FCC SAR Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	10722
FCC ID	:	IHDT56WB4
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

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

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA733129	Rev. 01	Initial issue of report	May 15, 2017

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility, LLC, Mobile Cellular Phone, 10722** are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.23	0.78	0.78		1.59
	GSM1900	0.25	0.70	0.70		
	WCDMA II	0.38	1.02	1.02	3.27	
	WCDMA IV	0.48	0.99	0.99	2.49	
	WCDMA V	0.37	0.93	0.93		
	LTE Band 2	0.38	1.10	1.10	3.36	
	LTE Band 4	0.39	0.91	0.91	3.17	
	LTE Band 5	0.31	1.01	1.01		
	LTE Band 7	0.42	0.79	0.79		
	LTE Band 12	0.21	0.89	0.89		
	LTE Band 17	0.25	0.98	0.98		
	LTE Band 25	0.53	1.10	1.18	3.36	
	LTE Band 26	0.34	1.06	1.06		
	LTE Band 30	0.39	0.81	0.81		
	LTE Band 38	0.31	0.97	1.01		
	LTE Band 41	0.22	0.64	0.64		
	LTE Band 66	0.53	0.79	1.02		
DTS	2.4GHz WLAN	0.64	0.31	0.37		1.59
NII	5GHz WLAN	0.87	0.22	0.23	1.47	1.59
DSS	Bluetooth		0.04			1.50
Date of Testing:		2017/04/12 ~ 2017/04/28				

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

2. Administration Data

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

Applicant	
Company Name	Motorola Mobility, LLC
Address	222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

Manufacturer	
Company Name	Motorola Mobility, LLC
Address	222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

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	Mobile Cellular Phone
Brand Name	Motorola
Model Name	10722
FCC ID	IHDT56WB4
IMEI Code	353311080000171
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 25: 1850.7 MHz ~ 1914.3 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 LTE Band 66: 1710.7 MHz ~ 1779.3 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 WLAN 2.4GHz : 802.11b/g/n/ac HT20/VHT20 WLAN 5GHz : 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
GSM / (E)GPRS 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	Identical Prototype

Remark:

1. This device 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation.
2. While operating in “Front” and “Back” configuration by end user, the device will limit different maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B17 / B25 / B26 / B30 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
3. While operating in body-adjacent exposure configuration during a mobile hotspot session, the device will reduced output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B17 / B25 / B26 / B30 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
4. The device utilizes independent power reduction mechanisms for SAR compliance for the WLAN transmitter for held-to-ear exposure conditions and detail descriptions of the power reduction mechanism 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 GSM, 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.
6. LTE TDD B41 in this device is not a 3GPP compliant band. Regarding LTE TDD B41, the device capability is limited in a narrower frequency range (2545MHz~2655MHz) than is specified in 3GPP 34.121. The detailed implementation is illustrated in the operational description.

4.2 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>IHDT56WB4</td></tr>
<tr><td>Equipment Name</td><td>Mobile Cellular 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 25: 1850.7 MHz ~ 1914.3 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
LTE Band 66: 1710.7 MHz ~ 1779.3 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 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
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
LTE Band 66:1.4MHz, 3MHz, 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>Voice and Data</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>
<table>
<tr><th colspan="7">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</th></tr>
<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>
<tr><th colspan="7">Table 6.2.3_3.3-1: Maximum Power Reduction (MPR) for Power Class 3</th></tr>
<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>Power reduction applied to satisfy SAR compliance</td><td>Yes, when operating in hotspot mode that LTE B2 / B4 / B5 / B7 / B17 / B25 / B26 / B30 / B66 power reduction applied to satisfy SAR compliance.</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 page 97</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device supports a maximum of 4 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 25

	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	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

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
L M	40485	2579.5	40490	2580	40495	2580.5	40500	2581
H M	40805	2611.5	40790	2610	40785	2609.5	40770	2608
H	41215	2652.5	41190	2650	41165	2647.5	41140	2645

LTE Band 66												
	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	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

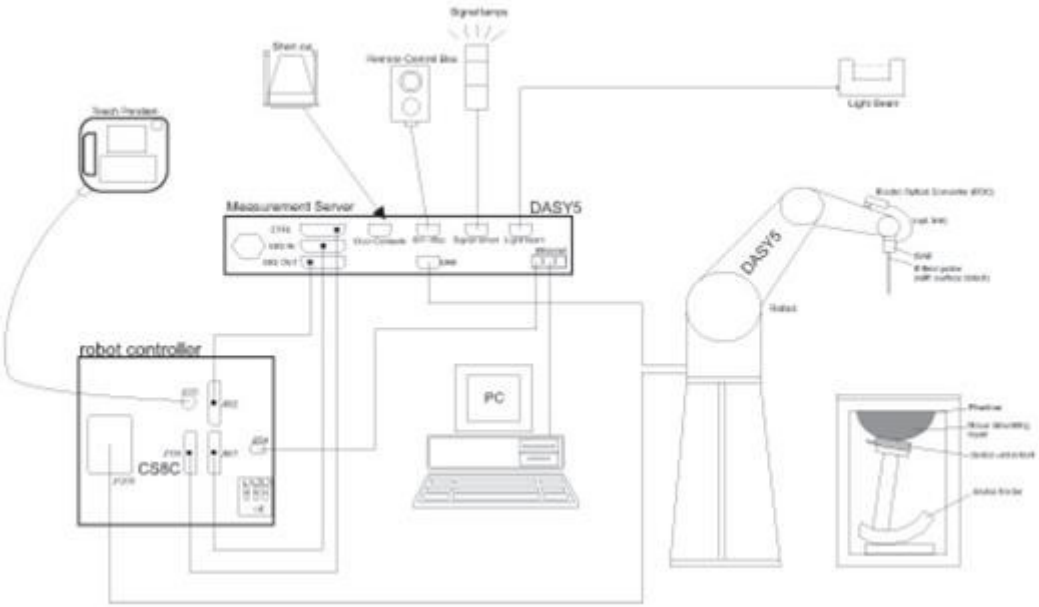
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<ES3DV3 Probe>

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

<EX3DV4 Probe>

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

7.2 Data Acquisition Electronics (DAE)

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

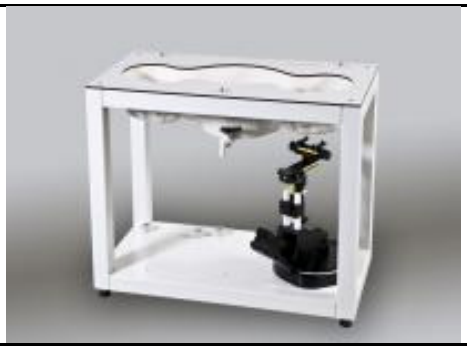
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

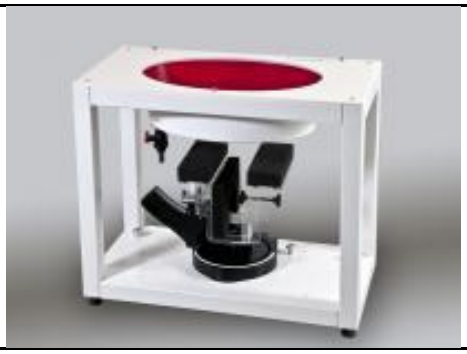
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



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

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix 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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 18, 2016	May. 17, 2017
SPEAG	835MHz System Validation Kit	D835V2	4d092	Jun. 22, 2016	Jun. 21, 2017
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	926	Jul. 25, 2016	Jul. 24, 2017
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 30, 2016	Aug. 29, 2017
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 27, 2016	Sep. 26, 2017
SPEAG	5GHz System Validation Kit	D5GHzV2	1040	Jun. 17, 2016	Jun. 16, 2017
SPEAG	Data Acquisition Electronics	DAE4	1424	Feb. 16, 2017	Feb. 15, 2018
SPEAG	Data Acquisition Electronics	DAE3	495	May. 27, 2016	May. 26, 2017
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 28, 2016	Sep. 27, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Feb. 21, 2017	Feb. 20, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 26, 2016	May. 25, 2017
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 03, 2016	Oct. 02, 2017
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 20, 2017	Apr. 19, 2018
Anritsu	Radio Communication Analyzer	MT8820C	6201381760	May. 10, 2016	May. 09, 2017
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 17, 2016	May. 16, 2017
R&S	BT Base Station	CBT32	100519	Jun. 03, 2016	Jun. 02, 2017
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	1126	Jul. 19, 2016	Jul. 18, 2017
LINE SEIKI	Digital Thermometer	LKMelectronic	DTM3000SPEZIAL	Sep. 05, 2016	Sep. 04, 2017
Anritsu	Power Meter	ML2495A	1419002	May. 10, 2016	May. 09, 2017
Anritsu	Power Meter	ML2495A	1438002	Dec. 06, 2016	Dec. 05, 2017
Anritsu	Power Sensor	MA2411B	1339124	May. 10, 2016	May. 09, 2017
Anritsu	Power Sensor	MA2411B	1339195	Dec. 06, 2016	Dec. 05, 2017
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 22, 2016	Aug. 21, 2017
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 21, 2016	Jun. 20, 2017
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
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.

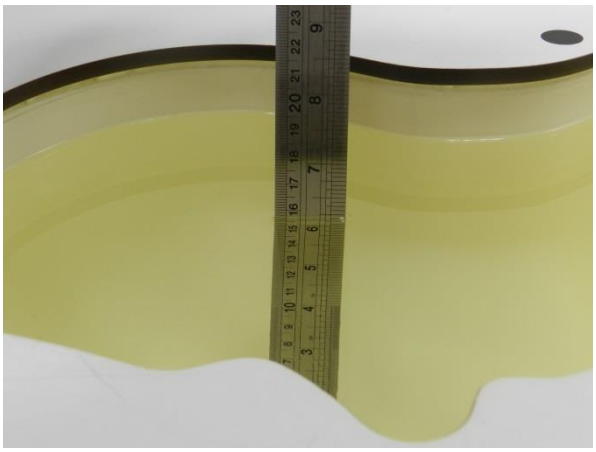


Fig 10.1Photo of Liquid Height for Head SAR

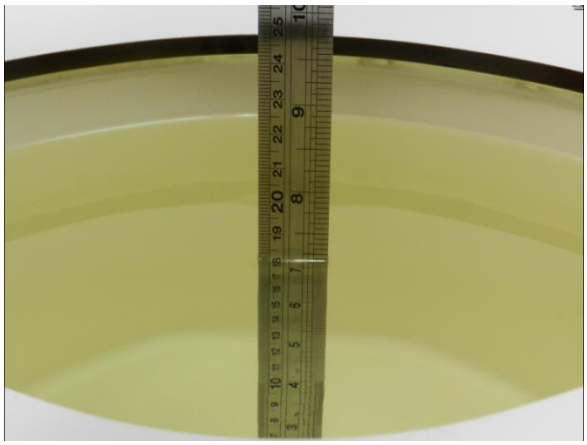


Fig 10.2 Photo of Liquid Height for Body SAR

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	22.3	0.900	42.800	0.89	41.90	1.12	2.15	±5	2017/4/15
750	MSL	22.4	0.969	55.292	0.96	55.50	0.94	-0.37	±5	2017/4/22
835	HSL	22.3	0.888	42.700	0.90	41.50	-1.33	2.89	±5	2017/4/15
835	MSL	22.5	0.967	55.594	0.97	55.20	-0.31	0.71	±5	2017/4/21
1750	HSL	22.5	1.390	41.700	1.37	40.10	1.46	3.99	±5	2017/4/14
1750	HSL	22.5	1.375	41.829	1.37	40.10	0.36	4.31	±5	2017/4/28
1750	MSL	22.5	1.527	54.161	1.49	53.40	2.48	1.43	±5	2017/4/20
1750	MSL	22.2	1.492	52.638	1.49	53.40	0.13	-1.43	±5	2017/4/27
1900	HSL	22.5	1.410	41.600	1.40	40.00	0.71	4.00	±5	2017/4/12
1900	HSL	22.5	1.385	38.747	1.40	40.00	-1.07	-3.13	±5	2017/4/28
1900	MSL	22.5	1.533	53.363	1.52	53.30	0.86	0.12	±5	2017/4/18
1900	MSL	22.5	1.555	54.164	1.52	53.30	2.30	1.62	±5	2017/4/20
2300	HSL	22.2	1.640	41.400	1.67	39.50	-1.80	4.81	±5	2017/4/16
2300	MSL	22.4	1.765	53.692	1.81	52.90	-2.49	1.50	±5	2017/4/22
2450	HSL	22.2	1.810	40.800	1.80	39.20	0.56	4.08	±5	2017/4/16
2450	HSL	22.4	1.776	40.635	1.80	39.20	-1.33	3.66	±5	2017/4/28
2450	MSL	22.4	2.024	52.188	1.95	52.70	3.79	-0.97	±5	2017/4/23
2600	HSL	22.5	1.980	39.000	1.96	39.00	1.02	0.00	±5	2017/4/12
2600	MSL	22.1	2.153	53.762	2.16	52.50	-0.32	2.40	±5	2017/4/17
5200	MSL	22.7	5.450	47.100	5.30	49.00	2.83	-3.88	±5	2017/4/17
5250	HSL	22.4	4.559	37.392	4.71	35.95	-3.21	4.01	±5	2017/4/28
5250	MSL	22.4	5.228	46.937	5.36	48.95	-2.46	-4.11	±5	2017/4/27
5600	HSL	22.8	5.010	36.100	5.07	35.50	-1.18	1.69	±5	2017/4/16
5600	MSL	22.4	5.664	46.390	5.77	48.50	-1.84	-4.35	±5	2017/4/27
5750	HSL	22.4	5.065	36.718	5.22	35.35	-2.97	3.87	±5	2017/4/28
5800	HSL	22.3	5.090	36.200	5.27	35.30	-3.42	2.55	±5	2017/4/20
5800	MSL	22.7	6.230	46.000	6.00	48.20	3.83	-4.56	±5	2017/4/17

<Tissue Dielectric Parameter Check for Low / Middle / High Frequencies>

General Note:

The tissue measure results for low / middle / high frequencies list below, the results were used in the Dasy SAR system to perform interpolation to determine the dielectric parameters on the SAR test device. The SAR test plots may slightly difference between the tables below due to the digit rounding in the software calculated.

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
9262	1852.4	Head	1.359	41.770	1.400	40.000	-2.93	4.43	±5	Apr. 12, 2017
9400	1880	Head	1.385	41.670	1.400	40.000	-1.07	4.18	±5	Apr. 12, 2017
9538	1907.6	Head	1.413	41.530	1.400	40.000	0.93	3.83	±5	Apr. 12, 2017
18700	1860	Head	1.366	41.752	1.400	40.000	-2.42	4.38	±5	Apr. 12, 2017
18900	1880	Head	1.385	41.667	1.400	40.000	-1.09	4.17	±5	Apr. 12, 2017
19100	1900	Head	1.406	41.568	1.400	40.000	0.40	3.92	±5	Apr. 12, 2017
20850	2510	Head	1.869	39.321	1.864	39.120	0.50	0.56	±5	Apr. 12, 2017
21100	2535	Head	1.898	39.231	1.891	39.087	0.43	0.33	±5	Apr. 12, 2017
21350	2560	Head	1.927	39.142	1.917	39.053	0.39	0.11	±5	Apr. 12, 2017
37850	2580	Head	1.953	39.074	1.938	39.025	0.65	0.19	±5	Apr. 12, 2017
38000	2595	Head	1.970	39.024	1.955	39.006	1.03	0.06	±5	Apr. 12, 2017
38150	2610	Head	1.987	38.980	1.971	38.987	0.89	-0.05	±5	Apr. 12, 2017
40240	2555	Head	1.922	39.161	1.915	39.066	0.61	0.15	±5	Apr. 12, 2017
40500	2581	Head	1.954	39.069	1.943	39.033	0.71	0.18	±5	Apr. 12, 2017
40770	2608	Head	1.985	38.984	1.972	38.999	0.78	-0.04	±5	Apr. 12, 2017
41140	2645	Head	2.031	38.839	2.013	38.952	1.03	-0.41	±5	Apr. 12, 2017
26140	1860	Head	1.366	41.752	1.400	40.000	-2.42	4.38	±5	Apr. 12, 2017
26340	1880	Head	1.385	41.667	1.400	40.000	-1.09	4.17	±5	Apr. 12, 2017
26590	1905	Head	1.411	41.541	1.400	40.000	0.76	3.85	±5	Apr. 12, 2017
512	1850.2	Head	1.356	41.776	1.400	40.000	-3.11	4.44	±5	Apr. 12, 2017
661	1880	Head	1.385	41.667	1.400	40.000	-1.09	4.17	±5	Apr. 12, 2017
810	1909.8	Head	1.416	41.520	1.400	40.000	1.11	3.80	±5	Apr. 12, 2017
1312	1712.4	Head	1.350	41.883	1.352	40.162	0.03	4.19	±5	Apr. 14, 2017
1413	1732.6	Head	1.370	41.782	1.362	40.129	0.72	4.19	±5	Apr. 14, 2017
1513	1752.6	Head	1.389	41.691	1.372	40.095	1.38	3.97	±5	Apr. 14, 2017
20050	1720	Head	1.357	41.839	1.356	40.149	-0.18	4.34	±5	Apr. 14, 2017
20175	1732.5	Head	1.370	41.783	1.362	40.129	0.71	4.20	±5	Apr. 14, 2017
20300	1745	Head	1.382	41.717	1.368	40.108	0.86	4.03	±5	Apr. 14, 2017
132072	1720	Head	1.357	41.839	1.369	40.089	-0.91	4.34	±5	Apr. 14, 2017
132322	1745	Head	1.382	41.717	1.384	40.046	0.12	4.29	±5	Apr. 14, 2017
132572	1770	Head	1.404	41.617	1.395	40.015	1.01	4.04	±5	Apr. 14, 2017
4132	826.4	Head	0.880	42.802	0.899	41.540	-2.21	3.14	±5	Apr. 15, 2017
4182	836.4	Head	0.889	42.674	0.902	41.500	-1.20	2.83	±5	Apr. 15, 2017
4233	846.6	Head	0.899	42.542	0.912	41.500	-1.24	2.51	±5	Apr. 15, 2017
128	824.2	Head	0.878	42.830	0.899	41.551	-2.42	2.96	±5	Apr. 15, 2017
189	836.4	Head	0.889	42.674	0.902	41.500	-1.20	2.83	±5	Apr. 15, 2017
251	848.8	Head	0.901	42.514	0.915	41.500	-1.04	2.44	±5	Apr. 15, 2017

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
20450	829	Head	0.882	42.767	0.899	41.528	-1.95	3.05	±5	Apr. 15, 2017
20525	836.5	Head	0.889	42.674	0.902	41.500	-1.19	2.83	±5	Apr. 15, 2017
20600	844	Head	0.896	42.577	0.910	41.500	-1.52	2.59	±5	Apr. 15, 2017
23060	704	Head	0.858	43.388	0.887	42.145	-3.62	3.06	±5	Apr. 15, 2017
23095	707.5	Head	0.861	43.349	0.887	42.127	-3.31	2.97	±5	Apr. 15, 2017
23130	711	Head	0.864	43.300	0.887	42.108	-2.93	2.85	±5	Apr. 15, 2017
23780	709	Head	0.862	43.326	0.887	42.119	-3.13	2.91	±5	Apr. 15, 2017
23790	710	Head	0.863	43.311	0.887	42.113	-3.04	2.88	±5	Apr. 15, 2017
23800	711	Head	0.864	43.300	0.887	42.108	-2.93	2.85	±5	Apr. 15, 2017
26765	821.5	Head	0.876	42.850	0.898	41.564	-2.63	3.00	±5	Apr. 15, 2017
26865	831.5	Head	0.885	42.730	0.900	41.516	-1.66	2.96	±5	Apr. 15, 2017
26965	841.5	Head	0.894	42.600	0.907	41.500	-1.74	2.65	±5	Apr. 15, 2017
27710	2310	Head	1.651	41.332	1.673	39.424	-1.13	4.90	±5	Apr. 16, 2017
1	2412	Head	1.766	40.964	1.766	39.268	-0.21	4.23	±5	Apr. 16, 2017
3	2422	Head	1.778	40.924	1.775	39.250	-0.11	4.40	±5	Apr. 16, 2017
6	2437	Head	1.794	40.878	1.788	39.223	0.20	4.28	±5	Apr. 16, 2017
9	2452	Head	1.810	40.818	1.802	39.197	0.58	4.13	±5	Apr. 16, 2017
11	2462	Head	1.822	40.781	1.813	39.184	0.66	4.03	±5	Apr. 16, 2017
100	5500	Head	4.908	36.274	4.967	35.633	-1.25	1.89	±5	Apr. 16, 2017
102	5510	Head	4.916	36.270	4.977	35.620	-1.28	1.88	±5	Apr. 16, 2017
104	5520	Head	4.925	36.254	4.987	35.607	-1.30	1.84	±5	Apr. 16, 2017
106	5530	Head	4.937	36.238	4.998	35.593	-1.26	1.79	±5	Apr. 16, 2017
108	5540	Head	4.949	36.223	5.008	35.580	-1.23	1.75	±5	Apr. 16, 2017
110	5550	Head	4.961	36.208	5.018	35.567	-1.17	1.71	±5	Apr. 16, 2017
112	5560	Head	4.970	36.205	5.029	35.553	-1.19	1.70	±5	Apr. 16, 2017
116	5580	Head	4.985	36.164	5.049	35.527	-1.30	1.87	±5	Apr. 16, 2017
120	5600	Head	5.013	36.130	5.070	35.500	-1.12	1.77	±5	Apr. 16, 2017
122	5610	Head	5.024	36.127	5.080	35.490	-1.10	1.76	±5	Apr. 16, 2017
124	5620	Head	5.033	36.119	5.090	35.480	-1.12	1.74	±5	Apr. 16, 2017
126	5630	Head	5.042	36.104	5.100	35.470	-1.14	1.70	±5	Apr. 16, 2017
128	5640	Head	5.053	36.091	5.110	35.460	-1.12	1.66	±5	Apr. 16, 2017
132	5660	Head	5.076	36.065	5.130	35.440	-1.06	1.88	±5	Apr. 16, 2017
134	5670	Head	5.083	36.059	5.140	35.430	-1.10	1.86	±5	Apr. 16, 2017
136	5680	Head	5.090	36.036	5.150	35.420	-1.17	1.80	±5	Apr. 16, 2017
138	5690	Head	5.101	36.009	5.160	35.410	-1.15	1.72	±5	Apr. 16, 2017
140	5700	Head	5.116	35.993	5.170	35.400	-1.04	1.67	±5	Apr. 16, 2017
142	5710	Head	5.129	35.986	5.180	35.390	-0.99	1.66	±5	Apr. 16, 2017
144	5720	Head	5.138	35.983	5.190	35.380	-1.00	1.65	±5	Apr. 16, 2017

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
20850	2510	Body	2.028	54.026	2.034	52.620	-0.09	2.71	±5	Apr. 17, 2017
21100	2535	Body	2.061	53.955	2.069	52.587	-0.43	2.58	±5	Apr. 17, 2017
21350	2560	Body	2.095	53.877	2.104	52.553	-0.23	2.43	±5	Apr. 17, 2017
37850	2580	Body	2.124	53.816	2.131	52.535	-0.28	2.51	±5	Apr. 17, 2017
38000	2595	Body	2.145	53.775	2.153	52.516	-0.24	2.43	±5	Apr. 17, 2017
38150	2610	Body	2.166	53.731	2.175	52.497	-0.20	2.34	±5	Apr. 17, 2017
40240	2555	Body	2.088	53.894	2.099	52.566	-0.55	2.46	±5	Apr. 17, 2017
40500	2581	Body	2.125	53.813	2.136	52.533	-0.68	2.50	±5	Apr. 17, 2017
40770	2608	Body	2.163	53.737	2.174	52.499	-0.32	2.36	±5	Apr. 17, 2017
41140	2645	Body	2.217	53.605	2.227	52.452	-0.60	2.10	±5	Apr. 17, 2017
36	5180	Body	5.427	47.150	5.276	49.030	2.78	-3.78	±5	Apr. 17, 2017
38	5190	Body	5.438	47.150	5.288	49.010	2.80	-3.78	±5	Apr. 17, 2017
40	5200	Body	5.448	47.120	5.300	49.000	2.79	-3.84	±5	Apr. 17, 2017
42	5210	Body	5.459	47.090	5.312	48.990	2.81	-3.90	±5	Apr. 17, 2017
44	5220	Body	5.471	47.060	5.323	48.980	2.84	-3.96	±5	Apr. 17, 2017
46	5230	Body	5.486	47.030	5.335	48.970	2.73	-4.02	±5	Apr. 17, 2017
48	5240	Body	5.500	47.010	5.346	48.960	2.80	-4.06	±5	Apr. 17, 2017
149	5745	Body	6.179	46.230	5.936	48.280	4.02	-4.29	±5	Apr. 17, 2017
151	5755	Body	6.190	46.220	5.947	48.270	4.03	-4.31	±5	Apr. 17, 2017
153	5765	Body	6.199	46.200	5.959	48.250	4.01	-4.35	±5	Apr. 17, 2017
155	5775	Body	6.201	46.180	5.971	48.240	3.87	-4.19	±5	Apr. 17, 2017
157	5785	Body	6.204	46.130	5.982	48.220	3.75	-4.29	±5	Apr. 17, 2017
159	5795	Body	6.218	46.070	5.994	48.210	3.81	-4.42	±5	Apr. 17, 2017
161	5805	Body	6.237	46.030	6.000	48.200	3.95	-4.50	±5	Apr. 17, 2017
165	5825	Body	6.279	46.020	6.030	48.200	4.13	-4.52	±5	Apr. 17, 2017
26140	1860	Body	1.488	53.501	1.520	53.300	-2.08	0.38	±5	Apr. 18, 2017
26340	1880	Body	1.510	53.436	1.520	53.300	-0.66	0.25	±5	Apr. 18, 2017
26590	1905	Body	1.538	53.345	1.520	53.300	1.18	0.09	±5	Apr. 18, 2017
18700	1860	Body	1.488	53.501	1.520	53.300	-2.08	0.38	±5	Apr. 18, 2017
18900	1880	Body	1.510	53.436	1.520	53.300	-0.66	0.25	±5	Apr. 18, 2017
19100	1900	Body	1.533	53.363	1.520	53.300	0.83	0.12	±5	Apr. 18, 2017
20050	1720	Body	1.495	54.259	1.474	53.456	1.68	1.42	±5	Apr. 20, 2017
20175	1732.5	Body	1.508	54.219	1.481	53.433	1.89	1.53	±5	Apr. 20, 2017
20300	1745	Body	1.521	54.174	1.487	53.409	2.10	1.45	±5	Apr. 20, 2017
512	1850.2	Body	1.493	54.330	1.520	53.300	-1.78	1.93	±5	Apr. 20, 2017
661	1880	Body	1.530	54.250	1.520	53.300	0.66	1.78	±5	Apr. 20, 2017
810	1909.8	Body	1.567	54.120	1.520	53.300	3.09	1.54	±5	Apr. 20, 2017
9262	1852.4	Body	1.496	54.330	1.520	53.300	-1.58	1.93	±5	Apr. 20, 2017
9400	1880	Body	1.530	54.250	1.520	53.300	0.66	1.78	±5	Apr. 20, 2017
9538	1907.6	Body	1.564	54.130	1.520	53.300	2.89	1.56	±5	Apr. 20, 2017
1312	1712.4	Body	1.487	54.290	1.471	53.471	1.16	1.48	±5	Apr. 20, 2017
1413	1732.6	Body	1.508	54.220	1.481	53.433	1.89	1.54	±5	Apr. 20, 2017
1513	1752.6	Body	1.530	54.150	1.492	53.395	2.68	1.40	±5	Apr. 20, 2017

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
149	5745	Head	5.037	36.241	5.215	35.355	-3.51	2.38	±5	Apr. 20, 2017
151	5755	Head	5.049	36.223	5.225	35.345	-3.46	2.61	±5	Apr. 20, 2017
153	5765	Head	5.061	36.219	5.235	35.335	-3.41	2.60	±5	Apr. 20, 2017
155	5775	Head	5.069	36.219	5.245	35.325	-3.45	2.60	±5	Apr. 20, 2017
157	5785	Head	5.075	36.204	5.255	35.315	-3.52	2.56	±5	Apr. 20, 2017
159	5795	Head	5.085	36.180	5.265	35.305	-3.51	2.49	±5	Apr. 20, 2017
161	5805	Head	5.099	36.165	5.275	35.295	-3.43	2.45	±5	Apr. 20, 2017
165	5825	Head	5.118	36.149	5.296	35.275	-3.44	2.40	±5	Apr. 20, 2017
128	824.2	Body	0.957	55.704	0.969	55.238	-1.30	0.91	±5	Apr. 21, 2017
189	836.4	Body	0.969	55.582	0.972	55.196	-0.15	0.69	±5	Apr. 21, 2017
251	848.8	Body	0.980	55.459	0.987	55.158	-1.02	0.47	±5	Apr. 21, 2017
4132	826.4	Body	0.960	55.682	0.969	55.230	-1.08	0.87	±5	Apr. 21, 2017
4182	836.4	Body	0.969	55.582	0.972	55.196	-0.15	0.69	±5	Apr. 21, 2017
4233	846.6	Body	0.978	55.481	0.984	55.164	-0.21	0.51	±5	Apr. 21, 2017
26765	821.5	Body	0.955	55.731	0.968	55.248	-1.57	0.96	±5	Apr. 21, 2017
26865	831.5	Body	0.964	55.632	0.970	55.212	-0.61	0.78	±5	Apr. 21, 2017
26965	841.5	Body	0.973	55.532	0.978	55.180	-0.72	0.60	±5	Apr. 21, 2017
20450	829	Body	0.962	55.654	0.969	55.221	-0.83	0.82	±5	Apr. 21, 2017
20525	836.5	Body	0.969	55.581	0.972	55.195	-0.14	0.69	±5	Apr. 21, 2017
20600	844	Body	0.976	55.507	0.981	55.172	-0.45	0.56	±5	Apr. 21, 2017
23060	704	Body	0.927	55.799	0.957	55.684	-3.42	0.18	±5	Apr. 22, 2017
23095	707.5	Body	0.931	55.763	0.957	55.670	-3.07	0.11	±5	Apr. 22, 2017
23130	711	Body	0.934	55.728	0.957	55.656	-2.74	0.05	±5	Apr. 22, 2017
23780	709	Body	0.932	55.748	0.957	55.664	-2.92	0.09	±5	Apr. 22, 2017
23790	710	Body	0.933	55.741	0.957	55.660	-2.84	0.07	±5	Apr. 22, 2017
23800	711	Body	0.934	55.728	0.957	55.656	-2.74	0.05	±5	Apr. 22, 2017
27710	2310	Body	1.777	53.656	1.780	52.884	-0.15	1.43	±5	Apr. 22, 2017
1	2412	Body	1.974	52.346	1.914	52.751	3.37	-0.86	±5	Apr. 23, 2017
3	2422	Body	1.988	52.299	1.923	52.737	3.54	-0.76	±5	Apr. 23, 2017
6	2437	Body	2.006	52.244	1.938	52.717	3.41	-0.86	±5	Apr. 23, 2017
9	2452	Body	2.027	52.179	1.953	52.697	3.94	-0.99	±5	Apr. 23, 2017
11	2462	Body	2.040	52.141	1.967	52.684	3.55	-1.06	±5	Apr. 23, 2017
0	2402	Body	1.961	52.392	1.904	52.764	3.23	-0.77	±5	Apr. 23, 2017
39	2441	Body	2.011	52.228	1.941	52.712	3.68	-0.90	±5	Apr. 23, 2017
78	2480	Body	2.040	52.071	1.950	52.700	4.62	-1.19	±5	Apr. 23, 2017
132072	1720	Body	1.460	52.736	1.470	53.496	-0.65	-1.43	±5	Apr. 27, 2017
132322	1745	Body	1.486	52.651	1.485	53.420	-0.24	-1.40	±5	Apr. 27, 2017
132572	1770	Body	1.512	52.573	1.501	53.355	0.79	-1.55	±5	Apr. 27, 2017
52	5260	Body	5.237	46.914	5.370	48.940	-2.47	-4.06	±5	Apr. 27, 2017
54	5270	Body	5.253	46.893	5.381	48.930	-2.37	-4.10	±5	Apr. 27, 2017
56	5280	Body	5.268	46.880	5.393	48.920	-2.26	-4.13	±5	Apr. 27, 2017
58	5290	Body	5.279	46.870	5.404	48.910	-2.25	-4.15	±5	Apr. 27, 2017
60	5300	Body	5.290	46.855	5.416	48.900	-2.40	-4.18	±5	Apr. 27, 2017

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
62	5310	Body	5.300	46.835	5.428	48.787	-2.39	-4.03	±5	Apr. 27, 2017
64	5320	Body	5.314	46.815	5.439	48.673	-2.32	-3.87	±5	Apr. 27, 2017
100	5500	Body	5.532	46.547	5.650	48.600	-2.09	-4.22	±5	Apr. 27, 2017
102	5510	Body	5.544	46.531	5.661	48.590	-2.06	-4.26	±5	Apr. 27, 2017
104	5520	Body	5.555	46.513	5.673	48.580	-2.02	-4.30	±5	Apr. 27, 2017
106	5530	Body	5.570	46.495	5.685	48.570	-1.94	-4.33	±5	Apr. 27, 2017
108	5540	Body	5.584	46.479	5.696	48.560	-2.04	-4.36	±5	Apr. 27, 2017
110	5550	Body	5.600	46.461	5.708	48.550	-1.93	-4.40	±5	Apr. 27, 2017
112	5560	Body	5.613	46.459	5.720	48.540	-1.88	-4.21	±5	Apr. 27, 2017
116	5580	Body	5.634	46.420	5.743	48.520	-1.85	-4.29	±5	Apr. 27, 2017
120	5600	Body	5.664	46.390	5.770	48.500	-1.84	-4.35	±5	Apr. 27, 2017
122	5610	Body	5.675	46.382	5.778	48.485	-1.81	-4.37	±5	Apr. 27, 2017
124	5620	Body	5.686	46.366	5.790	48.470	-1.80	-4.40	±5	Apr. 27, 2017
126	5630	Body	5.699	46.347	5.801	48.455	-1.74	-4.44	±5	Apr. 27, 2017
128	5640	Body	5.713	46.329	5.813	48.440	-1.66	-4.28	±5	Apr. 27, 2017
132	5660	Body	5.743	46.302	5.837	48.410	-1.66	-4.33	±5	Apr. 27, 2017
134	5670	Body	5.754	46.298	5.848	48.395	-1.65	-4.34	±5	Apr. 27, 2017
136	5680	Body	5.762	46.281	5.860	48.380	-1.67	-4.38	±5	Apr. 27, 2017
138	5690	Body	5.777	46.254	5.872	48.365	-1.58	-4.43	±5	Apr. 27, 2017
140	5700	Body	5.792	46.240	5.883	48.350	-1.50	-4.46	±5	Apr. 27, 2017
142	5710	Body	5.805	46.230	5.895	48.335	-1.44	-4.29	±5	Apr. 27, 2017
144	5720	Body	5.817	46.216	5.907	48.320	-1.58	-4.31	±5	Apr. 27, 2017
52	5260	Head	4.566	37.369	4.720	35.940	-3.25	4.09	±5	Apr. 28, 2017
54	5270	Head	4.578	37.347	4.730	35.930	-3.21	4.03	±5	Apr. 28, 2017
56	5280	Head	4.590	37.335	4.740	35.920	-3.16	4.00	±5	Apr. 28, 2017
58	5290	Head	4.600	37.327	4.750	35.910	-3.16	3.97	±5	Apr. 28, 2017
60	5300	Head	4.607	37.313	4.760	35.900	-3.21	3.94	±5	Apr. 28, 2017
62	5310	Head	4.617	37.294	4.770	35.887	-3.21	3.88	±5	Apr. 28, 2017
64	5320	Head	4.629	37.276	4.781	35.873	-3.17	3.83	±5	Apr. 28, 2017
1312	1712.4	Head	1.335	41.987	1.352	40.162	-1.07	4.45	±5	Apr. 28, 2017
1413	1732.6	Head	1.356	41.898	1.362	40.129	-0.26	4.48	±5	Apr. 28, 2017
1513	1752.6	Head	1.377	41.822	1.372	40.095	0.51	4.29	±5	Apr. 28, 2017
132072	1720	Head	1.344	41.951	1.369	40.089	-1.93	4.62	±5	Apr. 28, 2017
132322	1745	Head	1.369	41.844	1.384	40.046	-0.77	4.61	±5	Apr. 28, 2017
132572	1770	Head	1.393	41.756	1.395	40.015	0.18	4.39	±5	Apr. 28, 2017
26140	1860	Head	1.344	38.916	1.400	40.000	-4.01	-2.71	±5	Apr. 28, 2017
26340	1880	Head	1.363	38.831	1.400	40.000	-2.63	-2.92	±5	Apr. 28, 2017
26590	1905	Head	1.390	38.729	1.400	40.000	-0.74	-3.18	±5	Apr. 28, 2017
149	5745	Head	5.059	36.725	5.215	35.355	-3.09	3.74	±5	Apr. 28, 2017
151	5755	Head	5.071	36.709	5.225	35.345	-3.05	3.99	±5	Apr. 28, 2017
153	5765	Head	5.083	36.700	5.235	35.335	-3.00	3.97	±5	Apr. 28, 2017
155	5775	Head	5.091	36.698	5.245	35.325	-3.03	3.96	±5	Apr. 28, 2017
157	5785	Head	5.097	36.685	5.255	35.315	-3.10	3.92	±5	Apr. 28, 2017
159	5795	Head	5.107	36.663	5.265	35.305	-3.09	3.86	±5	Apr. 28, 2017
161	5805	Head	5.121	36.650	5.275	35.295	-3.01	3.82	±5	Apr. 28, 2017
165	5825	Head	5.141	36.633	5.296	35.275	-3.01	3.78	±5	Apr. 28, 2017

Table of Low/Middle/High Channel for Liquid Validation

CH	Frequency (MHz)	Liquid Type	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
1	2412	Head	1.733	40.792	1.766	39.268	-2.10	3.80	±5	Apr. 28, 2017
3	2422	Head	1.745	40.747	1.775	39.250	-1.97	3.95	±5	Apr. 28, 2017
6	2437	Head	1.762	40.688	1.788	39.223	-1.58	3.80	±5	Apr. 28, 2017
9	2452	Head	1.778	40.626	1.802	39.197	-1.21	3.64	±5	Apr. 28, 2017
11	2462	Head	1.790	40.586	1.813	39.184	-1.09	3.53	±5	Apr. 28, 2017

Table of Low/Middle/High Channel for Liquid Validation

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.

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 (%)
2017/4/15	750	HSL	250	D750V3-1012	EX3DV4 - SN3925	DAE3 Sn495	2.11	8.21	8.44	2.80
2017/4/22	750	MSL	250	D750V3-1012	EX3DV4 - SN3976	DAE4 Sn1424	2.18	8.72	8.72	0.00
2017/4/15	835	HSL	250	D835V2-4d092	EX3DV4 - SN3925	DAE3 Sn495	2.28	9.42	9.12	-3.18
2017/4/21	835	MSL	250	D835V2-4d092	EX3DV4 - SN3976	DAE4 Sn1424	2.38	9.59	9.52	-0.73
2017/4/14	1750	HSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.34	36.60	37.36	2.08
2017/4/28	1750	HSL	250	D1750V2-1068	EX3DV4 - SN3976	DAE4 Sn1424	9.36	36.60	37.44	2.30
2017/4/20	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3976	DAE4 Sn1424	9.61	36.20	38.44	6.19
2017/4/27	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3931	DAE3 Sn577	9.63	36.20	38.52	6.41
2017/4/12	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3925	DAE3 Sn495	9.89	40.50	39.56	-2.32
2017/4/28	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE4 Sn1424	9.32	40.50	37.28	-7.95
2017/4/18	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE4 Sn1424	10.00	38.80	40	3.09
2017/4/20	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE4 Sn1424	10.50	38.80	42	8.25
2017/4/16	2300	HSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE3 Sn577	12.70	49.00	50.8	3.67
2017/4/22	2300	MSL	250	D2300V2-1006	EX3DV4 - SN3931	DAE3 Sn577	12.10	47.90	48.4	1.04
2017/4/16	2450	HSL	250	D2450V2-926	EX3DV4 - SN3925	DAE3 Sn495	13.20	52.80	52.8	0.00
2017/4/28	2450	HSL	250	D2450V2-926	EX3DV4 - SN3931	DAE3 Sn577	12.40	52.80	49.6	-6.06
2017/4/23	2450	MSL	250	D2450V2-926	EX3DV4 - SN3931	DAE3 Sn577	13.60	51.20	54.4	6.25
2017/4/12	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE3 Sn495	14.60	56.80	58.4	2.82
2017/4/17	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3976	DAE4 Sn1424	13.40	55.20	53.6	-2.90
2017/4/17	5200	MSL	100	D5GHzV2-1040	EX3DV4 - SN3925	DAE3 Sn495	7.93	72.90	79.3	8.78
2017/4/28	5250	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	7.79	80.60	77.9	-3.35
2017/4/27	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	7.17	75.50	71.7	-5.03
2017/4/16	5600	HSL	100	D5GHzV2-1040	EX3DV4 - SN3925	DAE3 Sn495	7.99	80.50	79.9	-0.75
2017/4/27	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	7.90	78.60	79	0.51
2017/4/28	5750	HSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	8.03	80.50	80.3	-0.25
2017/4/20	5800	HSL	100	D5GHzV2-1040	EX3DV4 - SN3925	DAE3 Sn495	7.36	75.90	73.6	-3.03
2017/4/17	5800	MSL	100	D5GHzV2-1040	EX3DV4 - SN3925	DAE3 Sn495	7.10	75.20	71	-5.59

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 (%)
2017/4/20	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3976	DAE4 Sn1424	5.15	19.40	20.6	6.19
2017/4/18	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE4 Sn1424	5.27	20.60	21.08	2.33
2017/4/20	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3976	DAE4 Sn1424	5.56	20.60	22.24	7.96
2017/4/27	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	1.91	21.20	19.1	-9.91
2017/4/27	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE3 Sn577	2.19	22.00	21.9	-0.45

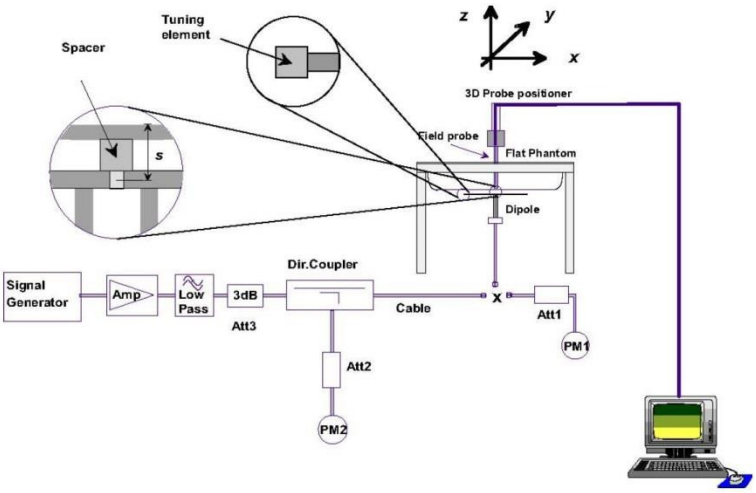


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

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

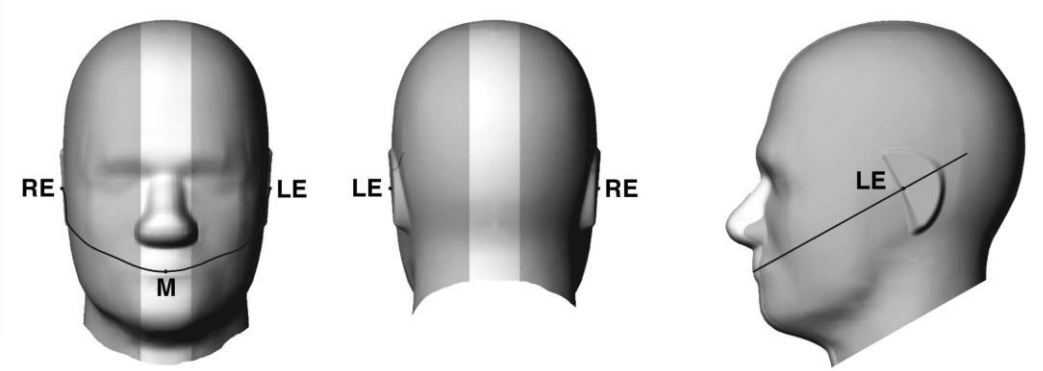


Fig 9.1.1 Front, back, and side views of SAM twin phantom

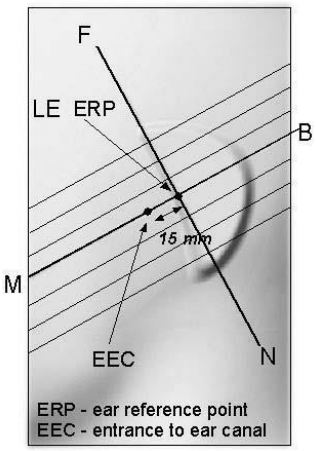


Fig 9.1.2 Close-up side view of phantom showing the ear region.

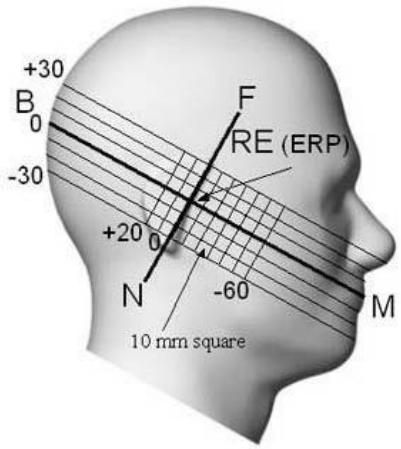


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

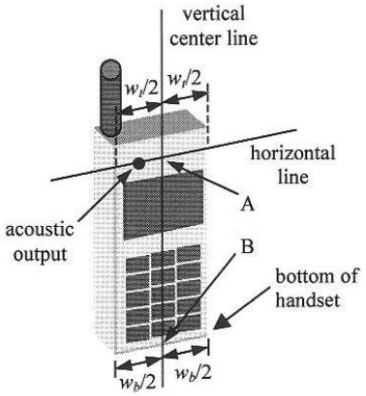


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

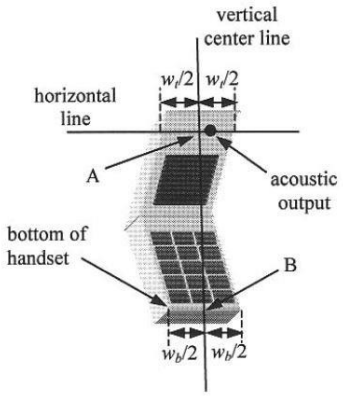


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

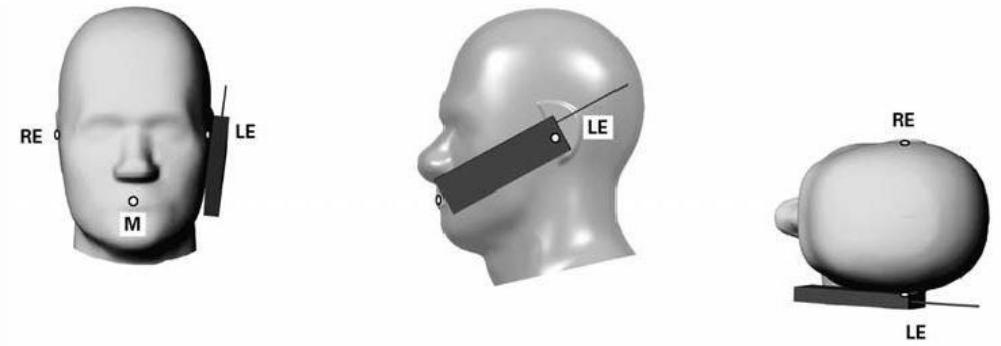


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

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

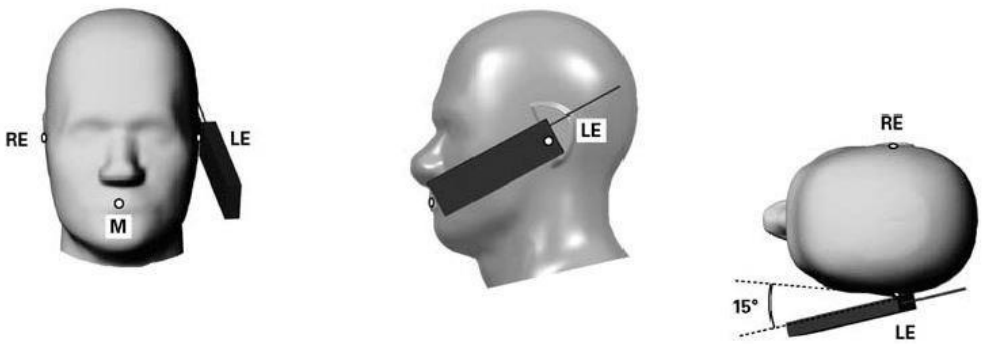


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

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

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

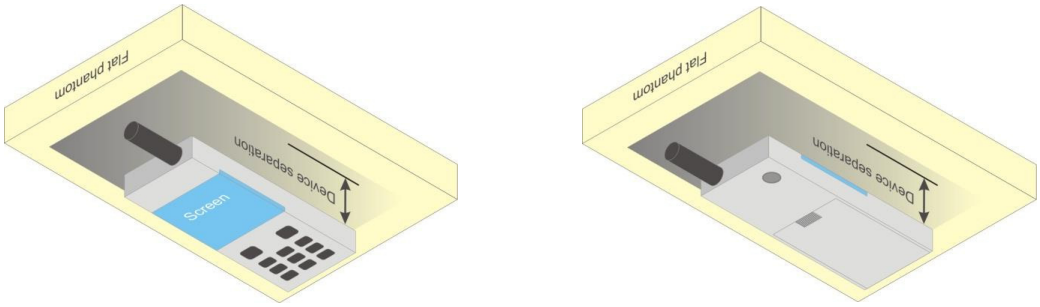


Fig 9.4 Body Worn Position

11.5 Product Specific

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

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

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

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. 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

<At-Head and Default Power Mode>

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	33.19	33.13	32.95	33.50	24.19	24.13	23.95	24.50
GPRS 1 Tx slot	33.20	33.16	33.07	33.50	24.20	24.16	24.07	24.50
GPRS 2 Tx slots	29.01	28.82	28.86	30.50	23.01	22.82	22.86	24.50
GPRS 3 Tx slots	27.23	27.14	27.38	28.75	22.97	22.88	23.12	24.49
GPRS 4 Tx slots	26.57	26.45	26.34	27.50	23.57	23.45	23.34	24.50
EDGE 1 Tx slot	26.05	26.12	26.00	28.00	17.05	17.12	17.00	19.00
EDGE 2 Tx slots	25.73	25.64	25.63	28.00	19.73	19.64	19.63	22.00
EDGE 3 Tx slots	24.89	25.11	24.79	26.25	20.63	20.85	20.53	21.99
EDGE 4 Tx slots	23.85	24.07	23.77	25.00	20.85	21.07	20.77	22.00

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	29.18	29.20	29.22	30.50	20.18	20.20	20.22	21.50
GPRS 1 Tx slot	29.14	29.19	29.28	30.50	20.14	20.19	20.28	21.50
GPRS 2 Tx slots	25.62	25.72	25.77	27.50	19.62	19.72	19.77	21.50
GPRS 3 Tx slots	24.16	24.18	24.21	25.75	19.90	19.92	19.95	21.49
GPRS 4 Tx slots	22.79	22.75	22.90	24.50	19.79	19.75	19.90	21.50
EDGE 1 Tx slot	25.01	25.12	25.07	27.00	16.01	16.12	16.07	18.00
EDGE 2 Tx slots	24.68	24.75	25.03	27.00	18.68	18.75	19.03	21.00
EDGE 3 Tx slots	23.42	23.65	23.48	25.25	19.16	19.39	19.22	20.99
EDGE 4 Tx slots	22.02	22.13	22.20	24.00	19.02	19.13	19.20	21.00

<Near-body and Hotspot Mode>

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	33.19	33.13	32.95	33.50	24.19	24.13	23.95	24.50
GPRS 1 Tx slot	33.20	33.16	33.07	33.50	24.20	24.16	24.07	24.50
GPRS 2 Tx slots	29.01	28.82	28.86	30.50	23.01	22.82	22.86	24.50
GPRS 3 Tx slots	27.23	27.14	27.38	28.75	22.97	22.88	23.12	24.49
GPRS 4 Tx slots	26.57	26.45	26.34	27.50	23.57	23.45	23.34	24.50
EDGE 1 Tx slot	26.05	26.12	26.00	28.00	17.05	17.12	17.00	19.00
EDGE 2 Tx slots	25.73	25.64	25.63	28.00	19.73	19.64	19.63	22.00
EDGE 3 Tx slots	24.89	25.11	24.79	26.25	20.63	20.85	20.53	21.99
EDGE 4 Tx slots	23.85	24.07	23.77	25.00	20.85	21.07	20.77	22.00

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	29.18	29.20	29.22	30.50	20.18	20.20	20.22	21.50
GPRS 1 Tx slot	29.14	29.19	29.28	30.50	20.14	20.19	20.28	21.50
GPRS 2 Tx slots	25.62	25.72	25.77	27.50	19.62	19.72	19.77	21.50
GPRS 3 Tx slots	24.16	24.18	24.21	25.75	19.90	19.92	19.95	21.49
GPRS 4 Tx slots	22.79	22.75	22.90	24.50	19.79	19.75	19.90	21.50
EDGE 1 Tx slot	25.01	25.12	25.07	27.00	16.01	16.12	16.07	18.00
EDGE 2 Tx slots	24.68	24.75	25.03	27.00	18.68	18.75	19.03	21.00
EDGE 3 Tx slots	23.42	23.65	23.48	25.25	19.16	19.39	19.22	20.99
EDGE 4 Tx slots	22.02	22.13	22.20	24.00	19.02	19.13	19.20	21.00

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

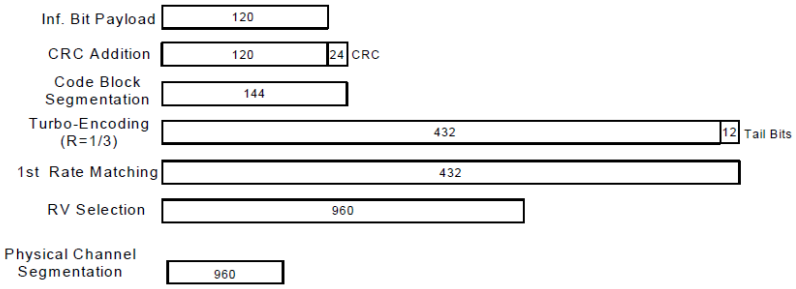


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. 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.

< At-Head and Default Power Mode>

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	22.38	22.05	22.41	24.00	22.31	22.42	22.38	24.00	23.16	23.14	22.85	24.00
3GPP Rel 99	RMC 12.2Kbps	22.51	22.25	22.50	24.00	22.38	22.54	22.40	24.00	23.18	23.17	22.88	24.00
3GPP Rel 6	HSDPA Subtest-1	21.50	21.36	21.48	23.00	21.37	21.53	21.29	23.00	22.21	22.07	21.81	23.00
3GPP Rel 6	HSDPA Subtest-2	21.42	21.31	21.43	23.00	21.32	21.50	21.28	23.00	22.17	22.10	21.78	23.00
3GPP Rel 6	HSDPA Subtest-3	20.94	20.87	20.91	22.50	20.78	20.93	20.97	22.50	21.73	21.67	21.44	22.50
3GPP Rel 6	HSDPA Subtest-4	20.92	20.84	20.90	22.50	20.80	20.91	20.92	22.50	21.66	21.58	21.34	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.34	21.30	21.44	23.00	21.36	21.53	21.12	23.00	22.21	22.04	21.73	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.36	21.11	21.39	23.00	21.23	21.47	21.15	23.00	22.03	21.91	21.61	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	20.76	20.76	20.81	22.50	20.70	20.78	20.79	22.50	21.64	21.60	21.44	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	20.92	20.75	20.90	22.50	20.68	20.84	20.75	22.50	21.66	21.50	21.18	22.50
3GPP Rel 6	HSUPA Subtest-1	21.28	21.13	21.06	23.00	21.22	21.10	21.06	23.00	22.09	22.16	21.78	23.00
3GPP Rel 6	HSUPA Subtest-2	19.26	19.15	19.07	21.00	19.20	19.10	19.08	21.00	20.01	20.08	19.81	21.00
3GPP Rel 6	HSUPA Subtest-3	20.21	20.16	20.10	22.00	20.28	20.19	20.11	22.00	21.12	21.14	20.80	22.00
3GPP Rel 6	HSUPA Subtest-4	19.20	19.12	19.07	21.00	19.26	19.18	19.09	21.00	20.03	20.04	19.80	21.00
3GPP Rel 6	HSUPA Subtest-5	21.52	21.37	21.11	23.00	21.37	21.52	21.50	23.00	22.29	22.19	21.84	23.00

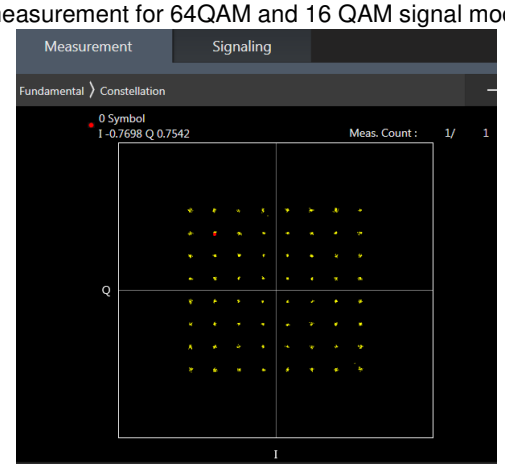
<Near-body and Hotspot Mode>

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	21.51	21.35	21.41	23.00	20.98	20.84	20.87	22.50	21.59	21.57	21.19	22.50
3GPP Rel 99	RMC 12.2Kbps	21.55	21.36	21.41	23.00	21.01	20.85	20.94	22.50	21.60	21.58	21.20	22.50
3GPP Rel 6	HSDPA Subtest-1	20.44	20.10	20.53	22.00	20.05	20.37	19.71	21.50	20.52	20.58	20.20	21.50
3GPP Rel 6	HSDPA Subtest-2	20.50	20.44	20.48	22.00	20.07	20.13	19.92	21.50	20.54	20.57	20.21	21.50
3GPP Rel 6	HSDPA Subtest-3	20.10	19.72	19.98	21.50	19.32	19.24	19.29	21.00	20.09	20.13	19.80	21.00
3GPP Rel 6	HSDPA Subtest-4	20.04	20.03	19.88	21.50	19.41	19.33	19.44	21.00	20.06	20.12	19.77	21.00
3GPP Rel 8	DC-HSDPA Subtest-1	20.57	20.27	20.39	22.00	20.40	20.14	19.88	21.50	20.48	20.57	20.19	21.50
3GPP Rel 8	DC-HSDPA Subtest-2	20.44	20.29	20.51	22.00	20.02	20.06	19.98	21.50	20.51	20.55	20.20	21.50
3GPP Rel 8	DC-HSDPA Subtest-3	19.84	19.75	19.96	21.50	19.29	19.53	19.55	21.00	20.08	20.11	19.78	21.00
3GPP Rel 8	DC-HSDPA Subtest-4	20.01	19.93	20.09	21.50	19.61	19.51	19.18	21.00	20.08	20.12	19.79	21.00
3GPP Rel 6	HSUPA Subtest-1	20.35	20.30	20.32	22.00	20.05	19.68	19.75	21.50	20.50	20.58	20.20	21.50
3GPP Rel 6	HSUPA Subtest-2	18.28	18.18	18.32	20.00	17.99	17.92	18.03	19.50	18.49	18.59	18.22	19.50
3GPP Rel 6	HSUPA Subtest-3	19.39	19.38	19.39	21.00	19.09	18.77	18.93	20.50	19.52	19.61	19.23	20.50
3GPP Rel 6	HSUPA Subtest-4	18.51	18.47	18.24	20.00	18.18	17.97	17.78	19.50	18.51	18.60	18.21	19.50
3GPP Rel 6	HSUPA Subtest-5	20.62	20.24	20.37	22.00	20.06	19.94	20.06	21.50	20.53	20.60	20.20	21.50

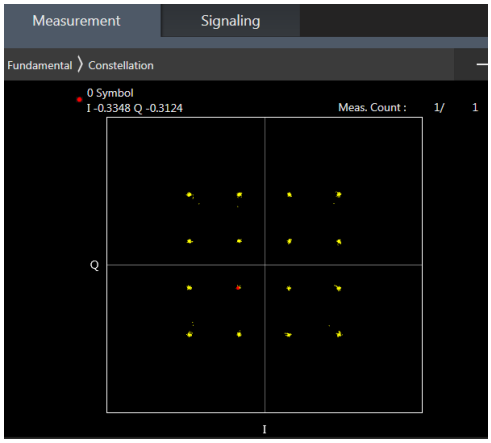
<LTE Conducted Power>

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 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. 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 conducted power measurement for 64QAM and 16 QAM signal modulation are correct.



64QAM



16QAM

<At-Head and Default Power Mode>

<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	22.67	22.59	22.78	24	0
20	QPSK	1	49	22.33	22.28	22.50		
20	QPSK	1	99	22.41	22.44	22.53		
20	QPSK	50	0	21.48	21.44	21.68	23	1
20	QPSK	50	24	21.44	21.41	21.64		
20	QPSK	50	50	21.41	21.39	21.58		
20	QPSK	100	0	21.45	21.44	21.63		
20	16QAM	1	0	21.91	21.81	21.97	23	1
20	16QAM	1	49	21.58	21.49	21.68		
20	16QAM	1	99	21.61	21.66	21.74		
20	16QAM	50	0	20.54	20.48	20.71	22	2
20	16QAM	50	24	20.45	20.43	20.63		
20	16QAM	50	50	20.40	20.39	20.59		
20	16QAM	100	0	20.45	20.42	20.64		
20	64QAM	1	0	21.78	21.69	21.83	22	2
20	64QAM	1	49	21.49	21.38	21.63		
20	64QAM	1	99	21.50	21.48	21.54		
20	64QAM	50	0	20.53	20.45	20.61	21	3
20	64QAM	50	24	20.42	20.37	20.64		
20	64QAM	50	50	20.35	20.32	20.66		
20	64QAM	100	0	20.38	20.53	20.67		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.44	22.39	22.61	24	0
15	QPSK	1	37	22.30	22.26	22.49		
15	QPSK	1	74	22.30	22.26	22.51		
15	QPSK	36	0	21.44	21.45	21.66	23	1
15	QPSK	36	20	21.42	21.38	21.63		
15	QPSK	36	39	21.37	21.35	21.58		
15	QPSK	75	0	21.43	21.38	21.62		
15	16QAM	1	0	21.71	21.66	21.86	23	1
15	16QAM	1	37	21.56	21.52	21.72		
15	16QAM	1	74	21.56	21.54	21.77		
15	16QAM	36	0	20.47	20.46	20.66	22	2
15	16QAM	36	20	20.41	20.43	20.64		
15	16QAM	36	39	20.36	20.39	20.60		
15	16QAM	75	0	20.43	20.41	20.63		
15	64QAM	1	0	21.63	21.45	21.75	22	2
15	64QAM	1	37	21.30	21.46	21.50		
15	64QAM	1	74	21.44	21.30	21.53		
15	64QAM	36	0	20.52	20.39	20.64	21	3
15	64QAM	36	20	20.48	20.44	20.72		
15	64QAM	36	39	20.32	20.29	20.53		
15	64QAM	75	0	20.33	20.35	20.69		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.62	22.59	22.62	24	0
10	QPSK	1	25	22.30	22.30	22.53		
10	QPSK	1	49	22.52	22.51	22.54		
10	QPSK	25	0	21.40	21.39	21.63	23	1
10	QPSK	25	12	21.36	21.36	21.58		
10	QPSK	25	25	21.36	21.33	21.57		
10	QPSK	50	0	21.35	21.38	21.61		
10	16QAM	1	0	21.77	21.77	21.80	23	1
10	16QAM	1	25	21.53	21.50	21.74		
10	16QAM	1	49	21.69	21.70	21.74		
10	16QAM	25	0	20.43	20.40	20.62	22	2
10	16QAM	25	12	20.40	20.40	20.62		
10	16QAM	25	25	20.36	20.37	20.60		
10	16QAM	50	0	20.41	20.39	20.61		
10	64QAM	1	0	21.79	21.66	21.66	22	2
10	64QAM	1	25	21.39	21.38	21.71		
10	64QAM	1	49	21.56	21.65	21.58		
10	64QAM	25	0	20.42	20.37	20.64	21	3
10	64QAM	25	12	20.27	20.40	20.67		
10	64QAM	25	25	20.29	20.43	20.58		
10	64QAM	50	0	20.35	20.45	20.68		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.36	22.34	22.61	24	0
5	QPSK	1	12	22.27	22.27	22.54		
5	QPSK	1	24	22.32	22.33	22.57		
5	QPSK	12	0	21.35	21.37	21.62	23	1
5	QPSK	12	7	21.33	21.37	21.62		
5	QPSK	12	13	21.31	21.33	21.60		
5	QPSK	25	0	21.33	21.34	21.57		
5	16QAM	1	0	21.51	21.52	21.75	23	1
5	16QAM	1	12	21.50	21.50	21.76		
5	16QAM	1	24	21.48	21.51	21.74		
5	16QAM	12	0	20.37	20.40	20.62	22	2
5	16QAM	12	7	20.37	20.39	20.67		
5	16QAM	12	13	20.34	20.35	20.61		
5	16QAM	25	0	20.34	20.37	20.62		
5	64QAM	1	0	21.50	21.50	21.64	22	2
5	64QAM	1	12	21.32	21.43	21.67		
5	64QAM	1	24	21.47	21.47	21.57		
5	64QAM	12	0	20.34	20.32	20.69	21	3
5	64QAM	12	7	20.32	20.43	20.57		
5	64QAM	12	13	20.35	20.28	20.53		
5	64QAM	25	0	20.40	20.34	20.60		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.30	22.32	22.55	24	0
3	QPSK	1	8	22.28	22.30	22.54		
3	QPSK	1	14	22.28	22.28	22.53		
3	QPSK	8	0	21.32	21.35	21.58	23	1
3	QPSK	8	4	21.32	21.35	21.58		
3	QPSK	8	7	21.30	21.34	21.57		
3	QPSK	15	0	21.28	21.34	21.58		
3	16QAM	1	0	21.44	21.48	21.71	23	1
3	16QAM	1	8	21.48	21.49	21.75		
3	16QAM	1	14	21.45	21.46	21.65		
3	16QAM	8	0	20.37	20.41	20.65	22	2
3	16QAM	8	4	20.38	20.42	20.68		
3	16QAM	8	7	20.33	20.40	20.62		
3	16QAM	15	0	20.36	20.36	20.61		
3	64QAM	1	0	21.30	21.46	21.62	22	2
3	64QAM	1	8	21.36	21.39	21.61		
3	64QAM	1	14	21.48	21.31	21.66		
3	64QAM	8	0	20.42	20.25	20.67	21	3
3	64QAM	8	4	20.40	20.31	20.54		
3	64QAM	8	7	20.20	20.37	20.48		
3	64QAM	15	0	20.26	20.29	20.62		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.18	22.21	22.47	24	0
1.4	QPSK	1	3	22.26	22.28	22.50		
1.4	QPSK	1	5	22.16	22.22	22.43		
1.4	QPSK	3	0	22.25	22.26	22.54		
1.4	QPSK	3	1	22.31	22.34	22.59		
1.4	QPSK	3	3	22.23	22.25	22.53		
1.4	QPSK	6	0	21.24	21.28	21.51	23	1
1.4	16QAM	1	0	21.35	21.37	21.66	23	1
1.4	16QAM	1	3	21.45	21.50	21.70		
1.4	16QAM	1	5	21.37	21.42	21.62		
1.4	16QAM	3	0	21.21	21.27	21.51		
1.4	16QAM	3	1	21.28	21.30	21.54		
1.4	16QAM	3	3	21.22	21.23	21.47		
1.4	16QAM	6	0	20.32	20.36	20.59	22	2
1.4	64QAM	1	0	21.21	21.21	21.55	22	2
1.4	64QAM	1	3	21.42	21.32	21.66		
1.4	64QAM	1	5	21.30	21.22	21.55		
1.4	64QAM	3	0	21.28	21.31	21.57		
1.4	64QAM	3	1	21.36	21.27	21.49		
1.4	64QAM	3	3	21.14	21.27	21.47		
1.4	64QAM	6	0	20.24	20.23	20.41	21	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	22.72	22.76	22.68	24	0
20	QPSK	1	49	22.45	22.39	22.56		
20	QPSK	1	99	22.32	22.37	22.54		
20	QPSK	50	0	21.63	21.69	21.68	23	1
20	QPSK	50	24	21.59	21.56	21.67		
20	QPSK	50	50	21.52	21.50	21.65		
20	QPSK	100	0	21.57	21.65	21.68		
20	16QAM	1	0	21.99	21.95	21.89	23	1
20	16QAM	1	49	21.69	21.62	21.82		
20	16QAM	1	99	21.55	21.63	21.78		
20	16QAM	50	0	20.66	20.63	20.69	22	2
20	16QAM	50	24	20.56	20.57	20.67		
20	16QAM	50	50	20.53	20.50	20.63		
20	16QAM	100	0	20.58	20.58	20.67		
20	64QAM	1	0	21.84	21.92	21.83	22	2
20	64QAM	1	49	21.61	21.50	21.59		
20	64QAM	1	99	21.35	21.57	21.73		
20	64QAM	50	0	20.60	20.64	20.63	21	3
20	64QAM	50	24	20.59	20.56	20.70		
20	64QAM	50	50	20.43	20.43	20.60		
20	64QAM	100	0	20.65	20.69	20.70		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.72	22.53	22.65	24	0
15	QPSK	1	37	22.42	22.37	22.56		
15	QPSK	1	74	22.41	22.42	22.55		
15	QPSK	36	0	21.69	21.58	21.74	23	1
15	QPSK	36	20	21.53	21.55	21.70		
15	QPSK	36	39	21.50	21.49	21.64		
15	QPSK	75	0	21.54	21.53	21.68		
15	16QAM	1	0	21.94	21.81	21.91	23	1
15	16QAM	1	37	21.68	21.62	21.84		
15	16QAM	1	74	21.68	21.64	21.83		
15	16QAM	36	0	20.70	20.58	20.73	22	2
15	16QAM	36	20	20.57	20.56	20.69		
15	16QAM	36	39	20.50	20.46	20.63		
15	16QAM	75	0	20.54	20.54	20.68		
15	64QAM	1	0	21.83	21.54	21.77	22	2
15	64QAM	1	37	21.54	21.54	21.74		
15	64QAM	1	74	21.54	21.59	21.57		
15	64QAM	36	0	20.78	20.64	20.73	21	3
15	64QAM	36	20	20.51	20.55	20.69		
15	64QAM	36	39	20.47	20.55	20.61		
15	64QAM	75	0	20.48	20.45	20.59		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.67	22.55	22.69	24	0
10	QPSK	1	25	22.57	22.42	22.57		
10	QPSK	1	49	22.45	22.40	22.54		
10	QPSK	25	0	21.66	21.56	21.67	23	1
10	QPSK	25	12	21.61	21.52	21.65		
10	QPSK	25	25	21.52	21.49	21.64		
10	QPSK	50	0	21.61	21.51	21.65		
10	16QAM	1	0	21.87	21.73	21.92	23	1
10	16QAM	1	25	21.78	21.63	21.82		
10	16QAM	1	49	21.66	21.61	21.79		
10	16QAM	25	0	20.66	20.52	20.67	22	2
10	16QAM	25	12	20.63	20.53	20.66		
10	16QAM	25	25	20.51	20.45	20.61		
10	16QAM	50	0	20.63	20.52	20.66		
10	64QAM	1	0	21.86	21.68	21.84	22	2
10	64QAM	1	25	21.73	21.57	21.77		
10	64QAM	1	49	21.53	21.57	21.65		
10	64QAM	25	0	20.72	20.58	20.67	21	3
10	64QAM	25	12	20.71	20.59	20.75		
10	64QAM	25	25	20.57	20.49	20.73		
10	64QAM	50	0	20.56	20.55	20.73		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.58	22.49	22.62	24	0
5	QPSK	1	12	22.53	22.42	22.57		
5	QPSK	1	24	22.55	22.41	22.58		
5	QPSK	12	0	21.64	21.51	21.67	23	1
5	QPSK	12	7	21.61	21.48	21.64		
5	QPSK	12	13	21.59	21.46	21.60		
5	QPSK	25	0	21.61	21.51	21.64		
5	16QAM	1	0	21.80	21.65	21.89	23	1
5	16QAM	1	12	21.78	21.60	21.85		
5	16QAM	1	24	21.76	21.60	21.81		
5	16QAM	12	0	20.64	20.50	20.68	22	2
5	16QAM	12	7	20.62	20.50	20.65		
5	16QAM	12	13	20.60	20.46	20.61		
5	16QAM	25	0	20.63	20.50	20.64		
5	64QAM	1	0	21.71	21.61	21.66	22	2
5	64QAM	1	12	21.61	21.62	21.72		
5	64QAM	1	24	21.71	21.46	21.67		
5	64QAM	12	0	20.57	20.45	20.68	21	3
5	64QAM	12	7	20.65	20.45	20.65		
5	64QAM	12	13	20.68	20.54	20.59		
5	64QAM	25	0	20.58	20.49	20.58		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.55	22.45	22.58	24	0
3	QPSK	1	8	22.53	22.42	22.55		
3	QPSK	1	14	22.53	22.39	22.53		
3	QPSK	8	0	21.57	21.48	21.64	23	1
3	QPSK	8	4	21.61	21.48	21.65		
3	QPSK	8	7	21.55	21.49	21.58		
3	QPSK	15	0	21.58	21.45	21.60		
3	16QAM	1	0	21.73	21.58	21.83	23	1
3	16QAM	1	8	21.75	21.60	21.81		
3	16QAM	1	14	21.72	21.57	21.77		
3	16QAM	8	0	20.63	20.52	20.68	22	2
3	16QAM	8	4	20.66	20.54	20.70		
3	16QAM	8	7	20.59	20.53	20.65		
3	16QAM	15	0	20.61	20.49	20.62		
3	64QAM	1	0	21.65	21.48	21.65	22	2
3	64QAM	1	8	21.65	21.51	21.61		
3	64QAM	1	14	21.56	21.40	21.71		
3	64QAM	8	0	20.55	20.42	20.74	21	3
3	64QAM	8	4	20.66	20.43	20.66		
3	64QAM	8	7	20.60	20.42	20.48		
3	64QAM	15	0	20.63	20.35	20.63		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.45	22.31	22.49	24	0
1.4	QPSK	1	3	22.51	22.41	22.58		
1.4	QPSK	1	5	22.45	22.31	22.51		
1.4	QPSK	3	0	22.52	22.40	22.57		
1.4	QPSK	3	1	22.57	22.44	22.62		
1.4	QPSK	3	3	22.52	22.39	22.55		
1.4	QPSK	6	0	21.50	21.41	21.54	23	1
1.4	16QAM	1	0	21.66	21.52	21.76	23	1
1.4	16QAM	1	3	21.74	21.59	21.81		
1.4	16QAM	1	5	21.65	21.51	21.76		
1.4	16QAM	3	0	21.51	21.38	21.58		
1.4	16QAM	3	1	21.56	21.42	21.61		
1.4	16QAM	3	3	21.48	21.34	21.55		
1.4	16QAM	6	0	20.56	20.47	20.61	22	2
1.4	64QAM	1	0	21.46	21.33	21.52	22	2
1.4	64QAM	1	3	21.51	21.56	21.69		
1.4	64QAM	1	5	21.64	21.46	21.71		
1.4	64QAM	3	0	21.46	21.36	21.62		
1.4	64QAM	3	1	21.65	21.34	21.59		
1.4	64QAM	3	3	21.49	21.44	21.58		
1.4	64QAM	6	0	20.52	20.32	20.51	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	23.59	23.64	23.55	24	0
10	QPSK	1	25	23.52	23.55	23.39		
10	QPSK	1	49	23.52	23.45	23.26		
10	QPSK	25	0	22.59	22.63	22.54	23	1
10	QPSK	25	12	22.59	22.61	22.46		
10	QPSK	25	25	22.63	22.56	22.40		
10	QPSK	50	0	22.56	22.56	22.44		
10	16QAM	1	0	22.85	22.92	22.89	23	1
10	16QAM	1	25	22.78	22.88	22.68		
10	16QAM	1	49	22.82	22.78	22.60		
10	16QAM	25	0	21.59	21.62	21.56	22	2
10	16QAM	25	12	21.59	21.62	21.45		
10	16QAM	25	25	21.59	21.53	21.37		
10	16QAM	50	0	21.59	21.62	21.44		
10	64QAM	1	0	21.45	21.40	21.35	22	2
10	64QAM	1	25	21.41	21.35	21.15		
10	64QAM	1	49	21.39	21.24	21.03		
10	64QAM	25	0	20.32	20.24	20.17	21	3
10	64QAM	25	12	20.32	20.23	20.04		
10	64QAM	25	25	20.31	20.16	20.00		
10	64QAM	50	0	20.30	20.19	20.03		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.60	23.60	23.60	24	0
5	QPSK	1	12	23.54	23.57	23.54		
5	QPSK	1	24	23.52	23.53	23.52		
5	QPSK	12	0	22.62	22.58	22.62	23	1
5	QPSK	12	7	22.60	22.53	22.60		
5	QPSK	12	13	22.56	22.45	22.56		
5	QPSK	25	0	22.59	22.49	22.59		
5	16QAM	1	0	22.87	22.86	22.87	23	1
5	16QAM	1	12	22.83	22.81	22.83		
5	16QAM	1	24	22.80	22.79	22.80		
5	16QAM	12	0	21.65	21.54	21.65	22	2
5	16QAM	12	7	21.63	21.55	21.63		
5	16QAM	12	13	21.60	21.50	21.60		
5	16QAM	25	0	21.62	21.52	21.62		
5	64QAM	1	0	21.25	21.31	21.18	22	2
5	64QAM	1	12	21.29	21.28	21.10		
5	64QAM	1	24	21.24	21.05	20.85		
5	64QAM	12	0	20.32	20.18	19.99	21	3
5	64QAM	12	7	20.22	20.18	20.03		
5	64QAM	12	13	20.15	20.14	19.97		
5	64QAM	25	0	20.28	20.11	20.03		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.60	23.56	23.37	24	0
3	QPSK	1	8	23.57	23.52	23.37		
3	QPSK	1	14	23.57	23.51	23.30		
3	QPSK	8	0	22.65	22.57	22.38	23	1
3	QPSK	8	4	22.66	22.59	22.41		
3	QPSK	8	7	22.63	22.46	22.39		
3	QPSK	15	0	22.61	22.48	22.39		
3	16QAM	1	0	22.83	22.85	22.75	23	1
3	16QAM	1	8	22.81	22.83	22.69		
3	16QAM	1	14	22.78	22.81	22.61		
3	16QAM	8	0	21.69	21.57	21.47	22	2
3	16QAM	8	4	21.72	21.59	21.50		
3	16QAM	8	7	21.67	21.55	21.43		
3	16QAM	15	0	21.66	21.52	21.38		
3	64QAM	1	0	21.33	21.29	21.27	22	2
3	64QAM	1	8	21.39	21.23	21.06		
3	64QAM	1	14	21.23	21.09	20.87		
3	64QAM	8	0	20.23	20.12	20.00	21	3
3	64QAM	8	4	20.19	20.03	19.89		
3	64QAM	8	7	20.19	20.07	19.88		
3	64QAM	15	0	20.16	20.04	19.96		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.48	23.47	23.27	24	0
1.4	QPSK	1	3	23.55	23.57	23.33		
1.4	QPSK	1	5	23.46	23.44	23.24		
1.4	QPSK	3	0	23.51	23.52	23.31		
1.4	QPSK	3	1	23.59	23.57	23.36		
1.4	QPSK	3	3	23.51	23.50	23.30		
1.4	QPSK	6	0	22.51	22.50	22.29	23	1
1.4	16QAM	1	0	22.75	22.83	22.58	23	1
1.4	16QAM	1	3	22.84	22.90	22.67		
1.4	16QAM	1	5	22.75	22.81	22.55		
1.4	16QAM	3	0	22.55	22.57	22.36		
1.4	16QAM	3	1	22.61	22.63	22.38		
1.4	16QAM	3	3	22.52	22.56	22.34		
1.4	16QAM	6	0	21.61	21.56	21.38	22	2
1.4	64QAM	1	0	21.25	21.27	21.33	22	2
1.4	64QAM	1	3	21.21	21.32	20.96		
1.4	64QAM	1	5	21.34	21.22	20.90		
1.4	64QAM	3	0	20.28	20.12	20.12		
1.4	64QAM	3	1	20.22	20.09	20.03		
1.4	64QAM	3	3	20.11	20.07	20.01		
1.4	64QAM	6	0	20.20	20.10	19.83	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	22.69	22.61	22.73	24	0
20	QPSK	1	49	22.65	22.51	22.64		
20	QPSK	1	99	22.65	22.38	22.56		
20	QPSK	50	0	21.63	21.58	21.71	23	1
20	QPSK	50	24	21.74	21.55	21.73		
20	QPSK	50	50	21.70	21.53	21.56		
20	QPSK	100	0	21.72	21.57	21.70		
20	16QAM	1	0	21.95	21.74	22.01	23	1
20	16QAM	1	49	21.93	21.77	21.92		
20	16QAM	1	99	22.06	21.65	21.83		
20	16QAM	50	0	20.69	20.58	20.74	22	2
20	16QAM	50	24	20.75	20.56	20.72		
20	16QAM	50	50	20.70	20.54	20.57		
20	16QAM	100	0	20.70	20.55	20.70		
20	64QAM	1	0	20.90	20.83	20.93	22	2
20	64QAM	1	49	20.79	20.81	20.80		
20	64QAM	1	99	20.88	20.65	20.66		
20	64QAM	50	0	19.73	19.81	19.97	21	3
20	64QAM	50	24	19.99	19.70	20.03		
20	64QAM	50	50	19.96	19.80	19.85		
20	64QAM	100	0	19.94	19.83	19.90		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.46	22.43	22.73	24	0
15	QPSK	1	37	22.46	22.49	22.54		
15	QPSK	1	74	22.45	22.38	22.56		
15	QPSK	36	0	21.42	21.58	21.70	23	1
15	QPSK	36	20	21.51	21.56	21.62		
15	QPSK	36	39	21.47	21.55	21.58		
15	QPSK	75	0	21.50	21.55	21.59		
15	16QAM	1	0	21.73	21.72	22.00	23	1
15	16QAM	1	37	21.74	21.78	21.84		
15	16QAM	1	74	21.73	21.66	21.84		
15	16QAM	36	0	20.45	20.56	20.72	22	2
15	16QAM	36	20	20.52	20.58	20.61		
15	16QAM	36	39	20.50	20.55	20.54		
15	16QAM	75	0	20.51	20.53	20.20		
15	64QAM	1	0	20.68	20.82	20.86	22	2
15	64QAM	1	37	20.57	20.72	20.73		
15	64QAM	1	74	20.58	20.54	20.70		
15	64QAM	36	0	19.71	19.83	19.90	21	3
15	64QAM	36	20	19.69	19.72	19.80		
15	64QAM	36	39	19.69	19.67	19.72		
15	64QAM	75	0	19.63	19.78	19.88		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.83	22.59	23.00	24	0
10	QPSK	1	25	22.83	22.59	22.97		
10	QPSK	1	49	22.72	22.60	22.96		
10	QPSK	25	0	21.84	21.61	22.01	23	1
10	QPSK	25	12	21.90	21.62	22.01		
10	QPSK	25	25	21.86	21.61	22.01		
10	QPSK	50	0	21.84	21.61	22.00		
10	16QAM	1	0	22.12	21.84	22.25	23	1
10	16QAM	1	25	22.11	21.87	22.25		
10	16QAM	1	49	21.98	21.86	22.24		
10	16QAM	25	0	20.86	20.60	20.99	22	2
10	16QAM	25	12	20.90	20.63	21.05		
10	16QAM	25	25	20.85	20.60	20.98		
10	16QAM	50	0	20.88	20.62	21.03		
10	64QAM	1	0	21.06	20.80	21.27	22	2
10	64QAM	1	25	20.98	20.82	21.25		
10	64QAM	1	49	20.96	20.71	21.08		
10	64QAM	25	0	20.14	19.91	20.15	21	3
10	64QAM	25	12	20.09	19.79	20.17		
10	64QAM	25	25	20.04	19.84	20.25		
10	64QAM	50	0	19.96	19.88	20.29		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.81	22.58	22.99	24	0
5	QPSK	1	12	22.83	22.60	23.00		
5	QPSK	1	24	22.81	22.59	23.00		
5	QPSK	12	0	21.85	21.65	22.04	23	1
5	QPSK	12	7	21.89	21.65	22.10		
5	QPSK	12	13	21.86	21.63	22.06		
5	QPSK	25	0	21.83	21.63	22.04		
5	16QAM	1	0	22.10	21.86	22.29	23	1
5	16QAM	1	12	22.12	21.90	22.33		
5	16QAM	1	24	22.06	21.87	22.28		
5	16QAM	12	0	20.89	20.65	21.06	22	2
5	16QAM	12	7	20.93	20.71	21.12		
5	16QAM	12	13	20.85	20.64	21.03		
5	16QAM	25	0	20.88	20.64	21.06		
5	64QAM	1	0	21.10	20.78	21.16	22	2
5	64QAM	1	12	20.98	20.74	21.30		
5	64QAM	1	24	20.93	20.69	21.18		
5	64QAM	12	0	20.08	19.85	20.26	21	3
5	64QAM	12	7	20.12	19.88	20.35		
5	64QAM	12	13	20.02	19.73	20.19		
5	64QAM	25	0	20.03	19.84	20.34		

<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	22.60	23.50	23.34	24	0
10	QPSK	1	25	22.57	23.37	23.32		
10	QPSK	1	49	22.56	23.32	23.33		
10	QPSK	25	0	22.39	21.61	22.36	23	1
10	QPSK	25	12	22.42	21.53	22.40		
10	QPSK	25	25	22.41	21.44	22.44		
10	QPSK	50	0	22.41	21.60	22.34		
10	16QAM	1	0	22.64	21.85	22.63	23	1
10	16QAM	1	25	22.61	21.85	22.60		
10	16QAM	1	49	22.61	21.84	22.71		
10	16QAM	25	0	21.42	20.59	21.36	22	2
10	16QAM	25	12	21.43	20.65	21.38		
10	16QAM	25	25	21.39	20.58	21.43		
10	16QAM	50	0	21.43	20.63	21.35		
10	64QAM	1	0	21.19	21.17	21.20	22	2
10	64QAM	1	25	21.30	21.28	21.15		
10	64QAM	1	49	21.22	21.17	21.27		
10	64QAM	25	0	20.02	20.12	20.11	21	3
10	64QAM	25	12	20.16	20.13	20.10		
10	64QAM	25	25	20.11	20.09	20.14		
10	64QAM	50	0	20.13	20.09	20.08		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.46	23.37	23.31	24	0
5	QPSK	1	12	23.41	23.36	23.36		
5	QPSK	1	24	23.49	23.37	23.34		
5	QPSK	12	0	22.46	22.40	22.44	23	1
5	QPSK	12	7	22.47	22.40	22.44		
5	QPSK	12	13	22.45	22.40	22.43		
5	QPSK	25	0	22.45	22.39	22.42		
5	16QAM	1	0	22.76	22.70	22.60	23	1
5	16QAM	1	12	22.78	22.63	22.74		
5	16QAM	1	24	22.87	22.57	22.72		
5	16QAM	12	0	21.49	21.46	21.45	22	2
5	16QAM	12	7	21.49	21.45	21.48		
5	16QAM	12	13	21.34	21.37	21.43		
5	16QAM	25	0	21.37	21.41	21.43		
5	64QAM	1	0	21.12	21.15	21.10	22	2
5	64QAM	1	12	21.27	21.10	21.02		
5	64QAM	1	24	21.06	21.03	21.13		
5	64QAM	12	0	19.91	20.09	20.06	21	3
5	64QAM	12	7	19.97	20.07	20.05		
5	64QAM	12	13	19.93	19.89	20.12		
5	64QAM	25	0	19.99	19.96	20.05		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.33	23.36	23.37	24	0
3	QPSK	1	8	23.32	23.34	23.33		
3	QPSK	1	14	23.29	23.34	23.32		
3	QPSK	8	0	22.33	22.37	22.42	23	1
3	QPSK	8	4	22.38	22.38	22.45		
3	QPSK	8	7	22.36	22.35	22.40		
3	QPSK	15	0	22.35	22.39	22.41		
3	16QAM	1	0	22.65	22.67	22.73	23	1
3	16QAM	1	8	22.70	22.63	22.75		
3	16QAM	1	14	22.71	22.59	22.73		
3	16QAM	8	0	21.42	21.44	21.47	22	2
3	16QAM	8	4	21.42	21.47	21.49		
3	16QAM	8	7	21.42	21.44	21.47		
3	16QAM	15	0	21.35	21.40	21.41		
3	64QAM	1	0	21.08	20.97	21.08	22	2
3	64QAM	1	8	21.30	21.14	21.09		
3	64QAM	1	14	21.20	21.14	21.14		
3	64QAM	8	0	19.87	20.04	20.07	21	3
3	64QAM	8	4	20.15	19.96	19.90		
3	64QAM	8	7	20.01	20.06	20.11		
3	64QAM	15	0	20.00	19.91	19.98		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.25	23.27	23.26	24	0
1.4	QPSK	1	3	23.35	23.33	23.36		
1.4	QPSK	1	5	23.27	23.24	23.24		
1.4	QPSK	3	0	23.31	23.31	23.28		
1.4	QPSK	3	1	23.36	23.38	23.36		
1.4	QPSK	3	3	23.32	23.31	23.32		
1.4	QPSK	6	0	22.30	22.30	22.31	23	1
1.4	16QAM	1	0	22.58	22.56	22.65	23	1
1.4	16QAM	1	3	22.65	22.60	22.70		
1.4	16QAM	1	5	22.61	22.54	22.62		
1.4	16QAM	3	0	22.24	22.31	22.38		
1.4	16QAM	3	1	22.36	22.37	22.43		
1.4	16QAM	3	3	22.23	22.31	22.36		
1.4	16QAM	6	0	21.34	21.34	21.38	22	2
1.4	64QAM	1	0	21.05	21.07	21.09	22	2
1.4	64QAM	1	3	21.19	21.23	21.06		
1.4	64QAM	1	5	21.20	21.00	21.21		
1.4	64QAM	3	0	21.00	21.05	20.93		
1.4	64QAM	3	1	21.07	21.13	21.00		
1.4	64QAM	3	3	20.94	21.04	20.94		
1.4	64QAM	6	0	20.07	19.90	19.92	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	23.18	23.48	23.28	24	0
10	QPSK	1	25	23.37	23.34	23.35		
10	QPSK	1	49	23.41	23.38	23.39		
10	QPSK	25	0	22.43	22.53	22.42	23	1
10	QPSK	25	12	22.45	22.44	22.43		
10	QPSK	25	25	22.43	22.49	22.50		
10	QPSK	50	0	22.42	22.42	22.38		
10	16QAM	1	0	22.52	22.59	22.56	23	1
10	16QAM	1	25	22.63	22.61	22.61		
10	16QAM	1	49	22.78	22.75	22.72		
10	16QAM	25	0	21.44	21.44	21.43	22	2
10	16QAM	25	12	21.46	21.44	21.43		
10	16QAM	25	25	21.40	21.45	21.45		
10	16QAM	50	0	21.44	21.42	21.40		
10	64QAM	1	0	21.09	21.16	21.15	22	2
10	64QAM	1	25	21.23	21.22	21.25		
10	64QAM	1	49	21.32	21.29	21.28		
10	64QAM	25	0	20.13	20.13	20.11	21	3
10	64QAM	25	12	20.15	20.15	20.12		
10	64QAM	25	25	20.11	20.19	20.14		
10	64QAM	50	0	20.14	20.14	20.11		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.20	23.38	23.33	24	0
5	QPSK	1	12	23.29	23.35	23.41		
5	QPSK	1	24	23.39	23.46	23.39		
5	QPSK	12	0	22.34	22.42	22.46	23	1
5	QPSK	12	7	22.35	22.43	22.48		
5	QPSK	12	13	22.36	22.36	22.42		
5	QPSK	25	0	22.32	22.42	22.47		
5	16QAM	1	0	22.56	22.61	22.61	23	1
5	16QAM	1	12	22.59	22.61	22.78		
5	16QAM	1	24	22.62	22.75	22.75		
5	16QAM	12	0	21.39	21.42	21.47	22	2
5	16QAM	12	7	21.41	21.41	21.48		
5	16QAM	12	13	21.34	21.38	21.43		
5	16QAM	25	0	21.35	21.42	21.44		
5	64QAM	1	0	20.96	20.98	21.00	22	2
5	64QAM	1	12	21.14	21.13	21.05		
5	64QAM	1	24	21.15	21.21	21.08		
5	64QAM	12	0	20.00	20.09	20.08	21	3
5	64QAM	12	7	19.95	20.14	20.12		
5	64QAM	12	13	20.03	20.05	20.05		
5	64QAM	25	0	19.97	20.02	19.92		

<LTE Band 25>

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				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	22.63	22.68	22.61	24	0
20	QPSK	1	49	22.36	22.34	22.50		
20	QPSK	1	99	22.38	22.40	22.41		
20	QPSK	50	0	21.48	21.55	21.54	23	1
20	QPSK	50	24	21.36	21.48	21.48		
20	QPSK	50	50	21.36	21.38	21.49		
20	QPSK	100	0	21.40	21.63	21.59		
20	16QAM	1	0	21.97	21.98	21.90	23	1
20	16QAM	1	49	21.59	21.68	21.76		
20	16QAM	1	99	21.63	21.66	21.65		
20	16QAM	50	0	20.46	20.46	20.57	22	2
20	16QAM	50	24	20.43	20.41	20.54		
20	16QAM	50	50	20.16	20.37	20.47		
20	16QAM	100	0	20.43	20.49	20.84		
20	64QAM	1	0	20.67	20.88	20.78	22	2
20	64QAM	1	49	20.50	20.49	20.53		
20	64QAM	1	99	20.40	20.54	20.51		
20	64QAM	50	0	19.40	19.64	19.48	21	3
20	64QAM	50	24	19.35	19.53	19.57		
20	64QAM	50	50	19.43	19.41	19.52		
20	64QAM	100	0	19.39	19.70	19.56		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	22.38	22.43	22.60	24	0
15	QPSK	1	37	22.23	22.29	22.35		
15	QPSK	1	74	22.17	22.21	22.39		
15	QPSK	36	0	21.36	21.45	21.59	23	1
15	QPSK	36	20	21.32	21.44	21.47		
15	QPSK	36	39	21.31	21.38	21.45		
15	QPSK	75	0	21.37	21.43	21.50		
15	16QAM	1	0	21.63	21.70	21.88	23	1
15	16QAM	1	37	21.51	21.57	21.64		
15	16QAM	1	74	21.41	21.49	21.59		
15	16QAM	36	0	20.41	20.48	20.62	22	2
15	16QAM	36	20	20.35	20.43	20.49		
15	16QAM	36	39	20.31	20.39	20.45		
15	16QAM	75	0	20.37	20.44	20.46		
15	64QAM	1	0	20.47	20.48	20.79	22	2
15	64QAM	1	37	20.28	20.43	20.37		
15	64QAM	1	74	20.27	20.25	20.54		
15	64QAM	36	0	19.43	19.48	19.67	21	3
15	64QAM	36	20	19.31	19.46	19.50		
15	64QAM	36	39	19.37	19.29	19.38		
15	64QAM	75	0	19.41	19.52	19.56		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	22.53	22.60	22.47	24	0
10	QPSK	1	25	22.24	22.33	22.37		
10	QPSK	1	49	22.42	22.50	22.42		
10	QPSK	25	0	21.35	21.43	21.47	23	1
10	QPSK	25	12	21.31	21.38	21.48		
10	QPSK	25	25	21.31	21.40	21.49		
10	QPSK	50	0	21.33	21.42	21.48		
10	16QAM	1	0	21.74	21.83	21.72	23	1
10	16QAM	1	25	21.48	21.58	21.62		
10	16QAM	1	49	21.64	21.72	21.54		
10	16QAM	25	0	20.37	20.47	20.50	22	2
10	16QAM	25	12	20.35	20.45	20.49		
10	16QAM	25	25	20.33	20.39	20.46		
10	16QAM	50	0	20.36	20.42	20.51		
10	64QAM	1	0	20.54	20.62	20.66	22	2
10	64QAM	1	25	20.24	20.44	20.54		
10	64QAM	1	49	20.47	20.62	20.57		
10	64QAM	25	0	19.38	19.33	19.42	21	3
10	64QAM	25	12	19.29	19.40	19.43		
10	64QAM	25	25	19.29	19.46	19.48		
10	64QAM	50	0	19.35	19.42	19.53		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	22.28	22.37	22.45	24	0
5	QPSK	1	12	22.20	22.29	22.38		
5	QPSK	1	24	22.24	22.34	22.44		
5	QPSK	12	0	21.29	21.40	21.48	23	1
5	QPSK	12	7	21.32	21.41	21.48		
5	QPSK	12	13	21.25	21.37	21.44		
5	QPSK	25	0	21.25	21.39	21.49		
5	16QAM	1	0	21.50	21.59	21.64	23	1
5	16QAM	1	12	21.46	21.55	21.59		
5	16QAM	1	24	21.45	21.58	21.54		
5	16QAM	12	0	20.34	20.42	20.46	22	2
5	16QAM	12	7	20.31	20.43	20.45		
5	16QAM	12	13	20.28	20.40	20.42		
5	16QAM	25	0	20.31	20.40	20.46		
5	64QAM	1	0	20.41	20.49	20.61	22	2
5	64QAM	1	12	20.34	20.42	20.55		
5	64QAM	1	24	20.38	20.49	20.51		
5	64QAM	12	0	19.34	19.33	19.49	21	3
5	64QAM	12	7	19.30	19.41	19.38		
5	64QAM	12	13	19.27	19.36	19.41		
5	64QAM	25	0	19.24	19.45	19.43		

Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	22.22	22.34	22.42	24	0
3	QPSK	1	8	22.21	22.30	22.42		
3	QPSK	1	14	22.21	22.29	22.43		
3	QPSK	8	0	21.26	21.37	21.48	23	1
3	QPSK	8	4	21.27	21.40	21.50		
3	QPSK	8	7	21.27	21.36	21.50		
3	QPSK	15	0	21.26	21.36	21.47		
3	16QAM	1	0	21.45	21.54	21.55	23	1
3	16QAM	1	8	21.44	21.53	21.57		
3	16QAM	1	14	21.43	21.52	21.53		
3	16QAM	8	0	20.33	20.46	20.52	22	2
3	16QAM	8	4	20.35	20.45	20.52		
3	16QAM	8	7	20.30	20.42	20.55		
3	16QAM	15	0	20.32	20.41	20.45		
3	64QAM	1	0	20.27	20.39	20.53	22	2
3	64QAM	1	8	20.37	20.41	20.53		
3	64QAM	1	14	20.37	20.32	20.45		
3	64QAM	8	0	19.34	19.46	19.46	21	3
3	64QAM	8	4	19.31	19.40	19.53		
3	64QAM	8	7	19.36	19.40	19.41		
3	64QAM	15	0	19.24	19.38	19.48		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	22.14	22.26	22.31	24	0
1.4	QPSK	1	3	22.17	22.31	22.39		
1.4	QPSK	1	5	22.12	22.25	22.30		
1.4	QPSK	3	0	22.19	22.32	22.38		
1.4	QPSK	3	1	22.25	22.35	22.43		
1.4	QPSK	3	3	22.17	22.30	22.39		
1.4	QPSK	6	0	21.17	21.29	21.41	23	1
1.4	16QAM	1	0	21.38	21.48	21.49	23	1
1.4	16QAM	1	3	21.44	21.54	21.57		
1.4	16QAM	1	5	21.38	21.47	21.48		
1.4	16QAM	3	0	21.19	21.30	21.39		
1.4	16QAM	3	1	21.25	21.36	21.41		
1.4	16QAM	3	3	21.19	21.30	21.36		
1.4	16QAM	6	0	20.27	20.37	20.47	22	2
1.4	64QAM	1	0	20.32	20.66	20.45	22	2
1.4	64QAM	1	3	20.24	20.43	20.43		
1.4	64QAM	1	5	20.12	20.33	20.30		
1.4	64QAM	3	0	20.13	20.30	20.36		
1.4	64QAM	3	1	20.21	20.42	20.38		
1.4	64QAM	3	3	20.20	20.38	20.32		
1.4	64QAM	6	0	19.08	19.26	19.39	21	3

<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	23.62	23.65	23.64	24	0
15	QPSK	1	37	23.61	23.61	23.52		
15	QPSK	1	74	23.49	23.42	23.35		
15	QPSK	36	0	22.70	22.70	22.64	23	1
15	QPSK	36	20	22.64	22.67	22.63		
15	QPSK	36	39	22.59	22.56	22.51		
15	QPSK	75	0	22.62	22.69	22.59		
15	16QAM	1	0	22.88	22.92	22.90	23	1
15	16QAM	1	37	22.88	22.86	22.79		
15	16QAM	1	74	22.73	22.68	22.63		
15	16QAM	36	0	21.66	21.70	21.64	22	2
15	16QAM	36	20	21.71	21.70	21.64		
15	16QAM	36	39	21.64	21.58	21.50		
15	16QAM	75	0	21.72	21.65	21.60		
15	64QAM	1	0	21.44	21.52	21.53	22	2
15	64QAM	1	37	21.41	21.50	21.32		
15	64QAM	1	74	21.34	21.39	21.16		
15	64QAM	36	0	20.34	20.38	20.37	21	3
15	64QAM	36	20	20.31	20.43	20.24		
15	64QAM	36	39	20.33	20.30	20.14		
15	64QAM	75	0	20.29	20.37	20.16		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	23.54	23.60	23.47	24	0
10	QPSK	1	25	23.57	23.63	23.39		
10	QPSK	1	49	23.58	23.50	23.28		
10	QPSK	25	0	22.55	22.70	22.47	23	1
10	QPSK	25	12	22.64	22.71	22.48		
10	QPSK	25	25	22.58	22.62	22.42		
10	QPSK	50	0	22.59	22.66	22.46		
10	16QAM	1	0	22.85	22.85	22.79	23	1
10	16QAM	1	25	22.88	22.88	22.69		
10	16QAM	1	49	22.85	22.84	22.60		
10	16QAM	25	0	21.57	21.72	21.51	22	2
10	16QAM	25	12	21.66	21.70	21.49		
10	16QAM	25	25	21.57	21.61	21.40		
10	16QAM	50	0	21.64	21.70	21.48		
10	64QAM	1	0	21.32	21.32	21.35	22	2
10	64QAM	1	25	21.25	21.46	21.25		
10	64QAM	1	49	21.31	21.29	21.04		
10	64QAM	25	0	20.22	20.29	20.22	21	3
10	64QAM	25	12	20.22	20.33	20.24		
10	64QAM	25	25	20.25	20.15	20.13		
10	64QAM	50	0	20.12	20.32	20.16		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	23.53	23.64	23.40	24	0
5	QPSK	1	12	23.47	23.60	23.35		
5	QPSK	1	24	23.55	23.57	23.35		
5	QPSK	12	0	22.56	22.70	22.43	23	1
5	QPSK	12	7	22.58	22.69	22.45		
5	QPSK	12	13	22.60	22.65	22.39		
5	QPSK	25	0	22.53	22.64	22.44		
5	16QAM	1	0	22.85	22.92	22.73	23	1
5	16QAM	1	12	22.81	22.92	22.69		
5	16QAM	1	24	22.89	22.91	22.65		
5	16QAM	12	0	21.61	21.71	21.47	22	2
5	16QAM	12	7	21.58	21.69	21.44		
5	16QAM	12	13	21.62	21.66	21.39		
5	16QAM	25	0	21.55	21.65	21.44		
5	64QAM	1	0	21.43	21.37	21.41	22	2
5	64QAM	1	12	21.23	21.44	21.14		
5	64QAM	1	24	21.33	21.26	21.16		
5	64QAM	12	0	20.25	20.25	20.27	21	3
5	64QAM	12	7	20.13	20.42	20.20		
5	64QAM	12	13	20.16	20.21	20.13		
5	64QAM	25	0	20.20	20.33	20.14		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	23.51	23.64	23.38	24	0
3	QPSK	1	8	23.49	23.60	23.33		
3	QPSK	1	14	23.46	23.57	23.29		
3	QPSK	8	0	22.53	22.64	22.39	23	1
3	QPSK	8	4	22.56	22.69	22.42		
3	QPSK	8	7	22.55	22.64	22.41		
3	QPSK	15	0	22.56	22.66	22.39		
3	16QAM	1	0	22.83	22.91	22.76	23	1
3	16QAM	1	8	22.84	22.94	22.71		
3	16QAM	1	14	22.82	22.92	22.62		
3	16QAM	8	0	21.62	21.74	21.48	22	2
3	16QAM	8	4	21.64	21.75	21.51		
3	16QAM	8	7	21.59	21.69	21.45		
3	16QAM	15	0	21.60	21.70	21.40		
3	64QAM	1	0	21.32	21.52	21.52	22	2
3	64QAM	1	8	21.23	21.48	21.26		
3	64QAM	1	14	21.29	21.39	21.08		
3	64QAM	8	0	20.14	20.36	20.22	21	3
3	64QAM	8	4	20.11	20.42	20.24		
3	64QAM	8	7	20.32	20.30	20.09		
3	64QAM	15	0	20.12	20.33	20.07		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	23.46	23.51	23.27	24	0
1.4	QPSK	1	3	23.53	23.61	23.33		
1.4	QPSK	1	5	23.45	23.53	23.23		
1.4	QPSK	3	0	23.50	23.59	23.30		
1.4	QPSK	3	1	23.53	23.62	23.36		
1.4	QPSK	3	3	23.47	23.57	23.31		
1.4	QPSK	6	0	22.48	22.56	22.32	23	1
1.4	16QAM	1	0	22.77	22.83	22.59	23	1
1.4	16QAM	1	3	22.83	22.88	22.65		
1.4	16QAM	1	5	22.74	22.84	22.54		
1.4	16QAM	3	0	22.50	22.61	22.36		
1.4	16QAM	3	1	22.56	22.65	22.39		
1.4	16QAM	3	3	22.51	22.57	22.35		
1.4	16QAM	6	0	21.56	21.66	21.40	22	2
1.4	64QAM	1	0	21.30	21.44	21.46	22	2
1.4	64QAM	1	3	21.31	21.48	21.25		
1.4	64QAM	1	5	21.21	21.21	21.11		
1.4	64QAM	3	0	21.14	21.28	21.17		
1.4	64QAM	3	1	21.17	21.36	21.08		
1.4	64QAM	3	3	21.16	21.24	21.10		
1.4	64QAM	6	0	20.11	20.20	20.05	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	22.83			24	0
10	QPSK	1	25	22.74				
10	QPSK	1	49	22.69				
10	QPSK	25	0	21.82			23	1
10	QPSK	25	12	21.79				
10	QPSK	25	25	21.75				
10	QPSK	50	0	21.78				
10	16QAM	1	0	22.12			23	1
10	16QAM	1	25	22.03				
10	16QAM	1	49	21.98				
10	16QAM	25	0	20.81			22	2
10	16QAM	25	12	20.81				
10	16QAM	25	25	20.74				
10	16QAM	50	0	20.83				
10	64QAM	1	0	21.07			22	2
10	64QAM	1	25	20.98				
10	64QAM	1	49	20.93				
10	64QAM	25	0	19.88			21	3
10	64QAM	25	12	19.86				
10	64QAM	25	25	19.79				
10	64QAM	50	0	19.84				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	22.80	22.81	22.81	24	0
5	QPSK	1	12	22.73	22.77	22.76		
5	QPSK	1	24	22.76	22.76	22.77		
5	QPSK	12	0	21.82	21.80	21.82	23	1
5	QPSK	12	7	21.80	21.84	21.83		
5	QPSK	12	13	21.75	21.77	21.77		
5	QPSK	25	0	21.80	21.77	21.79		
5	16QAM	1	0	22.10	22.10	22.14	23	1
5	16QAM	1	12	22.06	22.08	22.08		
5	16QAM	1	24	22.03	22.06	22.04		
5	16QAM	12	0	20.81	20.84	20.85	22	2
5	16QAM	12	7	20.80	20.86	20.88		
5	16QAM	12	13	20.77	20.79	20.78		
5	16QAM	25	0	20.81	20.80	20.81		
5	64QAM	1	0	20.93	20.98	21.05	22	2
5	64QAM	1	12	20.83	21.01	20.86		
5	64QAM	1	24	20.97	21.05	21.04		
5	64QAM	12	0	20.06	19.90	20.00	21	3
5	64QAM	12	7	19.91	19.95	19.93		
5	64QAM	12	13	20.00	20.02	19.96		
5	64QAM	25	0	20.02	19.98	20.06		

<LTE Band 66>

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				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.96	22.84	22.74	24	0
20	QPSK	1	49	22.75	22.53	22.36		
20	QPSK	1	99	22.60	22.40	22.31		
20	QPSK	50	0	21.88	21.68	21.67	23	1
20	QPSK	50	24	21.82	21.65	21.49		
20	QPSK	50	50	21.69	21.54	21.44		
20	QPSK	100	0	21.86	21.65	21.50		
20	16QAM	1	0	21.87	21.93	21.99	23	1
20	16QAM	1	49	21.97	21.77	21.61		
20	16QAM	1	99	21.84	21.65	21.51		
20	16QAM	50	0	20.93	20.75	20.70	22	2
20	16QAM	50	24	20.85	20.67	20.50		
20	16QAM	50	50	20.67	20.61	20.41		
20	16QAM	100	0	20.83	20.64	20.49		
20	64QAM	1	0	21.54	21.36	21.27	22	2
20	64QAM	1	49	21.30	21.06	20.93		
20	64QAM	1	99	21.19	20.94	20.88		
20	64QAM	50	0	20.41	20.12	20.19	21	3
20	64QAM	50	24	20.39	20.25	19.90		
20	64QAM	50	50	20.29	19.96	20.04		
20	64QAM	100	0	20.30	20.14	20.07		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.87	22.78	22.67	24	0
15	QPSK	1	37	22.69	22.51	22.34		
15	QPSK	1	74	22.60	22.50	22.32		
15	QPSK	36	0	21.84	21.69	21.53	23	1
15	QPSK	36	20	21.83	21.60	21.48		
15	QPSK	36	39	21.66	21.60	21.41		
15	QPSK	75	0	21.82	21.64	21.48		
15	16QAM	1	0	21.92	21.94	21.92	23	1
15	16QAM	1	37	21.95	21.80	21.59		
15	16QAM	1	74	21.83	21.78	21.59		
15	16QAM	36	0	20.86	20.67	20.53	22	2
15	16QAM	36	20	20.83	20.64	20.49		
15	16QAM	36	39	20.66	20.59	20.43		
15	16QAM	75	0	20.83	20.64	20.49		
15	64QAM	1	0	21.38	21.21	21.12	22	2
15	64QAM	1	37	21.13	20.97	20.92		
15	64QAM	1	74	21.12	21.01	20.73		
15	64QAM	36	0	20.37	20.10	20.05	21	3
15	64QAM	36	20	20.32	20.06	19.98		
15	64QAM	36	39	20.09	20.15	19.95		
15	64QAM	75	0	20.23	20.11	19.99		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.79	22.62	22.64	24	0
10	QPSK	1	25	22.72	22.52	22.53		
10	QPSK	1	49	22.71	22.49	22.51		
10	QPSK	25	0	21.82	21.64	21.64	23	1
10	QPSK	25	12	21.77	21.60	21.61		
10	QPSK	25	25	21.76	21.59	21.56		
10	QPSK	50	0	21.81	21.58	21.59		
10	16QAM	1	0	21.93	21.86	21.87	23	1
10	16QAM	1	25	21.96	21.80	21.80		
10	16QAM	1	49	21.94	21.77	21.76		
10	16QAM	25	0	20.82	20.61	20.56	22	2
10	16QAM	25	12	20.80	20.63	20.62		
10	16QAM	25	25	20.77	20.56	20.54		
10	16QAM	50	0	20.79	20.62	20.60		
10	64QAM	1	0	21.34	21.04	21.11	22	2
10	64QAM	1	25	21.18	21.04	21.09		
10	64QAM	1	49	21.29	20.93	21.08		
10	64QAM	25	0	20.28	20.04	20.21	21	3
10	64QAM	25	12	20.24	20.07	20.19		
10	64QAM	25	25	20.28	20.11	20.07		
10	64QAM	50	0	20.22	20.06	20.19		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.79	22.57	22.46	24	0
5	QPSK	1	12	22.73	22.51	22.37		
5	QPSK	1	24	22.74	22.51	22.38		
5	QPSK	12	0	21.76	21.63	21.45	23	1
5	QPSK	12	7	21.79	21.60	21.45		
5	QPSK	12	13	21.75	21.56	21.41		
5	QPSK	25	0	21.78	21.59	21.45		
5	16QAM	1	0	21.97	21.82	21.66	23	1
5	16QAM	1	12	21.96	21.77	21.61		
5	16QAM	1	24	21.95	21.77	21.55		
5	16QAM	12	0	20.80	20.62	20.45	22	2
5	16QAM	12	7	20.80	20.59	20.45		
5	16QAM	12	13	20.75	20.57	20.40		
5	16QAM	25	0	20.74	20.61	20.44		
5	64QAM	1	0	21.28	21.16	20.95	22	2
5	64QAM	1	12	21.14	20.98	20.92		
5	64QAM	1	24	21.18	21.02	20.97		
5	64QAM	12	0	20.23	20.03	19.90	21	3
5	64QAM	12	7	20.24	20.01	19.94		
5	64QAM	12	13	20.18	20.00	19.88		
5	64QAM	25	0	20.29	20.16	20.02		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.71	22.53	22.41	24	0
3	QPSK	1	8	22.68	22.51	22.37		
3	QPSK	1	14	22.69	22.47	22.37		
3	QPSK	8	0	21.72	21.58	21.42	23	1
3	QPSK	8	4	21.74	21.59	21.45		
3	QPSK	8	7	21.72	21.52	21.44		
3	QPSK	15	0	21.69	21.55	21.42		
3	16QAM	1	0	21.93	21.76	21.57	23	1
3	16QAM	1	8	21.92	21.74	21.58		
3	16QAM	1	14	21.89	21.75	21.49		
3	16QAM	8	0	20.78	20.63	20.48	22	2
3	16QAM	8	4	20.81	20.64	20.52		
3	16QAM	8	7	20.75	20.59	20.46		
3	16QAM	15	0	20.76	20.57	20.44		
3	64QAM	1	0	21.16	21.10	20.92	22	2
3	64QAM	1	8	21.24	21.05	20.77		
3	64QAM	1	14	21.14	20.97	20.78		
3	64QAM	8	0	20.12	20.07	19.94	21	3
3	64QAM	8	4	20.17	20.04	19.90		
3	64QAM	8	7	20.21	20.09	19.85		
3	64QAM	15	0	20.24	20.06	19.90		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.61	22.44	22.42	24	0
1.4	QPSK	1	3	22.66	22.51	22.38		
1.4	QPSK	1	5	22.59	22.43	22.30		
1.4	QPSK	3	0	22.65	22.49	22.36		
1.4	QPSK	3	1	22.69	22.53	22.41		
1.4	QPSK	3	3	22.65	22.47	22.36		
1.4	QPSK	6	0	21.64	21.47	21.37	23	1
1.4	16QAM	1	0	21.82	21.70	21.52	23	1
1.4	16QAM	1	3	21.89	21.75	21.56		
1.4	16QAM	1	5	21.82	21.68	21.49		
1.4	16QAM	3	0	21.66	21.51	21.37		
1.4	16QAM	3	1	21.69	21.53	21.42		
1.4	16QAM	3	3	21.64	21.45	21.36		
1.4	16QAM	6	0	20.72	20.53	20.43	22	2
1.4	64QAM	1	0	21.15	20.94	20.99	22	2
1.4	64QAM	1	3	21.12	21.10	20.85		
1.4	64QAM	1	5	21.11	20.95	20.84		
1.4	64QAM	3	0	21.17	21.04	20.96		
1.4	64QAM	3	1	21.19	21.06	20.95		
1.4	64QAM	3	3	21.21	20.99	20.93		
1.4	64QAM	6	0	20.21	19.90	19.79	21	3

<Near-body and Hotspot Mode>

<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	21.49	21.53	21.83	23	0
20	QPSK	1	49	21.16	21.22	21.45		
20	QPSK	1	99	21.20	21.34	21.47		
20	QPSK	50	0	21.32	21.38	21.63	23	0
20	QPSK	50	24	21.29	21.33	21.55		
20	QPSK	50	50	21.24	21.30	21.53		
20	QPSK	100	0	21.28	21.35	21.58		
20	16QAM	1	0	21.78	21.79	21.74	23	0
20	16QAM	1	49	21.48	21.54	21.70		
20	16QAM	1	99	21.51	21.64	21.73		
20	16QAM	50	0	20.33	20.39	20.62	22	1
20	16QAM	50	24	20.28	20.35	20.58		
20	16QAM	50	50	20.24	20.30	20.51		
20	16QAM	100	0	20.28	20.31	20.57		
20	64QAM	1	0	21.48	21.52	21.73	22	1
20	64QAM	1	49	21.22	21.25	21.38		
20	64QAM	1	99	21.22	21.31	21.39		
20	64QAM	50	0	20.43	20.34	20.60	21	2
20	64QAM	50	24	20.32	20.45	20.48		
20	64QAM	50	50	20.19	20.27	20.52		
20	64QAM	100	0	20.23	20.24	20.57		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.30	21.39	21.63	23	0
15	QPSK	1	37	21.13	21.22	21.47		
15	QPSK	1	74	21.16	21.23	21.50		
15	QPSK	36	0	21.29	21.37	21.60	23	0
15	QPSK	36	20	21.24	21.35	21.59		
15	QPSK	36	39	21.23	21.30	21.54		
15	QPSK	75	0	21.27	21.35	21.58		
15	16QAM	1	0	21.60	21.69	21.73	23	0
15	16QAM	1	37	21.49	21.58	21.76		
15	16QAM	1	74	21.47	21.54	21.78		
15	16QAM	36	0	20.32	20.35	20.59	22	1
15	16QAM	36	20	20.26	20.35	20.57		
15	16QAM	36	39	20.20	20.31	20.54		
15	16QAM	75	0	20.29	20.36	20.58		
15	64QAM	1	0	21.26	21.43	21.67	22	1
15	64QAM	1	37	21.06	21.29	21.48		
15	64QAM	1	74	21.16	21.33	21.55		
15	64QAM	36	0	20.24	20.34	20.49	21	2
15	64QAM	36	20	20.35	20.28	20.57		
15	64QAM	36	39	20.11	20.33	20.56		
15	64QAM	75	0	20.30	20.33	20.53		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.42	21.49	21.56	23	0
10	QPSK	1	25	21.15	21.23	21.46		
10	QPSK	1	49	21.31	21.39	21.47		
10	QPSK	25	0	21.22	21.32	21.55	23	0
10	QPSK	25	12	21.21	21.30	21.55		
10	QPSK	25	25	21.20	21.27	21.53		
10	QPSK	50	0	21.20	21.29	21.54		
10	16QAM	1	0	21.70	21.80	21.81	23	0
10	16QAM	1	25	21.46	21.55	21.76		
10	16QAM	1	49	21.63	21.70	21.73		
10	16QAM	25	0	20.27	20.36	20.57	22	1
10	16QAM	25	12	20.24	20.33	20.57		
10	16QAM	25	25	20.19	20.28	20.54		
10	16QAM	50	0	20.25	20.34	20.58		
10	64QAM	1	0	21.48	21.50	21.49	22	1
10	64QAM	1	25	21.10	21.30	21.55		
10	64QAM	1	49	21.28	21.48	21.49		
10	64QAM	25	0	20.23	20.33	20.59	21	2
10	64QAM	25	12	20.23	20.33	20.61		
10	64QAM	25	25	20.11	20.24	20.62		
10	64QAM	50	0	20.35	20.41	20.49		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.17	21.27	21.51	23	0
5	QPSK	1	12	21.10	21.21	21.46		
5	QPSK	1	24	21.11	21.24	21.49		
5	QPSK	12	0	21.20	21.30	21.56	23	0
5	QPSK	12	7	21.19	21.27	21.56		
5	QPSK	12	13	21.18	21.28	21.54		
5	QPSK	25	0	21.18	21.27	21.54		
5	16QAM	1	0	21.48	21.60	21.80	23	0
5	16QAM	1	12	21.44	21.58	21.81		
5	16QAM	1	24	21.45	21.55	21.79		
5	16QAM	12	0	20.22	20.32	20.60	22	1
5	16QAM	12	7	20.22	20.31	20.61		
5	16QAM	12	13	20.18	20.27	20.56		
5	16QAM	25	0	20.19	20.29	20.56		
5	64QAM	1	0	21.25	21.35	21.54	22	1
5	64QAM	1	12	21.01	21.30	21.38		
5	64QAM	1	24	21.17	21.29	21.54		
5	64QAM	12	0	20.14	20.25	20.51	21	2
5	64QAM	12	7	20.16	20.28	20.51		
5	64QAM	12	13	20.21	20.29	20.49		
5	64QAM	25	0	20.29	20.19	20.53		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.08	21.19	21.44	23	0
3	QPSK	1	8	21.08	21.19	21.44		
3	QPSK	1	14	21.06	21.15	21.42		
3	QPSK	8	0	21.13	21.22	21.52	23	0
3	QPSK	8	4	21.14	21.27	21.54		
3	QPSK	8	7	21.10	21.23	21.48		
3	QPSK	15	0	21.11	21.21	21.50		
3	16QAM	1	0	21.38	21.51	21.73	23	0
3	16QAM	1	8	21.39	21.51	21.75		
3	16QAM	1	14	21.36	21.47	21.69		
3	16QAM	8	0	20.19	20.29	20.57	22	1
3	16QAM	8	4	20.21	20.33	20.58		
3	16QAM	8	7	20.17	20.29	20.55		
3	16QAM	15	0	20.16	20.25	20.54		
3	64QAM	1	0	21.18	21.23	21.49	22	1
3	64QAM	1	8	21.11	21.26	21.52		
3	64QAM	1	14	21.08	21.23	21.41		
3	64QAM	8	0	20.18	20.36	20.49	21	2
3	64QAM	8	4	20.18	20.39	20.54		
3	64QAM	8	7	20.10	20.29	20.53		
3	64QAM	15	0	20.23	20.18	20.56		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.02	21.13	21.40	23	0
1.4	QPSK	1	3	21.08	21.20	21.47		
1.4	QPSK	1	5	21.02	21.12	21.36		
1.4	QPSK	3	0	21.06	21.21	21.43		
1.4	QPSK	3	1	21.09	21.23	21.50		
1.4	QPSK	3	3	21.08	21.19	21.44		
1.4	QPSK	6	0	21.03	21.15	21.42	23	0
1.4	16QAM	1	0	21.28	21.42	21.67	23	0
1.4	16QAM	1	3	21.38	21.49	21.71		
1.4	16QAM	1	5	21.29	21.41	21.64		
1.4	16QAM	3	0	21.08	21.24	21.44		
1.4	16QAM	3	1	21.14	21.28	21.52		
1.4	16QAM	3	3	21.06	21.23	21.45		
1.4	16QAM	6	0	20.13	20.24	20.52	22	1
1.4	64QAM	1	0	21.11	21.23	21.38	22	1
1.4	64QAM	1	3	21.18	21.30	21.41		
1.4	64QAM	1	5	21.09	21.17	21.33		
1.4	64QAM	3	0	21.14	21.15	21.35		
1.4	64QAM	3	1	21.20	21.37	21.62		
1.4	64QAM	3	3	21.02	21.26	21.41		
1.4	64QAM	6	0	20.16	20.24	20.59	21	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	20.63	20.93	20.68	22	0
20	QPSK	1	49	20.35	20.41	20.55		
20	QPSK	1	99	20.20	20.45	20.60		
20	QPSK	50	0	20.50	20.74	20.58	22	0
20	QPSK	50	24	20.45	20.65	20.54		
20	QPSK	50	50	20.41	20.74	20.54		
20	QPSK	100	0	20.46	20.60	20.53		
20	16QAM	1	0	20.73	20.84	20.92	22	0
20	16QAM	1	49	20.61	20.68	20.86		
20	16QAM	1	99	20.47	20.79	20.92		
20	16QAM	50	0	20.52	20.56	20.75	22	0
20	16QAM	50	24	20.45	20.53	20.70		
20	16QAM	50	50	20.40	20.57	20.73		
20	16QAM	100	0	20.43	20.53	20.67		
20	64QAM	1	0	20.56	20.92	20.61	22	0
20	64QAM	1	49	20.31	20.38	20.65		
20	64QAM	1	99	20.21	20.49	20.50		
20	64QAM	50	0	20.56	20.73	20.55	21	1
20	64QAM	50	24	20.39	20.64	20.48		
20	64QAM	50	50	20.40	20.64	20.64		
20	64QAM	100	0	20.39	20.69	20.63		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	20.62	20.58	20.79	22	0
15	QPSK	1	37	20.35	20.42	20.59		
15	QPSK	1	74	20.35	20.52	20.67		
15	QPSK	36	0	20.58	20.55	20.70	22	0
15	QPSK	36	20	20.41	20.54	20.70		
15	QPSK	36	39	20.41	20.46	20.70		
15	QPSK	75	0	20.43	20.51	20.69		
15	16QAM	1	0	20.90	20.85	20.84	22	0
15	16QAM	1	37	20.64	20.70	20.74		
15	16QAM	1	74	20.62	20.82	20.89		
15	16QAM	36	0	20.59	20.53	20.75	22	0
15	16QAM	36	20	20.47	20.53	20.70		
15	16QAM	36	39	20.37	20.44	20.70		
15	16QAM	75	0	20.43	20.49	20.68		
15	64QAM	1	0	20.57	20.61	20.84	22	0
15	64QAM	1	37	20.28	20.37	20.54		
15	64QAM	1	74	20.38	20.57	20.69		
15	64QAM	36	0	20.63	20.53	20.70	21	1
15	64QAM	36	20	20.45	20.64	20.79		
15	64QAM	36	39	20.31	20.46	20.72		
15	64QAM	75	0	20.34	20.60	20.75		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	20.53	20.52	20.67	22	0
10	QPSK	1	25	20.45	20.43	20.68		
10	QPSK	1	49	20.32	20.37	20.61		
10	QPSK	25	0	20.54	20.52	20.69	22	0
10	QPSK	25	12	20.54	20.47	20.73		
10	QPSK	25	25	20.39	20.45	20.71		
10	QPSK	50	0	20.53	20.49	20.77		
10	16QAM	1	0	20.81	20.75	20.82	22	0
10	16QAM	1	25	20.71	20.68	20.81		
10	16QAM	1	49	20.60	20.66	20.78		
10	16QAM	25	0	20.56	20.49	20.49	22	0
10	16QAM	25	12	20.61	20.47	20.55		
10	16QAM	25	25	20.47	20.44	20.50		
10	16QAM	50	0	20.60	20.48	20.57		
10	64QAM	1	0	20.53	20.62	20.76	22	0
10	64QAM	1	25	20.49	20.37	20.78		
10	64QAM	1	49	20.30	20.43	20.60		
10	64QAM	25	0	20.51	20.60	20.70	21	1
10	64QAM	25	12	20.48	20.40	20.70		
10	64QAM	25	25	20.35	20.54	20.70		
10	64QAM	50	0	20.55	20.39	20.81		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	20.60	20.47	20.52	22	0
5	QPSK	1	12	20.53	20.43	20.48		
5	QPSK	1	24	20.53	20.41	20.48		
5	QPSK	12	0	20.58	20.51	20.56	22	0
5	QPSK	12	7	20.59	20.46	20.55		
5	QPSK	12	13	20.54	20.45	20.53		
5	QPSK	25	0	20.59	20.48	20.53		
5	16QAM	1	0	20.86	20.73	20.88	22	0
5	16QAM	1	12	20.84	20.69	20.82		
5	16QAM	1	24	20.83	20.69	20.83		
5	16QAM	12	0	20.61	20.48	20.56	22	0
5	16QAM	12	7	20.61	20.51	20.56		
5	16QAM	12	13	20.55	20.44	20.56		
5	16QAM	25	0	20.56	20.46	20.55		
5	64QAM	1	0	20.56	20.39	20.61	22	0
5	64QAM	1	12	20.43	20.49	20.49		
5	64QAM	1	24	20.55	20.32	20.39		
5	64QAM	12	0	20.57	20.41	20.53	21	1
5	64QAM	12	7	20.66	20.49	20.47		
5	64QAM	12	13	20.53	20.47	20.47		
5	64QAM	25	0	20.53	20.41	20.43		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	20.39	20.39	20.66	22	0
3	QPSK	1	8	20.36	20.36	20.62		
3	QPSK	1	14	20.35	20.36	20.60		
3	QPSK	8	0	20.42	20.45	20.66	22	0
3	QPSK	8	4	20.45	20.43	20.69		
3	QPSK	8	7	20.38	20.42	20.67		
3	QPSK	15	0	20.44	20.39	20.70		
3	16QAM	1	0	20.70	20.67	20.80	22	0
3	16QAM	1	8	20.71	20.65	20.78		
3	16QAM	1	14	20.68	20.65	20.75		
3	16QAM	8	0	20.52	20.48	20.55	22	0
3	16QAM	8	4	20.50	20.48	20.54		
3	16QAM	8	7	20.48	20.45	20.53		
3	16QAM	15	0	20.43	20.41	20.51		
3	64QAM	1	0	20.46	20.42	20.62	22	0
3	64QAM	1	8	20.35	20.40	20.61		
3	64QAM	1	14	20.44	20.31	20.63		
3	64QAM	8	0	20.37	20.36	20.61	21	1
3	64QAM	8	4	20.55	20.38	20.65		
3	64QAM	8	7	20.41	20.42	20.77		
3	64QAM	15	0	20.38	20.49	20.78		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	20.32	20.32	20.60	22	0
1.4	QPSK	1	3	20.39	20.41	20.69		
1.4	QPSK	1	5	20.32	20.31	20.59		
1.4	QPSK	3	0	20.34	20.35	20.62		
1.4	QPSK	3	1	20.40	20.38	20.68		
1.4	QPSK	3	3	20.37	20.35	20.63		
1.4	QPSK	6	0	20.36	20.33	20.64	22	0
1.4	16QAM	1	0	20.61	20.59	20.84	22	0
1.4	16QAM	1	3	20.69	20.66	20.87		
1.4	16QAM	1	5	20.60	20.60	20.91		
1.4	16QAM	3	0	20.38	20.35	20.67		
1.4	16QAM	3	1	20.42	20.42	20.72		
1.4	16QAM	3	3	20.36	20.37	20.64		
1.4	16QAM	6	0	20.43	20.40	20.70	22	0
1.4	64QAM	1	0	20.31	20.31	20.51	22	0
1.4	64QAM	1	3	20.47	20.44	20.76		
1.4	64QAM	1	5	20.22	20.35	20.55		
1.4	64QAM	3	0	20.40	20.44	20.58		
1.4	64QAM	3	1	20.50	20.29	20.75		
1.4	64QAM	3	3	20.42	20.25	20.55		
1.4	64QAM	6	0	20.35	20.33	20.55	21	1

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	21.86	22.08	21.81	23	0
10	QPSK	1	25	21.81	21.83	21.75		
10	QPSK	1	49	21.79	21.72	21.64		
10	QPSK	25	0	21.89	21.91	21.82	23	0
10	QPSK	25	12	21.89	21.89	21.81		
10	QPSK	25	25	21.90	21.83	21.76		
10	QPSK	50	0	21.86	21.89	21.80		
10	16QAM	1	0	22.06	22.04	22.04	23	0
10	16QAM	1	25	21.97	22.04	21.95		
10	16QAM	1	49	22.01	21.96	21.84		
10	16QAM	25	0	20.90	20.93	20.84	22	1
10	16QAM	25	12	20.88	20.92	20.84		
10	16QAM	25	25	20.90	20.81	20.76		
10	16QAM	50	0	20.86	20.88	20.81		
10	64QAM	1	0	21.12	21.13	21.06	22	1
10	64QAM	1	25	21.03	21.07	20.97		
10	64QAM	1	49	21.03	20.98	20.86		
10	64QAM	25	0	20.00	20.01	19.92	21	2
10	64QAM	25	12	19.98	20.00	19.91		
10	64QAM	25	25	20.03	19.93	19.85		
10	64QAM	50	0	19.98	19.70	19.90		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.97	21.84	21.82	23	0
5	QPSK	1	12	21.93	21.78	21.78		
5	QPSK	1	24	21.89	21.75	21.76		
5	QPSK	12	0	21.99	21.88	21.84	23	0
5	QPSK	12	7	21.97	21.85	21.84		
5	QPSK	12	13	21.94	21.79	21.82		
5	QPSK	25	0	21.97	21.85	21.84		
5	16QAM	1	0	22.06	22.07	22.06	23	0
5	16QAM	1	12	22.01	22.05	22.05		
5	16QAM	1	24	22.05	22.00	21.96		
5	16QAM	12	0	20.99	20.87	20.86	22	1
5	16QAM	12	7	20.97	20.86	20.86		
5	16QAM	12	13	20.95	20.80	20.84		
5	16QAM	25	0	20.96	20.87	20.83		
5	64QAM	1	0	21.03	21.04	21.06	22	1
5	64QAM	1	12	20.98	20.93	20.91		
5	64QAM	1	24	20.88	20.90	20.82		
5	64QAM	12	0	19.94	19.89	19.72	21	2
5	64QAM	12	7	19.80	19.81	19.81		
5	64QAM	12	13	19.91	19.92	19.76		
5	64QAM	25	0	19.97	19.65	19.82		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.95	21.81	21.71	23	0
3	QPSK	1	8	21.90	21.78	21.69		
3	QPSK	1	14	21.91	21.76	21.65		
3	QPSK	8	0	22.00	21.85	21.74	23	0
3	QPSK	8	4	21.97	21.85	21.73		
3	QPSK	8	7	21.95	21.79	21.72		
3	QPSK	15	0	21.95	21.81	21.71		
3	16QAM	1	0	22.07	22.04	21.93	23	0
3	16QAM	1	8	22.03	22.03	21.90		
3	16QAM	1	14	22.05	21.98	21.83		
3	16QAM	8	0	21.03	20.90	20.81	22	1
3	16QAM	8	4	21.03	20.93	20.79		
3	16QAM	8	7	21.01	20.87	20.78		
3	16QAM	15	0	20.98	20.87	20.75		
3	64QAM	1	0	21.11	21.08	20.90	22	1
3	64QAM	1	8	20.94	20.95	20.79		
3	64QAM	1	14	20.86	20.94	20.79		
3	64QAM	8	0	19.83	19.95	19.80	21	2
3	64QAM	8	4	19.82	20.00	19.84		
3	64QAM	8	7	19.96	19.78	19.79		
3	64QAM	15	0	19.82	19.51	19.80		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.74	21.70	21.67	23	0
1.4	QPSK	1	3	21.79	21.75	21.73		
1.4	QPSK	1	5	21.71	21.67	21.63		
1.4	QPSK	3	0	21.77	21.73	21.64		
1.4	QPSK	3	1	21.83	21.80	21.67		
1.4	QPSK	3	3	21.76	21.75	21.62		
1.4	QPSK	6	0	21.79	21.72	21.62	23	0
1.4	16QAM	1	0	21.95	21.96	21.81	23	0
1.4	16QAM	1	3	21.99	22.02	21.87		
1.4	16QAM	1	5	21.90	21.96	21.79		
1.4	16QAM	3	0	21.80	21.77	21.66		
1.4	16QAM	3	1	21.84	21.79	21.68		
1.4	16QAM	3	3	21.76	21.73	21.62		
1.4	16QAM	6	0	20.86	20.81	20.70	22	1
1.4	64QAM	1	0	21.06	20.95	20.94	22	1
1.4	64QAM	1	3	20.89	20.92	20.78		
1.4	64QAM	1	5	20.90	20.82	20.80		
1.4	64QAM	3	0	20.81	20.86	20.85		
1.4	64QAM	3	1	20.90	20.82	20.85		
1.4	64QAM	3	3	20.90	20.85	20.82		
1.4	64QAM	6	0	19.90	19.52	19.81	21	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	20.70	20.83	21.00	22	0
20	QPSK	1	49	20.55	20.67	20.60		
20	QPSK	1	99	20.63	20.66	20.66		
20	QPSK	50	0	20.73	20.80	20.81	22	0
20	QPSK	50	24	20.64	20.79	20.69		
20	QPSK	50	50	20.68	20.66	20.69		
20	QPSK	100	0	20.66	20.79	20.67		
20	16QAM	1	0	20.98	20.90	20.99	22	0
20	16QAM	1	49	20.82	20.97	20.88		
20	16QAM	1	99	20.91	20.93	20.94		
20	16QAM	50	0	20.78	20.79	20.80	22	0
20	16QAM	50	24	20.67	20.80	20.71		
20	16QAM	50	50	20.65	20.80	20.70		
20	16QAM	100	0	20.65	20.78	20.67		
20	64QAM	1	0	20.58	20.80	20.83	22	0
20	64QAM	1	49	20.39	20.65	20.55		
20	64QAM	1	99	20.54	20.61	20.64		
20	64QAM	50	0	19.64	19.73	19.78	21	1
20	64QAM	50	24	19.54	19.71	19.61		
20	64QAM	50	50	19.68	19.61	19.66		
20	64QAM	100	0	19.63	19.76	19.63		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.69	20.74	20.78	22	0
15	QPSK	1	37	20.61	20.68	20.63		
15	QPSK	1	74	20.57	20.75	20.65		
15	QPSK	36	0	20.70	20.75	20.71	22	0
15	QPSK	36	20	20.72	20.79	20.73		
15	QPSK	36	39	20.62	20.78	20.67		
15	QPSK	75	0	20.70	20.76	20.71		
15	16QAM	1	0	20.95	20.98	20.93	22	0
15	16QAM	1	37	20.92	20.98	20.91		
15	16QAM	1	74	20.86	20.99	20.96		
15	16QAM	36	0	20.73	20.78	20.72	22	0
15	16QAM	36	20	20.73	20.78	20.74		
15	16QAM	36	39	20.64	20.78	20.67		
15	16QAM	75	0	20.72	20.79	20.71		
15	64QAM	1	0	20.58	20.70	20.69	22	0
15	64QAM	1	37	20.41	20.52	20.55		
15	64QAM	1	74	20.50	20.60	20.60		
15	64QAM	36	0	19.68	19.70	19.61	21	1
15	64QAM	36	20	19.68	19.70	19.67		
15	64QAM	36	39	19.59	19.78	19.61		
15	64QAM	75	0	19.64	19.70	19.71		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.60	20.68	20.65	22	0
10	QPSK	1	25	20.59	20.69	20.62		
10	QPSK	1	49	20.49	20.70	20.63		
10	QPSK	25	0	20.64	20.72	20.66	22	0
10	QPSK	25	12	20.67	20.74	20.67		
10	QPSK	25	25	20.65	20.71	20.69		
10	QPSK	50	0	20.64	20.72	20.64		
10	16QAM	1	0	20.85	20.94	20.89	22	0
10	16QAM	1	25	20.84	20.95	20.88		
10	16QAM	1	49	20.75	20.92	20.90		
10	16QAM	25	0	20.63	20.71	20.65	22	0
10	16QAM	25	12	20.67	20.73	20.71		
10	16QAM	25	25	20.64	20.74	20.68		
10	16QAM	50	0	20.66	20.72	20.69		
10	64QAM	1	0	20.45	20.54	20.50	22	0
10	64QAM	1	25	20.40	20.60	20.51		
10	64QAM	1	49	20.39	20.69	20.57		
10	64QAM	25	0	19.62	19.69	19.66	21	1
10	64QAM	25	12	19.60	19.66	19.65		
10	64QAM	25	25	19.60	19.65	19.65		
10	64QAM	50	0	19.64	19.65	19.57		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.53	20.63	20.58	22	0
5	QPSK	1	12	20.54	20.66	20.62		
5	QPSK	1	24	20.53	20.67	20.61		
5	QPSK	12	0	20.62	20.68	20.67	22	0
5	QPSK	12	7	20.65	20.76	20.72		
5	QPSK	12	13	20.60	20.69	20.68		
5	QPSK	25	0	20.58	20.70	20.67		
5	16QAM	1	0	20.80	20.91	20.89	22	0
5	16QAM	1	12	20.82	20.93	20.92		
5	16QAM	1	24	20.79	20.92	20.88		
5	16QAM	12	0	20.62	20.73	20.67	22	0
5	16QAM	12	7	20.64	20.75	20.71		
5	16QAM	12	13	20.59	20.73	20.67		
5	16QAM	25	0	20.61	20.69	20.66		
5	64QAM	1	0	20.36	20.49	20.47	22	0
5	64QAM	1	12	20.49	20.60	20.56		
5	64QAM	1	24	20.45	20.58	20.54		
5	64QAM	12	0	19.58	19.65	19.64	21	1
5	64QAM	12	7	19.64	19.69	19.72		
5	64QAM	12	13	19.58	19.69	19.61		
5	64QAM	25	0	19.54	19.65	19.57		

<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	22.60	23.50	23.34	24	0
10	QPSK	1	25	22.57	23.37	23.32		
10	QPSK	1	49	22.56	23.32	23.33		
10	QPSK	25	0	22.39	21.61	22.36	23	1
10	QPSK	25	12	22.42	21.53	22.40		
10	QPSK	25	25	22.41	21.44	22.44		
10	QPSK	50	0	22.41	21.60	22.34		
10	16QAM	1	0	22.64	21.85	22.63	23	1
10	16QAM	1	25	22.61	21.85	22.60		
10	16QAM	1	49	22.61	21.84	22.71		
10	16QAM	25	0	21.42	20.59	21.36	22	2
10	16QAM	25	12	21.43	20.65	21.38		
10	16QAM	25	25	21.39	20.58	21.43		
10	16QAM	50	0	21.43	20.63	21.35		
10	64QAM	1	0	21.19	21.17	21.20	22	2
10	64QAM	1	25	21.30	21.28	21.15		
10	64QAM	1	49	21.22	21.17	21.27		
10	64QAM	25	0	20.02	20.12	20.11	21	3
10	64QAM	25	12	20.16	20.13	20.10		
10	64QAM	25	25	20.11	20.09	20.14		
10	64QAM	50	0	20.13	20.09	20.08		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.46	23.37	23.31	24	0
5	QPSK	1	12	23.41	23.36	23.36		
5	QPSK	1	24	23.49	23.37	23.34		
5	QPSK	12	0	22.46	22.40	22.44	23	1
5	QPSK	12	7	22.47	22.40	22.44		
5	QPSK	12	13	22.45	22.40	22.43		
5	QPSK	25	0	22.45	22.39	22.42		
5	16QAM	1	0	22.76	22.70	22.60	23	1
5	16QAM	1	12	22.78	22.63	22.74		
5	16QAM	1	24	22.87	22.57	22.72		
5	16QAM	12	0	21.49	21.46	21.45	22	2
5	16QAM	12	7	21.49	21.45	21.48		
5	16QAM	12	13	21.34	21.37	21.43		
5	16QAM	25	0	21.37	21.41	21.43		
5	64QAM	1	0	21.12	21.15	21.10	22	2
5	64QAM	1	12	21.27	21.10	21.02		
5	64QAM	1	24	21.06	21.03	21.13		
5	64QAM	12	0	19.91	20.09	20.06	21	3
5	64QAM	12	7	19.97	20.07	20.05		
5	64QAM	12	13	19.93	19.89	20.12		
5	64QAM	25	0	19.99	19.96	20.05		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.33	23.36	23.37	24	0
3	QPSK	1	8	23.32	23.34	23.33		
3	QPSK	1	14	23.29	23.34	23.32		
3	QPSK	8	0	22.33	22.37	22.42	23	1
3	QPSK	8	4	22.38	22.38	22.45		
3	QPSK	8	7	22.36	22.35	22.40		
3	QPSK	15	0	22.35	22.39	22.41		
3	16QAM	1	0	22.65	22.67	22.73	23	1
3	16QAM	1	8	22.70	22.63	22.75		
3	16QAM	1	14	22.71	22.59	22.73		
3	16QAM	8	0	21.42	21.44	21.47	22	2
3	16QAM	8	4	21.42	21.47	21.49		
3	16QAM	8	7	21.42	21.44	21.47		
3	16QAM	15	0	21.35	21.40	21.41		
3	64QAM	1	0	21.08	20.97	21.08	22	2
3	64QAM	1	8	21.30	21.14	21.09		
3	64QAM	1	14	21.20	21.14	21.14		
3	64QAM	8	0	19.87	20.04	20.07	21	3
3	64QAM	8	4	20.15	19.96	19.90		
3	64QAM	8	7	20.01	20.06	20.11		
3	64QAM	15	0	20.00	19.91	19.98		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.25	23.27	23.26	24	0
1.4	QPSK	1	3	23.35	23.33	23.36		
1.4	QPSK	1	5	23.27	23.24	23.24		
1.4	QPSK	3	0	23.31	23.31	23.28		
1.4	QPSK	3	1	23.36	23.38	23.36		
1.4	QPSK	3	3	23.32	23.31	23.32		
1.4	QPSK	6	0	22.30	22.30	22.31	23	1
1.4	16QAM	1	0	22.58	22.56	22.65	23	1
1.4	16QAM	1	3	22.65	22.60	22.70		
1.4	16QAM	1	5	22.61	22.54	22.62		
1.4	16QAM	3	0	22.24	22.31	22.38		
1.4	16QAM	3	1	22.36	22.37	22.43		
1.4	16QAM	3	3	22.23	22.31	22.36		
1.4	16QAM	6	0	21.34	21.34	21.38	22	2
1.4	64QAM	1	0	21.05	21.07	21.09	22	2
1.4	64QAM	1	3	21.19	21.23	21.06		
1.4	64QAM	1	5	21.20	21.00	21.21		
1.4	64QAM	3	0	21.00	21.05	20.93		
1.4	64QAM	3	1	21.07	21.13	21.00		
1.4	64QAM	3	3	20.94	21.04	20.94		
1.4	64QAM	6	0	20.07	19.90	19.92	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	21.66	21.91	21.72	23	0
10	QPSK	1	25	21.71	21.71	21.69		
10	QPSK	1	49	21.66	21.64	21.63		
10	QPSK	25	0	21.79	21.79	21.77	23	0
10	QPSK	25	12	21.71	21.77	21.78		
10	QPSK	25	25	21.79	21.77	21.73		
10	QPSK	50	0	21.73	21.77	21.74		
10	16QAM	1	0	21.86	21.86	21.82	23	0
10	16QAM	1	25	21.89	21.84	21.83		
10	16QAM	1	49	21.81	21.80	21.88		
10	16QAM	25	0	20.79	20.78	20.78	22	1
10	16QAM	25	12	20.81	20.80	20.78		
10	16QAM	25	25	20.76	20.74	20.72		
10	16QAM	50	0	20.78	20.77	20.74		
10	64QAM	1	0	21.02	20.99	21.08	22	1
10	64QAM	1	25	21.05	21.03	21.00		
10	64QAM	1	49	21.01	21.00	21.02		
10	64QAM	25	0	20.01	20.00	19.99	21	2
10	64QAM	25	12	20.02	20.00	19.99		
10	64QAM	25	25	19.97	19.94	19.95		
10	64QAM	50	0	20.00	20.01	19.98		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	21.55	21.72	21.69	23	0
5	QPSK	1	12	21.62	21.69	21.65		
5	QPSK	1	24	21.65	21.69	21.64		
5	QPSK	12	0	21.62	21.77	21.70	23	0
5	QPSK	12	7	21.75	21.77	21.72		
5	QPSK	12	13	21.70	21.74	21.69		
5	QPSK	25	0	21.69	21.75	21.70		
5	16QAM	1	0	21.84	21.89	21.84	23	0
5	16QAM	1	12	21.88	21.90	21.87		
5	16QAM	1	24	21.81	21.90	21.88		
5	16QAM	12	0	20.65	20.74	20.71	22	1
5	16QAM	12	7	20.75	20.74	20.75		
5	16QAM	12	13	20.69	20.72	20.71		
5	16QAM	25	0	20.71	20.75	20.71		
5	64QAM	1	0	20.84	20.81	21.07	22	1
5	64QAM	1	12	20.90	20.84	20.91		
5	64QAM	1	24	20.83	20.80	21.02		
5	64QAM	12	0	20.01	19.80	19.80	21	2
5	64QAM	12	7	19.96	19.97	19.86		
5	64QAM	12	13	19.79	19.90	19.93		
5	64QAM	25	0	20.00	19.97	19.84		

<LTE Band 25>

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				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	21.63	21.93	21.84	23	0
20	QPSK	1	49	21.29	21.41	21.67		
20	QPSK	1	99	21.34	21.47	21.61		
20	QPSK	50	0	21.44	21.89	21.82	23	0
20	QPSK	50	24	21.40	21.53	21.77		
20	QPSK	50	50	21.26	21.52	21.68		
20	QPSK	100	0	21.42	21.77	21.70		
20	16QAM	1	0	21.85	21.88	21.90	23	0
20	16QAM	1	49	21.53	21.65	21.84		
20	16QAM	1	99	21.56	21.70	21.76		
20	16QAM	50	0	20.48	20.58	20.86	22	1
20	16QAM	50	24	20.41	20.55	20.82		
20	16QAM	50	50	20.38	20.53	20.70		
20	16QAM	100	0	20.50	20.56	21.45		
20	64QAM	1	0	20.93	20.95	21.01	22	1
20	64QAM	1	49	20.60	20.62	20.89		
20	64QAM	1	99	20.61	20.66	20.77		
20	64QAM	50	0	19.58	19.61	19.89	21	2
20	64QAM	50	24	19.52	19.56	19.81		
20	64QAM	50	50	19.39	19.54	19.71		
20	64QAM	100	0	19.51	19.55	19.88		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	21.41	21.55	21.82	23	0
15	QPSK	1	37	21.26	21.43	21.58		
15	QPSK	1	74	21.19	21.33	21.63		
15	QPSK	36	0	21.41	21.57	21.79	23	0
15	QPSK	36	20	21.35	21.53	21.70		
15	QPSK	36	39	21.33	21.50	21.67		
15	QPSK	75	0	21.36	21.53	21.73		
15	16QAM	1	0	21.64	21.81	21.90	23	0
15	16QAM	1	37	21.54	21.68	21.87		
15	16QAM	1	74	21.47	21.61	21.80		
15	16QAM	36	0	20.42	20.60	20.84	22	1
15	16QAM	36	20	20.38	20.55	20.71		
15	16QAM	36	39	20.31	20.51	20.69		
15	16QAM	75	0	20.38	20.57	20.73		
15	64QAM	1	0	20.62	20.77	21.02	22	1
15	64QAM	1	37	20.47	20.63	20.80		
15	64QAM	1	74	20.38	20.55	20.79		
15	64QAM	36	0	19.43	19.58	19.85	21	2
15	64QAM	36	20	19.41	19.58	19.72		
15	64QAM	36	39	19.39	19.54	19.71		
15	64QAM	75	0	19.38	19.53	19.71		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	21.53	21.70	21.68	23	0
10	QPSK	1	25	21.25	21.41	21.61		
10	QPSK	1	49	21.46	21.63	21.64		
10	QPSK	25	0	21.35	21.52	21.69	23	0
10	QPSK	25	12	21.31	21.51	21.69		
10	QPSK	25	25	21.32	21.48	21.72		
10	QPSK	50	0	21.33	21.51	21.69		
10	16QAM	1	0	21.76	21.86	21.93	23	0
10	16QAM	1	25	21.51	21.67	21.84		
10	16QAM	1	49	21.71	21.88	21.80		
10	16QAM	25	0	20.39	20.53	20.71	22	1
10	16QAM	25	12	20.37	20.55	20.72		
10	16QAM	25	25	20.34	20.51	20.71		
10	16QAM	50	0	20.37	20.54	20.73		
10	64QAM	1	0	20.71	20.88	20.83	22	1
10	64QAM	1	25	20.42	20.62	20.80		
10	64QAM	1	49	20.59	20.82	20.73		
10	64QAM	25	0	19.37	19.56	19.71	21	2
10	64QAM	25	12	19.37	19.54	19.72		
10	64QAM	25	25	19.35	19.52	19.70		
10	64QAM	50	0	19.36	19.54	19.75		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	21.26	21.46	21.65	23	0
5	QPSK	1	12	21.19	21.40	21.62		
5	QPSK	1	24	21.23	21.43	21.65		
5	QPSK	12	0	21.30	21.48	21.69	23	0
5	QPSK	12	7	21.31	21.53	21.68		
5	QPSK	12	13	21.23	21.50	21.67		
5	QPSK	25	0	21.24	21.44	21.73		
5	16QAM	1	0	21.50	21.68	21.86	23	0
5	16QAM	1	12	21.47	21.67	21.79		
5	16QAM	1	24	21.47	21.67	21.75		
5	16QAM	12	0	20.32	20.51	20.69	22	1
5	16QAM	12	7	20.32	20.51	20.66		
5	16QAM	12	13	20.27	20.47	20.64		
5	16QAM	25	0	20.29	20.51	20.68		
5	64QAM	1	0	20.46	20.67	20.84	22	1
5	64QAM	1	12	20.41	20.62	20.76		
5	64QAM	1	24	20.41	20.62	20.74		
5	64QAM	12	0	19.34	19.56	19.76	21	2
5	64QAM	12	7	19.35	19.56	19.77		
5	64QAM	12	13	19.29	19.52	19.75		
5	64QAM	25	0	19.27	19.51	19.70		

Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	21.28	21.42	21.63	23	0
3	QPSK	1	8	21.25	21.39	21.60		
3	QPSK	1	14	21.27	21.40	21.61		
3	QPSK	8	0	21.33	21.45	21.70	23	0
3	QPSK	8	4	21.36	21.47	21.72		
3	QPSK	8	7	21.33	21.46	21.73		
3	QPSK	15	0	21.32	21.45	21.68		
3	16QAM	1	0	21.53	21.64	21.77	23	0
3	16QAM	1	8	21.53	21.66	21.78		
3	16QAM	1	14	21.51	21.65	21.73		
3	16QAM	8	0	20.39	20.52	20.73	22	1
3	16QAM	8	4	20.42	20.56	20.74		
3	16QAM	8	7	20.38	20.50	20.75		
3	16QAM	15	0	20.35	20.48	20.68		
3	64QAM	1	0	20.48	20.58	20.74	22	1
3	64QAM	1	8	20.47	20.58	20.74		
3	64QAM	1	14	20.46	20.59	20.73		
3	64QAM	8	0	19.39	19.51	19.72	21	2
3	64QAM	8	4	19.40	19.54	19.77		
3	64QAM	8	7	19.36	19.48	19.73		
3	64QAM	15	0	19.34	19.47	19.71		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	21.19	21.35	21.49	23	0
1.4	QPSK	1	3	21.26	21.40	21.58		
1.4	QPSK	1	5	21.20	21.32	21.51		
1.4	QPSK	3	0	21.24	21.42	21.57		
1.4	QPSK	3	1	21.29	21.45	21.64		
1.4	QPSK	3	3	21.24	21.39	21.59		
1.4	QPSK	6	0	21.26	21.40	21.60	23	0
1.4	16QAM	1	0	21.41	21.54	21.70	23	0
1.4	16QAM	1	3	21.53	21.64	21.76		
1.4	16QAM	1	5	21.43	21.57	21.66		
1.4	16QAM	3	0	21.27	21.40	21.57		
1.4	16QAM	3	1	21.33	21.43	21.62		
1.4	16QAM	3	3	21.25	21.39	21.56		
1.4	16QAM	6	0	20.32	20.47	20.68	22	1
1.4	64QAM	1	0	20.40	20.52	20.73	22	1
1.4	64QAM	1	3	20.46	20.60	20.79		
1.4	64QAM	1	5	20.41	20.51	20.72		
1.4	64QAM	3	0	20.37	20.50	20.68		
1.4	64QAM	3	1	20.43	20.57	20.74		
1.4	64QAM	3	3	20.36	20.50	20.69		
1.4	64QAM	6	0	19.28	19.40	19.60	22	1

<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	21.99	22.20	21.98	23	0
15	QPSK	1	37	22.01	21.98	21.88		
15	QPSK	1	74	21.93	21.82	21.73		
15	QPSK	36	0	22.02	22.13	22.00	23	0
15	QPSK	36	20	22.10	22.10	22.00		
15	QPSK	36	39	22.01	21.98	21.88		
15	QPSK	75	0	22.06	22.08	21.96		
15	16QAM	1	0	22.17	22.19	22.06	23	0
15	16QAM	1	37	22.03	22.04	22.14		
15	16QAM	1	74	22.16	22.10	21.98		
15	16QAM	36	0	21.05	21.11	21.03	22	1
15	16QAM	36	20	21.13	21.09	21.00		
15	16QAM	36	39	20.99	20.97	20.89		
15	16QAM	75	0	21.06	21.04	20.98		
15	64QAM	1	0	21.36	21.17	21.24	22	1
15	64QAM	1	37	21.35	21.19	21.15		
15	64QAM	1	74	21.25	21.08	20.99		
15	64QAM	36	0	20.19	20.20	20.09	21	2
15	64QAM	36	20	20.30	20.17	20.05		
15	64QAM	36	39	20.18	20.02	19.96		
15	64QAM	75	0	20.20	20.11	20.00		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	21.89	21.91	21.91	23	0
10	QPSK	1	25	21.90	21.94	21.82		
10	QPSK	1	49	21.84	21.85	21.73		
10	QPSK	25	0	21.91	22.05	21.89	23	0
10	QPSK	25	12	21.97	22.02	21.88		
10	QPSK	25	25	21.93	21.94	21.83		
10	QPSK	50	0	21.94	22.03	21.89		
10	16QAM	1	0	22.12	22.14	22.14	23	0
10	16QAM	1	25	22.15	22.18	22.07		
10	16QAM	1	49	22.04	22.10	21.92		
10	16QAM	25	0	20.89	21.06	20.91	22	1
10	16QAM	25	12	21.00	21.06	20.90		
10	16QAM	25	25	20.93	20.97	20.84		
10	16QAM	50	0	20.97	21.00	20.90		
10	64QAM	1	0	21.16	21.14	21.14	22	1
10	64QAM	1	25	21.22	21.06	21.06		
10	64QAM	1	49	21.25	20.99	20.91		
10	64QAM	25	0	20.09	20.15	20.07	21	2
10	64QAM	25	12	20.26	20.16	20.05		
10	64QAM	25	25	20.12	19.96	19.82		
10	64QAM	50	0	20.09	19.95	19.91		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	21.95	22.00	21.83	23	0
5	QPSK	1	12	21.93	21.94	21.79		
5	QPSK	1	24	21.98	21.90	21.74		
5	QPSK	12	0	22.00	22.00	21.86	23	0
5	QPSK	12	7	22.01	22.03	21.86		
5	QPSK	12	13	21.96	21.94	21.79		
5	QPSK	25	0	21.95	22.01	21.85		
5	16QAM	1	0	22.09	22.11	22.04	23	0
5	16QAM	1	12	22.17	22.16	22.04		
5	16QAM	1	24	22.13	22.14	21.94		
5	16QAM	12	0	21.01	21.04	20.88	22	1
5	16QAM	12	7	21.03	21.00	20.85		
5	16QAM	12	13	20.97	20.98	20.81		
5	16QAM	25	0	20.98	20.98	20.83		
5	64QAM	1	0	21.32	21.04	21.12	22	1
5	64QAM	1	12	21.28	21.00	21.06		
5	64QAM	1	24	21.25	20.98	20.86		
5	64QAM	12	0	20.09	20.20	19.89	21	2
5	64QAM	12	7	20.22	20.02	19.95		
5	64QAM	12	13	20.04	19.83	19.94		
5	64QAM	25	0	20.02	19.92	19.94		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	21.95	21.97	21.81	23	0
3	QPSK	1	8	21.92	21.94	21.79		
3	QPSK	1	14	21.91	21.91	21.75		
3	QPSK	8	0	21.98	21.98	21.84	23	0
3	QPSK	8	4	22.03	22.00	21.82		
3	QPSK	8	7	21.95	21.99	21.81		
3	QPSK	15	0	21.96	21.96	21.80		
3	16QAM	1	0	22.15	22.16	22.02	23	0
3	16QAM	1	8	22.18	22.16	22.00		
3	16QAM	1	14	22.13	22.14	21.91		
3	16QAM	8	0	21.05	21.06	20.90	22	1
3	16QAM	8	4	21.07	21.06	20.88		
3	16QAM	8	7	21.03	21.01	20.87		
3	16QAM	15	0	21.01	21.00	20.84		
3	64QAM	1	0	21.29	20.98	21.15	22	1
3	64QAM	1	8	21.19	21.05	21.08		
3	64QAM	1	14	21.22	20.92	20.95		
3	64QAM	8	0	20.17	20.14	19.96	21	2
3	64QAM	8	4	20.21	20.03	20.02		
3	64QAM	8	7	20.10	19.82	19.96		
3	64QAM	15	0	20.20	20.06	19.99		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	21.85	21.86	21.67	23	0
1.4	QPSK	1	3	21.90	21.90	21.73		
1.4	QPSK	1	5	21.83	21.82	21.65		
1.4	QPSK	3	0	21.92	21.89	21.71		
1.4	QPSK	3	1	21.98	21.95	21.78		
1.4	QPSK	3	3	21.89	21.89	21.70		
1.4	QPSK	6	0	21.91	21.92	21.72	23	0
1.4	16QAM	1	0	22.11	22.08	21.92	23	0
1.4	16QAM	1	3	22.17	22.13	21.99		
1.4	16QAM	1	5	22.10	22.06	21.88		
1.4	16QAM	3	0	21.93	21.90	21.73		
1.4	16QAM	3	1	21.96	21.94	21.78		
1.4	16QAM	3	3	21.90	21.89	21.71		
1.4	16QAM	6	0	20.97	20.97	20.81	22	1
1.4	64QAM	1	0	21.26	21.00	21.10	22	1
1.4	64QAM	1	3	21.30	21.09	21.03		
1.4	64QAM	1	5	21.06	20.97	20.82		
1.4	64QAM	3	0	21.09	21.08	20.89		
1.4	64QAM	3	1	21.24	21.03	20.95		
1.4	64QAM	3	3	21.12	20.98	20.80		
1.4	64QAM	6	0	20.03	20.08	19.89	21	2

<LTE Band 30>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	21.02			22	0
10	QPSK	1	25	20.74				
10	QPSK	1	49	20.67				
10	QPSK	25	0	20.83			22	0
10	QPSK	25	12	20.80				
10	QPSK	25	25	20.74				
10	QPSK	50	0	20.80				
10	16QAM	1	0	20.98			22	0
10	16QAM	1	25	21.01				
10	16QAM	1	49	20.95				
10	16QAM	25	0	20.82			22	0
10	16QAM	25	12	20.83				
10	16QAM	25	25	20.77				
10	16QAM	50	0	20.81				
10	64QAM	1	0	20.96			22	0
10	64QAM	1	25	20.66				
10	64QAM	1	49	20.63				
10	64QAM	25	0	20.73			21	1
10	64QAM	25	12	20.80				
10	64QAM	25	25	20.72				
10	64QAM	50	0	20.76				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	20.76	20.73	20.74	22	0
5	QPSK	1	12	20.69	20.70	20.70		
5	QPSK	1	24	20.71	20.71	20.67		
5	QPSK	12	0	20.76	20.78	20.76	22	0
5	QPSK	12	7	20.75	20.77	20.79		
5	QPSK	12	13	20.76	20.72	20.74		
5	QPSK	25	0	20.78	20.75	20.72		
5	16QAM	1	0	20.96	20.97	20.95	22	0
5	16QAM	1	12	21.00	20.94	20.99		
5	16QAM	1	24	21.00	20.99	20.94		
5	16QAM	12	0	20.80	20.81	20.81	22	0
5	16QAM	12	7	20.78	20.82	20.80		
5	16QAM	12	13	20.75	20.77	20.78		
5	16QAM	25	0	20.78	20.76	20.76		
5	64QAM	1	0	20.67	20.72	20.69	22	0
5	64QAM	1	12	20.65	20.61	20.70		
5	64QAM	1	24	20.66	20.68	20.59		
5	64QAM	12	0	20.74	20.72	20.74	21	1
5	64QAM	12	7	20.72	20.70	20.78		
5	64QAM	12	13	20.74	20.66	20.72		
5	64QAM	25	0	20.68	20.66	20.68		

<LTE Band 66>

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				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	20.84	21.37	20.95	22	0
20	QPSK	1	49	20.65	20.99	20.74		
20	QPSK	1	99	20.61	20.83	20.56		
20	QPSK	50	0	20.81	21.14	20.94	22	0
20	QPSK	50	24	20.75	21.08	20.85		
20	QPSK	50	50	20.72	21.06	20.66		
20	QPSK	100	0	20.74	21.11	20.84		
20	16QAM	1	0	21.13	21.23	21.26	22	0
20	16QAM	1	49	20.94	21.33	21.02		
20	16QAM	1	99	20.92	21.17	20.87		
20	16QAM	50	0	20.84	21.19	20.93	22	0
20	16QAM	50	24	20.78	21.14	20.87		
20	16QAM	50	50	20.72	21.09	20.70		
20	16QAM	100	0	20.78	21.12	20.85		
20	64QAM	1	0	20.72	21.27	21.03	22	0
20	64QAM	1	49	20.63	20.91	20.84		
20	64QAM	1	99	20.52	20.73	20.56		
20	64QAM	50	0	19.89	20.29	19.94	21	1
20	64QAM	50	24	19.86	20.21	19.84		
20	64QAM	50	50	19.64	20.08	19.67		
20	64QAM	100	0	19.86	20.13	19.88		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	20.80	21.09	21.02	22	0
15	QPSK	1	37	20.63	20.91	20.72		
15	QPSK	1	74	20.64	20.75	20.68		
15	QPSK	36	0	20.77	20.96	20.98	22	0
15	QPSK	36	20	20.73	20.90	20.74		
15	QPSK	36	39	20.70	20.88	20.66		
15	QPSK	75	0	20.74	20.93	20.74		
15	16QAM	1	0	21.11	21.32	21.22	22	0
15	16QAM	1	37	20.97	21.16	20.94		
15	16QAM	1	74	20.97	21.07	20.91		
15	16QAM	36	0	20.80	20.98	20.87	22	0
15	16QAM	36	20	20.78	20.95	20.74		
15	16QAM	36	39	20.71	20.88	20.67		
15	16QAM	75	0	20.77	20.95	20.75		
15	64QAM	1	0	20.69	21.04	20.97	22	0
15	64QAM	1	37	20.67	20.96	20.68		
15	64QAM	1	74	20.56	20.72	20.59		
15	64QAM	36	0	19.88	19.99	19.80	21	1
15	64QAM	36	20	19.87	19.90	19.82		
15	64QAM	36	39	19.76	19.78	19.74		
15	64QAM	75	0	19.87	19.99	19.76		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	20.68	21.04	20.91	22	0
10	QPSK	1	25	20.61	20.94	20.71		
10	QPSK	1	49	20.58	20.89	20.65		
10	QPSK	25	0	20.70	21.04	20.84	22	0
10	QPSK	25	12	20.69	21.02	20.81		
10	QPSK	25	25	20.66	20.96	20.76		
10	QPSK	50	0	20.68	20.99	20.68		
10	16QAM	1	0	21.02	21.10	21.11	22	0
10	16QAM	1	25	20.94	21.27	20.93		
10	16QAM	1	49	20.88	21.27	20.87		
10	16QAM	25	0	20.73	21.06	20.74	22	0
10	16QAM	25	12	20.71	21.06	20.70		
10	16QAM	25	25	20.65	21.00	20.66		
10	16QAM	50	0	20.71	21.04	20.69		
10	64QAM	1	0	20.46	20.94	20.97	22	0
10	64QAM	1	25	20.62	21.02	20.71		
10	64QAM	1	49	20.64	20.91	20.70		
10	64QAM	25	0	19.80	20.06	19.80	21	1
10	64QAM	25	12	19.66	19.97	19.70		
10	64QAM	25	25	19.66	19.90	19.72		
10	64QAM	50	0	19.70	19.94	19.78		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	20.63	20.98	20.67	22	0
5	QPSK	1	12	20.58	20.92	20.61		
5	QPSK	1	24	20.57	20.93	20.59		
5	QPSK	12	0	20.67	20.99	20.69	22	0
5	QPSK	12	7	20.68	21.01	20.67		
5	QPSK	12	13	20.62	20.94	20.65		
5	QPSK	25	0	20.66	21.00	20.69		
5	16QAM	1	0	20.97	21.15	20.99	22	0
5	16QAM	1	12	20.91	21.32	20.92		
5	16QAM	1	24	20.90	21.32	20.89		
5	16QAM	12	0	20.72	21.05	20.70	22	0
5	16QAM	12	7	20.67	21.05	20.73		
5	16QAM	12	13	20.65	20.99	20.66		
5	16QAM	25	0	20.66	21.02	20.70		
5	64QAM	1	0	20.51	20.95	20.69	22	0
5	64QAM	1	12	20.68	20.98	20.52		
5	64QAM	1	24	20.65	20.88	20.61		
5	64QAM	12	0	19.63	20.07	19.78	21	1
5	64QAM	12	7	19.68	20.02	19.74		
5	64QAM	12	13	19.75	20.08	19.68		
5	64QAM	25	0	19.58	19.95	19.68		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	20.57	20.94	20.63	22	0
3	QPSK	1	8	20.56	20.94	20.62		
3	QPSK	1	14	20.54	20.90	20.59		
3	QPSK	8	0	20.63	20.98	20.66	22	0
3	QPSK	8	4	20.62	20.99	20.70		
3	QPSK	8	7	20.58	20.97	20.67		
3	QPSK	15	0	20.64	20.97	20.64		
3	16QAM	1	0	20.90	21.13	20.93	22	0
3	16QAM	1	8	20.90	21.31	20.93		
3	16QAM	1	14	20.86	21.28	20.89		
3	16QAM	8	0	20.71	21.05	20.73	22	0
3	16QAM	8	4	20.73	21.08	20.78		
3	16QAM	8	7	20.68	21.05	20.73		
3	16QAM	15	0	20.67	21.01	20.69		
3	64QAM	1	0	20.31	20.86	20.53	22	0
3	64QAM	1	8	20.60	20.91	20.59		
3	64QAM	1	14	20.60	20.95	20.60		
3	64QAM	8	0	19.68	20.06	19.74	21	1
3	64QAM	8	4	19.83	20.13	19.82		
3	64QAM	8	7	19.73	20.07	19.78		
3	64QAM	15	0	19.60	19.96	19.73		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	20.53	20.88	20.56	22	0
1.4	QPSK	1	3	20.60	20.96	20.64		
1.4	QPSK	1	5	20.50	20.87	20.56		
1.4	QPSK	3	0	20.56	20.93	20.59		
1.4	QPSK	3	1	20.61	20.97	20.67		
1.4	QPSK	3	3	20.57	20.92	20.57		
1.4	QPSK	6	0	20.57	20.92	20.59	22	0
1.4	16QAM	1	0	20.86	21.20	20.87	22	0
1.4	16QAM	1	3	20.93	21.31	20.91		
1.4	16QAM	1	5	20.85	21.23	20.85		
1.4	16QAM	3	0	20.59	20.99	20.64		
1.4	16QAM	3	1	20.64	21.03	20.71		
1.4	16QAM	3	3	20.58	20.97	20.64		
1.4	16QAM	6	0	20.63	21.02	20.73	22	0
1.4	64QAM	1	0	20.31	20.81	20.51	22	0
1.4	64QAM	1	3	20.60	20.89	20.69		
1.4	64QAM	1	5	20.45	20.96	20.53		
1.4	64QAM	3	0	20.21	20.62	20.23		
1.4	64QAM	3	1	20.24	20.66	20.16		
1.4	64QAM	3	3	20.03	20.43	20.28		
1.4	64QAM	6	0	19.64	19.92	19.78	21	1

<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.

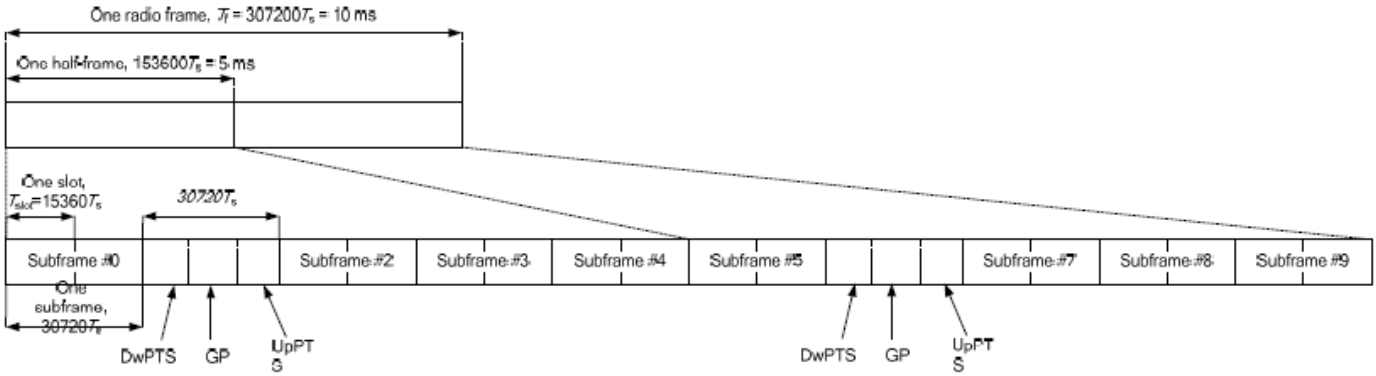


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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.

<At-Head and Default Power Mode>

<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	22.74	22.67	22.66	24	0
20	QPSK	1	49	22.69	22.59	22.61		
20	QPSK	1	99	22.58	22.58	22.60		
20	QPSK	50	0	21.62	21.60	21.62	23	1
20	QPSK	50	24	21.62	21.61	21.68		
20	QPSK	50	50	21.49	21.62	21.52		
20	QPSK	100	0	21.52	21.57	21.63		
20	16QAM	1	0	21.81	21.69	21.76	23	1
20	16QAM	1	49	21.72	21.61	21.69		
20	16QAM	1	99	21.66	21.67	21.67		
20	16QAM	50	0	20.70	20.64	20.58	22	2
20	16QAM	50	24	20.69	20.65	20.70		
20	16QAM	50	50	20.54	20.63	20.53		
20	16QAM	100	0	20.71	20.62	20.62		
20	64QAM	1	0	21.99	21.93	21.90	22	2
20	64QAM	1	49	21.98	21.95	21.90		
20	64QAM	1	99	21.82	21.82	21.92		
20	64QAM	50	0	20.89	20.84	20.98	21	3
20	64QAM	50	24	20.99	20.96	20.98		
20	64QAM	50	50	20.81	20.95	20.86		
20	64QAM	100	0	20.85	20.92	20.99		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.68	22.67	22.67	24	0
15	QPSK	1	37	22.64	22.66	22.69		
15	QPSK	1	74	22.56	22.61	22.64		
15	QPSK	36	0	21.63	21.58	21.58	23	1
15	QPSK	36	20	21.58	21.60	21.64		
15	QPSK	36	39	21.51	21.46	21.51		
15	QPSK	75	0	21.61	21.56	21.60		
15	16QAM	1	0	21.72	21.76	21.79	23	1
15	16QAM	1	37	21.80	21.69	21.76		
15	16QAM	1	74	21.73	21.65	21.73		
15	16QAM	36	0	20.67	20.58	20.54	22	2
15	16QAM	36	20	20.73	20.56	20.66		
15	16QAM	36	39	20.64	20.53	20.55		
15	16QAM	75	0	20.73	20.66	20.72		
15	64QAM	1	0	21.90	21.92	21.98	22	2
15	64QAM	1	37	22.00	21.88	21.99		
15	64QAM	1	74	21.92	21.93	21.84		
15	64QAM	36	0	20.97	20.95	20.92	21	3
15	64QAM	36	20	20.90	20.95	20.86		
15	64QAM	36	39	20.90	20.69	20.83		
15	64QAM	75	0	20.93	20.85	20.87		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.70	22.69	22.73	24	0
10	QPSK	1	25	22.65	22.68	22.61		
10	QPSK	1	49	22.68	22.66	22.65		
10	QPSK	25	0	21.63	21.57	21.67	23	1
10	QPSK	25	12	21.68	21.62	21.58		
10	QPSK	25	25	21.63	21.55	21.60		
10	QPSK	50	0	21.60	21.56	21.58		
10	16QAM	1	0	21.75	21.79	21.84	23	1
10	16QAM	1	25	21.77	21.74	21.72		
10	16QAM	1	49	21.73	21.74	21.70		
10	16QAM	25	0	20.69	20.59	20.71	22	2
10	16QAM	25	12	20.67	20.64	20.61		
10	16QAM	25	25	20.62	20.51	20.58		
10	16QAM	50	0	20.66	20.60	20.59		
10	64QAM	1	0	21.86	21.96	21.88	22	2
10	64QAM	1	25	21.82	21.91	21.71		
10	64QAM	1	49	21.82	21.93	21.92		
10	64QAM	25	0	20.92	20.77	20.81	21	3
10	64QAM	25	12	20.94	20.85	20.73		
10	64QAM	25	25	20.73	20.79	20.78		
10	64QAM	50	0	20.76	20.71	20.81		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.66	22.61	22.62	24	0
5	QPSK	1	12	22.61	22.63	22.57		
5	QPSK	1	24	22.58	22.62	22.61		
5	QPSK	12	0	21.64	21.60	21.53	23	1
5	QPSK	12	7	21.58	21.59	21.61		
5	QPSK	12	13	21.60	21.55	21.53		
5	QPSK	25	0	21.61	21.61	21.58		
5	16QAM	1	0	21.69	21.69	21.66	23	1
5	16QAM	1	12	21.72	21.75	21.68		
5	16QAM	1	24	21.68	21.70	21.68		
5	16QAM	12	0	20.63	20.61	20.57	22	2
5	16QAM	12	7	20.66	20.61	20.58		
5	16QAM	12	13	20.62	20.56	20.54		
5	16QAM	25	0	20.66	20.65	20.57		
5	64QAM	1	0	21.93	21.78	21.90	22	2
5	64QAM	1	12	21.91	21.82	21.86		
5	64QAM	1	24	21.80	21.88	21.91		
5	64QAM	12	0	20.84	20.84	20.81	21	3
5	64QAM	12	7	20.80	20.89	20.78		
5	64QAM	12	13	20.88	20.71	20.80		
5	64QAM	25	0	20.91	20.91	20.80		

<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	22.89	22.96	22.92	22.72	24	0
20	QPSK	1	49	22.83	22.91	22.67	22.63		
20	QPSK	1	99	22.82	22.79	22.78	22.64		
20	QPSK	50	0	21.81	21.82	21.73	21.66	23	1
20	QPSK	50	24	21.84	21.75	21.69	21.53		
20	QPSK	50	50	21.67	21.66	21.60	21.43		
20	QPSK	100	0	21.81	21.79	21.70	21.51		
20	16QAM	1	0	21.97	22.02	21.99	21.84	23	1
20	16QAM	1	49	21.89	21.95	21.75	21.67		
20	16QAM	1	99	21.86	21.88	21.83	21.71		
20	16QAM	50	0	20.80	20.85	20.72	20.68	22	2
20	16QAM	50	24	20.85	20.82	20.75	20.63		
20	16QAM	50	50	20.74	20.72	20.64	20.47		
20	16QAM	100	0	20.82	20.81	20.71	20.55		
20	64QAM	1	0	20.67	20.79	20.65	20.46	22	2
20	64QAM	1	49	20.56	20.73	20.51	20.49		
20	64QAM	1	99	20.65	20.65	20.57	20.41		
20	64QAM	50	0	19.57	19.68	19.55	19.38	21	3
20	64QAM	50	24	19.59	19.51	19.40	19.36		
20	64QAM	50	50	19.49	19.45	19.32	19.28		
20	64QAM	100	0	19.63	19.51	19.46	19.27		
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	22.92	22.95	22.90	22.84	24	0
15	QPSK	1	37	22.86	22.90	22.66	22.70		
15	QPSK	1	74	22.78	22.81	22.72	22.63		
15	QPSK	36	0	21.78	21.67	21.69	21.43	23	1
15	QPSK	36	20	21.83	21.74	21.62	21.56		
15	QPSK	36	39	21.85	21.64	21.60	21.36		
15	QPSK	75	0	21.80	21.71	21.70	21.54		
15	16QAM	1	0	21.96	22.02	21.93	21.80	23	1
15	16QAM	1	37	21.92	21.98	21.74	21.72		
15	16QAM	1	74	21.84	21.86	21.84	21.66		
15	16QAM	36	0	20.79	20.80	20.73	20.52	22	2
15	16QAM	36	20	20.87	20.78	20.69	20.47		
15	16QAM	36	39	20.80	20.62	20.66	20.54		
15	16QAM	75	0	20.88	20.67	20.67	20.59		
15	64QAM	1	0	20.76	20.73	20.77	20.63	22	2
15	64QAM	1	37	20.66	20.74	20.55	20.60		
15	64QAM	1	74	20.61	20.66	20.51	20.52		
15	64QAM	36	0	19.61	19.38	19.49	19.24	21	3
15	64QAM	36	20	19.61	19.54	19.51	19.40		
15	64QAM	36	39	19.57	19.47	19.30	19.18		
15	64QAM	75	0	19.56	19.47	19.44	19.38		

Channel				40190	40490	40790	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2550	2580	2610	2650		
10	QPSK	1	0	22.83	22.92	22.84	22.75	24	0
10	QPSK	1	25	22.86	22.93	22.80	22.71		
10	QPSK	1	49	22.87	22.77	22.79	22.71		
10	QPSK	25	0	21.78	21.75	21.70	21.56	23	1
10	QPSK	25	12	21.82	21.85	21.64	21.41		
10	QPSK	25	25	21.83	21.76	21.64	21.46		
10	QPSK	50	0	21.79	21.79	21.66	21.46		
10	16QAM	1	0	21.92	22.04	21.93	21.77	23	1
10	16QAM	1	25	21.98	22.01	21.84	21.64		
10	16QAM	1	49	21.92	21.86	21.86	21.67		
10	16QAM	25	0	20.86	20.82	20.72	20.63	22	2
10	16QAM	25	12	20.82	20.86	20.70	20.52		
10	16QAM	25	25	20.82	20.74	20.58	20.52		
10	16QAM	50	0	20.86	20.81	20.63	20.58		
10	64QAM	1	0	20.55	20.76	20.61	20.45	22	2
10	64QAM	1	25	20.58	20.72	20.69	20.41		
10	64QAM	1	49	20.69	20.55	20.56	20.42		
10	64QAM	25	0	19.52	19.57	19.43	19.39	21	3
10	64QAM	25	12	19.69	19.67	19.34	19.20		
10	64QAM	25	25	19.53	19.66	19.53	19.29		
10	64QAM	50	0	19.59	19.63	19.44	19.35		
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	22.77	22.95	22.78	22.67	24	0
5	QPSK	1	12	22.78	22.89	22.74	22.70		
5	QPSK	1	24	22.80	22.87	22.73	22.69		
5	QPSK	12	0	21.77	21.76	21.65	21.57	23	1
5	QPSK	12	7	21.77	21.77	21.67	21.56		
5	QPSK	12	13	21.75	21.79	21.74	21.59		
5	QPSK	25	0	21.75	21.76	21.68	21.60		
5	16QAM	1	0	21.86	21.95	21.86	21.74	23	1
5	16QAM	1	12	21.80	21.99	21.82	21.81		
5	16QAM	1	24	21.85	21.97	21.83	21.78		
5	16QAM	12	0	20.75	20.85	20.72	20.57	22	2
5	16QAM	12	7	20.78	20.79	20.74	20.59		
5	16QAM	12	13	20.74	20.79	20.66	20.51		
5	16QAM	25	0	20.77	20.84	20.75	20.61		
5	64QAM	1	0	20.55	20.84	20.56	20.55	22	2
5	64QAM	1	12	20.58	20.60	20.59	20.57		
5	64QAM	1	24	20.59	20.58	20.49	20.41		
5	64QAM	12	0	19.48	19.65	19.37	19.41	21	3
5	64QAM	12	7	19.52	19.56	19.38	19.40		
5	64QAM	12	13	19.49	19.63	19.63	19.35		
5	64QAM	25	0	19.53	19.62	19.58	19.31		

<Near-body and Hotspot Mode>

<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	22.74	22.67	22.66	24	0
20	QPSK	1	49	22.69	22.59	22.61		
20	QPSK	1	99	22.58	22.58	22.60		
20	QPSK	50	0	21.62	21.60	21.62	23	1
20	QPSK	50	24	21.62	21.61	21.68		
20	QPSK	50	50	21.49	21.62	21.52		
20	QPSK	100	0	21.52	21.57	21.63		
20	16QAM	1	0	21.81	21.69	21.76	23	1
20	16QAM	1	49	21.72	21.61	21.69		
20	16QAM	1	99	21.66	21.67	21.67		
20	16QAM	50	0	20.70	20.64	20.58	22	2
20	16QAM	50	24	20.69	20.65	20.70		
20	16QAM	50	50	20.54	20.63	20.53		
20	16QAM	100	0	20.71	20.62	20.62		
20	64QAM	1	0	21.99	21.93	21.90	22	2
20	64QAM	1	49	21.98	21.95	21.90		
20	64QAM	1	99	21.82	21.82	21.92		
20	64QAM	50	0	20.89	20.84	20.98	21	3
20	64QAM	50	24	20.99	20.96	20.98		
20	64QAM	50	50	20.81	20.95	20.86		
20	64QAM	100	0	20.85	20.92	20.99		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	22.68	22.67	22.67	24	0
15	QPSK	1	37	22.64	22.66	22.69		
15	QPSK	1	74	22.56	22.61	22.64		
15	QPSK	36	0	21.63	21.58	21.58	23	1
15	QPSK	36	20	21.58	21.60	21.64		
15	QPSK	36	39	21.51	21.46	21.51		
15	QPSK	75	0	21.61	21.56	21.60		
15	16QAM	1	0	21.72	21.76	21.79	23	1
15	16QAM	1	37	21.80	21.69	21.76		
15	16QAM	1	74	21.73	21.65	21.73		
15	16QAM	36	0	20.67	20.58	20.54	22	2
15	16QAM	36	20	20.73	20.56	20.66		
15	16QAM	36	39	20.64	20.53	20.55		
15	16QAM	75	0	20.73	20.66	20.72		
15	64QAM	1	0	21.90	21.92	21.98	22	2
15	64QAM	1	37	22.00	21.88	21.99		
15	64QAM	1	74	21.92	21.93	21.84		
15	64QAM	36	0	20.97	20.95	20.92	21	3
15	64QAM	36	20	20.90	20.95	20.86		
15	64QAM	36	39	20.90	20.69	20.83		
15	64QAM	75	0	20.93	20.85	20.87		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	22.70	22.69	22.73	24	0
10	QPSK	1	25	22.65	22.68	22.61		
10	QPSK	1	49	22.68	22.66	22.65		
10	QPSK	25	0	21.63	21.57	21.67	23	1
10	QPSK	25	12	21.68	21.62	21.58		
10	QPSK	25	25	21.63	21.55	21.60		
10	QPSK	50	0	21.60	21.56	21.58		
10	16QAM	1	0	21.75	21.79	21.84	23	1
10	16QAM	1	25	21.77	21.74	21.72		
10	16QAM	1	49	21.73	21.74	21.70		
10	16QAM	25	0	20.69	20.59	20.71	22	2
10	16QAM	25	12	20.67	20.64	20.61		
10	16QAM	25	25	20.62	20.51	20.58		
10	16QAM	50	0	20.66	20.60	20.59		
10	64QAM	1	0	21.86	21.96	21.88	22	2
10	64QAM	1	25	21.82	21.91	21.71		
10	64QAM	1	49	21.82	21.93	21.92		
10	64QAM	25	0	20.92	20.77	20.81	21	3
10	64QAM	25	12	20.94	20.85	20.73		
10	64QAM	25	25	20.73	20.79	20.78		
10	64QAM	50	0	20.76	20.71	20.81		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	22.66	22.61	22.62	24	0
5	QPSK	1	12	22.61	22.63	22.57		
5	QPSK	1	24	22.58	22.62	22.61		
5	QPSK	12	0	21.64	21.60	21.53	23	1
5	QPSK	12	7	21.58	21.59	21.61		
5	QPSK	12	13	21.60	21.55	21.53		
5	QPSK	25	0	21.61	21.61	21.58		
5	16QAM	1	0	21.69	21.69	21.66	23	1
5	16QAM	1	12	21.72	21.75	21.68		
5	16QAM	1	24	21.68	21.70	21.68		
5	16QAM	12	0	20.63	20.61	20.57	22	2
5	16QAM	12	7	20.66	20.61	20.58		
5	16QAM	12	13	20.62	20.56	20.54		
5	16QAM	25	0	20.66	20.65	20.57		
5	64QAM	1	0	21.93	21.78	21.90	22	2
5	64QAM	1	12	21.91	21.82	21.86		
5	64QAM	1	24	21.80	21.88	21.91		
5	64QAM	12	0	20.84	20.84	20.81	21	3
5	64QAM	12	7	20.80	20.89	20.78		
5	64QAM	12	13	20.88	20.71	20.80		
5	64QAM	25	0	20.91	20.91	20.80		

<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	22.89	22.96	22.92	22.72	24	0
20	QPSK	1	49	22.83	22.91	22.67	22.63		
20	QPSK	1	99	22.82	22.79	22.78	22.64		
20	QPSK	50	0	21.81	21.82	21.73	21.66	23	1
20	QPSK	50	24	21.84	21.75	21.69	21.53		
20	QPSK	50	50	21.67	21.66	21.60	21.43		
20	QPSK	100	0	21.81	21.79	21.70	21.51		
20	16QAM	1	0	21.97	22.02	21.99	21.84	23	1
20	16QAM	1	49	21.89	21.95	21.75	21.67		
20	16QAM	1	99	21.86	21.88	21.83	21.71		
20	16QAM	50	0	20.80	20.85	20.72	20.68	22	2
20	16QAM	50	24	20.85	20.82	20.75	20.63		
20	16QAM	50	50	20.74	20.72	20.64	20.47		
20	16QAM	100	0	20.82	20.81	20.71	20.55		
20	64QAM	1	0	20.67	20.79	20.65	20.46	22	2
20	64QAM	1	49	20.56	20.73	20.51	20.49		
20	64QAM	1	99	20.65	20.65	20.57	20.41		
20	64QAM	50	0	19.57	19.68	19.55	19.38	21	3
20	64QAM	50	24	19.59	19.51	19.40	19.36		
20	64QAM	50	50	19.49	19.45	19.32	19.28		
20	64QAM	100	0	19.63	19.51	19.46	19.27		
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	22.92	22.95	22.90	22.84	24	0
15	QPSK	1	37	22.86	22.90	22.66	22.70		
15	QPSK	1	74	22.78	22.81	22.72	22.63		
15	QPSK	36	0	21.78	21.67	21.69	21.43	23	1
15	QPSK	36	20	21.83	21.74	21.62	21.56		
15	QPSK	36	39	21.85	21.64	21.60	21.36		
15	QPSK	75	0	21.80	21.71	21.70	21.54		
15	16QAM	1	0	21.96	22.02	21.93	21.80	23	1
15	16QAM	1	37	21.92	21.98	21.74	21.72		
15	16QAM	1	74	21.84	21.86	21.84	21.66		
15	16QAM	36	0	20.79	20.80	20.73	20.52	22	2
15	16QAM	36	20	20.87	20.78	20.69	20.47		
15	16QAM	36	39	20.80	20.62	20.66	20.54		
15	16QAM	75	0	20.88	20.67	20.67	20.59		
15	64QAM	1	0	20.76	20.73	20.77	20.63	22	2
15	64QAM	1	37	20.66	20.74	20.55	20.60		
15	64QAM	1	74	20.61	20.66	20.51	20.52		
15	64QAM	36	0	19.61	19.38	19.49	19.24	21	3
15	64QAM	36	20	19.61	19.54	19.51	19.40		
15	64QAM	36	39	19.57	19.47	19.30	19.18		
15	64QAM	75	0	19.56	19.47	19.44	19.38		

Channel				40190	40490	40790	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2550	2580	2610	2650		
10	QPSK	1	0	22.83	22.92	22.84	22.75	24	0
10	QPSK	1	25	22.86	22.93	22.80	22.71		
10	QPSK	1	49	22.87	22.77	22.79	22.71		
10	QPSK	25	0	21.78	21.75	21.70	21.56	23	1
10	QPSK	25	12	21.82	21.85	21.64	21.41		
10	QPSK	25	25	21.83	21.76	21.64	21.46		
10	QPSK	50	0	21.79	21.79	21.66	21.46		
10	16QAM	1	0	21.92	22.04	21.93	21.77	23	1
10	16QAM	1	25	21.98	22.01	21.84	21.64		
10	16QAM	1	49	21.92	21.86	21.86	21.67		
10	16QAM	25	0	20.86	20.82	20.72	20.63	22	2
10	16QAM	25	12	20.82	20.86	20.70	20.52		
10	16QAM	25	25	20.82	20.74	20.58	20.52		
10	16QAM	50	0	20.86	20.81	20.63	20.58		
10	64QAM	1	0	20.55	20.76	20.61	20.45	22	2
10	64QAM	1	25	20.58	20.72	20.69	20.41		
10	64QAM	1	49	20.69	20.55	20.56	20.42		
10	64QAM	25	0	19.52	19.57	19.43	19.39	21	3
10	64QAM	25	12	19.69	19.67	19.34	19.20		
10	64QAM	25	25	19.53	19.66	19.53	19.29		
10	64QAM	50	0	19.59	19.63	19.44	19.35		
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	22.77	22.95	22.78	22.67	24	0
5	QPSK	1	12	22.78	22.89	22.74	22.70		
5	QPSK	1	24	22.80	22.87	22.73	22.69		
5	QPSK	12	0	21.77	21.76	21.65	21.57	23	1
5	QPSK	12	7	21.77	21.77	21.67	21.56		
5	QPSK	12	13	21.75	21.79	21.74	21.59		
5	QPSK	25	0	21.75	21.76	21.68	21.60		
5	16QAM	1	0	21.86	21.95	21.86	21.74	23	1
5	16QAM	1	12	21.80	21.99	21.82	21.81		
5	16QAM	1	24	21.85	21.97	21.83	21.78		
5	16QAM	12	0	20.75	20.85	20.72	20.57	22	2
5	16QAM	12	7	20.78	20.79	20.74	20.59		
5	16QAM	12	13	20.74	20.79	20.66	20.51		
5	16QAM	25	0	20.77	20.84	20.75	20.61		
5	64QAM	1	0	20.55	20.84	20.56	20.55	22	2
5	64QAM	1	12	20.58	20.60	20.59	20.57		
5	64QAM	1	24	20.59	20.58	20.49	20.41		
5	64QAM	12	0	19.48	19.65	19.37	19.41	21	3
5	64QAM	12	7	19.52	19.56	19.38	19.40		
5	64QAM	12	13	19.49	19.63	19.63	19.35		
5	64QAM	25	0	19.53	19.62	19.58	19.31		

<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. All permutations exist. No restrictions on Pcell & Scell combinations. Only LTE Band 29A is limited to Scell.
3. This device supported inter-band up to 4 DL carrier aggregation, for intra-band supported non-contiguous and contiguous configuration.

<Inter-Band Two Carrier combination>

E-UTRA Configure	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum Aggregated bandwidth [MHz]
CA_2A-4A	2	Yes	Yes	Yes	Yes	Yes	Yes	40
	4			Yes	Yes	Yes	Yes	
CA_2A-5A	2			Yes	Yes	Yes	Yes	30
	5			Yes	Yes			
CA_2A-12A	2			Yes	Yes	Yes	Yes	30
	12		Yes	Yes	Yes			
CA_2A-17A	2			Yes	Yes			20
	17			Yes	Yes			
CA_2A-29A	2			Yes	Yes			20
	29		Yes	Yes	Yes			
CA_2A-30A	2			Yes	Yes	Yes	Yes	30
	30			Yes	Yes			
CA_2A-66A	2	Yes	Yes	Yes	Yes	Yes	Yes	40
	66			Yes	Yes	Yes	Yes	
CA_2A-252A	2			Yes	Yes	Yes	Yes	40
	252						Yes	
CA_2A-255A	2			Yes	Yes	Yes	Yes	40
	255						Yes	
CA_4A-5A	4			Yes	Yes			20
	5			Yes	Yes			
CA_4A-7A	4			Yes	Yes			30
	7			Yes	Yes	Yes	Yes	
CA_4A-12A	4	Yes	Yes	Yes	Yes			20
	12			Yes	Yes			
CA_4A-17A	4			Yes	Yes			20
	17			Yes	Yes			
CA_4A-29A	4			Yes	Yes			20
	29		Yes	Yes	Yes			
CA_4A-30A	4			Yes	Yes	Yes	Yes	30
	30			Yes	Yes			
CA_4A-252A	4			Yes	Yes	Yes	Yes	40
	252						Yes	
CA_4A-255A	4			Yes	Yes	Yes	Yes	40
	255						Yes	
CA_5A-7A	5	Yes	Yes	Yes	Yes			30
	7				Yes	Yes	Yes	
CA_5A-30A	5			Yes	Yes			20
	30			Yes	Yes			
CA_5A-66A	5			Yes	Yes			30
	66			Yes	Yes	Yes	Yes	
CA_12A-30A	12			Yes	Yes			20
	30			Yes	Yes			
CA_12A-66A	12			Yes	Yes			30
	66	Yes	Yes	Yes	Yes	Yes	Yes	
CA_29A-30A	29			Yes	Yes			20
	30			Yes	Yes			
CA_29A-66A	29			Yes	Yes			30
	66			Yes	Yes	Yes	Yes	
CA_30A-66A	30			Yes	Yes			30
	66			Yes	Yes	Yes	Yes	

<Inter-Band Three Carrier combination>

E-UTRA Configure	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum Aggregated bandwidth [MHz]
CA_4A-252C	4			Yes	Yes	Yes	Yes	60
	252						Yes	
	252						Yes	
CA_4A-255C	4			Yes	Yes	Yes	Yes	60
	255						Yes	
	255						Yes	
CA_2A-2A-4A	2			Yes	Yes	Yes	Yes	60
	2			Yes	Yes	Yes	Yes	
	4			Yes	Yes	Yes	Yes	
CA_2A-2A-5A	2			Yes	Yes	Yes	Yes	50
	2			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
CA_2A-2A-12A	2			Yes	Yes	Yes	Yes	50
	2			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_2A-2A-29A	2			Yes	Yes	Yes	Yes	50
	2			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
CA_2A-2A-30A	2			Yes	Yes	Yes	Yes	50
	2			Yes	Yes	Yes	Yes	
	30			Yes	Yes			
CA_2A-4A-4A	2			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	4			Yes	Yes	Yes	Yes	
CA_2A-4A-5A	2			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
CA_2A-4A-7A	2			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	7			Yes	Yes	Yes	Yes	
CA_2A-4A-12A	2			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_2A-4A-29A	2			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
CA_2A-5A-30A	2			Yes	Yes	Yes	Yes	40
	5			Yes	Yes			
	30			Yes	Yes			
CA_2A-5A-66A	2			Yes	Yes	Yes	Yes	50
	5			Yes	Yes			
	66			Yes	Yes	Yes	Yes	
CA_2A-12A-30A	2			Yes	Yes	Yes	Yes	40
	12			Yes	Yes			
	30			Yes	Yes			
CA_2A-12A-66A	2			Yes	Yes	Yes	Yes	50
	12			Yes	Yes			
	66			Yes	Yes	Yes	Yes	
CA_2A-29A-30A	2			Yes	Yes	Yes	Yes	40
	29			Yes	Yes			
	30			Yes	Yes			

E-UTRA Configure	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum Aggregated bandwidth [MHz]
CA_2A-66B	2			Yes	Yes	Yes	Yes	40
	66			66B BCS 0				
	66							
CA_2A-66C	2			Yes	Yes	Yes	Yes	60
	66			66C BCS 0				
	66							
CA_2A-66A-66A	2			Yes	Yes	Yes	Yes	60
	66			Yes	Yes	Yes	Yes	
	66			Yes	Yes	Yes	Yes	
CA_4A-4A-5A	4			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
CA_4A-4A-12A	4			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_4A-4A-29A	4			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
CA_4A-4A-30A	4			Yes	Yes	Yes	Yes	50
	4			Yes	Yes	Yes	Yes	
	30			Yes	Yes			
CA_4A-5A-30A	4			Yes	Yes	Yes	Yes	40
	5			Yes	Yes			
	30			Yes	Yes			
CA_4A-7A-12A	4			Yes	Yes			40
	7			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_4A-12A-30A	4			Yes	Yes	Yes	Yes	40
	12			Yes	Yes			
	30			Yes	Yes			
CA_4A-29A-30A	4			Yes	Yes	Yes	Yes	40
	29			Yes	Yes			
	30			Yes	Yes			
CA_5A-30A-66A	5			Yes	Yes			40
	30			Yes	Yes			
	66			Yes	Yes	Yes	Yes	
CA_5A-66B	5			Yes	Yes			30
	66			66B BCS 0				
	66							
CA_5A-66C	5			Yes	Yes			50
	66			66C BCS 0				
	66							
CA_5A-66A-66A	5			Yes	Yes			50
	66			Yes	Yes	Yes	Yes	
	66			Yes	Yes	Yes	Yes	
CA_12A-30A-66A	12			Yes	Yes			40
	30			Yes	Yes			
	66			Yes	Yes	Yes	Yes	
CA_12A-66C	12				Yes	Yes		50
	66			66C BCS 0				
	66							
CA_12A-66A-66A	12				Yes	Yes		50
	66			Yes	Yes	Yes	Yes	
	66			Yes	Yes	Yes	Yes	

<Inter-Band Four Carrier combination>

E-UTRA Configure	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum Aggregated bandwidth [MHz]
CA_2A-2A-4A-4A	2			Yes	Yes	Yes	Yes	80
	2			Yes	Yes	Yes	Yes	
	4			Yes	Yes	Yes	Yes	
	4			Yes	Yes	Yes	Yes	
CA_2A-2A-4A-12A	2			Yes	Yes	Yes	Yes	70
	2			Yes	Yes	Yes	Yes	
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_2A-2A-5A-30A	2			Yes	Yes	Yes	Yes	60
	2			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
	30			Yes	Yes			
CA_2A-2A-12A-30A	2			Yes	Yes	Yes	Yes	60
	2			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
	30			Yes	Yes			
CA_2A-2A-29A-30A	2			Yes	Yes	Yes	Yes	60
	2			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
	30			Yes	Yes			
CA_2A-4A-4A-12A	2			Yes	Yes	Yes	Yes	70
	4			Yes	Yes	Yes	Yes	
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_2A-4A-5A-30A	2			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
	30			Yes	Yes			
CA_2A-4A-7A-12A	2			Yes	Yes	Yes	Yes	70
	4			Yes	Yes	Yes	Yes	
	7			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
CA_2A-4A-12A-30A	2			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
	30			Yes	Yes			
CA_2A-4A-29A-30A	2			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
	30			Yes	Yes			
CA_2A-5A-30A-66A	2			Yes	Yes	Yes	Yes	60
	5			Yes	Yes			
	30			Yes	Yes			
	66			Yes	Yes	Yes	Yes	
CA_2A-12A-30A-66A	2			Yes	Yes	Yes	Yes	60
	12			Yes	Yes			
	30			Yes	Yes			
	66			Yes	Yes	Yes	Yes	
CA_4A-4A-5A-30A	4			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	5			Yes	Yes			
	30			Yes	Yes			
CA_4A-4A-12A-30A	4			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	12			Yes	Yes			
	30			Yes	Yes			
CA_4A-4A-29A-30A	4			Yes	Yes	Yes	Yes	60
	4			Yes	Yes	Yes	Yes	
	29			Yes	Yes			
	30			Yes	Yes			
CA_12A-30A-66A-66A	12			Yes	Yes	Yes	Yes	60
	30			Yes	Yes	Yes	Yes	
	66			Yes	Yes			
	66			Yes	Yes			

<Intra-Band Carrier combination>

E-UTRA CA Configuration	Component carriers in order of increasing carrier frequency		Maximum aggregates bandwidth[MHz]
	Channel bandwidths for carrier[MHz]	Channel bandwidths for carrier[MHz]	
CA_2A-2A	5, 10, 15, 20	5, 10, 15, 20	40
CA_4A-4A	5, 10, 15, 20	5, 10, 15, 20	40
CA_5B	5, 10	10	20
	10	5	
CA_7A-7A	5	15	40
	10	10, 15	
	15	15, 20	
	20	20	
CA_25A-25A	5, 10	5, 10	20
CA_66B	5	5, 10, 15	20
	10	5, 10	
	15	5	
CA_66C	5	20	40
	10	15, 20	
	15	10, 15, 20	
	20	5, 10, 15, 20	
CA_66A-66A	5, 10, 15, 20	5, 10, 15, 20	40
CA_66A-66C	5, 10, 15, 20	66C BCS 0	60
	66C BCS 0	5, 10, 15, 20	

<LTE Carrier Aggregation Power verification>

General Note:

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

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

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

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

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

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

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

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

viii. This device supported LTE-U band 252 and 255 in DL carrier aggregation and detail supported channel, frequency bandwidth as below form according to manufacturer's design, verify measured conducted power when the downlink carrier aggregation is active, and 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.

Allowed channels (only supported 20MHz BW)					
B252 (UNII-1)			B255 (UNII-3)		
Channel	Frequency (MHz)	BW(MHz)	Channel	Frequency (MHz)	BW(MHz)
255244	5160	20	261094	5745	20
255444	5180	20	261294	5765	20
255644	5200	20	261494	5785	20
255844	5220	20	261694	5805	20
256044	5240	20	261894	5825	20

<Maximum output power for 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		Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	22.75	22.78
		Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	22.75	22.76
		Band 2	20	1900	19100	QPSK	1	0	Band 5	10	881.5	2525	22.76	22.78
		Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	23.60	23.64
		Band 2	20	1900	19100	QPSK	1	0	Band 12	10	737.5	5095	22.74	22.78
		Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	23.48	23.50
		Band 2	10	1905	19150	QPSK	1	0	Band 17	10	740	5790	22.60	22.62
		Ban 17	10	710	23790	QPSK	1	0	Band 2	10	1960	900	23.45	23.48
		Band 2	10	1905	19150	QPSK	1	0	Band 29	10	722.5	9715	22.60	22.62
		Band 2	20	1900	19100	QPSK	1	0	Band 30	10	2355	9820	22.76	22.78
		Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	22.80	22.83
		Band 2	20	1900	19100	QPSK	1	0	Band 66	20	2145	66786	22.75	22.78
		Band 66	20	1720	132072	QPSK	1	0	Band 2	20	1960	900	22.90	22.96
		Band 2	20	1900	19100	QPSK	1	0	Band 252	20	5200	255644	22.70	22.78
		Band 2	20	1900	19100	QPSK	1	0	Band 255	20	5785	261494	22.71	22.78
		Band 4	10	1750	20350	QPSK	1	0	Band 5	10	881.5	2525	22.65	22.69
		Band 5	10	836.5	20525	QPSK	1	0	Band 4	10	2132.5	2175	23.60	23.64
		Band 4	10	1750	20350	QPSK	1	0	Band 7	20	2655	3100	22.65	22.69
		Band 7	10	2565	21400	QPSK	1	0	Band 4	10	2132.5	2175	23.00	23.00
		Band 4	10	1750	20350	QPSK	1	0	Band 12	10	737.5	5095	22.65	22.69
		Band 12	10	707.5	23095	QPSK	1	0	Band 4	10	2132.5	2175	23.45	23.50
		Band 4	10	1750	20350	QPSK	1	0	Band 17	10	740	5790	22.67	22.69
		Band 17	10	710	23790	QPSK	1	0	Band 4	10	2132.5	2175	23.45	23.48
		Band 4	10	1750	20350	QPSK	1	0	Band 29	10	722.5	9715	22.66	22.69
		Band 4	20	1732.5	20175	QPSK	1	0	Band 30	10	2355	9820	22.74	22.76
		Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	22.80	22.83
		Band 4	20	1732.5	20175	QPSK	1	0	Band 252	20	5200	255644	22.73	22.76
		Band 4	20	1732.5	20175	QPSK	1	0	Band 255	20	5785	261494	22.70	22.76
		Band 5	10	836.5	20525	QPSK	1	0	Band 7	20	2655	3100	23.60	23.64
		Band 7	10	2565	21400	QPSK	1	0	Band 5	10	881.5	2525	23.00	23.00
		Band 5	10	836.5	20525	QPSK	1	0	Band 30	10	2355	9820	23.61	23.64
		Band 30	10	2310	27710	QPSK	1	0	Band 5	10	881.5	2525	22.81	22.83
		Band 5	10	836.5	20525	QPSK	1	0	Band 66	20	2145	66786	23.64	23.64
		Band 66	20	1720	132072	QPSK	1	0	Band 5	10	881.5	2525	22.95	22.96
		Band 12	10	707.5	23095	QPSK	1	0	Band 30	10	2355	9820	23.45	23.50
		Band 30	10	2310	27710	QPSK	1	0	Band 12	10	737.5	5095	22.82	22.83
		Band 12	10	707.5	23095	QPSK	1	0	Band 66	20	2145	66786	23.48	23.50
		Band 66	20	1720	132072	QPSK	1	0	Band 12	10	737.5	5095	22.90	22.96
		Band 30	10	2310	27710	QPSK	1	0	Band 29	10	722.5	9715	22.79	22.83
		Band 66	20	1720	132072	QPSK	1	0	Band 29	10	722.5	9715	22.90	22.96
		Band 30	10	2310	27710	QPSK	1	0	Band 66	20	2145	66786	22.82	22.83
		Band 66	20	1720	132072	QPSK	1	0	Band 30	10	2355	9820	22.89	22.96
Intra-Band	Non-Contiguous	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	22.76	22.78
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	22.74	22.76
		Band 7	10	2565	21400	QPSK	1	0	Band 7	10	2625	2800	22.99	23.00
		Band 25	10	1880	26340	QPSK	1	0	Band 25	5	1992.5	8665	22.59	22.60
		Band 66	20	1720	132072	QPSK	1	0	Band 66	5	2197.5	67311	22.95	22.96
	Contiguous	Band 5	10	836.5	20525	QPSK	1	0	Band 5	10	891.4	2624	23.64	23.64
		Band 66	15	1717.5	132047	QPSK	1	0	Band 66	5	2126.8	66604	22.86	22.87
		Band 66	20	1720	132072	QPSK	1	0	Band 66	20	2139.8	66734	22.95	22.96

<Maximum output power for 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	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 5	10	881.5	2525	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	22.74	22.76
	Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	23.60	23.64
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 7	20	2655	3100	22.78	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 7	20	2655	3100	Band 2	20	1960	900	22.75	22.76
	Band 7	10	2565	21400	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	22.98	23.00
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	22.77	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	22.74	22.76
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	23.45	23.50
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 29	10	722.5	9715	22.76	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 29	10	722.5	9715	22.74	22.76
	Band 2	20	1900	19100	QPSK	1	0	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.75	22.78
	Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 30	10	2355	9820	23.60	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	22.81	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 5	10	881.5	2525	Band 66	20	2145	66786	22.75	22.78
	Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 66	20	2145	66786	23.62	23.64
	Band 66	20	1720	132072	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	22.96	22.96
	Band 2	20	1900	19100	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.76	22.78
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 30	10	2355	9820	23.48	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	22.82	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 12	10	737.5	5095	Band 66	20	2145	66786	22.75	22.78
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 66	20	2145	66786	23.48	23.50
	Band 66	20	1720	132072	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	22.95	22.96
	Band 2	20	1900	19100	QPSK	1	0	Band 29	10	722.5	9715	Band 30	10	2355	9820	22.76	22.78
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 29	10	722.5	9715	22.82	22.83
	Band 4	20	1732.5	20175	QPSK	1	0	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.75	22.76
	Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	Band 30	10	2355	9820	23.62	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 5	10	881.5	2525	22.80	22.83
	Band 4	10	1750	20350	QPSK	1	0	Band 7	20	2655	3100	Band 12	10	737.5	5095	22.66	22.69
	Band 7	10	2565	21400	QPSK	1	0	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	22.98	23.00
	Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 7	20	2655	3100	23.45	23.50
	Band 4	20	1732.5	20175	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.75	22.76
	Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 30	10	2355	9820	23.48	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	22.80	22.83
	Band 4	20	1732.5	20175	QPSK	1	0	Band 29	10	722.5	9715	Band 30	10	2355	9820	22.75	22.76
	Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 29	10	722.5	9715	22.82	22.83
	Band 5	10	836.5	20525	QPSK	1	0	Band 30	10	2355	9820	Band 66	20	2145	66786	23.63	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 5	10	881.5	2525	Band 66	20	2145	66786	22.81	22.83
	Band 66	20	1720	132072	QPSK	1	0	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.95	22.96
	Band 12	10	707.5	23095	QPSK	1	0	Band 30	10	2355	9820	Band 66	20	2145	66786	23.45	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 12	10	737.5	5095	Band 66	20	2145	66786	22.82	22.83
	Band 66	20	1720	132072	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.94	22.96

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		Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 4	20	2132.5	2175	22.75	22.78
		Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	22.74	22.76
		Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 5	10	881.5	2525	22.75	22.78
		Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	23.60	23.64
		Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 12	10	737.5	5095	22.76	22.78
		Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	23.45	23.50
		Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 29	10	722.5	9715	22.75	22.78
		Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 30	10	2355	9820	22.75	22.78
		Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	22.80	22.83
		Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	22.78	22.78
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 2	20	1960	900	22.75	22.76
		Band 2	20	1900	19100	QPSK	1	0	Band 66	20	2145	66786	Band 66	5	2197.5	67311	22.70	22.78
		Band 66	20	1720	132072	QPSK	1	0	Band 66	5	2197.5	67311	Band 2	20	1960	900	22.89	22.96
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 5	10	881.5	2525	22.75	22.76
		Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	23.60	23.64
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 12	10	737.5	5095	22.74	22.76
		Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	23.45	23.50
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 29	10	722.5	9715	22.74	22.76
		Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 30	10	2355	9820	22.74	22.76
		Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	22.81	22.83
		Band 5	10	836.5	20525	QPSK	1	0	Band 66	20	2145	66786	Band 66	5	2197.5	67311	23.60	23.64
		Band 66	20	1720	132072	QPSK	1	0	Band 66	5	2197.5	67311	Band 5	10	881.5	2525	22.90	22.96
		Band 12	10	707.5	23095	QPSK	1	0	Band 66	20	2145	66786	Band 66	5	2197.5	67311	23.45	23.50
		Band 66	20	1720	132072	QPSK	1	0	Band 66	5	2197.5	67311	Band 12	10	737.5	5095	22.95	22.96
		Band 4	20	1732.5	20175	QPSK	1	0	Band 252	20	5200	255644	Band 252	20	5219.8	255842	22.71	22.76
		Band 4	20	1732.5	20175	QPSK	1	0	Band 255	20	5785	261494	Band 255	20	5804.8	261692	22.70	22.76
		Band 2	20	1900	19100	QPSK	1	0	Band 66	15	2145	66786	Band 66	5	2154.3	66879	22.70	22.78
		Band 66	15	1717.5	132047	QPSK	1	0	Band 66	5	2126.8	66604	Band 2	20	1960	900	22.81	22.87
		Band 2	20	1900	19100	QPSK	1	0	Band 66	20	2145	66786	Band 66	20	2164.8	66984	22.75	22.78
		Band 66	20	1720	132072	QPSK	1	0	Band 66	20	2139.8	66734	Band 2	20	1960	900	22.95	22.96
		Band 5	10	836.5	20525	QPSK	1	0	Band 66	15	2145	66786	Band 66	5	2154.3	66879	23.62	23.64
		Band 66	15	1717.5	132047	QPSK	1	0	Band 66	5	2126.8	66604	Band 2	20	1960	900	22.86	22.87
		Band 5	10	836.5	20525	QPSK	1	0	Band 66	20	2145	66786	Band 66	20	2164.8	66984	23.60	23.64
		Band 66	20	1720	132072	QPSK	1	0	Band 66	20	2139.8	66734	Band 5	10	881.5	2525	22.90	22.96
		Band 12	10	707.5	23095	QPSK	1	0	Band 66	20	2145	66786	Band 66	20	2164.8	66984	23.40	23.50
		Band 66	20	1720	132072	QPSK	1	0	Band 66	20	2139.8	66734	Band 12	10	737.5	5095	22.92	22.96
Intra-Band	Non-Contiguous	Band 66	20	1720	132072	QPSK	1	0	Band 66	5	2177.5	67111	Band 66	20	2189.2	67228	22.93	22.96
		Band 66	20	1720	132072	QPSK	1	0	Band 66	20	2139.8	66734	Band 66	5	2197.5	67311	22.93	22.96

<Maximum output power for 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	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.70	22.76
	Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 30	10	2355	9820	23.60	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 5	10	881.5	2525	22.82	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 7	20	2655	3100	Band 12	10	737.5	5095	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 7	20	2655	3100	Band 12	10	737.5	5095	22.74	22.76
	Band 7	10	2565	21400	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	22.99	23.00
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 7	20	2655	3100	23.45	23.50
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.74	22.76
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 30	10	2355	9820	23.48	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	22.82	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 29	10	722.5	9715	Band 30	10	2355	9820	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 29	10	722.5	9715	Band 30	10	2355	9820	22.70	22.76
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 29	10	722.5	9715	22.79	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 5	10	881.5	2525	Band 30	10	2355	9820	Band 66	20	2145	66786	22.76	22.78
	Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 30	10	2355	9820	Band 66	20	2145	66786	23.59	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	Band 66	20	2145	66786	22.80	22.83
	Band 66	20	1720	132072	QPSK	1	0	Band 2	20	1960	900	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.90	22.96
	Band 2	20	1900	19100	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	Band 66	20	2145	66786	22.76	22.78
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 30	10	2355	9820	Band 66	20	2145	66786	23.46	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	Band 66	20	2145	66786	22.77	22.83
	Band 66	20	1720	132072	QPSK	1	0	Band 2	20	1960	900	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.89	22.96
	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 2	20	1960	900	Band 2	5	1932.5	625	22.75	22.76
	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 4	20	2132.5	2175	Band 12	10	737.5	5095	22.77	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 12	10	737.5	5095	22.74	22.76
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 4	20	2132.5	2175	23.49	23.50
	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.74	22.78
	Band 5	10	836.5	20525	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 30	10	2355	9820	23.62	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 5	10	881.5	2525	22.80	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.75	22.78
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 30	10	2355	9820	23.45	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 12	10	737.5	5095	22.80	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 2	5	1932.5	625	Band 29	10	722.5	9715	Band 30	10	2355	9820	22.76	22.78
	Band 30	10	2310	27710	QPSK	1	0	Band 2	20	1960	900	Band 2	5	1932.5	625	Band 29	10	722.5	9715	22.81	22.83
	Band 2	20	1900	19100	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	Band 12	10	737.5	5095	22.75	22.78
	Band 4	20	1732.5	20175	QPSK	1	0	Band 2	20	1960	900	Band 4	5	2152.5	2375	Band 12	10	737.5	5095	22.75	22.76
	Band 12	10	707.5	23095	QPSK	1	0	Band 2	20	1960	900	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	23.49	23.50
	Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 5	10	881.5	2525	Band 30	10	2355	9820	22.74	22.76
	Band 5	10	836.5	20525	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	Band 30	10	2355	9820	23.64	23.64
	Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	Band 5	10	881.5	2525	22.80	22.83
	Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 12	10	737.5	5095	Band 30	10	2355	9820	22.71	22.76
	Band 12	10	707.5	23095	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	Band 30	10	2355	9820	23.45	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	Band 12	10	737.5	5095	22.80	22.83
	Band 4	20	1732.5	20175	QPSK	1	0	Band 4	5	2152.5	2375	Band 29	10	722.5	9715	Band 30	10	2355	9820	22.74	22.76
	Band 30	10	2310	27710	QPSK	1	0	Band 4	20	2132.5	2175	Band 4	5	2152.5	2375	Band 29	10	722.5	9715	22.82	22.83
	Band 12	10	707.5	23095	QPSK	1	0	Band 30	10	2355	9820	Band 66	20	2145	66786	Band 66	5	2197.5	67311	23.45	23.50
	Band 30	10	2310	27710	QPSK	1	0	Band 12	10	737.5	5095	Band 66	20	2145	66786	Band 66	5	2197.5	67311	22.81	22.83
	Band 66	20	1720	132072	QPSK	1	0	Band 12	10	737.5	5095	Band 30	10	2355	9820	Band 66	5	2197.5	67311	22.95	22.96

<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.

<Default Power Mode>

<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	15.90	16.50	100.00
		6	2437	15.90	16.50	
		11	2462	15.85	16.50	
	802.11g 6Mbps	1	2412	15.30	16.50	94.14
		6	2437	15.86	16.50	
		11	2462	15.26	16.50	
	802.11n-HT20 MCS0	1	2412	14.40	14.50	93.75
		6	2437	15.81	16.50	
		11	2462	13.73	14.00	
	802.11ac-VHT20 MCS0	1	2412	14.34	14.50	94.53
		6	2437	15.83	16.50	
		11	2462	13.14	13.50	

<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	15.90	16.50	100.00
		6	2437	15.66	16.50	
		11	2462	15.60	16.50	
	802.11g 6Mbps	1	2412	15.15	16.50	94.85
		6	2437	15.36	16.50	
		11	2462	14.83	15.50	
	802.11n-HT20 MCS0	1	2412	14.18	14.50	93.75
		6	2437	15.43	16.50	
		11	2462	13.41	14.00	
	802.11ac-VHT20 MCS0	1	2412	14.17	14.50	93.75
		6	2437	15.43	16.50	
		11	2462	12.95	13.50	

<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	18.90	19.50	100.00
		6	2437	18.80	19.50	
		11	2462	18.75	19.50	
	802.11g 6Mbps	1	2412	18.26	19.50	94.85
		6	2437	18.58	19.50	
		11	2462	18.08	19.50	
	802.11n-HT20 MCS0	1	2412	17.33	17.50	94.49
		6	2437	18.62	19.50	
		11	2462	16.61	17.00	
	802.11ac-VHT20 MCS0	1	2412	17.30	17.50	94.53
		6	2437	18.58	19.50	
		11	2462	16.08	16.50	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	18.16	19.00	94.16
		40	5200	18.13	19.00	
		44	5220	18.12	19.00	
		48	5240	18.01	19.00	
	802.11n-HT20 MCS0	36	5180	18.15	19.00	93.75
		40	5200	18.10	19.00	
		44	5220	18.09	19.00	
		48	5240	18.05	19.00	
	802.11n-HT40 MCS0	38	5190	17.38	18.00	89.62
		46	5230	17.40	18.00	
	802.11ac-VHT20 MCS0	36	5180	18.19	19.00	94.53
		40	5200	18.15	19.00	
		44	5220	18.12	19.00	
		48	5240	18.07	19.00	
	802.11ac-VHT40 MCS0	38	5190	17.39	18.00	90.48
		46	5230	17.41	18.00	
	802.11ac-VHT80 MCS0	42	5210	15.13	15.50	86.51

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	18.11	19.00	94.16
		56	5280	18.13	19.00	
		60	5300	18.16	19.00	
		64	5320	18.26	19.00	
	802.11n-HT20 MCS0	52	5260	18.08	19.00	93.75
		56	5280	18.09	19.00	
		60	5300	18.10	19.00	
		64	5320	18.24	19.00	
	802.11n-HT40 MCS0	54	5270	17.28	18.00	89.62
		62	5310	15.28	15.50	
	802.11ac-VHT20 MCS0	52	5260	18.09	19.00	94.53
		56	5280	18.10	19.00	
		60	5300	18.11	19.00	
		64	5320	18.25	19.00	
	802.11ac-VHT40 MCS0	54	5270	17.29	18.00	90.48
		62	5310	15.23	15.50	
	802.11ac-VHT80 MCS0	58	5290	13.80	14.00	86.51

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	18.29	19.00	94.16
		116	5580	18.21	19.00	
		124	5620	18.19	19.00	
		132	5660	17.90	19.00	
		140	5700	17.84	19.00	
		144	5720	18.25	19.00	
	802.11n-HT20 MCS0	100	5500	18.32	19.00	93.75
		116	5580	18.25	19.00	
		124	5620	18.20	19.00	
		132	5660	17.96	19.00	
		140	5700	16.98	17.00	
		144	5720	18.16	19.00	
	802.11n-HT40 MCS0	102	5510	17.60	18.00	89.62
		110	5550	17.45	18.00	
		126	5630	17.39	18.00	
		134	5670	17.26	18.00	
		142	5710	17.15	18.00	
	802.11ac-VHT20 MCS0	100	5500	18.34	19.00	94.53
		116	5580	18.26	19.00	
		124	5620	18.23	19.00	
		132	5660	17.91	19.00	
		140	5700	16.41	17.00	
		144	5720	17.88	19.00	
	802.11ac-VHT40 MCS0	102	5510	17.61	18.00	90.48
		110	5550	17.48	18.00	
		126	5630	17.39	18.00	
		134	5670	17.28	18.00	
		142	5710	17.17	18.00	
	802.11ac-VHT80 MCS0	106	5530	15.16	15.50	86.51
		122	5610	18.13	19.00	
		138	5690	18.25	19.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	18.11	19.00	94..16
		157	5785	18.07	19.00	
		165	5825	18.03	19.00	
	802.11n-HT20 MCS0	149	5745	18.13	19.00	93.75
		157	5785	18.03	19.00	
		165	5825	18.00	19.00	
	802.11n-HT40 MCS0	151	5755	17.42	18.00	89.62
		159	5795	17.48	18.00	
	802.11ac-VHT20 MCS0	149	5745	18.14	19.00	94.53
		157	5785	18.04	19.00	
		165	5825	18.02	19.00	
	802.11ac-VHT40 MCS0	151	5755	17.43	18.00	90.48
		159	5795	17.49	18.00	
	802.11ac-VHT80 MCS0	155	5775	18.18	19.00	86.51

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	18.10	19.00	94.85
		40	5200	18.08	19.00	
		44	5220	18.07	19.00	
		48	5240	17.96	19.00	
	802.11n-HT20 MCS0	36	5180	18.02	19.00	94.49
		40	5200	18.00	19.00	
		44	5220	17.97	19.00	
		48	5240	17.90	19.00	
	802.11n-HT40 MCS0	38	5190	17.09	18.00	90.48
		46	5230	17.13	18.00	
	802.11ac-VHT20 MCS0	36	5180	18.04	19.00	93.75
		40	5200	18.02	19.00	
		44	5220	18.03	19.00	
		48	5240	17.98	19.00	
	802.11ac-VHT40 MCS0	38	5190	17.14	18.00	89.62
		46	5230	17.31	18.00	
	802.11ac-VHT80 MCS0	42	5210	15.48	15.50	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.92	19.00	94.85
		56	5280	18.00	19.00	
		60	5300	18.06	19.00	
		64	5320	18.13	19.00	
	802.11n-HT20 MCS0	52	5260	17.95	19.00	94.49
		56	5280	17.98	19.00	
		60	5300	18.02	19.00	
		64	5320	18.05	19.00	
	802.11n-HT40 MCS0	54	5270	17.05	18.00	90.48
		62	5310	15.43	15.50	
	802.11ac-VHT20 MCS0	52	5260	18.08	19.00	93.75
		56	5280	18.09	19.00	
		60	5300	18.10	19.00	
		64	5320	18.14	19.00	
	802.11ac-VHT40 MCS0	54	5270	17.13	18.00	89.62
		62	5310	15.48	15.50	
	802.11ac-VHT80 MCS0	58	5290	14.00	14.00	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	18.21	19.00	94.85
		116	5580	18.09	19.00	
		124	5620	18.07	19.00	
		132	5660	17.80	19.00	
		140	5700	17.74	19.00	
		144	5720	17.74	19.00	
	802.11n-HT20 MCS0	100	5500	18.17	19.00	94.49
		116	5580	18.11	19.00	
		124	5620	18.08	19.00	
		132	5660	17.80	19.00	
		140	5700	16.98	17.00	
		144	5720	17.77	19.00	
	802.11n-HT40 MCS0	102	5510	17.47	18.00	90.48
		110	5550	17.23	18.00	
		126	5630	17.18	18.00	
		134	5670	17.15	18.00	
		142	5710	16.82	18.00	
	802.11ac-VHT20 MCS0	100	5500	18.29	19.00	93.75
		116	5580	18.20	19.00	
		124	5620	18.17	19.00	
		132	5660	17.90	19.00	
		140	5700	16.83	17.00	
		144	5720	17.73	19.00	
	802.11ac-VHT40 MCS0	102	5510	17.48	18.00	89.62
		110	5550	17.28	18.00	
		126	5630	17.25	18.00	
		134	5670	17.23	18.00	
		142	5710	16.75	18.00	
	802.11ac-VHT80 MCS0	106	5530	15.42	15.50	85.71
		122	5610	17.98	19.00	
		138	5690	18.00	19.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	18.13	19.00	94.86
		157	5785	18.11	19.00	
		165	5825	18.08	19.00	
	802.11n-HT20 MCS0	149	5745	18.21	19.00	94.49
		157	5785	18.09	19.00	
		165	5825	18.08	19.00	
	802.11n-HT40 MCS0	151	5755	17.43	18.00	90.48
		159	5795	17.55	18.00	
	802.11ac-VHT20 MCS0	149	5745	18.23	19.00	93.75
		157	5785	18.19	19.00	
		165	5825	18.18	19.00	
	802.11ac-VHT40 MCS0	151	5755	17.49	18.00	89.62
		159	5795	17.64	18.00	
	802.11ac-VHT80 MCS0	155	5775	18.30	19.00	85.71

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	20.99	22.00	94.85
		40	5200	20.96	22.00	
		44	5220	20.98	22.00	
		48	5240	20.97	22.00	
	802.11n-HT20 MCS0	36	5180	20.98	22.00	94.49
		40	5200	20.96	22.00	
		44	5220	20.97	22.00	
		48	5240	20.93	22.00	
	802.11n-HT40 MCS0	38	5190	20.24	21.00	89.52
		46	5230	20.42	21.00	
	802.11ac-VHT20 MCS0	36	5180	20.99	22.00	94.53
		40	5200	20.97	22.00	
		44	5220	20.98	22.00	
		48	5240	20.96	22.00	
	802.11ac-VHT40 MCS0	38	5190	20.30	21.00	89.72
		46	5230	20.49	21.00	
	802.11ac-VHT80 MCS0	42	5210	18.40	18.50	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	21.02	22.00	94.85
		56	5280	21.04	22.00	
		60	5300	21.06	22.00	
		64	5320	21.17	22.00	
	802.11n-HT20 MCS0	52	5260	21.06	22.00	94.49
		56	5280	21.08	22.00	
		60	5300	21.10	22.00	
		64	5320	21.19	22.00	
	802.11n-HT40 MCS0	54	5270	20.27	21.00	89.52
		62	5310	18.50	18.50	
	802.11ac-VHT20 MCS0	52	5260	21.09	22.00	94.53
		56	5280	21.10	22.00	
		60	5300	21.11	22.00	
		64	5320	21.22	22.00	
	802.11ac-VHT40 MCS0	54	5270	20.31	21.00	89.72
		62	5310	18.44	18.50	
	802.11ac-VHT80 MCS0	58	5290	16.97	17.00	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	21.34	22.00	94.85
		116	5580	21.18	22.00	
		124	5620	21.16	22.00	
		132	5660	20.85	22.00	
		140	5700	20.75	22.00	
		144	5720	20.89	22.00	
	802.11n-HT20 MCS0	100	5500	21.29	22.00	94.49
		116	5580	21.22	22.00	
		124	5620	21.19	22.00	
		132	5660	20.83	22.00	
		140	5700	19.99	20.00	
		144	5720	20.99	22.00	
	802.11n-HT40 MCS0	102	5510	20.58	21.00	89.52
		110	5550	20.45	21.00	
		126	5630	20.39	21.00	
		134	5670	20.32	21.00	
		142	5710	19.96	21.00	
	802.11ac-VHT20 MCS0	100	5500	21.41	22.00	94.53
		116	5580	21.26	22.00	
		124	5620	21.20	22.00	
		132	5660	20.91	22.00	
		140	5700	19.65	20.00	
		144	5720	20.89	22.00	
	802.11ac-VHT40 MCS0	102	5510	20.60	21.00	89.72
		110	5550	20.48	21.00	
		126	5630	20.40	21.00	
		134	5670	20.35	21.00	
		142	5710	19.93	21.00	
	802.11ac-VHT80 MCS0	106	5530	18.38	18.50	85.71
		122	5610	21.14	22.00	
		138	5690	21.11	22.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	21.07	22.00	94.85
		157	5785	21.05	22.00	
		165	5825	21.02	22.00	
	802.11n-HT20 MCS0	149	5745	21.06	22.00	94.49
		157	5785	21.03	22.00	
		165	5825	21.01	22.00	
	802.11n-HT40 MCS0	151	5755	20.35	21.00	89.52
		159	5795	20.50	21.00	
	802.11ac-VHT20 MCS0	149	5745	21.20	22.00	94.53
		157	5785	21.15	22.00	
		165	5825	21.13	22.00	
	802.11ac-VHT40 MCS0	151	5755	20.38	21.00	89.72
		159	5795	20.52	21.00	
	802.11ac-VHT80 MCS0	155	5775	21.21	22.00	85.71

<At-Head Power Mode>

<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	15.90	16.50	100.00
		6	2437	15.90	16.50	
		11	2462	15.85	16.50	
	802.11g 6Mbps	1	2412	15.30	16.50	94.14
		6	2437	15.86	16.50	
		11	2462	15.26	16.50	
	802.11n-HT20 MCS0	1	2412	14.40	14.50	93.75
		6	2437	15.81	16.50	
		11	2462	13.73	14.00	
	802.11ac-VHT20 MCS0	1	2412	14.34	14.50	94.53
		6	2437	15.83	16.50	
		11	2462	13.14	13.50	

<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	15.90	16.50	100.00
		6	2437	15.66	16.50	
		11	2462	15.60	16.50	
	802.11g 6Mbps	1	2412	15.15	16.50	94.85
		6	2437	15.36	16.50	
		11	2462	14.83	15.50	
	802.11n-HT20 MCS0	1	2412	14.18	14.50	93.75
		6	2437	15.43	16.50	
		11	2462	13.41	14.00	
	802.11ac-VHT20 MCS0	1	2412	14.17	14.50	93.75
		6	2437	15.43	16.50	
		11	2462	12.95	13.50	

<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	18.90	19.50	100.00
		6	2437	18.80	19.50	
		11	2462	18.75	19.50	
	802.11g 6Mbps	1	2412	18.26	19.50	94.85
		6	2437	18.58	19.50	
		11	2462	18.08	19.50	
	802.11n-HT20 MCS0	1	2412	17.33	17.50	94.49
		6	2437	18.62	19.50	
		11	2462	16.61	17.00	
	802.11ac-VHT20 MCS0	1	2412	17.30	17.50	94.53
		6	2437	18.58	19.50	
		11	2462	16.08	16.50	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	14.73	15.00	94.16
		40	5200	14.70	15.00	
		44	5220	14.68	15.00	
		48	5240	14.63	15.00	
	802.11n-HT20 MCS0	36	5180	14.77	15.00	93.75
		40	5200	14.78	15.00	
		44	5220	14.74	15.00	
		48	5240	14.68	15.00	
	802.11n-HT40 MCS0	38	5190	14.83	15.00	89.62
		46	5230	14.88	15.00	
	802.11ac-VHT20 MCS0	36	5180	14.77	15.00	94.53
		40	5200	14.80	15.00	
		44	5220	14.76	15.00	
		48	5240	14.67	15.00	
	802.11ac-VHT40 MCS0	38	5190	14.83	15.00	90.48
		46	5230	14.87	15.00	
	802.11ac-VHT80 MCS0	42	5210	14.53	15.00	86.51

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	14.61	15.00	94.16
		56	5280	14.53	15.00	
		60	5300	14.58	15.00	
		64	5320	14.69	15.00	
	802.11n-HT20 MCS0	52	5260	14.63	15.00	93.75
		56	5280	14.59	15.00	
		60	5300	14.62	15.00	
		64	5320	14.65	15.00	
	802.11n-HT40 MCS0	54	5270	14.79	15.00	89.62
		62	5310	14.75	15.00	
	802.11ac-VHT20 MCS0	52	5260	14.68	15.00	94.53
		56	5280	14.60	15.00	
		60	5300	14.66	15.00	
		64	5320	14.70	15.00	
	802.11ac-VHT40 MCS0	54	5270	14.76	15.00	90.48
		62	5310	14.63	15.00	
	802.11ac-VHT80 MCS0	58	5290	13.80	14.00	86.51

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	14.75	15.00	94.16
		116	5580	14.59	15.00	
		124	5620	14.43	15.00	
		132	5660	14.54	15.00	
		140	5700	14.41	15.00	
		144	5720	14.54	15.00	
	802.11n-HT20 MCS0	100	5500	14.85	15.00	93.75
		116	5580	14.48	15.00	
		124	5620	14.45	15.00	
		132	5660	14.43	15.00	
		140	5700	14.57	15.00	
		144	5720	13.90	15.00	
	802.11n-HT40 MCS0	102	5510	14.89	15.00	89.62
		110	5550	14.78	15.00	
		126	5630	14.76	15.00	
		134	5670	14.49	15.00	
		142	5710	14.41	15.00	
	802.11ac-VHT20 MCS0	100	5500	14.79	15.00	94.53
		116	5580	14.62	15.00	
		124	5620	14.57	15.00	
		132	5660	14.49	15.00	
		140	5700	14.60	15.00	
		144	5720	14.24	15.00	
	802.11ac-VHT40 MCS0	102	5510	14.81	15.00	90.48
		110	5550	14.79	15.00	
		126	5630	14.65	15.00	
		134	5670	14.60	15.00	
		142	5710	14.24	15.00	
	802.11ac-VHT80 MCS0	106	5530	14.91	15.00	86.51
		122	5610	14.90	15.00	
		138	5690	14.88	15.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	14.76	15.00	94.16
		157	5785	14.64	15.00	
		165	5825	14.67	15.00	
	802.11n-HT20 MCS0	149	5745	14.69	15.00	93.75
		157	5785	14.64	15.00	
		165	5825	14.68	15.00	
	802.11n-HT40 MCS0	151	5755	14.80	15.00	89.62
		159	5795	14.87	15.00	
	802.11ac-VHT20 MCS0	149	5745	14.71	15.00	94.53
		157	5785	14.65	15.00	
		165	5825	14.69	15.00	
	802.11ac-VHT40 MCS0	151	5755	14.82	15.00	90.48
		159	5795	14.94	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.63	15.00	86.51

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	14.88	15.00	94.85
		40	5200	14.89	15.00	
		44	5220	14.94	15.00	
		48	5240	14.91	15.00	
	802.11n-HT20 MCS0	36	5180	14.97	15.00	94.49
		40	5200	14.94	15.00	
		44	5220	14.89	15.00	
		48	5240	14.94	15.00	
	802.11n-HT40 MCS0	38	5190	14.86	15.00	90.48
		46	5230	14.93	15.00	
	802.11ac-VHT20 MCS0	36	5180	14.93	15.00	93.75
		40	5200	14.94	15.00	
		44	5220	14.92	15.00	
		48	5240	14.93	15.00	
	802.11ac-VHT40 MCS0	38	5190	14.92	15.00	89.62
		46	5230	14.92	15.00	
	802.11ac-VHT80 MCS0	42	5210	14.89	15.00	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	14.92	15.00	94.85
		56	5280	14.80	15.00	
		60	5300	14.73	15.00	
		64	5320	14.98	15.00	
	802.11n-HT20 MCS0	52	5260	14.81	15.00	94.49
		56	5280	14.85	15.00	
		60	5300	14.75	15.00	
		64	5320	14.94	15.00	
	802.11n-HT40 MCS0	54	5270	14.86	15.00	90.48
		62	5310	14.81	15.00	
	802.11ac-VHT20 MCS0	52	5260	14.84	15.00	93.75
		56	5280	14.91	15.00	
		60	5300	14.89	15.00	
		64	5320	14.91	15.00	
	802.11ac-VHT40 MCS0	54	5270	14.85	15.00	89.62
		62	5310	14.92	15.00	
	802.11ac-VHT80 MCS0	58	5290	14.00	14.00	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	14.87	15.00	94.85
		116	5580	14.89	15.00	
		124	5620	14.74	15.00	
		132	5660	14.74	15.00	
		140	5700	14.80	15.00	
		144	5720	14.82	15.00	
	802.11n-HT20 MCS0	100	5500	14.76	15.00	94.49
		116	5580	14.81	15.00	
		124	5620	14.81	15.00	
		132	5660	14.85	15.00	
		140	5700	14.79	15.00	
		144	5720	14.97	15.00	
	802.11n-HT40 MCS0	102	5510	14.87	15.00	90.48
		110	5550	14.93	15.00	
		126	5630	14.83	15.00	
		134	5670	14.79	15.00	
		142	5710	14.91	15.00	
	802.11ac-VHT20 MCS0	100	5500	14.93	15.00	93.75
		116	5580	14.93	15.00	
		124	5620	14.93	15.00	
		132	5660	14.87	15.00	
		140	5700	14.87	15.00	
		144	5720	14.95	15.00	
	802.11ac-VHT40 MCS0	102	5510	14.90	15.00	89.62
		110	5550	14.89	15.00	
		126	5630	14.87	15.00	
		134	5670	14.88	15.00	
		142	5710	14.94	15.00	
	802.11ac-VHT80 MCS0	106	5530	14.88	15.00	85.71
		122	5610	14.87	15.00	
		138	5690	14.85	15.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	14.84	15.00	94.85
		157	5785	14.88	15.00	
		165	5825	14.95	15.00	
	802.11n-HT20 MCS0	149	5745	14.81	15.00	94.49
		157	5785	14.83	15.00	
		165	5825	14.81	15.00	
	802.11n-HT40 MCS0	151	5755	14.82	15.00	90.48
		159	5795	14.81	15.00	
	802.11ac-VHT20 MCS0	149	5745	14.85	15.00	93.75
		157	5785	14.77	15.00	
		165	5825	14.89	15.00	
	802.11ac-VHT40 MCS0	151	5755	14.81	15.00	89.62
		159	5795	14.96	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.79	15.00	85.71

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.91	18.00	94.85
		40	5200	17.87	18.00	
		44	5220	17.88	18.00	
		48	5240	17.87	18.00	
	802.11n-HT20 MCS0	36	5180	17.88	18.00	94.49
		40	5200	17.82	18.00	
		44	5220	17.83	18.00	
		48	5240	17.81	18.00	
	802.11n-HT40 MCS0	38	5190	17.84	18.00	89.52
		46	5230	17.95	18.00	
	802.11ac-VHT20 MCS0	36	5180	17.89	18.00	94.53
		40	5200	17.96	18.00	
		44	5220	17.94	18.00	
		48	5240	17.87	18.00	
	802.11ac-VHT40 MCS0	38	5190	17.88	18.00	89.72
		46	5230	17.96	18.00	
	802.11ac-VHT80 MCS0	42	5210	17.97	18.00	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.78	18.00	94.85
		56	5280	17.77	18.00	
		60	5300	17.74	18.00	
		64	5320	17.86	18.00	
	802.11n-HT20 MCS0	52	5260	17.82	18.00	94.49
		56	5280	17.77	18.00	
		60	5300	17.71	18.00	
		64	5320	17.77	18.00	
	802.11n-HT40 MCS0	54	5270	17.88	18.00	89.52
		62	5310	17.90	18.00	
	802.11ac-VHT20 MCS0	52	5260	17.85	18.00	94.53
		56	5280	17.77	18.00	
		60	5300	17.79	18.00	
		64	5320	17.85	18.00	
	802.11ac-VHT40 MCS0	54	5270	17.87	18.00	89.72
		62	5310	17.94	18.00	
	802.11ac-VHT80 MCS0	58	5290	16.97	17.00	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.94	18.00	94.85
		116	5580	17.81	18.00	
		124	5620	17.85	18.00	
		132	5660	17.74	18.00	
		140	5700	17.68	18.00	
		144	5720	17.95	18.00	
	802.11n-HT20 MCS0	100	5500	17.90	18.00	94.49
		116	5580	17.75	18.00	
		124	5620	17.74	18.00	
		132	5660	17.68	18.00	
		140	5700	17.78	18.00	
		144	5720	17.61	18.00	
	802.11n-HT40 MCS0	102	5510	17.79	18.00	89.52
		110	5550	17.82	18.00	
		126	5630	17.84	18.00	
		134	5670	17.83	18.00	
		142	5710	17.82	18.00	
	802.11ac-VHT20 MCS0	100	5500	17.89	18.00	94.53
		116	5580	17.80	18.00	
		124	5620	17.67	18.00	
		132	5660	17.71	18.00	
		140	5700	17.82	18.00	
		144	5720	17.54	18.00	
	802.11ac-VHT40 MCS0	102	5510	17.92	18.00	89.72
		110	5550	17.87	18.00	
		126	5630	17.84	18.00	
		134	5670	17.78	18.00	
		142	5710	17.68	18.00	
	802.11ac-VHT80 MCS0	106	5530	17.74	18.00	85.71
		122	5610	17.72	18.00	
		138	5690	17.92	18.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	17.98	18.00	94.85
		157	5785	17.83	18.00	
		165	5825	17.88	18.00	
	802.11n-HT20 MCS0	149	5745	17.96	18.00	94.49
		157	5785	17.84	18.00	
		165	5825	17.92	18.00	
	802.11n-HT40 MCS0	151	5755	17.93	18.00	89.52
		159	5795	17.93	18.00	
	802.11ac-VHT20 MCS0	149	5745	17.91	18.00	94.53
		157	5785	17.83	18.00	
		165	5825	17.98	18.00	
	802.11ac-VHT40 MCS0	151	5755	17.88	18.00	89.72
		159	5795	17.90	18.00	
	802.11ac-VHT80 MCS0	155	5775	17.88	18.00	85.71

<2.4GHz Bluetooth>

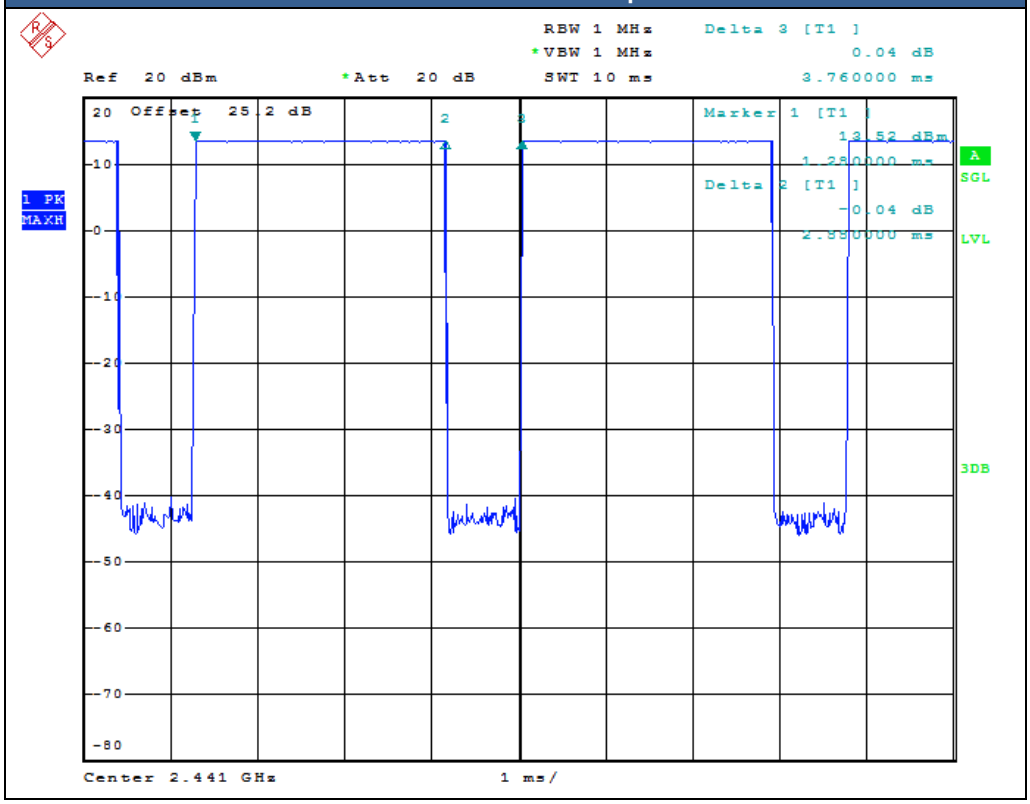
Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	14.81	9.10	9.14
	CH 39	2441	14.56	9.22	9.25
	CH 78	2480	14.16	9.03	9.08
Tune-up Limit			16.	10	10

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	9.18	9.15
	CH 19	2440	8.46	8.83
	CH 39	2480	9.12	8.50
Tune-up Limit			10	10

General Note:

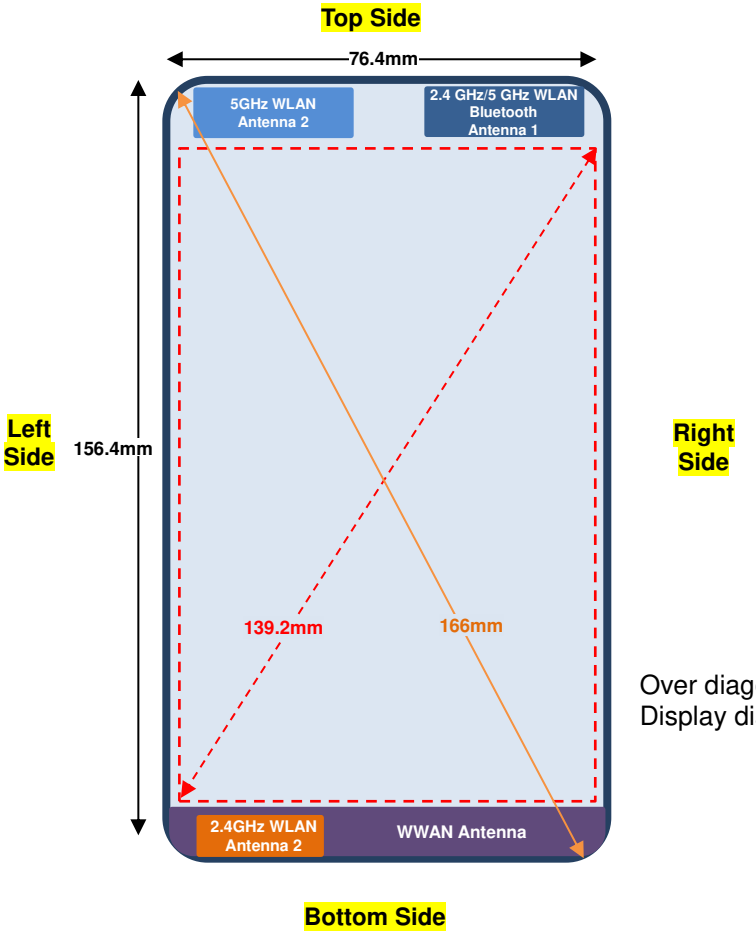
1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.6 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation

Bluetooth time-domain plot



13. Antenna Location

<Mobile Phone>



Over diagonal: 166mm
Display diagonal: 139.2mm

Front View

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Antenna	≤ 25mm	≤ 25mm	>25 mm	≤ 25mm	≤ 25mm	≤ 25mm
2.4GHz / 5GHz WLAN & BT Antenna 1	≤ 25mm	≤ 25mm	≤ 25mm	>25 mm	≤ 25mm	>25 mm
2.4GHz WLAN Antenna 2	≤ 25mm	≤ 25mm	>25 mm	≤ 25mm	>25 mm	≤ 25mm
5GHz WLAN Antenna 2	≤ 25mm	≤ 25mm	≤ 25mm	>25 mm	>25 mm	≤ 25mm
2.4GHz WLAN MIMO	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm
5GHz WLAN MIMO	≤ 25mm	≤ 25mm	≤ 25mm	>25 mm	≤ 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Antenna	Yes	Yes	No	Yes	Yes	Yes
2.4GHz / 5GHz WLAN & BT Antenna 1	Yes	Yes	Yes	No	Yes	No
2.4GHz WLAN Antenna 2	Yes	Yes	No	Yes	No	Yes
5GHz WLAN Antenna 2	Yes	Yes	Yes	No	No	Yes
2.4GHz WLAN MIMO	Yes	Yes	Yes	Yes	Yes	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.
2. Since the device supports MIMO operated, when each chain transmits at the same time that bottom side can be exempt for 5GHz WLAN only.

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 for WWAN transmitter is required only for the edges according to “operational description” 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 1.2W/kg SAR test reduction threshold, for this device only bottom side SAR for WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of WCDMA B2 / B4 and LTE B2 / B4 / B25, therefore product specific SAR is necessary.
6. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16cm.
7. While operating in “Front” and “Back” configuration by end user, the device will limit different maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B17 / B25 / B26 / B30 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
8. While operating in body-adjacent exposure configuration during a mobile hotspot session, the device will reduced output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B5 / B7 / B17 / B25 / B26 / B30 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
9. The device utilizes independent power reduction mechanisms for SAR compliance for the WLAN transmitter for held-to-are exposure conditions and detail descriptions of the power reduction mechanism are included in the operational description.

GSM Note:

1. 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.
2. 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.

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/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.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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 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	GPRS (4 Tx slots)	Right Cheek	0mm	128	824.2	26.57	27.50	1.239	-0.041	0.130	0.161
	GSM850	GPRS (4 Tx slots)	Right Tilted	0mm	128	824.2	26.57	27.50	1.239	0.031	0.054	0.067
	GSM850	GPRS (4 Tx slots)	Left Cheek	0mm	128	824.2	26.57	27.50	1.239	-0.034	0.139	0.172
	GSM850	GPRS (4 Tx slots)	Left Cheek	0mm	189	836.4	26.45	27.50	1.274	-0.03	0.156	0.199
01	GSM850	GPRS (4 Tx slots)	Left Cheek	0mm	251	848.8	26.34	27.50	1.306	-0.017	0.178	0.232
	GSM850	GPRS (4 Tx slots)	Left Tilted	0mm	128	824.2	26.57	27.50	1.239	0.093	0.054	0.067
	GSM1900	GPRS (4 Tx slots)	Right Cheek	0mm	810	1909.8	22.90	24.50	1.445	0.063	0.125	0.181
	GSM1900	GPRS (4 Tx slots)	Right Tilted	0mm	810	1909.8	22.90	24.50	1.445	-0.021	0.041	0.059
02	GSM1900	GPRS (4 Tx slots)	Left Cheek	0mm	810	1909.8	22.90	24.50	1.445	0.19	0.171	0.247
	GSM1900	GPRS (4 Tx slots)	Left Cheek	0mm	512	1850.2	22.79	24.50	1.483	-0.049	0.108	0.160
	GSM1900	GPRS (4 Tx slots)	Left Cheek	0mm	661	1880	22.75	24.50	1.496	0.043	0.142	0.212
	GSM1900	GPRS (4 Tx slots)	Left Tilted	0mm	512	1850.2	22.90	24.50	1.445	0.103	0.039	0.056

<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)
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	9262	1852.4	22.51	24.00	1.409	-0.044	0.226	0.318
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	9262	1852.4	22.51	24.00	1.409	-0.07	0.131	0.185
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	9262	1852.4	22.51	24.00	1.409	0.021	0.254	0.358
03	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	9400	1880	22.25	24.00	1.496	0.125	0.256	0.383
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	9538	1907.6	22.50	24.00	1.413	0.113	0.242	0.342
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	9262	1852.4	22.51	24.00	1.409	0.032	0.120	0.169
	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	1413	1732.6	22.54	24.00	1.400	-0.08	0.317	0.444
	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	1413	1732.6	22.54	24.00	1.400	0.123	0.055	0.077
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	1413	1732.6	22.54	24.00	1.400	-0.01	0.328	0.459
04	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	1312	1712.4	22.38	24.00	1.452	0.04	0.331	0.481
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	1513	1712.4	22.40	24.00	1.445	0.01	0.320	0.463
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	1413	1732.6	22.54	24.00	1.400	-0.027	0.093	0.130
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	23.18	24.00	1.208	0.009	0.279	0.337
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	23.18	24.00	1.208	-0.015	0.119	0.144
05	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	23.18	24.00	1.208	-0.065	0.308	0.372
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	4182	836.4	23.17	24.00	1.211	0.018	0.299	0.362
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	4233	846.6	22.88	24.00	1.294	-0.006	0.246	0.318
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	23.18	24.00	1.208	0.051	0.091	0.110

<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	20M	QPSK	1	0	Right Cheek	0mm	19100	1900	22.78	24.00	1.324	0.034	0.254	0.336
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	19100	1900	21.68	23.00	1.355	0.023	0.153	0.207
	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	19100	1900	22.78	24.00	1.324	-0.079	0.053	0.070
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	19100	1900	21.68	23.00	1.355	0.124	0.029	0.039
06	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	19100	1900	22.78	24.00	1.324	0.104	0.288	0.381
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	18700	1860	22.67	24.00	1.358	0.065	0.255	0.346
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	18900	1880	22.59	24.00	1.384	0.028	0.271	0.375
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	19100	1900	21.68	23.00	1.355	0.059	0.179	0.243
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	19100	1900	22.78	24.00	1.324	-0.001	0.093	0.123
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	19100	1900	21.68	23.00	1.355	0.141	0.052	0.070
07	LTE Band 4	20M	QPSK	1	0	Right Cheek	0mm	20175	1732.5	22.76	24.00	1.330	0.088	0.294	0.391
	LTE Band 4	20M	QPSK	50	0	Right Cheek	0mm	20175	1732.5	21.69	23.00	1.352	0.029	0.185	0.250
	LTE Band 4	20M	QPSK	1	0	Right Tilted	0mm	20175	1732.5	22.76	24.00	1.330	-0.051	0.041	0.055
	LTE Band 4	20M	QPSK	50	0	Right Tilted	0mm	20175	1732.5	21.69	23.00	1.352	0.041	0.041	0.055
	LTE Band 4	20M	QPSK	1	0	Left Cheek	0mm	20175	1732.5	22.76	24.00	1.330	0.079	0.266	0.354
	LTE Band 4	20M	QPSK	50	0	Left Cheek	0mm	20175	1732.5	21.69	23.00	1.352	0.136	0.175	0.237
	LTE Band 4	20M	QPSK	1	0	Left Tilted	0mm	20175	1732.5	22.76	24.00	1.330	-0.048	0.114	0.152
	LTE Band 4	20M	QPSK	50	0	Left Tilted	0mm	20175	1732.5	21.69	23.00	1.352	0.08	0.072	0.097
08	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	20525	836.5	23.64	24.00	1.086	-0.03	0.288	0.313
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	20525	836.5	22.63	23.00	1.089	0.044	0.151	0.164
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	20525	836.5	23.64	24.00	1.086	-0.123	0.121	0.131
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	20525	836.5	22.63	23.00	1.089	0.01	0.074	0.081
	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	20525	836.5	23.64	24.00	1.086	-0.103	0.269	0.292
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	20525	836.5	22.63	23.00	1.089	0.122	0.173	0.188
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	20525	836.5	23.64	24.00	1.086	0.052	0.122	0.133
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	20525	836.5	22.63	23.00	1.089	0.045	0.074	0.081
09	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	21350	2560	22.73	24.00	1.340	-0.132	0.316	0.423
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	20850	2510	22.69	24.00	1.352	-0.036	0.312	0.422
	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	21100	2535	22.61	24.00	1.377	-0.094	0.302	0.416
	LTE Band 7	20M	QPSK	50	24	Right Cheek	0mm	20850	2510	21.74	23.00	1.337	0.055	0.160	0.214
	LTE Band 7	20M	QPSK	1	0	Right Tilted	0mm	21350	2560	22.73	24.00	1.340	0.089	0.084	0.113
	LTE Band 7	20M	QPSK	50	24	Right Tilted	0mm	20850	2510	21.74	23.00	1.337	-0.158	0.048	0.064
	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	21350	2560	22.73	24.00	1.340	0.153	0.135	0.181
	LTE Band 7	20M	QPSK	50	24	Left Cheek	0mm	20850	2510	21.74	23.00	1.337	0.108	0.078	0.104
	LTE Band 7	20M	QPSK	1	0	Left Tilted	0mm	21350	2560	22.73	24.00	1.340	-0.188	0.098	0.131
	LTE Band 7	20M	QPSK	50	24	Left Tilted	0mm	20850	2510	21.74	23.00	1.337	0.012	0.056	0.075

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)
10	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	23.50	24.00	1.122	-0.007	0.183	0.205
	LTE Band 12	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	21.61	23.00	1.377	-0.005	0.117	0.161
	LTE Band 12	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	23.50	24.00	1.122	0.004	0.052	0.058
	LTE Band 12	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	21.61	23.00	1.377	-0.003	0.033	0.045
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	23.50	24.00	1.122	-0.095	0.120	0.135
	LTE Band 12	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	21.61	23.00	1.377	0.005	0.073	0.101
	LTE Band 12	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	23.50	24.00	1.122	-0.123	0.053	0.059
	LTE Band 12	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	21.61	23.00	1.377	0.017	0.032	0.044
11	LTE Band 17	10M	QPSK	1	0	Right Cheek	0mm	23790	710	23.48	24.00	1.127	0.048	0.217	0.245
	LTE Band 17	10M	QPSK	25	0	Right Cheek	0mm	23790	710	22.53	23.00	1.114	-0.056	0.124	0.138
	LTE Band 17	10M	QPSK	1	0	Right Tilted	0mm	23790	710	23.48	24.00	1.127	0.013	0.052	0.059
	LTE Band 17	10M	QPSK	25	0	Right Tilted	0mm	23790	710	22.53	23.00	1.114	0.056	0.028	0.031
	LTE Band 17	10M	QPSK	1	0	Left Cheek	0mm	23790	710	23.48	24.00	1.127	-0.061	0.150	0.169
	LTE Band 17	10M	QPSK	25	0	Left Cheek	0mm	23790	710	22.53	23.00	1.114	-0.092	0.085	0.095
	LTE Band 17	10M	QPSK	1	0	Left Tilted	0mm	23790	710	23.48	24.00	1.127	0.151	0.066	0.074
	LTE Band 17	10M	QPSK	25	0	Left Tilted	0mm	23790	710	22.53	23.00	1.114	-0.136	0.037	0.041
	LTE Band 25	20M	QPSK	1	0	Right Cheek	0mm	26340	1880	22.68	24.00	1.355	0.02	0.283	0.384
	LTE Band 25	20M	QPSK	50	0	Right Cheek	0mm	26340	1880	21.55	23.00	1.396	-0.03	0.211	0.295
	LTE Band 25	20M	QPSK	1	0	Right Tilted	0mm	26340	1880	22.68	24.00	1.355	0.004	0.048	0.065
	LTE Band 25	20M	QPSK	50	0	Right Tilted	0mm	26340	1880	21.55	23.00	1.396	0.124	0.034	0.047
	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	26340	1880	22.68	24.00	1.355	0.13	0.377	0.511
	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	26140	1860	22.63	24.00	1.371	0.06	0.341	0.467
12	LTE Band 25	20M	QPSK	1	0	Left Cheek	0mm	26590	1905	22.61	24.00	1.377	0.1	0.382	0.526
	LTE Band 25	20M	QPSK	50	0	Left Cheek	0mm	26340	1880	21.55	23.00	1.396	0.05	0.292	0.408
	LTE Band 25	20M	QPSK	1	0	Left Tilted	0mm	26340	1880	22.68	24.00	1.355	-0.025	0.090	0.122
	LTE Band 25	20M	QPSK	50	0	Left Tilted	0mm	26340	1880	21.55	23.00	1.396	0.051	0.066	0.092
	LTE Band 26	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	23.65	24.00	1.084	-0.012	0.275	0.298
	LTE Band 26	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	22.70	23.00	1.072	0.025	0.153	0.164
	LTE Band 26	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	23.65	24.00	1.084	0.027	0.145	0.157
	LTE Band 26	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	22.70	23.00	1.072	0.052	0.081	0.087
13	LTE Band 26	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	23.65	24.00	1.084	-0.122	0.313	0.339
	LTE Band 26	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	22.70	23.00	1.072	-0.024	0.178	0.191
	LTE Band 26	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	23.65	24.00	1.084	-0.016	0.129	0.140
	LTE Band 26	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	22.70	23.00	1.072	0.03	0.073	0.078

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)
14	LTE Band 30	10M	QPSK	1	0	Right Cheek	0mm	27710	2310	22.83	24.00	1.309	0.059	0.297	0.389
	LTE Band 30	10M	QPSK	25	0	Right Cheek	0mm	27710	2310	21.82	23.00	1.312	-0.062	0.210	0.276
	LTE Band 30	10M	QPSK	1	0	Right Tilted	0mm	27710	2310	22.83	24.00	1.309	0.052	0.118	0.154
	LTE Band 30	10M	QPSK	25	0	Right Tilted	0mm	27710	2310	21.82	23.00	1.312	0.075	0.084	0.110
	LTE Band 30	10M	QPSK	1	0	Left Cheek	0mm	27710	2310	22.83	24.00	1.309	0.082	0.141	0.185
	LTE Band 30	10M	QPSK	25	0	Left Cheek	0mm	27710	2310	21.82	23.00	1.312	0.091	0.100	0.131
	LTE Band 30	10M	QPSK	1	0	Left Tilted	0mm	27710	2310	22.83	24.00	1.309	0.119	0.138	0.181
	LTE Band 30	10M	QPSK	25	0	Left Tilted	0mm	27710	2310	21.82	23.00	1.312	-0.091	0.097	0.127
	LTE Band 66	20M	QPSK	1	0	Right Cheek	0mm	132072	1720	22.96	24.00	1.271	0.13	0.360	0.457
	LTE Band 66	20M	QPSK	50	0	Right Cheek	0mm	132072	1720	21.88	23.00	1.294	0.13	0.266	0.344
	LTE Band 66	20M	QPSK	1	0	Right Tilted	0mm	132072	1720	22.96	24.00	1.271	-0.047	0.070	0.089
	LTE Band 66	20M	QPSK	50	0	Right Tilted	0mm	132072	1720	21.88	23.00	1.294	0.078	0.054	0.070
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	132072	1720	22.96	24.00	1.271	0.14	0.386	0.490
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	132322	1745	22.84	24.00	1.306	-0.08	0.378	0.494
15	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	132572	1770	22.74	24.00	1.337	0.12	0.393	0.525
	LTE Band 66	20M	QPSK	50	0	Left Cheek	0mm	132072	1720	21.88	23.00	1.294	0.11	0.275	0.356
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	132072	1720	22.96	24.00	1.271	0.097	0.108	0.137
	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	132072	1720	21.88	23.00	1.294	-0.038	0.086	0.111

<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 38	20M	QPSK	1	0	Right Cheek	0mm	37850	2580	22.74	24.00	1.337	62.9	1.006	0.004	0.216	0.290
	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	38000	2595	22.67	24.00	1.358	62.9	1.006	0.05	0.218	0.298
16	LTE Band 38	20M	QPSK	1	0	Right Cheek	0mm	38150	2610	22.66	24.00	1.361	62.9	1.006	0.029	0.225	0.308
	LTE Band 38	20M	QPSK	50	24	Right Cheek	0mm	38150	2610	21.68	23.00	1.355	62.9	1.006	-0.16	0.116	0.158
	LTE Band 38	20M	QPSK	1	0	Right Tilted	0mm	37850	2580	22.74	24.00	1.337	62.9	1.006	0.049	0.046	0.062
	LTE Band 38	20M	QPSK	50	24	Right Tilted	0mm	38150	2610	21.68	23.00	1.355	62.9	1.006	0.153	0.025	0.034
	LTE Band 38	20M	QPSK	1	0	Left Cheek	0mm	37850	2580	22.74	24.00	1.337	62.9	1.006	-0.112	0.088	0.118
	LTE Band 38	20M	QPSK	50	24	Left Cheek	0mm	38150	2610	21.68	23.00	1.355	62.9	1.006	-0.09	0.047	0.064
	LTE Band 38	20M	QPSK	1	0	Left Tilted	0mm	37850	2580	22.74	24.00	1.337	62.9	1.006	0.122	0.081	0.109
	LTE Band 38	20M	QPSK	50	24	Left Tilted	0mm	38150	2610	21.68	23.00	1.355	62.9	1.006	0.167	0.043	0.059
17	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.151	0.173	0.221
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	40240	2555	22.89	24.00	1.291	62.9	1.006	-0.141	0.112	0.145
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	40770	2608	22.92	24.00	1.282	62.9	1.006	-0.028	0.056	0.072
	LTE Band 41	20M	QPSK	1	0	Right Cheek	0mm	41140	2645	22.72	24.00	1.343	62.9	1.006	-0.03	0.106	0.143
	LTE Band 41	20M	QPSK	50	24	Right Cheek	0mm	40240	2555	21.84	23.00	1.306	62.9	1.006	-0.02	0.128	0.168
	LTE Band 41	20M	QPSK	1	0	Right Tilted	0mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.181	0.041	0.052
	LTE Band 41	20M	QPSK	50	24	Right Tilted	0mm	40240	2555	21.84	23.00	1.306	62.9	1.006	-0.18	0.028	0.037
	LTE Band 41	20M	QPSK	1	0	Left Cheek	0mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.107	0.052	0.066
	LTE Band 41	20M	QPSK	50	24	Left Cheek	0mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.113	0.047	0.062
	LTE Band 41	20M	QPSK	1	0	Left Tilted	0mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.051	0.032	0.041
	LTE Band 41	20M	QPSK	50	24	Left Tilted	0mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.024	0.027	0.035

<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	15.90	16.50	1.148	100	1.000	0.098	0.297	0.341
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	-0.168	0.260	0.299
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	0.18	0.506	0.581
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	6	2437	15.90	16.50	1.148	100	1.000	0.04	0.517	0.594
18	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 1	11	2462	15.85	16.50	1.161	100	1.000	-0.09	0.548	0.636
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	0.061	0.439	0.504
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	0.111	0.044	0.051
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	0.157	0.019	0.022
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	0.107	0.045	0.052
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.148	0.020	0.023
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 1	54	5270	14.79	15.00	1.050	89.62	1.116	-0.11	0.259	0.303
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 1	54	5270	14.79	15.00	1.050	89.62	1.116	-0.13	0.269	0.315
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 1	54	5270	14.79	15.00	1.050	89.62	1.116	-0.16	0.385	0.451
19	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 1	54	5270	14.79	15.00	1.050	89.62	1.116	0.03	0.396	0.464
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 1	62	5310	14.75	15.00	1.059	89.62	1.116	0.04	0.385	0.455
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 2	54	5270	14.86	15.00	1.033	90.48	1.105	0.03	0.399	0.455
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 2	54	5270	14.86	15.00	1.033	90.48	1.105	0.02	0.352	0.402
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 2	54	5270	14.86	15.00	1.033	90.48	1.105	-0.04	0.255	0.291
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 2	54	5270	14.86	15.00	1.033	90.48	1.105	0.11	0.235	0.268
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	106	5530	14.91	15.00	1.021	86.51	1.156	-0.055	0.299	0.353
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	106	5530	14.91	15.00	1.021	86.51	1.156	0.179	0.342	0.404
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	106	5530	14.91	15.00	1.021	86.51	1.156	0.02	0.484	0.571
20	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	106	5530	14.91	15.00	1.021	86.51	1.156	0.15	0.527	0.622
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	122	5610	14.90	15.00	1.023	86.51	1.156	0.147	0.521	0.616
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	138	5690	14.88	15.00	1.028	85.71	1.167	-0.024	0.510	0.612
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	106	5530	14.88	15.00	1.028	85.71	1.167	-0.101	0.408	0.489
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	106	5530	14.88	15.00	1.028	85.71	1.167	0.14	0.444	0.533
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	106	5530	14.88	15.00	1.028	85.71	1.167	0.181	0.266	0.319
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	106	5530	14.88	15.00	1.028	85.71	1.167	0.163	0.315	0.378
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	155	5775	14.63	15.00	1.089	86.51	1.156	-0.137	0.278	0.350
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	155	5775	14.63	15.00	1.089	86.51	1.156	0.188	0.322	0.405
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	155	5775	14.63	15.00	1.089	86.51	1.156	-0.042	0.481	0.605
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	155	5775	14.63	15.00	1.089	86.51	1.156	0.047	0.525	0.661
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 2	155	5775	14.79	15.00	1.050	85.71	1.167	0.16	0.591	0.724
21	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 2	155	5775	14.79	15.00	1.050	85.71	1.167	-0.04	0.713	0.873
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 2	155	5775	14.79	15.00	1.050	85.71	1.167	0.1	0.351	0.430
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 2	155	5775	14.79	15.00	1.050	85.71	1.167	0.02	0.417	0.511

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)
	GSM850	GPRS (4 Tx slots)	Front	10mm	128	824.2	26.57	27.50	1.239	-0.19	0.512	0.634
	GSM850	GPRS (4 Tx slots)	Back	10mm	128	824.2	26.57	27.50	1.239	0.04	0.519	0.643
	GSM850	GPRS (4 Tx slots)	Back	10mm	189	836.4	26.45	27.50	1.274	-0.19	0.584	0.744
22	GSM850	GPRS (4 Tx slots)	Back	10mm	251	848.8	26.34	27.50	1.306	-0.06	0.597	0.780
	GSM850	GPRS (4 Tx slots)	Left Side	10mm	128	824.2	26.57	27.50	1.239	0.15	0.138	0.171
	GSM850	GPRS (4 Tx slots)	Right Side	10mm	128	824.2	26.57	27.50	1.239	0	0.390	0.483
	GSM850	GPRS (4 Tx slots)	Bottom Side	10mm	128	824.2	26.57	27.50	1.239	0.08	0.258	0.320
	GSM1900	GPRS (4 Tx slots)	Front	10mm	810	1909.8	22.90	24.50	1.445	-0.09	0.422	0.610
23	GSM1900	GPRS (4 Tx slots)	Back	10mm	810	1909.8	22.90	24.50	1.445	0.01	0.483	0.698
	GSM1900	GPRS (4 Tx slots)	Back	10mm	512	1850.2	22.79	24.50	1.483	-0.12	0.359	0.532
	GSM1900	GPRS (4 Tx slots)	Back	10mm	661	1880	22.75	24.50	1.496	-0.01	0.455	0.681
	GSM1900	GPRS (4 Tx slots)	Left Side	10mm	810	1909.8	22.90	24.50	1.445	0.06	0.189	0.273
	GSM1900	GPRS (4 Tx slots)	Right Side	10mm	810	1909.8	22.90	24.50	1.445	0.06	0.128	0.185
	GSM1900	GPRS (4 Tx slots)	Bottom Side	10mm	810	1909.8	22.90	24.50	1.445	-0.03	0.459	0.663

<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)
	WCDMA II	RMC 12.2Kbps	Front	10mm	9262	1852.4	21.55	23.00	1.396	0.03	0.671	0.937
	WCDMA II	RMC 12.2Kbps	Front	10mm	9400	1880	21.36	23.00	1.459	0.04	0.605	0.883
	WCDMA II	RMC 12.2Kbps	Front	10mm	9538	1907.6	21.41	23.00	1.442	-0.07	0.617	0.890
24	WCDMA II	RMC 12.2Kbps	Back	10mm	9262	1852.4	21.55	23.00	1.396	-0.06	0.730	1.019
	WCDMA II	RMC 12.2Kbps	Back	10mm	9400	1880	21.36	23.00	1.459	-0.04	0.691	1.008
	WCDMA II	RMC 12.2Kbps	Back	10mm	9538	1907.6	21.41	23.00	1.442	-0.04	0.705	1.017
	WCDMA II	RMC 12.2Kbps	Left Side	10mm	9262	1852.4	21.55	23.00	1.396	-0.05	0.318	0.444
	WCDMA II	RMC 12.2Kbps	Right Side	10mm	9262	1852.4	21.55	23.00	1.396	-0.01	0.238	0.332
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	9262	1852.4	21.55	23.00	1.396	0.14	0.727	1.015
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	9400	1880	21.36	23.00	1.459	-0.18	0.661	0.964
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	9538	1907.6	21.41	23.00	1.442	0.09	0.652	0.940
	WCDMA IV	RMC 12.2Kbps	Front	10mm	1312	1712.4	21.01	22.50	1.409	0.07	0.616	0.868
	WCDMA IV	RMC 12.2Kbps	Front	10mm	1413	1732.6	20.85	22.50	1.462	0.04	0.627	0.917
	WCDMA IV	RMC 12.2Kbps	Front	10mm	1513	1752.6	20.94	22.50	1.432	0.04	0.657	0.941
	WCDMA IV	RMC 12.2Kbps	Back	10mm	1312	1712.4	21.01	22.50	1.409	-0.05	0.669	0.943
	WCDMA IV	RMC 12.2Kbps	Back	10mm	1413	1732.6	20.85	22.50	1.462	-0.03	0.675	0.987
25	WCDMA IV	RMC 12.2Kbps	Back	10mm	1513	1752.6	20.94	22.50	1.432	-0.05	0.692	0.991
	WCDMA IV	RMC 12.2Kbps	Left Side	10mm	1312	1712.4	21.01	22.50	1.409	-0.14	0.239	0.337
	WCDMA IV	RMC 12.2Kbps	Right Side	10mm	1312	1712.4	21.01	22.50	1.409	0.02	0.124	0.175
	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	1312	1712.4	21.01	22.50	1.409	0.14	0.606	0.854
	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	1413	1732.6	20.85	22.50	1.462	0.15	0.579	0.847
	WCDMA IV	RMC 12.2Kbps	Bottom Side	10mm	1513	1752.6	20.94	22.50	1.432	0.13	0.610	0.874
	WCDMA V	RMC 12.2Kbps	Front	10mm	4132	826.4	21.60	22.50	1.230	0	0.656	0.807
	WCDMA V	RMC 12.2Kbps	Front	10mm	4182	836.4	21.58	22.50	1.236	0.02	0.749	0.926
	WCDMA V	RMC 12.2Kbps	Front	10mm	4233	846.6	21.20	22.50	1.349	-0.15	0.682	0.920
	WCDMA V	RMC 12.2Kbps	Back	10mm	4132	826.4	21.60	22.50	1.230	-0.04	0.725	0.892
26	WCDMA V	RMC 12.2Kbps	Back	10mm	4182	836.4	21.58	22.50	1.236	-0.03	0.751	0.928
	WCDMA V	RMC 12.2Kbps	Back	10mm	4233	846.6	21.20	22.50	1.349	-0.06	0.684	0.923
	WCDMA V	RMC 12.2Kbps	Left Side	10mm	4132	826.4	21.60	22.50	1.230	-0.04	0.251	0.309
	WCDMA V	RMC 12.2Kbps	Right Side	10mm	4132	826.4	21.60	22.50	1.230	0	0.476	0.586
	WCDMA V	RMC 12.2Kbps	Bottom Side	10mm	4132	826.4	21.60	22.50	1.230	0.01	0.331	0.407

<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	20M	QPSK	1	0	Front	10mm	19100	1900	21.83	23.00	1.309	0.03	0.766	1.003
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18700	1860	21.49	23.00	1.416	0.05	0.747	1.058
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18900	1880	21.53	23.00	1.403	0.14	0.735	1.031
	LTE Band 2	20M	QPSK	50	0	Front	10mm	19100	1900	21.63	23.00	1.371	0.01	0.608	0.833
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18700	1860	21.32	23.00	1.472	0.01	0.597	0.879
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18900	1880	21.38	23.00	1.452	0.06	0.614	0.892
	LTE Band 2	20M	QPSK	100	0	Front	10mm	19100	1900	21.58	23.00	1.387	0.04	0.615	0.853
	LTE Band 2	20M	QPSK	1	0	Back	10mm	19100	1900	21.83	23.00	1.309	-0.03	0.795	1.041
27	LTE Band 2	20M	QPSK	1	0	Back	10mm	18700	1860	21.49	23.00	1.416	-0.05	0.778	1.101
	LTE Band 2	20M	QPSK	1	0	Back	10mm	18900	1880	21.53	23.00	1.403	-0.15	0.771	1.082
	LTE Band 2	20M	QPSK	50	0	Back	10mm	19100	1900	21.63	23.00	1.371	-0.13	0.660	0.905
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18700	1860	21.32	23.00	1.472	-0.07	0.647	0.953
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18900	1880	21.38	23.00	1.452	-0.03	0.651	0.945
	LTE Band 2	20M	QPSK	100	0	Back	10mm	19100	1900	21.58	23.00	1.387	-0.17	0.652	0.904
	LTE Band 2	20M	QPSK	1	0	Left Side	10mm	19100	1900	21.83	23.00	1.309	-0.05	0.326	0.427
	LTE Band 2	20M	QPSK	50	0	Left Side	10mm	19100	1900	21.63	23.00	1.371	-0.04	0.245	0.336
	LTE Band 2	20M	QPSK	1	0	Right Side	10mm	19100	1900	21.83	23.00	1.309	-0.07	0.182	0.238
	LTE Band 2	20M	QPSK	50	0	Right Side	10mm	19100	1900	21.63	23.00	1.371	-0.03	0.139	0.191
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	19100	1900	21.83	23.00	1.309	-0.01	0.840	1.100
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	18700	1860	21.49	23.00	1.416	-0.05	0.706	1.000
	LTE Band 2	20M	QPSK	1	0	Bottom Side	10mm	18900	1880	21.53	23.00	1.403	-0.02	0.773	1.084
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	19100	1900	21.63	23.00	1.371	-0.06	0.660	0.905
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	18700	1860	21.32	23.00	1.472	-0.09	0.559	0.823
	LTE Band 2	20M	QPSK	50	0	Bottom Side	10mm	18900	1880	21.38	23.00	1.452	-0.02	0.602	0.874
	LTE Band 2	20M	QPSK	100	0	Bottom Side	10mm	19100	1900	21.58	23.00	1.387	-0.11	0.648	0.899
	LTE Band 4	20M	QPSK	1	0	Front	10mm	20175	1732.5	20.93	22.00	1.279	0.03	0.603	0.771
	LTE Band 4	20M	QPSK	50	0	Front	10mm	20175	1732.5	20.74	22.00	1.337	0.04	0.596	0.797
	LTE Band 4	20M	QPSK	1	0	Back	10mm	20175	1732.5	20.93	22.00	1.279	-0.03	0.693	0.887
	LTE Band 4	20M	QPSK	50	0	Back	10mm	20175	1732.5	20.74	22.00	1.337	-0.16	0.562	0.751
28	LTE Band 4	20M	QPSK	100	0	Back	10mm	20175	1732.5	20.60	22.00	1.380	-0.02	0.660	0.911
	LTE Band 4	20M	QPSK	1	0	Left Side	10mm	20175	1732.5	20.93	22.00	1.279	-0.08	0.247	0.316
	LTE Band 4	20M	QPSK	50	0	Left Side	10mm	20175	1732.5	20.74	22.00	1.337	-0.06	0.247	0.330
	LTE Band 4	20M	QPSK	1	0	Right Side	10mm	20175	1732.5	20.93	22.00	1.279	-0.09	0.129	0.165
	LTE Band 4	20M	QPSK	50	0	Right Side	10mm	20175	1732.5	20.74	22.00	1.337	-0.03	0.139	0.186
	LTE Band 4	20M	QPSK	1	0	Bottom Side	10mm	20175	1732.5	20.93	22.00	1.279	-0.11	0.613	0.784
	LTE Band 4	20M	QPSK	50	0	Bottom Side	10mm	20175	1732.5	20.74	22.00	1.337	-0.12	0.611	0.817
	LTE Band 4	20M	QPSK	100	0	Bottom Side	10mm	20175	1732.5	20.60	22.00	1.380	-0.18	0.618	0.853

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 5	10M	QPSK	1	0	Front	10mm	20525	836.5	22.08	23.00	1.236	-0.04	0.802	0.991
	LTE Band 5	10M	QPSK	25	0	Front	10mm	20525	836.5	21.91	23.00	1.285	-0.14	0.576	0.740
	LTE Band 5	10M	QPSK	50	0	Front	10mm	20525	836.5	21.89	23.00	1.291	0.02	0.534	0.690
29	LTE Band 5	10M	QPSK	1	0	Back	10mm	20525	836.5	22.08	23.00	1.236	-0.02	0.820	1.013
	LTE Band 5	10M	QPSK	25	0	Back	10mm	20525	836.5	21.91	23.00	1.285	0.02	0.611	0.785
	LTE Band 5	10M	QPSK	50	0	Back	10mm	20525	836.5	21.89	23.00	1.291	-0.13	0.584	0.754
	LTE Band 5	10M	QPSK	1	0	Left Side	10mm	20525	836.5	22.08	23.00	1.236	0.04	0.278	0.344
	LTE Band 5	10M	QPSK	25	0	Left Side	10mm	20525	836.5	21.91	23.00	1.285	-0.01	0.182	0.234
	LTE Band 5	10M	QPSK	1	0	Right Side	10mm	20525	836.5	22.08	23.00	1.236	-0.02	0.501	0.619
	LTE Band 5	10M	QPSK	25	0	Right Side	10mm	20525	836.5	21.91	23.00	1.285	-0.01	0.355	0.456
	LTE Band 5	10M	QPSK	1	0	Bottom Side	10mm	20525	836.5	22.08	23.00	1.236	-0.07	0.374	0.462
	LTE Band 5	10M	QPSK	25	0	Bottom Side	10mm	20525	836.5	21.91	23.00	1.285	-0.09	0.261	0.335
	LTE Band 7	20M	QPSK	1	0	Front	10mm	21350	2560	21.00	22.00	1.259	-0.09	0.550	0.692
	LTE Band 7	20M	QPSK	50	0	Front	10mm	21350	2560	20.81	22.00	1.315	-0.12	0.547	0.719
	LTE Band 7	20M	QPSK	1	0	Back	10mm	21350	2560	21.00	22.00	1.259	0.07	0.591	0.744
	LTE Band 7	20M	QPSK	50	0	Back	10mm	20850	2510	20.73	22.00	1.340	0.03	0.589	0.789
30	LTE Band 7	20M	QPSK	50	0	Back	10mm	21100	2535	20.80	22.00	1.318	-0.1	0.602	0.794
	LTE Band 7	20M	QPSK	50	0	Back	10mm	21350	2560	20.81	22.00	1.315	0.03	0.581	0.764
	LTE Band 7	20M	QPSK	100	0	Back	10mm	21100	2535	20.79	22.00	1.321	0.08	0.577	0.762
	LTE Band 7	20M	QPSK	1	0	Left Side	10mm	21350	2560	21.00	22.00	1.259	-0.01	0.036	0.045
	LTE Band 7	20M	QPSK	50	0	Left Side	10mm	21350	2560	20.81	22.00	1.315	-0.04	0.034	0.045
	LTE Band 7	20M	QPSK	1	0	Right Side	10mm	21350	2560	21.00	22.00	1.259	-0.1	0.155	0.195
	LTE Band 7	20M	QPSK	50	0	Right Side	10mm	21350	2560	20.81	22.00	1.315	-0.14	0.150	0.197
	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	21350	2560	21.00	22.00	1.259	0.13	0.472	0.594
	LTE Band 7	20M	QPSK	50	0	Bottom Side	10mm	21350	2560	20.81	22.00	1.315	0.08	0.476	0.626
	LTE Band 12	10M	QPSK	1	0	Front	10mm	23095	707.5	23.50	24.00	1.122	-0.11	0.755	0.847
	LTE Band 12	10M	QPSK	25	0	Front	10mm	23095	707.5	21.61	23.00	1.377	-0.01	0.490	0.675
	LTE Band 12	10M	QPSK	50	0	Front	10mm	23095	707.5	21.60	23.00	1.380	-0.11	0.497	0.686
31	LTE Band 12	10M	QPSK	1	0	Back	10mm	23095	707.5	23.50	24.00	1.122	-0.19	0.796	0.893
	LTE Band 12	10M	QPSK	25	0	Back	10mm	23095	707.5	21.61	23.00	1.377	-0.04	0.503	0.693
	LTE Band 12	10M	QPSK	50	0	Back	10mm	23095	707.5	21.60	23.00	1.380	0.04	0.485	0.669
	LTE Band 12	10M	QPSK	1	0	Left Side	10mm	23095	707.5	23.50	24.00	1.122	-0.14	0.141	0.158
	LTE Band 12	10M	QPSK	25	0	Left Side	10mm	23095	707.5	21.61	23.00	1.377	-0.04	0.087	0.120
	LTE Band 12	10M	QPSK	1	0	Right Side	10mm	23095	707.5	23.50	24.00	1.122	-0.02	0.405	0.454
	LTE Band 12	10M	QPSK	25	0	Right Side	10mm	23095	707.5	21.61	23.00	1.377	-0.02	0.306	0.421
	LTE Band 12	10M	QPSK	1	0	Bottom Side	10mm	23095	707.5	23.50	24.00	1.122	-0.05	0.332	0.373
	LTE Band 12	10M	QPSK	25	0	Bottom Side	10mm	23095	707.5	21.61	23.00	1.377	-0.11	0.192	0.264

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)
32	LTE Band 17	10M	QPSK	1	0	Front	10mm	23790	710	21.91	23.00	1.285	0.02	0.759	0.976
	LTE Band 17	10M	QPSK	25	0	Front	10mm	23790	710	21.79	23.00	1.321	0.06	0.519	0.686
	LTE Band 17	10M	QPSK	50	0	Front	10mm	23790	710	21.77	23.00	1.327	0	0.517	0.686
	LTE Band 17	10M	QPSK	1	0	Back	10mm	23790	710	21.91	23.00	1.285	-0.06	0.674	0.866
	LTE Band 17	10M	QPSK	25	0	Back	10mm	23790	710	21.79	23.00	1.321	0.01	0.528	0.698
	LTE Band 17	10M	QPSK	50	0	Back	10mm	23790	710	21.77	23.00	1.327	-0.06	0.531	0.705
	LTE Band 17	10M	QPSK	1	0	Left Side	10mm	23790	710	21.91	23.00	1.285	-0.04	0.130	0.167
	LTE Band 17	10M	QPSK	25	0	Left Side	10mm	23790	710	21.79	23.00	1.321	-0.02	0.096	0.127
	LTE Band 17	10M	QPSK	1	0	Right Side	10mm	23790	710	21.91	23.00	1.285	0.04	0.424	0.545
	LTE Band 17	10M	QPSK	25	0	Right Side	10mm	23790	710	21.79	23.00	1.321	0.08	0.301	0.398
	LTE Band 17	10M	QPSK	1	0	Bottom Side	10mm	23790	710	21.91	23.00	1.285	-0.07	0.297	0.382
	LTE Band 17	10M	QPSK	25	0	Bottom Side	10mm	23790	710	21.79	23.00	1.321	-0.04	0.213	0.281
	LTE Band 25	20M	QPSK	1	0	Front	10mm	26340	1880	21.93	23.00	1.279	0.03	0.768	0.983
	LTE Band 25	20M	QPSK	1	0	Front	10mm	26140	1860	21.63	23.00	1.371	0.05	0.767	1.051
	LTE Band 25	20M	QPSK	1	0	Front	10mm	26590	1905	21.84	23.00	1.306	0.04	0.776	1.014
	LTE Band 25	20M	QPSK	50	0	Front	10mm	26340	1880	21.89	23.00	1.291	0.01	0.595	0.768
	LTE Band 25	20M	QPSK	50	0	Front	10mm	26140	1860	21.44	23.00	1.432	0.01	0.597	0.855
	LTE Band 25	20M	QPSK	50	0	Front	10mm	26590	1905	21.82	23.00	1.312	0.06	0.631	0.828
	LTE Band 25	20M	QPSK	100	0	Front	10mm	26340	1880	21.77	23.00	1.327	0.04	0.602	0.799
	LTE Band 25	20M	QPSK	1	0	Back	10mm	26340	1880	21.93	23.00	1.279	-0.03	0.804	1.029
	LTE Band 25	20M	QPSK	1	0	Back	10mm	26140	1860	21.63	23.00	1.371	-0.05	0.801	1.098
	LTE Band 25	20M	QPSK	1	0	Back	10mm	26590	1860	21.84	23.00	1.306	-0.05	0.774	1.011
	LTE Band 25	20M	QPSK	50	0	Back	10mm	26340	1880	21.89	23.00	1.291	-0.02	0.646	0.834
	LTE Band 25	20M	QPSK	50	0	Back	10mm	26140	1860	21.44	23.00	1.432	-0.09	0.647	0.927
	LTE Band 25	20M	QPSK	50	0	Back	10mm	26590	1905	21.82	23.00	1.312	-0.05	0.669	0.878
	LTE Band 25	20M	QPSK	100	0	Back	10mm	26340	1880	21.77	23.00	1.327	-0.04	0.639	0.848
	LTE Band 25	20M	QPSK	1	0	Left Side	10mm	26340	1880	21.93	23.00	1.279	-0.05	0.319	0.408
	LTE Band 25	20M	QPSK	50	0	Left Side	10mm	26340	1880	21.89	23.00	1.291	-0.04	0.239	0.309
	LTE Band 25	20M	QPSK	1	0	Right Side	10mm	26340	1880	21.93	23.00	1.279	-0.07	0.178	0.228
	LTE Band 25	20M	QPSK	50	0	Right Side	10mm	26340	1880	21.89	23.00	1.291	-0.03	0.136	0.176
	LTE Band 25	20M	QPSK	1	0	Bottom Side	10mm	26340	1880	21.93	23.00	1.279	-0.04	0.852	1.090
33	LTE Band 25	20M	QPSK	1	0	Bottom Side	10mm	26140	1860	21.63	23.00	1.371	-0.04	0.857	1.175
	LTE Band 25	20M	QPSK	1	0	Bottom Side	10mm	26590	1905	21.84	23.00	1.306	-0.08	0.821	1.072
	LTE Band 25	20M	QPSK	50	0	Bottom Side	10mm	26340	1880	21.89	23.00	1.291	-0.08	0.643	0.830
	LTE Band 25	20M	QPSK	50	0	Bottom Side	10mm	26140	1860	21.44	23.00	1.432	-0.03	0.667	0.955
	LTE Band 25	20M	QPSK	50	0	Bottom Side	10mm	26590	1905	21.82	23.00	1.312	-0.04	0.645	0.846
	LTE Band 25	20M	QPSK	100	0	Bottom Side	10mm	26340	1880	21.77	23.00	1.327	-0.03	0.634	0.842

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	15M	QPSK	1	0	Front	10mm	26865	831.5	22.20	23.00	1.202	-0.06	0.837	1.006
	LTE Band 26	15M	QPSK	36	0	Front	10mm	26865	831.5	22.13	23.00	1.222	-0.02	0.572	0.699
	LTE Band 26	15M	QPSK	75	0	Front	10mm	26865	831.5	22.08	23.00	1.236	0.02	0.530	0.655
34	LTE Band 26	15M	QPSK	1	0	Back	10mm	26865	831.5	22.20	23.00	1.202	-0.02	0.885	1.064
	LTE Band 26	15M	QPSK	36	0	Back	10mm	26865	831.5	22.13	23.00	1.222	0	0.607	0.742
	LTE Band 26	15M	QPSK	75	0	Back	10mm	26865	831.5	22.08	23.00	1.236	-0.05	0.580	0.717
	LTE Band 26	15M	QPSK	1	0	Left Side	10mm	26865	831.5	22.20	23.00	1.202	0.08	0.276	0.332
	LTE Band 26	15M	QPSK	36	0	Left Side	10mm	26865	831.5	22.13	23.00	1.222	-0.01	0.180	0.220
	LTE Band 26	15M	QPSK	1	0	Right Side	10mm	26865	831.5	22.20	23.00	1.202	-0.06	0.498	0.599
	LTE Band 26	15M	QPSK	36	0	Right Side	10mm	26865	831.5	22.13	23.00	1.222	-0.03	0.353	0.431
	LTE Band 26	15M	QPSK	1	0	Bottom Side	10mm	26865	831.5	22.20	23.00	1.202	-0.04	0.371	0.446
	LTE Band 26	15M	QPSK	36	0	Bottom Side	10mm	26865	831.5	22.13	23.00	1.222	-0.19	0.259	0.316
	LTE Band 30	10M	QPSK	1	0	Front	10mm	27710	2310	21.02	22.00	1.253	-0.13	0.612	0.767
35	LTE Band 30	10M	QPSK	25	0	Front	10mm	27710	2310	20.83	22.00	1.309	-0.11	0.618	0.809
	LTE Band 30	10M	QPSK	50	0	Front	10mm	27710	2310	20.80	22.00	1.318	-0.13	0.611	0.805
	LTE Band 30	10M	QPSK	1	0	Back	10mm	27710	2310	21.02	22.00	1.253	0.03	0.610	0.764
	LTE Band 30	10M	QPSK	25	0	Back	10mm	27710	2310	20.83	22.00	1.309	-0.02	0.612	0.801
	LTE Band 30	10M	QPSK	50	0	Back	10mm	27710	2310	20.80	22.00	1.318	-0.01	0.605	0.798
	LTE Band 30	10M	QPSK	1	0	Left Side	10mm	27710	2310	21.02	22.00	1.253	-0.04	0.053	0.066
	LTE Band 30	10M	QPSK	25	0	Left Side	10mm	27710	2310	20.83	22.00	1.309	-0.06	0.055	0.072
	LTE Band 30	10M	QPSK	1	0	Right Side	10mm	27710	2310	21.02	22.00	1.253	-0.09	0.157	0.197
	LTE Band 30	10M	QPSK	25	0	Right Side	10mm	27710	2310	20.83	22.00	1.309	-0.13	0.158	0.207
	LTE Band 30	10M	QPSK	1	0	Bottom Side	10mm	27710	2310	21.02	22.00	1.253	-0.02	0.492	0.617
	LTE Band 30	10M	QPSK	25	0	Bottom Side	10mm	27710	2310	20.83	22.00	1.309	0.01	0.505	0.661

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 66	20M	QPSK	1	0	Front	10mm	132322	1745	21.37	22.00	1.156	-0.04	0.647	0.748
	LTE Band 66	20M	QPSK	50	0	Front	10mm	132322	1745	21.14	22.00	1.219	-0.01	0.644	0.785
	LTE Band 66	20M	QPSK	50	0	Front	10mm	132072	1720	20.84	22.00	1.306	0	0.600	0.784
	LTE Band 66	20M	QPSK	50	0	Front	10mm	132572	1770	20.95	22.00	1.274	-0.02	0.611	0.778
	LTE Band 66	20M	QPSK	1	0	Back	10mm	132322	1745	21.37	22.00	1.156	-0.11	0.637	0.736
	LTE Band 66	20M	QPSK	50	0	Back	10mm	132322	1745	21.14	22.00	1.219	-0.13	0.630	0.768
	LTE Band 66	20M	QPSK	1	0	Left Side	10mm	132322	1745	21.37	22.00	1.156	-0.07	0.294	0.340
	LTE Band 66	20M	QPSK	50	0	Left Side	10mm	132322	1745	21.14	22.00	1.219	-0.09	0.290	0.354
	LTE Band 66	20M	QPSK	1	0	Right Side	10mm	132322	1745	21.37	22.00	1.156	-0.11	0.161	0.186
	LTE Band 66	20M	QPSK	50	0	Right Side	10mm	132322	1745	21.14	22.00	1.219	-0.07	0.165	0.201
	LTE Band 66	20M	QPSK	1	0	Bottom Side	10mm	132322	1745	21.37	22.00	1.156	0.07	0.707	0.817
	LTE Band 66	20M	QPSK	1	0	Bottom Side	10mm	132072	1720	20.84	22.00	1.306	0.12	0.610	0.797
	LTE Band 66	20M	QPSK	1	0	Bottom Side	10mm	132572	1770	20.95	22.00	1.274	0.11	0.789	1.005
	LTE Band 66	20M	QPSK	50	0	Bottom Side	10mm	132322	1745	21.14	22.00	1.219	0.07	0.703	0.857
	LTE Band 66	20M	QPSK	50	0	Bottom Side	10mm	132072	1720	20.81	22.00	1.315	0.09	0.624	0.821
36	LTE Band 66	20M	QPSK	50	0	Bottom Side	10mm	132572	1770	20.94	22.00	1.276	-0.13	0.799	1.020
	LTE Band 66	20M	QPSK	100	0	Bottom Side	10mm	132322	1745	21.11	22.00	1.227	0.13	0.717	0.880

<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 38	20M	QPSK	1	0	Front	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	-0.02	0.663	0.891
	LTE Band 38	20M	QPSK	1	0	Front	10mm	38000	2595	22.67	24.00	1.358	62.9	1.006	-0.11	0.643	0.879
	LTE Band 38	20M	QPSK	1	0	Front	10mm	38150	2610	22.66	24.00	1.361	62.9	1.006	-0.01	0.707	0.968
	LTE Band 38	20M	QPSK	50	24	Front	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	-0.04	0.367	0.500
	LTE Band 38	20M	QPSK	100	0	Front	10mm	38150	2610	21.63	23.00	1.371	62.9	1.006	0.05	0.367	0.506
	LTE Band 38	20M	QPSK	1	0	Back	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	-0.06	0.657	0.883
	LTE Band 38	20M	QPSK	1	0	Back	10mm	38000	2595	22.67	24.00	1.358	62.9	1.006	-0.07	0.643	0.879
	LTE Band 38	20M	QPSK	1	0	Back	10mm	38150	2610	22.66	24.00	1.361	62.9	1.006	0.03	0.703	0.963
	LTE Band 38	20M	QPSK	50	24	Back	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	0.08	0.360	0.491
	LTE Band 38	20M	QPSK	100	0	Back	10mm	38150	2610	21.63	23.00	1.371	62.9	1.006	-0.02	0.361	0.498
	LTE Band 38	20M	QPSK	1	0	Left Side	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	0.08	0.047	0.063
	LTE Band 38	20M	QPSK	50	24	Left Side	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	0.02	0.039	0.053
	LTE Band 38	20M	QPSK	1	0	Right Side	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	0.04	0.187	0.251
	LTE Band 38	20M	QPSK	50	24	Right Side	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	0.03	0.111	0.151
	LTE Band 38	20M	QPSK	1	0	Bottom Side	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	-0.12	0.625	0.840
	LTE Band 38	20M	QPSK	1	0	Bottom Side	10mm	38000	2595	22.67	24.00	1.358	62.9	1.006	-0.01	0.698	0.954
37	LTE Band 38	20M	QPSK	1	0	Bottom Side	10mm	38150	2610	22.66	24.00	1.361	62.9	1.006	-0.06	0.740	1.014
	LTE Band 38	20M	QPSK	50	24	Bottom Side	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	-0.06	0.393	0.536
	LTE Band 38	20M	QPSK	100	0	Bottom Side	10mm	38150	2610	21.63	23.00	1.371	62.9	1.006	-0.07	0.391	0.539
	LTE Band 41	20M	QPSK	1	0	Front	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	-0.06	0.488	0.624
	LTE Band 41	20M	QPSK	1	0	Front	10mm	40240	2555	22.89	24.00	1.291	62.9	1.006	0.08	0.474	0.616
	LTE Band 41	20M	QPSK	1	0	Front	10mm	40770	2608	22.92	24.00	1.282	62.9	1.006	0.01	0.485	0.626
38	LTE Band 41	20M	QPSK	1	0	Front	10mm	41140	2645	22.72	24.00	1.343	62.9	1.006	0	0.475	0.642
	LTE Band 41	20M	QPSK	50	24	Front	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.14	0.356	0.468
	LTE Band 41	20M	QPSK	100	0	Front	10mm	40240	2555	21.81	23.00	1.315	62.9	1.006	0	0.335	0.443
	LTE Band 41	20M	QPSK	1	0	Back	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.01	0.461	0.589
	LTE Band 41	20M	QPSK	50	24	Back	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.07	0.325	0.427
	LTE Band 41	20M	QPSK	1	0	Left Side	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	-0.03	0.026	0.033
	LTE Band 41	20M	QPSK	50	24	Left Side	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	-0.11	0.016	0.021
	LTE Band 41	20M	QPSK	1	0	Right Side	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.05	0.140	0.179
	LTE Band 41	20M	QPSK	50	24	Right Side	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.06	0.125	0.164
	LTE Band 41	20M	QPSK	1	0	Bottom Side	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	-0.06	0.429	0.548
	LTE Band 41	20M	QPSK	50	24	Bottom Side	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	-0.06	0.296	0.389

<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	1	2412	15.90	16.50	1.148	100	1.000	-0.02	0.094	0.108
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	0.02	0.138	0.158
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	-0.05	0.016	0.018
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	-0.14	0.051	0.059
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	-0.07	0.071	0.082
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	-0.01	0.003	0.003
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.09	0.212	0.243
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.1	0.248	0.285
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.06	0.073	0.084
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.17	0.034	0.039
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.02	0.005	0.006
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.11	0.300	0.344
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 2	6	2437	15.66	16.50	1.213	100	1.000	-0.16	0.274	0.332
39	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 2	11	2462	15.60	16.50	1.230	100	1.000	-0.07	0.303	0.373
40	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	36	5180	18.16	19.00	1.213	94.16	1.062	-0.158	0.109	0.140
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	44	5220	18.12	19.00	1.224	94.16	1.062	-0.122	0.096	0.125
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	36	5180	18.16	19.00	1.213	94.16	1.062	-0.095	0.090	0.116
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 1	36	5180	18.16	19.00	1.213	94.16	1.062	-0.164	0.005	0.006
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 1	36	5180	18.16	19.00	1.213	94.16	1.062	0.145	0.012	0.015
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 1	36	5180	18.16	19.00	1.213	94.16	1.062	0.086	0.060	0.077
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	36	5180	18.10	19.00	1.230	94.85	1.054	0.017	0.031	0.040
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	36	5180	18.10	19.00	1.230	94.85	1.054	-0.039	0.073	0.095
	WLAN5GHz	802.11a 6Mbps	Left Side	10mm	Ant 2	36	5180	18.10	19.00	1.230	94.85	1.054	-0.005	0.004	0.005
	WLAN5GHz	802.11a 6Mbps	Right Side	10mm	Ant 2	36	5180	18.10	19.00	1.230	94.85	1.054	-0.149	0.001	0.001
	WLAN5GHz	802.11a 6Mbps	Top Side	10mm	Ant 2	36	5180	18.10	19.00	1.230	94.85	1.054	0.017	0.033	0.043
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	0.172	0.094	0.131
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	0.095	0.100	0.140
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	0.12	0.003	0.004
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	-0.12	0.007	0.009
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	-0.17	0.036	0.050
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.079	0.161	0.221
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.101	0.137	0.188
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.015	0.044	0.060
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.122	0.015	0.021
41	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.013	0.168	0.230

14.3 Product Specific SAR

<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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
42	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9262	1852.4	22.51	24.00	1.409	0.06	2.320	3.270
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	22.25	24.00	1.496	0.1	2.150	3.217
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	9538	1907.6	22.50	24.00	1.413	-0.19	1.880	2.656
43	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	1513	1752.6	22.40	24.00	1.445	0.19	1.720	2.486
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	1312	1712.4	22.38	24.00	1.452	0.11	1.640	2.381
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	1413	1732.6	22.54	24.00	1.400	0.14	1.570	2.197

<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)
44	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	19100	1900	22.78	24.00	1.324	-0.04	2.540	3.364
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	18700	1860	22.67	24.00	1.358	-0.09	2.300	3.124
	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	18900	1880	22.59	24.00	1.384	-0.11	2.410	3.334
45	LTE Band 4	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	22.76	24.00	1.330	0.15	2.380	3.166
46	LTE Band 25	20M	QPSK	1	0	Bottom Side	0mm	26140	1860	22.63	24.00	1.371	0.12	2.450	3.359
	LTE Band 25	20M	QPSK	1	0	Bottom Side	0mm	26340	1880	22.68	24.00	1.355	0.12	2.410	3.266
	LTE Band 25	20M	QPSK	1	0	Bottom Side	0mm	26590	1905	22.61	24.00	1.377	0.07	1.810	2.493

<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	802.11a 6Mbps	Front	0mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	-0.05	0.585	0.736
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	-0.01	0.193	0.243
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	-0.03	0.012	0.015
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	0.11	0.024	0.030
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	0.08	0.232	0.292
47	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	0.12	0.718	0.925
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 2	56	5280	18.00	19.00	1.259	94.85	1.054	0.17	0.687	0.912
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	-0.11	0.208	0.268
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	0.02	0.090	0.116
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	0.01	0.024	0.031
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	-0.14	0.641	0.826
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	0.114	0.594	0.817
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	-0.05	0.259	0.356
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	0.012	0.008	0.110
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	-0.11	0.014	0.019
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	-0.11	0.528	0.726
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	-0.17	0.808	1.187
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	0.19	0.291	0.428
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	0.02	0.119	0.175
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	0.03	0.039	0.057
48	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	0.11	1.000	1.469
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 2	106	5530	15.42	15.50	1.019	85.71	1.167	0.15	0.412	0.490

14.4 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	GPRS (4 Tx slots)	Front	10mm	128	824.2	26.57	27.50	1.239	-0.19	0.512	0.634
	GSM850	GPRS (4 Tx slots)	Back	10mm	128	824.2	26.57	27.50	1.239	0.04	0.519	0.643
	GSM850	GPRS (4 Tx slots)	Back	10mm	189	836.4	26.45	27.50	1.274	-0.19	0.584	0.744
49	GSM850	GPRS (4 Tx slots)	Back	10mm	251	848.8	26.34	27.50	1.306	-0.06	0.597	0.780
	GSM1900	GPRS (4 Tx slots)	Front	10mm	810	1909.8	22.90	24.50	1.445	-0.09	0.422	0.610
50	GSM1900	GPRS (4 Tx slots)	Back	10mm	810	1909.8	22.90	24.50	1.445	0.01	0.483	0.698
	GSM1900	GPRS (4 Tx slots)	Back	10mm	512	1850.2	22.79	24.50	1.483	-0.12	0.359	0.532
	GSM1900	GPRS (4 Tx slots)	Back	10mm	661	1880	22.75	24.50	1.496	-0.01	0.455	0.681

<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)
	WCDMA II	RMC 12.2Kbps	Front	10mm	9262	1852.4	21.55	23.00	1.396	0.03	0.671	0.937
	WCDMA II	RMC 12.2Kbps	Front	10mm	9400	1880	21.36	23.00	1.459	0.04	0.605	0.883
	WCDMA II	RMC 12.2Kbps	Front	10mm	9538	1907.6	21.41	23.00	1.442	-0.07	0.617	0.890
51	WCDMA II	RMC 12.2Kbps	Back	10mm	9262	1852.4	21.55	23.00	1.396	-0.06	0.730	1.019
	WCDMA II	RMC 12.2Kbps	Back	10mm	9400	1880	21.36	23.00	1.459	-0.04	0.691	1.008
	WCDMA II	RMC 12.2Kbps	Back	10mm	9538	1907.6	21.41	23.00	1.442	-0.04	0.705	1.017
	WCDMA IV	RMC 12.2Kbps	Front	10mm	1312	1712.4	21.01	22.50	1.409	0.07	0.616	0.868
	WCDMA IV	RMC 12.2Kbps	Front	10mm	1413	1732.6	20.85	22.50	1.462	0.04	0.627	0.917
	WCDMA IV	RMC 12.2Kbps	Front	10mm	1513	1752.6	20.94	22.50	1.432	0.04	0.657	0.941
	WCDMA IV	RMC 12.2Kbps	Back	10mm	1312	1712.4	21.01	22.50	1.409	-0.05	0.669	0.943
	WCDMA IV	RMC 12.2Kbps	Back	10mm	1413	1732.6	20.85	22.50	1.462	-0.03	0.675	0.987
52	WCDMA IV	RMC 12.2Kbps	Back	10mm	1513	1752.6	20.94	22.50	1.432	-0.05	0.692	0.991
	WCDMA V	RMC 12.2Kbps	Front	10mm	4132	826.4	21.60	22.50	1.230	0	0.656	0.807
	WCDMA V	RMC 12.2Kbps	Front	10mm	4182	836.4	21.58	22.50	1.236	0.02	0.749	0.926
	WCDMA V	RMC 12.2Kbps	Front	10mm	4233	846.6	21.20	22.50	1.349	-0.15	0.682	0.920
	WCDMA V	RMC 12.2Kbps	Back	10mm	4132	826.4	21.60	22.50	1.230	-0.04	0.725	0.892
53	WCDMA V	RMC 12.2Kbps	Back	10mm	4182	836.4	21.58	22.50	1.236	-0.03	0.751	0.928
	WCDMA V	RMC 12.2Kbps	Back	10mm	4233	846.6	21.20	22.50	1.349	-0.06	0.684	0.923

<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	20M	QPSK	1	0	Front	10mm	19100	1900	21.83	23.00	1.309	0.03	0.766	1.003
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18700	1860	21.49	23.00	1.416	0.05	0.747	1.058
	LTE Band 2	20M	QPSK	1	0	Front	10mm	18900	1880	21.53	23.00	1.403	0.14	0.735	1.031
	LTE Band 2	20M	QPSK	50	0	Front	10mm	19100	1900	21.63	23.00	1.371	0.01	0.608	0.833
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18700	1860	21.32	23.00	1.472	0.01	0.597	0.879
	LTE Band 2	20M	QPSK	50	0	Front	10mm	18900	1880	21.38	23.00	1.452	0.06	0.614	0.892
	LTE Band 2	20M	QPSK	100	0	Front	10mm	19100	1900	21.58	23.00	1.387	0.04	0.615	0.853
	LTE Band 2	20M	QPSK	1	0	Back	10mm	19100	1900	21.83	23.00	1.309	-0.03	0.795	1.041
54	LTE Band 2	20M	QPSK	1	0	Back	10mm	18700	1860	21.49	23.00	1.416	-0.05	0.778	1.101
	LTE Band 2	20M	QPSK	1	0	Back	10mm	18900	1880	21.53	23.00	1.403	-0.15	0.771	1.082
	LTE Band 2	20M	QPSK	50	0	Back	10mm	19100	1900	21.63	23.00	1.371	-0.13	0.660	0.905
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18700	1860	21.32	23.00	1.472	-0.07	0.647	0.953
	LTE Band 2	20M	QPSK	50	0	Back	10mm	18900	1880	21.38	23.00	1.452	-0.03	0.651	0.945
	LTE Band 2	20M	QPSK	100	0	Back	10mm	19100	1900	21.58	23.00	1.387	-0.17	0.652	0.904
	LTE Band 4	20M	QPSK	1	0	Front	10mm	20175	1732.5	20.93	22.00	1.279	0.03	0.603	0.771
	LTE Band 4	20M	QPSK	50	0	Front	10mm	20175	1732.5	20.74	22.00	1.337	0.04	0.596	0.797
	LTE Band 4	20M	QPSK	1	0	Back	10mm	20175	1732.5	20.93	22.00	1.279	-0.03	0.693	0.887
	LTE Band 4	20M	QPSK	50	0	Back	10mm	20175	1732.5	20.74	22.00	1.337	-0.16	0.562	0.751
55	LTE Band 4	20M	QPSK	100	0	Back	10mm	20175	1732.5	20.60	22.00	1.380	-0.02	0.660	0.911
	LTE Band 5	10M	QPSK	1	0	Front	10mm	20525	836.5	22.08	23.00	1.236	-0.04	0.802	0.991
	LTE Band 5	10M	QPSK	25	0	Front	10mm	20525	836.5	21.91	23.00	1.285	-0.14	0.576	0.740
	LTE Band 5	10M	QPSK	50	0	Front	10mm	20525	836.5	21.89	23.00	1.291	0.02	0.534	0.690
56	LTE Band 5	10M	QPSK	1	0	Back	10mm	20525	836.5	22.08	23.00	1.236	-0.02	0.820	1.013
	LTE Band 5	10M	QPSK	25	0	Back	10mm	20525	836.5	21.91	23.00	1.285	0.02	0.611	0.785
	LTE Band 5	10M	QPSK	50	0	Back	10mm	20525	836.5	21.89	23.00	1.291	-0.13	0.584	0.754
	LTE Band 7	20M	QPSK	1	0	Front	10mm	21350	2560	21.00	22.00	1.259	-0.09	0.550	0.692
	LTE Band 7	20M	QPSK	50	0	Front	10mm	21350	2560	20.81	22.00	1.315	-0.12	0.547	0.719
	LTE Band 7	20M	QPSK	1	0	Back	10mm	21350	2560	21.00	22.00	1.259	0.07	0.591	0.744
	LTE Band 7	20M	QPSK	50	0	Back	10mm	20850	2510	20.73	22.00	1.340	0.03	0.589	0.789
57	LTE Band 7	20M	QPSK	50	0	Back	10mm	21100	2535	20.80	22.00	1.318	-0.1	0.602	0.794
	LTE Band 7	20M	QPSK	50	0	Back	10mm	21350	2560	20.81	22.00	1.315	0.03	0.581	0.764
	LTE Band 7	20M	QPSK	100	0	Back	10mm	21100	2535	20.79	22.00	1.321	0.08	0.577	0.762
	LTE Band 12	10M	QPSK	1	0	Front	10mm	23095	707.5	23.50	24.00	1.122	-0.11	0.755	0.847
	LTE Band 12	10M	QPSK	25	0	Front	10mm	23095	707.5	21.61	23.00	1.377	-0.01	0.490	0.675
	LTE Band 12	10M	QPSK	50	0	Front	10mm	23095	707.5	21.60	23.00	1.380	-0.11	0.497	0.686
58	LTE Band 12	10M	QPSK	1	0	Back	10mm	23095	707.5	23.50	24.00	1.122	-0.19	0.796	0.893
	LTE Band 12	10M	QPSK	25	0	Back	10mm	23095	707.5	21.61	23.00	1.377	-0.04	0.503	0.693
	LTE Band 12	10M	QPSK	50	0	Back	10mm	23095	707.5	21.60	23.00	1.380	0.04	0.485	0.669
59	LTE Band 17	10M	QPSK	1	0	Front	10mm	23790	710	21.91	23.00	1.285	0.02	0.759	0.976
	LTE Band 17	10M	QPSK	25	0	Front	10mm	23790	710	21.79	23.00	1.321	0.06	0.519	0.686
	LTE Band 17	10M	QPSK	50	0	Front	10mm	23790	710	21.77	23.00	1.327	0	0.517	0.686
	LTE Band 17	10M	QPSK	1	0	Back	10mm	23790	710	21.91	23.00	1.285	-0.06	0.674	0.866
	LTE Band 17	10M	QPSK	25	0	Back	10mm	23790	710	21.79	23.00	1.321	0.01	0.528	0.698
	LTE Band 17	10M	QPSK	50	0	Back	10mm	23790	710	21.77	23.00	1.327	-0.06	0.531	0.705

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 25	20M	QPSK	1	0	Front	10mm	26340	1880	21.93	23.00	1.279	0.03	0.768	0.983
	LTE Band 25	20M	QPSK	1	0	Front	10mm	26140	1860	21.63	23.00	1.371	0.05	0.767	1.051
	LTE Band 25	20M	QPSK	1	0	Front	10mm	26590	1905	21.84	23.00	1.306	0.04	0.776	1.014
	LTE Band 25	20M	QPSK	50	0	Front	10mm	26340	1880	21.89	23.00	1.291	0.01	0.595	0.768
	LTE Band 25	20M	QPSK	50	0	Front	10mm	26140	1860	21.44	23.00	1.432	0.01	0.597	0.855
	LTE Band 25	20M	QPSK	50	0	Front	10mm	26590	1905	21.82	23.00	1.312	0.06	0.631	0.828
	LTE Band 25	20M	QPSK	100	0	Front	10mm	26340	1880	21.77	23.00	1.327	0.04	0.602	0.799
	LTE Band 25	20M	QPSK	1	0	Back	10mm	26340	1880	21.93	23.00	1.279	-0.03	0.804	1.029
60	LTE Band 25	20M	QPSK	1	0	Back	10mm	26140	1860	21.63	23.00	1.371	-0.05	0.801	1.098
	LTE Band 25	20M	QPSK	1	0	Back	10mm	26590	1860	21.84	23.00	1.306	-0.05	0.774	1.011
	LTE Band 25	20M	QPSK	50	0	Back	10mm	26340	1880	21.89	23.00	1.291	-0.02	0.646	0.834
	LTE Band 25	20M	QPSK	50	0	Back	10mm	26140	1860	21.44	23.00	1.432	-0.09	0.647	0.927
	LTE Band 25	20M	QPSK	50	0	Back	10mm	26590	1905	21.82	23.00	1.312	-0.05	0.669	0.878
	LTE Band 25	20M	QPSK	100	0	Back	10mm	26340	1880	21.77	23.00	1.327	-0.04	0.639	0.848
	LTE Band 26	15M	QPSK	1	0	Front	10mm	26865	831.5	22.20	23.00	1.202	-0.06	0.837	1.006
	LTE Band 26	15M	QPSK	36	0	Front	10mm	26865	831.5	22.13	23.00	1.222	-0.02	0.572	0.699
	LTE Band 26	15M	QPSK	75	0	Front	10mm	26865	831.5	22.08	23.00	1.236	0.02	0.530	0.655
61	LTE Band 26	15M	QPSK	1	0	Back	10mm	26865	831.5	22.20	23.00	1.202	-0.02	0.885	1.064
	LTE Band 26	15M	QPSK	36	0	Back	10mm	26865	831.5	22.13	23.00	1.222	0	0.607	0.742
	LTE Band 26	15M	QPSK	75	0	Back	10mm	26865	831.5	22.08	23.00	1.236	-0.05	0.580	0.717
	LTE Band 30	10M	QPSK	1	0	Front	10mm	27710	2310	21.02	22.00	1.253	-0.13	0.612	0.767
62	LTE Band 30	10M	QPSK	25	0	Front	10mm	27710	2310	20.83	22.00	1.309	-0.11	0.618	0.809
	LTE Band 30	10M	QPSK	50	0	Front	10mm	27710	2310	20.80	22.00	1.318	-0.13	0.611	0.805
	LTE Band 30	10M	QPSK	1	0	Back	10mm	27710	2310	21.02	22.00	1.253	0.03	0.610	0.764
	LTE Band 30	10M	QPSK	25	0	Back	10mm	27710	2310	20.83	22.00	1.309	-0.02	0.612	0.801
	LTE Band 30	10M	QPSK	50	0	Back	10mm	27710	2310	20.80	22.00	1.318	-0.01	0.613	0.808
	LTE Band 66	20M	QPSK	1	0	Front	10mm	132322	1745	21.37	22.00	1.156	-0.04	0.647	0.748
63	LTE Band 66	20M	QPSK	50	0	Front	10mm	132322	1745	21.14	22.00	1.219	-0.01	0.644	0.785
	LTE Band 66	20M	QPSK	50	0	Front	10mm	132072	1720	20.84	22.00	1.306	0	0.600	0.784
	LTE Band 66	20M	QPSK	50	0	Front	10mm	132572	1770	20.95	22.00	1.274	-0.02	0.611	0.778
	LTE Band 66	20M	QPSK	1	0	Back	10mm	132322	1745	21.37	22.00	1.156	-0.11	0.637	0.736
	LTE Band 66	20M	QPSK	50	0	Back	10mm	132322	1745	21.14	22.00	1.219	-0.13	0.630	0.768

<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 38	20M	QPSK	1	0	Front	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	-0.02	0.663	0.891
	LTE Band 38	20M	QPSK	1	0	Front	10mm	38000	2595	22.67	24.00	1.358	62.9	1.006	-0.11	0.643	0.879
64	LTE Band 38	20M	QPSK	1	0	Front	10mm	38150	2610	22.66	24.00	1.361	62.9	1.006	-0.01	0.707	0.968
	LTE Band 38	20M	QPSK	50	24	Front	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	-0.04	0.367	0.500
	LTE Band 38	20M	QPSK	100	0	Front	10mm	38150	2610	21.63	23.00	1.371	62.9	1.006	0.05	0.367	0.506
	LTE Band 38	20M	QPSK	1	0	Back	10mm	37850	2580	22.74	24.00	1.337	62.9	1.006	-0.06	0.657	0.883
	LTE Band 38	20M	QPSK	1	0	Back	10mm	38000	2595	22.67	24.00	1.358	62.9	1.006	-0.07	0.643	0.879
	LTE Band 38	20M	QPSK	1	0	Back	10mm	38150	2610	22.66	24.00	1.361	62.9	1.006	0.03	0.703	0.963
	LTE Band 38	20M	QPSK	50	24	Back	10mm	38150	2610	21.68	23.00	1.355	62.9	1.006	0.08	0.360	0.491
	LTE Band 38	20M	QPSK	100	0	Back	10mm	38150	2610	21.63	23.00	1.371	62.9	1.006	-0.02	0.361	0.498
	LTE Band 41	20M	QPSK	1	0	Front	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	-0.06	0.488	0.624
	LTE Band 41	20M	QPSK	1	0	Front	10mm	40240	2555	22.89	24.00	1.291	62.9	1.006	0.08	0.474	0.616
	LTE Band 41	20M	QPSK	1	0	Front	10mm	40770	2608	22.92	24.00	1.282	62.9	1.006	0.01	0.485	0.626
65	LTE Band 41	20M	QPSK	1	0	Front	10mm	41140	2645	22.72	24.00	1.343	62.9	1.006	0	0.475	0.642
	LTE Band 41	20M	QPSK	50	24	Front	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.14	0.356	0.468
	LTE Band 41	20M	QPSK	100	0	Front	10mm	40240	2555	21.81	23.00	1.315	62.9	1.006	0	0.335	0.443
	LTE Band 41	20M	QPSK	1	0	Back	10mm	40500	2581	22.96	24.00	1.271	62.9	1.006	0.01	0.461	0.589
	LTE Band 41	20M	QPSK	50	24	Back	10mm	40240	2555	21.84	23.00	1.306	62.9	1.006	0.07	0.325	0.427

<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	1	2412	15.90	16.50	1.148	100	1.000	-0.02	0.094	0.108
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	1	2412	15.90	16.50	1.148	100	1.000	0.02	0.138	0.158
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.09	0.212	0.243
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	1	2412	15.90	16.50	1.148	100	1.000	-0.1	0.248	0.285
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	6	2437	15.66	16.50	1.213	100	1.000	-0.1	0.206	0.250
66	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 2	11	2462	15.60	16.50	1.230	100	1.000	-0.05	0.255	0.314
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	-0.01	0.085	0.107
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 1	64	5320	18.26	19.00	1.185	94.16	1.062	-0.1	0.077	0.097
	WLAN5GHz	802.11a 6Mbps	Front	10mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	0.13	0.089	0.115
	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	64	5320	18.13	19.00	1.222	94.85	1.054	0.02	0.151	0.194
67	WLAN5GHz	802.11a 6Mbps	Back	10mm	Ant 2	56	5280	18.00	19.00	1.259	94.85	1.054	0.02	0.147	0.195
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	0.12	0.106	0.146
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	138	5690	18.25	19.00	1.190	86.51	1.156	0.128	0.117	0.161
68	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	-0.12	0.133	0.195
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	106	5530	15.42	15.50	1.019	85.71	1.167	-0.04	0.053	0.063
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	138	5690	18.00	19.00	1.259	85.71	1.167	0.03	0.125	0.184
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	0.172	0.094	0.131
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	18.18	19.00	1.208	86.51	1.156	0.095	0.100	0.140
69	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.079	0.161	0.221
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 2	155	5775	18.30	19.00	1.175	85.71	1.167	0.101	0.137	0.188

<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 1	00	2402	14.81	16.00	1.315	76.6	1.087	0.1	0.018	0.026
	Bluetooth	1Mbps	Back	10mm	Ant 1	00	2402	14.81	16.00	1.315	76.6	1.087	0	0.020	0.029
	Bluetooth	1Mbps	Back	10mm	Ant 1	39	2441	14.56	16.00	1.393	76.6	1.087	0.08	0.020	0.030
70	Bluetooth	1Mbps	Back	10mm	Ant 1	78	2480	14.16	16.00	1.528	76.6	1.087	-0.18	0.023	0.038

14.5 Repeated SAR Measurement

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)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 5	10M	QPSK	1	0	Back	10mm	20525	836.5	22.08	23.00	1.236	-0.02	0.820	-	1.013
2nd	LTE Band 5	10M	QPSK	25	0	Back	10mm	20525	836.5	22.08	23.00	1.236	-0.18	0.805	1.02	0.995
1st	LTE Band 25	20M	QPSK	1	0	Bottom Side	10mm	26140	1860	21.63	23.00	1.371	-0.04	0.857	-	1.175
2nd	LTE Band 25	20M	QPSK	1	0	Bottom Side	10mm	26140	1860	21.63	23.00	1.371	-0.04	0.845	1.01	1.158
1st	LTE Band 26	15M	QPSK	1	0	Back	10mm	26865	831.5	22.20	23.00	1.202	-0.02	0.885	-	1.064
2nd	LTE Band 26	15M	QPSK	1	0	Back	10mm	26865	831.5	22.20	23.00	1.202	-0.19	0.875	1.01	1.052

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)	Ratio	Reported 10g SAR (W/kg)
1st	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	19100	1900	22.78	24.00	1.324	-0.04	2.540		3.364
2nd	LTE Band 2	20M	QPSK	1	0	Bottom Side	0mm	19100	1900	22.78	24.00	1.324	-0.08	2.480	1.02	3.284
1st	LTE Band 4	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	22.76	24.00	1.330	0.15	2.380		3.166
2nd	LTE Band 4	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	22.76	24.00	1.330	0.13	2.360	1.01	3.140
1st	LTE Band 25	20M	QPSK	1	0	Bottom Side	0mm	26140	1860	22.63	24.00	1.371	0.12	2.450		3.359
2nd	LTE Band 25	20M	QPSK	1	0	Bottom Side	0mm	26140	1860	22.63	24.00	1.371	0.02	2.370	1.03	3.249

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 Product Specific repeated SAR is necessary, the same procedures should be adapted for measurements according to Product Specific and occupational exposure limits by applying a factor of 2.5 for Product Specific 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

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN (Voice) + WLAN Ant 1 + WLAN Ant 2	Yes	Yes		Yes
2.	WWAN (Data) + WLAN Ant 1 + WLAN Ant 2	Yes	Yes	Yes	Yes
3.	WWAN (Voice) + WLAN2.4GHz Ant 2 + Bluetooth Ant 1		Yes		Yes
4.	WWAN (Data) + WLAN2.4GHz Ant 2 + Bluetooth Ant 1		Yes		Yes
5.	WWAN (Voice) + WLAN5GHz Ant 1 + WLAN5GHz Ant 2 + Bluetooth Ant 1		Yes		Yes
6.	WWAN (Data) + WLAN5GHz Ant 1 + WLAN5GHz Ant 2 + Bluetooth Ant 1		Yes		Yes

General Note:

1. This device 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation.
2. 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.
3. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
4. 2.4GHz WLAN and Bluetooth share the same antenna 1, 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.
7. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

Bluetooth Max Power	Exposure Position	Product Specific
	Test separation	5 mm
16.0 Bm	Estimated 10g SAR (W/kg)	0.672 W/kg

15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	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+3+4 Summed 1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.161	0.341	0.051	0.353	0.724	**0.553**	**1.238**	**1.226**	**0.565**
		Right Tilted	0.067	0.299	0.022	0.405	0.873	**0.388**	**1.345**	**1.239**	**0.494**
		Left Cheek	0.232	0.636	0.052	0.605	0.430	**0.920**	**1.267**	**1.298**	**0.889**
		Left Tilted	0.067	0.504	0.023	0.661	0.511	**0.594**	**1.239**	**1.082**	**0.751**
	GSM1900	Right Cheek	0.181	0.341	0.051	0.353	0.724	**0.573**	**1.258**	**1.246**	**0.585**
		Right Tilted	0.059	0.299	0.022	0.405	0.873	**0.380**	**1.337**	**1.231**	**0.486**
		Left Cheek	0.247	0.636	0.052	0.605	0.430	**0.935**	**1.282**	**1.313**	**0.904**
		Left Tilted	0.056	0.504	0.023	0.661	0.511	**0.583**	**1.228**	**1.071**	**0.740**
WCDMA	WCDMA II	Right Cheek	0.318	0.341	0.051	0.353	0.724	**0.710**	**1.395**	**1.383**	**0.722**
		Right Tilted	0.185	0.299	0.022	0.405	0.873	**0.506**	**1.463**	**1.357**	**0.612**
		Left Cheek	0.383	0.636	0.052	0.605	0.430	**1.071**	**1.418**	**1.449**	**1.040**
		Left Tilted	0.169	0.504	0.023	0.661	0.511	**0.696**	**1.341**	**1.184**	**0.853**
	WCDMA IV	Right Cheek	0.444	0.341	0.051	0.353	0.724	**0.836**	**1.521**	**1.509**	**0.848**
		Right Tilted	0.077	0.299	0.022	0.405	0.873	**0.398**	**1.355**	**1.249**	**0.504**
		Left Cheek	0.481	0.636	0.052	0.605	0.430	**1.169**	**1.516**	**1.547**	**1.138**
		Left Tilted	0.130	0.504	0.023	0.661	0.511	**0.657**	**1.302**	**1.145**	**0.814**
	WCDMA V	Right Cheek	0.337	0.341	0.051	0.353	0.724	**0.729**	**1.414**	**1.402**	**0.741**
		Right Tilted	0.144	0.299	0.022	0.405	0.873	**0.465**	**1.422**	**1.316**	**0.571**
		Left Cheek	0.372	0.636	0.052	0.605	0.430	**1.060**	**1.407**	**1.438**	**1.029**
		Left Tilted	0.110	0.504	0.023	0.661	0.511	**0.637**	**1.282**	**1.125**	**0.794**
LTE	LTE Band 2	Right Cheek	0.336	0.341	0.051	0.353	0.724	**0.728**	**1.413**	**1.401**	**0.740**
		Right Tilted	0.070	0.299	0.022	0.405	0.873	**0.391**	**1.348**	**1.242**	**0.497**
		Left Cheek	0.381	0.636	0.052	0.605	0.430	**1.069**	**1.416**	**1.447**	**1.038**
		Left Tilted	0.123	0.504	0.023	0.661	0.511	**0.650**	**1.295**	**1.138**	**0.807**
	LTE Band 4	Right Cheek	0.391	0.341	0.051	0.353	0.724	**0.783**	**1.468**	**1.456**	**0.795**
		Right Tilted	0.055	0.299	0.022	0.405	0.873	**0.376**	**1.333**	**1.227**	**0.482**
		Left Cheek	0.354	0.636	0.052	0.605	0.430	**1.042**	**1.389**	**1.420**	**1.011**
		Left Tilted	0.152	0.504	0.023	0.661	0.511	**0.679**	**1.324**	**1.167**	**0.836**
	LTE Band 5	Right Cheek	0.313	0.341	0.051	0.353	0.724	**0.705**	**1.390**	**1.378**	**0.717**
		Right Tilted	0.131	0.299	0.022	0.405	0.873	**0.452**	**1.409**	**1.303**	**0.558**
		Left Cheek	0.292	0.636	0.052	0.605	0.430	**0.980**	**1.327**	**1.358**	**0.949**
		Left Tilted	0.133	0.504	0.023	0.661	0.511	**0.660**	**1.305**	**1.148**	**0.817**
	LTE Band 7	Right Cheek	0.423	0.341	0.051	0.353	0.724	**0.815**	**1.500**	**1.488**	**0.827**
		Right Tilted	0.113	0.299	0.022	0.405	0.873	**0.434**	**1.391**	**1.285**	**0.540**
		Left Cheek	0.181	0.636	0.052	0.605	0.430	**0.869**	**1.216**	**1.247**	**0.838**
		Left Tilted	0.131	0.504	0.023	0.661	0.511	**0.658**	**1.303**	**1.146**	**0.815**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	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+3+4 Summed 1g SAR (W/kg)
LTE	LTE Band 12	Right Cheek	0.205	0.341	0.051	0.353	0.724	**0.597**	**1.282**	**1.270**	**0.609**
		Right Tilted	0.058	0.299	0.022	0.405	0.873	**0.379**	**1.336**	**1.230**	**0.485**
		Left Cheek	0.135	0.636	0.052	0.605	0.430	**0.823**	**1.170**	**1.201**	**0.792**
		Left Tilted	0.059	0.504	0.023	0.661	0.511	**0.586**	**1.231**	**1.074**	**0.743**
	LTE Band 17	Right Cheek	0.245	0.341	0.051	0.353	0.724	**0.637**	**1.322**	**1.310**	**0.649**
		Right Tilted	0.059	0.299	0.022	0.405	0.873	**0.380**	**1.337**	**1.231**	**0.486**
		Left Cheek	0.169	0.636	0.052	0.605	0.430	**0.857**	**1.204**	**1.235**	**0.826**
		Left Tilted	0.074	0.504	0.023	0.661	0.511	**0.601**	**1.246**	**1.089**	**0.758**
	LTE Band 25	Right Cheek	0.384	0.341	0.051	0.353	0.724	**0.776**	**1.461**	**1.449**	**0.788**
		Right Tilted	0.065	0.299	0.022	0.405	0.873	**0.386**	**1.343**	**1.237**	**0.492**
		Left Cheek	0.526	0.636	0.052	0.605	0.430	**1.214**	**1.561**	**1.592**	**1.183**
		Left Tilted	0.122	0.504	0.023	0.661	0.511	**0.649**	**1.294**	**1.137**	**0.806**
	LTE Band 26	Right Cheek	0.298	0.341	0.051	0.353	0.724	**0.690**	**1.375**	**1.363**	**0.702**
		Right Tilted	0.157	0.299	0.022	0.405	0.873	**0.478**	**1.435**	**1.329**	**0.584**
		Left Cheek	0.339	0.636	0.052	0.605	0.430	**1.027**	**1.374**	**1.405**	**0.996**
		Left Tilted	0.140	0.504	0.023	0.661	0.511	**0.667**	**1.312**	**1.155**	**0.824**
	LTE Band 30	Right Cheek	0.389	0.341	0.051	0.353	0.724	**0.781**	**1.466**	**1.454**	**0.793**
		Right Tilted	0.154	0.299	0.022	0.405	0.873	**0.475**	**1.432**	**1.326**	**0.581**
		Left Cheek	0.185	0.636	0.052	0.605	0.430	**0.873**	**1.220**	**1.251**	**0.842**
		Left Tilted	0.181	0.504	0.023	0.661	0.511	**0.708**	**1.353**	**1.196**	**0.865**
	LTE Band 38	Right Cheek	0.308	0.341	0.051	0.353	0.724	**0.700**	**1.385**	**1.373**	**0.712**
		Right Tilted	0.062	0.299	0.022	0.405	0.873	**0.383**	**1.340**	**1.234**	**0.489**
		Left Cheek	0.118	0.636	0.052	0.605	0.430	**0.806**	**1.153**	**1.184**	**0.775**
		Left Tilted	0.109	0.504	0.023	0.661	0.511	**0.636**	**1.281**	**1.124**	**0.793**
	LTE Band 41	Right Cheek	0.221	0.341	0.051	0.353	0.724	**0.613**	**1.298**	**1.286**	**0.625**
		Right Tilted	0.052	0.299	0.022	0.405	0.873	**0.373**	**1.330**	**1.224**	**0.479**
		Left Cheek	0.066	0.636	0.052	0.605	0.430	**0.754**	**1.101**	**1.132**	**0.723**
		Left Tilted	0.041	0.504	0.023	0.661	0.511	**0.568**	**1.213**	**1.056**	**0.725**
	LTE Band 66	Right Cheek	0.457	0.341	0.051	0.353	0.724	**0.849**	**1.534**	**1.522**	**0.861**
		Right Tilted	0.089	0.299	0.022	0.405	0.873	**0.410**	**1.367**	**1.261**	**0.516**
		Left Cheek	0.525	0.636	0.052	0.605	0.430	**1.213**	**1.560**	**1.591**	**1.182**
		Left Tilted	0.137	0.504	0.023	0.661	0.511	**0.664**	**1.309**	**1.152**	**0.821**

15.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	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+3+4 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.634	0.108	0.243	0.140	0.221	**0.985**	**0.995**	**0.963**	**1.017**
		Back	0.780	0.158	0.285	0.140	0.188	**1.223**	**1.108**	**1.126**	**1.205**
		Left side	0.171	0.018	0.084	0.006	0.060	**0.273**	**0.237**	**0.249**	**0.261**
		Right side	0.483	0.059	0.039	0.015	0.021	**0.581**	**0.519**	**0.563**	**0.537**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.320	0.003	0.373			**0.696**	**0.320**	**0.323**	**0.693**
	GSM1900	Front	0.610	0.108	0.243	0.140	0.221	**0.961**	**0.971**	**0.939**	**0.993**
		Back	0.698	0.158	0.285	0.140	0.188	**1.141**	**1.026**	**1.044**	**1.123**
		Left side	0.273	0.018	0.084	0.006	0.060	**0.375**	**0.339**	**0.351**	**0.363**
		Right side	0.185	0.059	0.039	0.015	0.021	**0.283**	**0.221**	**0.265**	**0.239**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.663	0.003	0.373			**1.039**	**0.663**	**0.666**	**1.036**
WCDMA	WCDMA II	Front	0.937	0.108	0.243	0.140	0.221	**1.288**	**1.298**	**1.266**	**1.320**
		Back	1.019	0.158	0.285	0.140	0.188	**1.462**	**1.347**	**1.365**	**1.444**
		Left side	0.444	0.018	0.084	0.006	0.060	**0.546**	**0.510**	**0.522**	**0.534**
		Right side	0.332	0.059	0.039	0.015	0.021	**0.430**	**0.368**	**0.412**	**0.386**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	1.015	0.003	0.373			**1.391**	**1.015**	**1.018**	**1.388**
	WCDMA IV	Front	0.941	0.108	0.243	0.140	0.221	**1.292**	**1.302**	**1.270**	**1.324**
		Back	0.991	0.158	0.285	0.140	0.188	**1.434**	**1.319**	**1.337**	**1.416**
		Left side	0.337	0.018	0.084	0.006	0.060	**0.439**	**0.403**	**0.415**	**0.427**
		Right side	0.175	0.059	0.039	0.015	0.021	**0.273**	**0.211**	**0.255**	**0.229**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.874	0.003	0.373			**1.250**	**0.874**	**0.877**	**1.247**
	WCDMA V	Front	0.926	0.108	0.243	0.140	0.221	**1.277**	**1.287**	**1.255**	**1.309**
		Back	0.928	0.158	0.285	0.140	0.188	**1.371**	**1.256**	**1.274**	**1.353**
		Left side	0.309	0.018	0.084	0.006	0.060	**0.411**	**0.375**	**0.387**	**0.399**
		Right side	0.586	0.059	0.039	0.015	0.021	**0.684**	**0.622**	**0.666**	**0.640**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.407	0.003	0.373			**0.783**	**0.407**	**0.410**	**0.780**
LTE	LTE Band 2	Front	1.058	0.108	0.243	0.140	0.221	**1.409**	**1.419**	**1.387**	**1.441**
		Back	1.101	0.158	0.285	0.140	0.188	**1.544**	**1.429**	**1.447**	**1.526**
		Left side	0.427	0.018	0.084	0.006	0.060	**0.529**	**0.493**	**0.505**	**0.517**
		Right side	0.238	0.059	0.039	0.015	0.021	**0.336**	**0.274**	**0.318**	**0.292**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	1.100	0.003	0.373			**1.476**	**1.100**	**1.103**	**1.473**
	LTE Band 4	Front	0.797	0.108	0.243	0.140	0.221	**1.148**	**1.158**	**1.126**	**1.180**
		Back	0.911	0.158	0.285	0.140	0.188	**1.354**	**1.239**	**1.257**	**1.336**
		Left side	0.330	0.018	0.084	0.006	0.060	**0.432**	**0.396**	**0.408**	**0.420**
		Right side	0.186	0.059	0.039	0.015	0.021	**0.284**	**0.222**	**0.266**	**0.240**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.853	0.003	0.373			**1.229**	**0.853**	**0.856**	**1.226**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	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+3+4 Summed 1g SAR (W/kg)
LTE	LTE Band 5	Front	0.991	0.108	0.243	0.140	0.221	**1.342**	**1.352**	**1.320**	**1.374**
		Back	1.013	0.158	0.285	0.140	0.188	**1.456**	**1.341**	**1.359**	**1.438**
		Left side	0.344	0.018	0.084	0.006	0.060	**0.446**	**0.410**	**0.422**	**0.434**
		Right side	0.619	0.059	0.039	0.015	0.021	**0.717**	**0.655**	**0.699**	**0.673**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.462	0.003	0.373			**0.838**	**0.462**	**0.465**	**0.835**
	LTE Band 7	Front	0.719	0.108	0.243	0.140	0.221	**1.070**	**1.080**	**1.048**	**1.102**
		Back	0.794	0.158	0.285	0.140	0.188	**1.237**	**1.122**	**1.140**	**1.219**
		Left side	0.045	0.018	0.084	0.006	0.060	**0.147**	**0.111**	**0.123**	**0.135**
		Right side	0.197	0.059	0.039	0.015	0.021	**0.295**	**0.233**	**0.277**	**0.251**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.626	0.003	0.373			**1.002**	**0.626**	**0.629**	**0.999**
	LTE Band 12	Front	0.847	0.108	0.243	0.140	0.221	**1.198**	**1.208**	**1.176**	**1.230**
		Back	0.893	0.158	0.285	0.140	0.188	**1.336**	**1.221**	**1.239**	**1.318**
		Left side	0.158	0.018	0.084	0.006	0.060	**0.260**	**0.224**	**0.236**	**0.248**
		Right side	0.454	0.059	0.039	0.015	0.021	**0.552**	**0.490**	**0.534**	**0.508**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.373	0.003	0.373			**0.749**	**0.373**	**0.376**	**0.746**
	LTE Band 17	Front	0.976	0.108	0.243	0.140	0.221	**1.327**	**1.337**	**1.305**	**1.359**
		Back	0.866	0.158	0.285	0.140	0.188	**1.309**	**1.194**	**1.212**	**1.291**
		Left side	0.167	0.018	0.084	0.006	0.060	**0.269**	**0.233**	**0.245**	**0.257**
		Right side	0.545	0.059	0.039	0.015	0.021	**0.643**	**0.581**	**0.625**	**0.599**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.382	0.003	0.373			**0.758**	**0.382**	**0.385**	**0.755**
	LTE Band 25	Front	1.051	0.108	0.243	0.140	0.221	**1.402**	**1.412**	**1.380**	**1.434**
		Back	1.098	0.158	0.285	0.140	0.188	**1.541**	**1.426**	**1.444**	**1.523**
		Left side	0.408	0.018	0.084	0.006	0.060	**0.510**	**0.474**	**0.486**	**0.498**
		Right side	0.228	0.059	0.039	0.015	0.021	**0.326**	**0.264**	**0.308**	**0.282**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	1.175	0.003	0.373			**1.551**	**1.175**	**1.178**	**1.548**
	LTE Band 26	Front	1.006	0.108	0.243	0.140	0.221	**1.357**	**1.367**	**1.335**	**1.389**
		Back	1.064	0.158	0.285	0.140	0.188	**1.507**	**1.392**	**1.410**	**1.489**
		Left side	0.332	0.018	0.084	0.006	0.060	**0.434**	**0.398**	**0.410**	**0.422**
		Right side	0.599	0.059	0.039	0.015	0.021	**0.697**	**0.635**	**0.679**	**0.653**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.446	0.003	0.373			**0.822**	**0.446**	**0.449**	**0.819**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	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+3+4 Summed 1g SAR (W/kg)
LTE	LTE Band 30	Front	0.809	0.108	0.243	0.140	0.221	**1.160**	**1.170**	**1.138**	**1.192**
		Back	0.805	0.158	0.285	0.140	0.188	**1.248**	**1.133**	**1.151**	**1.230**
		Left side	0.798	0.018	0.084	0.006	0.060	**0.900**	**0.864**	**0.876**	**0.888**
		Right side	0.197	0.059	0.039	0.015	0.021	**0.295**	**0.233**	**0.277**	**0.251**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.617	0.003	0.373			**0.993**	**0.617**	**0.620**	**0.990**
	LTE Band 38	Front	0.968	0.108	0.243	0.140	0.221	**1.319**	**1.329**	**1.297**	**1.351**
		Back	0.963	0.158	0.285	0.140	0.188	**1.406**	**1.291**	**1.309**	**1.388**
		Left side	0.063	0.018	0.084	0.006	0.060	**0.165**	**0.129**	**0.141**	**0.153**
		Right side	0.251	0.059	0.039	0.015	0.021	**0.349**	**0.287**	**0.331**	**0.305**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	1.014	0.003	0.373			**1.390**	**1.014**	**1.017**	**1.387**
	LTE Band 41	Front	0.642	0.108	0.243	0.140	0.221	**0.993**	**1.003**	**0.971**	**1.025**
		Back	0.589	0.158	0.285	0.140	0.188	**1.032**	**0.917**	**0.935**	**1.014**
		Left side	0.033	0.018	0.084	0.006	0.060	**0.135**	**0.099**	**0.111**	**0.123**
		Right side	0.179	0.059	0.039	0.015	0.021	**0.277**	**0.215**	**0.259**	**0.233**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	0.548	0.003	0.373			**0.924**	**0.548**	**0.551**	**0.921**
	LTE Band 66	Front	0.785	0.108	0.243	0.140	0.221	**1.136**	**1.146**	**1.114**	**1.168**
		Back	0.768	0.158	0.285	0.140	0.188	**1.211**	**1.096**	**1.114**	**1.193**
		Left side	0.354	0.018	0.084	0.006	0.060	**0.456**	**0.420**	**0.432**	**0.444**
		Right side	0.201	0.059	0.039	0.015	0.021	**0.299**	**0.237**	**0.281**	**0.255**
		Top side		0.082	0.006	0.077	0.230	**0.088**	**0.307**	**0.312**	**0.083**
		Bottom side	1.020	0.003	0.373			**1.396**	**1.020**	**1.023**	**1.393**

15.3 Product Specific Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+4+5+6 Summed 10g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 1	
			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)	
WCDMA	WCDMA II	Front	-	-	-	0.817	1.187	0.672	2.676
		Back	-	-	-	0.356	0.428	0.672	1.456
		Left side	-	-	-	0.110	0.175	0.672	0.957
		Right side	-	-	-	0.030	0.057	0.672	0.759
		Top side	-	-	-	0.726	1.469	0.672	2.867
		Bottom side	3.270	-	-	-	-	-	3.270
	WCDMA IV	Front	-	-	-	0.817	1.187	0.672	2.676
		Back	-	-	-	0.356	0.428	0.672	1.456
		Left side	-	-	-	0.110	0.175	0.672	0.957
		Right side	-	-	-	0.030	0.057	0.672	0.759
		Top side	-	-	-	0.726	1.469	0.672	2.867
		Bottom side	2.486	-	-	-	-	-	2.486
LTE	LTE Band 2	Front	-	-	-	0.817	1.187	0.672	2.676
		Back	-	-	-	0.356	0.428	0.672	1.456
		Left side	-	-	-	0.110	0.175	0.672	0.957
		Right side	-	-	-	0.030	0.057	0.672	0.759
		Top side	-	-	-	0.726	1.469	0.672	2.867
		Bottom side	3.364	-	-	-	-	-	3.364
	LTE Band 4	Front	-	-	-	0.817	1.187	0.672	2.676
		Back	-	-	-	0.356	0.428	0.672	1.456
		Left side	-	-	-	0.110	0.175	0.672	0.957
		Right side	-	-	-	0.030	0.057	0.672	0.759
		Top side	-	-	-	0.726	1.469	0.672	2.867
		Bottom side	3.166	-	-	-	-	-	3.166
	LTE Band 25	Front	-	-	-	0.817	1.187	0.672	2.676
		Back	-	-	-	0.356	0.428	0.672	1.456
		Left side	-	-	-	0.110	0.175	0.672	0.957
		Right side	-	-	-	0.030	0.057	0.672	0.759
		Top side	-	-	-	0.726	1.469	0.672	2.867
		Bottom side	3.359	-	-	-	-	-	3.359

Remark:

1. According to KDB 648474 D04v01r03, for WWAN / 2.4GHz WLAN SAR ("-") was excluded, due to Hotspot SAR was < 1.2W/kg.
2. According to KDB 941225 D06 v02r01, for Bluetooth and 5GHz WLAN SAR ("-") was excluded, due to transmitting antenna located larger 25mm from that surface or edge

15.4 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 1 1g SAR (W/kg)	3 2.4GHz WLAN Ant 2 1g SAR (W/kg)	4 5GHz WLAN Ant 1 1g SAR (W/kg)	5 5GHz WLAN Ant 2 1g SAR (W/kg)	6 Bluetooth Ant 1 1g SAR (W/kg)	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+3+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.634	0.108	0.243	0.146	0.221	0.026	**0.985**	**1.001**	**0.963**	**1.023**	**0.903**	**1.027**
		Back	0.780	0.158	0.314	0.161	0.195	0.038	**1.252**	**1.136**	**1.133**	**1.255**	**1.132**	**1.174**
	GSM1900	Front	0.610	0.108	0.243	0.146	0.221	0.026	**0.961**	**0.977**	**0.939**	**0.999**	**0.879**	**1.003**
		Back	0.698	0.158	0.314	0.161	0.195	0.038	**1.170**	**1.054**	**1.051**	**1.173**	**1.050**	**1.092**
WCDMA	WCDMA II	Front	0.937	0.108	0.243	0.146	0.221	0.026	**1.288**	**1.304**	**1.266**	**1.326**	**1.206**	**1.330**
		Back	1.019	0.158	0.314	0.161	0.195	0.038	**1.491**	**1.375**	**1.372**	**1.494**	**1.371**	**1.413**
	WCDMA IV	Front	0.941	0.108	0.243	0.146	0.221	0.026	**1.292**	**1.308**	**1.270**	**1.330**	**1.210**	**1.334**
		Back	0.991	0.158	0.314	0.161	0.195	0.038	**1.463**	**1.347**	**1.344**	**1.466**	**1.343**	**1.385**
	WCDMA V	Front	0.926	0.108	0.243	0.146	0.221	0.026	**1.277**	**1.293**	**1.255**	**1.315**	**1.195**	**1.319**
		Back	0.928	0.158	0.314	0.161	0.195	0.038	**1.400**	**1.284**	**1.281**	**1.403**	**1.280**	**1.322**
LTE	LTE Band 2	Front	1.058	0.108	0.243	0.146	0.221	0.026	**1.409**	**1.425**	**1.387**	**1.447**	**1.327**	**1.451**
		Back	1.101	0.158	0.314	0.161	0.195	0.038	**1.573**	**1.457**	**1.454**	**1.576**	**1.453**	**1.495**
	LTE Band 4	Front	0.797	0.108	0.243	0.146	0.221	0.026	**1.148**	**1.164**	**1.126**	**1.186**	**1.066**	**1.190**
		Back	0.911	0.158	0.314	0.161	0.195	0.038	**1.383**	**1.267**	**1.264**	**1.386**	**1.263**	**1.305**
	LTE Band 5	Front	0.991	0.108	0.243	0.146	0.221	0.026	**1.342**	**1.358**	**1.320**	**1.380**	**1.260**	**1.384**
		Back	1.013	0.158	0.314	0.161	0.195	0.038	**1.485**	**1.369**	**1.366**	**1.488**	**1.365**	**1.407**
	LTE Band 7	Front	0.719	0.108	0.243	0.146	0.221	0.026	**1.070**	**1.086**	**1.048**	**1.108**	**0.988**	**1.112**
		Back	0.794	0.158	0.314	0.161	0.195	0.038	**1.266**	**1.150**	**1.147**	**1.269**	**1.146**	**1.188**
	LTE Band 12	Front	0.847	0.108	0.243	0.146	0.221	0.026	**1.198**	**1.214**	**1.176**	**1.236**	**1.116**	**1.240**
		Back	0.893	0.158	0.314	0.161	0.195	0.038	**1.365**	**1.249**	**1.246**	**1.368**	**1.245**	**1.287**
	LTE Band 17	Front	0.976	0.108	0.243	0.146	0.221	0.026	**1.327**	**1.343**	**1.305**	**1.365**	**1.245**	**1.369**
		Back	0.866	0.158	0.314	0.161	0.195	0.038	**1.338**	**1.222**	**1.219**	**1.341**	**1.218**	**1.260**
	LTE Band 25	Front	1.051	0.108	0.243	0.146	0.221	0.026	**1.402**	**1.418**	**1.380**	**1.440**	**1.320**	**1.444**
		Back	1.098	0.158	0.314	0.161	0.195	0.038	**1.570**	**1.454**	**1.451**	**1.573**	**1.450**	**1.492**
	LTE Band 26	Front	1.006	0.108	0.243	0.146	0.221	0.026	**1.357**	**1.373**	**1.335**	**1.395**	**1.275**	**1.399**
		Back	1.064	0.158	0.314	0.161	0.195	0.038	**1.536**	**1.420**	**1.417**	**1.539**	**1.416**	**1.458**
	LTE Band 30	Front	0.809	0.108	0.243	0.146	0.221	0.026	**1.160**	**1.176**	**1.138**	**1.198**	**1.078**	**1.202**
		Back	0.808	0.158	0.314	0.161	0.195	0.038	**1.280**	**1.164**	**1.161**	**1.283**	**1.160**	**1.202**
	LTE Band 38	Front	0.968	0.108	0.243	0.146	0.221	0.026	**1.319**	**1.335**	**1.297**	**1.357**	**1.237**	**1.361**
		Back	0.963	0.158	0.314	0.161	0.195	0.038	**1.435**	**1.319**	**1.316**	**1.438**	**1.315**	**1.357**
	LTE Band 41	Front	0.642	0.108	0.243	0.146	0.221	0.026	**0.993**	**1.009**	**0.971**	**1.031**	**0.911**	**1.035**
		Back	0.589	0.158	0.314	0.161	0.195	0.038	**1.061**	**0.945**	**0.942**	**1.064**	**0.941**	**0.983**
	LTE Band 66	Front	0.785	0.108	0.243	0.146	0.221	0.026	**1.136**	**1.152**	**1.114**	**1.174**	**1.054**	**1.178**
		Back	0.768	0.158	0.314	0.161	0.195	0.038	**1.240**	**1.124**	**1.121**	**1.243**	**1.120**	**1.162**

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 137 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. The bands which are dynamically tuned are split into two separate antennas, so each antenna system will have its own test plan to cover the corresponding 137 tuner states.
3. 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 30)	Default (State 10)	1	19	37	55	73	91	109	127
WCDMA B5	RMC12.2Kbps	826.4	4132	N/A	N/A	Left Cheek	0 mm	0.308	0.387	0.281	0.031	0.02	0.011	0.005	0.032	0.019	0.012	0.006
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 29)	Default (State 10)	2	20	38	56	74	92	110	128
LTE B5	QPSK	836.5	20525	1	0	Right Cheek	0 mm	0.288	0.411	0.353	0.035	0.031	0.009	0.006	0.029	0.022	0.011	0.007
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 36)	Default (State 37)	3	21	39	57	75	93	111	129
LTE B7	QPSK	2560	21350	1	0	Right Cheek	0 mm	0.316	0.631	0.62	0.498	0.016	0.504	0.019	0.353	0.012	0.411	0.013
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 45)	Default (State 118)	4	22	40	58	76	94	112	130
LTE B12	QPSK	707.5	23095	1	0	Right Cheek	0 mm	0.183	0.198	0.101	0.019	0.011	0.152	0.124	0.135	0.078	0.054	0.046
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 45)	Default (State 118)	5	23	41	59	77	95	113	131
LTE B17	QPSK	710	23790	1	0	Right Cheek	0 mm	0.217	0.34	0.167	0.031	0.016	0.261	0.216	0.233	0.118	0.086	0.081
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 30)	Default (State 10)	6	24	42	60	78	96	114	132
LTE B26	QPSK	831.5	26865	1	0	Left Cheek	0 mm	0.313	0.369	0.253	0.163	0.125	0.033	0.019	0.071	0.057	0.027	0.02
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)									
									Auto-Tune (State 16)	Default (State 137)	7	25	43	61	79	97	115	133
LTE B30	QPSK	2310	27710	1	0	Right Cheek	0 mm	0.297	0.483	0.481	0.362	0.11	0.349	0.118	0.416	0.117	0.391	0.121
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 104)	Default (State 36)	8	26	44	62	80	98	116	134
LTE B38	QPSK	2610	38150	1	0	Right Cheek	0 mm	0.225	0.442	0.423	0.181	0.003	0.204	0.003	0.157	0.002	0.178	0.004
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)									
									Auto-Tune (State 36)	Default (State 38)	9	27	45	63	81	99	117	135
LTE B41	QPSK	2581	40500	1	0	Right Cheek	0 mm	0.173	0.284	0.222	0.133	0.003	0.136	0.002	0.121	0.002	0.12	0.002

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 11)	Default (State 10)	10	28	46	64	82	100	118	136
WCDMA B5	RMC12.2Kbps	836.4	4182	N/A	N/A	Back	10 mm	0.751	1.362	1.361	1.36	1.287	0.342	0.322	0.712	0.983	0.266	0.336
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 10)	Default (State 10)	11	29	47	65	83	101	119	137
LTE B5	QPSK	836.5	20525	1	0	Back	10 mm	0.82	1.372	1.366	1.36	1.327	0.345	0.438	0.874	1.084	0.295	1.262
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 37)	Default (State 37)	12	30	48	66	84	102	120	
LTE B7	QPSK	2535	21100	50	0	Back	10 mm	0.602	1.348	1.33	0.665	0.029	0.708	0.028	0.601	0.003	0.068	
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 47)	Default (State 118)	13	31	49	67	85	103	121	
LTE B12	QPSK	707.5	23095	1	0	Back	10 mm	0.796	1.43	0.571	0.379	0.164	1.42	1.17	1.19	0.0365	0.021	
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 47)	Default (State 118)	14	32	50	68	86	104	122	
LTE B17	QPSK	710	23790	1	0	Front	10 mm	0.759	1.298	0.835	0.421	0.239	1.224	0.748	0.175	0.07	0.054	
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 12)	Default (State 10)	15	33	51	69	87	105	123	
LTE B26	QPSK	831.5	26865	1	0	Back	10 mm	0.885	1.41	1.283	1.344	1.213	0.501	0.044	0.033	0.03	0.019	
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)									
									Auto-Tune (State 16)	Default (State 137)	16	34	52	70	88	106	124	
LTE B30	QPSK	2310	27710	25	0	Front	10 mm	0.618	1.017	1.008	1.01	0.007	0.018	0.341	0.065	0.506	0.125	
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 104)	Default (State 36)	17	35	53	71	89	107	125	
LTE B38	QPSK	2610	38150	1	0	Front	10 mm	0.707	1.33	1.32	0.302	1.18	0.033	1.166	0.014	1.142	0.018	
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 103)	Default (State 38)	18	36	54	72	90	108	126	
LTE B41	QPSK	2645	41140	1	0	Front	10 mm	0.475	0.943	0.481	0.011	0.726	0.016	0.356	0.009	0.422	0.013	

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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 16.1. 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 16.2. 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 16.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

18. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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

[12] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

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

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