM	1	25	20.11	20.43	20.30		
10	64QAM	1	49	20.09	20.43	20.42		
10	64QAM	25	0	19.34	19.41	19.42	20.5	3
10	64QAM	25	12	19.36	19.44	19.46		
10	64QAM	25	25	19.31	19.41	19.40		
10	64QAM	50	0	19.35	19.47	19.37		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.62	22.45	22.16	23.5	0
5	QPSK	1	12	21.95	22.41	22.07		
5	QPSK	1	24	22.05	22.41	21.79		
5	QPSK	12	0	21.26	21.44	21.41	22.5	1
5	QPSK	12	7	21.29	21.45	21.40		
5	QPSK	12	13	21.26	21.41	21.36		
5	QPSK	25	0	21.29	21.41	21.41		
5	16QAM	1	0	20.79	21.43	21.43	22.5	1
5	16QAM	1	12	21.14	21.50	21.47		
5	16QAM	1	24	21.20	21.43	21.46		
5	16QAM	12	0	20.31	20.50	20.43	21.5	2
5	16QAM	12	7	20.34	20.46	20.45		
5	16QAM	12	13	20.29	20.41	20.42		
5	16QAM	25	0	20.27	20.43	20.38		
5	64QAM	1	0	20.14	20.49	20.41	21.5	2
5	64QAM	1	12	20.45	20.39	20.39		
5	64QAM	1	24	20.45	20.39	20.36		
5	64QAM	12	0	19.40	19.41	19.41	20.5	3
5	64QAM	12	7	19.41	19.45	19.44		
5	64QAM	12	13	19.38	19.42	19.42		
5	64QAM	25	0	19.23	19.50	19.44		

<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	22.55	22.59	22.49	24	0
10	QPSK	1	25	22.54	22.58	22.48		
10	QPSK	1	49	22.50	22.53	22.43		
10	QPSK	25	0	21.57	21.58	21.53	23	1
10	QPSK	25	12	21.52	21.56	21.53		
10	QPSK	25	25	21.55	21.53	21.51		
10	QPSK	50	0	21.57	21.58	21.48		
10	16QAM	1	0	21.74	21.57	21.58	23	1
10	16QAM	1	25	21.85	21.62	21.52		
10	16QAM	1	49	21.95	21.63	21.55		
10	16QAM	25	0	20.46	20.52	20.53	22	2
10	16QAM	25	12	20.49	20.63	20.54		
10	16QAM	25	25	20.53	20.59	20.50		
10	16QAM	50	0	20.59	20.59	20.50		
10	64QAM	1	0	20.51	20.77	20.55	22	2
10	64QAM	1	25	20.64	20.86	20.54		
10	64QAM	1	49	20.67	20.82	20.56		
10	64QAM	25	0	19.52	19.44	19.49	21	3
10	64QAM	25	12	19.50	19.55	19.52		
10	64QAM	25	25	19.55	19.50	19.46		
10	64QAM	50	0	19.56	19.58	19.53		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.35	22.40	22.50	24	0
5	QPSK	1	12	22.45	22.49	22.48		
5	QPSK	1	24	22.41	22.58	22.47		
5	QPSK	12	0	21.48	21.58	21.49	23	1
5	QPSK	12	7	21.59	21.59	21.54		
5	QPSK	12	13	21.52	21.56	21.49		
5	QPSK	25	0	21.56	21.56	21.51		
5	16QAM	1	0	21.55	21.81	21.61	23	1
5	16QAM	1	12	21.72	21.89	21.61		
5	16QAM	1	24	21.70	21.84	21.59		
5	16QAM	12	0	20.41	20.61	20.55	22	2
5	16QAM	12	7	20.49	20.58	20.59		
5	16QAM	12	13	20.45	20.54	20.54		
5	16QAM	25	0	20.52	20.55	20.55		
5	64QAM	1	0	20.53	20.74	20.78	22	2
5	64QAM	1	12	20.59	20.72	20.74		
5	64QAM	1	24	20.57	20.72	20.77		
5	64QAM	12	0	19.46	19.59	19.64	21	3
5	64QAM	12	7	19.59	19.60	19.66		
5	64QAM	12	13	19.53	19.58	19.63		
5	64QAM	25	0	19.53	19.58	19.46		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.40	22.49	22.44	24	0
3	QPSK	1	8	22.34	22.45	22.44		
3	QPSK	1	14	22.46	22.46	22.41		
3	QPSK	8	0	21.44	21.55	21.46	23	1
3	QPSK	8	4	21.42	21.54	21.48		
3	QPSK	8	7	21.42	21.49	21.50		
3	QPSK	15	0	21.37	21.51	21.48		
3	16QAM	1	0	21.48	21.95	21.63	23	1
3	16QAM	1	8	21.53	21.96	21.67		
3	16QAM	1	14	21.65	21.88	21.65		
3	16QAM	8	0	20.46	20.58	20.53	22	2
3	16QAM	8	4	20.52	20.55	20.58		
3	16QAM	8	7	20.45	20.54	20.52		
3	16QAM	15	0	20.42	20.59	20.48		
3	64QAM	1	0	20.62	20.37	20.55	22	2
3	64QAM	1	8	20.62	20.38	20.55		
3	64QAM	1	14	20.73	20.40	20.53		
3	64QAM	8	0	19.48	19.64	19.48	21	3
3	64QAM	8	4	19.48	19.65	19.51		
3	64QAM	8	7	19.48	19.63	19.48		
3	64QAM	15	0	19.46	19.56	19.42		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.29	22.40	22.36	24	0
1.4	QPSK	1	3	22.34	22.51	22.41		
1.4	QPSK	1	5	22.25	22.40	22.37		
1.4	QPSK	3	0	22.36	22.44	22.45		
1.4	QPSK	3	1	22.43	22.50	22.48		
1.4	QPSK	3	3	22.37	22.47	22.39		
1.4	QPSK	6	0	21.36	21.44	21.36	23	1
1.4	16QAM	1	0	21.73	21.85	21.62	23	1
1.4	16QAM	1	3	21.83	21.69	21.64		
1.4	16QAM	1	5	21.72	21.56	21.60		
1.4	16QAM	3	0	21.40	21.50	21.46		
1.4	16QAM	3	1	21.43	21.54	21.48		
1.4	16QAM	3	3	21.39	21.49	21.39		
1.4	16QAM	6	0	20.50	20.49	20.51	22	2
1.4	64QAM	1	0	20.64	20.54	20.72	22	2
1.4	64QAM	1	3	20.63	20.59	20.74		
1.4	64QAM	1	5	20.48	20.58	20.70		
1.4	64QAM	3	0	20.45	20.66	20.58		
1.4	64QAM	3	1	20.49	20.71	20.61		
1.4	64QAM	3	3	20.46	20.65	20.56		
1.4	64QAM	6	0	19.34	19.40	19.37	21	3

<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	22.45	22.49	22.39	24	0
10	QPSK	1	25	22.44	22.47	22.39		
10	QPSK	1	49	22.40	22.44	22.36		
10	QPSK	25	0	21.54	21.50	21.49	23	1
10	QPSK	25	12	21.51	21.49	21.52		
10	QPSK	25	25	21.53	21.49	21.51		
10	QPSK	50	0	21.50	21.52	21.49		
10	16QAM	1	0	21.69	21.86	21.67	23	1
10	16QAM	1	25	21.90	21.92	21.65		
10	16QAM	1	49	21.95	21.92	21.68		
10	16QAM	25	0	20.54	20.53	20.48	22	2
10	16QAM	25	12	20.55	20.58	20.48		
10	16QAM	25	25	20.52	20.50	20.44		
10	16QAM	50	0	20.52	20.54	20.50		
10	64QAM	1	0	20.69	20.46	20.61	22	2
10	64QAM	1	25	20.81	20.58	20.77		
10	64QAM	1	49	20.72	20.55	20.77		
10	64QAM	25	0	19.59	19.58	19.49	21	3
10	64QAM	25	12	19.58	19.61	19.52		
10	64QAM	25	25	19.56	19.54	19.46		
10	64QAM	50	0	19.56	19.54	19.48		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.39	22.48	22.43	24	0
5	QPSK	1	12	22.47	22.43	22.41		
5	QPSK	1	24	22.42	22.41	22.41		
5	QPSK	12	0	21.44	21.52	21.46	23	1
5	QPSK	12	7	21.55	21.53	21.46		
5	QPSK	12	13	21.56	21.45	21.45		
5	QPSK	25	0	21.53	21.50	21.48		
5	16QAM	1	0	21.37	21.66	21.92	23	1
5	16QAM	1	12	21.48	21.63	21.98		
5	16QAM	1	24	21.45	21.63	21.97		
5	16QAM	12	0	20.48	20.50	20.44	22	2
5	16QAM	12	7	20.59	20.54	20.44		
5	16QAM	12	13	20.51	20.50	20.44		
5	16QAM	25	0	20.55	20.44	20.51		
5	64QAM	1	0	20.47	20.80	20.36	22	2
5	64QAM	1	12	20.54	20.76	20.26		
5	64QAM	1	24	20.54	20.77	20.29		
5	64QAM	12	0	19.41	19.52	19.52	21	3
5	64QAM	12	7	19.54	19.56	19.54		
5	64QAM	12	13	19.51	19.52	19.52		
5	64QAM	25	0	19.55	19.54	19.52		

<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	22.62	22.69	22.67	24	0
15	QPSK	1	37	22.60	22.51	22.65		
15	QPSK	1	74	22.50	22.56	22.49		
15	QPSK	36	0	21.63	21.70	21.67	23	1
15	QPSK	36	20	21.62	21.66	21.58		
15	QPSK	36	39	21.53	21.65	21.63		
15	QPSK	75	0	21.63	21.73	21.68		
15	16QAM	1	0	21.92	21.82	21.97	23	1
15	16QAM	1	37	21.85	21.77	21.92		
15	16QAM	1	74	21.95	21.77	21.98		
15	16QAM	36	0	20.66	20.65	20.67	22	2
15	16QAM	36	20	20.74	20.63	20.64		
15	16QAM	36	39	20.60	20.60	20.62		
15	16QAM	75	0	20.68	20.65	20.71		
15	64QAM	1	0	20.70	20.72	20.75	22	2
15	64QAM	1	37	20.74	20.70	20.78		
15	64QAM	1	74	20.61	20.76	20.68		
15	64QAM	36	0	19.59	19.72	19.70	21	3
15	64QAM	36	20	19.65	19.67	19.62		
15	64QAM	36	39	19.57	19.66	19.69		
15	64QAM	75	0	19.65	19.62	19.69		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.57	22.60	24	0
10	QPSK	1	25	22.67	22.61	22.59		
10	QPSK	1	49	22.56	22.60	22.49		
10	QPSK	25	0	21.59	21.65	21.57	23	1
10	QPSK	25	12	21.64	21.63	21.67		
10	QPSK	25	25	21.60	21.57	21.61		
10	QPSK	50	0	21.61	21.58	21.62		
10	16QAM	1	0	22.00	21.63	21.70	23	1
10	16QAM	1	25	21.89	21.64	21.69		
10	16QAM	1	49	21.97	21.66	21.60		
10	16QAM	25	0	20.54	20.65	20.60	22	2
10	16QAM	25	12	20.63	20.66	20.70		
10	16QAM	25	25	20.54	20.52	20.60		
10	16QAM	50	0	20.65	20.63	20.64		
10	64QAM	1	0	20.74	20.80	20.84	22	2
10	64QAM	1	25	20.80	20.79	20.86		
10	64QAM	1	49	20.67	20.90	20.75		
10	64QAM	25	0	19.57	19.60	19.58	21	3
10	64QAM	25	12	19.69	19.57	19.68		
10	64QAM	25	25	19.59	19.52	19.57		
10	64QAM	50	0	19.65	19.65	19.69		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.51	22.56	22.66	24	0
5	QPSK	1	12	22.46	22.59	22.57		
5	QPSK	1	24	22.54	22.54	22.53		
5	QPSK	12	0	21.64	21.62	21.63	23	1
5	QPSK	12	7	21.58	21.60	21.62		
5	QPSK	12	13	21.57	21.59	21.57		
5	QPSK	25	0	21.59	21.61	21.63		
5	16QAM	1	0	21.75	21.87	21.75	23	1
5	16QAM	1	12	21.73	21.85	21.71		
5	16QAM	1	24	21.83	21.83	21.69		
5	16QAM	12	0	20.54	20.60	20.68	22	2
5	16QAM	12	7	20.56	20.59	20.66		
5	16QAM	12	13	20.49	20.56	20.61		
5	16QAM	25	0	20.58	20.58	20.71		
5	64QAM	1	0	20.69	20.77	20.91	22	2
5	64QAM	1	12	20.63	20.67	20.83		
5	64QAM	1	24	20.69	20.66	20.83		
5	64QAM	12	0	19.61	19.65	19.76	21	3
5	64QAM	12	7	19.62	19.66	19.76		
5	64QAM	12	13	19.56	19.64	19.71		
5	64QAM	25	0	19.60	19.63	19.58		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.48	22.55	22.68	24	0
3	QPSK	1	8	22.44	22.54	22.60		
3	QPSK	1	14	22.47	22.51	22.50		
3	QPSK	8	0	21.56	21.58	21.58	23	1
3	QPSK	8	4	21.58	21.59	21.61		
3	QPSK	8	7	21.54	21.59	21.55		
3	QPSK	15	0	21.55	21.59	21.55		
3	16QAM	1	0	21.87	21.98	21.49	23	1
3	16QAM	1	8	21.89	21.97	21.45		
3	16QAM	1	14	21.85	21.87	21.47		
3	16QAM	8	0	20.64	20.68	20.67	22	2
3	16QAM	8	4	20.67	20.72	20.70		
3	16QAM	8	7	20.61	20.70	20.69		
3	16QAM	15	0	20.49	20.70	20.62		
3	64QAM	1	0	20.87	20.79	20.75	22	2
3	64QAM	1	8	20.90	20.77	20.58		
3	64QAM	1	14	20.89	20.74	20.56		
3	64QAM	8	0	19.63	19.77	19.65	21	3
3	64QAM	8	4	19.69	19.79	19.66		
3	64QAM	8	7	19.58	19.76	19.63		
3	64QAM	15	0	19.61	19.56	19.61		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.46	22.41	22.46	24	0
1.4	QPSK	1	3	22.54	22.48	22.53		
1.4	QPSK	1	5	22.43	22.38	22.45		
1.4	QPSK	3	0	22.45	22.47	22.51		
1.4	QPSK	3	1	22.50	22.50	22.59		
1.4	QPSK	3	3	22.48	22.48	22.52		
1.4	QPSK	6	0	21.52	21.51	21.53	23	1
1.4	16QAM	1	0	21.93	21.44	21.51	23	1
1.4	16QAM	1	3	21.99	21.39	21.58		
1.4	16QAM	1	5	21.92	21.31	21.50		
1.4	16QAM	3	0	21.50	21.55	21.40		
1.4	16QAM	3	1	21.55	21.57	21.50		
1.4	16QAM	3	3	21.52	21.51	21.57		
1.4	16QAM	6	0	20.54	20.46	20.58	22	2
1.4	64QAM	1	0	20.65	20.77	20.76	22	2
1.4	64QAM	1	3	20.72	20.81	20.79		
1.4	64QAM	1	5	20.70	20.73	20.70		
1.4	64QAM	3	0	20.65	20.69	20.61		
1.4	64QAM	3	1	20.66	20.73	20.63		
1.4	64QAM	3	3	20.63	20.68	20.57		
1.4	64QAM	6	0	19.51	19.49	19.62	21	3

<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	22.52			24	0
10	QPSK	1	25	22.40				
10	QPSK	1	49	22.36				
10	QPSK	25	0	21.53			23	1
10	QPSK	25	12	21.49				
10	QPSK	25	25	21.50				
10	QPSK	50	0	21.49				
10	16QAM	1	0	21.73			23	1
10	16QAM	1	25	21.65				
10	16QAM	1	49	21.62				
10	16QAM	25	0	20.53			22	2
10	16QAM	25	12	20.49				
10	16QAM	25	25	20.46				
10	16QAM	50	0	20.56				
10	64QAM	1	0	20.61			22	2
10	64QAM	1	25	20.54				
10	64QAM	1	49	20.52				
10	64QAM	25	0	19.52			21	3
10	64QAM	25	12	19.53				
10	64QAM	25	25	19.44				
10	64QAM	50	0	19.49				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	22.49	22.49	22.51	24	0
5	QPSK	1	12	22.47	22.44	22.42		
5	QPSK	1	24	22.41	22.46	22.44		
5	QPSK	12	0	21.50	21.51	21.52	23	1
5	QPSK	12	7	21.50	21.48	21.49		
5	QPSK	12	13	21.45	21.46	21.46		
5	QPSK	25	0	21.46	21.46	21.47		
5	16QAM	1	0	21.84	21.42	21.63	23	1
5	16QAM	1	12	21.59	21.40	21.58		
5	16QAM	1	24	21.55	21.38	21.56		
5	16QAM	12	0	20.58	20.53	20.49	22	2
5	16QAM	12	7	20.56	20.52	20.53		
5	16QAM	12	13	20.52	20.47	20.46		
5	16QAM	25	0	20.54	20.50	20.42		
5	64QAM	1	0	20.75	20.54	20.76	22	2
5	64QAM	1	12	20.66	20.46	20.69		
5	64QAM	1	24	20.68	20.46	20.70		
5	64QAM	12	0	19.61	19.48	19.51	21	3
5	64QAM	12	7	19.58	19.49	19.53		
5	64QAM	12	13	19.58	19.44	19.48		
5	64QAM	25	0	19.48	19.48	19.54		

<Hotspot 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	21.19	21.07	21.05	22	0
20	QPSK	1	49	20.80	20.70	20.81		
20	QPSK	1	99	20.93	20.89	20.84		
20	QPSK	50	0	19.95	19.83	19.99	21	1
20	QPSK	50	24	19.87	19.77	19.93		
20	QPSK	50	50	19.85	19.69	19.96		
20	QPSK	100	0	19.92	19.79	20.01		
20	16QAM	1	0	20.42	20.37	20.41	21	1
20	16QAM	1	49	20.06	20.01	20.16		
20	16QAM	1	99	20.22	20.19	20.19		
20	16QAM	50	0	18.99	18.89	18.98	20	2
20	16QAM	50	24	18.93	18.81	18.94		
20	16QAM	50	50	18.84	18.74	18.93		
20	16QAM	100	0	18.89	18.80	19.00		
20	64QAM	1	0	19.40	19.30	19.33	20	2
20	64QAM	1	49	19.05	18.99	19.16		
20	64QAM	1	99	19.19	19.11	19.17		
20	64QAM	50	0	17.89	17.81	17.97	19	3
20	64QAM	50	24	17.83	17.81	17.93		
20	64QAM	50	50	17.83	17.73	17.90		
20	64QAM	100	0	17.80	17.71	17.94		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.03	20.86	21.12	22	0
15	QPSK	1	37	20.79	20.72	20.93		
15	QPSK	1	74	20.76	20.71	20.88		
15	QPSK	36	0	19.92	19.82	19.90	21	1
15	QPSK	36	20	19.86	19.73	19.98		
15	QPSK	36	39	19.80	19.73	19.93		
15	QPSK	75	0	19.87	19.76	19.97		
15	16QAM	1	0	20.37	20.18	20.35	21	1
15	16QAM	1	37	20.12	19.96	20.17		
15	16QAM	1	74	20.10	19.97	20.23		
15	16QAM	36	0	18.94	18.81	18.93	20	2
15	16QAM	36	20	18.88	18.80	19.00		
15	16QAM	36	39	18.84	18.74	18.91		
15	16QAM	75	0	18.87	18.75	18.97		
15	64QAM	1	0	19.35	19.10	19.33	20	2
15	64QAM	1	37	19.02	18.94	19.09		
15	64QAM	1	74	19.03	18.95	19.17		
15	64QAM	36	0	17.89	17.81	17.87	19	3
15	64QAM	36	20	17.83	17.79	17.97		
15	64QAM	36	39	17.75	17.67	17.91		
15	64QAM	75	0	17.85	17.72	17.93		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.13	21.01	20.98	22	0
10	QPSK	1	25	20.83	20.69	20.95		
10	QPSK	1	49	20.97	20.88	20.90		
10	QPSK	25	0	19.88	19.76	19.96	21	1
10	QPSK	25	12	19.87	19.73	19.93		
10	QPSK	25	25	19.85	19.71	19.92		
10	QPSK	50	0	19.85	19.74	19.95		
10	16QAM	1	0	20.46	20.35	20.28	21	1
10	16QAM	1	25	20.09	20.05	20.15		
10	16QAM	1	49	20.30	20.17	20.23		
10	16QAM	25	0	18.93	18.82	18.94	20	2
10	16QAM	25	12	18.91	18.80	18.95		
10	16QAM	25	25	18.86	18.70	18.99		
10	16QAM	50	0	18.91	18.76	19.06		
10	64QAM	1	0	19.40	19.35	19.26	20	2
10	64QAM	1	25	19.02	19.00	19.11		
10	64QAM	1	49	19.21	19.14	19.21		
10	64QAM	25	0	17.85	17.72	17.93	19	3
10	64QAM	25	12	17.88	17.77	17.87		
10	64QAM	25	25	17.79	17.64	17.93		
10	64QAM	50	0	17.81	17.72	17.98		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.85	20.73	20.98	22	0
5	QPSK	1	12	20.80	20.64	20.91		
5	QPSK	1	24	20.79	20.66	20.94		
5	QPSK	12	0	19.88	19.70	20.01	21	1
5	QPSK	12	7	19.85	19.75	20.01		
5	QPSK	12	13	19.82	19.68	19.96		
5	QPSK	25	0	19.85	19.70	20.01		
5	16QAM	1	0	20.25	20.05	20.36	21	1
5	16QAM	1	12	20.11	19.94	20.24		
5	16QAM	1	24	20.11	20.04	20.17		
5	16QAM	12	0	18.89	18.73	18.99	20	2
5	16QAM	12	7	18.88	18.76	19.02		
5	16QAM	12	13	18.86	18.71	18.97		
5	16QAM	25	0	18.87	18.72	18.99		
5	64QAM	1	0	19.19	19.04	19.28	20	2
5	64QAM	1	12	19.10	18.86	19.14		
5	64QAM	1	24	19.06	18.97	19.14		
5	64QAM	12	0	17.87	17.65	17.97	19	3
5	64QAM	12	7	17.78	17.76	18.02		
5	64QAM	12	13	17.78	17.68	17.90		
5	64QAM	25	0	17.86	17.70	17.96		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.80	20.65	20.91	22	0
3	QPSK	1	8	20.80	20.67	20.92		
3	QPSK	1	14	20.78	20.65	20.89		
3	QPSK	8	0	19.83	19.70	19.96	21	1
3	QPSK	8	4	19.86	19.71	20.01		
3	QPSK	8	7	19.83	19.69	19.92		
3	QPSK	15	0	19.84	19.71	19.95		
3	16QAM	1	0	20.14	20.00	20.33	21	1
3	16QAM	1	8	20.07	20.02	20.30		
3	16QAM	1	14	20.11	20.03	20.14		
3	16QAM	8	0	18.92	18.77	19.02	20	2
3	16QAM	8	4	18.94	18.77	19.05		
3	16QAM	8	7	18.89	18.74	19.00		
3	16QAM	15	0	18.85	18.71	18.96		
3	64QAM	1	0	19.04	18.92	19.27	20	2
3	64QAM	1	8	19.04	18.95	19.21		
3	64QAM	1	14	19.02	19.00	19.10		
3	64QAM	8	0	17.90	17.75	17.98	19	3
3	64QAM	8	4	17.90	17.71	18.02		
3	64QAM	8	7	17.79	17.70	17.95		
3	64QAM	15	0	17.75	17.65	17.87		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.83	20.62	20.87	22	0
1.4	QPSK	1	3	20.93	20.66	20.96		
1.4	QPSK	1	5	20.82	20.58	20.81		
1.4	QPSK	3	0	20.85	20.65	20.88		
1.4	QPSK	3	1	20.91	20.68	20.95		
1.4	QPSK	3	3	20.87	20.65	20.86		
1.4	QPSK	6	0	19.86	19.62	19.88	21	1
1.4	16QAM	1	0	20.15	19.95	20.08	21	1
1.4	16QAM	1	3	20.22	20.06	20.21		
1.4	16QAM	1	5	20.19	19.99	20.14		
1.4	16QAM	3	0	19.89	19.71	19.95		
1.4	16QAM	3	1	19.93	19.70	19.94		
1.4	16QAM	3	3	19.79	19.63	19.88		
1.4	16QAM	6	0	18.85	18.70	18.98	20	2
1.4	64QAM	1	0	19.10	18.92	19.07	20	2
1.4	64QAM	1	3	19.14	19.04	19.15		
1.4	64QAM	1	5	19.17	18.95	19.14		
1.4	64QAM	3	0	18.79	18.71	18.91		
1.4	64QAM	3	1	18.83	18.65	18.94		
1.4	64QAM	3	3	18.77	18.56	18.81		
1.4	64QAM	6	0	17.77	17.62	17.97	19	3

<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	22.07	22.13	22.12	23	0
20	QPSK	1	49	21.93	22.01	21.96		
20	QPSK	1	99	21.98	21.96	21.92		
20	QPSK	50	0	21.09	21.11	21.06	22	1
20	QPSK	50	24	21.00	21.04	21.01		
20	QPSK	50	50	20.94	21.01	20.99		
20	QPSK	100	0	21.03	21.08	21.04		
20	16QAM	1	0	21.38	21.44	21.48	22	1
20	16QAM	1	49	21.19	21.37	21.22		
20	16QAM	1	99	21.28	21.24	21.20		
20	16QAM	50	0	20.10	20.15	20.09	21	2
20	16QAM	50	24	20.04	20.07	20.04		
20	16QAM	50	50	19.95	20.05	19.96		
20	16QAM	100	0	20.00	20.05	20.01		
20	64QAM	1	0	20.38	20.34	20.46	21	2
20	64QAM	1	49	20.18	20.28	20.18		
20	64QAM	1	99	20.18	20.14	20.19		
20	64QAM	50	0	19.08	19.14	19.02	20	3
20	64QAM	50	24	18.97	18.98	19.03		
20	64QAM	50	50	18.91	19.01	18.95		
20	64QAM	100	0	18.99	19.01	18.93		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.04	22.08	22.11	23	0
15	QPSK	1	37	21.97	21.99	21.89		
15	QPSK	1	74	21.93	21.98	21.95		
15	QPSK	36	0	20.95	21.10	21.03	22	1
15	QPSK	36	20	21.03	21.04	20.97		
15	QPSK	36	39	21.00	20.98	20.94		
15	QPSK	75	0	20.99	21.03	20.98		
15	16QAM	1	0	21.40	21.53	21.42	22	1
15	16QAM	1	37	21.29	21.22	21.16		
15	16QAM	1	74	21.22	21.36	21.15		
15	16QAM	36	0	19.99	20.09	20.01	21	2
15	16QAM	36	20	20.03	20.03	19.99		
15	16QAM	36	39	19.96	19.99	19.93		
15	16QAM	75	0	20.00	20.04	19.98		
15	64QAM	1	0	20.37	20.44	20.37	21	2
15	64QAM	1	37	20.25	20.22	20.16		
15	64QAM	1	74	20.19	20.26	20.08		
15	64QAM	36	0	18.89	19.01	18.93	20	3
15	64QAM	36	20	18.93	18.99	18.96		
15	64QAM	36	39	18.94	18.98	18.93		
15	64QAM	75	0	18.91	18.98	18.92		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.98	22.08	22.04	23	0
10	QPSK	1	25	21.88	21.94	21.95		
10	QPSK	1	49	21.90	21.93	21.94		
10	QPSK	25	0	20.95	21.03	20.99	22	1
10	QPSK	25	12	20.91	21.02	20.98		
10	QPSK	25	25	20.97	20.98	20.96		
10	QPSK	50	0	20.93	21.02	20.97		
10	16QAM	1	0	21.34	21.41	21.29	22	1
10	16QAM	1	25	21.14	21.29	21.20		
10	16QAM	1	49	21.30	21.24	21.12		
10	16QAM	25	0	19.97	20.08	20.00	21	2
10	16QAM	25	12	19.93	20.03	19.96		
10	16QAM	25	25	19.96	19.95	19.95		
10	16QAM	50	0	19.94	20.03	20.00		
10	64QAM	1	0	20.31	20.39	20.28	21	2
10	64QAM	1	25	20.10	20.27	20.17		
10	64QAM	1	49	20.24	20.24	20.05		
10	64QAM	25	0	18.92	19.03	18.98	20	3
10	64QAM	25	12	18.83	18.97	18.89		
10	64QAM	25	25	18.90	18.92	18.93		
10	64QAM	50	0	18.85	18.99	18.96		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.92	22.05	21.97	23	0
5	QPSK	1	12	21.87	21.96	21.94		
5	QPSK	1	24	21.85	21.97	21.91		
5	QPSK	12	0	20.95	21.00	20.96	22	1
5	QPSK	12	7	20.94	21.02	20.96		
5	QPSK	12	13	20.89	20.99	20.91		
5	QPSK	25	0	20.92	20.98	20.95		
5	16QAM	1	0	21.30	21.43	21.27	22	1
5	16QAM	1	12	21.11	21.28	21.19		
5	16QAM	1	24	21.16	21.27	21.18		
5	16QAM	12	0	19.96	20.03	19.98	21	2
5	16QAM	12	7	19.96	20.05	19.94		
5	16QAM	12	13	19.90	19.97	19.95		
5	16QAM	25	0	19.91	19.99	19.97		
5	64QAM	1	0	20.20	20.39	20.26	21	2
5	64QAM	1	12	20.03	20.22	20.16		
5	64QAM	1	24	20.11	20.18	20.14		
5	64QAM	12	0	18.86	18.99	18.89	20	3
5	64QAM	12	7	18.92	19.04	18.94		
5	64QAM	12	13	18.80	18.97	18.86		
5	64QAM	25	0	18.84	18.98	18.91		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.88	22.00	21.93	23	0
3	QPSK	1	8	21.89	21.95	21.90		
3	QPSK	1	14	21.86	21.95	21.93		
3	QPSK	8	0	20.88	20.97	20.92	22	1
3	QPSK	8	4	20.91	21.00	20.94		
3	QPSK	8	7	20.88	20.95	20.94		
3	QPSK	15	0	20.91	20.96	20.94		
3	16QAM	1	0	21.29	21.36	21.15	22	1
3	16QAM	1	8	21.21	21.28	21.16		
3	16QAM	1	14	21.13	21.27	21.17		
3	16QAM	8	0	19.96	20.03	19.98	21	2
3	16QAM	8	4	20.00	20.08	20.00		
3	16QAM	8	7	19.93	20.07	19.99		
3	16QAM	15	0	19.89	19.99	19.96		
3	64QAM	1	0	20.22	20.32	20.09	21	2
3	64QAM	1	8	20.21	20.21	20.06		
3	64QAM	1	14	20.12	20.17	20.09		
3	64QAM	8	0	18.95	19.03	18.92	20	3
3	64QAM	8	4	18.98	19.07	19.00		
3	64QAM	8	7	18.83	18.99	18.99		
3	64QAM	15	0	18.86	18.95	18.94		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.79	21.87	21.85	23	0
1.4	QPSK	1	3	21.83	21.99	21.87		
1.4	QPSK	1	5	21.76	21.86	21.81		
1.4	QPSK	3	0	21.82	21.94	21.86		
1.4	QPSK	3	1	21.90	21.94	21.94		
1.4	QPSK	3	3	21.84	21.93	21.90		
1.4	QPSK	6	0	20.83	20.91	20.85	22	1
1.4	16QAM	1	0	21.17	21.16	21.12	22	1
1.4	16QAM	1	3	21.26	21.23	21.21		
1.4	16QAM	1	5	21.12	21.28	21.16		
1.4	16QAM	3	0	20.88	20.93	20.91		
1.4	16QAM	3	1	20.92	20.98	20.98		
1.4	16QAM	3	3	20.85	20.92	20.89		
1.4	16QAM	6	0	19.94	20.00	19.94	21	2
1.4	64QAM	1	0	20.13	20.07	20.12	21	2
1.4	64QAM	1	3	20.20	20.16	20.11		
1.4	64QAM	1	5	20.02	20.26	20.07		
1.4	64QAM	3	0	19.87	19.93	19.86		
1.4	64QAM	3	1	19.92	19.97	19.98		
1.4	64QAM	3	3	19.83	19.90	19.79		
1.4	64QAM	6	0	18.87	18.98	18.92	20	3

<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	22.56	22.78	22.63	24	0
10	QPSK	1	25	22.51	22.58	22.52		
10	QPSK	1	49	22.55	22.61	22.57		
10	QPSK	25	0	21.67	21.72	21.71	23	1
10	QPSK	25	12	21.66	21.63	21.66		
10	QPSK	25	25	21.60	21.68	21.70		
10	QPSK	50	0	21.60	21.75	21.74		
10	16QAM	1	0	21.75	21.98	21.92	23	1
10	16QAM	1	25	21.72	21.98	21.81		
10	16QAM	1	49	21.75	21.95	21.81		
10	16QAM	25	0	20.58	20.71	20.70	22	2
10	16QAM	25	12	20.69	20.72	20.68		
10	16QAM	25	25	20.60	20.74	20.66		
10	16QAM	50	0	20.62	20.70	20.77		
10	64QAM	1	0	20.86	20.57	20.80	22	2
10	64QAM	1	25	20.85	20.71	20.72		
10	64QAM	1	49	20.88	20.69	20.71		
10	64QAM	25	0	19.62	19.75	19.69	21	3
10	64QAM	25	12	19.72	19.76	19.68		
10	64QAM	25	25	19.65	19.77	19.69		
10	64QAM	50	0	19.63	19.67	19.74		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.60	22.66	22.59	24	0
5	QPSK	1	12	22.53	22.59	22.67		
5	QPSK	1	24	22.64	22.64	22.60		
5	QPSK	12	0	21.65	21.67	21.74	23	1
5	QPSK	12	7	21.64	21.72	21.70		
5	QPSK	12	13	21.68	21.62	21.65		
5	QPSK	25	0	21.59	21.62	21.77		
5	16QAM	1	0	21.56	21.81	21.88	23	1
5	16QAM	1	12	21.48	21.80	21.81		
5	16QAM	1	24	21.53	21.89	21.84		
5	16QAM	12	0	20.63	20.71	20.71	22	2
5	16QAM	12	7	20.60	20.69	20.68		
5	16QAM	12	13	20.63	20.65	20.66		
5	16QAM	25	0	20.64	20.63	20.78		
5	64QAM	1	0	20.66	20.94	20.54	22	2
5	64QAM	1	12	20.58	20.91	20.55		
5	64QAM	1	24	20.63	20.94	20.52		
5	64QAM	12	0	19.60	19.72	19.80	21	3
5	64QAM	12	7	19.61	19.70	19.80		
5	64QAM	12	13	19.67	19.66	19.76		
5	64QAM	25	0	19.61	19.71	19.80		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.50	22.61	22.74	24	0
3	QPSK	1	8	22.47	22.62	22.70		
3	QPSK	1	14	22.46	22.56	22.62		
3	QPSK	8	0	21.53	21.63	21.66	23	1
3	QPSK	8	4	21.60	21.65	21.69		
3	QPSK	8	7	21.56	21.60	21.65		
3	QPSK	15	0	21.56	21.59	21.67		
3	16QAM	1	0	21.84	21.98	21.57	23	1
3	16QAM	1	8	21.87	21.95	21.53		
3	16QAM	1	14	21.80	21.91	21.55		
3	16QAM	8	0	20.64	20.71	20.76	22	2
3	16QAM	8	4	20.64	20.74	20.78		
3	16QAM	8	7	20.59	20.73	20.79		
3	16QAM	15	0	20.53	20.76	20.72		
3	64QAM	1	0	20.91	20.89	20.90	22	2
3	64QAM	1	8	20.88	20.87	20.85		
3	64QAM	1	14	20.84	20.85	20.66		
3	64QAM	8	0	19.67	19.82	19.74	21	3
3	64QAM	8	4	19.65	19.82	19.78		
3	64QAM	8	7	19.61	19.79	19.72		
3	64QAM	15	0	19.63	19.59	19.69		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.49	22.48	22.54	24	0
1.4	QPSK	1	3	22.57	22.56	22.59		
1.4	QPSK	1	5	22.46	22.47	22.53		
1.4	QPSK	3	0	22.49	22.58	22.58		
1.4	QPSK	3	1	22.53	22.61	22.68		
1.4	QPSK	3	3	22.45	22.55	22.60		
1.4	QPSK	6	0	21.48	21.55	21.61	23	1
1.4	16QAM	1	0	21.93	21.64	21.63	23	1
1.4	16QAM	1	3	21.85	21.64	21.68		
1.4	16QAM	1	5	21.94	21.46	21.61		
1.4	16QAM	3	0	21.52	21.62	21.48		
1.4	16QAM	3	1	21.55	21.65	21.55		
1.4	16QAM	3	3	21.49	21.58	21.54		
1.4	16QAM	6	0	20.53	20.47	20.68	22	2
1.4	64QAM	1	0	20.64	20.86	20.80	22	2
1.4	64QAM	1	3	20.70	20.90	20.87		
1.4	64QAM	1	5	20.66	20.83	20.80		
1.4	64QAM	3	0	20.68	20.77	20.67		
1.4	64QAM	3	1	20.68	20.83	20.71		
1.4	64QAM	3	3	20.61	20.78	20.69		
1.4	64QAM	6	0	19.51	19.54	19.71	21	3

<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	21.52	22.25	21.82	23.5	0
20	QPSK	1	49	22.25	22.48	22.09		
20	QPSK	1	99	22.00	22.27	21.50		
20	QPSK	50	0	21.34	21.50	21.49	22.5	1
20	QPSK	50	24	21.29	21.49	21.43		
20	QPSK	50	50	21.32	21.45	21.37		
20	QPSK	100	0	21.33	21.49	21.48		
20	16QAM	1	0	20.50	21.02	21.08	22.5	1
20	16QAM	1	49	21.35	21.47	21.46		
20	16QAM	1	99	21.26	21.43	21.13		
20	16QAM	50	0	20.35	20.47	20.48	21.5	2
20	16QAM	50	24	20.33	20.45	20.41		
20	16QAM	50	50	20.28	20.45	20.37		
20	16QAM	100	0	20.29	20.46	20.49		
20	64QAM	1	0	19.75	20.45	20.48	21.5	2
20	64QAM	1	49	20.50	20.49	20.41		
20	64QAM	1	99	20.50	20.44	20.25		
20	64QAM	50	0	19.38	19.48	19.42	20.5	3
20	64QAM	50	24	19.37	19.41	19.41		
20	64QAM	50	50	19.35	19.47	19.39		
20	64QAM	100	0	19.36	19.47	19.47		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.50	22.43	21.92	23.5	0
15	QPSK	1	37	22.19	22.41	22.18		
15	QPSK	1	74	22.15	22.35	21.67		
15	QPSK	36	0	21.31	21.34	21.48	22.5	1
15	QPSK	36	20	21.34	21.40	21.39		
15	QPSK	36	39	21.29	21.37	21.39		
15	QPSK	75	0	21.31	21.36	21.39		
15	16QAM	1	0	20.84	21.49	20.97	22.5	1
15	16QAM	1	37	21.48	21.32	21.22		
15	16QAM	1	74	21.47	21.31	20.86		
15	16QAM	36	0	20.36	20.49	20.50	21.5	2
15	16QAM	36	20	20.34	20.49	20.43		
15	16QAM	36	39	20.27	20.46	20.40		
15	16QAM	75	0	20.31	20.42	20.39		
15	64QAM	1	0	20.05	20.46	20.34	21.5	2
15	64QAM	1	37	20.41	20.40	20.35		
15	64QAM	1	74	20.48	20.45	20.25		
15	64QAM	36	0	19.37	19.48	19.41	20.5	3
15	64QAM	36	20	19.35	19.40	19.43		
15	64QAM	36	39	19.34	19.48	19.39		
15	64QAM	75	0	19.36	19.43	19.41		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.50	22.44	21.99	23.5	0
10	QPSK	1	25	22.06	22.41	22.13		
10	QPSK	1	49	22.10	22.44	21.69		
10	QPSK	25	0	21.26	21.43	21.41	22.5	1
10	QPSK	25	12	21.29	21.46	21.38		
10	QPSK	25	25	21.26	21.47	21.37		
10	QPSK	50	0	21.28	21.46	21.38		
10	16QAM	1	0	21.01	21.42	21.48	22.5	1
10	16QAM	1	25	21.39	21.41	21.41		
10	16QAM	1	49	21.39	21.42	21.26		
10	16QAM	25	0	20.33	20.48	20.33	21.5	2
10	16QAM	25	12	20.35	20.40	20.35		
10	16QAM	25	25	20.30	20.41	20.32		
10	16QAM	50	0	20.33	20.43	20.35		
10	64QAM	1	0	19.61	20.41	20.40	21.5	2
10	64QAM	1	25	20.11	20.43	20.30		
10	64QAM	1	49	20.09	20.43	20.42		
10	64QAM	25	0	19.34	19.41	19.42	20.5	3
10	64QAM	25	12	19.36	19.44	19.46		
10	64QAM	25	25	19.31	19.41	19.40		
10	64QAM	50	0	19.35	19.47	19.37		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.62	22.45	22.16	23.5	0
5	QPSK	1	12	21.95	22.41	22.07		
5	QPSK	1	24	22.05	22.41	21.79		
5	QPSK	12	0	21.26	21.44	21.41	22.5	1
5	QPSK	12	7	21.29	21.45	21.40		
5	QPSK	12	13	21.26	21.41	21.36		
5	QPSK	25	0	21.29	21.41	21.41		
5	16QAM	1	0	20.79	21.43	21.43	22.5	1
5	16QAM	1	12	21.14	21.50	21.47		
5	16QAM	1	24	21.20	21.43	21.46		
5	16QAM	12	0	20.31	20.50	20.43	21.5	2
5	16QAM	12	7	20.34	20.46	20.45		
5	16QAM	12	13	20.29	20.41	20.42		
5	16QAM	25	0	20.27	20.43	20.38		
5	64QAM	1	0	20.14	20.49	20.41	21.5	2
5	64QAM	1	12	20.45	20.39	20.39		
5	64QAM	1	24	20.45	20.39	20.36		
5	64QAM	12	0	19.40	19.41	19.41	20.5	3
5	64QAM	12	7	19.41	19.45	19.44		
5	64QAM	12	13	19.38	19.42	19.42		
5	64QAM	25	0	19.23	19.50	19.44		

<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	22.55	22.59	22.49	24	0
10	QPSK	1	25	22.54	22.58	22.48		
10	QPSK	1	49	22.50	22.53	22.43		
10	QPSK	25	0	21.57	21.58	21.53	23	1
10	QPSK	25	12	21.52	21.56	21.53		
10	QPSK	25	25	21.55	21.53	21.51		
10	QPSK	50	0	21.57	21.58	21.48		
10	16QAM	1	0	21.74	21.57	21.58	23	1
10	16QAM	1	25	21.85	21.62	21.52		
10	16QAM	1	49	21.95	21.63	21.55		
10	16QAM	25	0	20.46	20.52	20.53	22	2
10	16QAM	25	12	20.49	20.63	20.54		
10	16QAM	25	25	20.53	20.59	20.50		
10	16QAM	50	0	20.59	20.59	20.50		
10	64QAM	1	0	20.51	20.77	20.55	22	2
10	64QAM	1	25	20.64	20.86	20.54		
10	64QAM	1	49	20.67	20.82	20.56		
10	64QAM	25	0	19.52	19.44	19.49	21	3
10	64QAM	25	12	19.50	19.55	19.52		
10	64QAM	25	25	19.55	19.50	19.46		
10	64QAM	50	0	19.56	19.58	19.53		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.35	22.40	22.50	24	0
5	QPSK	1	12	22.45	22.49	22.48		
5	QPSK	1	24	22.41	22.58	22.47		
5	QPSK	12	0	21.48	21.58	21.49	23	1
5	QPSK	12	7	21.59	21.59	21.54		
5	QPSK	12	13	21.52	21.56	21.49		
5	QPSK	25	0	21.56	21.56	21.51		
5	16QAM	1	0	21.55	21.81	21.61	23	1
5	16QAM	1	12	21.72	21.89	21.61		
5	16QAM	1	24	21.70	21.84	21.59		
5	16QAM	12	0	20.41	20.61	20.55	22	2
5	16QAM	12	7	20.49	20.58	20.59		
5	16QAM	12	13	20.45	20.54	20.54		
5	16QAM	25	0	20.52	20.55	20.55		
5	64QAM	1	0	20.53	20.74	20.78	22	2
5	64QAM	1	12	20.59	20.72	20.74		
5	64QAM	1	24	20.57	20.72	20.77		
5	64QAM	12	0	19.46	19.59	19.64	21	3
5	64QAM	12	7	19.59	19.60	19.66		
5	64QAM	12	13	19.53	19.58	19.63		
5	64QAM	25	0	19.53	19.58	19.46		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.40	22.49	22.44	24	0
3	QPSK	1	8	22.34	22.45	22.44		
3	QPSK	1	14	22.46	22.46	22.41		
3	QPSK	8	0	21.44	21.55	21.46	23	1
3	QPSK	8	4	21.42	21.54	21.48		
3	QPSK	8	7	21.42	21.49	21.50		
3	QPSK	15	0	21.37	21.51	21.48		
3	16QAM	1	0	21.48	21.95	21.63	23	1
3	16QAM	1	8	21.53	21.96	21.67		
3	16QAM	1	14	21.65	21.88	21.65		
3	16QAM	8	0	20.46	20.58	20.53	22	2
3	16QAM	8	4	20.52	20.55	20.58		
3	16QAM	8	7	20.45	20.54	20.52		
3	16QAM	15	0	20.42	20.59	20.48		
3	64QAM	1	0	20.62	20.37	20.55	22	2
3	64QAM	1	8	20.62	20.38	20.55		
3	64QAM	1	14	20.73	20.40	20.53		
3	64QAM	8	0	19.48	19.64	19.48	21	3
3	64QAM	8	4	19.48	19.65	19.51		
3	64QAM	8	7	19.48	19.63	19.48		
3	64QAM	15	0	19.46	19.56	19.42		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.29	22.40	22.36	24	0
1.4	QPSK	1	3	22.34	22.51	22.41		
1.4	QPSK	1	5	22.25	22.40	22.37		
1.4	QPSK	3	0	22.36	22.44	22.45		
1.4	QPSK	3	1	22.43	22.50	22.48		
1.4	QPSK	3	3	22.37	22.47	22.39		
1.4	QPSK	6	0	21.36	21.44	21.36	23	1
1.4	16QAM	1	0	21.73	21.85	21.62	23	1
1.4	16QAM	1	3	21.83	21.69	21.64		
1.4	16QAM	1	5	21.72	21.56	21.60		
1.4	16QAM	3	0	21.40	21.50	21.46		
1.4	16QAM	3	1	21.43	21.54	21.48		
1.4	16QAM	3	3	21.39	21.49	21.39		
1.4	16QAM	6	0	20.50	20.49	20.51	22	2
1.4	64QAM	1	0	20.64	20.54	20.72	22	2
1.4	64QAM	1	3	20.63	20.59	20.74		
1.4	64QAM	1	5	20.48	20.58	20.70		
1.4	64QAM	3	0	20.45	20.66	20.58		
1.4	64QAM	3	1	20.49	20.71	20.61		
1.4	64QAM	3	3	20.46	20.65	20.56		
1.4	64QAM	6	0	19.34	19.40	19.37	21	3

<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	22.45	22.49	22.39	24	0
10	QPSK	1	25	22.44	22.47	22.39		
10	QPSK	1	49	22.40	22.44	22.36		
10	QPSK	25	0	21.54	21.50	21.49	23	1
10	QPSK	25	12	21.51	21.49	21.52		
10	QPSK	25	25	21.53	21.49	21.51		
10	QPSK	50	0	21.50	21.52	21.49		
10	16QAM	1	0	21.69	21.86	21.67	23	1
10	16QAM	1	25	21.90	21.92	21.65		
10	16QAM	1	49	21.95	21.92	21.68		
10	16QAM	25	0	20.54	20.53	20.48	22	2
10	16QAM	25	12	20.55	20.58	20.48		
10	16QAM	25	25	20.52	20.50	20.44		
10	16QAM	50	0	20.52	20.54	20.50		
10	64QAM	1	0	20.69	20.46	20.61	22	2
10	64QAM	1	25	20.81	20.58	20.77		
10	64QAM	1	49	20.72	20.55	20.77		
10	64QAM	25	0	19.59	19.58	19.49	21	3
10	64QAM	25	12	19.58	19.61	19.52		
10	64QAM	25	25	19.56	19.54	19.46		
10	64QAM	50	0	19.56	19.54	19.48		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.39	22.48	22.43	24	0
5	QPSK	1	12	22.47	22.43	22.41		
5	QPSK	1	24	22.42	22.41	22.41		
5	QPSK	12	0	21.44	21.52	21.46	23	1
5	QPSK	12	7	21.55	21.53	21.46		
5	QPSK	12	13	21.56	21.45	21.45		
5	QPSK	25	0	21.53	21.50	21.48		
5	16QAM	1	0	21.37	21.66	21.92	23	1
5	16QAM	1	12	21.48	21.63	21.98		
5	16QAM	1	24	21.45	21.63	21.97		
5	16QAM	12	0	20.48	20.50	20.44	22	2
5	16QAM	12	7	20.59	20.54	20.44		
5	16QAM	12	13	20.51	20.50	20.44		
5	16QAM	25	0	20.55	20.44	20.51		
5	64QAM	1	0	20.47	20.80	20.36	22	2
5	64QAM	1	12	20.54	20.76	20.26		
5	64QAM	1	24	20.54	20.77	20.29		
5	64QAM	12	0	19.41	19.52	19.52	21	3
5	64QAM	12	7	19.54	19.56	19.54		
5	64QAM	12	13	19.51	19.52	19.52		
5	64QAM	25	0	19.55	19.54	19.52		

<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	22.62	22.69	22.67	24	0
15	QPSK	1	37	22.60	22.51	22.65		
15	QPSK	1	74	22.50	22.56	22.49		
15	QPSK	36	0	21.63	21.70	21.67	23	1
15	QPSK	36	20	21.62	21.66	21.58		
15	QPSK	36	39	21.53	21.65	21.63		
15	QPSK	75	0	21.63	21.73	21.68		
15	16QAM	1	0	21.92	21.82	21.97	23	1
15	16QAM	1	37	21.85	21.77	21.92		
15	16QAM	1	74	21.95	21.77	21.98		
15	16QAM	36	0	20.66	20.65	20.67	22	2
15	16QAM	36	20	20.74	20.63	20.64		
15	16QAM	36	39	20.60	20.60	20.62		
15	16QAM	75	0	20.68	20.65	20.71		
15	64QAM	1	0	20.70	20.72	20.75	22	2
15	64QAM	1	37	20.74	20.70	20.78		
15	64QAM	1	74	20.61	20.76	20.68		
15	64QAM	36	0	19.59	19.72	19.70	21	3
15	64QAM	36	20	19.65	19.67	19.62		
15	64QAM	36	39	19.57	19.66	19.69		
15	64QAM	75	0	19.65	19.62	19.69		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.57	22.60	24	0
10	QPSK	1	25	22.67	22.61	22.59		
10	QPSK	1	49	22.56	22.60	22.49		
10	QPSK	25	0	21.59	21.65	21.57	23	1
10	QPSK	25	12	21.64	21.63	21.67		
10	QPSK	25	25	21.60	21.57	21.61		
10	QPSK	50	0	21.61	21.58	21.62		
10	16QAM	1	0	22.00	21.63	21.70	23	1
10	16QAM	1	25	21.89	21.64	21.69		
10	16QAM	1	49	21.97	21.66	21.60		
10	16QAM	25	0	20.54	20.65	20.60	22	2
10	16QAM	25	12	20.63	20.66	20.70		
10	16QAM	25	25	20.54	20.52	20.60		
10	16QAM	50	0	20.65	20.63	20.64		
10	64QAM	1	0	20.74	20.80	20.84	22	2
10	64QAM	1	25	20.80	20.79	20.86		
10	64QAM	1	49	20.67	20.90	20.75		
10	64QAM	25	0	19.57	19.60	19.58	21	3
10	64QAM	25	12	19.69	19.57	19.68		
10	64QAM	25	25	19.59	19.52	19.57		
10	64QAM	50	0	19.65	19.65	19.69		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.51	22.56	22.66	24	0
5	QPSK	1	12	22.46	22.59	22.57		
5	QPSK	1	24	22.54	22.54	22.53		
5	QPSK	12	0	21.64	21.62	21.63	23	1
5	QPSK	12	7	21.58	21.60	21.62		
5	QPSK	12	13	21.57	21.59	21.57		
5	QPSK	25	0	21.59	21.61	21.63		
5	16QAM	1	0	21.75	21.87	21.75	23	1
5	16QAM	1	12	21.73	21.85	21.71		
5	16QAM	1	24	21.83	21.83	21.69		
5	16QAM	12	0	20.54	20.60	20.68	22	2
5	16QAM	12	7	20.56	20.59	20.66		
5	16QAM	12	13	20.49	20.56	20.61		
5	16QAM	25	0	20.58	20.58	20.71		
5	64QAM	1	0	20.69	20.77	20.91	22	2
5	64QAM	1	12	20.63	20.67	20.83		
5	64QAM	1	24	20.69	20.66	20.83		
5	64QAM	12	0	19.61	19.65	19.76	21	3
5	64QAM	12	7	19.62	19.66	19.76		
5	64QAM	12	13	19.56	19.64	19.71		
5	64QAM	25	0	19.60	19.63	19.58		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.48	22.55	22.68	24	0
3	QPSK	1	8	22.44	22.54	22.60		
3	QPSK	1	14	22.47	22.51	22.50		
3	QPSK	8	0	21.56	21.58	21.58	23	1
3	QPSK	8	4	21.58	21.59	21.61		
3	QPSK	8	7	21.54	21.59	21.55		
3	QPSK	15	0	21.55	21.59	21.55		
3	16QAM	1	0	21.87	21.98	21.49	23	1
3	16QAM	1	8	21.89	21.97	21.45		
3	16QAM	1	14	21.85	21.87	21.47		
3	16QAM	8	0	20.64	20.68	20.67	22	2
3	16QAM	8	4	20.67	20.72	20.70		
3	16QAM	8	7	20.61	20.70	20.69		
3	16QAM	15	0	20.49	20.70	20.62		
3	64QAM	1	0	20.87	20.79	20.75	22	2
3	64QAM	1	8	20.90	20.77	20.58		
3	64QAM	1	14	20.89	20.74	20.56		
3	64QAM	8	0	19.63	19.77	19.65	21	3
3	64QAM	8	4	19.69	19.79	19.66		
3	64QAM	8	7	19.58	19.76	19.63		
3	64QAM	15	0	19.61	19.56	19.61		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.46	22.41	22.46	24	0
1.4	QPSK	1	3	22.54	22.48	22.53		
1.4	QPSK	1	5	22.43	22.38	22.45		
1.4	QPSK	3	0	22.45	22.47	22.51		
1.4	QPSK	3	1	22.50	22.50	22.59		
1.4	QPSK	3	3	22.48	22.48	22.52		
1.4	QPSK	6	0	21.52	21.51	21.53	23	1
1.4	16QAM	1	0	21.93	21.44	21.51	23	1
1.4	16QAM	1	3	21.99	21.39	21.58		
1.4	16QAM	1	5	21.92	21.31	21.50		
1.4	16QAM	3	0	21.50	21.55	21.40		
1.4	16QAM	3	1	21.55	21.57	21.50		
1.4	16QAM	3	3	21.52	21.51	21.57		
1.4	16QAM	6	0	20.54	20.46	20.58	22	2
1.4	64QAM	1	0	20.65	20.77	20.76	22	2
1.4	64QAM	1	3	20.72	20.81	20.79		
1.4	64QAM	1	5	20.70	20.73	20.70		
1.4	64QAM	3	0	20.65	20.69	20.61		
1.4	64QAM	3	1	20.66	20.73	20.63		
1.4	64QAM	3	3	20.63	20.68	20.57		
1.4	64QAM	6	0	19.51	19.49	19.62	21	3

<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	22.52			24	0
10	QPSK	1	25	22.40				
10	QPSK	1	49	22.36				
10	QPSK	25	0	21.53			23	1
10	QPSK	25	12	21.49				
10	QPSK	25	25	21.50				
10	QPSK	50	0	21.49				
10	16QAM	1	0	21.73			23	1
10	16QAM	1	25	21.65				
10	16QAM	1	49	21.62				
10	16QAM	25	0	20.53			22	2
10	16QAM	25	12	20.49				
10	16QAM	25	25	20.46				
10	16QAM	50	0	20.56				
10	64QAM	1	0	20.61			22	2
10	64QAM	1	25	20.54				
10	64QAM	1	49	20.52				
10	64QAM	25	0	19.52			21	3
10	64QAM	25	12	19.53				
10	64QAM	25	25	19.44				
10	64QAM	50	0	19.49				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	22.49	22.49	22.51	24	0
5	QPSK	1	12	22.47	22.44	22.42		
5	QPSK	1	24	22.41	22.46	22.44		
5	QPSK	12	0	21.50	21.51	21.52	23	1
5	QPSK	12	7	21.50	21.48	21.49		
5	QPSK	12	13	21.45	21.46	21.46		
5	QPSK	25	0	21.46	21.46	21.47		
5	16QAM	1	0	21.84	21.42	21.63	23	1
5	16QAM	1	12	21.59	21.40	21.58		
5	16QAM	1	24	21.55	21.38	21.56		
5	16QAM	12	0	20.58	20.53	20.49	22	2
5	16QAM	12	7	20.56	20.52	20.53		
5	16QAM	12	13	20.52	20.47	20.46		
5	16QAM	25	0	20.54	20.50	20.42		
5	64QAM	1	0	20.75	20.54	20.76	22	2
5	64QAM	1	12	20.66	20.46	20.69		
5	64QAM	1	24	20.68	20.46	20.70		
5	64QAM	12	0	19.61	19.48	19.51	21	3
5	64QAM	12	7	19.58	19.49	19.53		
5	64QAM	12	13	19.58	19.44	19.48		
5	64QAM	25	0	19.48	19.48	19.54		

<Head mode for WWAN UAT>

<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	21.33	21.39	21.37	22.5	0
10	QPSK	1	25	21.29	21.32	21.26		
10	QPSK	1	49	21.27	21.28	21.27		
10	QPSK	25	0	20.27	20.39	20.33	21.5	1
10	QPSK	25	12	20.35	20.34	20.34		
10	QPSK	25	25	20.31	20.37	20.35		
10	QPSK	50	0	20.33	20.33	20.44		
10	16QAM	1	0	20.58	20.53	20.67	21.5	1
10	16QAM	1	25	20.53	20.54	20.49		
10	16QAM	1	49	20.57	20.59	20.47		
10	16QAM	25	0	19.32	19.39	19.36	20.5	2
10	16QAM	25	12	19.36	19.37	19.35		
10	16QAM	25	25	19.29	19.39	19.32		
10	16QAM	50	0	19.34	19.31	19.43		
10	64QAM	1	0	19.47	19.46	19.55	20.5	2
10	64QAM	1	25	19.47	19.33	19.71		
10	64QAM	1	49	19.32	19.48	19.43		
10	64QAM	25	0	18.31	18.40	18.42	19.5	3
10	64QAM	25	12	18.38	18.37	18.38		
10	64QAM	25	25	18.32	18.40	18.38		
10	64QAM	50	0	18.38	18.36	18.44		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.31	21.38	21.33	22.5	0
5	QPSK	1	12	21.25	21.29	21.34		
5	QPSK	1	24	21.32	21.31	21.26		
5	QPSK	12	0	20.31	20.36	20.39	21.5	1
5	QPSK	12	7	20.30	20.32	20.39		
5	QPSK	12	13	20.33	20.30	20.36		
5	QPSK	25	0	20.28	20.30	20.36		
5	16QAM	1	0	20.60	20.60	20.50	21.5	1
5	16QAM	1	12	20.48	20.62	20.56		
5	16QAM	1	24	20.55	20.67	20.56		
5	16QAM	12	0	19.36	19.38	19.37	20.5	2
5	16QAM	12	7	19.33	19.33	19.39		
5	16QAM	12	13	19.29	19.28	19.32		
5	16QAM	25	0	19.28	19.36	19.38		
5	64QAM	1	0	19.53	19.54	19.47	20.5	2
5	64QAM	1	12	19.44	19.50	19.47		
5	64QAM	1	24	19.45	19.55	19.07		
5	64QAM	12	0	18.35	18.37	18.42	19.5	3
5	64QAM	12	7	18.38	18.40	18.45		
5	64QAM	12	13	18.39	18.33	18.37		
5	64QAM	25	0	18.30	18.33	18.39		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.28	21.35	21.37	22.5	0
3	QPSK	1	8	21.26	21.28	21.31		
3	QPSK	1	14	21.23	21.23	21.29		
3	QPSK	8	0	20.30	20.34	20.36	21.5	1
3	QPSK	8	4	20.29	20.33	20.36		
3	QPSK	8	7	20.26	20.29	20.35		
3	QPSK	15	0	20.24	20.33	20.32		
3	16QAM	1	0	20.49	20.54	20.60	21.5	1
3	16QAM	1	8	20.56	20.59	20.56		
3	16QAM	1	14	20.46	20.55	20.53		
3	16QAM	8	0	19.37	19.38	19.42	20.5	2
3	16QAM	8	4	19.38	19.40	19.40		
3	16QAM	8	7	19.33	19.32	19.42		
3	16QAM	15	0	19.28	19.30	19.30		
3	64QAM	1	0	19.46	19.58	19.51	20.5	2
3	64QAM	1	8	19.44	19.49	19.46		
3	64QAM	1	14	19.52	19.38	19.20		
3	64QAM	8	0	18.37	18.37	18.39	19.5	3
3	64QAM	8	4	18.36	18.36	18.41		
3	64QAM	8	7	18.29	18.33	18.36		
3	64QAM	15	0	18.31	18.34	18.36		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.20	21.33	21.23	22.5	0
1.4	QPSK	1	3	21.28	21.31	21.27		
1.4	QPSK	1	5	21.19	21.29	21.20		
1.4	QPSK	3	0	21.23	21.38	21.24		
1.4	QPSK	3	1	21.30	21.35	21.34		
1.4	QPSK	3	3	21.21	21.28	21.26		
1.4	QPSK	6	0	20.21	20.21	20.25	21.5	1
1.4	16QAM	1	0	20.50	20.45	20.51	21.5	1
1.4	16QAM	1	3	20.56	20.57	20.61		
1.4	16QAM	1	5	20.39	20.43	20.50		
1.4	16QAM	3	0	20.27	20.26	20.27		
1.4	16QAM	3	1	20.31	20.30	20.35		
1.4	16QAM	3	3	20.23	20.21	20.23		
1.4	16QAM	6	0	19.30	19.34	19.31	20.5	2
1.4	64QAM	1	0	20.38	20.31	20.39	20.5	2
1.4	64QAM	1	3	20.44	20.43	20.39		
1.4	64QAM	1	5	20.33	20.31	20.40		
1.4	64QAM	3	0	20.27	20.28	20.29		
1.4	64QAM	3	1	20.33	20.33	20.36		
1.4	64QAM	3	3	20.26	20.28	20.29		
1.4	64QAM	6	0	19.20	19.25	19.20	19.5	3

<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	22.55	22.59	22.49	24	0
10	QPSK	1	25	22.54	22.58	22.48		
10	QPSK	1	49	22.50	22.53	22.43		
10	QPSK	25	0	21.57	21.58	21.53	23	1
10	QPSK	25	12	21.52	21.56	21.53		
10	QPSK	25	25	21.55	21.53	21.51		
10	QPSK	50	0	21.57	21.58	21.48		
10	16QAM	1	0	21.74	21.57	21.58	23	1
10	16QAM	1	25	21.85	21.62	21.52		
10	16QAM	1	49	21.95	21.63	21.55		
10	16QAM	25	0	20.46	20.52	20.53	22	2
10	16QAM	25	12	20.49	20.63	20.54		
10	16QAM	25	25	20.53	20.59	20.50		
10	16QAM	50	0	20.59	20.59	20.50		
10	64QAM	1	0	20.51	20.77	20.55	22	2
10	64QAM	1	25	20.64	20.86	20.54		
10	64QAM	1	49	20.67	20.82	20.56		
10	64QAM	25	0	19.52	19.44	19.49	21	3
10	64QAM	25	12	19.50	19.55	19.52		
10	64QAM	25	25	19.55	19.50	19.46		
10	64QAM	50	0	19.56	19.58	19.53		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.35	22.40	22.50	24	0
5	QPSK	1	12	22.45	22.49	22.48		
5	QPSK	1	24	22.41	22.58	22.47		
5	QPSK	12	0	21.48	21.58	21.49	23	1
5	QPSK	12	7	21.59	21.59	21.54		
5	QPSK	12	13	21.52	21.56	21.49		
5	QPSK	25	0	21.56	21.56	21.51		
5	16QAM	1	0	21.55	21.81	21.61	23	1
5	16QAM	1	12	21.72	21.89	21.61		
5	16QAM	1	24	21.70	21.84	21.59		
5	16QAM	12	0	20.41	20.61	20.55	22	2
5	16QAM	12	7	20.49	20.58	20.59		
5	16QAM	12	13	20.45	20.54	20.54		
5	16QAM	25	0	20.52	20.55	20.55		
5	64QAM	1	0	20.53	20.74	20.78	22	2
5	64QAM	1	12	20.59	20.72	20.74		
5	64QAM	1	24	20.57	20.72	20.77		
5	64QAM	12	0	19.46	19.59	19.64	21	3
5	64QAM	12	7	19.59	19.60	19.66		
5	64QAM	12	13	19.53	19.58	19.63		
5	64QAM	25	0	19.53	19.58	19.46		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.40	22.49	22.44	24	0
3	QPSK	1	8	22.34	22.45	22.44		
3	QPSK	1	14	22.46	22.46	22.41		
3	QPSK	8	0	21.44	21.55	21.46	23	1
3	QPSK	8	4	21.42	21.54	21.48		
3	QPSK	8	7	21.42	21.49	21.50		
3	QPSK	15	0	21.37	21.51	21.48		
3	16QAM	1	0	21.48	21.95	21.63	23	1
3	16QAM	1	8	21.53	21.96	21.67		
3	16QAM	1	14	21.65	21.88	21.65		
3	16QAM	8	0	20.46	20.58	20.53	22	2
3	16QAM	8	4	20.52	20.55	20.58		
3	16QAM	8	7	20.45	20.54	20.52		
3	16QAM	15	0	20.42	20.59	20.48		
3	64QAM	1	0	20.62	20.37	20.55	22	2
3	64QAM	1	8	20.62	20.38	20.55		
3	64QAM	1	14	20.73	20.40	20.53		
3	64QAM	8	0	19.48	19.64	19.48	21	3
3	64QAM	8	4	19.48	19.65	19.51		
3	64QAM	8	7	19.48	19.63	19.48		
3	64QAM	15	0	19.46	19.56	19.42		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.29	22.40	22.36	24	0
1.4	QPSK	1	3	22.34	22.51	22.41		
1.4	QPSK	1	5	22.25	22.40	22.37		
1.4	QPSK	3	0	22.36	22.44	22.45		
1.4	QPSK	3	1	22.43	22.50	22.48		
1.4	QPSK	3	3	22.37	22.47	22.39		
1.4	QPSK	6	0	21.36	21.44	21.36	23	1
1.4	16QAM	1	0	21.73	21.85	21.62	23	1
1.4	16QAM	1	3	21.83	21.69	21.64		
1.4	16QAM	1	5	21.72	21.56	21.60		
1.4	16QAM	3	0	21.40	21.50	21.46		
1.4	16QAM	3	1	21.43	21.54	21.48		
1.4	16QAM	3	3	21.39	21.49	21.39		
1.4	16QAM	6	0	20.50	20.49	20.51	22	2
1.4	64QAM	1	0	20.64	20.54	20.72	22	2
1.4	64QAM	1	3	20.63	20.59	20.74		
1.4	64QAM	1	5	20.48	20.58	20.70		
1.4	64QAM	3	0	20.45	20.66	20.58		
1.4	64QAM	3	1	20.49	20.71	20.61		
1.4	64QAM	3	3	20.46	20.65	20.56		
1.4	64QAM	6	0	19.34	19.40	19.37	21	3

<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	22.45	22.49	22.39	24	0
10	QPSK	1	25	22.44	22.47	22.39		
10	QPSK	1	49	22.40	22.44	22.36		
10	QPSK	25	0	21.54	21.50	21.49	23	1
10	QPSK	25	12	21.51	21.49	21.52		
10	QPSK	25	25	21.53	21.49	21.51		
10	QPSK	50	0	21.50	21.52	21.49		
10	16QAM	1	0	21.69	21.86	21.67	23	1
10	16QAM	1	25	21.90	21.92	21.65		
10	16QAM	1	49	21.95	21.92	21.68		
10	16QAM	25	0	20.54	20.53	20.48	22	2
10	16QAM	25	12	20.55	20.58	20.48		
10	16QAM	25	25	20.52	20.50	20.44		
10	16QAM	50	0	20.52	20.54	20.50		
10	64QAM	1	0	20.69	20.46	20.61	22	2
10	64QAM	1	25	20.81	20.58	20.77		
10	64QAM	1	49	20.72	20.55	20.77		
10	64QAM	25	0	19.59	19.58	19.49	21	3
10	64QAM	25	12	19.58	19.61	19.52		
10	64QAM	25	25	19.56	19.54	19.46		
10	64QAM	50	0	19.56	19.54	19.48		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.39	22.48	22.43	24	0
5	QPSK	1	12	22.47	22.43	22.41		
5	QPSK	1	24	22.42	22.41	22.41		
5	QPSK	12	0	21.44	21.52	21.46	23	1
5	QPSK	12	7	21.55	21.53	21.46		
5	QPSK	12	13	21.56	21.45	21.45		
5	QPSK	25	0	21.53	21.50	21.48		
5	16QAM	1	0	21.37	21.66	21.92	23	1
5	16QAM	1	12	21.48	21.63	21.98		
5	16QAM	1	24	21.45	21.63	21.97		
5	16QAM	12	0	20.48	20.50	20.44	22	2
5	16QAM	12	7	20.59	20.54	20.44		
5	16QAM	12	13	20.51	20.50	20.44		
5	16QAM	25	0	20.55	20.44	20.51		
5	64QAM	1	0	20.47	20.80	20.36	22	2
5	64QAM	1	12	20.54	20.76	20.26		
5	64QAM	1	24	20.54	20.77	20.29		
5	64QAM	12	0	19.41	19.52	19.52	21	3
5	64QAM	12	7	19.54	19.56	19.54		
5	64QAM	12	13	19.51	19.52	19.52		
5	64QAM	25	0	19.55	19.54	19.52		

<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	21.35	21.36	21.30	22.5	0
15	QPSK	1	37	21.35	21.28	21.27		
15	QPSK	1	74	21.26	21.23	21.14		
15	QPSK	36	0	20.37	20.41	20.34	21.5	1
15	QPSK	36	20	20.39	20.40	20.31		
15	QPSK	36	39	20.27	20.38	20.28		
15	QPSK	75	0	20.36	20.40	20.39		
15	16QAM	1	0	20.63	20.61	20.50	21.5	1
15	16QAM	1	37	20.66	20.56	20.54		
15	16QAM	1	74	20.51	20.52	20.41		
15	16QAM	36	0	19.40	19.44	19.35	20.5	2
15	16QAM	36	20	19.43	19.39	19.32		
15	16QAM	36	39	19.32	19.38	19.30		
15	16QAM	75	0	19.36	19.35	19.41		
15	64QAM	1	0	19.50	19.55	19.47	20.5	2
15	64QAM	1	37	19.49	19.45	19.51		
15	64QAM	1	74	19.38	19.08	19.34		
15	64QAM	36	0	18.34	18.49	18.38	19.5	3
15	64QAM	36	20	18.40	18.46	18.32		
15	64QAM	36	39	18.29	18.41	18.34		
15	64QAM	75	0	18.38	18.37	18.41		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	21.34	21.30	21.29	22.5	0
10	QPSK	1	25	21.35	21.27	21.27		
10	QPSK	1	49	21.25	21.28	21.17		
10	QPSK	25	0	20.38	20.41	20.26	21.5	1
10	QPSK	25	12	20.39	20.38	20.36		
10	QPSK	25	25	20.29	20.31	20.34		
10	QPSK	50	0	20.37	20.37	20.34		
10	16QAM	1	0	20.61	20.54	20.58	21.5	1
10	16QAM	1	25	20.68	20.52	20.56		
10	16QAM	1	49	20.51	20.58	20.48		
10	16QAM	25	0	19.36	19.41	19.27	20.5	2
10	16QAM	25	12	19.44	19.37	19.37		
10	16QAM	25	25	19.34	19.30	19.32		
10	16QAM	50	0	19.42	19.38	19.37		
10	64QAM	1	0	19.52	19.46	19.49	20.5	2
10	64QAM	1	25	19.58	19.37	19.75		
10	64QAM	1	49	19.42	19.27	19.32		
10	64QAM	25	0	18.38	18.42	18.33	19.5	3
10	64QAM	25	12	18.46	18.43	18.40		
10	64QAM	25	25	18.36	18.33	18.32		
10	64QAM	50	0	18.43	18.40	18.38		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	21.33	21.34	21.34	22.5	0
5	QPSK	1	12	21.27	21.28	21.24		
5	QPSK	1	24	21.34	21.26	21.21		
5	QPSK	12	0	20.32	20.36	20.31	21.5	1
5	QPSK	12	7	20.36	20.34	20.29		
5	QPSK	12	13	20.28	20.29	20.22		
5	QPSK	25	0	20.34	20.35	20.30		
5	16QAM	1	0	20.60	20.58	20.58	21.5	1
5	16QAM	1	12	20.56	20.57	20.47		
5	16QAM	1	24	20.62	20.47	20.47		
5	16QAM	12	0	19.37	19.35	19.30	20.5	2
5	16QAM	12	7	19.34	19.34	19.30		
5	16QAM	12	13	19.33	19.29	19.24		
5	16QAM	25	0	19.33	19.32	19.29		
5	64QAM	1	0	19.55	19.48	19.55	20.5	2
5	64QAM	1	12	19.45	19.42	19.40		
5	64QAM	1	24	19.51	19.34	19.12		
5	64QAM	12	0	18.42	18.45	18.37	19.5	3
5	64QAM	12	7	18.40	18.41	18.38		
5	64QAM	12	13	18.39	18.38	18.29		
5	64QAM	25	0	18.35	18.39	18.32		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	21.31	21.29	21.29	22.5	0
3	QPSK	1	8	21.25	21.26	21.23		
3	QPSK	1	14	21.27	21.23	21.19		
3	QPSK	8	0	20.34	20.35	20.28	21.5	1
3	QPSK	8	4	20.37	20.38	20.32		
3	QPSK	8	7	20.29	20.34	20.27		
3	QPSK	15	0	20.32	20.32	20.31		
3	16QAM	1	0	20.53	20.58	20.51	21.5	1
3	16QAM	1	8	20.51	20.47	20.49		
3	16QAM	1	14	20.47	20.43	20.50		
3	16QAM	8	0	19.40	19.39	19.31	20.5	2
3	16QAM	8	4	19.38	19.40	19.34		
3	16QAM	8	7	19.37	19.38	19.33		
3	16QAM	15	0	19.33	19.34	19.27		
3	64QAM	1	0	19.50	19.46	19.38	20.5	2
3	64QAM	1	8	19.45	19.43	19.39		
3	64QAM	1	14	19.44	19.40	19.21		
3	64QAM	8	0	18.37	18.43	18.36	19.5	3
3	64QAM	8	4	18.40	18.40	18.34		
3	64QAM	8	7	18.37	18.41	18.32		
3	64QAM	15	0	18.34	18.37	18.31		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	21.23	21.19	21.13	22.5	0
1.4	QPSK	1	3	21.29	21.27	21.24		
1.4	QPSK	1	5	21.20	21.17	21.12		
1.4	QPSK	3	0	21.25	21.24	21.13		
1.4	QPSK	3	1	21.27	21.32	21.24		
1.4	QPSK	3	3	21.23	21.23	21.16		
1.4	QPSK	6	0	20.23	20.27	20.18	21.5	1
1.4	16QAM	1	0	20.50	20.44	20.38	21.5	1
1.4	16QAM	1	3	20.47	20.50	20.48		
1.4	16QAM	1	5	20.40	20.37	20.40		
1.4	16QAM	3	0	20.22	20.24	20.17		
1.4	16QAM	3	1	20.33	20.31	20.25		
1.4	16QAM	3	3	20.24	20.22	20.18		
1.4	16QAM	6	0	19.35	19.32	19.24	20.5	2
1.4	64QAM	1	0	20.35	20.26	20.30	20.5	2
1.4	64QAM	1	3	20.44	20.42	20.38		
1.4	64QAM	1	5	20.30	20.31	20.30		
1.4	64QAM	3	0	20.30	20.32	20.24		
1.4	64QAM	3	1	20.36	20.36	20.28		
1.4	64QAM	3	3	20.29	20.30	20.18		
1.4	64QAM	6	0	19.23	19.23	19.15	19.5	3

<Hotspot/Body-worn/Product Specific mode for WWAN UAT>

<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	22.56	22.78	22.63	24	0
10	QPSK	1	25	22.51	22.58	22.52		
10	QPSK	1	49	22.55	22.61	22.57		
10	QPSK	25	0	21.67	21.72	21.71	23	1
10	QPSK	25	12	21.66	21.63	21.66		
10	QPSK	25	25	21.60	21.68	21.70		
10	QPSK	50	0	21.60	21.75	21.74		
10	16QAM	1	0	21.75	21.98	21.92	23	1
10	16QAM	1	25	21.72	21.98	21.81		
10	16QAM	1	49	21.75	21.95	21.81		
10	16QAM	25	0	20.58	20.71	20.70	22	2
10	16QAM	25	12	20.69	20.72	20.68		
10	16QAM	25	25	20.60	20.74	20.66		
10	16QAM	50	0	20.62	20.70	20.77		
10	64QAM	1	0	20.86	20.57	20.80	22	2
10	64QAM	1	25	20.85	20.71	20.72		
10	64QAM	1	49	20.88	20.69	20.71		
10	64QAM	25	0	19.62	19.75	19.69	21	3
10	64QAM	25	12	19.72	19.76	19.68		
10	64QAM	25	25	19.65	19.77	19.69		
10	64QAM	50	0	19.63	19.67	19.74		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.60	22.66	22.59	24	0
5	QPSK	1	12	22.53	22.59	22.67		
5	QPSK	1	24	22.64	22.64	22.60		
5	QPSK	12	0	21.65	21.67	21.74	23	1
5	QPSK	12	7	21.64	21.72	21.70		
5	QPSK	12	13	21.68	21.62	21.65		
5	QPSK	25	0	21.59	21.62	21.77		
5	16QAM	1	0	21.56	21.81	21.88	23	1
5	16QAM	1	12	21.48	21.80	21.81		
5	16QAM	1	24	21.53	21.89	21.84		
5	16QAM	12	0	20.63	20.71	20.71	22	2
5	16QAM	12	7	20.60	20.69	20.68		
5	16QAM	12	13	20.63	20.65	20.66		
5	16QAM	25	0	20.64	20.63	20.78		
5	64QAM	1	0	20.66	20.94	20.54	22	2
5	64QAM	1	12	20.58	20.91	20.55		
5	64QAM	1	24	20.63	20.94	20.52		
5	64QAM	12	0	19.60	19.72	19.80	21	3
5	64QAM	12	7	19.61	19.70	19.80		
5	64QAM	12	13	19.67	19.66	19.76		
5	64QAM	25	0	19.61	19.71	19.80		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.50	22.61	22.74	24	0
3	QPSK	1	8	22.47	22.62	22.70		
3	QPSK	1	14	22.46	22.56	22.62		
3	QPSK	8	0	21.53	21.63	21.66	23	1
3	QPSK	8	4	21.60	21.65	21.69		
3	QPSK	8	7	21.56	21.60	21.65		
3	QPSK	15	0	21.56	21.59	21.67		
3	16QAM	1	0	21.84	21.98	21.57	23	1
3	16QAM	1	8	21.87	21.95	21.53		
3	16QAM	1	14	21.80	21.91	21.55		
3	16QAM	8	0	20.64	20.71	20.76	22	2
3	16QAM	8	4	20.64	20.74	20.78		
3	16QAM	8	7	20.59	20.73	20.79		
3	16QAM	15	0	20.53	20.76	20.72		
3	64QAM	1	0	20.91	20.89	20.90	22	2
3	64QAM	1	8	20.88	20.87	20.85		
3	64QAM	1	14	20.84	20.85	20.66		
3	64QAM	8	0	19.67	19.82	19.74	21	3
3	64QAM	8	4	19.65	19.82	19.78		
3	64QAM	8	7	19.61	19.79	19.72		
3	64QAM	15	0	19.63	19.59	19.69		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.49	22.48	22.54	24	0
1.4	QPSK	1	3	22.57	22.56	22.59		
1.4	QPSK	1	5	22.46	22.47	22.53		
1.4	QPSK	3	0	22.49	22.58	22.58		
1.4	QPSK	3	1	22.53	22.61	22.68		
1.4	QPSK	3	3	22.45	22.55	22.60		
1.4	QPSK	6	0	21.48	21.55	21.61	23	1
1.4	16QAM	1	0	21.93	21.64	21.63	23	1
1.4	16QAM	1	3	21.85	21.64	21.68		
1.4	16QAM	1	5	21.94	21.46	21.61		
1.4	16QAM	3	0	21.52	21.62	21.48		
1.4	16QAM	3	1	21.55	21.65	21.55		
1.4	16QAM	3	3	21.49	21.58	21.54		
1.4	16QAM	6	0	20.53	20.47	20.68	22	2
1.4	64QAM	1	0	20.64	20.86	20.80	22	2
1.4	64QAM	1	3	20.70	20.90	20.87		
1.4	64QAM	1	5	20.66	20.83	20.80		
1.4	64QAM	3	0	20.68	20.77	20.67		
1.4	64QAM	3	1	20.68	20.83	20.71		
1.4	64QAM	3	3	20.61	20.78	20.69		
1.4	64QAM	6	0	19.51	19.54	19.71	21	3

<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	22.55	22.59	22.49	24	0
10	QPSK	1	25	22.54	22.58	22.48		
10	QPSK	1	49	22.50	22.53	22.43		
10	QPSK	25	0	21.57	21.58	21.53	23	1
10	QPSK	25	12	21.52	21.56	21.53		
10	QPSK	25	25	21.55	21.53	21.51		
10	QPSK	50	0	21.57	21.58	21.48		
10	16QAM	1	0	21.74	21.57	21.58	23	1
10	16QAM	1	25	21.85	21.62	21.52		
10	16QAM	1	49	21.95	21.63	21.55		
10	16QAM	25	0	20.46	20.52	20.53	22	2
10	16QAM	25	12	20.49	20.63	20.54		
10	16QAM	25	25	20.53	20.59	20.50		
10	16QAM	50	0	20.59	20.59	20.50		
10	64QAM	1	0	20.51	20.77	20.55	22	2
10	64QAM	1	25	20.64	20.86	20.54		
10	64QAM	1	49	20.67	20.82	20.56		
10	64QAM	25	0	19.52	19.44	19.49	21	3
10	64QAM	25	12	19.50	19.55	19.52		
10	64QAM	25	25	19.55	19.50	19.46		
10	64QAM	50	0	19.56	19.58	19.53		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.35	22.40	22.50	24	0
5	QPSK	1	12	22.45	22.49	22.48		
5	QPSK	1	24	22.41	22.58	22.47		
5	QPSK	12	0	21.48	21.58	21.49	23	1
5	QPSK	12	7	21.59	21.59	21.54		
5	QPSK	12	13	21.52	21.56	21.49		
5	QPSK	25	0	21.56	21.56	21.51		
5	16QAM	1	0	21.55	21.81	21.61	23	1
5	16QAM	1	12	21.72	21.89	21.61		
5	16QAM	1	24	21.70	21.84	21.59		
5	16QAM	12	0	20.41	20.61	20.55	22	2
5	16QAM	12	7	20.49	20.58	20.59		
5	16QAM	12	13	20.45	20.54	20.54		
5	16QAM	25	0	20.52	20.55	20.55		
5	64QAM	1	0	20.53	20.74	20.78	22	2
5	64QAM	1	12	20.59	20.72	20.74		
5	64QAM	1	24	20.57	20.72	20.77		
5	64QAM	12	0	19.46	19.59	19.64	21	3
5	64QAM	12	7	19.59	19.60	19.66		
5	64QAM	12	13	19.53	19.58	19.63		
5	64QAM	25	0	19.53	19.58	19.46		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.40	22.49	22.44	24	0
3	QPSK	1	8	22.34	22.45	22.44		
3	QPSK	1	14	22.46	22.46	22.41		
3	QPSK	8	0	21.44	21.55	21.46	23	1
3	QPSK	8	4	21.42	21.54	21.48		
3	QPSK	8	7	21.42	21.49	21.50		
3	QPSK	15	0	21.37	21.51	21.48		
3	16QAM	1	0	21.48	21.95	21.63	23	1
3	16QAM	1	8	21.53	21.96	21.67		
3	16QAM	1	14	21.65	21.88	21.65		
3	16QAM	8	0	20.46	20.58	20.53	22	2
3	16QAM	8	4	20.52	20.55	20.58		
3	16QAM	8	7	20.45	20.54	20.52		
3	16QAM	15	0	20.42	20.59	20.48		
3	64QAM	1	0	20.62	20.37	20.55	22	2
3	64QAM	1	8	20.62	20.38	20.55		
3	64QAM	1	14	20.73	20.40	20.53		
3	64QAM	8	0	19.48	19.64	19.48	21	3
3	64QAM	8	4	19.48	19.65	19.51		
3	64QAM	8	7	19.48	19.63	19.48		
3	64QAM	15	0	19.46	19.56	19.42		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.29	22.40	22.36	24	0
1.4	QPSK	1	3	22.34	22.51	22.41		
1.4	QPSK	1	5	22.25	22.40	22.37		
1.4	QPSK	3	0	22.36	22.44	22.45		
1.4	QPSK	3	1	22.43	22.50	22.48		
1.4	QPSK	3	3	22.37	22.47	22.39		
1.4	QPSK	6	0	21.36	21.44	21.36	23	1
1.4	16QAM	1	0	21.73	21.85	21.62	23	1
1.4	16QAM	1	3	21.83	21.69	21.64		
1.4	16QAM	1	5	21.72	21.56	21.60		
1.4	16QAM	3	0	21.40	21.50	21.46		
1.4	16QAM	3	1	21.43	21.54	21.48		
1.4	16QAM	3	3	21.39	21.49	21.39		
1.4	16QAM	6	0	20.50	20.49	20.51	22	2
1.4	64QAM	1	0	20.64	20.54	20.72	22	2
1.4	64QAM	1	3	20.63	20.59	20.74		
1.4	64QAM	1	5	20.48	20.58	20.70		
1.4	64QAM	3	0	20.45	20.66	20.58		
1.4	64QAM	3	1	20.49	20.71	20.61		
1.4	64QAM	3	3	20.46	20.65	20.56		
1.4	64QAM	6	0	19.34	19.40	19.37	21	3

<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	22.45	22.49	22.39	24	0
10	QPSK	1	25	22.44	22.47	22.39		
10	QPSK	1	49	22.40	22.44	22.36		
10	QPSK	25	0	21.54	21.50	21.49	23	1
10	QPSK	25	12	21.51	21.49	21.52		
10	QPSK	25	25	21.53	21.49	21.51		
10	QPSK	50	0	21.50	21.52	21.49		
10	16QAM	1	0	21.69	21.86	21.67	23	1
10	16QAM	1	25	21.90	21.92	21.65		
10	16QAM	1	49	21.95	21.92	21.68		
10	16QAM	25	0	20.54	20.53	20.48	22	2
10	16QAM	25	12	20.55	20.58	20.48		
10	16QAM	25	25	20.52	20.50	20.44		
10	16QAM	50	0	20.52	20.54	20.50		
10	64QAM	1	0	20.69	20.46	20.61	22	2
10	64QAM	1	25	20.81	20.58	20.77		
10	64QAM	1	49	20.72	20.55	20.77		
10	64QAM	25	0	19.59	19.58	19.49	21	3
10	64QAM	25	12	19.58	19.61	19.52		
10	64QAM	25	25	19.56	19.54	19.46		
10	64QAM	50	0	19.56	19.54	19.48		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.39	22.48	22.43	24	0
5	QPSK	1	12	22.47	22.43	22.41		
5	QPSK	1	24	22.42	22.41	22.41		
5	QPSK	12	0	21.44	21.52	21.46	23	1
5	QPSK	12	7	21.55	21.53	21.46		
5	QPSK	12	13	21.56	21.45	21.45		
5	QPSK	25	0	21.53	21.50	21.48		
5	16QAM	1	0	21.37	21.66	21.92	23	1
5	16QAM	1	12	21.48	21.63	21.98		
5	16QAM	1	24	21.45	21.63	21.97		
5	16QAM	12	0	20.48	20.50	20.44	22	2
5	16QAM	12	7	20.59	20.54	20.44		
5	16QAM	12	13	20.51	20.50	20.44		
5	16QAM	25	0	20.55	20.44	20.51		
5	64QAM	1	0	20.47	20.80	20.36	22	2
5	64QAM	1	12	20.54	20.76	20.26		
5	64QAM	1	24	20.54	20.77	20.29		
5	64QAM	12	0	19.41	19.52	19.52	21	3
5	64QAM	12	7	19.54	19.56	19.54		
5	64QAM	12	13	19.51	19.52	19.52		
5	64QAM	25	0	19.55	19.54	19.52		

<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	22.62	22.69	22.67	24	0
15	QPSK	1	37	22.60	22.51	22.65		
15	QPSK	1	74	22.50	22.56	22.49		
15	QPSK	36	0	21.63	21.70	21.67	23	1
15	QPSK	36	20	21.62	21.66	21.58		
15	QPSK	36	39	21.53	21.65	21.63		
15	QPSK	75	0	21.63	21.73	21.68		
15	16QAM	1	0	21.92	21.82	21.97	23	1
15	16QAM	1	37	21.85	21.77	21.92		
15	16QAM	1	74	21.95	21.77	21.98		
15	16QAM	36	0	20.66	20.65	20.67	22	2
15	16QAM	36	20	20.74	20.63	20.64		
15	16QAM	36	39	20.60	20.60	20.62		
15	16QAM	75	0	20.68	20.65	20.71		
15	64QAM	1	0	20.70	20.72	20.75	22	2
15	64QAM	1	37	20.74	20.70	20.78		
15	64QAM	1	74	20.61	20.76	20.68		
15	64QAM	36	0	19.59	19.72	19.70	21	3
15	64QAM	36	20	19.65	19.67	19.62		
15	64QAM	36	39	19.57	19.66	19.69		
15	64QAM	75	0	19.65	19.62	19.69		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.64	22.57	22.60	24	0
10	QPSK	1	25	22.67	22.61	22.59		
10	QPSK	1	49	22.56	22.60	22.49		
10	QPSK	25	0	21.59	21.65	21.57	23	1
10	QPSK	25	12	21.64	21.63	21.67		
10	QPSK	25	25	21.60	21.57	21.61		
10	QPSK	50	0	21.61	21.58	21.62		
10	16QAM	1	0	22.00	21.63	21.70	23	1
10	16QAM	1	25	21.89	21.64	21.69		
10	16QAM	1	49	21.97	21.66	21.60		
10	16QAM	25	0	20.54	20.65	20.60	22	2
10	16QAM	25	12	20.63	20.66	20.70		
10	16QAM	25	25	20.54	20.52	20.60		
10	16QAM	50	0	20.65	20.63	20.64		
10	64QAM	1	0	20.74	20.80	20.84	22	2
10	64QAM	1	25	20.80	20.79	20.86		
10	64QAM	1	49	20.67	20.90	20.75		
10	64QAM	25	0	19.57	19.60	19.58	21	3
10	64QAM	25	12	19.69	19.57	19.68		
10	64QAM	25	25	19.59	19.52	19.57		
10	64QAM	50	0	19.65	19.65	19.69		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.51	22.56	22.66	24	0
5	QPSK	1	12	22.46	22.59	22.57		
5	QPSK	1	24	22.54	22.54	22.53		
5	QPSK	12	0	21.64	21.62	21.63	23	1
5	QPSK	12	7	21.58	21.60	21.62		
5	QPSK	12	13	21.57	21.59	21.57		
5	QPSK	25	0	21.59	21.61	21.63		
5	16QAM	1	0	21.75	21.87	21.75	23	1
5	16QAM	1	12	21.73	21.85	21.71		
5	16QAM	1	24	21.83	21.83	21.69		
5	16QAM	12	0	20.54	20.60	20.68	22	2
5	16QAM	12	7	20.56	20.59	20.66		
5	16QAM	12	13	20.49	20.56	20.61		
5	16QAM	25	0	20.58	20.58	20.71		
5	64QAM	1	0	20.69	20.77	20.91	22	2
5	64QAM	1	12	20.63	20.67	20.83		
5	64QAM	1	24	20.69	20.66	20.83		
5	64QAM	12	0	19.61	19.65	19.76	21	3
5	64QAM	12	7	19.62	19.66	19.76		
5	64QAM	12	13	19.56	19.64	19.71		
5	64QAM	25	0	19.60	19.63	19.58		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.48	22.55	22.68	24	0
3	QPSK	1	8	22.44	22.54	22.60		
3	QPSK	1	14	22.47	22.51	22.50		
3	QPSK	8	0	21.56	21.58	21.58	23	1
3	QPSK	8	4	21.58	21.59	21.61		
3	QPSK	8	7	21.54	21.59	21.55		
3	QPSK	15	0	21.55	21.59	21.55		
3	16QAM	1	0	21.87	21.98	21.49	23	1
3	16QAM	1	8	21.89	21.97	21.45		
3	16QAM	1	14	21.85	21.87	21.47		
3	16QAM	8	0	20.64	20.68	20.67	22	2
3	16QAM	8	4	20.67	20.72	20.70		
3	16QAM	8	7	20.61	20.70	20.69		
3	16QAM	15	0	20.49	20.70	20.62		
3	64QAM	1	0	20.87	20.79	20.75	22	2
3	64QAM	1	8	20.90	20.77	20.58		
3	64QAM	1	14	20.89	20.74	20.56		
3	64QAM	8	0	19.63	19.77	19.65	21	3
3	64QAM	8	4	19.69	19.79	19.66		
3	64QAM	8	7	19.58	19.76	19.63		
3	64QAM	15	0	19.61	19.56	19.61		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.46	22.41	22.46	24	0
1.4	QPSK	1	3	22.54	22.48	22.53		
1.4	QPSK	1	5	22.43	22.38	22.45		
1.4	QPSK	3	0	22.45	22.47	22.51		
1.4	QPSK	3	1	22.50	22.50	22.59		
1.4	QPSK	3	3	22.48	22.48	22.52		
1.4	QPSK	6	0	21.52	21.51	21.53	23	1
1.4	16QAM	1	0	21.93	21.44	21.51	23	1
1.4	16QAM	1	3	21.99	21.39	21.58		
1.4	16QAM	1	5	21.92	21.31	21.50		
1.4	16QAM	3	0	21.50	21.55	21.40		
1.4	16QAM	3	1	21.55	21.57	21.50		
1.4	16QAM	3	3	21.52	21.51	21.57		
1.4	16QAM	6	0	20.54	20.46	20.58	22	2
1.4	64QAM	1	0	20.65	20.77	20.76	22	2
1.4	64QAM	1	3	20.72	20.81	20.79		
1.4	64QAM	1	5	20.70	20.73	20.70		
1.4	64QAM	3	0	20.65	20.69	20.61		
1.4	64QAM	3	1	20.66	20.73	20.63		
1.4	64QAM	3	3	20.63	20.68	20.57		
1.4	64QAM	6	0	19.51	19.49	19.62	21	3

<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 (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

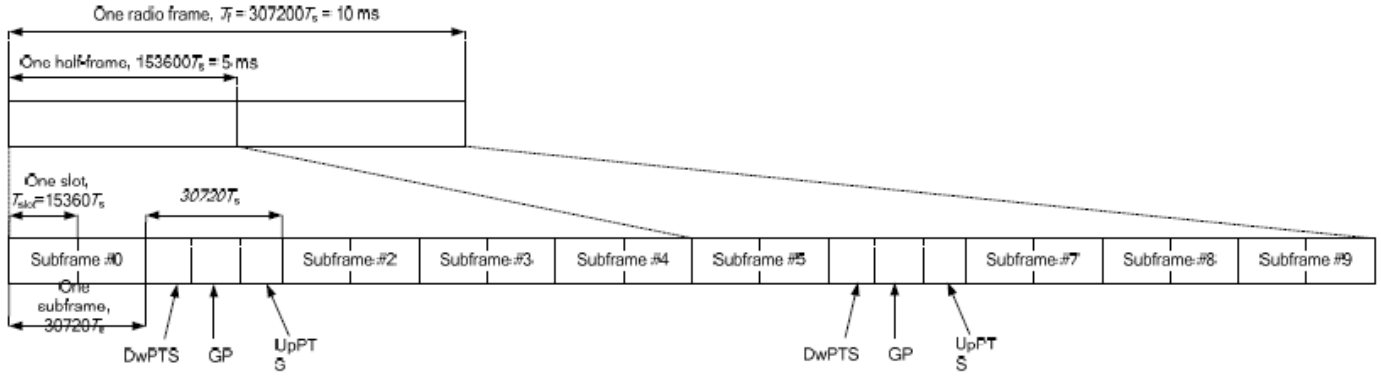


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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/Hotspot/Body-worn/Product Specific 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	22.47	22.23	22.14	24	0
20	QPSK	1	49	22.27	22.08	22.01		
20	QPSK	1	99	22.11	22.08	22.06		
20	QPSK	50	0	21.40	21.27	21.23	23	1
20	QPSK	50	24	21.35	21.24	21.10		
20	QPSK	50	50	21.24	21.21	21.06		
20	QPSK	100	0	21.28	21.22	21.13		
20	16QAM	1	0	21.59	21.44	21.32	23	1
20	16QAM	1	49	21.39	21.26	21.16		
20	16QAM	1	99	21.25	21.26	21.20		
20	16QAM	50	0	20.37	20.22	20.29	22	2
20	16QAM	50	24	20.35	20.24	20.24		
20	16QAM	50	50	20.28	20.21	20.19		
20	16QAM	100	0	20.29	20.26	20.19		
20	64QAM	1	0	20.37	20.45	20.38	22	2
20	64QAM	1	49	20.24	20.31	20.21		
20	64QAM	1	99	20.12	20.27	20.18		
20	64QAM	50	0	19.46	19.26	19.28	21	3
20	64QAM	50	24	19.32	19.24	19.18		
20	64QAM	50	50	19.29	19.18	19.19		
20	64QAM	100	0	19.39	19.24	19.17		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.44	22.24	22.29	24	0
15	QPSK	1	37	22.26	22.18	22.14		
15	QPSK	1	74	22.27	22.22	22.17		
15	QPSK	36	0	21.37	21.22	21.01	23	1
15	QPSK	36	20	21.24	21.17	21.17		
15	QPSK	36	39	21.21	21.18	21.07		
15	QPSK	75	0	21.25	21.21	21.06		
15	16QAM	1	0	21.56	21.32	21.33	23	1
15	16QAM	1	37	21.41	21.24	21.22		
15	16QAM	1	74	21.36	21.27	21.23		
15	16QAM	36	0	20.32	20.12	20.11	22	2
15	16QAM	36	20	20.20	20.15	20.11		
15	16QAM	36	39	20.26	20.14	20.10		
15	16QAM	75	0	20.21	20.22	20.17		
15	64QAM	1	0	20.36	20.24	20.35	22	2
15	64QAM	1	37	20.17	20.24	20.14		
15	64QAM	1	74	20.23	20.25	20.15		
15	64QAM	36	0	19.38	19.21	19.15	21	3
15	64QAM	36	20	19.31	19.23	19.15		
15	64QAM	36	39	19.23	19.17	19.14		
15	64QAM	75	0	19.28	19.21	19.18		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.46	22.11	22.07	24	0
10	QPSK	1	25	22.38	22.08	22.05		
10	QPSK	1	49	22.26	22.07	22.08		
10	QPSK	25	0	21.36	21.20	21.06	23	1
10	QPSK	25	12	21.35	21.16	21.16		
10	QPSK	25	25	21.24	21.20	21.14		
10	QPSK	50	0	21.33	21.14	21.11		
10	16QAM	1	0	21.57	21.32	21.21	23	1
10	16QAM	1	25	21.51	21.23	21.25		
10	16QAM	1	49	21.34	21.24	21.24		
10	16QAM	25	0	20.43	20.24	20.10	22	2
10	16QAM	25	12	20.41	20.31	20.15		
10	16QAM	25	25	20.25	20.17	20.10		
10	16QAM	50	0	20.46	20.27	20.18		
10	64QAM	1	0	20.29	20.13	20.05	22	2
10	64QAM	1	25	20.26	20.15	20.05		
10	64QAM	1	49	20.13	20.08	20.02		
10	64QAM	25	0	19.46	19.25	19.22	21	3
10	64QAM	25	12	19.46	19.30	19.18		
10	64QAM	25	25	19.29	19.17	19.17		
10	64QAM	50	0	19.40	19.18	19.12		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.42	22.08	22.07	24	0
5	QPSK	1	12	22.37	22.05	22.04		
5	QPSK	1	24	22.34	22.00	22.04		
5	QPSK	12	0	21.36	21.16	21.18	23	1
5	QPSK	12	7	21.35	21.19	21.11		
5	QPSK	12	13	21.25	21.11	21.10		
5	QPSK	25	0	21.33	21.14	21.04		
5	16QAM	1	0	21.48	21.25	21.24	23	1
5	16QAM	1	12	21.49	21.29	21.25		
5	16QAM	1	24	21.45	21.23	21.25		
5	16QAM	12	0	20.35	20.13	20.08	22	2
5	16QAM	12	7	20.38	20.19	20.08		
5	16QAM	12	13	20.34	20.12	20.11		
5	16QAM	25	0	20.31	20.13	20.11		
5	64QAM	1	0	20.23	20.13	20.06	22	2
5	64QAM	1	12	20.22	20.10	20.06		
5	64QAM	1	24	20.27	20.09	20.03		
5	64QAM	12	0	19.40	19.17	19.17	21	3
5	64QAM	12	7	19.38	19.17	19.17		
5	64QAM	12	13	19.38	19.21	19.18		
5	64QAM	25	0	19.41	19.17	19.18		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Low Ch. / Freq.	Power Middle High Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40240	40500	40770	41140		
Frequency (MHz)				2555	2581	2608	2645		
20	QPSK	1	0	22.61	22.38	22.13	22.29	24	0
20	QPSK	1	49	22.45	22.27	22.01	22.24		
20	QPSK	1	99	22.41	22.11	22.11	22.30		
20	QPSK	50	0	21.55	21.36	21.18	21.25	23	1
20	QPSK	50	24	21.39	21.37	21.12	21.18		
20	QPSK	50	50	21.37	21.16	21.16	21.15		
20	QPSK	100	0	21.40	21.36	21.16	21.17		
20	16QAM	1	0	21.65	21.51	21.30	21.43	23	1
20	16QAM	1	49	21.45	21.42	21.21	21.32		
20	16QAM	1	99	21.45	21.28	21.26	21.32		
20	16QAM	50	0	20.56	20.41	20.14	20.23	22	2
20	16QAM	50	24	20.45	20.41	20.18	20.19		
20	16QAM	50	50	20.40	20.16	20.15	20.18		
20	16QAM	100	0	20.48	20.39	20.18	20.14		
20	64QAM	1	0	20.42	20.32	20.41	20.19	22	2
20	64QAM	1	49	20.19	20.28	20.17	20.02		
20	64QAM	1	99	20.21	20.18	20.14	20.05		
20	64QAM	50	0	19.56	19.43	19.20	19.27	21	3
20	64QAM	50	24	19.49	19.36	19.13	19.17		
20	64QAM	50	50	19.43	19.23	19.10	19.17		
20	64QAM	100	0	19.43	19.41	19.22	19.23		
Channel				40215	40495	40785	41165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2552.5	2580.5	2609.5	2647.5		
15	QPSK	1	0	22.56	22.37	22.17	22.29	24	0
15	QPSK	1	37	22.48	22.27	22.16	22.18		
15	QPSK	1	74	22.33	22.21	22.17	22.26		
15	QPSK	36	0	21.47	21.34	21.13	21.07	23	1
15	QPSK	36	20	21.38	21.36	21.10	21.18		
15	QPSK	36	39	21.30	21.29	21.13	21.15		
15	QPSK	75	0	21.47	21.27	21.16	21.14		
15	16QAM	1	0	21.57	21.47	21.20	21.41	23	1
15	16QAM	1	37	21.56	21.41	21.21	21.31		
15	16QAM	1	74	21.44	21.28	21.23	21.36		
15	16QAM	36	0	20.50	20.33	20.13	20.16	22	2
15	16QAM	36	20	20.36	20.33	20.14	20.11		
15	16QAM	36	39	20.31	20.25	20.07	20.10		
15	16QAM	75	0	20.50	20.31	20.17	20.12		
15	64QAM	1	0	20.36	20.28	20.20	20.18	22	2
15	64QAM	1	37	20.28	20.26	20.19	20.02		
15	64QAM	1	74	20.14	20.16	20.19	20.08		
15	64QAM	36	0	19.52	19.39	19.10	19.13	21	3
15	64QAM	36	20	19.45	19.32	19.19	19.21		
15	64QAM	36	39	19.41	19.32	19.19	19.20		
15	64QAM	75	0	19.52	19.35	19.13	19.19		

Channel				40190	40490	40790	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2550	2580	2610	2650		
10	QPSK	1	0	22.56	22.33	22.00	22.25	24	0
10	QPSK	1	25	22.55	22.28	22.01	22.28		
10	QPSK	1	49	22.41	22.21	22.09	22.25		
10	QPSK	25	0	21.52	21.36	21.15	21.14	23	1
10	QPSK	25	12	21.49	21.20	21.22	21.12		
10	QPSK	25	25	21.46	21.23	21.16	21.19		
10	QPSK	50	0	21.44	21.22	21.11	21.12		
10	16QAM	1	0	21.61	21.46	21.22	21.35	23	1
10	16QAM	1	25	21.57	21.39	21.20	21.36		
10	16QAM	1	49	21.42	21.34	21.20	21.34		
10	16QAM	25	0	20.50	20.36	20.15	20.13	22	2
10	16QAM	25	12	20.52	20.26	20.19	20.19		
10	16QAM	25	25	20.49	20.29	20.09	20.17		
10	16QAM	50	0	20.53	20.37	20.13	20.22		
10	64QAM	1	0	20.37	20.23	20.12	20.10	22	2
10	64QAM	1	25	20.34	20.21	20.09	20.06		
10	64QAM	1	49	20.15	20.12	20.06	20.05		
10	64QAM	25	0	19.53	19.34	19.27	19.12	21	3
10	64QAM	25	12	19.57	19.39	19.28	19.23		
10	64QAM	25	25	19.50	19.36	19.12	19.22		
10	64QAM	50	0	19.53	19.35	19.15	19.16		
Channel				40165	40485	40805	41215	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2547.5	2579.5	2611.5	2652.5		
5	QPSK	1	0	22.48	22.32	22.03	22.30	24	0
5	QPSK	1	12	22.46	22.21	22.00	22.29		
5	QPSK	1	24	22.46	22.19	22.00	22.27		
5	QPSK	12	0	21.41	21.29	21.11	21.16	23	1
5	QPSK	12	7	21.44	21.30	21.09	21.21		
5	QPSK	12	13	21.41	21.27	21.13	21.19		
5	QPSK	25	0	21.39	21.31	21.14	21.16		
5	16QAM	1	0	21.47	21.40	21.20	21.36	23	1
5	16QAM	1	12	21.52	21.43	21.25	21.42		
5	16QAM	1	24	21.54	21.38	21.24	21.39		
5	16QAM	12	0	20.40	20.28	20.17	20.18	22	2
5	16QAM	12	7	20.43	20.26	20.20	20.21		
5	16QAM	12	13	20.41	20.29	20.16	20.18		
5	16QAM	25	0	20.46	20.26	20.14	20.18		
5	64QAM	1	0	20.30	20.16	20.08	20.06	22	2
5	64QAM	1	12	20.28	20.15	20.10	20.06		
5	64QAM	1	24	20.25	20.18	20.08	20.07		
5	64QAM	12	0	19.45	19.31	19.12	19.19	21	3
5	64QAM	12	7	19.49	19.33	19.21	19.21		
5	64QAM	12	13	19.48	19.35	19.11	19.22		
5	64QAM	25	0	19.49	19.38	19.16	19.24		

<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 29 and Band 46 is limited to Scell.
3. This device supported inter-band up to four carrier aggregation, for intra-band supported non-contiguous and contiguous configuration.

<Inter-Band combinations>

E-UTRA CA configuration / Bandwidth combination set									
E-UTRA CA Configuration	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-5A	2			Yes	Yes	Yes	Yes	30	0
	5			Yes	Yes				
	2			Yes	Yes			20	1
	5			Yes	Yes				
CA_2A-12A	2			Yes	Yes	Yes	Yes	30	0
	12			Yes	Yes				
	2			Yes	Yes	Yes	Yes	30	1
	12		Yes	Yes	Yes				
	2			Yes	Yes			20	2
	12			Yes	Yes				
CA_2A-17A	2			Yes	Yes			20	0
	17			Yes	Yes				
CA_2A-29A	2			Yes	Yes			20	0
	29		Yes	Yes	Yes				
	2			Yes	Yes			20	1
	29			Yes	Yes				
	2			Yes	Yes	Yes	Yes	30	2
	29			Yes	Yes				
CA_2A-30A	2			Yes	Yes	Yes	Yes	30	0
	30			Yes	Yes				
CA_4A-5A	4			Yes	Yes			20	0
	5			Yes	Yes				
	4			Yes	Yes	Yes	Yes	30	1
	5			Yes	Yes				
CA_4A-12A	4	Yes	Yes	Yes	Yes			20	0
	12			Yes	Yes				
	4	Yes	Yes	Yes	Yes	Yes	Yes	30	1
	12			Yes	Yes				
	4			Yes	Yes	Yes	Yes	30	2
	12		Yes	Yes	Yes				
	4			Yes	Yes			20	3
	12			Yes	Yes				
	4			Yes	Yes	Yes	Yes	30	4
	12			Yes	Yes				
	4			Yes	Yes	Yes		20	5
	12			Yes					

E-UTRA CA configuration / Bandwidth combination set									
E-UTRA CA Configuration	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_4A-17A	4			Yes	Yes			20	0
	17			Yes	Yes				
CA_4A-29A	4			Yes	Yes			20	0
	29		Yes	Yes	Yes				
	4			Yes	Yes			20	1
	29			Yes	Yes				
	4			Yes	Yes	Yes	Yes	30	2
	29			Yes	Yes				
CA_4A-30A	4			Yes	Yes	Yes	Yes	30	0
	30			Yes	Yes				
CA_5A-7A	5	Yes	Yes	Yes	Yes			30	0
	7				Yes	Yes	Yes		
	5			Yes	Yes			30	1
	7				Yes	Yes	Yes		
CA_5A-30A	5			Yes	Yes			20	0
	30			Yes	Yes				
CA_7A-46A				Yes	Yes	Yes	Yes	40	0
							Yes		
CA_29A-30A	29			Yes	Yes			20	0
	30			Yes	Yes				
CA_12A-30A	12			Yes	Yes			20	0
	30			Yes	Yes				
CA_2A-2A-5A	2	See CA_2A-2A Bandwidth Combination Set 0 in Table 5.4.2A.1-3						50	0
	5			Yes	Yes				
CA_2A-2A-12A	2	See CA_2A-2A Bandwidth Combination Set 0 in Table 5.4.2A.1-3						50	0
	12			Yes	Yes				
CA_2A-2A-29A	2	See CA_2A-2A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
	29			Yes	Yes				
CA_2A-2A-30A	2	See CA_2A-2A Bandwidth Combination Set 0 in Table 5.6A.1-3						50	0
	30			Yes	Yes				
CA_2A-5A-30A	2			Yes	Yes	Yes	Yes	40	0
	5			Yes	Yes				
	30			Yes	Yes				
CA_2A-12A- 30A	2			Yes	Yes	Yes	Yes	40	0
	12			Yes	Yes				
	30			Yes	Yes				
CA_2A-29A- 30A	2			Yes	Yes	Yes	Yes	40	0
	29			Yes	Yes				
	30			Yes	Yes				
CA_4A-4A-5A	4	See CA_4A-4A Bandwidth Combination Set 0 in table 5.4.2A.1-3						50	0
	5			Yes	Yes				

<Intra-Band combinations>

E-UTRA CA configuration / Bandwidth combination set						
E-UTRACA configuration	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_2A-2A	5, 10, 15, 20	5, 10, 15, 20			40	0
CA_4A-4A	5, 10, 15, 20	5, 10, 15, 20			40	0
	5, 10	5, 10			20	1
CA_7A-7A	5	15			40	0
	10	10, 15				
	15	15, 20				
	20	20				
	5, 10, 15, 20	5, 10, 15, 20			40	1
	5, 10, 15, 20	5, 10			30	2
	10, 15, 20	10, 15, 20			40	3
CA_41A-41A	10, 15, 20	10, 15, 20			40	0
	5, 10, 15, 20	5, 10, 15, 20			40	1
CA_2C	5	20			40	0
	10	15, 20				
	15	10, 15, 20				
	20	5, 10, 15, 20				
CA_7C	15	15			40	0
	20	20				
	10	20			40	1
	15	15, 20				
	20	10, 15, 20				
	15	10, 15			40	2
	20	15, 20				
CA_7B	15	5			20	0
CA_41C	10	20			40	0
	15	15, 20				
	20	10, 15, 20				
	5, 10	20			40	1
	15	15, 20				
	20	5, 10, 15, 20				
	10	15, 20			40	2
	15	10, 15, 20				
	20	10, 15, 20				
	10	20			40	3
	20	20				

E-UTRA CA configuration / Bandwidth combination set									
E-UTRA CA Configuration	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_4A-4A- 12A	4	See CA_4A-4A Bandwidth Combination Set 0 in Table 5.4.2A.1-3						50	0
	12			Yes	Yes				
CA_4A-4A- 29A	4	See CA_4A-4A Bandwidth combination set 0 in Table 5.4.2A.1-3						50	0
	29			Yes	Yes				
CA_4A-4A- 30A	4	See CA_4A-4A Bandwidth combination set 0 in Table 5.4.2A.1-3						50	0
	30			Yes	Yes				
CA_4A-5A-30A	4			Yes	Yes	Yes	Yes	40	0
	5			Yes	Yes				
	30			Yes	Yes				
CA_4A-12A- 30A	4			Yes	Yes	Yes	Yes	40	0
	12			Yes	Yes				
	30			Yes	Yes				
CA_4A-29A- 30A	4			Yes	Yes	Yes	Yes	40	0
	29			Yes	Yes				
	30			Yes	Yes				
CA_2C-30A	2	See CA_2C Bandwidth combination set 0 in Table 5.4.2A.1-1						50	0
	30			Yes	Yes				
CA_2C-5A	2	See CA_2C Bandwidth combination set 0 in Table 5.4.2A.1-1						50	0
	5			Yes	Yes				
CA_2C-29A	2	See CA_2C Bandwidth Combination Set 0 in table 5.4.2A.1-1						50	0
	29			Yes	Yes				
CA_2C-12A	2	See CA_2C Bandwidth combination set 0 in Table 5.4.2A.1-1						50	0
	12			Yes	Yes				
CA_7A-46C	7			Yes	Yes	Yes	Yes	60	0
	46	See CA_46C Bandwidth Combination Set 1 in Table 5.4.2A.1-1							
CA_7A-46D	7			Yes	Yes	Yes	Yes	80	0
	46	See CA_46D Bandwidth Combination Set 1 in Table 5.4.2A.1-1							

LTE Carrier Aggregation Conducted Power

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. The device supports downlink 4x4 MIO operations for LTE band 7 only; uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combination in each frequency band.

vii. SAR test for downlink 4x4 MIMO was not needed since the maximum average output power in 4x4 downlink MIMO mode was not > 0.25dB higher than the maximum output power with downlink 4x4 MIMO inactive.

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

ix. 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.

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

<Two Carrier power verification>

Configure		PCC							SCC				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	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	21.67	21.67
		5	10	836.5	20525	QPSK	1	0	2	20	1960	900	22.70	22.78
		2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	21.58	21.67
		12	10	707.5	23095	QPSK	1	0	2	20	1960	900	22.56	22.59
		2	10	1855	18650	QPSK	1	0	17	10	740	5790	21.49	21.58
		17	10	710	23790	QPSK	1	0	2	10	1960	900	22.48	22.49
		2	20	1860	18700	QPSK	1	0	29	10	722.5	9715	21.66	21.67
		2	20	1860	18700	QPSK	1	0	30	10	2355	9820	21.63	21.67
		30	10	2310	27710	QPSK	1	0	2	20	1960	900	22.52	22.52
		4	20	1732.5	20175	QPSK	1	0	5	10	881.5	2525	23.02	23.12
		5	10	836.5	20525	QPSK	1	0	4	20	2132.5	2175	22.78	22.78
		4	20	1732.5	20175	QPSK	1	0	12	10	737.5	5095	23.02	23.12
		12	10	707.5	23095	QPSK	1	0	4	20	2132.5	2175	22.58	22.59
		4	10	1732.5	20175	QPSK	1	0	17	10	740	5790	22.91	22.97
		17	10	710	23790	QPSK	1	0	4	10	2132.5	2175	22.43	22.49
		4	20	1732.5	20175	QPSK	1	0	29	10	722.5	9715	23.02	23.12
		4	20	1732.5	20175	QPSK	1	0	30	10	2355	9820	23.09	23.12
		30	10	2310	27710	QPSK	1	0	4	20	2132.5	2175	22.45	22.52
		5	10	836.5	20525	QPSK	1	0	7	20	2655	3100	22.78	22.78
		7	20	2535	21100	QPSK	1	49	5	10	881.5	2525	22.43	22.48
		5	10	836.5	20525	QPSK	1	0	30	10	2355	9820	22.73	22.78
		30	10	2310	27710	QPSK	1	0	5	10	881.5	2525	22.42	22.52
		30	10	2310	27710	QPSK	1	0	29	10	722.5	9715	22.42	22.52
		12	10	711	23130	QPSK	1	0	30	10	2355	9820	22.50	22.59
		30	10	2310	27710	QPSK	1	0	12	10	737.5	5095	22.44	22.52
		7	20	2535	21100	QPSK	1	49	46	20	5200	47290	22.41	22.48
		7	20	2535	21100	QPSK	1	49	46	20	5300	48290	22.39	22.48
		7	20	2535	21100	QPSK	1	49	46	20	5600	51290	22.46	22.48
		7	20	2535	21100	QPSK	1	49	46	20	5785	53140	22.45	22.48
Intra-Band	Non-Contiguous	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	21.57	21.67
		4	20	1732.5	20175	QPSK	1	0	4	5	2152.5	2375	23.04	23.12
		7	20	2535	21100	QPSK	1	49	7	5	2687.5	3425	22.39	22.48
		41	20	2555	40240	QPSK	1	0	41	5	2547.5	40165	22.52	22.61
	Contiguous	2	20	1860	18700	QPSK	1	0	2	20	1959.80	898	21.62	21.67
		7	20	2535	21100	QPSK	1	49	7	20	2674.80	3298	22.43	22.48
		7	20	2535	21100	QPSK	1	49	7	5	2666.70	3217	22.45	22.48
		41	20	2555	40240	QPSK	1	0	41	20	2625.20	40942	22.61	22.61

<Three Carrier power verification>

Configure	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.Power (dBm)
Inter-Band	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	21.61	21.67
	5	10	836.5	20525	QPSK	1	0	2	20	1960	900	2	5	1987.5	1175	22.71	22.78
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	12	10	737.5	5095	21.61	21.67
	12	10	707.5	23095	QPSK	1	0	2	20	1960	900	2	5	1987.5	1175	22.50	22.59
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	29	10	722.5	9715	21.57	21.67
	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	30	10	2355	9820	21.61	21.67
	30	10	2310	27710	QPSK	1	0	2	20	1960	900	2	5	1987.5	1175	22.49	22.52
	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	21.59	21.67
	5	10	836.5	20525	QPSK	1	0	2	20	1960	900	30	10	2355	9820	22.78	22.78
	30	10	2310	27710	QPSK	1	0	2	20	1960	900	5	10	881.5	2525	22.44	22.52
	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	21.67	21.67
	12	10	707.5	23095	QPSK	1	0	2	20	1960	900	30	10	2355	9820	22.54	22.59
	30	10	2310	27710	QPSK	1	0	2	20	1960	900	12	10	737.5	5095	22.51	22.52
	2	20	1860	18700	QPSK	1	0	29	10	722.5	9715	30	10	2355	9820	21.63	21.67
	30	10	2310	27710	QPSK	1	0	2	20	1960	900	29	10	722.5	9715	22.48	22.52
	4	20	1732.5	20175	QPSK	1	0	4	5	2152.5	2375	5	10	881.5	2525	23.04	23.12
	5	10	836.5	20525	QPSK	1	0	4	20	2132.5	2175	4	5	2152.5	2375	22.69	22.78
	4	20	1732.5	20175	QPSK	1	0	4	5	2152.5	2375	12	10	737.5	5095	23.02	23.12
	12	10	707.5	23095	QPSK	1	0	4	20	2132.5	2175	4	5	2152.5	2375	22.49	22.59
	4	20	1732.5	20175	QPSK	1	0	4	5	2152.5	2375	29	10	722.5	9715	23.11	23.12
	4	20	1732.5	20175	QPSK	1	0	4	5	2152.5	2375	30	10	2355	9820	23.07	23.12
	30	10	2310	27710	QPSK	1	0	4	20	2132.5	2175	4	5	2152.5	2375	22.46	22.52
	4	20	1732.5	20175	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	23.05	23.12
	5	10	836.5	20525	QPSK	1	0	4	20	2132.5	2175	30	10	2355	9820	22.76	22.78
	30	10	2310	27710	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	22.50	22.52
	4	20	1732.5	20175	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	23.10	23.12
	12	10	707.5	23095	QPSK	1	0	4	20	2132.5	2175	30	10	2355	9820	22.56	22.59
	30	10	2310	27710	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	22.42	22.52
	4	20	1732.5	20175	QPSK	1	0	29	10	722.5	9715	30	10	2355	9820	23.02	23.12
	30	10	2310	27710	QPSK	1	0	4	20	2132.5	2175	29	10	722.5	9715	22.45	22.52
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	30	10	2355	9820	21.61	21.67
	30	10	2310	27710	QPSK	1	0	2	20	1960	900	2	20	1979.8	1098	22.44	22.52
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	5	10	881.5	2525	21.61	21.67
	5	10	836.5	20525	QPSK	1	0	2	20	1960	900	2	20	1979.8	1098	22.75	22.78
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	29	10	722.5	9715	21.66	21.67
	2	20	1860	18700	QPSK	1	0	2	20	1959.8	898	12	10	737.5	5095	21.59	21.67
	12	10	707.5	23095	QPSK	1	0	2	20	1960	900	2	20	1979.8	1098	22.58	22.59
	7	20	2535	21100	QPSK	1	49	46	20	5200	47290	46	20	5219.8	47488	22.47	22.48
	7	20	2535	21100	QPSK	1	49	46	20	5300	48290	46	20	5319.5	48488	22.46	22.48
	7	20	2535	21100	QPSK	1	49	46	20	5600	51290	46	20	5619.8	51488	22.44	22.48
	7	20	2535	21100	QPSK	1	49	46	20	5785	53140	46	20	5804.8	53338	22.46	22.48

<Four Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				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	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	7	20	2535	21100	QPSK	1	49	46	20	5200	47290	46	20	5219.8	47488	46	20	5180.2	47092	22.41	22.48
	7	20	2535	21100	QPSK	1	49	46	20	5300	48290	46	20	5319.5	48488	46	20	5280.2	48092	22.42	22.48
	7	20	2535	21100	QPSK	1	49	46	20	5600	51290	46	20	5619.8	51488	46	20	5582.2	51092	22.40	22.48
	7	20	2535	21100	QPSK	1	49	46	20	5785	53140	46	20	5804.8	53338	46	20	5765.2	52942	22.44	22.48

<Downlink 4x4 MIMO power verification>

LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	4x4 MiMO Active Tx.Power (dBm)	4x4 MiMO Inctive Tx.Power (dBm)
7	20	2535	21100	QPSK	1	49	22.45	22.48

<WLAN Conducted Power>

General Note:

1. For each 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 ANT 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	11.89	12.00	99.04
		6	2437	11.69	12.00	
		11	2462	11.57	12.00	
	802.11g 6Mbps	1	2412	11.69	12.00	87.29
		6	2437	11.64	12.00	
		11	2462	11.54	12.00	
	802.11n-HT20 MCS0	1	2412	11.78	12.00	86.49
		6	2437	11.73	12.00	
		11	2462	11.71	12.00	

<2.4GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	11.88	12.00	98.10
		6	2437	11.63	12.00	
		11	2462	11.55	12.00	
	802.11g 6Mbps	1	2412	11.93	12.00	87.18
		6	2437	11.80	12.00	
		11	2462	11.60	12.00	
	802.11n-HT20 MCS0	1	2412	11.93	12.00	86.49
		6	2437	11.83	12.00	
		11	2462	11.81	12.00	

<2.4GHz WLAN ANT 1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	14.99	15.00	97.64
		6	2437	14.87	15.00	
		11	2462	14.76	15.00	
	802.11g 6Mbps	1	2412	14.99	15.00	87.29
		6	2437	14.85	15.00	
		11	2462	14.77	15.00	
	802.11n-HT20 MCS0	1	2412	14.97	15.00	86.49
		6	2437	14.89	15.00	
		11	2462	14.80	15.00	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	10.73	11.00	98.10
		40	5200	10.65	11.00	
		44	5220	10.58	11.00	
		48	5240	10.53	11.00	
	802.11n-HT20 MCS0	36	5180	10.71	11.00	97.56
		40	5200	10.60	11.00	
		44	5220	10.56	11.00	
		48	5240	10.53	11.00	
	802.11n-HT40 MCS0	38	5190	10.55	11.00	95.96
		46	5230	10.52	11.00	
	802.11ac-VHT20 MCS0	36	5180	10.59	11.00	97.56
		40	5200	10.57	11.00	
		44	5220	10.55	11.00	
		48	5240	10.52	11.00	
	802.11ac-VHT40 MCS0	38	5190	10.53	11.00	95.00
		46	5230	10.51	11.00	
	802.11ac-VHT80 MCS0	42	5210	10.67	11.00	92.80

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	10.56	11.00	98.10
		56	5280	10.56	11.00	
		60	5300	10.57	11.00	
		64	5320	10.60	11.00	
	802.11n-HT20 MCS0	52	5260	10.55	11.00	97.56
		56	5280	10.56	11.00	
		60	5300	10.57	11.00	
		64	5320	10.59	11.00	
	802.11n-HT40 MCS0	54	5270	10.56	11.00	95.96
		62	5310	10.51	11.00	
	802.11ac-VHT20 MCS0	52	5260	10.51	11.00	97.56
		56	5280	10.52	11.00	
		60	5300	10.54	11.00	
		64	5320	10.56	11.00	
	802.11ac-VHT40 MCS0	54	5270	10.54	11.00	95.00
		62	5310	10.50	11.00	
	802.11ac-VHT80 MCS0	58	5290	10.62	11.00	92.80

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	9.63	10.00	98.10
		116	5580	9.61	10.00	
		124	5620	9.60	10.00	
		132	5660	9.58	10.00	
		144	5720	9.51	10.00	
	802.11n-HT20 MCS0	100	5500	9.82	10.00	97.56
		116	5580	9.58	10.00	
		124	5620	9.57	10.00	
		132	5660	9.55	10.00	
		144	5720	9.53	10.00	
	802.11n-HT40 MCS0	102	5510	9.88	10.00	95.96
		110	5550	9.73	10.00	
		126	5630	9.70	10.00	
		134	5670	9.66	10.00	
		142	5710	9.58	10.00	
	802.11ac-VHT20 MCS0	100	5500	9.75	10.00	97.56
		116	5580	9.56	10.00	
		124	5620	9.55	10.00	
		132	5660	9.54	10.00	
		144	5720	9.51	10.00	
	802.11ac-VHT40 MCS0	102	5510	9.87	10.00	95.00
		110	5550	9.62	10.00	
		126	5630	9.61	10.00	
		134	5670	9.59	10.00	
		142	5710	9.57	10.00	
	802.11ac-VHT80 MCS0	106	5530	9.62	10.00	92.80
		122	5610	9.57	10.00	
		138	5690	9.55	10.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	9.18	9.50	98.10
		157	5785	9.11	9.50	
		165	5825	9.08	9.50	
	802.11n-HT20 MCS0	149	5745	9.21	9.50	97.56
		157	5785	9.06	9.50	
		165	5825	9.04	9.50	
	802.11n-HT40 MCS0	151	5755	9.13	9.50	95.96
		159	5795	9.08	9.50	
	802.11ac-VHT20 MCS0	149	5745	9.16	9.50	97.56
		157	5785	9.04	9.50	
		165	5825	9.02	9.50	
	802.11ac-VHT40 MCS0	151	5755	9.12	9.50	95.00
		159	5795	9.02	9.50	
	802.11ac-VHT80 MCS0	155	5775	9.12	9.50	92.80

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	10.78	11.00	98.10
		40	5200	10.70	11.00	
		44	5220	10.63	11.00	
		48	5240	10.58	11.00	
	802.11n-HT20 MCS0	36	5180	10.91	11.00	97.56
		40	5200	10.80	11.00	
		44	5220	10.76	11.00	
		48	5240	10.73	11.00	
	802.11n-HT40 MCS0	38	5190	10.88	11.00	95.96
		46	5230	10.85	11.00	
	802.11ac-VHT20 MCS0	36	5180	10.79	11.00	97.58
		40	5200	10.76	11.00	
		44	5220	10.74	11.00	
		48	5240	10.71	11.00	
	802.11ac-VHT40 MCS0	38	5190	10.80	11.00	95.96
		46	5230	10.74	11.00	
	802.11ac-VHT80 MCS0	42	5210	10.96	11.00	92.06

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	10.95	11.00	98.10
		56	5280	10.96	11.00	
		60	5300	10.97	11.00	
		64	5320	10.98	11.00	
	802.11n-HT20 MCS0	52	5260	10.79	11.00	97.56
		56	5280	10.85	11.00	
		60	5300	10.90	11.00	
		64	5320	10.92	11.00	
	802.11n-HT40 MCS0	54	5270	10.90	11.00	95.96
		62	5310	10.83	11.00	
	802.11ac-VHT20 MCS0	52	5260	10.78	11.00	97.58
		56	5280	10.79	11.00	
		60	5300	10.81	11.00	
		64	5320	10.91	11.00	
	802.11ac-VHT40 MCS0	54	5270	10.71	11.00	95.96
		62	5310	10.66	11.00	
	802.11ac-VHT80 MCS0	58	5290	10.91	11.00	92.06

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	9.68	10.00	98.10
		116	5580	9.66	10.00	
		124	5620	9.65	10.00	
		132	5660	9.64	10.00	
		144	5720	9.60	10.00	
	802.11n-HT20 MCS0	100	5500	9.85	10.00	97.56
		116	5580	9.71	10.00	
		124	5620	9.70	10.00	
		132	5660	9.68	10.00	
		144	5720	9.61	10.00	
	802.11n-HT40 MCS0	102	5510	9.91	10.00	95.96
		110	5550	9.78	10.00	
		126	5630	9.75	10.00	
		134	5670	9.73	10.00	
		142	5710	9.68	10.00	
	802.11ac-VHT20 MCS0	100	5500	9.79	10.00	97.58
		116	5580	9.61	10.00	
		124	5620	9.60	10.00	
		132	5660	9.59	10.00	
		144	5720	9.56	10.00	
	802.11ac-VHT40 MCS0	102	5510	9.90	10.00	95.96
		110	5550	9.73	10.00	
		126	5630	9.72	10.00	
		134	5670	9.71	10.00	
		142	5710	9.67	10.00	
	802.11ac-VHT80 MCS0	106	5530	9.71	10.00	92.06
		122	5610	9.69	10.00	
		138	5690	9.61	10.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	9.43	9.50	98.10
		157	5785	9.38	9.50	
		165	5825	9.36	9.50	
	802.11n-HT20 MCS0	149	5745	9.49	9.50	97.56
		157	5785	9.46	9.50	
		165	5825	9.43	9.50	
	802.11n-HT40 MCS0	151	5755	9.48	9.50	95.96
		159	5795	9.43	9.50	
	802.11ac-VHT20 MCS0	149	5745	9.47	9.50	97.58
		157	5785	9.34	9.50	
		165	5825	9.31	9.50	
	802.11ac-VHT40 MCS0	151	5755	9.45	9.50	95.96
		159	5795	9.41	9.50	
	802.11ac-VHT80 MCS0	155	5775	9.46	9.50	92.06

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	13.89	14.00	97.17
		40	5200	13.85	14.00	
		44	5220	13.76	14.00	
		48	5240	13.73	14.00	
	802.11n-HT20 MCS0	36	5180	13.88	14.00	97.97
		40	5200	13.80	14.00	
		44	5220	13.75	14.00	
		48	5240	13.70	14.00	
	802.11n-HT40 MCS0	38	5190	13.77	14.00	95.96
		46	5230	13.72	14.00	
	802.11ac-VHT20 MCS0	36	5180	13.72	14.00	97.56
		40	5200	13.71	14.00	
		44	5220	13.70	14.00	
		48	5240	13.67	14.00	
	802.11ac-VHT40 MCS0	38	5190	13.76	14.00	95.00
		46	5230	13.71	14.00	
	802.11ac-VHT80 MCS0	42	5210	13.91	14.00	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	13.84	14.00	97.17
		56	5280	13.85	14.00	
		60	5300	13.87	14.00	
		64	5320	13.88	14.00	
	802.11n-HT20 MCS0	52	5260	13.71	14.00	97.97
		56	5280	13.75	14.00	
		60	5300	13.80	14.00	
		64	5320	13.83	14.00	
	802.11n-HT40 MCS0	54	5270	13.80	14.00	95.96
		62	5310	13.71	14.00	
	802.11ac-VHT20 MCS0	52	5260	13.70	14.00	97.56
		56	5280	13.72	14.00	
		60	5300	13.79	14.00	
		64	5320	13.81	14.00	
	802.11ac-VHT40 MCS0	54	5270	13.79	14.00	95.00
		62	5310	13.70	14.00	
	802.11ac-VHT80 MCS0	58	5290	13.85	14.00	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	12.71	13.00	97.17
		116	5580	12.66	13.00	
		124	5620	12.65	13.00	
		132	5660	12.64	13.00	
		144	5720	12.59	13.00	
	802.11n-HT20 MCS0	100	5500	12.90	13.00	97.97
		116	5580	12.72	13.00	
		124	5620	12.71	13.00	
		132	5660	12.69	13.00	
		144	5720	12.59	13.00	
	802.11n-HT40 MCS0	102	5510	12.97	13.00	95.96
		110	5550	12.80	13.00	
		126	5630	12.76	13.00	
		134	5670	12.73	13.00	
		142	5710	12.69	13.00	
	802.11ac-VHT20 MCS0	100	5500	12.79	13.00	97.56
		116	5580	12.71	13.00	
		124	5620	12.70	13.00	
		132	5660	12.68	13.00	
		144	5720	12.58	13.00	
	802.11ac-VHT40 MCS0	102	5510	12.94	13.00	95.00
		110	5550	12.74	13.00	
		126	5630	12.73	13.00	
		134	5670	12.72	13.00	
		142	5710	12.68	13.00	
	802.11ac-VHT80 MCS0	106	5530	12.73	13.00	92.00
		122	5610	12.71	13.00	
		138	5690	12.63	13.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	12.36	12.50	97.17
		157	5785	12.30	12.50	
		165	5825	12.28	12.50	
	802.11n-HT20 MCS0	149	5745	12.43	12.50	97.97
		157	5785	12.30	12.50	
		165	5825	12.27	12.50	
	802.11n-HT40 MCS0	151	5755	12.44	12.50	95.96
		159	5795	12.40	12.50	
	802.11ac-VHT20 MCS0	149	5745	12.37	12.50	97.56
		157	5785	12.29	12.50	
		165	5825	12.26	12.50	
	802.11ac-VHT40 MCS0	151	5755	12.40	12.50	95.00
		159	5795	12.35	12.50	
	802.11ac-VHT80 MCS0	155	5775	12.44	12.50	92.00

<Hotspot / Body-worn / Product Specific for WLAN Transmitter>

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	15.62	16.00	99.04
		6	2437	18.71	19.00	
		11	2462	15.89	16.50	
	802.11g 6Mbps	1	2412	12.08	12.50	87.29
		6	2437	18.71	19.00	
		11	2462	14.05	14.50	
	802.11n-HT20 MCS0	1	2412	14.43	14.50	86.49
		6	2437	18.61	19.00	
		11	2462	14.08	14.50	

<2.4GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	15.55	16.00	98.10
		6	2437	18.86	19.00	
		11	2462	16.04	16.50	
	802.11g 6Mbps	1	2412	11.94	12.50	87.18
		6	2437	18.70	19.00	
		11	2462	14.25	14.50	
	802.11n-HT20 MCS0	1	2412	13.94	14.50	86.49
		6	2437	18.78	19.00	
		11	2462	13.73	14.50	

<2.4GHz WLAN ANT 1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	18.84	19.00	97.64
		6	2437	21.90	22.00	
		11	2462	19.15	19.50	
	802.11g 6Mbps	1	2412	15.26	15.50	87.29
		6	2437	21.84	22.00	
		11	2462	17.41	17.50	
	802.11n-HT20 MCS0	1	2412	17.33	17.50	86.49
		6	2437	21.86	22.00	
		11	2462	17.11	17.50	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.19	18.00	98.10
		40	5200	19.25	20.00	
		44	5220	19.38	20.00	
		48	5240	17.93	18.50	
	802.11n-HT20 MCS0	36	5180	18.09	20.00	97.56
		40	5200	19.15	20.00	
		44	5220	19.21	20.00	
		48	5240	17.28	18.00	
	802.11n-HT40 MCS0	38	5190	14.29	15.00	95.96
		46	5230	17.42	18.00	
	802.11ac-VHT20 MCS0	36	5180	18.05	20.00	97.56
		40	5200	18.70	20.00	
		44	5220	18.46	20.00	
		48	5240	17.21	18.00	
	802.11ac-VHT40 MCS0	38	5190	14.27	15.00	95.00
		46	5230	17.40	18.00	
	802.11ac-VHT80 MCS0	42	5210	12.62	13.50	92.80

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	19.09	20.00	98.10
		56	5280	19.10	20.00	
		60	5300	19.11	20.00	
		64	5320	18.18	20.00	
	802.11n-HT20 MCS0	52	5260	18.71	20.00	97.56
		56	5280	18.75	20.00	
		60	5300	18.70	20.00	
		64	5320	18.19	20.00	
	802.11n-HT40 MCS0	54	5270	18.48	20.00	95.96
		62	5310	15.18	16.00	
	802.11ac-VHT20 MCS0	52	5260	18.03	20.00	97.56
		56	5280	18.02	20.00	
		60	5300	18.01	20.00	
		64	5320	18.04	20.00	
	802.11ac-VHT40 MCS0	54	5270	18.47	20.00	95.00
		62	5310	14.79	16.00	
	802.11ac-VHT80 MCS0	58	5290	11.97	13.00	92.80

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	18.64	20.00	98.10
		116	5580	18.88	20.00	
		124	5620	19.70	20.00	
		132	5660	19.63	20.00	
		144	5720	19.38	20.00	
	802.11n-HT20 MCS0	100	5500	17.91	18.00	97.56
		116	5580	19.11	20.00	
		124	5620	19.60	20.00	
		132	5660	19.59	20.00	
		144	5720	19.51	20.00	
	802.11n-HT40 MCS0	102	5510	14.01	14.50	95.96
		110	5550	19.18	20.00	
		126	5630	19.00	20.00	
		134	5670	18.69	20.00	
		142	5710	19.43	20.00	
	802.11ac-VHT20 MCS0	100	5500	17.69	18.00	97.56
		116	5580	19.01	20.00	
		124	5620	19.48	20.00	
		132	5660	19.45	20.00	
		144	5720	19.31	20.00	
	802.11ac-VHT40 MCS0	102	5510	13.97	14.50	95.00
		110	5550	19.14	20.00	
		126	5630	18.85	20.00	
		134	5670	18.62	20.00	
		142	5710	19.42	20.00	
	802.11ac-VHT80 MCS0	106	5530	10.56	11.00	92.80
		122	5610	19.68	20.00	
		138	5690	19.82	20.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	18.72	19.00	98.10
		157	5785	18.50	19.00	
		165	5825	18.58	19.00	
	802.11n-HT20 MCS0	149	5745	18.56	19.00	97.56
		157	5785	18.31	19.00	
		165	5825	18.66	19.00	
	802.11n-HT40 MCS0	151	5755	18.43	19.00	95.96
		159	5795	18.23	19.00	
	802.11ac-VHT20 MCS0	149	5745	18.50	19.00	97.56
		157	5785	18.29	19.00	
		165	5825	18.60	19.00	
	802.11ac-VHT40 MCS0	151	5755	18.42	19.00	95.00
		159	5795	18.22	19.00	
	802.11ac-VHT80 MCS0	155	5775	17.52	18.00	92.80

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.61	18.00	98.10
		40	5200	19.23	20.00	
		44	5220	19.29	20.00	
		48	5240	18.08	18.50	
	802.11n-HT20 MCS0	36	5180	18.43	20.00	97.56
		40	5200	19.12	20.00	
		44	5220	19.06	20.00	
		48	5240	17.71	18.00	
	802.11n-HT40 MCS0	38	5190	14.58	15.00	95.96
		46	5230	17.86	18.00	
	802.11ac-VHT20 MCS0	36	5180	18.39	20.00	97.58
		40	5200	19.08	20.00	
		44	5220	18.76	20.00	
		48	5240	17.67	18.00	
	802.11ac-VHT40 MCS0	38	5190	14.53	15.00	95.96
		46	5230	17.78	18.00	
	802.11ac-VHT80 MCS0	42	5210	13.15	13.50	92.06

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	CH 52	5260	19.49	20.00	98.10
		56	5280	19.30	20.00	
		60	5300	19.28	20.00	
		64	5320	18.83	20.00	
	802.11n-HT20 MCS0	52	5260	18.96	20.00	97.56
		56	5280	18.90	20.00	
		60	5300	18.89	20.00	
		64	5320	18.42	20.00	
	802.11n-HT40 MCS0	54	5270	19.18	20.00	95.96
		62	5310	15.54	16.00	
	802.11ac-VHT20 MCS0	52	5260	18.82	20.00	97.58
		56	5280	18.80	20.00	
		60	5300	18.81	20.00	
		64	5320	18.34	20.00	
	802.11ac-VHT40 MCS0	54	5270	19.13	20.00	95.96
		62	5310	15.48	16.00	
	802.11ac-VHT80 MCS0	58	5290	12.64	13.00	92.06

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	18.04	20.00	98.10
		116	5580	18.38	20.00	
		124	5620	19.45	20.00	
		132	5660	19.40	20.00	
		144	5720	19.27	20.00	
	802.11n-HT20 MCS0	100	5500	17.71	18.00	97.56
		116	5580	18.71	20.00	
		124	5620	19.71	20.00	
		132	5660	19.65	20.00	
		144	5720	19.61	20.00	
	802.11n-HT40 MCS0	102	5510	14.14	14.50	95.96
		110	5550	18.94	20.00	
		126	5630	19.30	20.00	
		134	5670	19.18	20.00	
		142	5710	19.48	20.00	
	802.11ac-VHT20 MCS0	100	5500	17.69	18.00	97.58
		116	5580	18.70	20.00	
		124	5620	19.70	20.00	
		132	5660	19.60	20.00	
		144	5720	19.11	20.00	
	802.11ac-VHT40 MCS0	102	5510	14.11	14.50	95.96
		110	5550	18.93	20.00	
		126	5630	19.20	20.00	
		134	5670	19.13	20.00	
		142	5710	19.43	20.00	
	802.11ac-VHT80 MCS0	106	5530	10.40	11.00	92.06
		122	5610	19.81	20.00	
		138	5690	19.86	20.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	18.83	19.00	98.10
		157	5785	18.75	19.00	
		165	5825	18.72	19.00	
	802.11n-HT20 MCS0	149	5745	18.67	19.00	97.56
		157	5785	18.68	19.00	
		165	5825	18.81	19.00	
	802.11n-HT40 MCS0	151	5755	18.80	19.00	95.96
		159	5795	18.83	19.00	
	802.11ac-VHT20 MCS0	149	5745	18.65	19.00	97.58
		157	5785	18.64	19.00	
		165	5825	18.63	19.00	
	802.11ac-VHT40 MCS0	151	5755	18.78	19.00	95.96
		159	5795	18.80	19.00	
	802.11ac-VHT80 MCS0	155	5775	17.50	18.00	92.06

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	20.46	21.00	97.17
		40	5200	22.30	23.00	
		44	5220	22.39	23.00	
		48	5240	21.05	21.50	
	802.11n-HT20 MCS0	36	5180	21.67	23.00	97.97
		40	5200	22.18	23.00	
		44	5220	22.20	23.00	
		48	5240	20.53	21.00	
	802.11n-HT40 MCS0	38	5190	17.50	18.00	95.96
		46	5230	20.72	21.00	
	802.11ac-VHT20 MCS0	36	5180	21.63	23.00	97.56
		40	5200	21.70	23.00	
		44	5220	21.73	23.00	
		48	5240	20.52	21.00	
	802.11ac-VHT40 MCS0	38	5190	17.45	18.00	95.00
		46	5230	20.71	21.00	
	802.11ac-VHT80 MCS0	42	5210	16.05	16.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	22.34	23.00	97.17
		56	5280	22.35	23.00	
		60	5300	22.26	23.00	
		64	5320	21.56	23.00	
	802.11n-HT20 MCS0	52	5260	21.91	23.00	97.97
		56	5280	21.92	23.00	
		60	5300	21.94	23.00	
		64	5320	21.37	23.00	
	802.11n-HT40 MCS0	54	5270	21.90	23.00	95.96
		62	5310	18.41	19.00	
	802.11ac-VHT20 MCS0	52	5260	21.50	23.00	97.56
		56	5280	21.45	23.00	
		60	5300	21.49	23.00	
		64	5320	21.28	23.00	
	802.11ac-VHT40 MCS0	54	5270	21.89	23.00	95.00
		62	5310	18.39	19.00	
	802.11ac-VHT80 MCS0	58	5290	15.41	16.00	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	21.47	23.00	97.17
		116	5580	21.75	23.00	
		124	5620	22.60	23.00	
		132	5660	22.55	23.00	
		144	5720	22.41	23.00	
	802.11n-HT20 MCS0	100	5500	20.85	21.00	97.97
		116	5580	22.11	23.00	
		124	5620	22.72	23.00	
		132	5660	22.70	23.00	
		144	5720	22.72	23.00	
	802.11n-HT40 MCS0	102	5510	17.22	17.50	95.96
		110	5550	22.12	23.00	
		126	5630	22.32	23.00	
		134	5670	22.13	23.00	
		142	5710	22.48	23.00	
	802.11ac-VHT20 MCS0	100	5500	20.72	21.00	97.56
		116	5580	22.10	23.00	
		124	5620	22.18	23.00	
		132	5660	22.26	23.00	
		144	5720	22.25	23.00	
	802.11ac-VHT40 MCS0	102	5510	17.21	17.50	95.00
		110	5550	22.10	23.00	
		126	5630	22.17	23.00	
		134	5670	22.06	23.00	
		142	5710	22.47	23.00	
	802.11ac-VHT80 MCS0	106	5530	13.63	14.00	92.00
		122	5610	22.96	23.00	
		138	5690	22.93	23.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	21.93	22.00	97.17
		157	5785	21.77	22.00	
		165	5825	21.77	22.00	
	802.11n-HT20 MCS0	149	5745	21.64	22.00	97.97
		157	5785	21.56	22.00	
		165	5825	21.80	22.00	
	802.11n-HT40 MCS0	151	5755	21.65	22.00	95.96
		159	5795	21.59	22.00	
	802.11ac-VHT20 MCS0	149	5745	21.59	22.00	97.56
		157	5785	21.52	22.00	
		165	5825	21.73	22.00	
	802.11ac-VHT40 MCS0	151	5755	21.64	22.00	95.00
		159	5795	21.57	22.00	
	802.11ac-VHT80 MCS0	155	5775	20.72	21.00	92.00

<2.4GHz Bluetooth>

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
v2.0	CH 00	2402	10.86	8.31	8.35
	CH 39	2441	11.21	8.47	8.52
	CH 78	2480	11.31	9.43	9.47
Tune-up Limit			11.5	9.5	9.5

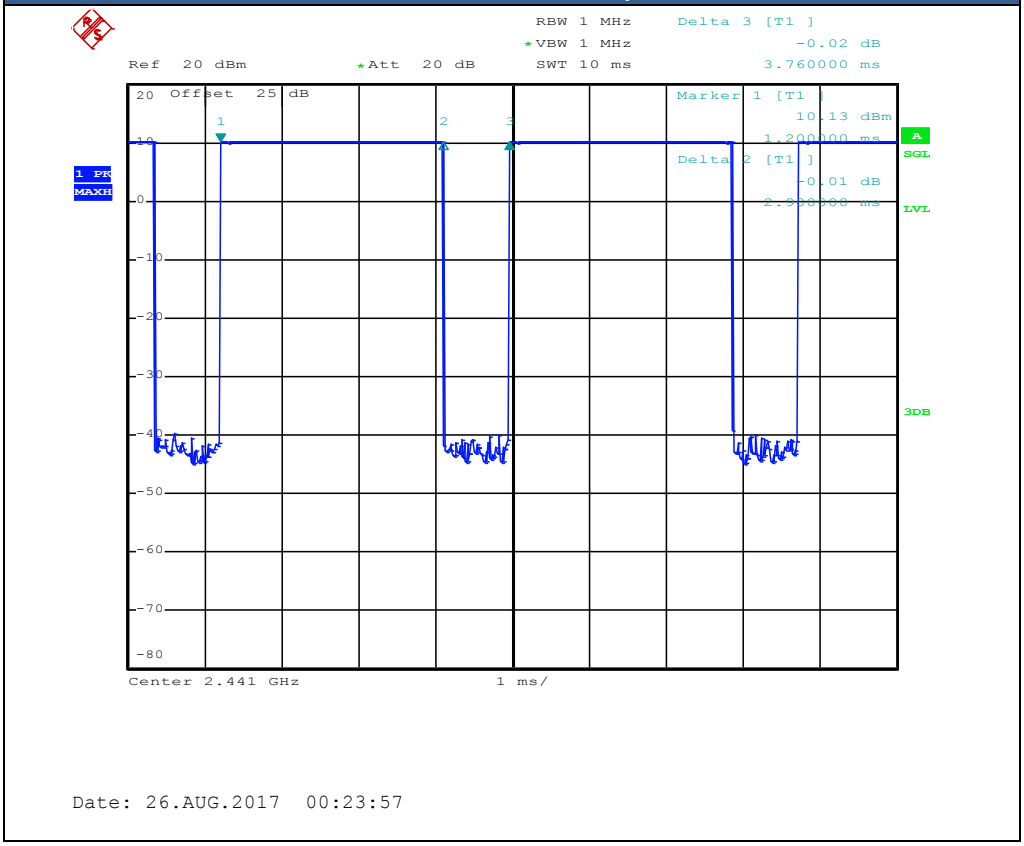
Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
V4.0	CH 00	2402	0.55
	CH 19	2440	0.24
	CH 39	2480	1.02
Tune-up Limit			1.5

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
V5.0	CH 00	2402	1.11
	CH 19	2440	0.73
	CH 39	2480	1.51
Tune-up Limit			2

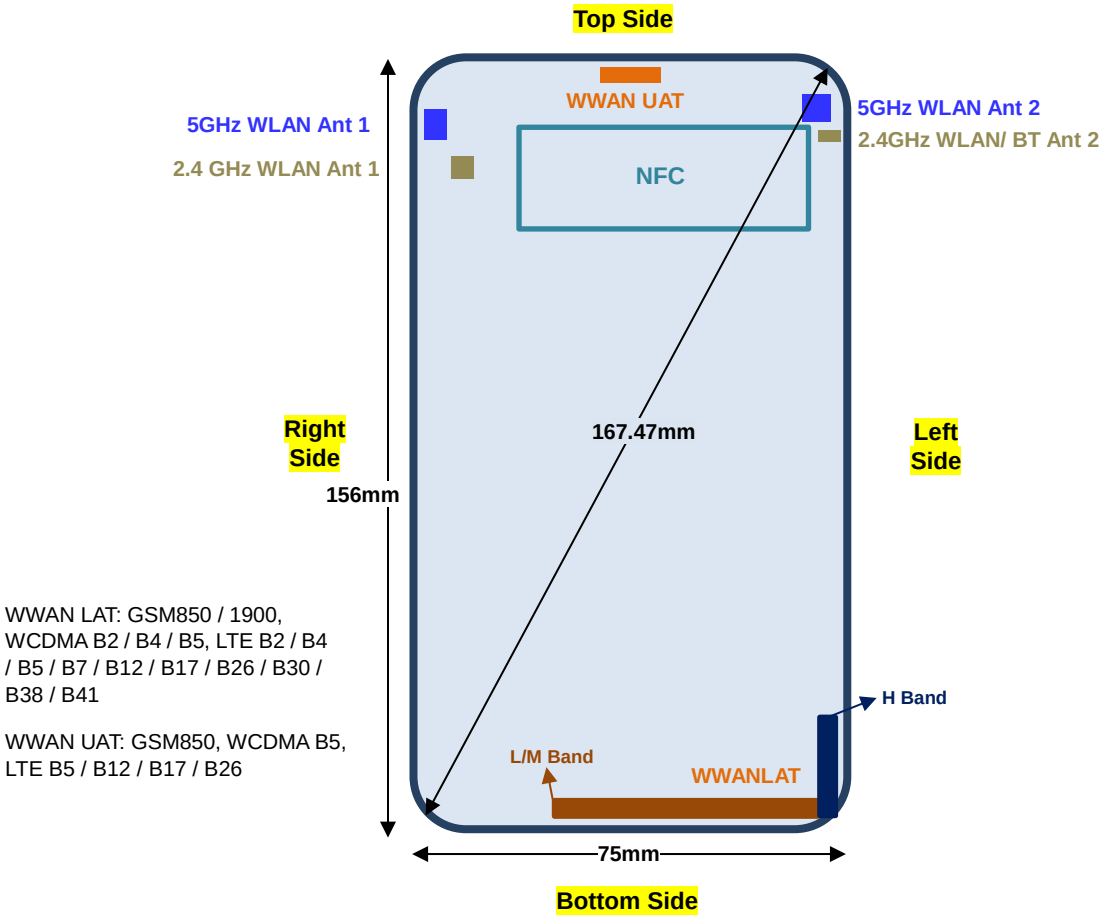
General Note:

1. For 2.4GHz Bluetooth SAR testing was selected v2.0 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 77.13% as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation

Bluetooth time-domain plot



13. Antenna Location



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN LAT	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
WWAN UAT	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	>25mm
2.4GHz WLAN MIMO	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm
2.4GHz BT Ant 2	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	≤ 25mm
5GHz WLAN MIMO	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN LAT	Yes	Yes	No	Yes	Yes	Yes
WWAN UAT	Yes	Yes	Yes	No	No	No
2.4GHz WLAN MIMO	Yes	Yes	Yes	No	Yes	Yes
2.4GHz BT Ant 2	Yes	Yes	Yes	No	No	Yes
5GHz WLAN MIMO	Yes	Yes	Yes	No	Yes	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: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: 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 > 15.0 cm or an overall diagonal dimension > 16.0 cm, 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, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device only LTE B2 and B4 is required.
6. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16cm.
7. According to TCB workshop October 2016, when the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, in this report is not required even SAR is > 1.2W/kg, due to all the test result is used a low-loss foam block performed testing, the relative permittivity and loss tangent of the foam material is 1.0 and 10-5, respectively.
8. For WWAN LAT and UAT antennas will not transmit simultaneous at the same time and when the two antennas operating in the Head / Hotspot / Body worn / Product Specific 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.
9. For WLAN operating in the Head / Hotspot / Body worn / Product Specific 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 GPRS (2Tx slots) 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.

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. 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, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

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 / B12 / B26 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 5 / 17 / 38 SAR test was covered by Band 26 / 12 / 41; according to 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, 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 WLAN 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)	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_LAT	GPRS (4 Tx slots)	Right Cheek	0mm	251	848.8	26.74	27.50	1.191	0.12	0.096	0.114
	GSM850_LAT	GPRS (4 Tx slots)	Right Tilted	0mm	251	848.8	26.74	27.50	1.191	0.11	0.048	0.057
	GSM850_LAT	GPRS (4 Tx slots)	Left Cheek	0mm	251	848.8	26.74	27.50	1.191	0.16	0.074	0.088
	GSM850_LAT	GPRS (4 Tx slots)	Left Tilted	0mm	251	848.8	26.74	27.50	1.191	0.14	0.045	0.054
	GSM850_UAT	GPRS (4 Tx slots)	Right Cheek	0mm	251	848.8	26.74	27.50	1.191	-0.05	0.929	1.107
	GSM850_UAT	GPRS (4 Tx slots)	Right Cheek	0mm	128	824.2	26.48	27.50	1.265	-0.08	0.910	1.151
01	GSM850_UAT	GPRS (4 Tx slots)	Right Cheek	0mm	189	836.4	26.69	27.50	1.205	0.03	0.991	1.194
	GSM850_UAT	GPRS (4 Tx slots)	Right Tilted	0mm	251	848.8	26.74	27.50	1.191	-0.13	0.989	1.178
	GSM850_UAT	GPRS (4 Tx slots)	Right Tilted	0mm	128	824.2	26.48	27.50	1.265	0.17	0.894	1.131
	GSM850_UAT	GPRS (4 Tx slots)	Right Tilted	0mm	189	836.4	26.69	27.50	1.205	0.05	0.980	1.181
	GSM850_UAT	GPRS (4 Tx slots)	Left Cheek	0mm	251	848.8	26.74	27.50	1.191	0	0.962	1.146
	GSM850_UAT	GPRS (4 Tx slots)	Left Cheek	0mm	128	824.2	26.48	27.50	1.265	0.09	0.885	1.119
	GSM850_UAT	GPRS (4 Tx slots)	Left Cheek	0mm	189	836.4	26.69	27.50	1.205	0.02	0.973	1.172
	GSM850_UAT	GPRS (4 Tx slots)	Left Tilted	0mm	251	848.8	26.74	27.50	1.191	-0.04	0.960	1.144
	GSM850_UAT	GPRS (4 Tx slots)	Left Tilted	0mm	128	824.2	26.48	27.50	1.265	0.06	0.763	0.965
	GSM850_UAT	GPRS (4 Tx slots)	Left Tilted	0mm	189	836.4	26.69	27.50	1.205	-0.07	0.886	1.068
02	GSM1900_LAT	GPRS (4 Tx slots)	Right Cheek	0mm	810	1909.8	23.82	24.50	1.169	0	0.007	0.008
	GSM1900_LAT	GPRS (4 Tx slots)	Right Tilted	0mm	810	1909.8	23.82	24.50	1.169	0	0.001	0.001
	GSM1900_LAT	GPRS (4 Tx slots)	Left Cheek	0mm	810	1909.8	23.82	24.50	1.169	0.13	0.004	0.005
	GSM1900_LAT	GPRS (4 Tx slots)	Left Tilted	0mm	810	1909.8	23.82	24.50	1.169	0	0.001	0.001

<WCDMA 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)
03	WCDMA II_LAT	RMC 12.2Kbps	Right Cheek	0mm	9262	1852.4	21.35	22.00	1.161	0.1	0.050	0.058
	WCDMA II_LAT	RMC 12.2Kbps	Right Tilted	0mm	9262	1852.4	21.35	22.00	1.161	-0.1	0.004	0.004
	WCDMA II_LAT	RMC 12.2Kbps	Left Cheek	0mm	9262	1852.4	21.35	22.00	1.161	0.04	0.028	0.033
	WCDMA II_LAT	RMC 12.2Kbps	Left Tilted	0mm	9262	1852.4	21.35	22.00	1.161	0.02	0.004	0.005
04	WCDMA IV_LAT	RMC 12.2Kbps	Right Cheek	0mm	1413	1732.6	21.46	22.00	1.132	0.16	0.040	0.045
	WCDMA IV_LAT	RMC 12.2Kbps	Right Tilted	0mm	1413	1732.6	21.46	22.00	1.132	-0.08	0.002	0.003
	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1413	1732.6	21.46	22.00	1.132	0.07	0.024	0.027
	WCDMA IV_LAT	RMC 12.2Kbps	Left Tilted	0mm	1413	1732.6	21.46	22.00	1.132	0.15	0.005	0.006
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	22.81	24.00	1.315	0.14	0.112	0.147
	WCDMA V_LAT	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	22.81	24.00	1.315	0.09	0.050	0.066
	WCDMA V_LAT	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	22.81	24.00	1.315	-0.01	0.071	0.093
	WCDMA V_LAT	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	22.81	24.00	1.315	0.03	0.050	0.066
	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4182	836.4	21.76	22.50	1.186	-0.14	0.705	0.836
	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	21.76	22.50	1.186	-0.15	0.658	0.780
05	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4233	846.6	21.74	22.50	1.191	0.12	0.722	0.860
	WCDMA V_UAT	RMC 12.2Kbps	Right Tilted	0mm	4182	836.4	21.76	22.50	1.186	-0.17	0.672	0.797
	WCDMA V_UAT	RMC 12.2Kbps	Left Cheek	0mm	4182	836.4	21.76	22.50	1.186	-0.01	0.664	0.787
	WCDMA V_UAT	RMC 12.2Kbps	Left Tilted	0mm	4182	836.4	21.76	22.50	1.186	0.01	0.560	0.664

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	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)
	LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	18700	1860	21.67	22.50	1.211	0.12	0.050	0.061
	LTE Band 2_LAT	20M	QPSK	50	0	Right Cheek	0mm	19100	1900	20.58	21.50	1.236	-0.11	0.038	0.047
	LTE Band 2_LAT	20M	QPSK	1	0	Right Tilted	0mm	18700	1860	21.67	22.50	1.211	-0.01	0.005	0.006
	LTE Band 2_LAT	20M	QPSK	50	0	Right Tilted	0mm	19100	1900	20.58	21.50	1.236	0.12	0.001	0.001
06	LTE Band 2_LAT	20M	QPSK	1	0	Left Cheek	0mm	18700	1860	21.67	22.50	1.211	-0.05	0.089	0.108
	LTE Band 2_LAT	20M	QPSK	50	0	Left Cheek	0mm	19100	1900	20.58	21.50	1.236	0.1	0.063	0.078
	LTE Band 2_LAT	20M	QPSK	1	0	Left Tilted	0mm	18700	1860	21.67	22.50	1.211	0.06	0.008	0.010
	LTE Band 2_LAT	20M	QPSK	50	0	Left Tilted	0mm	19100	1900	20.58	21.50	1.236	-0.02	0.001	0.001
07	LTE Band 4_LAT	20M	QPSK	1	0	Right Cheek	0mm	20175	1732.5	23.12	24.00	1.225	0.11	0.074	0.091
	LTE Band 4_LAT	20M	QPSK	50	0	Right Cheek	0mm	20175	1732.5	21.98	23.00	1.265	0.18	0.059	0.075
	LTE Band 4_LAT	20M	QPSK	1	0	Right Tilted	0mm	20175	1732.5	23.12	24.00	1.225	0.11	0.015	0.018
	LTE Band 4_LAT	20M	QPSK	50	0	Right Tilted	0mm	20175	1732.5	21.98	23.00	1.265	0.11	0.008	0.010
	LTE Band 4_LAT	20M	QPSK	1	0	Left Cheek	0mm	20175	1732.5	23.12	24.00	1.225	-0.13	0.037	0.045
	LTE Band 4_LAT	20M	QPSK	50	0	Left Cheek	0mm	20175	1732.5	21.98	23.00	1.265	-0.18	0.030	0.038
	LTE Band 4_LAT	20M	QPSK	1	0	Left Tilted	0mm	20175	1732.5	23.12	24.00	1.225	-0.03	0.025	0.031
	LTE Band 4_LAT	20M	QPSK	50	0	Left Tilted	0mm	20175	1732.5	21.98	23.00	1.265	0.08	0.023	0.029
	LTE Band 7_LAT	20M	QPSK	1	49	Right Cheek	0mm	21100	2535	22.48	23.50	1.265	0.12	0.068	0.086
	LTE Band 7_LAT	20M	QPSK	50	0	Right Cheek	0mm	21100	2535	21.50	22.50	1.259	0.06	0.056	0.070
08	LTE Band 7_LAT	20M	QPSK	1	49	Right Tilted	0mm	21100	2535	22.48	23.50	1.265	-0.04	0.075	0.095
	LTE Band 7_LAT	20M	QPSK	50	0	Right Tilted	0mm	21100	2535	21.50	22.50	1.259	-0.19	0.063	0.079
	LTE Band 7_LAT	20M	QPSK	1	49	Left Cheek	0mm	21100	2535	22.48	23.50	1.265	0.18	0.065	0.082
	LTE Band 7_LAT	20M	QPSK	50	0	Left Cheek	0mm	21100	2535	21.50	22.50	1.259	0.1	0.054	0.068
	LTE Band 7_LAT	20M	QPSK	1	49	Left Tilted	0mm	21100	2535	22.48	23.50	1.265	0.13	0.036	0.046
	LTE Band 7_LAT	20M	QPSK	50	0	Left Tilted	0mm	21100	2535	21.50	22.50	1.259	-0.16	0.028	0.035
	LTE Band 12_LAT	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	22.59	24.00	1.384	-0.02	0.095	0.131
	LTE Band 12_LAT	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	21.58	23.00	1.387	-0.17	0.079	0.110
	LTE Band 12_LAT	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	22.59	24.00	1.384	-0.09	0.042	0.058
	LTE Band 12_LAT	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	21.58	23.00	1.387	0.14	0.034	0.047
	LTE Band 12_LAT	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	22.59	24.00	1.384	-0.06	0.070	0.097
	LTE Band 12_LAT	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	21.58	23.00	1.387	-0.18	0.059	0.082
	LTE Band 12_LAT	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	22.59	24.00	1.384	-0.01	0.082	0.113
	LTE Band 12_LAT	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	21.58	23.00	1.387	-0.19	0.071	0.098
	LTE Band 12_UAT	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	22.59	24.00	1.384	0.01	0.560	0.775
09	LTE Band 12_UAT	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	21.58	23.00	1.387	-0.04	0.576	0.799
	LTE Band 12_UAT	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	22.59	24.00	1.384	0.06	0.514	0.711
	LTE Band 12_UAT	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	21.58	23.00	1.387	0.02	0.527	0.731
	LTE Band 12_UAT	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	22.59	24.00	1.384	0.02	0.571	0.790
	LTE Band 12_UAT	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	21.58	23.00	1.387	-0.02	0.576	0.799
	LTE Band 12_UAT	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	22.59	24.00	1.384	0.05	0.474	0.656
	LTE Band 12_UAT	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	21.58	23.00	1.387	0.01	0.481	0.667

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	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)
	LTE Band 26_LAT	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	22.69	24.00	1.352	0.02	0.126	0.170
	LTE Band 26_LAT	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	21.70	23.00	1.349	-0.1	0.097	0.131
	LTE Band 26_LAT	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	22.69	24.00	1.352	0.02	0.055	0.074
	LTE Band 26_LAT	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	21.70	23.00	1.349	-0.1	0.043	0.058
	LTE Band 26_LAT	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	22.69	24.00	1.352	-0.01	0.066	0.089
	LTE Band 26_LAT	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	21.70	23.00	1.349	-0.18	0.051	0.069
	LTE Band 26_LAT	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	22.69	24.00	1.352	0	0.069	0.093
	LTE Band 26_LAT	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	21.70	23.00	1.349	-0.1	0.053	0.071
	LTE Band 26_UAT	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	21.36	22.50	1.300	0	0.494	0.642
	LTE Band 26_UAT	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	20.41	21.50	1.285	0.03	0.377	0.485
	LTE Band 26_UAT	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	21.36	22.50	1.300	-0.01	0.486	0.632
	LTE Band 26_UAT	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	20.41	21.50	1.285	0	0.369	0.474
10	LTE Band 26_UAT	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	21.36	22.50	1.300	-0.07	0.628	0.817
	LTE Band 26_UAT	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	20.41	21.50	1.285	-0.01	0.485	0.623
	LTE Band 26_UAT	15M	QPSK	75	0	Left Cheek	0mm	26865	831.5	20.40	21.50	1.288	-0.04	0.486	0.626
	LTE Band 26_UAT	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	21.36	22.50	1.300	-0.13	0.532	0.692
	LTE Band 26_UAT	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	20.41	21.50	1.285	-0.05	0.404	0.519
	LTE Band 30_LAT	10M	QPSK	1	0	Right Cheek	0mm	27710	2310	22.52	24.00	1.406	-0.03	0.058	0.082
	LTE Band 30_LAT	10M	QPSK	25	0	Right Cheek	0mm	27710	2310	21.53	23.00	1.403	-0.11	0.044	0.062
11	LTE Band 30_LAT	10M	QPSK	1	0	Right Tilted	0mm	27710	2310	22.52	24.00	1.406	0.13	0.069	0.097
	LTE Band 30_LAT	10M	QPSK	25	0	Right Tilted	0mm	27710	2310	21.53	23.00	1.403	-0.04	0.053	0.074
	LTE Band 30_LAT	10M	QPSK	1	0	Left Cheek	0mm	27710	2310	22.52	24.00	1.406	-0.19	0.064	0.090
	LTE Band 30_LAT	10M	QPSK	25	0	Left Cheek	0mm	27710	2310	21.53	23.00	1.403	0.05	0.048	0.067
	LTE Band 30_LAT	10M	QPSK	1	0	Left Tilted	0mm	27710	2310	22.52	24.00	1.406	0.1	0.034	0.048
	LTE Band 30_LAT	10M	QPSK	25	0	Left Tilted	0mm	27710	2310	21.53	23.00	1.403	0.11	0.025	0.035

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	40240	2555	22.61	24.00	1.377	62.9	1.006	0.01	0.045	0.062
	LTE Band 41_LAT	20M	QPSK	50	0	Right Cheek	0mm	40240	2555	21.55	23.00	1.396	62.9	1.006	0.05	0.031	0.044
	LTE Band 41_LAT	20M	QPSK	1	0	Right Tilted	0mm	40240	2555	22.61	24.00	1.377	62.9	1.006	-0.09	0.045	0.062
	LTE Band 41_LAT	20M	QPSK	50	0	Right Tilted	0mm	40240	2555	21.55	23.00	1.396	62.9	1.006	0.15	0.035	0.049
12	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	40240	2555	22.61	24.00	1.377	62.9	1.006	0.06	0.056	0.078
	LTE Band 41_LAT	20M	QPSK	50	0	Left Cheek	0mm	40240	2555	21.55	23.00	1.396	62.9	1.006	0.08	0.044	0.062
	LTE Band 41_LAT	20M	QPSK	1	0	Left Tilted	0mm	40240	2555	22.61	24.00	1.377	62.9	1.006	0.14	0.030	0.042
	LTE Band 41_LAT	20M	QPSK	50	0	Left Tilted	0mm	40240	2555	21.55	23.00	1.396	62.9	1.006	0.01	0.023	0.032

<WLAN 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 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 1	1	2412	11.89	12.00	1.026	99.04	1.010	0.12	0.172	0.178
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 1	1	2412	11.89	12.00	1.026	99.04	1.010	-0.13	0.142	0.147
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	1	2412	11.89	12.00	1.026	99.04	1.010	-0.15	0.162	0.168
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 1	1	2412	11.89	12.00	1.026	99.04	1.010	-0.05	0.116	0.120
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 2	1	2412	11.88	12.00	1.028	98.10	1.019	-0.09	0.060	0.063
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 2	1	2412	11.88	12.00	1.028	98.10	1.019	0.06	0.082	0.086
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 2	1	2412	11.88	12.00	1.028	98.10	1.019	0.03	0.181	0.190
13	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 2	1	2412	11.88	12.00	1.028	98.10	1.019	-0.16	0.198	0.207
14	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	58	5290	10.62	11.00	1.090	92.80	1.078	0.1	0.219	0.257
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	58	5290	10.62	11.00	1.090	92.80	1.078	0.05	0.185	0.217
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	58	5290	10.62	11.00	1.090	92.80	1.078	-0.08	0.087	0.102
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	58	5290	10.62	11.00	1.090	92.80	1.078	-0.11	0.076	0.089
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	58	5290	10.91	11.00	1.021	92.06	1.086	0	0.041	0.045
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	58	5290	10.91	11.00	1.021	92.06	1.086	0	0.042	0.047
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	58	5290	10.91	11.00	1.021	92.06	1.086	0	0.103	0.114
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	58	5290	10.91	11.00	1.021	92.06	1.086	-0.11	0.141	0.156
15	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	106	5530	9.62	10.00	1.090	92.80	1.078	0	0.093	0.109
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	106	5530	9.62	10.00	1.090	92.80	1.078	0	0.086	0.101
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	106	5530	9.62	10.00	1.090	92.80	1.078	-0.15	0.041	0.048
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	106	5530	9.62	10.00	1.090	92.80	1.078	-0.14	0.035	0.041
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	106	5530	9.71	10.00	1.069	92.06	1.086	0.17	0.025	0.029
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	106	5530	9.71	10.00	1.069	92.06	1.086	0.17	0.028	0.033
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	106	5530	9.71	10.00	1.069	92.06	1.086	0	0.060	0.070
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	106	5530	9.71	10.00	1.069	92.06	1.086	0.04	0.062	0.072
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	155	5775	9.12	9.50	1.091	92.80	1.078	0.14	0.053	0.062
16	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	155	5775	9.12	9.50	1.091	92.80	1.078	0.14	0.081	0.095
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	155	5775	9.12	9.50	1.091	92.80	1.078	0.08	0.007	0.008
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	155	5775	9.12	9.50	1.091	92.80	1.078	-0.19	0.001	0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	155	5775	9.46	9.50	1.009	92.06	1.086	0.11	0.001	0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	155	5775	9.46	9.50	1.009	92.06	1.086	0.13	0.022	0.024
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	155	5775	9.46	9.50	1.009	92.06	1.086	0.14	0.041	0.045
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	155	5775	9.46	9.50	1.009	92.06	1.086	0.05	0.042	0.046

<Bluetooth 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 1g SAR (W/kg)	Reported 1g SAR (W/kg)
17	Bluetooth	1Mbps	Right Cheek	0mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	0.06	0.096	0.108
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	-0.04	0.081	0.091
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	-0.01	0.070	0.079
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	0.03	0.048	0.054

14.2 Hotspot SAR

<GSM 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)
18	GSM850_LAT	GPRS (4 Tx slots)	Front	10mm	251	848.8	26.74	27.50	1.191	0.14	0.441	0.525
	GSM850_LAT	GPRS (4 Tx slots)	Back	10mm	251	848.8	26.74	27.50	1.191	0.12	0.313	0.373
	GSM850_LAT	GPRS (4 Tx slots)	Left Side	10mm	251	848.8	26.74	27.50	1.191	0.15	0.025	0.030
	GSM850_LAT	GPRS (4 Tx slots)	Right Side	10mm	251	848.8	26.74	27.50	1.191	0.15	0.170	0.203
	GSM850_LAT	GPRS (4 Tx slots)	Bottom Side	10mm	251	848.8	26.74	27.50	1.191	0.19	0.211	0.251
	GSM850_UAT	GPRS (4 Tx slots)	Front	10mm	251	848.8	26.74	27.50	1.191	0.13	0.419	0.499
	GSM850_UAT	GPRS (4 Tx slots)	Back	10mm	251	848.8	26.74	27.50	1.191	0.11	0.384	0.457
	GSM850_UAT	GPRS (4 Tx slots)	Top Side	10mm	251	848.8	26.74	27.50	1.191	0.17	0.218	0.260
	GSM1900_LAT	GPRS (4 Tx slots)	Front	10mm	810	1909.8	23.82	24.50	1.169	0.04	0.381	0.446
	GSM1900_LAT	GPRS (4 Tx slots)	Back	10mm	810	1909.8	23.82	24.50	1.169	0.11	0.322	0.377
	GSM1900_LAT	GPRS (4 Tx slots)	Left Side	10mm	810	1909.8	23.82	24.50	1.169	-0.05	0.014	0.016
	GSM1900_LAT	GPRS (4 Tx slots)	Right Side	10mm	810	1909.8	23.82	24.50	1.169	0.01	0.053	0.062
19	GSM1900_LAT	GPRS (4 Tx slots)	Bottom Side	10mm	810	1909.8	23.82	24.50	1.169	-0.01	0.434	0.508

<WCDMA 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)
20	WCDMA II_LAT	RMC 12.2Kbps	Front	10mm	9538	1907.6	20.21	21.00	1.199	0.15	0.659	0.790
	WCDMA II_LAT	RMC 12.2Kbps	Back	10mm	9538	1907.6	20.21	21.00	1.199	0.03	0.518	0.621
	WCDMA II_LAT	RMC 12.2Kbps	Left Side	10mm	9538	1907.6	20.21	21.00	1.199	-0.06	0.024	0.029
	WCDMA II_LAT	RMC 12.2Kbps	Right Side	10mm	9538	1907.6	20.21	21.00	1.199	0.19	0.086	0.103
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	9538	1907.6	20.21	21.00	1.199	0.07	0.585	0.702
21	WCDMA IV_LAT	RMC 12.2Kbps	Front	10mm	1413	1732.6	20.33	21.00	1.167	0.01	0.694	0.810
	WCDMA IV_LAT	RMC 12.2Kbps	Back	10mm	1413	1732.6	20.33	21.00	1.167	0.15	0.572	0.667
	WCDMA IV_LAT	RMC 12.2Kbps	Left Side	10mm	1413	1732.6	20.33	21.00	1.167	0.02	0.017	0.020
	WCDMA IV_LAT	RMC 12.2Kbps	Right Side	10mm	1413	1732.6	20.33	21.00	1.167	0.16	0.133	0.155
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	1413	1732.6	20.33	21.00	1.167	0	0.692	0.807
22	WCDMA V_LAT	RMC 12.2Kbps	Front	10mm	4132	826.4	22.81	24.00	1.315	-0.01	0.405	0.533
	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	4132	826.4	22.81	24.00	1.315	0.18	0.363	0.477
	WCDMA V_LAT	RMC 12.2Kbps	Left Side	10mm	4132	826.4	22.81	24.00	1.315	-0.01	0.044	0.058
	WCDMA V_LAT	RMC 12.2Kbps	Right Side	10mm	4132	826.4	22.81	24.00	1.315	0.03	0.199	0.262
	WCDMA V_LAT	RMC 12.2Kbps	Bottom Side	10mm	4132	826.4	22.81	24.00	1.315	0.12	0.235	0.309
	WCDMA V_UAT	RMC 12.2Kbps	Front	10mm	4132	826.4	22.81	24.00	1.315	0.04	0.325	0.427
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	4132	826.4	22.81	24.00	1.315	-0.11	0.274	0.360
	WCDMA V_UAT	RMC 12.2Kbps	Top Side	10mm	4132	826.4	22.81	24.00	1.315	0.13	0.178	0.234

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	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)
23	LTE Band 2_LAT	20M	QPSK	1	0	Front	10mm	18700	1860	21.19	22.00	1.205	0.01	0.905	1.091
	LTE Band 2_LAT	20M	QPSK	1	0	Front	10mm	18900	1880	21.07	22.00	1.239	-0.04	0.860	1.065
	LTE Band 2_LAT	20M	QPSK	1	0	Front	10mm	19100	1900	21.05	22.00	1.245	0.16	0.837	1.042
	LTE Band 2_LAT	20M	QPSK	50	0	Front	10mm	19100	1900	19.99	21.00	1.262	-0.13	0.671	0.847
	LTE Band 2_LAT	20M	QPSK	50	0	Front	10mm	18700	1860	19.95	21.00	1.274	0.15	0.671	0.855
	LTE Band 2_LAT	20M	QPSK	50	0	Front	10mm	18900	1880	19.83	21.00	1.309	0.12	0.648	0.848
	LTE Band 2_LAT	20M	QPSK	100	0	Front	10mm	19100	1900	20.01	21.00	1.256	0.08	0.646	0.811
	LTE Band 2_LAT	20M	QPSK	1	0	Back	10mm	18700	1860	21.19	22.00	1.205	-0.16	0.717	0.864
	LTE Band 2_LAT	20M	QPSK	1	0	Back	10mm	18900	1880	21.07	22.00	1.239	-0.06	0.683	0.846
	LTE Band 2_LAT	20M	QPSK	1	0	Back	10mm	19100	1900	21.05	22.00	1.245	0.06	0.703	0.875
	LTE Band 2_LAT	20M	QPSK	50	0	Back	10mm	19100	1900	19.99	21.00	1.262	-0.13	0.543	0.685
	LTE Band 2_LAT	20M	QPSK	100	0	Back	10mm	19100	1900	20.01	21.00	1.256	-0.17	0.518	0.651
	LTE Band 2_LAT	20M	QPSK	1	0	Left Side	10mm	18700	1860	21.19	22.00	1.205	0.19	0.029	0.035
	LTE Band 2_LAT	20M	QPSK	50	0	Left Side	10mm	19100	1900	19.99	21.00	1.262	0.01	0.025	0.032
	LTE Band 2_LAT	20M	QPSK	1	0	Right Side	10mm	18700	1860	21.19	22.00	1.205	0.03	0.131	0.158
	LTE Band 2_LAT	20M	QPSK	50	0	Right Side	10mm	19100	1900	19.99	21.00	1.262	0.07	0.105	0.132
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	18700	1860	21.19	22.00	1.205	0	0.884	1.065
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	18900	1880	21.07	22.00	1.239	0.1	0.833	1.032
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	19100	1900	21.05	22.00	1.245	0.03	0.798	0.993
	LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	19100	1900	19.99	21.00	1.262	0.02	0.637	0.804
	LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	18700	1860	19.95	21.00	1.274	0.06	0.682	0.869
	LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	18900	1880	19.83	21.00	1.309	0.16	0.676	0.885
	LTE Band 2_LAT	20M	QPSK	100	0	Bottom Side	10mm	19100	1900	20.01	21.00	1.256	0.04	0.649	0.815
24	LTE Band 4_LAT	20M	QPSK	1	0	Front	10mm	20175	1732.5	22.13	23.00	1.222	0.12	0.973	1.189
	LTE Band 4_LAT	20M	QPSK	50	0	Front	10mm	20175	1732.5	21.11	22.00	1.227	0	0.776	0.952
	LTE Band 4_LAT	20M	QPSK	100	0	Front	10mm	20175	1732.5	21.08	22.00	1.236	0.08	0.761	0.941
	LTE Band 4_LAT	20M	QPSK	1	0	Back	10mm	20175	1732.5	22.13	23.00	1.222	-0.16	0.764	0.933
	LTE Band 4_LAT	20M	QPSK	50	0	Back	10mm	20175	1732.5	21.11	22.00	1.227	0.12	0.665	0.816
	LTE Band 4_LAT	20M	QPSK	100	0	Back	10mm	20175	1732.5	21.08	22.00	1.236	0.17	0.665	0.822
	LTE Band 4_LAT	20M	QPSK	1	0	Left Side	10mm	20175	1732.5	22.13	23.00	1.222	0.13	0.023	0.028
	LTE Band 4_LAT	20M	QPSK	50	0	Left Side	10mm	20175	1732.5	21.11	22.00	1.227	0.15	0.019	0.023
	LTE Band 4_LAT	20M	QPSK	1	0	Right Side	10mm	20175	1732.5	22.13	23.00	1.222	0.13	0.199	0.243
	LTE Band 4_LAT	20M	QPSK	50	0	Right Side	10mm	20175	1732.5	21.11	22.00	1.227	0.18	0.161	0.198
	LTE Band 4_LAT	20M	QPSK	1	0	Bottom Side	10mm	20175	1732.5	22.13	23.00	1.222	-0.05	0.927	1.133
	LTE Band 4_LAT	20M	QPSK	50	0	Bottom Side	10mm	20175	1732.5	21.11	22.00	1.227	0.17	0.886	1.088
	LTE Band 4_LAT	20M	QPSK	100	0	Bottom Side	10mm	20175	1732.5	21.08	22.00	1.236	0.04	0.883	1.091
	LTE Band 7_LAT	20M	QPSK	1	49	Front	10mm	21100	2535	22.48	23.50	1.265	0.02	0.453	0.573
	LTE Band 7_LAT	20M	QPSK	50	0	Front	10mm	21100	2535	21.50	22.50	1.259	0.07	0.370	0.466
	LTE Band 7_LAT	20M	QPSK	1	49	Back	10mm	21100	2535	22.48	23.50	1.265	-0.08	0.610	0.771
	LTE Band 7_LAT	20M	QPSK	50	0	Back	10mm	21100	2535	21.50	22.50	1.259	0.1	0.497	0.626
	LTE Band 7_LAT	20M	QPSK	1	49	Left Side	10mm	21100	2535	22.48	23.50	1.265	0.13	0.253	0.320
	LTE Band 7_LAT	20M	QPSK	50	0	Left Side	10mm	21100	2535	21.50	22.50	1.259	0.16	0.208	0.262
	LTE Band 7_LAT	20M	QPSK	1	49	Right Side	10mm	21100	2535	22.48	23.50	1.265	0.18	0.048	0.061
	LTE Band 7_LAT	20M	QPSK	50	0	Right Side	10mm	21100	2535	21.50	22.50	1.259	0	0.039	0.049
	LTE Band 7_LAT	20M	QPSK	1	49	Bottom Side	10mm	21100	2535	22.48	23.50	1.265	-0.08	0.860	1.088
25	LTE Band 7_LAT	20M	QPSK	1	49	Bottom Side	10mm	20850	2510	22.25	23.50	1.334	-0.02	0.845	1.127
	LTE Band 7_LAT	20M	QPSK	1	49	Bottom Side	10mm	21350	2560	22.09	23.50	1.384	0.05	0.753	1.042
	LTE Band 7_LAT	20M	QPSK	50	0	Bottom Side	10mm	21100	2535	21.50	22.50	1.259	0.19	0.701	0.883
	LTE Band 7_LAT	20M	QPSK	50	0	Bottom Side	10mm	20850	2510	21.34	22.50	1.306	-0.05	0.696	0.909
	LTE Band 7_LAT	20M	QPSK	50	0	Bottom Side	10mm	21350	2560	21.49	22.50	1.262	0.04	0.651	0.821
	LTE Band 7_LAT	20M	QPSK	100	0	Bottom Side	10mm	21100	2535	21.49	22.50	1.262	0.18	0.701	0.885

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	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)
26	LTE Band 12_LAT	10M	QPSK	1	0	Front	10mm	23095	707.5	22.59	24.00	1.384	-0.08	0.364	0.504
	LTE Band 12_LAT	10M	QPSK	25	0	Front	10mm	23095	707.5	21.58	23.00	1.387	0.16	0.314	0.435
	LTE Band 12_LAT	10M	QPSK	1	0	Back	10mm	23095	707.5	22.59	24.00	1.384	-0.04	0.313	0.433
	LTE Band 12_LAT	10M	QPSK	25	0	Back	10mm	23095	707.5	21.58	23.00	1.387	0.01	0.256	0.355
	LTE Band 12_LAT	10M	QPSK	1	0	Left Side	10mm	23095	707.5	22.59	24.00	1.384	0.15	0.063	0.087
	LTE Band 12_LAT	10M	QPSK	25	0	Left Side	10mm	23095	707.5	21.58	23.00	1.387	-0.13	0.052	0.072
	LTE Band 12_LAT	10M	QPSK	1	0	Right Side	10mm	23095	707.5	22.59	24.00	1.384	-0.1	0.152	0.210
	LTE Band 12_LAT	10M	QPSK	25	0	Right Side	10mm	23095	707.5	21.58	23.00	1.387	-0.18	0.123	0.171
	LTE Band 12_LAT	10M	QPSK	1	0	Bottom Side	10mm	23095	707.5	22.59	24.00	1.384	0.17	0.235	0.325
	LTE Band 12_LAT	10M	QPSK	25	0	Bottom Side	10mm	23095	707.5	21.58	23.00	1.387	0.12	0.186	0.258
	LTE Band 12_UAT	10M	QPSK	1	0	Front	10mm	23095	707.5	22.59	24.00	1.384	0.01	0.221	0.306
	LTE Band 12_UAT	10M	QPSK	25	0	Front	10mm	23095	707.5	21.58	23.00	1.387	0.08	0.182	0.252
	LTE Band 12_UAT	10M	QPSK	1	0	Back	10mm	23095	707.5	22.59	24.00	1.384	0.07	0.161	0.223
	LTE Band 12_UAT	10M	QPSK	25	0	Back	10mm	23095	707.5	21.58	23.00	1.387	0.01	0.133	0.184
	LTE Band 12_UAT	10M	QPSK	1	0	Top Side	10mm	23095	707.5	22.59	24.00	1.384	0.18	0.117	0.162
	LTE Band 12_UAT	10M	QPSK	25	0	Top Side	10mm	23095	707.5	21.58	23.00	1.387	0.12	0.096	0.133
27	LTE Band 26_LAT	15M	QPSK	1	0	Front	10mm	26865	831.5	22.69	24.00	1.352	0.01	0.446	0.603
	LTE Band 26_LAT	15M	QPSK	36	0	Front	10mm	26865	831.5	21.70	23.00	1.349	-0.07	0.360	0.486
	LTE Band 26_LAT	15M	QPSK	1	0	Back	10mm	26865	831.5	22.69	24.00	1.352	0	0.366	0.495
	LTE Band 26_LAT	15M	QPSK	36	0	Back	10mm	26865	831.5	21.70	23.00	1.349	0.01	0.303	0.409
	LTE Band 26_LAT	15M	QPSK	1	0	Left Side	10mm	26865	831.5	22.69	24.00	1.352	0.02	0.034	0.046
	LTE Band 26_LAT	15M	QPSK	36	0	Left Side	10mm	26865	831.5	21.70	23.00	1.349	0.09	0.029	0.039
	LTE Band 26_LAT	15M	QPSK	1	0	Right Side	10mm	26865	831.5	22.69	24.00	1.352	0.1	0.202	0.273
	LTE Band 26_LAT	15M	QPSK	36	0	Right Side	10mm	26865	831.5	21.70	23.00	1.349	0.04	0.158	0.213
	LTE Band 26_LAT	15M	QPSK	1	0	Bottom Side	10mm	26865	831.5	22.69	24.00	1.352	0.09	0.301	0.407
	LTE Band 26_LAT	15M	QPSK	36	0	Bottom Side	10mm	26865	831.5	21.70	23.00	1.349	0.15	0.216	0.291
	LTE Band 26_UAT	15M	QPSK	1	0	Front	10mm	26865	831.5	22.69	24.00	1.352	0.14	0.337	0.456
	LTE Band 26_UAT	15M	QPSK	36	0	Front	10mm	26865	831.5	21.70	23.00	1.349	0.03	0.260	0.351
	LTE Band 26_UAT	15M	QPSK	1	0	Back	10mm	26865	831.5	22.69	24.00	1.352	-0.06	0.289	0.391
	LTE Band 26_UAT	15M	QPSK	36	0	Back	10mm	26865	831.5	21.70	23.00	1.349	-0.05	0.225	0.304
	LTE Band 26_UAT	15M	QPSK	1	0	Top Side	10mm	26865	831.5	22.69	24.00	1.352	0.19	0.189	0.256
	LTE Band 26_UAT	15M	QPSK	36	0	Top Side	10mm	26865	831.5	21.70	23.00	1.349	0.17	0.146	0.197
	LTE Band 30_LAT	10M	QPSK	1	0	Front	10mm	27710	2310	22.52	24.00	1.406	-0.04	0.315	0.443
	LTE Band 30_LAT	10M	QPSK	25	0	Front	10mm	27710	2310	21.53	23.00	1.403	-0.02	0.251	0.352
	LTE Band 30_LAT	10M	QPSK	1	0	Back	10mm	27710	2310	22.52	24.00	1.406	0.04	0.259	0.364
	LTE Band 30_LAT	10M	QPSK	25	0	Back	10mm	27710	2310	21.53	23.00	1.403	-0.01	0.205	0.288
	LTE Band 30_LAT	10M	QPSK	1	0	Left Side	10mm	27710	2310	22.52	24.00	1.406	-0.07	0.126	0.177
	LTE Band 30_LAT	10M	QPSK	25	0	Left Side	10mm	27710	2310	21.53	23.00	1.403	-0.03	0.101	0.142
	LTE Band 30_LAT	10M	QPSK	1	0	Right Side	10mm	27710	2310	22.52	24.00	1.406	0.17	0.033	0.046
	LTE Band 30_LAT	10M	QPSK	25	0	Right Side	10mm	27710	2310	21.53	23.00	1.403	-0.08	0.026	0.036
28	LTE Band 30_LAT	10M	QPSK	1	0	Bottom Side	10mm	27710	2310	22.52	24.00	1.406	0.06	0.619	0.870
	LTE Band 30_LAT	10M	QPSK	25	0	Bottom Side	10mm	27710	2310	21.53	23.00	1.403	-0.04	0.492	0.690
	LTE Band 30_LAT	10M	QPSK	50	0	Bottom Side	10mm	27710	2310	21.49	23.00	1.416	0.03	0.494	0.699

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 41_LAT	20M	QPSK	1	0	Front	10mm	40240	2555	22.61	24.00	1.377	62.9	1.006	-0.13	0.290	0.402
	LTE Band 41_LAT	20M	QPSK	50	0	Front	10mm	40240	2555	21.55	23.00	1.396	62.9	1.006	0.06	0.224	0.315
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	40240	2555	22.61	24.00	1.377	62.9	1.006	-0.03	0.387	0.536
	LTE Band 41_LAT	20M	QPSK	50	0	Back	10mm	40240	2555	21.55	23.00	1.396	62.9	1.006	-0.07	0.297	0.417
	LTE Band 41_LAT	20M	QPSK	1	0	Left Side	10mm	40240	2555	22.61	24.00	1.377	62.9	1.006	0.16	0.223	0.309
	LTE Band 41_LAT	20M	QPSK	50	0	Left Side	10mm	40240	2555	21.55	23.00	1.396	62.9	1.006	-0.18	0.171	0.240
	LTE Band 41_LAT	20M	QPSK	1	0	Right Side	10mm	40240	2555	22.61	24.00	1.377	62.9	1.006	-0.04	0.056	0.078
	LTE Band 41_LAT	20M	QPSK	50	0	Right Side	10mm	40240	2555	21.55	23.00	1.396	62.9	1.006	-0.19	0.043	0.060
29	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	40240	2555	22.61	24.00	1.377	62.9	1.006	-0.11	0.605	0.838
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	40500	2581	22.38	24.00	1.452	62.9	1.006	-0.08	0.533	0.779
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	40770	2608	22.13	24.00	1.538	62.9	1.006	-0.12	0.511	0.791
	LTE Band 41_LAT	20M	QPSK	1	99	Bottom Side	10mm	41140	2645	22.30	24.00	1.479	62.9	1.006	-0.09	0.371	0.552
	LTE Band 41_LAT	20M	QPSK	50	0	Bottom Side	10mm	40240	2555	21.55	23.00	1.396	62.9	1.006	-0.04	0.439	0.617
	LTE Band 41_LAT	20M	QPSK	50	24	Bottom Side	10mm	40500	2581	21.37	23.00	1.455	62.9	1.006	0.04	0.379	0.555
	LTE Band 41_LAT	20M	QPSK	50	0	Bottom Side	10mm	40770	2608	21.18	23.00	1.521	62.9	1.006	0.01	0.344	0.526
	LTE Band 41_LAT	20M	QPSK	50	0	Bottom Side	10mm	41140	2645	21.25	23.00	1.496	62.9	1.006	-0.02	0.302	0.455
	LTE Band 41_LAT	20M	QPSK	100	0	Bottom Side	10mm	40240	2555	21.40	23.00	1.445	62.9	1.006	0.03	0.408	0.593

<WLAN 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 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	0.17	0.201	0.217
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	0.08	0.180	0.194
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	0.03	0.054	0.058
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	0.06	0.013	0.014
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	-0.06	0.137	0.148
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	0.04	0.126	0.133
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	0.11	0.163	0.172
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	0.14	0.015	0.016
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	0.08	0.099	0.104
30	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	-0.11	0.253	0.266
31	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	44	5220	19.38	20.00	1.153	98.10	1.019	-0.01	0.149	0.175
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	44	5220	19.38	20.00	1.153	98.10	1.019	-0.12	0.110	0.129
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 1	44	5220	19.38	20.00	1.153	98.10	1.019	-0.17	0.044	0.052
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 1	44	5220	19.38	20.00	1.153	98.10	1.019	-0.07	0.011	0.013
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 1	44	5220	19.38	20.00	1.153	98.10	1.019	-0.13	0.046	0.054
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	44	5220	19.29	20.00	1.178	98.10	1.019	0.11	0.047	0.056
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	44	5220	19.29	20.00	1.178	98.10	1.019	-0.11	0.101	0.121
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 2	44	5220	19.29	20.00	1.178	98.10	1.019	0.16	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 2	44	5220	19.29	20.00	1.178	98.10	1.019	-0.12	0.030	0.036
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 2	44	5220	19.29	20.00	1.178	98.10	1.019	-0.17	0.074	0.089
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	0.01	0.072	0.086
32	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	-0.13	0.293	0.348
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	-0.17	0.055	0.065
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	-0.07	0.013	0.015
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	-0.05	0.206	0.245
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	Ant 2	159	5755	18.83	19.00	1.040	95.96	1.042	0.04	0.036	0.039
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 2	159	5795	18.83	19.00	1.040	95.96	1.042	0.13	0.160	0.173
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 2	159	5795	18.83	19.00	1.040	95.96	1.042	0.16	0.000	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	10mm	Ant 2	159	5795	18.83	19.00	1.040	95.96	1.042	-0.12	0.038	0.041
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 2	159	5755	18.83	19.00	1.040	95.96	1.042	-0.18	0.026	0.028

<Bluetooth 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 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	10mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	0	0.014	0.016
33	Bluetooth	1Mbps	Back	10mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	-0.01	0.019	0.021
	Bluetooth	1Mbps	Left Side	10mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	-0.02	0.004	0.005
	Bluetooth	1Mbps	Right Side	10mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	-0.01	0.001	0.001
	Bluetooth	1Mbps	Top Side	10mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	-0.12	0.016	0.018

14.3 Body Worn Accessory SAR

<GSM 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)
	GSM850_LAT	GPRS (4 Tx slots)	Front	15mm	251	848.8	26.74	27.50	1.191	0.18	0.217	0.258
	GSM850_LAT	GPRS (4 Tx slots)	Back	15mm	251	848.8	26.74	27.50	1.191	0.01	0.216	0.257
34	GSM850_UAT	GPRS (4 Tx slots)	Front	15mm	251	848.8	26.74	27.50	1.191	0.13	0.269	0.320
	GSM850_UAT	GPRS (4 Tx slots)	Back	15mm	251	848.8	26.74	27.50	1.191	-0.02	0.231	0.275
35	GSM1900_LAT	GPRS (4 Tx slots)	Front	15mm	810	1909.8	23.82	24.50	1.169	0.07	0.172	0.201
	GSM1900_LAT	GPRS (4 Tx slots)	Back	15mm	810	1909.8	23.82	24.50	1.169	0.07	0.141	0.165

<WCDMA 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)
36	WCDMA II_LAT	RMC 12.23Kbps	Front	15mm	9262	1852.4	21.35	22.00	1.161	0.1	0.433	0.503
	WCDMA II_LAT	RMC 12.23Kbps	Back	15mm	9262	1852.4	21.35	22.00	1.161	0	0.331	0.384
37	WCDMA IV_LAT	RMC 12.23Kbps	Front	15mm	1413	1732.6	21.46	22.00	1.132	0.14	0.381	0.431
	WCDMA IV_LAT	RMC 12.23Kbps	Back	15mm	1413	1732.6	21.46	22.00	1.132	-0.17	0.327	0.370
38	WCDMA V_LAT	RMC 12.2Kbps	Front	15mm	4132	826.4	22.81	24.00	1.315	0.1	0.226	0.297
	WCDMA V_LAT	RMC 12.2Kbps	Back	15mm	4132	826.4	22.81	24.00	1.315	0.01	0.206	0.271
	WCDMA V_UAT	RMC 12.2Kbps	Front	15mm	4132	826.4	22.81	24.00	1.315	0.04	0.179	0.235
	WCDMA V_UAT	RMC 12.2Kbps	Back	15mm	4132	826.4	22.81	24.00	1.315	-0.07	0.167	0.220

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	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)
39	LTE Band 2_LAT	20M	QPSK	1	0	Front	15mm	18700	1860	21.67	22.50	1.211	0.05	0.452	0.547
	LTE Band 2_LAT	20M	QPSK	50	0	Front	15mm	19100	1900	20.58	21.50	1.236	0.08	0.320	0.396
	LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	18700	1860	21.67	22.50	1.211	0.07	0.352	0.426
	LTE Band 2_LAT	20M	QPSK	50	0	Back	15mm	19100	1900	20.58	21.50	1.236	-0.05	0.241	0.298
40	LTE Band 4_LAT	20M	QPSK	1	0	Front	15mm	20175	1732.5	23.12	24.00	1.225	-0.15	0.444	0.544
	LTE Band 4_LAT	20M	QPSK	50	0	Front	15mm	20175	1732.5	21.98	23.00	1.265	0.13	0.350	0.443
	LTE Band 4_LAT	20M	QPSK	1	0	Back	15mm	20175	1732.5	23.12	24.00	1.225	-0.01	0.355	0.435
	LTE Band 4_LAT	20M	QPSK	50	0	Back	15mm	20175	1732.5	21.98	23.00	1.265	0.16	0.283	0.358
	LTE Band 7_LAT	20M	QPSK	1	49	Front	15mm	21100	2535	22.48	23.50	1.265	-0.11	0.226	0.286
	LTE Band 7_LAT	20M	QPSK	50	0	Front	15mm	21100	2535	21.50	22.50	1.259	0.13	0.187	0.235
41	LTE Band 7_LAT	20M	QPSK	1	49	Back	15mm	21100	2535	22.48	23.50	1.265	0.02	0.253	0.320
	LTE Band 7_LAT	20M	QPSK	50	0	Back	15mm	21100	2535	21.50	22.50	1.259	-0.09	0.205	0.258
	LTE Band 12_LAT	10M	QPSK	1	0	Front	15mm	23095	707.5	22.59	24.00	1.384	-0.01	0.175	0.242
	LTE Band 12_LAT	10M	QPSK	25	0	Front	15mm	23095	707.5	21.58	23.00	1.387	0.03	0.154	0.214
42	LTE Band 12_LAT	10M	QPSK	1	0	Back	15mm	23095	707.5	22.59	24.00	1.384	-0.03	0.190	0.263
	LTE Band 12_LAT	10M	QPSK	25	0	Back	15mm	23095	707.5	21.58	23.00	1.387	0.04	0.156	0.216
	LTE Band 12_UAT	10M	QPSK	1	0	Front	15mm	23095	707.5	22.59	24.00	1.384	0.04	0.117	0.162
	LTE Band 12_UAT	10M	QPSK	25	0	Front	15mm	23095	707.5	21.58	23.00	1.387	0.02	0.098	0.136
	LTE Band 12_UAT	10M	QPSK	1	0	Back	15mm	23095	707.5	22.59	24.00	1.384	0.07	0.097	0.134
	LTE Band 12_UAT	10M	QPSK	25	0	Back	15mm	23095	707.5	21.58	23.00	1.387	0.05	0.081	0.112

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	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)
43	LTE Band 26_LAT	15M	QPSK	1	0	Front	15mm	26865	831.5	22.69	24.00	1.352	-0.01	0.228	0.308
	LTE Band 26_LAT	15M	QPSK	36	0	Front	15mm	26865	831.5	21.70	23.00	1.349	-0.02	0.172	0.232
	LTE Band 26_LAT	15M	QPSK	1	0	Back	15mm	26865	831.5	22.69	24.00	1.352	0.02	0.214	0.289
	LTE Band 26_LAT	15M	QPSK	36	0	Back	15mm	26865	831.5	21.70	23.00	1.349	0.06	0.164	0.221
	LTE Band 26_UAT	15M	QPSK	1	0	Front	15mm	26865	831.5	22.69	24.00	1.352	0.09	0.199	0.269
	LTE Band 26_UAT	15M	QPSK	36	0	Front	15mm	26865	831.5	21.70	23.00	1.349	0.09	0.157	0.212
	LTE Band 26_UAT	15M	QPSK	1	0	Back	15mm	26865	831.5	22.69	24.00	1.352	-0.01	0.184	0.249
	LTE Band 26_UAT	15M	QPSK	36	0	Back	15mm	26865	831.5	21.70	23.00	1.349	-0.04	0.143	0.193
44	LTE Band 30_LAT	10M	QPSK	1	0	Front	15mm	27710	2310	22.52	24.00	1.406	-0.15	0.188	0.264
	LTE Band 30_LAT	10M	QPSK	25	0	Front	15mm	27710	2310	21.53	23.00	1.403	-0.03	0.150	0.210
	LTE Band 30_LAT	10M	QPSK	1	0	Back	15mm	27710	2310	22.52	24.00	1.406	0.13	0.157	0.221
	LTE Band 30_LAT	10M	QPSK	25	0	Back	15mm	27710	2310	21.53	23.00	1.403	0.11	0.124	0.174

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 41_LAT	20M	QPSK	1	0	Front	15mm	40240	2555	22.61	24.00	1.377	62.9	1.006	0.1	0.143	0.198
	LTE Band 41_LAT	20M	QPSK	50	0	Front	15mm	40240	2555	21.55	23.00	1.396	62.9	1.006	0.06	0.107	0.150
45	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	40240	2555	22.61	24.00	1.377	62.9	1.006	-0.17	0.155	0.215
	LTE Band 41_LAT	20M	QPSK	50	0	Back	15mm	40240	2555	21.55	23.00	1.396	62.9	1.006	-0.17	0.121	0.170

<WLAN 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 1g SAR (W/kg)	Reported 1g SAR (W/kg)
46	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	0.03	0.081	0.087
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	6	2437	18.71	19.00	1.069	99.04	1.010	0.02	0.068	0.073
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	0.12	0.073	0.077
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 2	6	2437	18.86	19.00	1.033	98.10	1.019	0.19	0.082	0.086
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	-0.16	0.051	0.075
47	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	-0.01	0.070	0.104
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	0.18	0.035	0.044
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	-0.12	0.045	0.057
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	-0.18	0.046	0.052
48	WLAN5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	-0.12	0.238	0.267
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	0.15	0.019	0.021
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	-0.06	0.087	0.098
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	-0.13	0.036	0.043
49	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	151	5755	18.43	19.00	1.140	95.96	1.042	-0.12	0.246	0.292
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 2	159	5795	18.83	19.00	1.040	95.96	1.042	-0.17	0.018	0.020
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 2	159	5795	18.83	19.00	1.040	95.96	1.042	-0.06	0.092	0.100

<Bluetooth 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 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	15mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	0	0.006	0.006
50	Bluetooth	1Mbps	Back	15mm	Ant 2	78	2480	11.31	11.50	1.045	77.13	1.080	0	0.007	0.008

14.4 Product Specific

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 2_LAT	20M	QPSK	1	0	Front	0mm	18700	1860	21.67	22.50	1.211	0.14	2.220	2.688
	LTE Band 2_LAT	20M	QPSK	1	0	Front	0mm	18900	1880	21.57	22.50	1.239	0.05	2.220	2.750
51	LTE Band 2_LAT	20M	QPSK	1	0	Front	0mm	19100	1900	21.62	22.50	1.225	0.08	2.470	3.025
52	LTE Band 4_LAT	20M	QPSK	1	0	Front	0mm	20175	1732.5	23.12	24.00	1.225	-0.11	2.610	3.196
	LTE Band 4_LAT	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	23.12	24.00	1.225	0.03	2.550	3.123

<WLAN 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)
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	0.13	0.857	1.267
53	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	-0.14	1.410	2.085
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	-0.19	0.169	0.250
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	0.16	0.006	0.009
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 1	54	5270	18.48	20.00	1.419	95.96	1.042	-0.13	0.235	0.347
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	0.14	0.619	0.779
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	-0.12	1.250	1.573
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	0.01	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	-0.01	0.112	0.141
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 2	54	5270	19.18	20.00	1.208	95.96	1.042	-0.17	0.492	0.619
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	0.11	0.596	0.670
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	-0.03	2.360	2.652
54	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	122	5610	19.68	20.00	1.076	92.80	1.078	-0.02	2.540	2.947
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	-0.02	0.344	0.387
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	0.11	0.007	0.008
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 1	138	5690	19.82	20.00	1.042	92.80	1.078	-0.06	0.416	0.467
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	0.11	0.413	0.463
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	0	1.010	1.133
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	0.01	0.001	0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	-0.11	0.117	0.131
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 2	138	5690	19.86	20.00	1.033	92.06	1.086	-0.15	0.239	0.268

14.5 Repeated SAR Measurement

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)	Ratio	Reported 1g SAR (W/kg)
1st	GSM850_UAT	GPRS (4 Tx slots)	Right Cheek	0mm	189	836.4	26.69	27.50	1.205	0.03	0.991	-	1.194
2nd	GSM850_UAT	GPRS (4 Tx slots)	Right Cheek	0mm	189	836.4	26.69	27.50	1.205	-0.17	0.947	1.05	1.141
1st	LTE Band 2_LAT	20M_QPSK_1_0	Front	10mm	18700	1860	21.19	22.00	1.205	0.01	0.905	-	1.091
2nd	LTE Band 2_LAT	20M_QPSK_1_0	Front	10mm	18700	1860	21.19	22.00	1.205	0.13	0.854	1.06	1.029
1st	LTE Band 4_LAT	20M_QPSK_1_0	Front	10mm	20175	1732.5	22.13	23.00	1.222	0.12	0.973	-	1.189
2nd	LTE Band 4_LAT	20M_QPSK_1_0	Front	10mm	20175	1732.5	22.13	23.00	1.222	0.09	0.964	1.01	1.178
1st	LTE Band 7_LAT	20M_QPSK_1_49	Bottom Side	10mm	21100	2535	22.48	23.50	1.265	-0.08	0.860	-	1.088
2nd	LTE Band 7_LAT	20M_QPSK_1_49	Bottom Side	10mm	21100	2535	22.48	23.50	1.265	-0.02	0.857	1.00	1.084

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 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	LTE Band 2_LAT	20M_QPSK_1_0	Front	0mm	19100	1900	21.62	22.50	1.225	0.08	2.470	-	3.025
2nd	LTE Band 2_LAT	20M_QPSK_1_0	Front	0mm	19100	1900	21.62	22.50	1.225	0.04	2.360	1.05	2.890
1st	LTE Band 4_LAT	20M_QPSK_1_0	Front	0mm	20175	1732.5	23.12	24.00	1.225	-0.11	2.610	-	3.196
2nd	LTE Band 4_LAT	20M_QPSK_1_0	Front	0mm	20175	1732.5	23.12	24.00	1.225	0.04	2.570	1.02	3.147

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. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured SAR*.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

Simultaneous transmission combination scenarios	WWAN LAT	WWAN UAT	2.4GHz WLAN Ant 1	2.4GHz WLAN/BT Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Remark
1	v		v			v	1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2. WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
2	v			v	v		1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2.WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
3	v		v	v			WWAN voice or data 2.4GHz WLAN data (and MIMO)
4	v				v	v	WWAN voice or data 5GHz WLAN data (and MIMO)
5	v			v		v	1. WWAN data / Bluetooth tethering (for WWAN) 5GHz WLAN hotspot (for WWAN) 2.WWAN voice call, data / Bluetooth tethering (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data Bluetooth data, 5GHz WLAN data
6		v	v			v	1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2. WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
7		v		v	v		1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2. WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
8		v	v	v			WWAN voice or data 2.4GHz WLAN data (and MIMO)
9		v			v	v	WWAN voice or data 5GHz WLAN data (and MIMO)
10		v		v		v	1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2. WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
11			v	v			2.4GHz WLAN MIMO
12					v	v	5GHz WLAN MIMO
13			v			v	2.4GHz WLAN data and 5GHz WLAN data
14				v	v		2.4GHz WLAN or BT data and 5GHz WLAN data
Remark	BT and 2.4GHz WLAN share the same antenna2 but won't operate simultaneously.						

General Note:

1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. The worst case WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WiFi Direct and Hotspot capability.
3. For 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.
4. 2.4GHz WLAN and Bluetooth share the same antenna 2, and cannot transmit simultaneously.
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.

15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2							
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
GSM	GSM850_LAT	Right Cheek	0.114	0.178	0.063	0.257	0.045	0.108	**0.355**	**0.416**	**0.337**	**0.400**	**0.479**	**0.434**	**0.267**
		Right Tilted	0.057	0.147	0.086	0.217	0.047	0.091	**0.290**	**0.321**	**0.251**	**0.295**	**0.365**	**0.360**	**0.195**
		Left Cheek	0.088	0.168	0.190	0.102	0.114	0.079	**0.446**	**0.304**	**0.370**	**0.335**	**0.269**	**0.380**	**0.281**
		Left Tilted	0.054	0.120	0.207	0.089	0.156	0.054	**0.381**	**0.299**	**0.330**	**0.228**	**0.197**	**0.350**	**0.264**
	GSM850_UAT	Right Cheek	1.194	0.178	0.063	0.257	0.045	0.108	**1.435**	**1.496**	**1.417**	**1.480**	**1.559**	**1.514**	**1.347**
		Right Tilted	1.181	0.147	0.086	0.217	0.047	0.091	**1.414**	**1.445**	**1.375**	**1.419**	**1.489**	**1.484**	**1.319**
		Left Cheek	1.172	0.168	0.190	0.102	0.114	0.079	**1.530**	**1.388**	**1.454**	**1.419**	**1.353**	**1.464**	**1.365**
		Left Tilted	1.144	0.120	0.207	0.089	0.156	0.054	**1.471**	**1.389**	**1.420**	**1.318**	**1.287**	**1.440**	**1.354**
	GSM1900_LAT	Right Cheek	0.008	0.178	0.063	0.257	0.045	0.108	**0.249**	**0.310**	**0.231**	**0.294**	**0.373**	**0.328**	**0.161**
		Right Tilted	0.001	0.147	0.086	0.217	0.047	0.091	**0.234**	**0.265**	**0.195**	**0.239**	**0.309**	**0.304**	**0.139**
		Left Cheek	0.005	0.168	0.190	0.102	0.114	0.079	**0.363**	**0.221**	**0.287**	**0.252**	**0.186**	**0.297**	**0.198**
		Left Tilted	0.001	0.120	0.207	0.089	0.156	0.054	**0.328**	**0.246**	**0.277**	**0.175**	**0.144**	**0.297**	**0.211**
WCDMA	WCDMA II_LAT	Right Cheek	0.058	0.178	0.063	0.257	0.045	0.108	**0.299**	**0.360**	**0.281**	**0.344**	**0.423**	**0.378**	**0.211**
		Right Tilted	0.004	0.147	0.086	0.217	0.047	0.091	**0.237**	**0.268**	**0.198**	**0.242**	**0.312**	**0.307**	**0.142**
		Left Cheek	0.033	0.168	0.190	0.102	0.114	0.079	**0.391**	**0.249**	**0.315**	**0.280**	**0.214**	**0.325**	**0.226**
		Left Tilted	0.005	0.120	0.207	0.089	0.156	0.054	**0.332**	**0.250**	**0.281**	**0.179**	**0.148**	**0.301**	**0.215**
	WCDMA IV_LAT	Right Cheek	0.045	0.178	0.063	0.257	0.045	0.108	**0.286**	**0.347**	**0.268**	**0.331**	**0.410**	**0.365**	**0.198**
		Right Tilted	0.003	0.147	0.086	0.217	0.047	0.091	**0.236**	**0.267**	**0.197**	**0.241**	**0.311**	**0.306**	**0.141**
		Left Cheek	0.027	0.168	0.190	0.102	0.114	0.079	**0.385**	**0.243**	**0.309**	**0.274**	**0.208**	**0.319**	**0.220**
		Left Tilted	0.006	0.120	0.207	0.089	0.156	0.054	**0.333**	**0.251**	**0.282**	**0.180**	**0.149**	**0.302**	**0.216**
	WCDMA V_LAT	Right Cheek	0.147	0.178	0.063	0.257	0.045	0.108	**0.388**	**0.449**	**0.370**	**0.433**	**0.512**	**0.467**	**0.300**
		Right Tilted	0.066	0.147	0.086	0.217	0.047	0.091	**0.299**	**0.330**	**0.260**	**0.304**	**0.374**	**0.369**	**0.204**
		Left Cheek	0.093	0.168	0.190	0.102	0.114	0.079	**0.451**	**0.309**	**0.375**	**0.340**	**0.274**	**0.385**	**0.286**
		Left Tilted	0.066	0.120	0.207	0.089	0.156	0.054	**0.393**	**0.311**	**0.342**	**0.240**	**0.209**	**0.362**	**0.276**
	WCDMA V_UAT	Right Cheek	0.860	0.178	0.063	0.257	0.045	0.108	**1.101**	**1.162**	**1.083**	**1.146**	**1.225**	**1.180**	**1.013**
		Right Tilted	0.797	0.147	0.086	0.217	0.047	0.091	**1.030**	**1.061**	**0.991**	**1.035**	**1.105**	**1.100**	**0.935**
		Left Cheek	0.787	0.168	0.190	0.102	0.114	0.079	**1.145**	**1.003**	**1.069**	**1.034**	**0.968**	**1.079**	**0.980**
		Left Tilted	0.664	0.120	0.207	0.089	0.156	0.054	**0.991**	**0.909**	**0.940**	**0.838**	**0.807**	**0.960**	**0.874**

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2							
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
LTE	LTE Band 2_LAT	Right Cheek	0.061	0.178	0.063	0.257	0.045	0.108	**0.302**	**0.363**	**0.284**	**0.347**	**0.426**	**0.381**	**0.214**
		Right Tilted	0.006	0.147	0.086	0.217	0.047	0.091	**0.239**	**0.270**	**0.200**	**0.244**	**0.314**	**0.309**	**0.144**
		Left Cheek	0.108	0.168	0.190	0.102	0.114	0.079	**0.466**	**0.324**	**0.390**	**0.355**	**0.289**	**0.400**	**0.301**
		Left Tilted	0.010	0.120	0.207	0.089	0.156	0.054	**0.337**	**0.255**	**0.286**	**0.184**	**0.153**	**0.306**	**0.220**
	LTE Band 4_LAT	Right Cheek	0.091	0.178	0.063	0.257	0.045	0.108	**0.332**	**0.393**	**0.314**	**0.377**	**0.456**	**0.411**	**0.244**
		Right Tilted	0.018	0.147	0.086	0.217	0.047	0.091	**0.251**	**0.282**	**0.212**	**0.256**	**0.326**	**0.321**	**0.156**
		Left Cheek	0.045	0.168	0.190	0.102	0.114	0.079	**0.403**	**0.261**	**0.327**	**0.292**	**0.226**	**0.337**	**0.238**
		Left Tilted	0.031	0.120	0.207	0.089	0.156	0.054	**0.358**	**0.276**	**0.307**	**0.205**	**0.174**	**0.327**	**0.241**
	LTE Band 7_LAT	Right Cheek	0.086	0.178	0.063	0.257	0.045	0.108	**0.327**	**0.388**	**0.309**	**0.372**	**0.451**	**0.406**	**0.239**
		Right Tilted	0.095	0.147	0.086	0.217	0.047	0.091	**0.328**	**0.359**	**0.289**	**0.333**	**0.403**	**0.398**	**0.233**
		Left Cheek	0.082	0.168	0.190	0.102	0.114	0.079	**0.440**	**0.298**	**0.364**	**0.329**	**0.263**	**0.374**	**0.275**
		Left Tilted	0.046	0.120	0.207	0.089	0.156	0.054	**0.373**	**0.291**	**0.322**	**0.220**	**0.189**	**0.342**	**0.256**
	LTE Band 12_LAT	Right Cheek	0.131	0.178	0.063	0.257	0.045	0.108	**0.372**	**0.433**	**0.354**	**0.417**	**0.496**	**0.451**	**0.284**
		Right Tilted	0.058	0.147	0.086	0.217	0.047	0.091	**0.291**	**0.322**	**0.252**	**0.296**	**0.366**	**0.361**	**0.196**
		Left Cheek	0.097	0.168	0.190	0.102	0.114	0.079	**0.455**	**0.313**	**0.379**	**0.344**	**0.278**	**0.389**	**0.290**
		Left Tilted	0.113	0.120	0.207	0.089	0.156	0.054	**0.440**	**0.358**	**0.389**	**0.287**	**0.256**	**0.409**	**0.323**
	LTE Band 12_UAT	Right Cheek	0.799	0.178	0.063	0.257	0.045	0.108	**1.040**	**1.101**	**1.022**	**1.085**	**1.164**	**1.119**	**0.952**
		Right Tilted	0.731	0.147	0.086	0.217	0.047	0.091	**0.964**	**0.995**	**0.925**	**0.969**	**1.039**	**1.034**	**0.869**
		Left Cheek	0.799	0.168	0.190	0.102	0.114	0.079	**1.157**	**1.015**	**1.081**	**1.046**	**0.980**	**1.091**	**0.992**
		Left Tilted	0.667	0.120	0.207	0.089	0.156	0.054	**0.994**	**0.912**	**0.943**	**0.841**	**0.810**	**0.963**	**0.877**
	LTE Band 26_LAT	Right Cheek	0.170	0.178	0.063	0.257	0.045	0.108	**0.411**	**0.472**	**0.393**	**0.456**	**0.535**	**0.490**	**0.323**
		Right Tilted	0.074	0.147	0.086	0.217	0.047	0.091	**0.307**	**0.338**	**0.268**	**0.312**	**0.382**	**0.377**	**0.212**
		Left Cheek	0.089	0.168	0.190	0.102	0.114	0.079	**0.447**	**0.305**	**0.371**	**0.336**	**0.270**	**0.381**	**0.282**
		Left Tilted	0.093	0.120	0.207	0.089	0.156	0.054	**0.420**	**0.338**	**0.369**	**0.267**	**0.236**	**0.389**	**0.303**
	LTE Band 26_UAT	Right Cheek	0.642	0.178	0.063	0.257	0.045	0.108	**0.883**	**0.944**	**0.865**	**0.928**	**1.007**	**0.962**	**0.795**
		Right Tilted	0.632	0.147	0.086	0.217	0.047	0.091	**0.865**	**0.896**	**0.826**	**0.870**	**0.940**	**0.935**	**0.770**
		Left Cheek	0.817	0.168	0.190	0.102	0.114	0.079	**1.175**	**1.033**	**1.099**	**1.064**	**0.998**	**1.109**	**1.010**
		Left Tilted	0.692	0.120	0.207	0.089	0.156	0.054	**1.019**	**0.937**	**0.968**	**0.866**	**0.835**	**0.988**	**0.902**
	LTE Band 30_LAT	Right Cheek	0.082	0.178	0.063	0.257	0.045	0.108	**0.323**	**0.384**	**0.305**	**0.368**	**0.447**	**0.402**	**0.235**
		Right Tilted	0.097	0.147	0.086	0.217	0.047	0.091	**0.330**	**0.361**	**0.291**	**0.335**	**0.405**	**0.400**	**0.235**
		Left Cheek	0.090	0.168	0.190	0.102	0.114	0.079	**0.448**	**0.306**	**0.372**	**0.337**	**0.271**	**0.382**	**0.283**
		Left Tilted	0.048	0.120	0.207	0.089	0.156	0.054	**0.375**	**0.293**	**0.324**	**0.222**	**0.191**	**0.344**	**0.258**
	LTE Band 41_LAT	Right Cheek	0.062	0.178	0.063	0.257	0.045	0.108	**0.303**	**0.364**	**0.285**	**0.348**	**0.427**	**0.382**	**0.215**
		Right Tilted	0.062	0.147	0.086	0.217	0.047	0.091	**0.295**	**0.326**	**0.256**	**0.300**	**0.370**	**0.365**	**0.200**
		Left Cheek	0.078	0.168	0.190	0.102	0.114	0.079	**0.436**	**0.294**	**0.360**	**0.325**	**0.259**	**0.370**	**0.271**
		Left Tilted	0.042	0.120	0.207	0.089	0.156	0.054	**0.369**	**0.287**	**0.318**	**0.216**	**0.185**	**0.338**	**0.252**

15.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2							
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
GSM	GSM850_LAT	Front	0.525	0.217	0.133	0.175	0.056	0.016	**0.875**	**0.756**	**0.798**	**0.758**	**0.716**	**0.833**	**0.597**
		Back	0.373	0.194	0.172	0.348	0.173	0.021	**0.739**	**0.894**	**0.740**	**0.588**	**0.742**	**0.893**	**0.567**
		Left side	0.030	0.058	0.016	0.065	0.001	0.005	**0.104**	**0.096**	**0.089**	**0.093**	**0.100**	**0.111**	**0.036**
		Right side	0.203	0.014	0.104	0.015	0.041	0.001	**0.321**	**0.259**	**0.258**	**0.218**	**0.219**	**0.322**	**0.245**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.251						**0.251**	**0.251**	**0.251**	**0.251**	**0.251**	**0.251**	**0.251**
	GSM850_UAT	Front	0.499	0.217	0.133	0.175	0.056	0.016	**0.849**	**0.730**	**0.772**	**0.732**	**0.690**	**0.807**	**0.571**
		Back	0.457	0.194	0.172	0.348	0.173	0.021	**0.823**	**0.978**	**0.824**	**0.672**	**0.826**	**0.977**	**0.651**
		Left side		0.058	0.016	0.065	0.001	0.005	**0.074**	**0.066**	**0.059**	**0.063**	**0.070**	**0.081**	**0.006**
		Right side		0.014	0.104	0.015	0.041	0.001	**0.118**	**0.056**	**0.055**	**0.015**	**0.016**	**0.119**	**0.042**
		Top side	0.260	0.148	0.266	0.245	0.089	0.018	**0.674**	**0.594**	**0.497**	**0.426**	**0.523**	**0.771**	**0.367**
		Bottom side							**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
	GSM1900_LAT	Front	0.446	0.217	0.133	0.175	0.056	0.016	**0.796**	**0.677**	**0.719**	**0.679**	**0.637**	**0.754**	**0.518**
		Back	0.377	0.194	0.172	0.348	0.173	0.021	**0.743**	**0.898**	**0.744**	**0.592**	**0.746**	**0.897**	**0.571**
		Left side	0.016	0.058	0.016	0.065	0.001	0.005	**0.090**	**0.082**	**0.075**	**0.079**	**0.086**	**0.097**	**0.022**
		Right side	0.062	0.014	0.104	0.015	0.041	0.001	**0.180**	**0.118**	**0.117**	**0.077**	**0.078**	**0.181**	**0.104**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.508						**0.508**	**0.508**	**0.508**	**0.508**	**0.508**	**0.508**	**0.508**
WCDMA	WCDMA II_LAT	Front	0.790	0.217	0.133	0.175	0.056	0.016	**1.140**	**1.021**	**1.063**	**1.023**	**0.981**	**1.098**	**0.862**
		Back	0.621	0.194	0.172	0.348	0.173	0.021	**0.987**	**1.142**	**0.988**	**0.836**	**0.990**	**1.141**	**0.815**
		Left side	0.029	0.058	0.016	0.065	0.001	0.005	**0.103**	**0.095**	**0.088**	**0.092**	**0.099**	**0.110**	**0.035**
		Right side	0.103	0.014	0.104	0.015	0.041	0.001	**0.221**	**0.159**	**0.158**	**0.118**	**0.119**	**0.222**	**0.145**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.702						**0.702**	**0.702**	**0.702**	**0.702**	**0.702**	**0.702**	**0.702**
	WCDMA IV_LAT	Front	0.810	0.217	0.133	0.175	0.056	0.016	**1.160**	**1.041**	**1.083**	**1.043**	**1.001**	**1.118**	**0.882**
		Back	0.667	0.194	0.172	0.348	0.173	0.021	**1.033**	**1.188**	**1.034**	**0.882**	**1.036**	**1.187**	**0.861**
		Left side	0.020	0.058	0.016	0.065	0.001	0.005	**0.094**	**0.086**	**0.079**	**0.083**	**0.090**	**0.101**	**0.026**
		Right side	0.155	0.014	0.104	0.015	0.041	0.001	**0.273**	**0.211**	**0.210**	**0.170**	**0.171**	**0.274**	**0.197**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.807						**0.807**	**0.807**	**0.807**	**0.807**	**0.807**	**0.807**	**0.807**
	WCDMA V_LAT	Front	0.533	0.217	0.133	0.175	0.056	0.016	**0.883**	**0.764**	**0.806**	**0.766**	**0.724**	**0.841**	**0.605**
		Back	0.477	0.194	0.172	0.348	0.173	0.021	**0.843**	**0.998**	**0.844**	**0.692**	**0.846**	**0.997**	**0.671**
		Left side	0.058	0.058	0.016	0.065	0.001	0.005	**0.132**	**0.124**	**0.117**	**0.121**	**0.128**	**0.139**	**0.064**
		Right side	0.262	0.014	0.104	0.015	0.041	0.001	**0.380**	**0.318**	**0.317**	**0.277**	**0.278**	**0.381**	**0.304**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.309						**0.309**	**0.309**	**0.309**	**0.309**	**0.309**	**0.309**	**0.309**
	WCDMA V_UAT	Front	0.427	0.217	0.133	0.175	0.056	0.016	**0.777**	**0.658**	**0.700**	**0.660**	**0.618**	**0.735**	**0.499**
		Back	0.360	0.194	0.172	0.348	0.173	0.021	**0.726**	**0.881**	**0.727**	**0.575**	**0.729**	**0.880**	**0.554**
		Left side		0.058	0.016	0.065	0.001	0.005	**0.074**	**0.066**	**0.059**	**0.063**	**0.070**	**0.081**	**0.006**
		Right side		0.014	0.104	0.015	0.041	0.001	**0.118**	**0.056**	**0.055**	**0.015**	**0.016**	**0.119**	**0.042**
		Top side	0.234	0.148	0.266	0.245	0.089	0.018	**0.648**	**0.568**	**0.471**	**0.400**	**0.497**	**0.745**	**0.341**
		Bottom side							**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2							
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
LTE	LTE Band 2_LAT	Front	1.091	0.217	0.133	0.175	0.056	0.016	**1.441**	**1.322**	**1.364**	**1.324**	**1.282**	**1.399**	**1.163**
		Back	0.875	0.194	0.172	0.348	0.173	0.021	**1.241**	**1.396**	**1.242**	**1.090**	**1.244**	**1.395**	**1.069**
		Left side	0.035	0.058	0.016	0.065	0.001	0.005	**0.109**	**0.101**	**0.094**	**0.098**	**0.105**	**0.116**	**0.041**
		Right side	0.158	0.014	0.104	0.015	0.041	0.001	**0.276**	**0.214**	**0.213**	**0.173**	**0.174**	**0.277**	**0.200**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	1.065						**1.065**	**1.065**	**1.065**	**1.065**	**1.065**	**1.065**	**1.065**
	LTE Band 4_LAT	Front	1.189	0.217	0.133	0.065	0.001	0.016	**1.539**	**1.255**	**1.407**	**1.422**	**1.270**	**1.387**	**1.206**
		Back	0.933	0.194	0.172	0.015	0.041	0.021	**1.299**	**0.989**	**1.168**	**1.148**	**0.969**	**1.120**	**0.995**
		Left side	0.028	0.058	0.016	0.245	0.089	0.005	**0.102**	**0.362**	**0.175**	**0.091**	**0.278**	**0.289**	**0.122**
		Right side	0.243	0.014	0.104			0.001	**0.361**	**0.243**	**0.257**	**0.258**	**0.244**	**0.347**	**0.244**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	1.133						**1.133**	**1.133**	**1.133**	**1.133**	**1.133**	**1.133**	**1.133**
	LTE Band 7_LAT	Front	0.573	0.217	0.133	0.175	0.056	0.016	**0.923**	**0.804**	**0.846**	**0.806**	**0.764**	**0.881**	**0.645**
		Back	0.771	0.194	0.172	0.348	0.173	0.021	**1.137**	**1.292**	**1.138**	**0.986**	**1.140**	**1.291**	**0.965**
		Left side	0.320	0.058	0.016	0.065	0.001	0.005	**0.394**	**0.386**	**0.379**	**0.383**	**0.390**	**0.401**	**0.326**
		Right side	0.061	0.014	0.104	0.015	0.041	0.001	**0.179**	**0.117**	**0.116**	**0.076**	**0.077**	**0.180**	**0.103**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	1.127						**1.127**	**1.127**	**1.127**	**1.127**	**1.127**	**1.127**	**1.127**
	LTE Band 12_LAT	Front	0.504	0.217	0.133	0.175	0.056	0.016	**0.854**	**0.735**	**0.777**	**0.737**	**0.695**	**0.812**	**0.576**
		Back	0.433	0.194	0.172	0.348	0.173	0.021	**0.799**	**0.954**	**0.800**	**0.648**	**0.802**	**0.953**	**0.627**
		Left side	0.087	0.058	0.016	0.065	0.001	0.005	**0.161**	**0.153**	**0.146**	**0.150**	**0.157**	**0.168**	**0.093**
		Right side	0.210	0.014	0.104	0.015	0.041	0.001	**0.328**	**0.266**	**0.265**	**0.225**	**0.226**	**0.329**	**0.252**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.325						**0.325**	**0.325**	**0.325**	**0.325**	**0.325**	**0.325**	**0.325**
	LTE Band 12_UAT	Front	0.306	0.217	0.133	0.175	0.056	0.016	**0.656**	**0.537**	**0.579**	**0.539**	**0.497**	**0.614**	**0.378**
		Back	0.223	0.194	0.172	0.348	0.173	0.021	**0.589**	**0.744**	**0.590**	**0.438**	**0.592**	**0.743**	**0.417**
		Left side		0.058	0.016	0.065	0.001	0.005	**0.074**	**0.066**	**0.059**	**0.063**	**0.070**	**0.081**	**0.006**
		Right side		0.014	0.104	0.015	0.041	0.001	**0.118**	**0.056**	**0.055**	**0.015**	**0.016**	**0.119**	**0.042**
		Top side	0.162	0.148	0.266	0.245	0.089	0.018	**0.576**	**0.496**	**0.399**	**0.328**	**0.425**	**0.673**	**0.269**
		Bottom side							**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
	LTE Band 26_LAT	Front	0.603	0.217	0.133	0.175	0.056	0.016	**0.953**	**0.834**	**0.876**	**0.836**	**0.794**	**0.911**	**0.675**
		Back	0.495	0.194	0.172	0.348	0.173	0.021	**0.861**	**1.016**	**0.862**	**0.710**	**0.864**	**1.015**	**0.689**
		Left side	0.046	0.058	0.016	0.065	0.001	0.005	**0.120**	**0.112**	**0.105**	**0.109**	**0.116**	**0.127**	**0.052**
		Right side	0.273	0.014	0.104	0.015	0.041	0.001	**0.391**	**0.329**	**0.328**	**0.288**	**0.289**	**0.392**	**0.315**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.407						**0.407**	**0.407**	**0.407**	**0.407**	**0.407**	**0.407**	**0.407**
	LTE Band 26_UAT	Front	0.456	0.217	0.133	0.175	0.056	0.016	**0.806**	**0.687**	**0.729**	**0.689**	**0.647**	**0.764**	**0.528**
		Back	0.391	0.194	0.172	0.348	0.173	0.021	**0.757**	**0.912**	**0.758**	**0.606**	**0.760**	**0.911**	**0.585**
		Left side		0.058	0.016	0.065	0.001	0.005	**0.074**	**0.066**	**0.059**	**0.063**	**0.070**	**0.081**	**0.006**
		Right side		0.014	0.104	0.015	0.041	0.001	**0.118**	**0.056**	**0.055**	**0.015**	**0.016**	**0.119**	**0.042**
		Top side	0.256	0.148	0.266	0.245	0.089	0.018	**0.670**	**0.590**	**0.493**	**0.422**	**0.519**	**0.767**	**0.363**
		Bottom side							**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2							
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
LTE	LTE Band 30_LAT	Front	0.443	0.217	0.133	0.175	0.056	0.016	**0.793**	**0.674**	**0.716**	**0.676**	**0.634**	**0.751**	**0.515**
		Back	0.364	0.194	0.172	0.348	0.173	0.021	**0.730**	**0.885**	**0.731**	**0.579**	**0.733**	**0.884**	**0.558**
		Left side	0.177	0.058	0.016	0.065	0.001	0.005	**0.251**	**0.243**	**0.236**	**0.240**	**0.247**	**0.258**	**0.183**
		Right side	0.046	0.014	0.104	0.015	0.041	0.001	**0.164**	**0.102**	**0.101**	**0.061**	**0.062**	**0.165**	**0.088**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.870						**0.870**	**0.870**	**0.870**	**0.870**	**0.870**	**0.870**	**0.870**
	LTE Band 41_LAT	Front	0.402	0.217	0.133	0.175	0.056	0.016	**0.752**	**0.633**	**0.675**	**0.635**	**0.593**	**0.710**	**0.474**
		Back	0.536	0.194	0.172	0.348	0.173	0.021	**0.902**	**1.057**	**0.903**	**0.751**	**0.905**	**1.056**	**0.730**
		Left side	0.309	0.058	0.016	0.065	0.001	0.005	**0.383**	**0.375**	**0.368**	**0.372**	**0.379**	**0.390**	**0.315**
		Right side	0.078	0.014	0.104	0.015	0.041	0.001	**0.196**	**0.134**	**0.133**	**0.093**	**0.094**	**0.197**	**0.120**
		Top side		0.148	0.266	0.245	0.089	0.018	**0.414**	**0.334**	**0.237**	**0.166**	**0.263**	**0.511**	**0.107**
		Bottom side	0.838						**0.838**	**0.838**	**0.838**	**0.838**	**0.838**	**0.838**	**0.838**

15.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2							
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
GSM	GSM850_LAT	Front	0.258	0.087	0.077	0.075	0.044	0.006	**0.422**	**0.377**	**0.389**	**0.351**	**0.339**	**0.410**	**0.308**
		Back	0.257	0.073	0.086	0.292	0.100	0.008	**0.416**	**0.649**	**0.430**	**0.338**	**0.557**	**0.635**	**0.365**
	GSM850_UAT	Front	0.320	0.087	0.077	0.075	0.044	0.006	**0.484**	**0.439**	**0.451**	**0.413**	**0.401**	**0.472**	**0.370**
		Back	0.275	0.073	0.086	0.292	0.100	0.008	**0.434**	**0.667**	**0.448**	**0.356**	**0.575**	**0.653**	**0.383**
	GSM1900_LAT	Front	0.201	0.087	0.077	0.075	0.044	0.006	**0.365**	**0.320**	**0.332**	**0.294**	**0.282**	**0.353**	**0.251**
		Back	0.165	0.073	0.086	0.292	0.100	0.008	**0.324**	**0.557**	**0.338**	**0.246**	**0.465**	**0.543**	**0.273**
WCDMA	WCDMA II_LAT	Front	0.503	0.087	0.077	0.075	0.044	0.006	**0.667**	**0.622**	**0.634**	**0.596**	**0.584**	**0.655**	**0.553**
		Back	0.384	0.073	0.086	0.292	0.100	0.008	**0.543**	**0.776**	**0.557**	**0.465**	**0.684**	**0.762**	**0.492**
	WCDMA IV_LAT	Front	0.431	0.087	0.077	0.075	0.044	0.006	**0.595**	**0.550**	**0.562**	**0.524**	**0.512**	**0.583**	**0.481**
		Back	0.370	0.073	0.086	0.292	0.100	0.008	**0.529**	**0.762**	**0.543**	**0.451**	**0.670**	**0.748**	**0.478**
	WCDMA V_LAT	Front	0.297	0.087	0.077	0.075	0.044	0.006	**0.461**	**0.416**	**0.428**	**0.390**	**0.378**	**0.449**	**0.347**
		Back	0.271	0.073	0.086	0.292	0.100	0.008	**0.430**	**0.663**	**0.444**	**0.352**	**0.571**	**0.649**	**0.379**
	WCDMA V_UAT	Front	0.235	0.087	0.077	0.075	0.044	0.006	**0.399**	**0.354**	**0.366**	**0.328**	**0.316**	**0.387**	**0.285**
		Back	0.220	0.073	0.086	0.292	0.100	0.008	**0.379**	**0.612**	**0.393**	**0.301**	**0.520**	**0.598**	**0.328**
LTE	LTE Band 2_LAT	Front	0.547	0.087	0.077	0.075	0.044	0.006	**0.711**	**0.666**	**0.678**	**0.640**	**0.628**	**0.699**	**0.597**
		Back	0.426	0.073	0.086	0.292	0.100	0.008	**0.585**	**0.818**	**0.599**	**0.507**	**0.726**	**0.804**	**0.534**
	LTE Band 4_LAT	Front	0.544	0.087	0.077	0.075	0.044	0.006	**0.708**	**0.663**	**0.675**	**0.637**	**0.625**	**0.696**	**0.594**
		Back	0.435	0.073	0.086	0.292	0.100	0.008	**0.594**	**0.827**	**0.608**	**0.516**	**0.735**	**0.813**	**0.543**
	LTE Band 7_LAT	Front	0.286	0.087	0.077	0.075	0.044	0.006	**0.450**	**0.405**	**0.417**	**0.379**	**0.367**	**0.438**	**0.336**
		Back	0.320	0.073	0.086	0.292	0.100	0.008	**0.479**	**0.712**	**0.493**	**0.401**	**0.620**	**0.698**	**0.428**
	LTE Band 12_LAT	Front	0.242	0.087	0.077	0.075	0.044	0.006	**0.406**	**0.361**	**0.373**	**0.335**	**0.323**	**0.394**	**0.292**
		Back	0.263	0.073	0.086	0.292	0.100	0.008	**0.422**	**0.655**	**0.436**	**0.344**	**0.563**	**0.641**	**0.371**
	LTE Band 12_UAT	Front	0.162	0.087	0.077	0.075	0.044	0.006	**0.326**	**0.281**	**0.293**	**0.255**	**0.243**	**0.314**	**0.212**
		Back	0.134	0.073	0.086	0.292	0.100	0.008	**0.293**	**0.526**	**0.307**	**0.215**	**0.434**	**0.512**	**0.242**
	LTE Band 26_LAT	Front	0.308	0.087	0.077	0.075	0.044	0.006	**0.472**	**0.427**	**0.439**	**0.401**	**0.389**	**0.460**	**0.358**
		Back	0.289	0.073	0.086	0.292	0.100	0.008	**0.448**	**0.681**	**0.462**	**0.370**	**0.589**	**0.667**	**0.397**
	LTE Band 26_UAT	Front	0.269	0.087	0.077	0.075	0.044	0.006	**0.433**	**0.388**	**0.400**	**0.362**	**0.350**	**0.421**	**0.319**
		Back	0.249	0.073	0.086	0.292	0.100	0.008	**0.408**	**0.641**	**0.422**	**0.330**	**0.549**	**0.627**	**0.357**
	LTE Band 30_LAT	Front	0.264	0.087	0.077	0.075	0.044	0.006	**0.428**	**0.383**	**0.395**	**0.357**	**0.345**	**0.416**	**0.314**
		Back	0.221	0.073	0.086	0.292	0.100	0.008	**0.380**	**0.613**	**0.394**	**0.302**	**0.521**	**0.599**	**0.329**
	LTE Band 41_LAT	Front	0.198	0.087	0.077	0.075	0.044	0.006	**0.362**	**0.317**	**0.329**	**0.291**	**0.279**	**0.350**	**0.248**
		Back	0.215	0.073	0.086	0.292	0.100	0.008	**0.374**	**0.607**	**0.388**	**0.296**	**0.515**	**0.593**	**0.323**

15.4 Product Specific

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 10g SAR (W/kg)	1+4+5 Summed 10g SAR (W/kg)	1+2+6 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	SPLSR	Case No
			WWAN	2.4GHz WLAN ANT 1	2.4GHz WLAN ANT 2	5GHz WLAN ANT 1	5GHz WLAN ANT 2	Bluetooth Ant 2						
			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)						
LTE	LTE Band 2_LAT	Front	3.025	-	-	1.267	0.779	-	**3.025**	**5.071**	**3.025**	**4.292**	**0.06**	**Case 1**
		Back	-	-	-	2.947	1.573	-	**0.000**	**4.520**	**0.000**	**2.947**	**0.10**	**Case 2**
		Left side	-	-	-	0.387	0.001	-	**0.000**	**0.388**	**0.000**	**0.387**		
		Right side	-	-	-	0.009	0.141	-	**0.000**	**0.150**	**0.000**	**0.009**		
		Top side	-	-	-	0.467	0.619	-	**0.000**	**1.086**	**0.000**	**0.467**		
		Bottom side	-	-	-	-	-	-	**0.000**	**0.000**	**0.000**	**0.000**		
	LTE Band 4_LAT	Front	3.196	-	-	1.267	0.779	-	**3.196**	**5.242**	**3.196**	**4.463**	**0.06**	**Case 3**
		Back	-	-	-	2.947	1.573	-	**0.000**	**4.520**	**0.000**	**2.947**	**0.10**	**Case 2**
		Left side	-	-	-	0.387	0.001	-	**0.000**	**0.388**	**0.000**	**0.387**		
		Right side	-	-	-	0.009	0.141	-	**0.000**	**0.150**	**0.000**	**0.009**		
		Top side	-	-	-	0.467	0.619	-	**0.000**	**1.086**	**0.000**	**0.467**		
		Bottom side	3.120	-	-	-	-	-	**3.120**	**0.000**	**3.120**	**3.120**		

Remark:

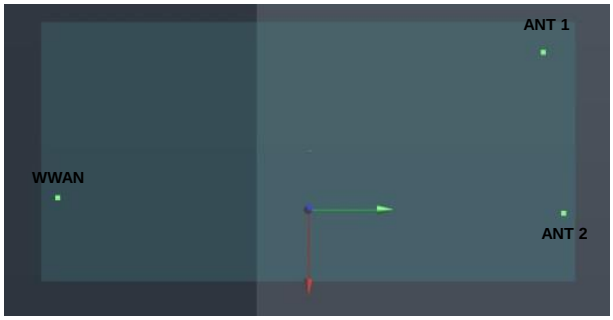
1. According to KDB 648474 D04v01r03, for SAR ("-") was excluded, due to Hotspot SAR was < 1.2W/kg.
2. According to KDB 941225 D06 v02r01, for 5GHz WLAN SAR ("-") was excluded, due to transmitting antenna located larger 25mm from that surface or edge

15.5 SPLSR Evaluation and Analysis

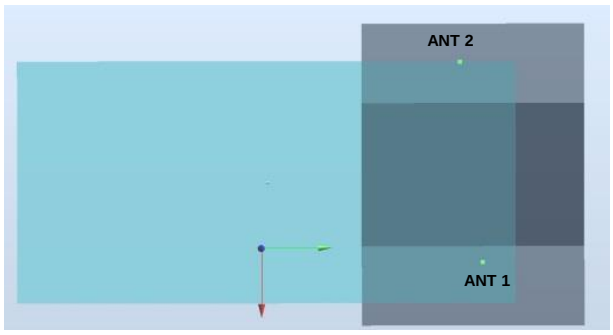
General Note:

1. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.1 for 10g SAR due to the limits by applying a factor of 2.5 for product specific exposure, simultaneously transmission SAR measurement is not necessary.

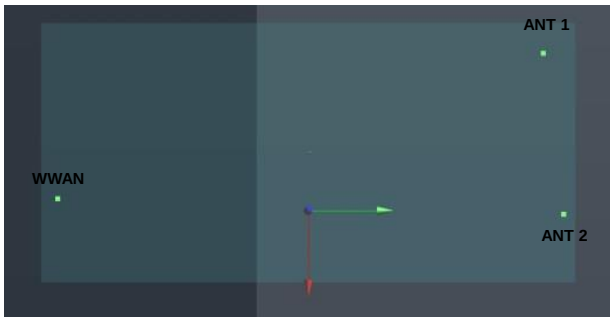
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	LTE B2_LAT	Front	3.025	0	-0.61	-7.89	-20.63	152.5	4.29	0.06	Not required
	5GHz WLAN ANT 1		1.267	0	-4.54	6.84	-20.92				
	LTE B2_LAT	Front	3.025	0	-0.61	-7.89	-20.63	153.0	3.80	0.05	Not required
	5GHz WLAN ANT 2		0.779	0	0.56	7.36	-20.93				
	5GHz WLAN ANT 1	Front	1.267	0	-4.54	6.84	-20.92	51.3	2.05	0.06	Not required
	5GHz WLAN ANT 2		0.779	0	0.56	7.36	-20.93				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 2	5GHz WLAN ANT 1	Back	2.947	0	1.54	7.5	-20.91	92.1	4.52	0.10	Not required
	5GHz WLAN ANT 2		1.573	0	-6.52	3.04	-20.93				



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	LTE B4_LAT	Front	3.196	0	-0.61	-7.89	-20.63	153.0	4.46	0.06	Not required
	5GHz WLAN ANT 1		1.267	0	-5.2	6.7	-20.93				
	LTE B4_LAT	Front	3.196	0	-0.61	-7.89	-20.63	152.7	3.98	0.05	Not required
	5GHz WLAN ANT 2		0.779	0	0.52	7.34	-20.93				
	5GHz WLAN ANT 1	Front	1.267	0	-5.2	6.7	-20.93	57.6	2.05	0.05	Not required
	5GHz WLAN ANT 2		0.779	0	0.52	7.34	-20.93				



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. 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. 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.
3. The device supports both LTE B12 / LTE B17 and LTE B5 / B26. Since the supported frequency span for LTE Band17 and B5 falls completely within the supported frequency span for LTE B12 / B26, and both bands have the same target power and both LTE bands share the same transmission path, therefore standalone SAR was only assessed for LTE Band 12 / B26. The single point SAR time-sweep measurements were treated independently for each supported ACL frequency band. For the LTE Band 17 single point SAR measurement selected the highest measured SAR configuration and exposure condition of LTE Band 12 / B26. and the number of required single point measurements at least 16 apply to the band.
4. 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).
5. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

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 54)	0	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
WCDMA B2	RMC12.2Kbps	1852.4	9262	N/A	N/A	Right Cheek	0 mm	0.05	0.0843	0.0352	0.0370	0.0681	0.0368	0.0759	0.0508	0.0839	0.0551	0.0619	0.0303	0.0633	0.0326	0.0723	0.0441	0.0755	0.0475
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 5)	1	10	19	28	37	46	55	64	73	82	91	100	109	118	127	136
WCDMA B4	RMC12.2Kbps	1732.6	1413	N/A	N/A	Right Cheek	0 mm	0.04	0.0739	0.0711	0.0534	0.0698	0.0545	0.0659	0.0568	0.0636	0.0577	0.0715	0.0506	0.0696	0.0518	0.0675	0.0548	0.0658	0.0555
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 99)	2	11	20	29	38	47	56	65	74	83	92	101	110	119	128	137
WCDMA B5	RMC12.2Kbps	826.4	4132	N/A	N/A	Right Cheek	0 mm	0.112	0.128	0.017	0.102	0.0245	0.101	0.0187	0.094	0.0204	0.094	0.0364	0.105	0.0388	0.106	0.0315	0.105	0.0336	0.104
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 54)	3	12	21	30	39	48	57	66	75	84	93	102	111	120	129	138
LTE B2	QPSK	1860	18700	1	0	Left Cheek	0 mm	0.089	0.333	0.308	0.265	0.307	0.268	0.319	0.285	0.324	0.288	0.299	0.263	0.301	0.264	0.313	0.277	0.317	0.280
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 7)	4	13	22	31	40	49	58	67	76	85	94	103	112	121	130	139
LTE B4	QPSK	1732.5	20175	1	0	Right Cheek	0 mm	0.074	0.0952	0.0944	0.0711	0.0919	0.0723	0.0864	0.0727	0.084	0.0732	0.0939	0.0676	0.0918	0.0691	0.0883	0.0716	0.0861	0.0721
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 98)	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140
LTE B5	QPSK	836.5	20525	1	0	Right Cheek	0 mm	0.108	0.127	0.0558	0.0865	0.0699	0.0854	0.0626	0.0793	0.0649	0.0789	0.0772	0.0918	0.0802	0.0921	0.0733	0.0899	0.0759	0.0897
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)	6	15	24	33	42	51	60	69	78	87	96	105	114	123	132	141
LTE B12	QPSK	707.5	23095	1	0	Right Cheek	0 mm	0.095	0.101	0.056	0.008	0.0423	0.008	0.033	0.009	0.034	0.009	0.0577	0.005	0.0569	0.0052	0.0606	0.0054	0.0601	0.0052
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)	7	16	25	34	43	52	61	70	79	88	97	106	115	124	133	142
LTE B17	QPSK	710	23790	1	0	Right Cheek	0 mm	0.096	0.103	0.0371	0.0081	0.0271	0.0086	0.0249	0.0097	0.0252	0.0102	0.0332	0.0044	0.0331	0.0045	0.0315	0.0051	0.0316	0.0051
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 99)	8	17	26	35	44	53	62	71	80	89	98	107	116	125	134	143
LTE B26	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.126	0.146	0.124	0.132	0.141	0.131	0.138	0.126	0.14	0.125	0.136	0.129	0.139	0.129	0.137	0.13	0.139	0.131

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 54)	0	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
WCDMA B2	RMC12.2Kbps	1907.6	9538	N/A	N/A	Front	10 mm	0.659	0.817	0.372	0.392	0.683	0.397	0.734	0.58	0.805	0.63	0.596	0.327	0.624	0.352	0.687	0.491	0.736	0.535
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 7)	1	10	19	28	37	46	55	64	73	82	91	100	109	118	127	136
WCDMA B4	RMC12.2Kbps	1732.6	1413	N/A	N/A	Front	10 mm	0.694	0.928	0.875	0.757	0.874	0.771	0.773	0.799	0.575	0.801	0.898	0.716	0.886	0.736	0.821	0.781	0.803	0.791
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 99)	2	11	20	29	38	47	56	65	74	83	92	101	110	119	128	137
WCDMA B5	RMC12.2Kbps	826.4	4132	N/A	N/A	Front	10 mm	0.405	0.603	0.198	0.528	0.235	0.528	0.204	0.513	0.212	0.51	0.297	0.461	0.309	0.466	0.269	0.456	0.279	0.455
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 54)	3	12	21	30	39	48	57	66	75	84	93	102	111	120	129	138
LTE B2	QPSK	1860	18700	1	0	Front	10 mm	0.905	1.217	0.943	0.396	0.925	0.426	1.072	0.621	1.122	0.668	0.851	0.353	0.871	0.381	1.008	0.528	1.046	0.566
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 7)	4	13	22	31	40	49	58	67	76	85	94	103	112	121	130	139
LTE B4	QPSK	1732.5	20175	1	0	Front	10 mm	0.973	1.226	1.22	1.031	1.205	1.056	1.103	1.066	1.079	1.071	1.187	0.971	1.216	0.999	1.152	1.057	1.134	1.037
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 63)	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140
LTE B5	QPSK	836.5	20525	1	0	Front	10 mm	0.424	0.616	0.304	0.432	0.372	0.431	0.339	0.416	0.353	0.417	0.416	0.401	0.425	0.411	0.395	0.415	0.406	0.418
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)	6	15	24	33	42	51	60	69	78	87	96	105	114	123	132	141
LTE B12	QPSK	707.5	23095	1	0	Front	10 mm	0.364	0.543	0.324	0.059	0.252	0.06	0.206	0.065	0.208	0.066	0.358	0.038	0.352	0.038	0.366	0.041	0.361	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 19)	7	16	25	34	43	52	61	70	79	88	97	106	115	124	133	142
LTE B17	QPSK	710	23790	1	0	Front	10 mm	0.375	0.572	0.248	0.066	0.185	0.067	0.169	0.073	0.17	0.073	0.21	0.038	0.206	0.038	0.197	0.041	0.196	0.041
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 63)	8	17	26	35	44	53	62	71	80	89	98	107	116	125	134	143
LTE B26	QPSK	831.5	26865	1	0	Front	10 mm	0.446	0.648	0.512	0.551	0.603	0.549	0.597	0.548	0.602	0.547	0.566	0.476	0.572	0.488	0.571	0.504	0.582	0.503

Test Engineer： Iran Wang Galen Chang Steven Chang Poa Pan Kurt Liu Bevis Chang and Tom Jiang

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	6.00	N	1	1	1	6.0	6.0
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	1.00	R	1.732	1	1	0.6	0.6
Linearity	4.70	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	2.90	R	1.732	1	1	1.7	1.7
Max. SAR Eval.	2.00	R	1.732	1	1	1.2	1.2
Test Sample Related							
Device Positioning	3.03	N	1	1	1	3.0	3.0
Device Holder	3.60	N	1	1	1	3.6	3.6
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.10	R	1.732	1	1	3.5	3.5
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.71	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.71	1.7	1.5
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						11.6%	11.6%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						23.2%	23.1%

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	6.55	N	1	1	1	6.6	6.6
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.00	R	1.732	1	1	1.2	1.2
Linearity	4.70	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	6.70	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.00	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.03	N	1	1	1	3.0	3.0
Device Holder	3.60	N	1	1	1	3.6	3.6
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.60	R	1.732	1	1	3.8	3.8
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.71	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.71	1.7	1.5
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.7%	12.6%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.4%	25.3%

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 D03 v01r04, “Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers” Dec 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.