FCC SAR Test Report

APPLICANT	:	**Huawei Technologies Co., Ltd.**
EQUIPMENT	:	**smart phone**
BRAND NAME	:	**honor**
MODEL NAME	:	**BKL-L04**
FCC ID	:	**QISBKL-L04**
STANDARD	:	**FCC 47 CFR Part 2 (2.1093)** **ANSI/IEEE C95.1-1992** **IEEE 1528-2013**

We, Sporton International (Shenzhen) 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 (Shenzhen) Inc., the test report shall not be reproduced except in full.

Mark Qu

NVLAP TESTING NVLAP LAB CODE 600156-0

Approved by: Mark Qu / Manager

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA813019	Rev. 01	Initial issue of report	Mar. 02, 2018

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Huawei Technologies Co., Ltd., smart phone, BKL-L04, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.62	0.65	0.33	1.38
		GSM1900	1.01	0.96	0.41	
	WCDMA	Band V	0.64	0.55	0.31	
		Band IV	0.48	0.77	**1.10**	
		Band II	0.58	0.78	0.72	
	LTE	Band 12/Band 17	**1.09**	0.75	0.40	
		Band 5	0.98	0.53	0.28	
		Band 4	0.60	**1.10**	0.99	
		Band 2	0.69	0.79	0.60	
		Band 7	0.99	0.87	0.51	
DTS	WLAN	2.4GHz WLAN	0.24	0.24	0.11	1.21
NII		5GHz WLAN	0.31	0.39	0.32	1.38
DSS	Bluetooth	2.4GHz Bluetooth	0.13	<0.10	<0.10	1.12

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM1900	1.28	3.63
	WCDMA	Band IV	**3.11**	
		Band II	2.43	
	LTE	Band 4	2.73	
		Band 2	2.38	
NII	WLAN	5GHz WLAN	1.12	3.63
Date of Testing:			2018/2/7~2018/3/1	

Remark: This device supports both LTE B17 and B12. Since the supported frequency span for LTE B17 falls completely within the supports frequency span for LTE B12, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B12.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) 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 (Shenzhen) Inc.
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	Huawei Technologies Co., Ltd.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Manufacturer	
Company Name	Huawei Technologies Co., Ltd.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

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 616217 D04 SAR for laptop and tablets v01r02
- 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	smart phone
Brand Name	honor
Model Name	BKL-L04
FCC ID	QISBKL-L04
IMEI Code	For WWAN test Sample: SIM1: 868399030026477 SIM2: 868339030027475 For WLAN test Sample: SIM1: 868399030023417 SIM2: 868399030024860
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 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 HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	HL1BKLL04M
SW Version	BKL-L04 8.0.1.43(C567)
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 supports VoIP in WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
5. This device has two 2G/3G/4G antennas. The main antenna (Ant.3) is located on the bottom edge of the device and the second antenna (Ant.2) is located on the top edge of the device and they can't transmit simultaneously.
6. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM1900, WCDMA band II/IV and LTE band 2/4/7 at the WWAN main antenna (Ant.3).
7. P-sensor can detect handheld state, for product specific 10g SAR condition at front/back/bottom side, WCDMA band II/IV, LTE band 2/4/7 reduced powers will be active at the WWAN main antenna (Ant.3).
8. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at GSM850, WCDMA Band II/IV/V and LTE band 2/4/5/12/17 at the WWAN second antenna (Ant.2).
9. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at WLAN2.4/5.2/5.3/5.5/5.8GHz.
10. The device has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests, SIM2 only verified the worst case of SIM1 for each position.
11. There are two batteries which with the same capacity, they are only with different suppliers. We only chose battery 1 for full test, and battery 2 only verified the worst case of battery 1 for each position.

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>QISBKL-L04</td></tr>
<tr><td>Equipment Name</td><td>smart 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</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 17: 5MHz, 10MHz</td></tr>
<tr><td>Uplink Modulations Used</td><td>QPSK, 16QAM and 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R12, Cat5</td></tr>
<tr><td>CA Support</td><td>Yes, Downlink Only</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{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>
<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>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</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
1. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of LTE band 2/4/7 at the WWAN main antenna (Ant.3).
2. P-sensor can detect handheld state, for product specific 10g SAR condition at front/back/bottom side LTE band 2/4/7 reduced powers will be active at the WWAN main antenna (Ant.3).
3. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at LTE band 2/4/5/12/17 at the WWAN second antenna (Ant.2).</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Intra-Band possible combinations and the detail power verification please referred to section 15.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device supports maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 17				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

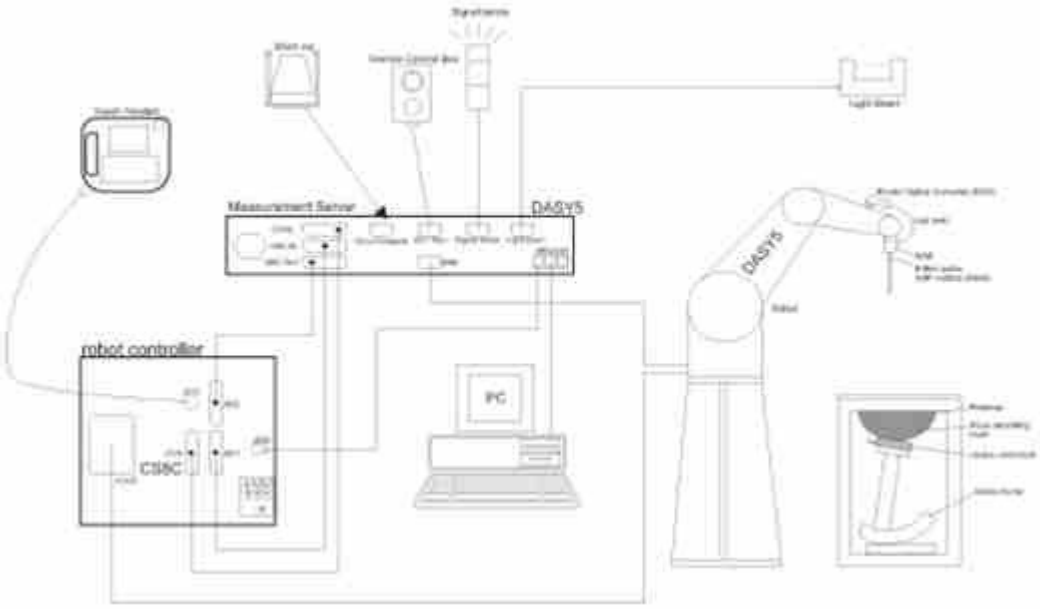
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<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.

Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

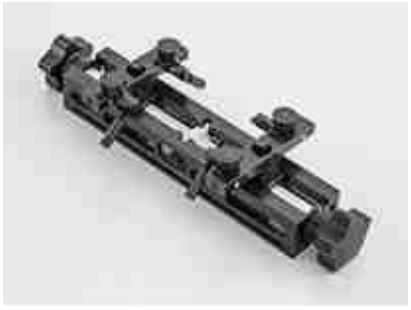
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	2017/12/4	2018/12/3
SPEAG	750MHz System Validation Kit	D750V3	1065	2017/12/4	2018/12/3
SPEAG	835MHz System Validation Kit	D835V2	4d162	2017/12/5	2018/12/4
SPEAG	835MHz System Validation Kit	D835V2	4d091	2017/12/5	2018/12/4
SPEAG	1750MHz System Validation Kit	D1750V2	1137	2017/6/5	2018/6/4
SPEAG	1750MHz System Validation Kit	D1750V2	1069	2017/12/5	2018/12/4
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2017/12/6	2018/12/5
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	2017/12/6	2018/12/5
SPEAG	2450MHz System Validation Kit	D2450V2	736	2017/9/18	2018/9/17
SPEAG	2600MHz System Validation Kit	D2600V2	1070	2017/12/7	2018/12/6
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2017/12/7	2018/12/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1006	2017/9/26	2018/9/25
SPEAG	Data Acquisition Electronics	DAE4	1437	2017/9/15	2018/9/14
SPEAG	Data Acquisition Electronics	DAE4	1303	2017/12/19	2018/12/18
SPEAG	Data Acquisition Electronics	DAE4	1210	2017/5/25	2018/5/24
SPEAG	Data Acquisition Electronics	DAE3	393	2017/8/10	2018/8/9
SPEAG	Data Acquisition Electronics	DAE4	1386	2017/7/20	2018/7/19
SPEAG	Data Acquisition Electronics	DAE3	495	2017/5/22	2018/5/21
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	2017/9/25	2018/9/24
SPEAG	Dosimetric E-Field Probe	EX3DV4	3958	2018/1/11	2019/1/10
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2017/5/26	2018/5/25
SPEAG	Dosimetric E-Field Probe	EX3DV4	3578	2017/5/5	2018/5/4
SPEAG	Dosimetric E-Field Probe	EX3DV4	3911	2017/11/28	2018/11/27
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	2018/1/23	2019/1/22
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1795	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1164	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1815	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1719	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	2017/7/19	2018/7/18
Anritsu	Radio communication analyzer	MT8821C	6201692204	2017/3/29	2018/3/28
Agilent	Wireless Communication Test Set	E5515C	MY50267224	2017/9/12	2018/9/11
Agilent	Network Analyzer	E5071C	MY46523671	2017/10/18	2018/10/17
SPEAG	Dielectric Assessment KIT	DAK-3.5	1071	2017/11/28	2018/11/27
Anritsu	Signal Generator	MG3710A	6201502524	2017/12/7	2018/12/6
Anritsu	Power Senor	MA2411B	1306099	2017/8/21	2018/8/20
Anritsu	Power Meter	ML2495A	1349001	2017/7/19	2018/7/18
Anritsu	Power Meter	ML2495A	1419002	2017/5/15	2018/5/14
Anritsu	Power Sensor	MA2411B	1339124	2017/5/15	2018/5/14
R&S	CBT BLUETOOTH TESTER	CBT	100783	2017/8/8	2018/8/7
R&S	Spectrum Analyzer	FSP7	100818	2017/7/19	2018/7/18
LKM electronic	Hygrometer	DTM3000	3241	2017/7/21	2018/7/20
Anymetre	Thermo-Hygrometer	JR593	2015030904	2017/4/22	2018/4/21
ARRA	Power Divider	A3200-2	N/A	Note	
Agilent	Dual Directional Coupler	778D	50422	Note	
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
AR	Amplifier	5S1G4	333096	Note	
mini-circuits	Amplifier	ZVE-3W-83+	162601250	Note	

Note:
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.

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

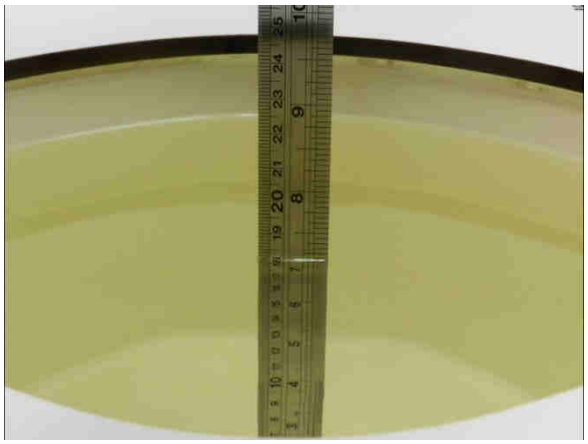


Fig 10.2 Photo of Liquid Height for Body SAR

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
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
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	Head	22.7	0.886	41.534	0.89	41.90	-0.45	-0.87	±5	2018/2/8
835	Head	22.8	0.915	41.980	0.90	41.50	1.67	1.16	±5	2018/2/8
835	Head	22.8	0.888	42.012	0.90	41.50	-1.33	1.23	±5	2018/2/28
1750	Head	22.5	1.375	41.541	1.37	40.10	0.36	3.59	±5	2018/2/7
1900	Head	22.4	1.420	41.133	1.40	40.00	1.43	2.83	±5	2018/2/7
1900	Head	22.4	1.443	40.030	1.40	40.00	3.07	0.08	±5	2018/2/28
2450	Head	22.5	1.785	38.483	1.80	39.20	-0.83	-1.83	±5	2018/2/13
2600	Head	22.5	1.995	40.438	1.96	39.00	1.79	3.69	±5	2018/2/7
5250	Head	22.5	4.554	37.171	4.71	35.90	-3.31	3.54	±5	2018/2/13
5600	Head	22.3	5.083	36.149	5.07	35.50	0.26	1.83	±5	2018/2/14
5750	Head	22.3	5.246	35.932	5.22	35.40	0.50	1.50	±5	2018/2/14
750	Body	22.7	0.970	54.642	0.96	55.50	1.04	-1.55	±5	2018/2/8
750	Body	22.3	0.978	55.820	0.96	55.50	1.88	0.58	±5	2018/2/10
750	Body	22.4	0.963	54.233	0.96	55.50	0.31	-2.28	±5	2018/2/9
835	Body	22.8	0.954	55.682	0.97	55.20	-1.65	0.87	±5	2018/2/8
835	Body	22.6	0.997	54.249	0.97	55.20	2.78	-1.72	±5	2018/2/10
835	Body	22.5	0.977	54.442	0.97	55.20	0.72	-1.37	±5	2018/2/9
1750	Body	22.6	1.528	52.031	1.49	53.40	2.55	-2.56	±5	2018/2/10
1750	Body	22.6	1.464	53.589	1.49	53.40	-1.74	0.35	±5	2018/2/10
1750	Body	22.6	1.522	52.519	1.49	53.40	2.15	-1.65	±5	2018/2/9
1750	Body	22.9	1.522	54.439	1.49	53.40	2.15	1.95	±5	2018/2/28
1900	Body	22.7	1.525	54.504	1.52	53.30	0.33	2.26	±5	2018/2/10
1900	Body	22.6	1.521	54.837	1.52	53.30	0.07	2.88	±5	2018/2/10
1900	Body	22.7	1.512	53.903	1.52	53.30	-0.53	1.13	±5	2018/2/9
1900	Body	22.8	1.532	52.397	1.52	53.30	0.79	-1.69	±5	2018/2/28
2450	Body	22.5	2.021	53.223	1.95	52.70	3.64	0.99	±5	2018/2/13
2600	Body	22.7	2.163	51.814	2.16	52.50	0.14	-1.31	±5	2018/2/8
2600	Body	22.2	2.237	52.157	2.16	52.50	3.56	-0.65	±5	2018/2/10
2600	Body	22.6	2.201	50.729	2.16	52.50	1.90	-3.37	±5	2018/2/9
5250	Body	22.6	5.386	47.824	5.36	48.90	0.49	-2.20	±5	2018/2/11
5250	Body	22.4	5.457	49.207	5.36	48.90	1.81	0.63	±5	2018/2/12
5600	Body	22.6	5.839	47.234	5.77	48.50	1.20	-2.61	±5	2018/2/11
5600	Body	22.4	5.949	47.255	5.77	48.50	3.10	-2.57	±5	2018/3/1
5750	Body	22.6	6.046	46.998	5.94	48.30	1.78	-2.70	±5	2018/2/11

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.

<1g SAR>

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 (%)
2018/2/8	750	Head	250	1099	3642	1437	1.99	8.33	7.96	-4.44
2018/2/8	835	Head	250	4d162	3642	1437	2.30	9.56	9.20	-3.77
2018/2/28	835	Head	250	4d162	3642	1437	2.23	9.56	8.92	-6.69
2018/2/7	1750	Head	250	1137	3642	1437	8.47	36.60	33.88	-7.43
2018/2/7	1900	Head	250	5d182	3642	1437	9.46	40.10	37.84	-5.64
2018/2/28	1900	Head	250	4d162	3642	1437	9.31	40.10	37.24	-7.13
2018/2/13	2450	Head	250	736	3578	393	12.60	52.40	50.40	-3.82
2018/2/7	2600	Head	250	1070	3642	1437	13.50	58.20	54.00	-7.22
2018/2/13	5250	Head	100	1006	3578	393	7.92	78.30	79.20	1.15
2018/2/14	5600	Head	100	1006	3578	393	9.21	85.00	92.10	8.35
2018/2/14	5750	Head	100	1006	3578	393	8.53	78.50	85.30	8.66
2018/2/8	750	Body	250	1099	3958	1303	2.24	8.64	8.96	3.70
2018/2/10	750	Body	250	1065	3857	1210	2.29	8.72	9.16	5.05
2018/2/9	750	Body	250	1099	3642	1437	2.32	8.64	9.28	7.41
2018/2/8	835	Body	250	4d162	3958	1303	2.43	9.56	9.72	1.67
2018/2/10	835	Body	250	4d091	3857	1210	2.59	9.72	10.36	6.58
2018/2/9	835	Body	250	4d162	3642	1437	2.52	9.56	10.08	5.44
2018/2/10	1750	Body	250	1137	3958	1303	9.03	37.00	36.12	-2.38
2018/2/10	1750	Body	250	1069	3857	1210	9.09	38.00	36.36	-4.32
2018/2/9	1750	Body	250	1137	3642	1437	8.92	37.00	35.68	-3.57
2018/2/10	1900	Body	250	5d182	3958	1303	9.68	40.40	38.72	-4.16
2018/2/10	1900	Body	250	5d118	3857	1210	9.93	40.40	39.72	-1.68
2018/2/9	1900	Body	250	5d182	3642	1437	9.74	40.40	38.96	-3.56
2018/2/13	2450	Body	250	736	3578	393	12.20	50.80	48.80	-3.94
2018/2/8	2600	Body	250	1070	3958	1303	14.50	55.20	58.00	5.07
2018/2/10	2600	Body	250	1061	3857	1210	13.80	56.40	55.20	-2.13
2018/2/9	2600	Body	250	1070	3642	1437	13.50	55.20	54.00	-2.17
2018/2/11	5250	Body	100	1006	3578	393	7.00	77.00	70.00	-9.09
2018/2/12	5250	Body	100	1006	3578	393	7.09	77.00	70.90	-7.92
2018/2/11	5600	Body	100	1006	3578	393	7.73	80.10	77.30	-3.50
2018/2/11	5750	Body	100	1006	3578	393	8.06	75.10	80.60	7.32

<10g SAR>

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 (%)
2018/2/10	1750	Body	250	1137	3958	1303	4.84	19.70	19.36	-1.73
2018/2/28	1750	Body	250	1137	3911	1386	4.59	19.70	18.36	-6.80
2018/2/10	1900	Body	250	5d182	3958	1303	4.99	21.00	19.96	-4.95
2018/2/28	1900	Body	250	5d182	3911	1386	4.88	21.00	19.52	-7.05
2018/2/8	2600	Body	250	1070	3958	1303	6.27	24.50	25.08	2.37
2018/2/11	5250	Body	100	1006	3578	393	1.97	21.30	19.70	-7.51
2018/2/12	5250	Body	100	1006	3578	393	2.00	21.30	20.00	-6.10
2018/2/11	5600	Body	100	1006	3578	393	2.14	22.40	21.40	-4.46
2018/3/1	5600	Body	100	1006	3976	495	2.09	22.40	20.9	-6.70

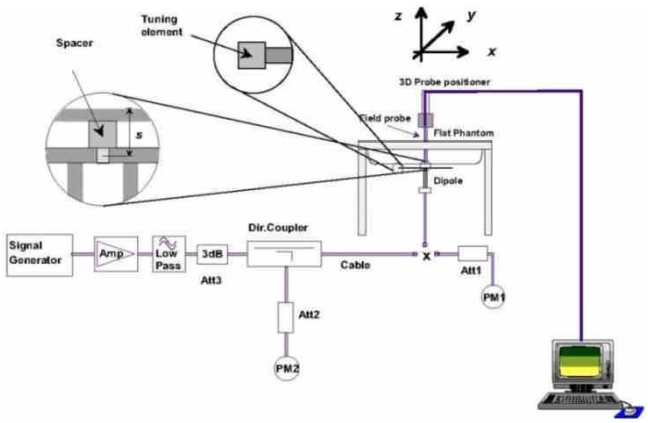


Fig 10.3.1 System Performance Check Setup

Fig 10.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 11.1.1 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 11.1.2 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 11.1.3). 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 11.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

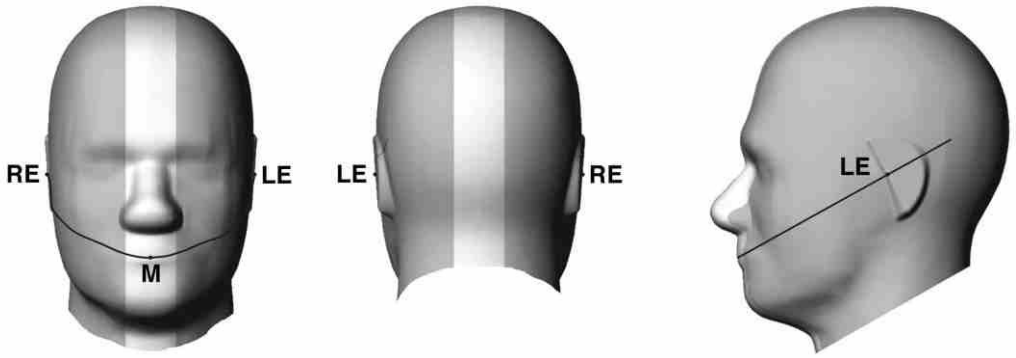


Fig 11.1.1 Front, back, and side views of SAM twin phantom

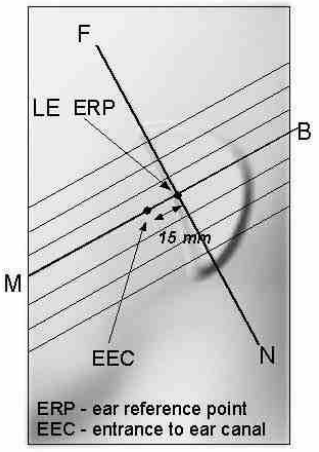


Fig 11.1.2 Close-up side view of phantom showing the ear region.

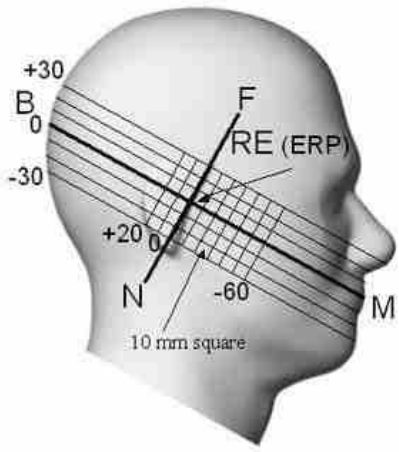


Fig 11.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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 11.2.1 and Figure 11.2.2), 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 11.2.1). 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 11.2.2), 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 11.2.3), 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 11.2.3. The actual rotation angles should be documented in the test report.

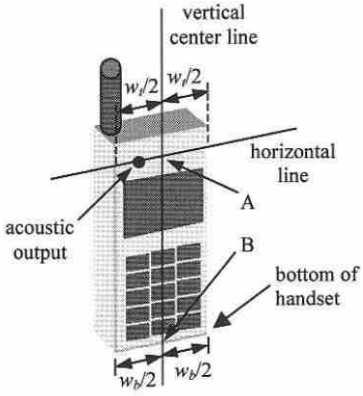


Fig 11.2.1 Handset vertical and horizontal reference lines—"fixed case

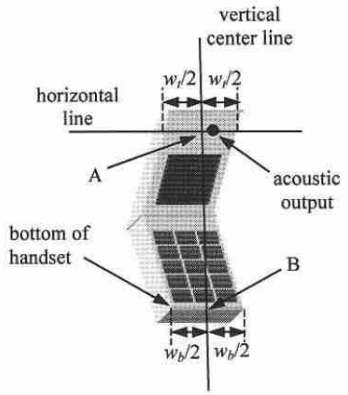


Fig 11.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

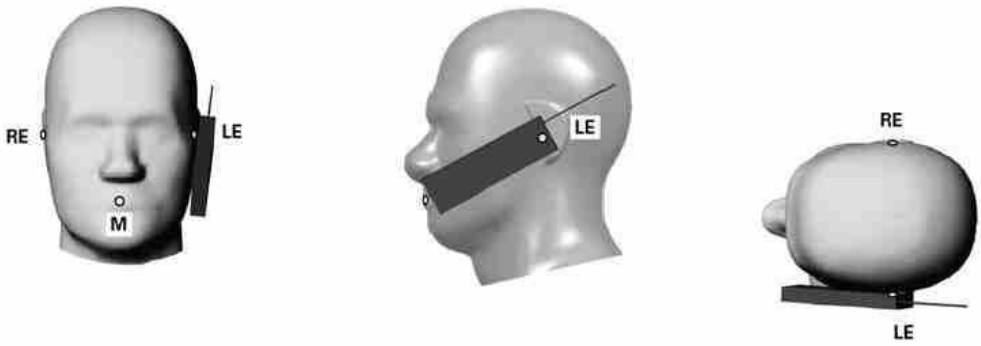


Fig 11.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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 11.3.1. 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

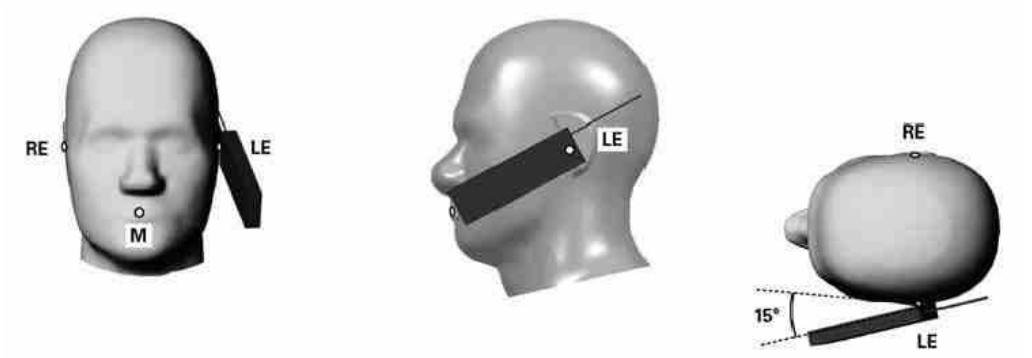


Fig 11.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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 11.4). 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.

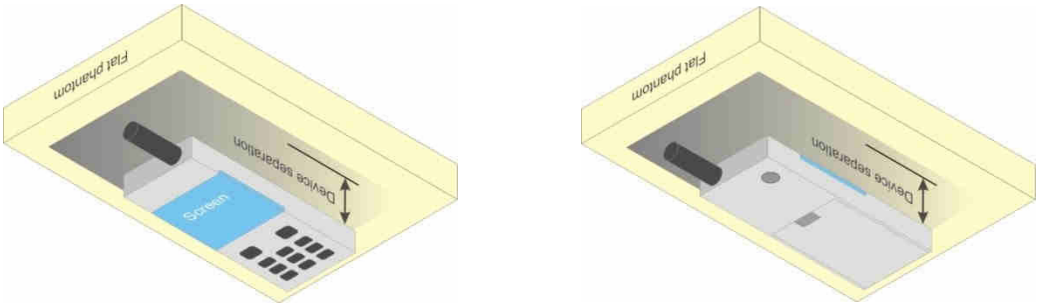


Fig 11.4 Body Worn Position

11.5 Product Specific 10g SAR Exposure

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

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

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

11.6 Wireless Router

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

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

12. Dynamic Antenna Switching for 2G/3G/4G Antennas

The device supports the dynamic antenna switching function to optimize transmission efficiency for wide range frequency operations. It has two 2G/3G/4G Tx antennas (main antenna and secondary antenna). It can transmit from either main antenna (Ant.3) or secondary antenna (Ant. 2).
The device used a DPDT (Double Pole Double Throw) switch to achieve a dynamic antenna switching which is based on the antennas RSSI (Received Signal Strength Indication) comparison and Switch Algorithm. The antenna switching threshold is set to a fixed value (3 dB). The software will choose the Antenna with better RSSI as the main operating Tx antenna by comparing the RSSI between Ant.3 and Ant.2. When the RSSI of Ant.3 is 3 dB higher than Ant.2, then the Ant.3 will be chosen as the main operating Tx antenna. The switching will refer to all of the 2G/3G/4G operation bands.
The fixture please refers to Appendix D for Fig.12.1.

The main antenna (Ant.3) and secondary antenna (Ant.2) support the same 2G/3G/4G operating bands. They have the same RF access.
The fixture please refers to Appendix D for Fig.12.2 and Fig.12.3.

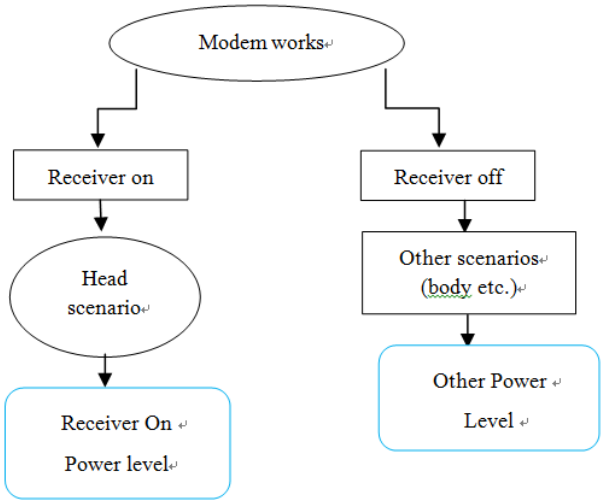
Summary test plan for Dynamic antenna switching:
For Dynamic antenna switching SAR test, we will set the main antenna / second antenna to the Max transmit power level respectively and test the SAR respectively in all applicable RF exposure conditions. Some AT commands or test scripts are supplied to fix the DPDT operation state and choose the antenna, so that only one TX antenna (the main antenna or secondary antenna) is chosen at a time. All independent antennas and modems will be completely covered by the appropriate SAR measurements and all simultaneous transmission possibilities will be fully considered.

13. Audio Receiver Detection Mechanism

The device has two 2G&3G&4G antennas, one BT/Wi-Fi antenna as following picture.
When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at GSM850, WCDMA Band II/IV/V and LTE band 2/4/5/12/17 at the WWAN second antenna (Ant.2).
When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at WLAN2.4/5.2/5.3/5.5/5.8GHz.

The location of the antennas and audio receiver please refers to Appendix D for Fig.13.1.

Audio receiver detection mechanism clarifications:
The audio receiver detection is accomplished by voice call from the modem is shown as below chart:
1) When the modem works, it will detect the state of receiver. If the audio receiver is off, it is considered not as Held to Head (ear) scenario and regarded as other scenarios (Body etc.). Other power level is applied.
2) When the modem chip detects that the state of the audio receiver is on, it is considered as Held to Head (ear) scenario. The Receiver on power level is applied.



Receiver Detection

The SAR test plan is as below:
a) For head SAR test of 2G/3G/4G second antenna and WiFi antenna, standalone head SAR should be evaluated with audio receiver on). In the WiFi, LTE and WCDMA VOIP test mode, as the audio Receiver only works in voice mode when the user is making a call in head scenario, and the lack of the third-party VoIP server and the unstandardized VOIP operating characteristics, so the test script is used to trigger the Receiver on during the test. The test scripts function is only used to trigger audio receiver on and simulate voice and VOIP usage scene. It can be ensured that the unmodified settings in production units, including maximum output power, amplifier gain and other RF performance or tuning parameters, are used for SAR measurement.
b) For body/10g specific SAR test of 2G/3G/4G second antenna and WiFi antenna standalone Body/10g specific SAR should be evaluated with full power.

14. Proximity Sensor Placement Details

This device uses one sensor chip and two proximity sensors (metallic electrode) to reduce the maximum output power in selected wireless modes and operating configurations to ensure SAR compliance. The two sensors are applied to one same 2G/3G/4G main antenna. One proximity sensor shares the long branch metallic electrode with the 2G/3G/4G main antenna and the other is short branch metallic electrode with the 2G/3G/4G main antenna. The two proximity sensors (metallic electrode) are called as proximity sensor channel-1 and proximity sensor channel-2. The sensors implementation can identify and facilitate triggering different max power levels for different exposure test positions(Front side/Back side/Bottom side) when the device is held close to a user's body exposure condition. The main purpose for the implementation is to minimize triggering associated with power reduction scenarios for different exposure positions and provide enhanced user experience.

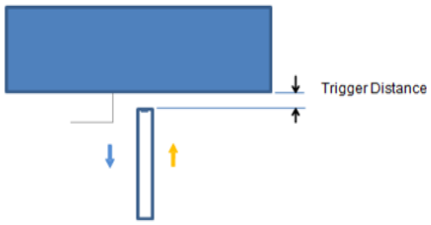
The proximity sensor channel location please refers to Appendix D for Fig.14.1.

General Note:
The two sensors power reduction implementation is applied to the same 2G/3G/4G main antenna. Proximity sensor channel-1 shares a long branch of 2G/3G/4G main antenna. Proximity sensor channel-2 is a short branch of WWAN main antenna. The long branch and the short branch are separated by a gap located at the Ear-Jack.

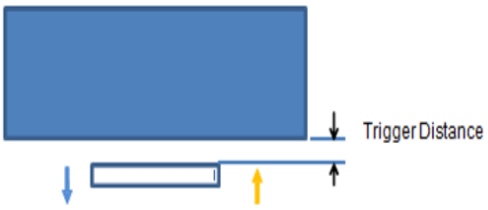
14.1 Proximity sensor triggering distances(Per KDB616217§6.2)

The device was tested by the test lab to determine the proximity sensor triggering distances for **the front side, back side and bottom side** of the device. To ensure all production units are compliant, the smallest separation distance determined by the sensor triggering minus 1 mm, must be used as the test separation distance for SAR testing.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 2600MHz, and the tissue-equivalent medium for 2600MHz was used for formal proximity sensor triggering testing.



Picture: Proximity sensor triggering distances assessment Bottom Side



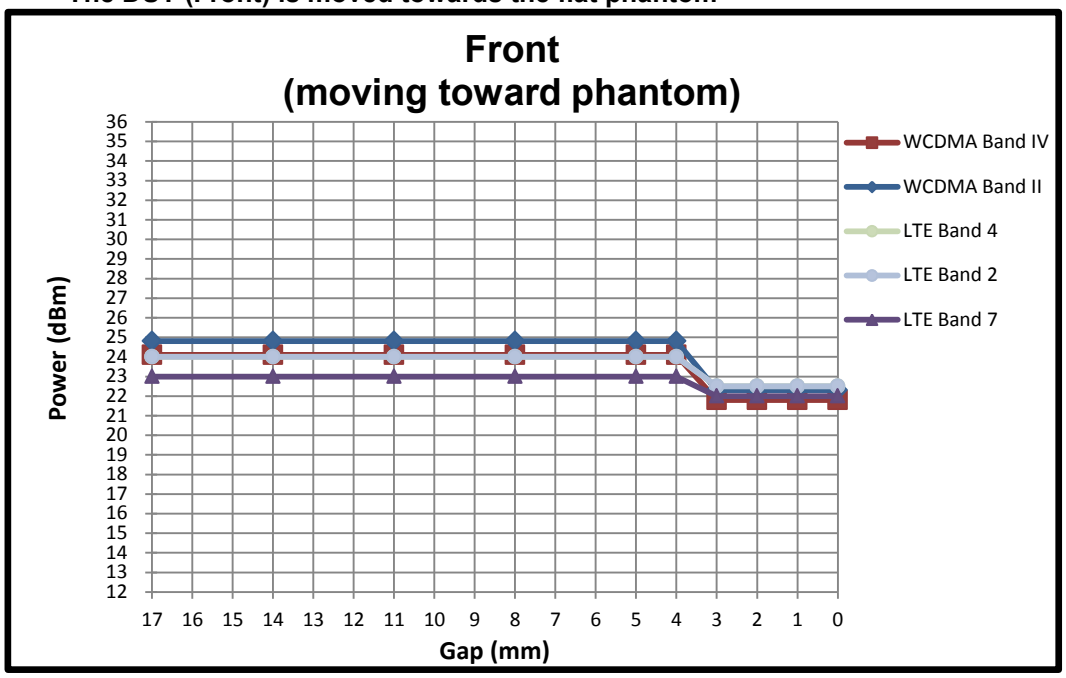
Picture: Proximity sensor triggering distances assessment Front Side and Back side

Table: Summary of Trigger Distances

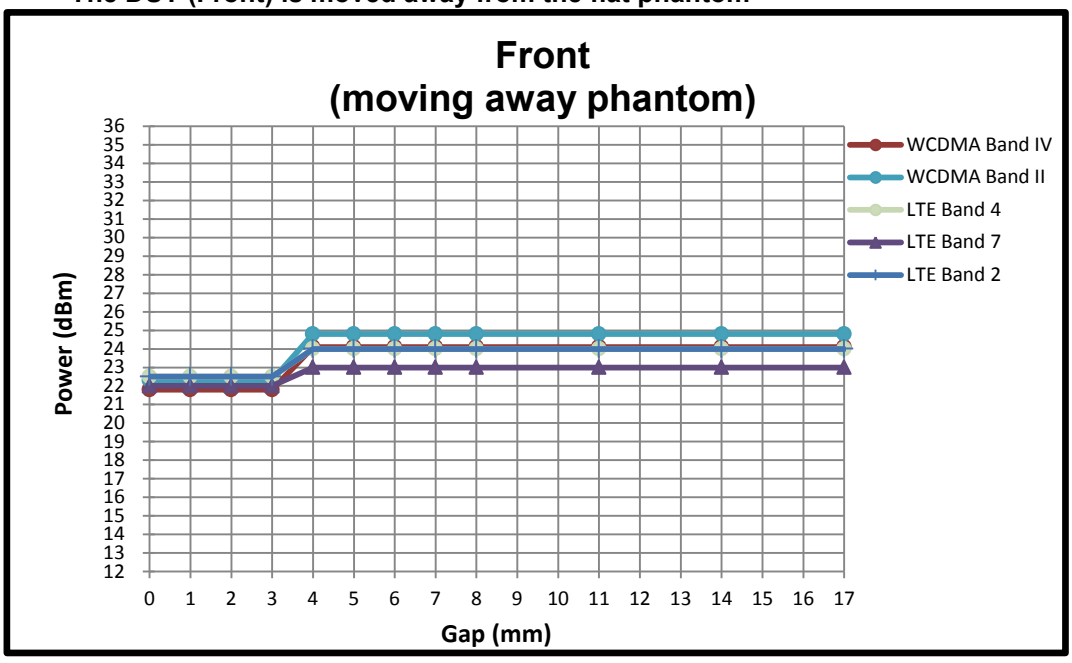
Band(MHz)	Trigger distance-Back Side		Trigger distance-Bottom Side		Trigger distance-Front Side	
	Moving toward phantom	Moving away from phantom	Moving toward phantom	Moving away from phantom	Moving toward phantom	Moving away from phantom
WCDMA Band II	5	5	8	8	3	3
WCDMA Band IV	5	5	8	8	3	3
LTE Band 2	5	5	8	8	3	3
LTE Band 4	5	5	8	8	3	3
LTE Band 7	5	5	8	8	3	3

The detailed conducted power measurement data to determine the triggering distances is as below:

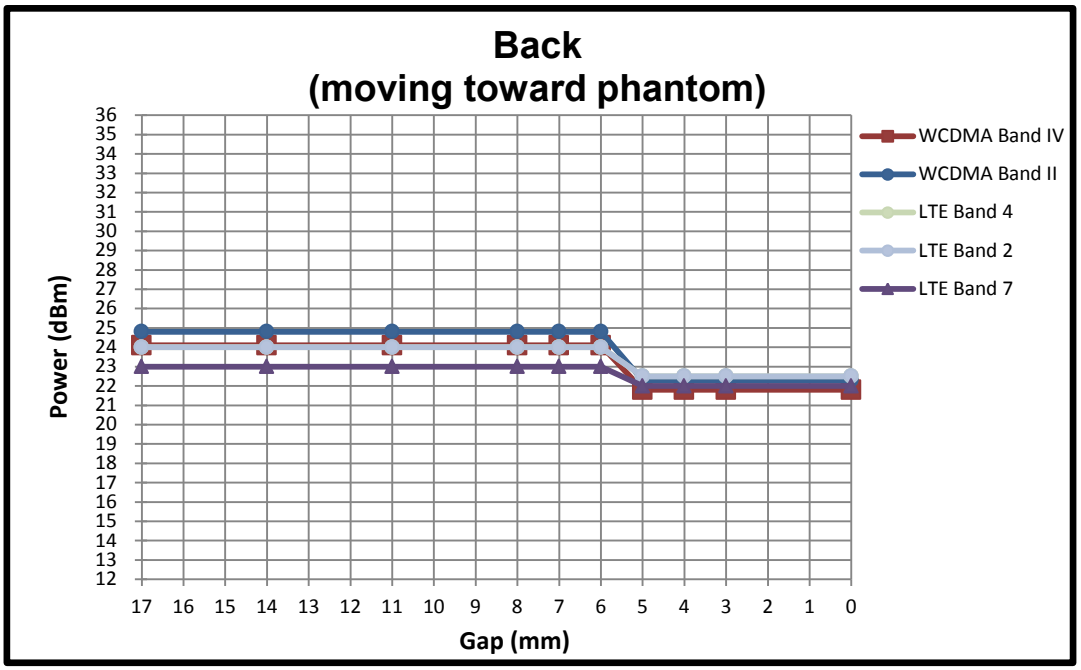
<The DUT (Front) is moved towards the flat phantom>



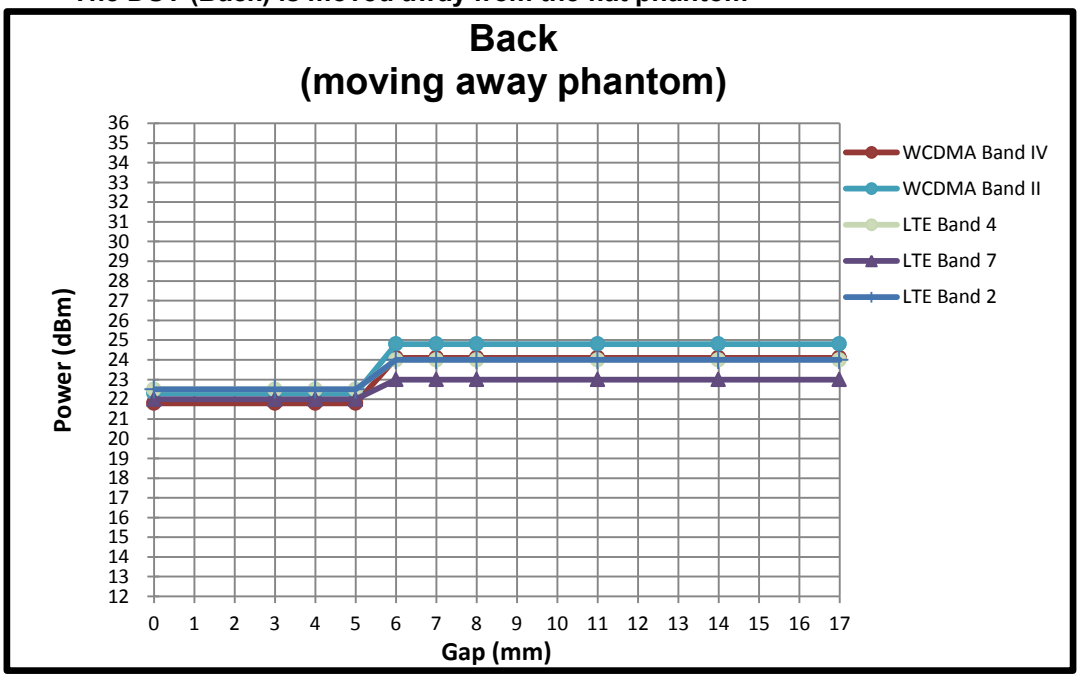
<The DUT (Front) is moved away from the flat phantom>



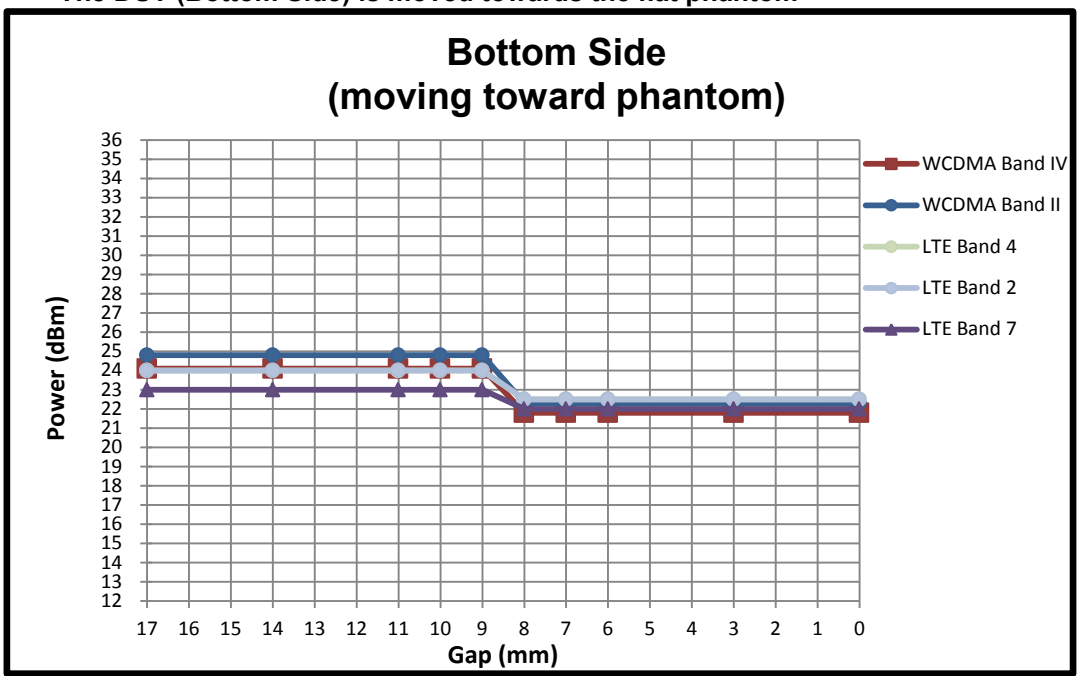
<The DUT (Back) is moved towards the flat phantom>



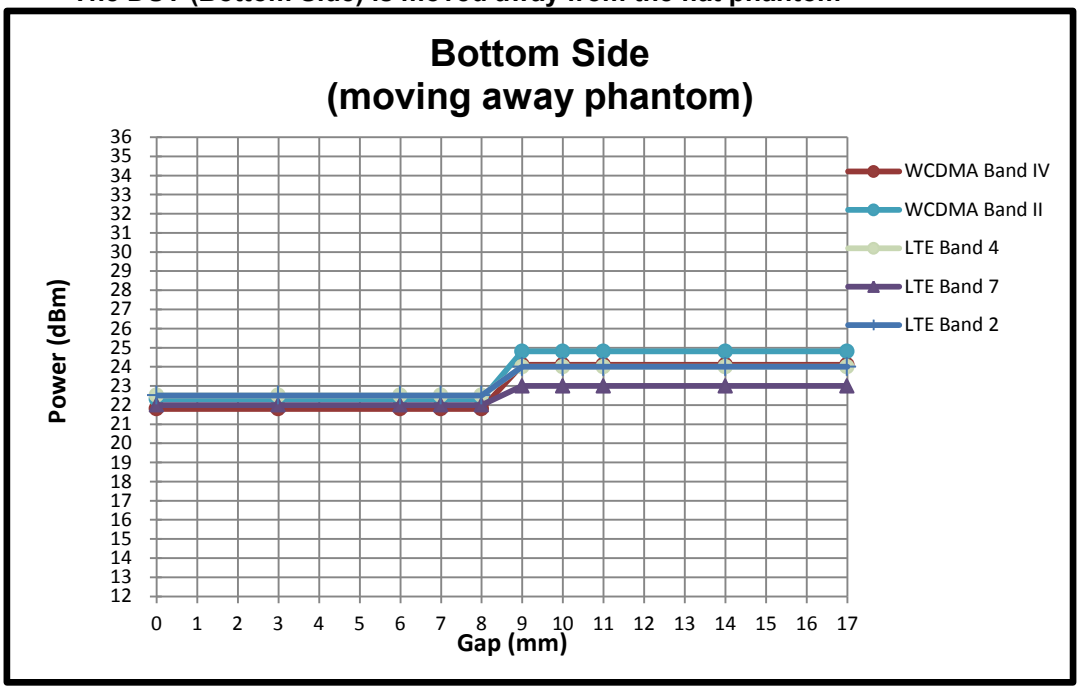
<The DUT (Back) is moved away from the flat phantom>



<The DUT (Bottom Side) is moved towards the flat phantom>



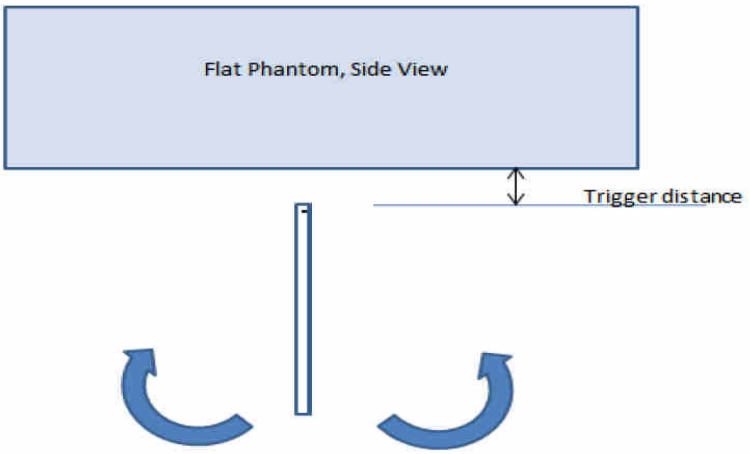
<The DUT (Bottom Side) is moved away from the flat phantom>



Conclusion: It can be ensured that the proximity sensor can be valid triggered for the body exposure condition (WCDMA Band II/IV, LTE Band 2/4/7 with Main Antenna).

14.2 Tilt angle influences to proximity sensor triggering(Per KDB616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Bottom side parallel to the base of the flat phantom for each band.
The EUT was rotated about Bottom side for angles up to +/- 45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°.



Proximity Sensor Coverage Assesment(Bottom Side)

Table: Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Bottom side)

Main ant Band(MHz)	Minimum trigger distance at which power reduction was maintained over ±45°	Power Reduction Status										
		-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°
WCDMA Band II	8mm	on	on	on	on	on	on	on	on	on	on	on
WCDMA Band IV	8mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 2	8mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 4	8mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 7	8mm	on	on	on	on	on	on	on	on	on	on	on

Conclusion: As is shown from the validation data, it can be ensured that the proximity sensor can be valid triggered for the DUT tilt coverage exposure condition.

Summary SAR test Plan for Proximity sensor power reduction:

1. Since the capacitive proximity sensor triggering distance for the front side is 3mm, a conservative distance of 2mm was requried for addtional SAR test at maximum power level with sensor off.
2. Since the capacitive proximity sensor triggering distance for the back side is 5mm, a conservative distance of 4mm was requried for addtional SAR test at maximum power level with sensor off.
3. Since the capacitive proximity sensor triggering distance for the Bottom side is 8mm, a conservative distance of 7mm was requried for addtional SAR test at maximum power level with sensor off.
4. SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the maximum power level with sensor off.

15. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, GSM voice for GSM850/GSM1900 is chose to perform head SAR, GPRS 4Tx slots for GSM850/GSM1900 are considered as the primary mode for body SAR.
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.
4. Power reduction which is triggered by receiver on is implemented in GSM850 band, and power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for SAR testing EUT was set in reduced power mode and GSM voice due to its highest frame-average power.

<Ant.2--Full 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	31.36	31.32	31.35	32.60	22.36	22.32	22.35	23.60
GPRS 1 Tx slot	31.35	31.30	31.33	32.60	22.35	22.30	22.33	23.60
GPRS 2 Tx slots	28.38	28.34	28.41	29.80	22.38	22.34	22.41	23.80
GPRS 3 Tx slots	26.66	26.63	26.68	28.00	22.40	22.37	22.42	23.74
GPRS 4 Tx slots	25.48	25.47	25.50	26.80	22.48	22.47	22.50	23.80
EDGE 1 Tx slot	26.52	26.44	26.58	27.30	17.52	17.44	17.58	18.30
EDGE 2 Tx slots	23.47	23.47	23.51	24.30	17.47	17.47	17.51	18.30
EDGE 3 Tx slots	21.46	21.54	21.62	22.50	17.20	17.28	17.36	18.24
EDGE 4 Tx slots	20.17	20.10	20.28	21.30	17.17	17.10	17.28	18.30
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	29.42	29.46	29.47	30.10	20.42	20.46	20.47	21.10
GPRS 1 Tx slot	29.40	29.45	29.46	30.10	20.40	20.45	20.46	21.10
GPRS 2 Tx slots	26.11	25.95	26.02	27.30	20.11	19.95	20.02	21.30
GPRS 3 Tx slots	24.16	24.01	24.07	25.50	19.90	19.75	19.81	21.24
GPRS 4 Tx slots	22.95	22.80	22.85	24.30	19.95	19.80	19.85	21.30
EDGE 1 Tx slot	24.93	24.68	25.55	25.80	15.93	15.68	16.55	16.80
EDGE 2 Tx slots	21.61	21.40	21.69	22.80	15.61	15.40	15.69	16.80
EDGE 3 Tx slots	19.70	19.40	19.68	21.00	15.44	15.14	15.42	16.74
EDGE 4 Tx slots	18.32	18.24	18.43	19.80	15.32	15.24	15.43	16.80

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

<Ant.2--Reduced Power Mode for Receiver On>

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	27.57	27.55	27.58	28.60	18.57	18.55	18.58	19.60
GPRS 1 Tx slot	27.56	27.54	27.57	28.60	18.56	18.54	18.57	19.60
GPRS 2 Tx slots	24.46	24.47	24.52	25.80	18.46	18.47	18.52	19.80
GPRS 3 Tx slots	22.72	22.68	22.77	24.00	18.46	18.42	18.51	19.74
GPRS 4 Tx slots	21.47	21.48	21.53	22.80	18.47	18.48	18.53	19.80
EDGE 1 Tx slot	22.17	22.21	22.18	23.30	13.17	13.21	13.18	14.30
EDGE 2 Tx slots	19.04	19.14	19.10	20.30	13.04	13.14	13.10	14.30
EDGE 3 Tx slots	17.16	17.18	17.14	18.50	12.90	12.92	12.88	14.24
EDGE 4 Tx slots	15.81	15.80	15.89	17.30	12.81	12.80	12.89	14.30

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

<Ant.3--Full 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	31.73	31.74	31.82	32.80	22.73	22.74	22.82	23.80
GPRS 1 Tx slot	31.72	31.73	31.81	32.80	22.72	22.73	22.81	23.80
GPRS 2 Tx slots	28.85	28.66	28.88	30.00	22.85	22.66	22.88	24.00
GPRS 3 Tx slots	27.00	26.98	27.02	28.20	22.74	22.72	22.76	23.94
GPRS 4 Tx slots	25.86	25.82	25.89	27.00	22.86	22.82	22.89	24.00
EDGE 1 Tx slot	26.16	26.13	26.03	27.50	17.16	17.13	17.03	18.50
EDGE 2 Tx slots	23.24	23.01	23.06	24.50	17.24	17.01	17.06	18.50
EDGE 3 Tx slots	21.26	21.15	21.05	22.70	17.00	16.89	16.79	18.44
EDGE 4 Tx slots	19.96	19.85	19.65	21.50	16.96	16.85	16.65	18.50
GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
Tx Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	30.03	30.11	30.35	30.80	21.03	21.11	21.35	21.80
GPRS 1 Tx slot	30.02	30.10	30.34	30.80	21.02	21.10	21.34	21.80
GPRS 2 Tx slots	26.85	26.87	26.94	28.00	20.85	20.87	20.94	22.00
GPRS 3 Tx slots	24.63	24.75	24.90	26.20	20.37	20.49	20.64	21.94
GPRS 4 Tx slots	23.45	23.61	23.74	25.00	20.45	20.61	20.74	22.00
EDGE 1 Tx slot	25.06	25.24	25.40	26.50	16.06	16.24	16.40	17.50
EDGE 2 Tx slots	21.92	22.00	22.09	23.50	15.92	16.00	16.09	17.50
EDGE 3 Tx slots	19.90	20.08	20.25	21.70	15.64	15.82	15.99	17.44
EDGE 4 Tx slots	18.62	18.80	18.84	20.50	15.62	15.80	15.84	17.50

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

<Atn.3--Reduced Power Mode for Hotspot On>

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
Tx Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	27.05	27.12	26.91	28.30	18.05	18.12	17.91	19.30
GPRS 1 Tx slot	27.01	27.10	26.88	28.30	18.01	18.10	17.88	19.30
GPRS 2 Tx slots	23.90	23.86	23.75	25.50	17.90	17.86	17.75	19.50
GPRS 3 Tx slots	22.10	22.05	22.02	23.70	17.84	17.79	17.76	19.44
GPRS 4 Tx slots	20.88	20.90	20.93	22.50	17.88	17.90	17.93	19.50
EDGE 1 Tx slot	22.29	22.31	22.32	24.00	13.29	13.31	13.32	15.00
EDGE 2 Tx slots	19.36	19.32	19.33	21.00	13.36	13.32	13.33	15.00
EDGE 3 Tx slots	17.51	17.41	17.28	19.20	13.25	13.15	13.02	14.94
EDGE 4 Tx slots	16.17	16.24	16.11	18.00	13.17	13.24	13.11	15.00

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.
The calculated method are shown as below:
Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB
Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB
Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

<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.

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 $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with $\beta_{hs} = 5/15 * \beta_c$.

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

<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 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 to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA.

<Ant.2--Full Power Mode>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band 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	22.72	22.82	22.81	23.70	22.97	22.93	22.96	23.80	23.30	23.21	23.21	24.20
3GPP Rel 99	RMC 12.2Kbps	22.73	22.84	22.82	23.70	22.98	22.94	22.97	23.80	23.31	23.24	23.23	24.20
3GPP Rel 6	HSDPA Subtest-1	22.07	22.22	22.10	23.40	22.14	22.33	22.36	23.50	22.73	22.66	22.59	23.90
3GPP Rel 6	HSDPA Subtest-2	21.26	21.46	21.35	23.40	21.38	21.52	21.61	23.50	22.22	22.17	22.16	23.90
3GPP Rel 6	HSDPA Subtest-3	20.74	20.95	20.78	22.90	20.92	21.00	21.07	23.00	21.85	21.74	21.74	23.40
3GPP Rel 6	HSDPA Subtest-4	20.79	20.95	20.80	23.40	20.85	21.01	21.08	23.50	21.78	21.75	21.75	23.90
3GPP Rel 6	HSUPA Subtest-1	20.50	20.71	20.51	22.40	20.52	20.83	21.11	22.50	22.50	21.90	22.39	23.40
3GPP Rel 6	HSUPA Subtest-2	18.55	18.16	17.68	20.40	18.33	18.75	18.39	20.50	19.76	19.91	19.76	20.90
3GPP Rel 6	HSUPA Subtest-3	19.19	18.85	19.19	21.40	19.14	19.52	19.10	21.50	20.54	20.89	20.51	22.90
3GPP Rel 6	HSUPA Subtest-4	18.25	18.77	18.40	20.40	18.19	18.63	18.10	20.50	19.46	20.00	19.63	21.90
3GPP Rel 6	HSUPA Subtest-5	22.60	22.60	22.50	23.70	22.60	22.80	22.80	23.80	23.20	23.10	23.20	24.20

<Ant.2--Reduced Power Mode for Receiver On>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band 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	18.02	18.22	18.13	19.20	20.33	20.30	20.26	21.30	18.68	18.62	18.63	19.70
3GPP Rel 99	RMC 12.2Kbps	18.03	18.26	18.15	19.20	20.35	20.31	20.28	21.30	18.70	18.63	18.66	19.70
3GPP Rel 6	HSDPA Subtest-1	17.59	17.61	17.55	18.90	19.80	19.80	19.67	21.00	18.12	18.10	18.12	19.40
3GPP Rel 6	HSDPA Subtest-2	17.32	17.29	17.34	18.90	19.66	19.64	19.54	21.00	17.98	17.92	17.93	19.40
3GPP Rel 6	HSDPA Subtest-3	17.09	17.14	17.05	18.40	19.34	19.30	19.17	20.50	17.76	17.74	17.70	18.90
3GPP Rel 6	HSDPA Subtest-4	17.07	17.15	17.06	18.90	19.33	19.29	19.16	21.00	17.75	17.69	17.68	19.40
3GPP Rel 6	HSUPA Subtest-1	16.50	16.55	16.35	17.90	18.19	18.42	18.21	20.00	17.53	17.64	17.58	18.90
3GPP Rel 6	HSUPA Subtest-2	15.65	15.56	15.25	15.90	15.88	15.40	15.91	18.00	15.58	15.75	15.67	16.40
3GPP Rel 6	HSUPA Subtest-3	15.38	15.56	15.55	16.90	17.32	17.23	16.77	19.00	16.34	16.27	16.40	18.40
3GPP Rel 6	HSUPA Subtest-4	15.36	15.48	15.52	15.90	16.51	16.15	15.69	18.00	15.47	15.42	15.46	17.40
3GPP Rel 6	HSUPA Subtest-5	18.10	18.20	18.10	19.20	20.30	20.30	20.20	21.30	18.62	18.58	18.60	19.70

<Ant.3--Full Power Mode>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band 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	24.00	24.01	23.98	24.80	23.30	23.28	23.22	24.10	23.35	23.28	23.30	24.30
3GPP Rel 99	RMC 12.2Kbps	24.01	24.02	24.00	24.80	23.37	23.35	23.30	24.10	23.37	23.30	23.31	24.30
3GPP Rel 6	HSDPA Subtest-1	23.22	23.30	23.30	24.50	22.45	22.43	22.45	23.80	22.75	22.70	22.71	24.00
3GPP Rel 6	HSDPA Subtest-2	22.47	22.51	22.50	24.50	21.69	21.65	21.67	23.80	22.29	22.23	22.24	24.00
3GPP Rel 6	HSDPA Subtest-3	21.93	21.99	21.99	24.00	21.17	21.10	21.17	23.30	21.89	21.83	21.82	23.50
3GPP Rel 6	HSDPA Subtest-4	21.99	21.97	22.01	24.50	21.18	21.13	21.17	23.80	21.90	21.86	21.82	24.00
3GPP Rel 6	HSUPA Subtest-1	21.84	22.00	21.97	23.50	21.05	21.30	21.27	22.80	22.09	22.17	22.12	23.50
3GPP Rel 6	HSUPA Subtest-2	19.19	19.26	19.13	21.50	19.00	18.56	18.53	20.80	19.77	19.21	19.28	21.00
3GPP Rel 6	HSUPA Subtest-3	20.67	20.70	20.66	22.50	19.68	19.28	19.31	21.80	20.14	20.86	20.27	23.00
3GPP Rel 6	HSUPA Subtest-4	19.85	19.90	19.64	21.50	18.79	18.33	18.38	20.80	19.29	19.90	19.39	22.00
3GPP Rel 6	HSUPA Subtest-5	23.70	23.80	23.80	24.80	23.00	23.00	22.90	24.10	23.30	23.20	23.20	24.30

<Atn.3--Reduced Power Mode for Hotspot On>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	18.24	18.30	18.18	19.30	17.25	17.21	17.20	18.30
3GPP Rel 99	RMC 12.2Kbps	18.27	18.33	18.21	19.30	17.26	17.25	17.23	18.30
3GPP Rel 6	HSDPA Subtest-1	17.73	17.83	17.69	19.00	16.57	16.62	16.61	18.00
3GPP Rel 6	HSDPA Subtest-2	17.43	17.47	17.39	19.00	16.32	16.39	16.35	18.00
3GPP Rel 6	HSDPA Subtest-3	17.21	17.29	17.18	18.50	16.09	16.14	16.09	17.50
3GPP Rel 6	HSDPA Subtest-4	17.21	17.29	17.18	19.00	16.10	16.14	16.13	18.00
3GPP Rel 6	HSUPA Subtest-1	16.48	16.72	16.71	18.00	15.00	15.12	15.02	17.00
3GPP Rel 6	HSUPA Subtest-2	14.58	14.11	14.52	16.00	13.60	13.50	13.74	15.00
3GPP Rel 6	HSUPA Subtest-3	15.37	15.44	15.60	17.00	14.45	14.21	14.36	16.00
3GPP Rel 6	HSUPA Subtest-4	14.34	14.14	14.46	16.00	13.32	13.09	13.11	15.00
3GPP Rel 6	HSUPA Subtest-5	18.20	18.30	18.20	19.30	17.10	17.20	17.10	18.30

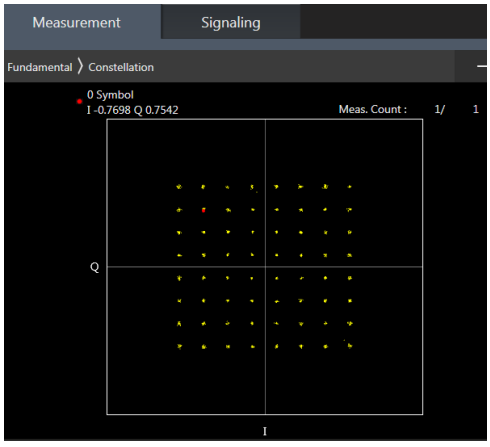
<Ant.3--Reduced Power Mode for P-Sensor On>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	21.20	21.32	21.10	22.30	20.56	20.65	20.62	21.80
3GPP Rel 99	RMC 12.2Kbps	21.21	21.34	21.13	22.30	20.68	20.66	20.64	21.80
3GPP Rel 6	HSDPA Subtest-1	20.63	20.79	20.67	22.00	20.09	20.16	20.16	21.50
3GPP Rel 6	HSDPA Subtest-2	20.32	20.31	20.29	22.00	19.88	19.77	19.89	21.50
3GPP Rel 6	HSDPA Subtest-3	20.19	20.27	20.14	21.50	19.60	19.69	19.70	21.00
3GPP Rel 6	HSDPA Subtest-4	20.19	20.26	20.14	22.00	19.62	19.70	19.71	21.50
3GPP Rel 6	HSUPA Subtest-1	18.95	19.76	19.22	21.00	19.09	18.86	19.06	20.50
3GPP Rel 6	HSUPA Subtest-2	17.82	17.74	17.30	19.00	16.11	15.99	16.31	18.50
3GPP Rel 6	HSUPA Subtest-3	17.76	17.78	17.77	20.00	17.42	17.79	17.12	19.50
3GPP Rel 6	HSUPA Subtest-4	16.93	17.06	17.09	19.00	16.24	16.76	16.09	18.50
3GPP Rel 6	HSUPA Subtest-5	21.10	21.20	21.10	22.30	20.40	20.60	20.50	21.80

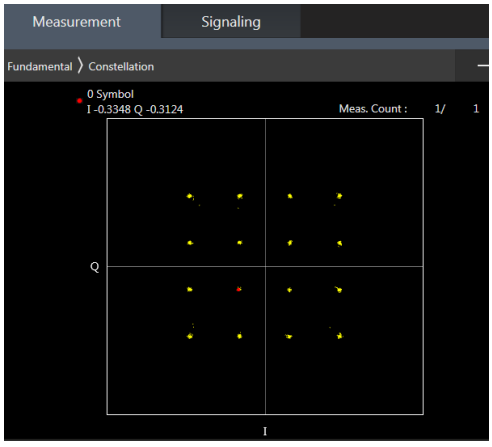
<LTE Conducted Power>

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 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 17 SAR test was covered by Band 12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64QAM and 16QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM

<Ant.2--Full 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	22.85	22.91	23.12	23.9	0
20	QPSK	1	49	22.41	22.35	22.54		
20	QPSK	1	99	22.83	22.90	23.03		
20	QPSK	50	0	21.85	21.95	22.00	22.9	1
20	QPSK	50	24	22.01	21.94	22.02		
20	QPSK	50	50	22.02	21.97	22.04		
20	QPSK	100	0	21.83	21.92	22.03		
20	16QAM	1	0	22.27	22.05	22.46	22.9	1
20	16QAM	1	49	22.48	22.05	22.18		
20	16QAM	1	99	22.41	22.47	22.45		
20	16QAM	50	0	20.87	20.94	20.99	21.9	2
20	16QAM	50	24	20.88	20.88	20.96		
20	16QAM	50	50	20.87	20.91	20.92		
20	16QAM	100	0	20.76	20.87	20.91		
20	64QAM	1	0	21.44	21.49	21.50	21.9	2
20	64QAM	1	49	21.19	21.25	21.28		
20	64QAM	1	99	21.18	21.21	21.22		
20	64QAM	50	0	20.82	20.88	20.89	20.9	3
20	64QAM	50	24	20.77	20.80	20.80		
20	64QAM	50	50	20.59	20.68	20.70		
20	64QAM	100	0	20.80	20.84	20.88		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.73	22.89	22.91	23.9	0
15	QPSK	1	37	22.66	23.07	22.71		
15	QPSK	1	74	22.87	22.96	22.87		
15	QPSK	36	0	21.86	22.00	22.04	22.9	1
15	QPSK	36	20	21.95	22.00	21.99		
15	QPSK	36	39	22.00	21.99	22.08		
15	QPSK	75	0	21.96	21.95	22.02		
15	16QAM	1	0	22.08	22.06	22.20	22.9	1
15	16QAM	1	37	22.25	22.20	22.36		
15	16QAM	1	74	22.22	21.80	22.26		
15	16QAM	36	0	20.84	20.87	21.01	21.9	2
15	16QAM	36	20	20.74	21.01	21.05		
15	16QAM	36	39	20.94	20.91	20.88		
15	16QAM	75	0	20.85	20.91	20.87		
15	64QAM	1	0	21.43	21.52	21.48	21.9	2
15	64QAM	1	37	21.44	21.27	21.39		
15	64QAM	1	74	21.10	21.12	21.20		
15	64QAM	36	0	20.39	20.56	20.49	20.9	3
15	64QAM	36	20	20.40	20.44	20.43		
15	64QAM	36	39	20.33	20.47	20.45		
15	64QAM	75	0	20.37	20.36	20.40		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.75	23.02	22.88	23.9	0
10	QPSK	1	25	22.75	22.97	22.55		
10	QPSK	1	49	22.93	22.79	22.97		
10	QPSK	25	0	21.77	22.06	21.93	22.9	1
10	QPSK	25	12	21.80	21.94	22.03		
10	QPSK	25	25	21.90	21.89	21.96		
10	QPSK	50	0	21.90	21.97	21.93		
10	16QAM	1	0	21.59	22.45	21.63	22.9	1
10	16QAM	1	25	21.75	21.91	21.49		
10	16QAM	1	49	22.37	22.34	22.04		
10	16QAM	25	0	20.73	20.92	20.84	21.9	2
10	16QAM	25	12	20.70	20.88	20.89		
10	16QAM	25	25	20.81	20.84	20.96		
10	16QAM	50	0	20.77	20.85	20.83		
10	64QAM	1	0	21.31	21.44	21.37	21.9	2
10	64QAM	1	25	21.21	21.23	21.25		
10	64QAM	1	49	21.08	21.10	21.11		
10	64QAM	25	0	20.32	20.36	20.40	20.9	3
10	64QAM	25	12	20.10	20.33	20.35		
10	64QAM	25	25	20.03	20.10	20.14		
10	64QAM	50	0	20.08	20.12	20.11		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.73	22.98	22.98	23.9	0
5	QPSK	1	12	22.93	23.06	22.46		
5	QPSK	1	24	22.84	22.93	23.02		
5	QPSK	12	0	21.85	22.01	22.03	22.9	1
5	QPSK	12	7	21.88	21.91	22.05		
5	QPSK	12	13	21.86	22.03	22.06		
5	QPSK	25	0	21.83	21.97	22.00		
5	16QAM	1	0	22.10	22.24	21.72	22.9	1
5	16QAM	1	12	22.50	22.49	22.13		
5	16QAM	1	24	22.01	22.13	22.10		
5	16QAM	12	0	20.78	21.00	21.00	21.9	2
5	16QAM	12	7	20.73	20.80	20.96		
5	16QAM	12	13	20.86	21.02	20.89		
5	16QAM	25	0	20.63	20.85	20.88		
5	64QAM	1	0	21.20	21.23	21.32	21.9	2
5	64QAM	1	12	21.15	21.25	21.30		
5	64QAM	1	24	21.18	21.20	21.24		
5	64QAM	12	0	20.40	20.42	20.46	20.9	3
5	64QAM	12	7	20.28	20.27	20.30		
5	64QAM	12	13	20.20	20.22	20.25		
5	64QAM	25	0	20.03	20.08	20.10		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.83	23.11	22.95	23.9	0
3	QPSK	1	8	22.85	22.93	23.00		
3	QPSK	1	14	22.85	22.98	22.88		
3	QPSK	8	0	21.65	21.64	22.05	22.9	1
3	QPSK	8	4	21.37	21.84	21.92		
3	QPSK	8	7	21.87	21.84	22.04		
3	QPSK	15	0	21.83	21.98	21.95		
3	16QAM	1	0	21.58	22.44	22.43	22.9	1
3	16QAM	1	8	22.04	21.83	21.82		
3	16QAM	1	14	22.14	22.43	22.47		
3	16QAM	8	0	20.78	20.90	20.87	21.9	2
3	16QAM	8	4	20.57	20.77	20.77		
3	16QAM	8	7	20.75	20.85	20.89		
3	16QAM	15	0	20.86	20.84	21.17		
3	64QAM	1	0	21.33	21.39	21.42	21.9	2
3	64QAM	1	8	21.31	21.34	21.33		
3	64QAM	1	14	21.11	21.19	21.18		
3	64QAM	8	0	20.30	20.31	20.33	20.9	3
3	64QAM	8	4	20.21	20.23	20.31		
3	64QAM	8	7	20.13	20.20	20.18		
3	64QAM	15	0	20.18	20.30	20.28		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.71	22.92	22.89	23.9	0
1.4	QPSK	1	3	22.92	22.92	22.80		
1.4	QPSK	1	5	22.79	23.03	23.11		
1.4	QPSK	3	0	22.90	22.83	22.81		
1.4	QPSK	3	1	23.10	22.93	22.93		
1.4	QPSK	3	3	22.61	22.89	23.00		
1.4	QPSK	6	0	21.76	21.74	21.87	22.9	1
1.4	16QAM	1	0	21.84	21.90	22.27	22.9	1
1.4	16QAM	1	3	22.17	22.48	21.52		
1.4	16QAM	1	5	22.31	22.29	22.18		
1.4	16QAM	3	0	21.93	22.04	21.85		
1.4	16QAM	3	1	22.10	21.99	22.05		
1.4	16QAM	3	3	21.69	21.54	21.75		
1.4	16QAM	6	0	20.69	20.95	21.01	21.9	2
1.4	64QAM	1	0	21.44	21.45	21.48	21.9	2
1.4	64QAM	1	3	21.40	21.26	21.37		
1.4	64QAM	1	5	21.24	21.22	21.25		
1.4	64QAM	3	0	20.88	20.92	20.90		
1.4	64QAM	3	1	20.69	20.89	20.88		
1.4	64QAM	3	3	20.55	20.67	20.64		
1.4	64QAM	6	0	20.49	20.58	20.60	20.9	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	22.94	22.87	23.05	23.7	0
20	QPSK	1	49	22.62	22.65	22.68		
20	QPSK	1	99	22.88	22.85	22.91		
20	QPSK	50	0	21.81	21.85	21.93	22.7	1
20	QPSK	50	24	21.76	21.84	21.87		
20	QPSK	50	50	21.80	21.82	21.87		
20	QPSK	100	0	21.80	21.85	21.91		
20	16QAM	1	0	22.06	22.11	22.29	22.7	1
20	16QAM	1	49	21.59	21.88	21.91		
20	16QAM	1	99	22.03	22.00	22.12		
20	16QAM	50	0	20.81	20.80	20.90	21.7	2
20	16QAM	50	24	20.71	20.81	20.80		
20	16QAM	50	50	20.71	20.78	20.79		
20	16QAM	100	0	20.73	20.81	20.85		
20	64QAM	1	0	21.45	21.56	21.57	21.7	2
20	64QAM	1	49	21.34	21.47	21.46		
20	64QAM	1	99	21.34	21.36	21.40		
20	64QAM	50	0	20.55	20.65	20.56	20.7	3
20	64QAM	50	24	20.50	20.46	20.48		
20	64QAM	50	50	20.47	20.48	20.46		
20	64QAM	100	0	20.40	20.37	20.42		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.75	22.77	22.81	23.7	0
15	QPSK	1	37	22.58	22.65	22.48		
15	QPSK	1	74	22.69	22.82	22.72		
15	QPSK	36	0	21.79	21.89	21.89	22.7	1
15	QPSK	36	20	21.76	21.87	21.85		
15	QPSK	36	39	21.78	21.85	21.88		
15	QPSK	75	0	21.77	21.85	21.90		
15	16QAM	1	0	21.93	21.98	21.94	22.7	1
15	16QAM	1	37	21.42	21.41	21.42		
15	16QAM	1	74	21.91	22.01	21.94		
15	16QAM	36	0	20.76	20.84	20.88	21.7	2
15	16QAM	36	20	20.69	20.82	20.80		
15	16QAM	36	39	20.76	20.81	20.83		
15	16QAM	75	0	20.69	20.81	20.79		
15	64QAM	1	0	21.24	21.33	21.38	21.7	2
15	64QAM	1	37	21.19	21.31	21.40		
15	64QAM	1	74	21.11	21.19	21.20		
15	64QAM	36	0	20.32	20.34	20.36	20.7	3
15	64QAM	36	20	20.24	20.28	20.30		
15	64QAM	36	39	20.13	20.20	20.23		
15	64QAM	75	0	20.10	20.14	20.20		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.87	22.87	22.93	23.7	0
10	QPSK	1	25	22.59	22.56	22.71		
10	QPSK	1	49	22.77	22.89	22.81		
10	QPSK	25	0	21.74	21.87	21.92	22.7	1
10	QPSK	25	12	21.74	21.87	21.85		
10	QPSK	25	25	21.71	21.85	21.84		
10	QPSK	50	0	21.78	21.88	21.89		
10	16QAM	1	0	21.95	22.08	22.18	22.7	1
10	16QAM	1	25	21.85	22.00	21.79		
10	16QAM	1	49	21.95	22.09	22.02		
10	16QAM	25	0	20.75	20.85	20.87	21.7	2
10	16QAM	25	12	20.69	20.84	20.79		
10	16QAM	25	25	20.68	20.81	20.79		
10	16QAM	50	0	20.70	20.82	20.82		
10	64QAM	1	0	21.33	21.30	21.31	21.7	2
10	64QAM	1	25	21.24	21.28	21.25		
10	64QAM	1	49	21.31	21.30	21.27		
10	64QAM	25	0	20.13	20.23	20.28	20.7	3
10	64QAM	25	12	20.22	20.25	20.30		
10	64QAM	25	25	20.15	20.18	20.21		
10	64QAM	50	0	20.11	20.20	20.26		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.85	22.88	22.95	23.7	0
5	QPSK	1	12	22.29	22.52	22.47		
5	QPSK	1	24	22.76	22.88	22.90		
5	QPSK	12	0	21.84	21.95	21.92	22.7	1
5	QPSK	12	7	21.75	21.85	21.86		
5	QPSK	12	13	21.78	21.88	21.93		
5	QPSK	25	0	21.78	21.87	21.88		
5	16QAM	1	0	21.97	22.14	22.17	22.7	1
5	16QAM	1	12	21.67	21.87	21.76		
5	16QAM	1	24	21.97	22.05	22.10		
5	16QAM	12	0	20.83	20.89	20.90	21.7	2
5	16QAM	12	7	20.73	20.85	20.81		
5	16QAM	12	13	20.72	20.85	20.89		
5	16QAM	25	0	20.70	20.80	20.82		
5	64QAM	1	0	21.26	21.23	21.27	21.7	2
5	64QAM	1	12	21.30	21.13	21.24		
5	64QAM	1	24	21.25	21.20	21.28		
5	64QAM	12	0	20.18	20.21	20.24	20.7	3
5	64QAM	12	7	20.23	20.24	20.26		
5	64QAM	12	13	20.12	20.16	20.22		
5	64QAM	25	0	20.10	20.18	20.20		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.84	22.89	22.89	23.7	0
3	QPSK	1	8	22.85	22.92	22.95		
3	QPSK	1	14	22.81	22.90	22.94		
3	QPSK	8	0	21.73	21.83	21.84	22.7	1
3	QPSK	8	4	21.79	21.82	21.75		
3	QPSK	8	7	21.72	21.83	21.84		
3	QPSK	15	0	21.81	21.89	21.91		
3	16QAM	1	0	21.99	22.09	22.12	22.7	1
3	16QAM	1	8	21.99	22.13	22.13		
3	16QAM	1	14	21.98	22.13	22.11		
3	16QAM	8	0	20.72	20.78	20.87	21.7	2
3	16QAM	8	4	20.77	20.86	20.83		
3	16QAM	8	7	20.72	20.80	20.83		
3	16QAM	15	0	20.74	20.84	20.83		
3	64QAM	1	0	21.30	21.27	21.32	21.7	2
3	64QAM	1	8	21.29	21.33	21.28		
3	64QAM	1	14	21.19	21.20	21.23		
3	64QAM	8	0	20.20	20.22	20.25	20.7	3
3	64QAM	8	4	20.12	20.16	20.20		
3	64QAM	8	7	20.13	20.15	20.17		
3	64QAM	15	0	20.10	20.12	20.16		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.83	22.88	22.92	23.7	0
1.4	QPSK	1	3	22.53	22.69	22.74		
1.4	QPSK	1	5	22.78	22.91	22.90		
1.4	QPSK	3	0	22.73	22.82	22.83		
1.4	QPSK	3	1	22.49	22.64	22.68		
1.4	QPSK	3	3	22.63	22.78	22.83		
1.4	QPSK	6	0	21.82	21.86	21.84	22.7	1
1.4	16QAM	1	0	21.96	22.20	22.11	22.7	1
1.4	16QAM	1	3	21.71	21.97	21.91		
1.4	16QAM	1	5	22.00	22.17	22.14		
1.4	16QAM	3	0	21.79	21.85	21.86		
1.4	16QAM	3	1	21.83	21.90	21.76		
1.4	16QAM	3	3	21.76	21.87	21.87		
1.4	16QAM	6	0	20.68	20.77	20.80	21.7	2
1.4	64QAM	1	0	21.27	21.29	21.30	21.7	2
1.4	64QAM	1	3	21.24	21.30	21.28		
1.4	64QAM	1	5	21.30	21.33	21.32		
1.4	64QAM	3	0	21.24	21.28	21.30		
1.4	64QAM	3	1	21.26	21.31	21.29		
1.4	64QAM	3	3	21.22	21.25	21.27		
1.4	64QAM	6	0	20.66	20.67	20.66	20.7	3

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.24	22.35	22.28	23.5	0
10	QPSK	1	25	22.19	22.25	22.23		
10	QPSK	1	49	22.23	22.31	22.26		
10	QPSK	25	0	21.28	21.30	21.24	22.5	1
10	QPSK	25	12	21.31	21.29	21.31		
10	QPSK	25	25	21.33	21.31	21.34		
10	QPSK	50	0	21.29	21.30	21.28		
10	16QAM	1	0	21.53	21.58	21.52	22.5	1
10	16QAM	1	25	21.28	21.41	21.48		
10	16QAM	1	49	21.57	21.52	21.56		
10	16QAM	25	0	20.25	20.24	20.21	21.5	2
10	16QAM	25	12	20.28	20.26	20.25		
10	16QAM	25	25	20.30	20.29	20.23		
10	16QAM	50	0	20.24	20.28	20.21		
10	64QAM	1	0	21.17	21.21	21.24	21.5	2
10	64QAM	1	25	21.20	21.15	21.22		
10	64QAM	1	49	21.11	21.22	21.28		
10	64QAM	25	0	20.08	20.12	20.18	20.5	3
10	64QAM	25	12	20.04	20.10	20.12		
10	64QAM	25	25	20.00	20.08	20.10		
10	64QAM	50	0	20.01	20.06	20.03		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.33	22.34	22.29	23.5	0
5	QPSK	1	12	21.78	21.76	21.63		
5	QPSK	1	24	22.31	22.30	22.33		
5	QPSK	12	0	21.35	21.36	21.35	22.5	1
5	QPSK	12	7	21.27	21.26	21.23		
5	QPSK	12	13	21.31	21.37	21.36		
5	QPSK	25	0	21.27	21.28	21.27		
5	16QAM	1	0	21.52	21.55	21.59	22.5	1
5	16QAM	1	12	21.13	21.00	21.07		
5	16QAM	1	24	21.57	21.59	21.54		
5	16QAM	12	0	20.30	20.30	20.30	21.5	2
5	16QAM	12	7	20.20	20.24	20.22		
5	16QAM	12	13	20.30	20.28	20.28		
5	16QAM	25	0	20.23	20.25	20.24		
5	64QAM	1	0	21.10	21.11	21.20	21.5	2
5	64QAM	1	12	21.02	21.04	21.10		
5	64QAM	1	24	20.99	21.01	21.07		
5	64QAM	12	0	20.01	20.03	20.06	20.5	3
5	64QAM	12	7	19.98	20.00	20.02		
5	64QAM	12	13	19.89	19.97	19.98		
5	64QAM	25	0	19.83	19.98	19.96		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.26	22.34	22.28	23.5	0
3	QPSK	1	8	22.19	22.32	22.30		
3	QPSK	1	14	22.27	22.32	22.28		
3	QPSK	8	0	21.17	21.23	21.17	22.5	1
3	QPSK	8	4	21.18	21.21	21.18		
3	QPSK	8	7	21.23	21.27	21.19		
3	QPSK	15	0	21.25	21.30	21.26		
3	16QAM	1	0	21.48	21.61	21.49	22.5	1
3	16QAM	1	8	21.60	21.56	21.45		
3	16QAM	1	14	21.55	21.58	21.54		
3	16QAM	8	0	20.18	20.14	20.16	21.5	2
3	16QAM	8	4	20.17	20.26	20.16		
3	16QAM	8	7	20.19	20.15	20.19		
3	16QAM	15	0	20.23	20.28	20.21		
3	64QAM	1	0	20.85	20.88	20.94	21.5	2
3	64QAM	1	8	20.86	20.82	20.89		
3	64QAM	1	14	20.80	20.75	20.81		
3	64QAM	8	0	19.79	19.80	19.81	20.5	3
3	64QAM	8	4	19.70	19.71	19.69		
3	64QAM	8	7	19.73	19.77	19.72		
3	64QAM	15	0	19.69	19.76	19.77		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.31	22.29	22.28	23.5	0
1.4	QPSK	1	3	21.98	21.98	22.04		
1.4	QPSK	1	5	22.33	22.28	22.24		
1.4	QPSK	3	0	22.19	22.24	22.25		
1.4	QPSK	3	1	21.93	22.10	21.94		
1.4	QPSK	3	3	22.16	22.20	22.18		
1.4	QPSK	6	0	21.17	21.21	21.13	22.5	1
1.4	16QAM	1	0	21.53	21.58	21.61	22.5	1
1.4	16QAM	1	3	21.25	21.51	21.23		
1.4	16QAM	1	5	21.52	21.57	21.62		
1.4	16QAM	3	0	21.23	21.23	21.24		
1.4	16QAM	3	1	21.24	21.25	21.22		
1.4	16QAM	3	3	21.22	21.10	21.18		
1.4	16QAM	6	0	20.16	20.24	20.27	21.5	2
1.4	64QAM	1	0	20.93	20.98	21.00	21.5	2
1.4	64QAM	1	3	20.90	20.99	20.96		
1.4	64QAM	1	5	20.88	20.94	20.98		
1.4	64QAM	3	0	20.96	21.00	20.97		
1.4	64QAM	3	1	20.89	20.97	20.96		
1.4	64QAM	3	3	20.87	20.89	20.99		
1.4	64QAM	6	0	20.07	20.11	20.14	20.5	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	22.16	22.23	22.27	23.2	0
20	QPSK	1	49	22.04	21.95	22.03		
20	QPSK	1	99	22.48	22.36	22.57		
20	QPSK	50	0	21.19	21.21	21.31	22.2	1
20	QPSK	50	24	21.23	21.23	21.38		
20	QPSK	50	50	21.27	21.25	21.46		
20	QPSK	100	0	21.27	21.26	21.40		
20	16QAM	1	0	21.43	21.54	21.57	22.2	1
20	16QAM	1	49	21.22	21.27	21.56		
20	16QAM	1	99	21.64	21.62	21.88		
20	16QAM	50	0	20.16	20.15	20.24	21.2	2
20	16QAM	50	24	20.16	20.15	20.31		
20	16QAM	50	50	20.22	20.17	20.39		
20	16QAM	100	0	20.17	20.19	20.30		
20	64QAM	1	0	21.13	21.11	21.15	21.2	2
20	64QAM	1	49	20.96	20.97	20.92		
20	64QAM	1	99	20.95	20.94	20.98		
20	64QAM	50	0	19.84	19.76	19.77	20.2	3
20	64QAM	50	24	19.72	19.68	19.70		
20	64QAM	50	50	19.66	19.67	19.64		
20	64QAM	100	0	19.79	19.74	19.78		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	22.09	22.08	22.21	23.2	0
15	QPSK	1	37	21.81	21.75	22.00		
15	QPSK	1	74	22.29	22.21	22.44		
15	QPSK	36	0	21.24	21.23	21.34	22.2	1
15	QPSK	36	20	21.27	21.27	21.39		
15	QPSK	36	39	21.37	21.28	21.49		
15	QPSK	75	0	21.22	21.27	21.41		
15	16QAM	1	0	21.33	21.36	21.41	22.2	1
15	16QAM	1	37	21.27	21.43	21.48		
15	16QAM	1	74	21.49	21.45	21.70		
15	16QAM	36	0	20.20	20.17	20.26	21.2	2
15	16QAM	36	20	20.19	20.19	20.28		
15	16QAM	36	39	20.29	20.25	20.42		
15	16QAM	75	0	20.20	20.20	20.37		
15	64QAM	1	0	20.77	20.75	20.81	21.2	2
15	64QAM	1	37	20.72	20.78	20.79		
15	64QAM	1	74	20.64	20.67	20.71		
15	64QAM	36	0	19.90	19.89	19.92	20.2	3
15	64QAM	36	20	19.89	19.87	19.88		
15	64QAM	36	39	19.78	19.79	19.80		
15	64QAM	75	0	19.80	19.82	19.82		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.20	22.17	22.33	23.2	0
10	QPSK	1	25	21.94	21.82	22.02		
10	QPSK	1	49	22.32	22.26	22.47		
10	QPSK	25	0	21.18	21.26	21.39	22.2	1
10	QPSK	25	12	21.18	21.21	21.39		
10	QPSK	25	25	21.24	21.28	21.44		
10	QPSK	50	0	21.22	21.26	21.45		
10	16QAM	1	0	21.48	21.43	21.61	22.2	1
10	16QAM	1	25	21.38	21.18	21.38		
10	16QAM	1	49	21.55	21.57	21.72		
10	16QAM	25	0	20.15	20.20	20.33	21.2	2
10	16QAM	25	12	20.15	20.19	20.35		
10	16QAM	25	25	20.19	20.21	20.41		
10	16QAM	50	0	20.15	20.19	20.40		
10	64QAM	1	0	20.81	20.78	20.83	21.2	2
10	64QAM	1	25	20.74	20.72	20.75		
10	64QAM	1	49	20.82	20.80	20.76		
10	64QAM	25	0	19.70	19.68	19.71	20.2	3
10	64QAM	25	12	19.69	19.66	19.67		
10	64QAM	25	25	19.61	19.63	19.60		
10	64QAM	50	0	19.62	19.60	19.65		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.28	22.27	22.47	23.2	0
5	QPSK	1	12	21.84	21.68	22.09		
5	QPSK	1	24	22.27	22.30	22.53		
5	QPSK	12	0	21.24	21.27	21.49	22.2	1
5	QPSK	12	7	21.22	21.26	21.44		
5	QPSK	12	13	21.30	21.28	21.51		
5	QPSK	25	0	21.17	21.24	21.43		
5	16QAM	1	0	21.41	21.44	21.65	22.2	1
5	16QAM	1	12	21.12	21.25	21.29		
5	16QAM	1	24	21.42	21.51	21.78		
5	16QAM	12	0	20.23	20.29	20.46	21.2	2
5	16QAM	12	7	20.17	20.20	20.40		
5	16QAM	12	13	20.25	20.29	20.53		
5	16QAM	25	0	20.15	20.19	20.39		
5	64QAM	1	0	20.90	20.92	20.89	21.2	2
5	64QAM	1	12	20.87	20.89	20.88		
5	64QAM	1	24	20.77	20.88	20.89		
5	64QAM	12	0	19.71	19.61	19.74	20.2	3
5	64QAM	12	7	19.60	19.57	19.61		
5	64QAM	12	13	19.51	19.55	19.58		
5	64QAM	25	0	19.57	19.54	19.55		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.36	23.30	23.33	24.4	0
10	QPSK	1	25	23.22	23.20	23.11		
10	QPSK	1	49	23.41	23.35	23.42		
10	QPSK	25	0	22.33	22.32	22.33	23.4	1
10	QPSK	25	12	22.35	22.31	22.32		
10	QPSK	25	25	22.36	22.34	22.37		
10	QPSK	50	0	22.36	22.29	22.33		
10	16QAM	1	0	22.43	22.54	22.54	23.4	1
10	16QAM	1	25	22.34	22.26	22.34		
10	16QAM	1	49	22.48	22.58	22.69		
10	16QAM	25	0	21.29	21.25	21.28	22.4	2
10	16QAM	25	12	21.29	21.27	21.26		
10	16QAM	25	25	21.32	21.29	21.29		
10	16QAM	50	0	21.29	21.23	21.25		
10	64QAM	1	0	22.10	22.08	22.12	22.4	2
10	64QAM	1	25	22.02	21.99	22.00		
10	64QAM	1	49	22.05	22.10	22.08		
10	64QAM	25	0	21.18	21.13	21.19	21.4	3
10	64QAM	25	12	21.01	21.00	21.06		
10	64QAM	25	25	21.04	21.08	21.00		
10	64QAM	50	0	21.00	21.02	21.03		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.35	23.31	23.27	24.4	0
5	QPSK	1	12	22.89	23.01	22.77		
5	QPSK	1	24	23.32	23.34	23.33		
5	QPSK	12	0	22.39	22.35	22.33	23.4	1
5	QPSK	12	7	22.32	22.32	22.29		
5	QPSK	12	13	22.41	22.33	22.41		
5	QPSK	25	0	22.36	22.29	22.29		
5	16QAM	1	0	22.55	22.53	22.57	23.4	1
5	16QAM	1	12	22.41	22.38	22.39		
5	16QAM	1	24	22.57	22.57	22.65		
5	16QAM	12	0	21.32	21.29	21.28	22.4	2
5	16QAM	12	7	21.26	21.28	21.28		
5	16QAM	12	13	21.34	21.29	21.39		
5	16QAM	25	0	21.26	21.20	21.26		
5	64QAM	1	0	21.98	21.94	22.02	22.4	2
5	64QAM	1	12	21.88	21.84	21.90		
5	64QAM	1	24	21.89	21.88	21.92		
5	64QAM	12	0	20.99	20.97	21.00	21.4	3
5	64QAM	12	7	20.91	20.88	20.93		
5	64QAM	12	13	20.89	20.84	20.90		
5	64QAM	25	0	20.90	20.86	20.92		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.36	23.26	23.29	24.4	0
3	QPSK	1	8	23.40	23.31	23.33		
3	QPSK	1	14	23.38	23.24	23.34		
3	QPSK	8	0	22.28	22.20	22.24	23.4	1
3	QPSK	8	4	22.29	22.30	22.32		
3	QPSK	8	7	22.28	22.30	22.29		
3	QPSK	15	0	22.35	22.30	22.33		
3	16QAM	1	0	22.52	22.57	22.49	23.4	1
3	16QAM	1	8	22.60	22.61	22.48		
3	16QAM	1	14	22.60	22.52	22.53		
3	16QAM	8	0	21.24	21.20	21.18	22.4	2
3	16QAM	8	4	21.29	21.20	21.26		
3	16QAM	8	7	21.27	21.26	21.27		
3	16QAM	15	0	21.29	21.22	21.20		
3	64QAM	1	0	22.01	22.04	22.07	22.4	2
3	64QAM	1	8	21.93	21.91	21.96		
3	64QAM	1	14	21.90	21.92	21.95		
3	64QAM	8	0	21.06	21.02	21.07	21.4	3
3	64QAM	8	4	20.98	20.95	20.94		
3	64QAM	8	7	20.92	20.97	20.90		
3	64QAM	15	0	20.90	20.94	20.95		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.34	23.30	23.32	24.4	0
1.4	QPSK	1	3	23.29	23.21	23.15		
1.4	QPSK	1	5	23.34	23.32	23.31		
1.4	QPSK	3	0	23.28	23.21	23.25		
1.4	QPSK	3	1	23.17	23.11	23.11		
1.4	QPSK	3	3	23.26	23.18	23.18		
1.4	QPSK	6	0	22.20	22.21	22.21	23.4	1
1.4	16QAM	1	0	22.61	22.55	22.57	23.4	1
1.4	16QAM	1	3	22.32	22.37	22.45		
1.4	16QAM	1	5	22.68	22.63	22.61		
1.4	16QAM	3	0	22.36	22.29	22.25		
1.4	16QAM	3	1	22.24	22.16	22.20		
1.4	16QAM	3	3	22.24	22.19	22.29		
1.4	16QAM	6	0	21.26	21.27	21.21	22.4	2
1.4	64QAM	1	0	22.03	22.00	22.09	22.4	2
1.4	64QAM	1	3	22.00	21.99	22.02		
1.4	64QAM	1	5	21.98	21.96	21.97		
1.4	64QAM	3	0	21.99	21.98	21.95		
1.4	64QAM	3	1	21.88	21.87	21.90		
1.4	64QAM	3	3	21.87	21.90	21.88		
1.4	64QAM	6	0	21.10	21.12	21.13	21.4	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	23.21	23.18	23.18	24.4	0
10	QPSK	1	25	23.13	22.96	23.21		
10	QPSK	1	49	23.26	23.37	23.31		
10	QPSK	25	0	22.22	22.24	22.25	23.4	1
10	QPSK	25	12	22.27	22.28	22.26		
10	QPSK	25	25	22.25	22.31	22.30		
10	QPSK	50	0	22.27	22.26	22.25		
10	16QAM	1	0	22.39	22.37	22.35	23.4	1
10	16QAM	1	25	21.93	21.98	22.15		
10	16QAM	1	49	22.44	22.50	22.57		
10	16QAM	25	0	21.18	21.21	21.19	22.4	2
10	16QAM	25	12	21.18	21.18	21.17		
10	16QAM	25	25	21.19	21.24	21.26		
10	16QAM	50	0	21.19	21.20	21.17		
10	64QAM	1	0	22.11	22.14	22.10	22.4	2
10	64QAM	1	25	21.95	21.94	21.91		
10	64QAM	1	49	21.98	21.97	21.92		
10	64QAM	25	0	20.93	20.91	20.89	21.4	3
10	64QAM	25	12	20.79	20.86	20.77		
10	64QAM	25	25	20.83	20.88	20.85		
10	64QAM	50	0	20.84	20.83	20.80		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.31	23.26	23.28	24.4	0
5	QPSK	1	12	23.31	23.11	22.86		
5	QPSK	1	24	23.33	23.30	23.30		
5	QPSK	12	0	22.33	22.33	22.32	23.4	1
5	QPSK	12	7	22.29	22.30	22.34		
5	QPSK	12	13	22.34	22.35	22.39		
5	QPSK	25	0	22.28	22.21	22.26		
5	16QAM	1	0	22.52	22.44	22.48	23.4	1
5	16QAM	1	12	21.69	22.24	22.33		
5	16QAM	1	24	22.50	22.43	22.54		
5	16QAM	12	0	21.33	21.29	21.29	22.4	2
5	16QAM	12	7	21.20	21.31	21.28		
5	16QAM	12	13	21.30	21.30	21.36		
5	16QAM	25	0	21.23	21.20	21.21		
5	64QAM	1	0	21.92	21.97	21.90	22.4	2
5	64QAM	1	12	21.88	21.87	21.83		
5	64QAM	1	24	21.82	21.89	21.79		
5	64QAM	12	0	20.85	20.88	20.82	21.4	3
5	64QAM	12	7	20.87	20.89	20.88		
5	64QAM	12	13	20.80	20.81	20.82		
5	64QAM	25	0	20.83	20.85	20.84		

<Ant.2--Reduced Power Mode for Receiver On>

<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	17.88	17.92	18.15	18.9	0
20	QPSK	1	49	17.70	17.75	17.76		
20	QPSK	1	99	17.80	17.82	17.89		
20	QPSK	50	0	17.68	17.78	17.79	18.9	0
20	QPSK	50	24	17.74	17.77	17.80		
20	QPSK	50	50	17.75	17.85	17.86		
20	QPSK	100	0	17.72	17.80	17.82		
20	16QAM	1	0	17.95	18.00	18.01	18.9	0
20	16QAM	1	49	17.58	17.70	17.73		
20	16QAM	1	99	17.84	17.95	17.98		
20	16QAM	50	0	17.65	17.78	17.79	18.9	0
20	16QAM	50	24	17.66	17.74	17.74		
20	16QAM	50	50	17.65	17.70	17.75		
20	16QAM	100	0	17.66	17.74	17.75		
20	64QAM	1	0	17.85	17.88	17.89	18.9	0
20	64QAM	1	49	17.55	17.57	17.58		
20	64QAM	1	99	17.79	17.85	17.88		
20	64QAM	50	0	17.59	17.76	17.77	18.9	0
20	64QAM	50	24	17.65	17.74	17.74		
20	64QAM	50	50	17.71	17.70	17.68		
20	64QAM	100	0	17.00	17.72	17.76		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	17.67	17.82	17.77	18.9	0
15	QPSK	1	37	17.42	17.35	17.52		
15	QPSK	1	74	17.68	17.69	17.71		
15	QPSK	36	0	17.72	17.85	17.83	18.9	0
15	QPSK	36	20	17.76	17.90	17.81		
15	QPSK	36	39	17.73	17.82	17.84		
15	QPSK	75	0	17.73	17.84	17.79		
15	16QAM	1	0	17.93	17.98	17.95	18.9	0
15	16QAM	1	37	17.79	17.68	17.45		
15	16QAM	1	74	17.92	17.92	17.94		
15	16QAM	36	0	17.70	17.80	17.81	18.9	0
15	16QAM	36	20	17.68	17.76	17.77		
15	16QAM	36	39	17.70	17.73	17.77		
15	16QAM	75	0	17.69	17.80	17.73		
15	64QAM	1	0	17.82	17.84	17.85	18.9	0
15	64QAM	1	37	17.75	17.78	17.80		
15	64QAM	1	74	17.80	17.82	17.83		
15	64QAM	36	0	17.76	17.79	17.74	18.9	0
15	64QAM	36	20	17.74	17.77	17.78		
15	64QAM	36	39	17.79	17.72	17.74		
15	64QAM	75	0	17.74	17.75	17.76		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	17.72	17.85	17.53	18.9	0
10	QPSK	1	25	17.42	17.57	17.37		
10	QPSK	1	49	17.72	17.76	17.53		
10	QPSK	25	0	17.71	17.87	17.57	18.9	0
10	QPSK	25	12	17.68	17.84	17.82		
10	QPSK	25	25	17.72	17.82	17.80		
10	QPSK	50	0	17.72	17.79	17.80		
10	16QAM	1	0	17.93	18.06	17.93	18.9	0
10	16QAM	1	25	17.71	17.85	17.66		
10	16QAM	1	49	17.95	17.97	17.93		
10	16QAM	25	0	17.64	17.78	17.77	18.9	0
10	16QAM	25	12	17.64	17.79	17.73		
10	16QAM	25	25	17.65	17.76	17.70		
10	16QAM	50	0	17.64	17.75	17.74		
10	64QAM	1	0	17.85	17.90	17.96	18.9	0
10	64QAM	1	25	17.65	17.74	17.87		
10	64QAM	1	49	17.90	17.92	17.89		
10	64QAM	25	0	17.76	17.75	17.79	18.9	0
10	64QAM	25	12	17.74	17.78	17.76		
10	64QAM	25	25	17.73	17.72	17.75		
10	64QAM	50	0	17.76	17.77	17.82		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	17.68	17.84	17.82	18.9	0
5	QPSK	1	12	17.55	17.72	17.53		
5	QPSK	1	24	17.65	17.86	17.75		
5	QPSK	12	0	17.67	17.88	17.84	18.9	0
5	QPSK	12	7	17.64	17.84	17.77		
5	QPSK	12	13	17.66	17.91	17.82		
5	QPSK	25	0	17.65	17.82	17.77		
5	16QAM	1	0	17.88	18.06	18.05	18.9	0
5	16QAM	1	12	17.63	17.60	17.73		
5	16QAM	1	24	17.92	17.90	17.98		
5	16QAM	12	0	17.66	17.85	17.78	18.9	0
5	16QAM	12	7	17.64	17.74	17.70		
5	16QAM	12	13	17.65	17.84	17.79		
5	16QAM	25	0	17.62	17.78	17.73		
5	64QAM	1	0	17.85	17.95	17.96	18.9	0
5	64QAM	1	12	17.46	17.49	17.56		
5	64QAM	1	24	17.89	17.96	17.95		
5	64QAM	12	0	17.75	17.87	17.88	18.9	0
5	64QAM	12	7	17.74	17.80	17.78		
5	64QAM	12	13	17.72	17.83	17.85		
5	64QAM	25	0	17.77	17.79	17.82		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	17.73	17.91	17.82	18.9	0
3	QPSK	1	8	17.74	17.87	17.79		
3	QPSK	1	14	17.73	17.84	17.76		
3	QPSK	8	0	17.69	17.85	17.74	18.9	0
3	QPSK	8	4	17.67	17.82	17.72		
3	QPSK	8	7	17.66	17.84	17.73		
3	QPSK	15	0	17.70	17.85	17.77		
3	16QAM	1	0	17.96	18.03	18.07	18.9	0
3	16QAM	1	8	18.04	18.01	18.06		
3	16QAM	1	14	17.94	18.00	18.06		
3	16QAM	8	0	17.69	17.82	17.72	18.9	0
3	16QAM	8	4	17.68	17.76	17.67		
3	16QAM	8	7	17.69	17.82	17.63		
3	16QAM	15	0	17.68	17.82	17.75		
3	64QAM	1	0	17.79	17.99	17.98	18.9	0
3	64QAM	1	8	17.95	17.98	17.99		
3	64QAM	1	14	17.96	18.00	18.02		
3	64QAM	8	0	17.75	17.76	17.77	18.9	0
3	64QAM	8	4	17.74	17.77	17.82		
3	64QAM	8	7	17.68	17.75	17.76		
3	64QAM	15	0	17.73	17.76	17.78		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	17.69	17.88	17.77	18.9	0
1.4	QPSK	1	3	17.50	17.71	17.56		
1.4	QPSK	1	5	17.72	17.88	17.76		
1.4	QPSK	3	0	17.64	17.84	17.70		
1.4	QPSK	3	1	17.54	17.66	17.58		
1.4	QPSK	3	3	17.55	17.64	17.56		
1.4	QPSK	6	0	17.67	17.81	17.72	18.9	0
1.4	16QAM	1	0	17.92	18.02	18.05	18.9	0
1.4	16QAM	1	3	17.82	18.05	17.81		
1.4	16QAM	1	5	17.96	18.00	18.01		
1.4	16QAM	3	0	17.73	17.74	17.77		
1.4	16QAM	3	1	17.64	17.80	17.63		
1.4	16QAM	3	3	17.72	17.76	17.75		
1.4	16QAM	6	0	17.58	17.79	17.74	18.9	0
1.4	64QAM	1	0	18.01	18.03	18.05	18.9	0
1.4	64QAM	1	3	17.85	17.83	17.86		
1.4	64QAM	1	5	18.00	18.04	18.06		
1.4	64QAM	3	0	17.83	17.87	17.88		
1.4	64QAM	3	1	17.71	17.75	17.76		
1.4	64QAM	3	3	17.82	17.88	17.93		
1.4	64QAM	6	0	17.83	17.82	17.86	18.9	0

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.19	21.30	21.54	22.2	0
20	QPSK	1	49	21.10	21.22	21.29		
20	QPSK	1	99	21.12	21.24	21.26		
20	QPSK	50	0	21.16	21.26	21.34	22.2	0
20	QPSK	50	24	21.10	21.27	21.28		
20	QPSK	50	50	21.06	21.22	21.24		
20	QPSK	100	0	21.10	21.23	21.30		
20	16QAM	1	0	21.41	21.45	21.50	22.2	0
20	16QAM	1	49	21.25	21.16	21.33		
20	16QAM	1	99	21.29	21.48	21.51		
20	16QAM	50	0	20.58	20.69	20.77	21.7	0.5
20	16QAM	50	24	20.49	20.67	20.71		
20	16QAM	50	50	20.50	20.64	20.71		
20	16QAM	100	0	20.52	20.68	20.75		
20	64QAM	1	0	21.00	21.04	21.13	21.7	0.5
20	64QAM	1	49	20.92	20.97	20.99		
20	64QAM	1	99	20.96	20.95	20.96		
20	64QAM	50	0	20.56	20.60	20.65	20.7	1.5
20	64QAM	50	24	20.46	20.40	20.58		
20	64QAM	50	50	20.47	20.50	20.53		
20	64QAM	100	0	20.46	20.49	20.50		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.10	21.19	21.27	22.2	0
15	QPSK	1	37	20.60	20.86	21.11		
15	QPSK	1	74	21.05	21.22	21.18		
15	QPSK	36	0	21.19	21.29	21.32	22.2	0
15	QPSK	36	20	21.09	21.27	21.24		
15	QPSK	36	39	21.14	21.28	21.25		
15	QPSK	75	0	21.08	21.29	21.23		
15	16QAM	1	0	21.34	21.44	21.50	22.2	0
15	16QAM	1	37	20.95	21.26	21.26		
15	16QAM	1	74	21.34	21.49	21.41		
15	16QAM	36	0	20.59	20.74	20.77	21.7	0.5
15	16QAM	36	20	20.54	20.72	20.69		
15	16QAM	36	39	20.57	20.78	20.70		
15	16QAM	75	0	20.53	20.70	20.68		
15	64QAM	1	0	20.84	20.86	20.88	21.7	0.5
15	64QAM	1	37	20.92	20.95	20.96		
15	64QAM	1	74	20.90	20.93	20.92		
15	64QAM	36	0	20.44	20.49	20.50	20.7	1.5
15	64QAM	36	20	20.38	20.46	20.47		
15	64QAM	36	39	20.45	20.48	20.52		
15	64QAM	75	0	20.53	20.51	20.56		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.13	21.25	21.26	22.2	0
10	QPSK	1	25	20.86	21.03	21.00		
10	QPSK	1	49	21.07	21.25	21.22		
10	QPSK	25	0	21.11	21.29	21.26	22.2	0
10	QPSK	25	12	21.09	21.30	21.23		
10	QPSK	25	25	21.08	21.28	21.24		
10	QPSK	50	0	21.10	21.25	21.27		
10	16QAM	1	0	21.38	21.46	21.47	22.2	0
10	16QAM	1	25	21.12	21.08	21.36		
10	16QAM	1	49	21.32	21.50	21.51		
10	16QAM	25	0	20.55	20.73	20.71	21.7	0.5
10	16QAM	25	12	20.52	20.70	20.66		
10	16QAM	25	25	20.51	20.72	20.64		
10	16QAM	50	0	20.59	20.70	20.68		
10	64QAM	1	0	21.10	21.12	21.16	21.7	0.5
10	64QAM	1	25	20.88	20.92	20.93		
10	64QAM	1	49	20.96	21.06	20.98		
10	64QAM	25	0	20.45	20.55	20.54	20.7	1.5
10	64QAM	25	12	20.59	20.63	20.66		
10	64QAM	25	25	20.37	20.49	20.60		
10	64QAM	50	0	20.16	20.28	20.30		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.12	21.29	21.26	22.2	0
5	QPSK	1	12	21.24	21.08	21.22		
5	QPSK	1	24	21.06	21.20	21.25		
5	QPSK	12	0	21.20	21.36	21.28	22.2	0
5	QPSK	12	7	21.11	21.28	21.22		
5	QPSK	12	13	21.14	21.34	21.28		
5	QPSK	25	0	21.10	21.28	21.25		
5	16QAM	1	0	21.39	21.49	21.51	22.2	0
5	16QAM	1	12	21.11	21.34	21.13		
5	16QAM	1	24	21.33	21.49	21.49		
5	16QAM	12	0	20.61	20.82	20.72	21.7	0.5
5	16QAM	12	7	20.55	20.76	20.67		
5	16QAM	12	13	20.57	20.77	20.72		
5	16QAM	25	0	20.56	20.74	20.65		
5	64QAM	1	0	21.06	21.07	21.12	21.7	0.5
5	64QAM	1	12	20.64	20.76	20.81		
5	64QAM	1	24	20.95	20.94	20.92		
5	64QAM	12	0	20.46	20.50	20.52	20.7	1.5
5	64QAM	12	7	20.19	20.10	20.21		
5	64QAM	12	13	20.05	20.09	20.10		
5	64QAM	25	0	20.40	20.41	20.55		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.14	21.27	21.24	22.2	0
3	QPSK	1	8	21.15	21.29	21.22		
3	QPSK	1	14	21.08	21.28	21.23		
3	QPSK	8	0	21.14	21.27	21.21	22.2	0
3	QPSK	8	4	21.14	21.21	21.20		
3	QPSK	8	7	21.04	21.23	21.14		
3	QPSK	15	0	21.15	21.26	21.23		
3	16QAM	1	0	21.38	21.50	21.52	22.2	0
3	16QAM	1	8	21.42	21.50	21.53		
3	16QAM	1	14	21.35	21.52	21.49		
3	16QAM	8	0	20.61	20.72	20.59	21.7	0.5
3	16QAM	8	4	20.57	20.74	20.64		
3	16QAM	8	7	20.54	20.71	20.58		
3	16QAM	15	0	20.58	20.72	20.67		
3	64QAM	1	0	21.06	21.08	21.11	21.7	0.5
3	64QAM	1	8	21.00	21.03	21.06		
3	64QAM	1	14	20.86	20.99	21.00		
3	64QAM	8	0	20.49	20.51	20.67	20.7	1.5
3	64QAM	8	4	20.47	20.49	20.35		
3	64QAM	8	7	20.46	20.48	20.45		
3	64QAM	15	0	20.48	20.50	20.52		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.13	21.29	21.24	22.2	0
1.4	QPSK	1	3	21.02	21.10	21.08		
1.4	QPSK	1	5	21.13	21.30	21.25		
1.4	QPSK	3	0	21.05	21.23	21.20		
1.4	QPSK	3	1	21.00	21.12	21.04		
1.4	QPSK	3	3	20.98	21.05	21.06		
1.4	QPSK	6	0	21.08	21.20	21.13	22.2	0
1.4	16QAM	1	0	21.41	21.53	21.47	22.2	0
1.4	16QAM	1	3	20.98	21.14	21.09		
1.4	16QAM	1	5	21.36	21.44	21.50		
1.4	16QAM	3	0	21.08	21.22	21.18		
1.4	16QAM	3	1	21.03	21.26	21.05		
1.4	16QAM	3	3	21.05	21.14	21.11		
1.4	16QAM	6	0	20.43	20.63	20.66	21.7	0.5
1.4	64QAM	1	0	20.94	21.00	21.04	21.7	0.5
1.4	64QAM	1	3	20.89	20.85	20.99		
1.4	64QAM	1	5	20.85	20.99	20.97		
1.4	64QAM	3	0	20.87	20.90	20.88		
1.4	64QAM	3	1	20.89	20.86	20.87		
1.4	64QAM	3	3	20.65	20.87	20.89		
1.4	64QAM	6	0	20.30	20.29	20.36	20.7	1.5

<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	19.14	19.54	19.28	20.5	0
10	QPSK	1	25	19.07	19.12	19.11		
10	QPSK	1	49	19.27	19.33	19.31		
10	QPSK	25	0	19.23	19.32	19.27	20.5	0
10	QPSK	25	12	19.21	19.35	19.29		
10	QPSK	25	25	19.27	19.39	19.30		
10	QPSK	50	0	19.21	19.32	19.31		
10	16QAM	1	0	19.42	19.51	19.49	20.5	0
10	16QAM	1	25	19.06	19.23	19.20		
10	16QAM	1	49	19.45	19.50	19.49		
10	16QAM	25	0	19.20	19.22	19.21	20.5	0
10	16QAM	25	12	19.20	19.20	19.23		
10	16QAM	25	25	19.19	19.23	19.23		
10	16QAM	50	0	19.15	19.19	19.27		
10	64QAM	1	0	19.34	19.50	19.45	20.5	0
10	64QAM	1	25	19.25	19.23	19.22		
10	64QAM	1	49	19.44	19.46	19.45		
10	64QAM	25	0	19.29	19.27	19.32	20.5	0
10	64QAM	25	12	19.20	19.23	19.26		
10	64QAM	25	25	19.11	19.21	19.23		
10	64QAM	50	0	18.98	19.00	19.03		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	19.18	19.24	19.28	20.5	0
5	QPSK	1	12	18.89	19.12	19.36		
5	QPSK	1	24	19.22	19.24	19.27		
5	QPSK	12	0	19.23	19.28	19.33	20.5	0
5	QPSK	12	7	19.16	19.23	19.26		
5	QPSK	12	13	19.23	19.33	19.31		
5	QPSK	25	0	19.21	19.25	19.29		
5	16QAM	1	0	19.45	19.52	19.47	20.5	0
5	16QAM	1	12	19.10	19.23	19.21		
5	16QAM	1	24	19.47	19.50	19.44		
5	16QAM	12	0	19.20	19.22	19.33	20.5	0
5	16QAM	12	7	19.12	19.23	19.28		
5	16QAM	12	13	19.20	19.29	19.31		
5	16QAM	25	0	19.15	19.17	19.24		
5	64QAM	1	0	19.25	19.40	19.34	20.5	0
5	64QAM	1	12	18.90	18.97	18.93		
5	64QAM	1	24	19.11	19.39	19.26		
5	64QAM	12	0	19.15	19.24	19.12	20.5	0
5	64QAM	12	7	19.16	19.20	19.16		
5	64QAM	12	13	19.22	19.26	19.23		
5	64QAM	25	0	19.08	19.16	19.10		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	19.19	19.22	19.30	20.5	0
3	QPSK	1	8	19.18	19.25	19.31		
3	QPSK	1	14	19.18	19.22	19.29		
3	QPSK	8	0	19.18	19.27	19.26	20.5	0
3	QPSK	8	4	19.16	19.25	19.26		
3	QPSK	8	7	19.13	19.19	19.20		
3	QPSK	15	0	19.21	19.26	19.31		
3	16QAM	1	0	19.45	19.46	19.50	20.5	0
3	16QAM	1	8	19.43	19.50	19.46		
3	16QAM	1	14	19.47	19.51	19.46		
3	16QAM	8	0	19.11	19.18	19.23	20.5	0
3	16QAM	8	4	19.16	19.15	19.25		
3	16QAM	8	7	19.16	19.21	19.22		
3	16QAM	15	0	19.13	19.20	19.23		
3	64QAM	1	0	19.22	19.42	19.40	20.5	0
3	64QAM	1	8	19.16	19.39	19.33		
3	64QAM	1	14	19.15	19.45	19.17		
3	64QAM	8	0	19.10	19.17	19.12	20.5	0
3	64QAM	8	4	19.05	19.18	19.09		
3	64QAM	8	7	19.10	19.10	19.05		
3	64QAM	15	0	19.08	19.14	19.12		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	19.15	19.27	19.30	20.5	0
1.4	QPSK	1	3	19.03	19.11	19.06		
1.4	QPSK	1	5	19.19	19.24	19.22		
1.4	QPSK	3	0	19.07	19.16	19.08		
1.4	QPSK	3	1	19.02	19.00	19.01		
1.4	QPSK	3	3	19.01	19.03	19.03		
1.4	QPSK	6	0	19.06	19.16	19.14	20.5	0
1.4	16QAM	1	0	19.47	19.51	19.45	20.5	0
1.4	16QAM	1	3	19.13	19.18	19.31		
1.4	16QAM	1	5	19.44	19.47	19.52		
1.4	16QAM	3	0	19.08	19.15	19.11		
1.4	16QAM	3	1	19.04	19.24	19.06		
1.4	16QAM	3	3	19.04	19.15	19.18		
1.4	16QAM	6	0	19.04	19.14	19.15	20.5	0
1.4	64QAM	1	0	19.41	19.45	19.43	20.5	0
1.4	64QAM	1	3	19.22	19.24	19.13		
1.4	64QAM	1	5	19.12	19.40	19.32		
1.4	64QAM	3	0	19.10	19.23	19.20		
1.4	64QAM	3	1	19.13	19.10	19.03		
1.4	64QAM	3	3	19.18	19.21	19.16		
1.4	64QAM	6	0	19.05	19.14	19.06	20.5	0

<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	18.70	18.77	19.14	19.7	0
20	QPSK	1	49	18.77	18.86	18.96		
20	QPSK	1	99	18.78	18.91	19.37		
20	QPSK	50	0	18.67	18.76	19.07	19.7	0
20	QPSK	50	24	18.69	18.76	19.27		
20	QPSK	50	50	18.73	18.83	19.35		
20	QPSK	100	0	18.73	18.78	19.00		
20	16QAM	1	0	18.93	18.96	19.12	19.7	0
20	16QAM	1	49	18.82	18.88	19.15		
20	16QAM	1	99	19.07	19.10	19.15		
20	16QAM	50	0	18.63	18.71	18.82	19.7	0
20	16QAM	50	24	18.62	18.71	18.91		
20	16QAM	50	50	18.66	18.78	19.01		
20	16QAM	100	0	18.66	18.71	18.93		
20	64QAM	1	0	18.56	18.86	18.87	19.7	0
20	64QAM	1	49	18.56	18.87	18.88		
20	64QAM	1	99	18.78	19.01	18.98		
20	64QAM	50	0	18.55	18.66	18.71	19.7	0
20	64QAM	50	24	18.74	18.69	18.66		
20	64QAM	50	50	18.56	18.71	18.65		
20	64QAM	100	0	18.72	18.73	18.56		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	18.62	18.73	18.83	19.7	0
15	QPSK	1	37	18.48	18.60	18.62		
15	QPSK	1	74	18.71	18.85	19.10		
15	QPSK	36	0	18.68	18.82	18.95	19.7	0
15	QPSK	36	20	18.69	18.88	18.97		
15	QPSK	36	39	18.79	18.87	19.10		
15	QPSK	75	0	18.66	18.85	19.03		
15	16QAM	1	0	18.83	19.05	19.11	19.7	0
15	16QAM	1	37	18.64	18.66	18.87		
15	16QAM	1	74	18.93	19.04	19.30		
15	16QAM	36	0	18.66	18.75	18.92	19.7	0
15	16QAM	36	20	18.63	18.80	18.93		
15	16QAM	36	39	18.74	18.82	19.06		
15	16QAM	75	0	18.60	18.76	18.97		
15	64QAM	1	0	18.78	18.79	18.77	19.7	0
15	64QAM	1	37	18.50	18.35	18.34		
15	64QAM	1	74	18.65	18.92	18.65		
15	64QAM	36	0	18.66	18.69	18.70	19.7	0
15	64QAM	36	20	18.70	18.71	18.85		
15	64QAM	36	39	18.62	18.78	18.65		
15	64QAM	75	0	18.55	18.70	18.54		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	18.59	18.73	18.94	19.7	0
10	QPSK	1	25	18.33	18.64	18.74		
10	QPSK	1	49	18.67	18.78	19.10		
10	QPSK	25	0	18.60	18.78	18.98	19.7	0
10	QPSK	25	12	18.59	18.80	18.98		
10	QPSK	25	25	18.68	18.79	19.10		
10	QPSK	50	0	18.60	18.80	19.03		
10	16QAM	1	0	18.81	18.96	19.15	19.7	0
10	16QAM	1	25	18.41	18.74	19.04		
10	16QAM	1	49	18.85	19.00	19.26		
10	16QAM	25	0	18.53	18.75	18.92	19.7	0
10	16QAM	25	12	18.53	18.72	18.99		
10	16QAM	25	25	18.61	18.73	19.03		
10	16QAM	50	0	18.54	18.77	18.97		
10	64QAM	1	0	18.63	18.87	18.85	19.7	0
10	64QAM	1	25	18.65	18.70	18.85		
10	64QAM	1	49	18.71	18.93	18.68		
10	64QAM	25	0	18.66	18.68	18.56	19.7	0
10	64QAM	25	12	18.64	18.65	18.44		
10	64QAM	25	25	18.70	18.69	18.59		
10	64QAM	50	0	18.69	18.71	18.54		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	18.62	18.59	19.03	19.7	0
5	QPSK	1	12	18.42	18.40	18.65		
5	QPSK	1	24	18.63	18.61	19.08		
5	QPSK	12	0	18.64	18.82	19.04	19.7	0
5	QPSK	12	7	18.59	18.83	19.03		
5	QPSK	12	13	18.65	18.81	19.10		
5	QPSK	25	0	18.59	18.75	19.04		
5	16QAM	1	0	18.79	18.97	19.22	19.7	0
5	16QAM	1	12	18.61	18.70	19.05		
5	16QAM	1	24	18.79	19.01	19.12		
5	16QAM	12	0	18.60	18.78	19.03	19.7	0
5	16QAM	12	7	18.55	18.69	18.96		
5	16QAM	12	13	18.62	18.80	19.05		
5	16QAM	25	0	18.54	18.72	18.97		
5	64QAM	1	0	18.90	18.93	18.94	19.7	0
5	64QAM	1	12	18.20	18.19	18.22		
5	64QAM	1	24	18.89	18.94	18.85		
5	64QAM	12	0	18.82	18.73	18.77	19.7	0
5	64QAM	12	7	18.88	18.69	18.82		
5	64QAM	12	13	18.86	18.74	18.56		
5	64QAM	25	0	18.71	18.70	18.69		

<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	21.85	21.89	21.82	22.9	0
10	QPSK	1	25	21.77	21.80	21.76		
10	QPSK	1	49	22.01	22.22	21.98		
10	QPSK	25	0	21.88	21.89	21.79	22.9	0
10	QPSK	25	12	21.89	21.90	21.80		
10	QPSK	25	25	21.94	21.98	21.92		
10	QPSK	50	0	21.93	21.96	21.90		
10	16QAM	1	0	21.97	22.09	22.04	22.9	0
10	16QAM	1	25	21.82	22.04	21.95		
10	16QAM	1	49	22.09	22.13	22.10		
10	16QAM	25	0	21.32	21.32	21.34	22.4	0.5
10	16QAM	25	12	21.32	21.36	21.33		
10	16QAM	25	25	21.34	21.40	21.41		
10	16QAM	50	0	21.37	21.31	21.33		
10	64QAM	1	0	21.55	21.61	21.52	22.4	0.5
10	64QAM	1	25	21.52	21.57	21.48		
10	64QAM	1	49	21.50	21.54	21.61		
10	64QAM	25	0	20.98	21.04	21.01	21.4	1.5
10	64QAM	25	12	20.92	20.93	20.90		
10	64QAM	25	25	21.18	21.16	21.20		
10	64QAM	50	0	21.10	21.14	21.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	21.90	21.90	21.91	22.9	0
5	QPSK	1	12	21.68	21.80	21.81		
5	QPSK	1	24	21.94	21.96	22.01		
5	QPSK	12	0	21.92	21.93	21.91	22.9	0
5	QPSK	12	7	21.93	21.92	21.89		
5	QPSK	12	13	21.96	21.96	21.99		
5	QPSK	25	0	21.89	21.90	21.91		
5	16QAM	1	0	22.11	22.12	22.08	22.9	0
5	16QAM	1	12	21.64	21.68	21.63		
5	16QAM	1	24	22.08	22.10	22.09		
5	16QAM	12	0	21.39	21.40	21.36	22.4	0.5
5	16QAM	12	7	21.37	21.40	21.39		
5	16QAM	12	13	21.44	21.42	21.48		
5	16QAM	25	0	21.35	21.34	21.36		
5	64QAM	1	0	21.55	21.57	21.51	22.4	0.5
5	64QAM	1	12	21.14	21.20	21.09		
5	64QAM	1	24	21.06	21.10	21.07		
5	64QAM	12	0	20.96	21.01	20.92	21.4	1.5
5	64QAM	12	7	20.95	20.98	20.93		
5	64QAM	12	13	20.91	20.94	20.95		
5	64QAM	25	0	20.92	20.90	20.94		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	21.92	21.90	21.92	22.9	0
3	QPSK	1	8	21.95	21.96	21.99		
3	QPSK	1	14	21.91	21.89	21.93		
3	QPSK	8	0	21.85	21.80	21.81	22.9	0
3	QPSK	8	4	21.83	21.85	21.92		
3	QPSK	8	7	21.86	21.86	21.92		
3	QPSK	15	0	21.89	21.87	21.91		
3	16QAM	1	0	22.16	22.17	22.16	22.9	0
3	16QAM	1	8	22.07	22.10	22.06		
3	16QAM	1	14	22.18	22.16	22.19		
3	16QAM	8	0	21.30	21.33	21.29	22.4	0.5
3	16QAM	8	4	21.29	21.35	21.34		
3	16QAM	8	7	21.33	21.36	21.37		
3	16QAM	15	0	21.35	21.37	21.37		
3	64QAM	1	0	21.77	21.73	21.75	22.4	0.5
3	64QAM	1	8	21.70	21.74	21.72		
3	64QAM	1	14	21.69	21.66	21.62		
3	64QAM	8	0	20.92	20.93	20.91	21.4	1.5
3	64QAM	8	4	20.90	20.97	20.92		
3	64QAM	8	7	20.93	20.92	20.96		
3	64QAM	15	0	20.90	20.91	20.94		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	21.87	21.90	21.90	22.9	0
1.4	QPSK	1	3	21.81	21.79	21.67		
1.4	QPSK	1	5	21.88	21.92	21.89		
1.4	QPSK	3	0	21.70	21.84	21.76		
1.4	QPSK	3	1	21.61	21.75	21.77		
1.4	QPSK	3	3	21.68	21.72	21.75		
1.4	QPSK	6	0	21.84	21.90	21.82	22.9	0
1.4	16QAM	1	0	22.08	22.10	22.14	22.9	0
1.4	16QAM	1	3	21.82	21.79	21.78		
1.4	16QAM	1	5	22.15	22.15	22.10		
1.4	16QAM	3	0	21.75	21.81	21.80		
1.4	16QAM	3	1	21.68	21.68	21.78		
1.4	16QAM	3	3	21.82	21.83	21.82		
1.4	16QAM	6	0	21.28	21.36	21.29	22.4	0.5
1.4	64QAM	1	0	21.70	21.71	21.72	22.4	0.5
1.4	64QAM	1	3	21.26	21.23	21.33		
1.4	64QAM	1	5	21.55	21.53	21.50		
1.4	64QAM	3	0	21.43	21.44	21.41		
1.4	64QAM	3	1	21.44	21.46	21.40		
1.4	64QAM	3	3	21.20	21.19	21.22		
1.4	64QAM	6	0	21.13	21.18	21.19	21.4	1.5

<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	21.81	21.84	21.83	22.9	0
10	QPSK	1	25	21.78	21.78	21.75		
10	QPSK	1	49	22.13	22.25	22.01		
10	QPSK	25	0	21.82	21.84	21.83	22.9	0
10	QPSK	25	12	21.85	21.89	21.88		
10	QPSK	25	25	21.90	21.92	21.91		
10	QPSK	50	0	21.85	21.88	21.85		
10	16QAM	1	0	22.02	22.18	22.03	22.9	0
10	16QAM	1	25	22.09	22.02	21.92		
10	16QAM	1	49	22.16	22.19	22.17		
10	16QAM	25	0	21.30	21.33	21.30	22.4	0.5
10	16QAM	25	12	21.29	21.33	21.29		
10	16QAM	25	25	21.33	21.37	21.36		
10	16QAM	50	0	21.29	21.30	21.29		
10	64QAM	1	0	21.22	21.27	21.20	22.4	0.5
10	64QAM	1	25	21.30	21.31	21.23		
10	64QAM	1	49	21.68	21.77	21.66		
10	64QAM	25	0	20.90	20.91	20.90	21.4	1.5
10	64QAM	25	12	20.86	20.90	20.82		
10	64QAM	25	25	20.90	20.89	20.88		
10	64QAM	50	0	20.89	20.88	20.76		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	21.90	21.85	21.90	22.9	0
5	QPSK	1	12	21.41	21.36	21.32		
5	QPSK	1	24	21.92	21.91	21.96		
5	QPSK	12	0	21.92	21.92	21.92	22.9	0
5	QPSK	12	7	21.86	21.86	21.91		
5	QPSK	12	13	21.93	21.96	21.98		
5	QPSK	25	0	21.87	21.90	21.90		
5	16QAM	1	0	22.15	22.18	22.09	22.9	0
5	16QAM	1	12	21.86	21.50	21.73		
5	16QAM	1	24	22.16	22.18	22.11		
5	16QAM	12	0	21.40	21.41	21.39	22.4	0.5
5	16QAM	12	7	21.34	21.37	21.38		
5	16QAM	12	13	21.39	21.44	21.46		
5	16QAM	25	0	21.32	21.34	21.34		
5	64QAM	1	0	21.23	21.29	21.11	22.4	0.5
5	64QAM	1	12	21.16	21.21	21.15		
5	64QAM	1	24	21.24	21.42	21.12		
5	64QAM	12	0	20.92	20.98	20.94	21.4	1.5
5	64QAM	12	7	20.93	20.95	20.96		
5	64QAM	12	13	20.91	20.92	20.93		
5	64QAM	25	0	20.90	20.90	20.90		

<Ant.3--Full 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	22.97	23.02	23.13	24	0
20	QPSK	1	49	22.75	22.42	22.74		
20	QPSK	1	99	22.96	23.01	23.12		
20	QPSK	50	0	21.95	21.96	22.00	23	1
20	QPSK	50	24	21.97	21.97	21.99		
20	QPSK	50	50	21.98	21.98	22.04		
20	QPSK	100	0	21.98	22.01	22.04		
20	16QAM	1	0	22.19	22.24	22.25	23	1
20	16QAM	1	49	21.98	22.08	22.04		
20	16QAM	1	99	22.10	22.29	22.27		
20	16QAM	50	0	20.92	20.94	20.97	22	2
20	16QAM	50	24	20.89	20.92	20.96		
20	16QAM	50	50	20.91	20.93	20.96		
20	16QAM	100	0	20.88	20.96	21.01		
20	64QAM	1	0	21.01	21.04	20.98	22	2
20	64QAM	1	49	20.65	20.72	20.75		
20	64QAM	1	99	20.91	20.99	21.01		
20	64QAM	50	0	19.89	19.87	19.88	21	3
20	64QAM	50	24	19.80	19.82	19.83		
20	64QAM	50	50	19.85	19.82	19.88		
20	64QAM	100	0	19.89	19.85	19.89		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.86	22.96	22.95	24	0
15	QPSK	1	37	22.65	22.67	22.58		
15	QPSK	1	74	22.86	22.90	22.92		
15	QPSK	36	0	21.96	22.05	22.03	23	1
15	QPSK	36	20	21.98	22.04	22.03		
15	QPSK	36	39	22.01	22.06	22.04		
15	QPSK	75	0	21.95	21.98	22.03		
15	16QAM	1	0	22.14	22.13	22.16	23	1
15	16QAM	1	37	21.63	21.61	21.75		
15	16QAM	1	74	22.10	22.17	22.11		
15	16QAM	36	0	20.93	20.98	20.96	22	2
15	16QAM	36	20	20.95	21.00	21.01		
15	16QAM	36	39	20.94	20.96	21.00		
15	16QAM	75	0	20.90	20.97	20.98		
15	64QAM	1	0	21.05	21.02	21.06	22	2
15	64QAM	1	37	20.62	20.60	20.65		
15	64QAM	1	74	20.84	20.86	20.89		
15	64QAM	36	0	19.81	19.88	19.89	21	3
15	64QAM	36	20	19.89	19.86	19.92		
15	64QAM	36	39	19.95	19.90	19.92		
15	64QAM	75	0	19.83	19.85	19.81		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.92	23.06	23.11	24	0
10	QPSK	1	25	22.73	22.75	22.95		
10	QPSK	1	49	22.99	23.01	23.06		
10	QPSK	25	0	21.90	22.03	22.06	23	1
10	QPSK	25	12	21.90	22.03	22.10		
10	QPSK	25	25	22.01	22.02	22.08		
10	QPSK	50	0	21.93	22.01	22.03		
10	16QAM	1	0	22.13	22.16	22.18	23	1
10	16QAM	1	25	22.03	22.07	22.15		
10	16QAM	1	49	22.12	22.16	22.21		
10	16QAM	25	0	20.88	21.01	20.99	22	2
10	16QAM	25	12	20.87	21.01	21.03		
10	16QAM	25	25	20.91	20.97	21.00		
10	16QAM	50	0	20.86	20.93	20.96		
10	64QAM	1	0	21.05	21.06	21.08	22	2
10	64QAM	1	25	20.71	20.74	20.71		
10	64QAM	1	49	21.00	21.04	21.01		
10	64QAM	25	0	19.81	19.89	19.81	21	3
10	64QAM	25	12	19.66	19.83	19.80		
10	64QAM	25	25	19.85	19.90	19.95		
10	64QAM	50	0	19.72	19.83	19.77		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.91	23.08	23.11	24	0
5	QPSK	1	12	22.41	22.74	22.94		
5	QPSK	1	24	22.93	23.07	23.10		
5	QPSK	12	0	21.96	22.10	22.14	23	1
5	QPSK	12	7	21.91	22.00	22.03		
5	QPSK	12	13	21.94	22.12	22.11		
5	QPSK	25	0	21.89	22.00	22.06		
5	16QAM	1	0	22.15	22.21	22.29	23	1
5	16QAM	1	12	22.16	22.04	21.99		
5	16QAM	1	24	22.15	22.22	22.27		
5	16QAM	12	0	20.96	21.04	21.07	22	2
5	16QAM	12	7	20.85	21.00	21.03		
5	16QAM	12	13	20.94	21.04	21.08		
5	16QAM	25	0	20.84	20.96	20.97		
5	64QAM	1	0	21.08	21.01	21.10	22	2
5	64QAM	1	12	20.69	20.64	20.77		
5	64QAM	1	24	21.02	21.07	21.08		
5	64QAM	12	0	19.92	19.89	19.95	21	3
5	64QAM	12	7	19.81	19.84	19.88		
5	64QAM	12	13	19.90	19.95	19.96		
5	64QAM	25	0	19.92	19.86	19.92		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.91	23.06	23.06	24	0
3	QPSK	1	8	22.89	23.04	23.06		
3	QPSK	1	14	22.92	23.06	23.07		
3	QPSK	8	0	21.87	21.98	21.96	23	1
3	QPSK	8	4	21.85	21.98	21.95		
3	QPSK	8	7	21.86	22.01	22.05		
3	QPSK	15	0	21.90	22.00	22.05		
3	16QAM	1	0	22.10	22.24	22.23	23	1
3	16QAM	1	8	22.13	22.25	22.29		
3	16QAM	1	14	22.04	22.26	22.26		
3	16QAM	8	0	20.79	20.96	20.95	22	2
3	16QAM	8	4	20.82	20.97	21.00		
3	16QAM	8	7	20.88	20.97	20.98		
3	16QAM	15	0	20.86	20.96	20.96		
3	64QAM	1	0	21.05	21.08	21.20	22	2
3	64QAM	1	8	21.01	21.06	21.18		
3	64QAM	1	14	21.05	21.10	21.15		
3	64QAM	8	0	19.88	19.81	19.85	21	3
3	64QAM	8	4	19.85	19.83	19.89		
3	64QAM	8	7	19.82	19.80	19.77		
3	64QAM	15	0	19.85	19.84	19.88		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.91	23.02	23.04	24	0
1.4	QPSK	1	3	22.64	22.80	22.75		
1.4	QPSK	1	5	22.93	23.03	23.04		
1.4	QPSK	3	0	22.79	22.96	22.87		
1.4	QPSK	3	1	22.80	22.92	22.93		
1.4	QPSK	3	3	22.74	22.90	23.03		
1.4	QPSK	6	0	21.86	21.90	21.98	23	1
1.4	16QAM	1	0	22.12	22.29	22.29	23	1
1.4	16QAM	1	3	22.08	22.02	22.12		
1.4	16QAM	1	5	22.18	22.28	22.26		
1.4	16QAM	3	0	21.77	21.89	21.91		
1.4	16QAM	3	1	21.78	21.88	21.92		
1.4	16QAM	3	3	21.85	21.94	22.01		
1.4	16QAM	6	0	20.84	20.97	21.00	22	2
1.4	64QAM	1	0	21.05	21.08	21.05	22	2
1.4	64QAM	1	3	20.77	20.81	20.80		
1.4	64QAM	1	5	21.01	21.05	21.03		
1.4	64QAM	3	0	20.85	20.89	20.81		
1.4	64QAM	3	1	20.71	20.76	20.75		
1.4	64QAM	3	3	20.82	20.83	20.81		
1.4	64QAM	6	0	19.70	19.76	19.72	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	23.11	23.29	23.30	24	0
20	QPSK	1	49	22.46	22.62	22.64		
20	QPSK	1	99	22.87	22.92	22.93		
20	QPSK	50	0	21.97	21.99	21.98	23	1
20	QPSK	50	24	21.88	21.91	21.90		
20	QPSK	50	50	21.88	21.95	21.90		
20	QPSK	100	0	21.91	21.92	21.97		
20	16QAM	1	0	22.21	22.24	22.28	23	1
20	16QAM	1	49	21.75	21.92	21.93		
20	16QAM	1	99	22.16	22.10	22.14		
20	16QAM	50	0	20.92	20.90	20.94	22	2
20	16QAM	50	24	20.84	20.89	20.86		
20	16QAM	50	50	20.86	20.85	20.88		
20	16QAM	100	0	20.84	20.87	20.88		
20	64QAM	1	0	21.05	21.19	21.22	22	2
20	64QAM	1	49	20.88	20.90	20.95		
20	64QAM	1	99	21.11	21.13	21.25		
20	64QAM	50	0	19.88	19.91	19.95	21	3
20	64QAM	50	24	19.81	19.86	19.89		
20	64QAM	50	50	19.85	19.90	19.92		
20	64QAM	100	0	19.90	19.91	19.92		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.97	22.92	22.88	24	0
15	QPSK	1	37	22.49	22.68	22.72		
15	QPSK	1	74	22.83	22.89	22.77		
15	QPSK	36	0	21.97	21.99	21.96	23	1
15	QPSK	36	20	21.89	21.98	21.91		
15	QPSK	36	39	21.94	21.97	21.91		
15	QPSK	75	0	21.93	21.92	21.92		
15	16QAM	1	0	22.20	22.14	22.26	23	1
15	16QAM	1	37	21.99	21.80	21.66		
15	16QAM	1	74	22.06	22.10	22.08		
15	16QAM	36	0	20.94	20.94	20.92	22	2
15	16QAM	36	20	20.88	20.88	20.87		
15	16QAM	36	39	20.89	20.92	20.85		
15	16QAM	75	0	20.86	20.88	20.87		
15	64QAM	1	0	21.01	21.04	21.02	22	2
15	64QAM	1	37	21.26	21.24	21.23		
15	64QAM	1	74	21.01	21.03	21.00		
15	64QAM	36	0	19.88	19.93	19.88	21	3
15	64QAM	36	20	19.85	19.88	19.89		
15	64QAM	36	39	19.82	19.89	19.95		
15	64QAM	75	0	19.80	19.86	19.90		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.99	22.95	22.97	24	0
10	QPSK	1	25	22.59	22.77	22.74		
10	QPSK	1	49	22.88	22.94	22.89		
10	QPSK	25	0	21.91	21.96	21.90	23	1
10	QPSK	25	12	21.89	21.93	21.91		
10	QPSK	25	25	21.92	21.95	21.95		
10	QPSK	50	0	22.19	22.16	22.20		
10	16QAM	1	0	21.69	21.66	21.70	23	1
10	16QAM	1	25	21.41	21.58	21.53		
10	16QAM	1	49	21.62	21.70	21.60		
10	16QAM	25	0	20.89	20.92	20.90	22	2
10	16QAM	25	12	20.84	20.88	20.85		
10	16QAM	25	25	20.84	20.91	20.84		
10	16QAM	50	0	20.88	20.88	20.86		
10	64QAM	1	0	21.05	21.00	21.02	22	2
10	64QAM	1	25	20.71	20.76	20.75		
10	64QAM	1	49	21.03	21.05	21.02		
10	64QAM	25	0	19.85	19.86	19.88	21	3
10	64QAM	25	12	19.81	19.83	19.93		
10	64QAM	25	25	19.81	19.84	19.95		
10	64QAM	50	0	19.80	19.82	19.91		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	23.01	23.02	23.01	24	0
5	QPSK	1	12	22.66	22.68	22.48		
5	QPSK	1	24	22.99	22.95	23.01		
5	QPSK	12	0	22.05	22.06	22.05	23	1
5	QPSK	12	7	21.99	21.97	21.93		
5	QPSK	12	13	21.99	22.03	21.99		
5	QPSK	25	0	21.94	21.95	21.91		
5	16QAM	1	0	22.29	22.23	22.22	23	1
5	16QAM	1	12	21.66	21.73	21.67		
5	16QAM	1	24	22.14	22.16	22.23		
5	16QAM	12	0	21.01	20.99	20.99	22	2
5	16QAM	12	7	20.92	20.93	20.90		
5	16QAM	12	13	20.93	20.98	20.96		
5	16QAM	25	0	20.91	20.91	20.90		
5	64QAM	1	0	20.99	20.98	20.95	22	2
5	64QAM	1	12	20.51	20.54	20.55		
5	64QAM	1	24	21.11	21.08	21.06		
5	64QAM	12	0	19.95	19.90	19.92	21	3
5	64QAM	12	7	19.81	19.83	19.81		
5	64QAM	12	13	19.90	19.92	19.95		
5	64QAM	25	0	19.80	19.84	19.85		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	23.08	23.05	23.03	24	0
3	QPSK	1	8	23.09	23.04	23.05		
3	QPSK	1	14	23.01	23.05	23.03		
3	QPSK	8	0	21.98	21.94	21.93	23	1
3	QPSK	8	4	21.96	21.96	21.94		
3	QPSK	8	7	21.95	21.95	21.90		
3	QPSK	15	0	22.02	21.98	21.94		
3	16QAM	1	0	22.20	22.25	22.20	23	1
3	16QAM	1	8	22.26	22.26	22.23		
3	16QAM	1	14	22.26	22.28	22.27		
3	16QAM	8	0	20.92	20.90	20.86	22	2
3	16QAM	8	4	20.93	20.96	20.92		
3	16QAM	8	7	20.92	20.91	20.93		
3	16QAM	15	0	20.95	20.95	20.89		
3	64QAM	1	0	21.06	21.00	21.06	22	2
3	64QAM	1	8	21.01	21.04	21.01		
3	64QAM	1	14	21.05	21.08	21.05		
3	64QAM	8	0	19.71	19.79	19.75	21	3
3	64QAM	8	4	19.75	19.76	19.71		
3	64QAM	8	7	19.81	19.84	19.80		
3	64QAM	15	0	19.80	19.83	19.78		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.03	23.02	23.01	24	0
1.4	QPSK	1	3	22.70	22.83	22.81		
1.4	QPSK	1	5	23.03	23.03	22.99		
1.4	QPSK	3	0	22.95	22.93	22.89		
1.4	QPSK	3	1	22.88	22.85	22.89		
1.4	QPSK	3	3	22.92	22.90	22.91		
1.4	QPSK	6	0	21.93	21.92	21.92	23	1
1.4	16QAM	1	0	22.25	22.31	22.22	23	1
1.4	16QAM	1	3	21.93	22.09	21.94		
1.4	16QAM	1	5	22.27	22.23	22.29		
1.4	16QAM	3	0	21.93	21.95	21.87		
1.4	16QAM	3	1	21.90	21.83	21.81		
1.4	16QAM	3	3	21.99	21.96	21.95		
1.4	16QAM	6	0	20.86	20.86	20.90	22	2
1.4	64QAM	1	0	21.01	21.04	20.98	22	2
1.4	64QAM	1	3	20.70	20.74	20.71		
1.4	64QAM	1	5	20.95	20.97	20.93		
1.4	64QAM	3	0	20.92	20.95	20.91		
1.4	64QAM	3	1	20.75	20.78	20.71		
1.4	64QAM	3	3	20.71	20.79	20.68		
1.4	64QAM	6	0	19.77	19.81	19.68	21	3

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.33	22.44	22.35	23.5	0
10	QPSK	1	25	22.22	22.07	22.11		
10	QPSK	1	49	22.32	22.39	22.32		
10	QPSK	25	0	21.40	21.41	21.37	22.5	1
10	QPSK	25	12	21.40	21.37	21.37		
10	QPSK	25	25	21.45	21.43	21.38		
10	QPSK	50	0	21.39	21.39	21.39		
10	16QAM	1	0	21.64	21.64	21.61	22.5	1
10	16QAM	1	25	21.28	21.43	21.47		
10	16QAM	1	49	21.68	21.64	21.63		
10	16QAM	25	0	20.33	20.33	20.27	21.5	2
10	16QAM	25	12	20.38	20.32	20.32		
10	16QAM	25	25	20.40	20.36	20.32		
10	16QAM	50	0	20.36	20.34	20.30		
10	64QAM	1	0	20.41	20.45	20.00	21.5	2
10	64QAM	1	25	20.31	20.38	20.32		
10	64QAM	1	49	20.51	20.56	20.52		
10	64QAM	25	0	19.35	19.30	19.38	20.5	3
10	64QAM	25	12	19.28	19.27	19.39		
10	64QAM	25	25	19.35	19.31	19.29		
10	64QAM	50	0	19.20	19.25	19.21		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.39	22.43	22.39	23.5	0
5	QPSK	1	12	22.09	22.03	22.15		
5	QPSK	1	24	22.43	22.40	22.39		
5	QPSK	12	0	21.41	21.46	21.42	22.5	1
5	QPSK	12	7	21.34	21.40	21.35		
5	QPSK	12	13	21.45	21.47	21.44		
5	QPSK	25	0	21.37	21.37	21.37		
5	16QAM	1	0	21.62	21.64	21.64	22.5	1
5	16QAM	1	12	21.36	21.33	21.27		
5	16QAM	1	24	21.60	21.62	21.66		
5	16QAM	12	0	20.45	20.42	20.39	21.5	2
5	16QAM	12	7	20.35	20.35	20.31		
5	16QAM	12	13	20.44	20.40	20.41		
5	16QAM	25	0	20.32	20.30	20.32		
5	64QAM	1	0	20.51	20.57	20.48	21.5	2
5	64QAM	1	12	19.92	19.94	19.96		
5	64QAM	1	24	20.45	20.49	20.41		
5	64QAM	12	0	19.39	19.36	19.35	20.5	3
5	64QAM	12	7	19.25	19.30	19.32		
5	64QAM	12	13	19.21	19.28	19.30		
5	64QAM	25	0	19.19	19.27	19.22		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.34	22.43	22.41	23.5	0
3	QPSK	1	8	22.37	22.40	22.42		
3	QPSK	1	14	22.42	22.42	22.42		
3	QPSK	8	0	21.31	21.38	21.32	22.5	1
3	QPSK	8	4	21.30	21.33	21.37		
3	QPSK	8	7	21.39	21.43	21.34		
3	QPSK	15	0	21.42	21.41	21.40		
3	16QAM	1	0	21.58	21.58	21.52	22.5	1
3	16QAM	1	8	21.60	21.62	21.51		
3	16QAM	1	14	21.61	21.62	21.55		
3	16QAM	8	0	20.31	20.40	20.30	21.5	2
3	16QAM	8	4	20.26	20.36	20.33		
3	16QAM	8	7	20.29	20.28	20.30		
3	16QAM	15	0	20.34	20.35	20.33		
3	64QAM	1	0	20.41	20.53	20.55	21.5	2
3	64QAM	1	8	20.45	20.53	20.49		
3	64QAM	1	14	20.49	20.53	20.48		
3	64QAM	8	0	20.48	20.42	20.41	20.5	3
3	64QAM	8	4	20.32	20.33	20.35		
3	64QAM	8	7	20.21	20.25	20.36		
3	64QAM	15	0	19.28	19.30	19.55		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.34	22.40	22.38	23.5	0
1.4	QPSK	1	3	22.28	22.24	22.32		
1.4	QPSK	1	5	22.38	22.39	22.34		
1.4	QPSK	3	0	22.16	22.30	22.33		
1.4	QPSK	3	1	22.16	22.23	22.08		
1.4	QPSK	3	3	22.18	22.20	22.20		
1.4	QPSK	6	0	21.35	21.42	21.37	22.5	1
1.4	16QAM	1	0	21.49	21.56	21.55	22.5	1
1.4	16QAM	1	3	21.31	21.30	21.32		
1.4	16QAM	1	5	21.56	21.63	21.51		
1.4	16QAM	3	0	21.26	21.34	21.27		
1.4	16QAM	3	1	21.33	21.29	21.19		
1.4	16QAM	3	3	21.30	21.27	21.28		
1.4	16QAM	6	0	20.33	20.31	20.33	21.5	2
1.4	64QAM	1	0	20.41	20.48	20.42	21.5	2
1.4	64QAM	1	3	20.09	20.18	20.15		
1.4	64QAM	1	5	20.22	20.50	20.48		
1.4	64QAM	3	0	20.41	20.43	20.41		
1.4	64QAM	3	1	20.29	20.28	20.21		
1.4	64QAM	3	3	20.33	20.28	20.29		
1.4	64QAM	6	0	19.29	19.26	19.21	20.5	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	22.12	22.16	22.27	23	0
20	QPSK	1	49	22.04	22.26	22.31		
20	QPSK	1	99	22.27	22.38	22.45		
20	QPSK	50	0	21.18	21.40	21.45	22	1
20	QPSK	50	24	21.23	21.33	21.41		
20	QPSK	50	50	21.24	21.36	21.46		
20	QPSK	100	0	21.29	21.41	21.43		
20	16QAM	1	0	21.38	21.41	21.45	22	1
20	16QAM	1	49	21.32	21.39	21.44		
20	16QAM	1	99	21.37	21.39	21.49		
20	16QAM	50	0	20.14	20.28	20.42	21	2
20	16QAM	50	24	20.14	20.30	20.49		
20	16QAM	50	50	20.22	20.31	20.41		
20	16QAM	100	0	20.13	20.29	20.47		
20	64QAM	1	0	20.55	20.69	20.71	21	2
20	64QAM	1	49	20.55	20.59	20.51		
20	64QAM	1	99	20.68	20.71	20.68		
20	64QAM	50	0	19.38	19.40	19.45	20	3
20	64QAM	50	24	19.34	19.35	19.32		
20	64QAM	50	50	19.40	19.43	19.40		
20	64QAM	100	0	19.32	19.36	19.31		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.56	22.18	22.38	23	0
15	QPSK	1	37	21.79	21.72	22.32		
15	QPSK	1	74	22.25	22.36	22.37		
15	QPSK	36	0	21.25	21.35	21.42	22	1
15	QPSK	36	20	21.27	21.39	21.43		
15	QPSK	36	39	21.33	21.43	21.43		
15	QPSK	75	0	21.22	21.38	21.47		
15	16QAM	1	0	21.35	21.43	21.43	22	1
15	16QAM	1	37	20.80	21.17	21.37		
15	16QAM	1	74	21.48	21.43	21.42		
15	16QAM	36	0	20.19	20.28	20.49	21	2
15	16QAM	36	20	20.19	20.33	20.49		
15	16QAM	36	39	20.32	20.34	20.36		
15	16QAM	75	0	20.20	20.32	20.49		
15	64QAM	1	0	20.40	20.46	20.41	21	2
15	64QAM	1	37	20.48	20.51	20.44		
15	64QAM	1	74	20.60	20.65	20.61		
15	64QAM	36	0	19.38	19.40	19.38	20	3
15	64QAM	36	20	19.40	19.42	19.40		
15	64QAM	36	39	19.38	19.44	19.41		
15	64QAM	75	0	19.31	19.37	19.32		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	22.13	22.26	22.39	23	0
10	QPSK	1	25	22.04	22.21	22.31		
10	QPSK	1	49	22.29	22.38	22.43		
10	QPSK	25	0	21.18	21.40	21.46	22	1
10	QPSK	25	12	21.19	21.39	21.43		
10	QPSK	25	25	21.24	21.38	21.44		
10	QPSK	50	0	21.19	21.38	21.43		
10	16QAM	1	0	21.38	21.31	21.43	22	1
10	16QAM	1	25	21.32	21.39	21.44		
10	16QAM	1	49	21.47	21.39	21.42		
10	16QAM	25	0	20.14	20.28	20.42	21	2
10	16QAM	25	12	20.14	20.30	20.49		
10	16QAM	25	25	20.22	20.31	20.41		
10	16QAM	50	0	20.13	20.29	20.47		
10	64QAM	1	0	20.51	20.54	20.52	21	2
10	64QAM	1	25	20.32	20.34	20.31		
10	64QAM	1	49	20.61	20.63	20.62		
10	64QAM	25	0	19.35	19.40	19.38	20	3
10	64QAM	25	12	19.30	19.33	19.30		
10	64QAM	25	25	19.38	19.42	19.35		
10	64QAM	50	0	19.31	19.39	19.32		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	22.23	22.35	22.37	23	0
5	QPSK	1	12	21.97	21.69	22.22		
5	QPSK	1	24	22.26	22.40	22.42		
5	QPSK	12	0	21.25	21.44	21.44	22	1
5	QPSK	12	7	21.24	21.39	21.42		
5	QPSK	12	13	21.30	21.45	21.46		
5	QPSK	25	0	21.19	21.36	21.42		
5	16QAM	1	0	21.48	21.42	21.48	22	1
5	16QAM	1	12	21.16	21.14	21.42		
5	16QAM	1	24	21.49	21.45	21.48		
5	16QAM	12	0	20.24	20.36	20.40	21	2
5	16QAM	12	7	20.18	20.32	20.47		
5	16QAM	12	13	20.26	20.36	20.44		
5	16QAM	25	0	20.15	20.30	20.33		
5	64QAM	1	0	20.71	20.64	20.72	21	2
5	64QAM	1	12	20.25	20.20	20.25		
5	64QAM	1	24	20.73	20.75	20.76		
5	64QAM	12	0	19.40	19.44	19.45	20	3
5	64QAM	12	7	19.35	19.39	19.40		
5	64QAM	12	13	19.45	19.41	19.42		
5	64QAM	25	0	19.31	19.36	19.37		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.39	23.38	23.37	24.5	0
10	QPSK	1	25	23.29	23.30	23.27		
10	QPSK	1	49	23.51	23.42	23.58		
10	QPSK	25	0	22.39	22.34	22.40	23.5	1
10	QPSK	25	12	22.41	22.38	22.38		
10	QPSK	25	25	22.42	22.41	22.45		
10	QPSK	50	0	22.34	22.35	22.37		
10	16QAM	1	0	22.52	22.50	22.52	23.5	1
10	16QAM	1	25	22.35	22.41	22.41		
10	16QAM	1	49	22.57	22.51	22.53		
10	16QAM	25	0	21.35	21.33	21.32	22.5	2
10	16QAM	25	12	21.32	21.35	21.33		
10	16QAM	25	25	21.33	21.35	21.41		
10	16QAM	50	0	21.34	21.33	21.33		
10	64QAM	1	0	21.60	21.62	21.55	22.5	2
10	64QAM	1	25	21.38	21.50	21.48		
10	64QAM	1	49	21.80	21.82	21.80		
10	64QAM	25	0	20.35	20.47	20.35	21.5	3
10	64QAM	25	12	20.51	20.53	20.48		
10	64QAM	25	25	20.51	20.53	20.48		
10	64QAM	50	0	20.48	20.51	20.47		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.52	23.38	23.33	24.5	0
5	QPSK	1	12	23.12	22.91	22.68		
5	QPSK	1	24	23.47	23.47	23.42		
5	QPSK	12	0	22.48	22.42	22.40	23.5	1
5	QPSK	12	7	22.44	22.43	22.37		
5	QPSK	12	13	22.51	22.43	22.48		
5	QPSK	25	0	22.44	22.38	22.38		
5	16QAM	1	0	22.58	22.53	22.51	23.5	1
5	16QAM	1	12	22.30	22.38	22.18		
5	16QAM	1	24	22.54	22.62	22.52		
5	16QAM	12	0	21.47	21.45	21.34	22.5	2
5	16QAM	12	7	21.40	21.42	21.34		
5	16QAM	12	13	21.47	21.42	21.45		
5	16QAM	25	0	21.36	21.34	21.37		
5	64QAM	1	0	21.55	21.68	21.52	22.5	2
5	64QAM	1	12	21.32	21.35	21.39		
5	64QAM	1	24	21.70	21.73	21.80		
5	64QAM	12	0	20.50	20.57	20.52	21.5	3
5	64QAM	12	7	20.38	20.50	20.55		
5	64QAM	12	13	20.51	20.53	20.41		
5	64QAM	25	0	20.45	20.47	20.41		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.44	23.34	23.42	24.5	0
3	QPSK	1	8	23.44	23.43	23.43		
3	QPSK	1	14	23.39	23.37	23.45		
3	QPSK	8	0	22.46	22.40	22.38	23.5	1
3	QPSK	8	4	22.33	22.42	22.40		
3	QPSK	8	7	22.39	22.40	22.43		
3	QPSK	15	0	22.40	22.38	22.38		
3	16QAM	1	0	22.52	22.56	22.57	23.5	1
3	16QAM	1	8	22.63	22.64	22.60		
3	16QAM	1	14	22.57	22.57	22.56		
3	16QAM	8	0	21.34	21.31	21.32	22.5	2
3	16QAM	8	4	21.35	21.42	21.41		
3	16QAM	8	7	21.35	21.38	21.34		
3	16QAM	15	0	21.37	21.37	21.35		
3	64QAM	1	0	21.70	21.78	21.68	22.5	2
3	64QAM	1	8	21.30	21.33	21.30		
3	64QAM	1	14	21.80	21.81	21.75		
3	64QAM	8	0	20.48	20.50	20.41	21.5	3
3	64QAM	8	4	20.32	20.40	20.32		
3	64QAM	8	7	20.41	20.44	20.49		
3	64QAM	15	0	20.45	20.48	20.41		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.39	23.37	23.46	24.5	0
1.4	QPSK	1	3	23.13	23.19	23.26		
1.4	QPSK	1	5	23.43	23.44	23.46		
1.4	QPSK	3	0	23.27	23.31	23.31		
1.4	QPSK	3	1	23.08	23.06	23.05		
1.4	QPSK	3	3	23.26	23.30	23.29		
1.4	QPSK	6	0	22.40	22.43	22.38	23.5	1
1.4	16QAM	1	0	22.64	22.63	22.68	23.5	1
1.4	16QAM	1	3	22.31	22.46	22.30		
1.4	16QAM	1	5	22.61	22.65	22.69		
1.4	16QAM	3	0	22.32	22.43	22.31		
1.4	16QAM	3	1	22.22	22.31	22.25		
1.4	16QAM	3	3	22.39	22.32	22.36		
1.4	16QAM	6	0	21.41	21.36	21.36	22.5	2
1.4	64QAM	1	0	21.60	21.62	21.55	22.5	2
1.4	64QAM	1	3	21.61	21.68	21.69		
1.4	64QAM	1	5	21.65	21.71	21.65		
1.4	64QAM	3	0	21.60	21.63	21.68		
1.4	64QAM	3	1	21.61	21.65	21.69		
1.4	64QAM	3	3	21.41	21.44	21.49		
1.4	64QAM	6	0	20.35	20.51	20.50	21.5	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	23.25	23.35	23.29	24.5	0
10	QPSK	1	25	23.18	23.11	23.28		
10	QPSK	1	49	23.36	23.38	23.45		
10	QPSK	25	0	22.35	22.31	22.36	23.5	1
10	QPSK	25	12	22.34	22.37	22.36		
10	QPSK	25	25	22.37	22.38	22.40		
10	QPSK	50	0	22.36	22.35	22.36		
10	16QAM	1	0	22.60	22.52	22.43	23.5	1
10	16QAM	1	25	22.40	22.25	22.36		
10	16QAM	1	49	22.57	22.64	22.58		
10	16QAM	25	0	21.28	21.24	21.26	22.5	2
10	16QAM	25	12	21.30	21.25	21.27		
10	16QAM	25	25	21.30	21.33	21.33		
10	16QAM	50	0	21.29	21.28	21.30		
10	64QAM	1	0	21.61	21.64	21.55	22.5	2
10	64QAM	1	25	21.45	21.47	21.41		
10	64QAM	1	49	21.50	21.59	21.55		
10	64QAM	25	0	20.48	20.52	20.59	21.5	3
10	64QAM	25	12	20.41	20.47	20.42		
10	64QAM	25	25	20.50	20.52	20.38		
10	64QAM	50	0	20.48	20.51	20.59		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.35	23.31	23.36	24.5	0
5	QPSK	1	12	22.96	22.81	23.00		
5	QPSK	1	24	23.35	23.34	23.39		
5	QPSK	12	0	22.45	22.42	22.43	23.5	1
5	QPSK	12	7	22.34	22.37	22.43		
5	QPSK	12	13	22.38	22.45	22.49		
5	QPSK	25	0	22.39	22.37	22.40		
5	16QAM	1	0	22.57	22.52	22.61	23.5	1
5	16QAM	1	12	22.14	22.38	22.21		
5	16QAM	1	24	22.61	22.56	22.59		
5	16QAM	12	0	21.39	21.35	21.39	22.5	2
5	16QAM	12	7	21.32	21.32	21.33		
5	16QAM	12	13	21.39	21.40	21.44		
5	16QAM	25	0	21.28	21.30	21.32		
5	64QAM	1	0	21.55	21.67	21.51	22.5	2
5	64QAM	1	12	21.21	21.28	21.29		
5	64QAM	1	24	21.60	21.68	21.55		
5	64QAM	12	0	20.32	20.55	20.49	21.5	3
5	64QAM	12	7	20.42	20.47	20.38		
5	64QAM	12	13	20.51	20.56	20.44		
5	64QAM	25	0	20.38	20.46	20.41		

<Atn.3--Reduced Power Mode for Hotspot On>

<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	18.55	18.63	18.69	19.5	0
20	QPSK	1	49	17.96	17.85	18.10		
20	QPSK	1	99	18.17	18.38	18.47		
20	QPSK	50	0	18.42	18.31	18.50	19.5	0
20	QPSK	50	24	18.30	18.42	18.48		
20	QPSK	50	50	18.48	18.43	18.51		
20	QPSK	100	0	18.32	18.43	18.45		
20	16QAM	1	0	18.56	18.37	18.53	19.5	0
20	16QAM	1	49	18.68	18.43	18.37		
20	16QAM	1	99	18.55	17.78	18.33		
20	16QAM	50	0	18.38	18.44	18.35	19.5	0
20	16QAM	50	24	18.36	18.30	18.39		
20	16QAM	50	50	18.13	18.40	18.35		
20	16QAM	100	0	18.16	18.30	18.43		
20	64QAM	1	0	18.20	18.40	18.45	19.5	0
20	64QAM	1	49	18.07	18.29	18.34		
20	64QAM	1	99	18.34	18.52	18.55		
20	64QAM	50	0	18.22	18.37	18.44	19.5	0
20	64QAM	50	24	18.21	18.35	18.45		
20	64QAM	50	50	18.24	18.36	18.47		
20	64QAM	100	0	18.32	18.35	18.43		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	18.18	18.30	18.39	19.5	0
15	QPSK	1	37	18.48	18.28	18.08		
15	QPSK	1	74	18.28	18.32	18.35		
15	QPSK	36	0	18.32	18.45	18.39	19.5	0
15	QPSK	36	20	18.56	18.37	18.56		
15	QPSK	36	39	18.52	18.51	18.43		
15	QPSK	75	0	18.36	18.34	18.38		
15	16QAM	1	0	18.43	18.42	18.49	19.5	0
15	16QAM	1	37	18.23	18.51	18.14		
15	16QAM	1	74	18.67	18.42	18.67		
15	16QAM	36	0	18.44	18.40	18.50	19.5	0
15	16QAM	36	20	18.51	18.39	18.58		
15	16QAM	36	39	18.41	18.40	18.38		
15	16QAM	75	0	18.28	18.25	18.47		
15	64QAM	1	0	18.40	18.42	18.45	19.5	0
15	64QAM	1	37	18.24	18.20	18.26		
15	64QAM	1	74	18.46	18.45	18.46		
15	64QAM	36	0	18.37	18.39	18.44	19.5	0
15	64QAM	36	20	18.33	18.38	18.41		
15	64QAM	36	39	18.40	18.43	18.43		
15	64QAM	75	0	18.38	18.36	18.39		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	18.40	18.34	18.37	19.5	0
10	QPSK	1	25	18.42	17.70	18.26		
10	QPSK	1	49	18.24	18.44	18.18		
10	QPSK	25	0	18.37	18.35	18.30	19.5	0
10	QPSK	25	12	18.25	18.59	18.28		
10	QPSK	25	25	18.26	18.50	18.36		
10	QPSK	50	0	18.48	18.44	18.36		
10	16QAM	1	0	18.63	18.62	18.51	19.5	0
10	16QAM	1	25	18.65	18.58	18.05		
10	16QAM	1	49	18.57	18.51	18.58		
10	16QAM	25	0	18.13	18.65	18.09	19.5	0
10	16QAM	25	12	18.11	18.36	18.29		
10	16QAM	25	25	18.34	18.50	18.31		
10	16QAM	50	0	18.44	18.38	18.24		
10	64QAM	1	0	18.41	18.39	18.29	19.5	0
10	64QAM	1	25	18.24	18.24	18.19		
10	64QAM	1	49	18.47	18.50	18.42		
10	64QAM	25	0	18.37	18.39	18.27	19.5	0
10	64QAM	25	12	18.34	18.35	18.33		
10	64QAM	25	25	18.35	18.37	18.31		
10	64QAM	50	0	18.36	18.34	18.26		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	18.28	18.49	18.28	19.5	0
5	QPSK	1	12	17.64	18.51	18.06		
5	QPSK	1	24	18.25	18.36	18.21		
5	QPSK	12	0	18.23	18.36	18.42	19.5	0
5	QPSK	12	7	17.93	18.56	18.37		
5	QPSK	12	13	18.36	18.45	18.42		
5	QPSK	25	0	18.47	18.42	18.38		
5	16QAM	1	0	18.61	18.52	18.44	19.5	0
5	16QAM	1	12	18.53	18.66	18.58		
5	16QAM	1	24	18.46	18.58	18.56		
5	16QAM	12	0	18.31	18.60	18.36	19.5	0
5	16QAM	12	7	18.34	18.41	18.29		
5	16QAM	12	13	18.28	18.44	18.44		
5	16QAM	25	0	18.31	18.41	18.29		
5	64QAM	1	0	18.35	18.48	18.30	19.5	0
5	64QAM	1	12	18.10	18.16	18.09		
5	64QAM	1	24	18.47	18.52	18.44		
5	64QAM	12	0	18.35	18.38	18.33	19.5	0
5	64QAM	12	7	18.36	18.39	18.32		
5	64QAM	12	13	18.33	18.42	18.32		
5	64QAM	25	0	18.34	18.38	18.33		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	18.28	18.48	18.26	19.5	0
3	QPSK	1	8	18.30	18.33	18.30		
3	QPSK	1	14	18.37	18.51	18.51		
3	QPSK	8	0	18.25	18.42	18.31	19.5	0
3	QPSK	8	4	18.33	18.43	18.30		
3	QPSK	8	7	18.32	18.48	18.40		
3	QPSK	15	0	18.05	18.45	18.40		
3	16QAM	1	0	18.16	18.33	18.58	19.5	0
3	16QAM	1	8	18.42	18.54	18.66		
3	16QAM	1	14	18.58	18.65	18.58		
3	16QAM	8	0	18.31	18.57	18.24	19.5	0
3	16QAM	8	4	18.28	18.40	18.29		
3	16QAM	8	7	18.43	18.35	18.34		
3	16QAM	15	0	18.01	18.52	18.23		
3	64QAM	1	0	18.00	18.55	18.25	19.5	0
3	64QAM	1	8	17.99	18.52	18.27		
3	64QAM	1	14	18.01	18.58	18.29		
3	64QAM	8	0	18.04	18.42	18.20	19.5	0
3	64QAM	8	4	18.00	18.33	18.17		
3	64QAM	8	7	18.04	18.34	18.26		
3	64QAM	15	0	17.98	18.36	18.11		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	18.32	18.53	18.25	19.5	0
1.4	QPSK	1	3	17.75	18.52	17.98		
1.4	QPSK	1	5	18.48	18.43	18.37		
1.4	QPSK	3	0	17.89	18.45	17.89		
1.4	QPSK	3	1	18.07	17.90	18.26		
1.4	QPSK	3	3	17.87	18.58	18.21		
1.4	QPSK	6	0	18.21	18.43	18.32	19.5	0
1.4	16QAM	1	0	18.51	18.59	18.66	19.5	0
1.4	16QAM	1	3	18.44	17.80	18.51		
1.4	16QAM	1	5	18.59	18.28	18.47		
1.4	16QAM	3	0	18.34	18.13	18.14		
1.4	16QAM	3	1	18.16	17.77	18.12		
1.4	16QAM	3	3	18.41	18.13	18.40		
1.4	16QAM	6	0	18.27	18.22	18.19	19.5	0
1.4	64QAM	1	0	18.61	18.58	18.55	19.5	0
1.4	64QAM	1	3	18.33	18.28	18.35		
1.4	64QAM	1	5	18.52	18.52	18.59		
1.4	64QAM	3	0	18.38	18.40	18.45		
1.4	64QAM	3	1	18.26	18.23	18.33		
1.4	64QAM	3	3	18.31	18.34	18.35		
1.4	64QAM	6	0	18.52	18.29	18.33	19.5	0

<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	17.83	17.92	18.16	19	0
20	QPSK	1	49	17.76	17.73	17.85		
20	QPSK	1	99	17.84	17.60	17.93		
20	QPSK	50	0	17.88	17.88	17.89	19	0
20	QPSK	50	24	17.69	17.83	17.82		
20	QPSK	50	50	17.79	17.77	17.80		
20	QPSK	100	0	17.80	17.92	17.96		
20	16QAM	1	0	17.81	18.04	17.90	19	0
20	16QAM	1	49	17.81	18.03	18.15		
20	16QAM	1	99	17.76	18.10	18.14		
20	16QAM	50	0	17.55	17.76	17.80	19	0
20	16QAM	50	24	17.49	17.78	17.76		
20	16QAM	50	50	17.75	17.68	17.77		
20	16QAM	100	0	17.75	17.70	17.75		
20	64QAM	1	0	17.98	18.02	18.05	19	0
20	64QAM	1	49	17.61	17.77	17.81		
20	64QAM	1	99	18.01	18.00	18.03		
20	64QAM	50	0	17.79	17.88	17.91	19	0
20	64QAM	50	24	17.85	17.89	17.92		
20	64QAM	50	50	17.81	17.88	17.89		
20	64QAM	100	0	17.88	17.92	17.95		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	17.78	17.82	17.92	19	0
15	QPSK	1	37	17.62	17.87	17.81		
15	QPSK	1	74	17.52	17.74	17.76		
15	QPSK	36	0	17.67	17.97	17.91	19	0
15	QPSK	36	20	17.58	17.94	17.84		
15	QPSK	36	39	17.61	17.89	17.79		
15	QPSK	75	0	17.75	17.92	17.84		
15	16QAM	1	0	18.12	17.97	17.86	19	0
15	16QAM	1	37	17.99	17.99	17.95		
15	16QAM	1	74	18.04	18.13	17.94		
15	16QAM	36	0	17.79	17.77	17.79	19	0
15	16QAM	36	20	17.48	17.83	17.78		
15	16QAM	36	39	17.54	17.82	17.74		
15	16QAM	75	0	17.71	17.88	17.74		
15	64QAM	1	0	17.95	18.00	18.01	19	0
15	64QAM	1	37	17.55	17.62	17.58		
15	64QAM	1	74	17.91	17.93	17.95		
15	64QAM	36	0	17.90	17.92	17.96	19	0
15	64QAM	36	20	17.88	17.90	17.91		
15	64QAM	36	39	17.86	17.85	17.77		
15	64QAM	75	0	17.85	17.83	17.81		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	17.95	17.78	17.82	19	0
10	QPSK	1	25	17.35	17.54	17.90		
10	QPSK	1	49	17.66	17.78	17.85		
10	QPSK	25	0	17.80	17.94	17.78	19	0
10	QPSK	25	12	17.74	17.86	17.80		
10	QPSK	25	25	17.72	17.83	17.68		
10	QPSK	50	0	17.64	17.78	17.81		
10	16QAM	1	0	18.04	18.07	18.15	19	0
10	16QAM	1	25	18.00	17.92	17.94		
10	16QAM	1	49	17.97	18.08	18.13		
10	16QAM	25	0	17.60	17.70	17.85	19	0
10	16QAM	25	12	17.67	17.74	17.77		
10	16QAM	25	25	17.66	17.76	17.73		
10	16QAM	50	0	17.70	17.65	17.69		
10	64QAM	1	0	18.01	18.03	18.13	19	0
10	64QAM	1	25	17.81	17.86	17.95		
10	64QAM	1	49	18.01	18.02	18.01		
10	64QAM	25	0	17.85	17.91	17.95	19	0
10	64QAM	25	12	17.85	17.88	17.92		
10	64QAM	25	25	17.81	17.86	17.96		
10	64QAM	50	0	17.75	17.85	17.93		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	17.78	17.76	17.75	19	0
5	QPSK	1	12	17.82	17.66	17.43		
5	QPSK	1	24	17.68	17.81	17.65		
5	QPSK	12	0	17.81	17.81	17.77	19	0
5	QPSK	12	7	17.79	17.78	17.71		
5	QPSK	12	13	17.71	17.88	17.76		
5	QPSK	25	0	17.73	17.80	17.80		
5	16QAM	1	0	17.93	17.86	18.04	19	0
5	16QAM	1	12	17.33	18.06	17.99		
5	16QAM	1	24	17.76	17.90	17.90		
5	16QAM	12	0	17.66	17.84	17.89	19	0
5	16QAM	12	7	17.85	17.64	17.82		
5	16QAM	12	13	17.68	17.81	17.75		
5	16QAM	25	0	17.62	17.94	17.67		
5	64QAM	1	0	18.01	18.05	18.01	19	0
5	64QAM	1	12	17.48	17.51	17.55		
5	64QAM	1	24	18.01	18.02	18.06		
5	64QAM	12	0	17.66	17.90	17.92	19	0
5	64QAM	12	7	17.74	17.81	17.77		
5	64QAM	12	13	17.85	17.90	17.95		
5	64QAM	25	0	17.85	17.88	17.91		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	17.79	17.86	17.81	19	0
3	QPSK	1	8	17.80	17.80	17.71		
3	QPSK	1	14	17.61	17.84	17.65		
3	QPSK	8	0	17.46	17.91	17.50	19	0
3	QPSK	8	4	17.59	17.89	17.71		
3	QPSK	8	7	17.65	17.65	17.77		
3	QPSK	15	0	17.77	17.76	17.82		
3	16QAM	1	0	17.83	17.99	18.14	19	0
3	16QAM	1	8	18.00	17.97	17.86		
3	16QAM	1	14	17.77	18.01	18.09		
3	16QAM	8	0	17.61	17.90	17.79	19	0
3	16QAM	8	4	17.60	17.82	17.71		
3	16QAM	8	7	17.54	17.58	17.46		
3	16QAM	15	0	17.71	17.83	17.71		
3	64QAM	1	0	18.02	18.06	18.11	19	0
3	64QAM	1	8	18.01	18.02	18.01		
3	64QAM	1	14	18.07	18.04	17.98		
3	64QAM	8	0	17.66	17.85	17.81	19	0
3	64QAM	8	4	17.77	17.89	17.80		
3	64QAM	8	7	17.85	17.81	17.80		
3	64QAM	15	0	17.81	17.88	17.85		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	17.78	17.76	17.79	19	0
1.4	QPSK	1	3	18.04	17.97	17.11		
1.4	QPSK	1	5	17.79	17.96	17.74		
1.4	QPSK	3	0	17.67	17.79	17.74		
1.4	QPSK	3	1	17.59	17.83	17.17		
1.4	QPSK	3	3	17.58	17.53	17.61		
1.4	QPSK	6	0	17.81	17.87	17.78	19	0
1.4	16QAM	1	0	17.81	18.08	18.09	19	0
1.4	16QAM	1	3	17.83	17.51	18.06		
1.4	16QAM	1	5	18.04	17.89	18.02		
1.4	16QAM	3	0	17.61	17.91	17.93		
1.4	16QAM	3	1	17.80	17.94	17.82		
1.4	16QAM	3	3	17.69	17.69	17.41		
1.4	16QAM	6	0	17.86	17.81	17.79	19	0
1.4	64QAM	1	0	18.01	18.03	18.01	19	0
1.4	64QAM	1	3	17.90	17.92	17.88		
1.4	64QAM	1	5	18.01	18.05	18.03		
1.4	64QAM	3	0	17.88	17.90	17.83		
1.4	64QAM	3	1	17.81	17.87	17.81		
1.4	64QAM	3	3	17.91	17.93	17.90		
1.4	64QAM	6	0	17.80	17.90	17.88	19	0

<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	20.85	20.89	21.00	21.5	0
20	QPSK	1	49	20.77	20.99	21.04		
20	QPSK	1	99	21.00	21.11	21.18		
20	QPSK	50	0	20.21	20.43	20.48	21.5	0
20	QPSK	50	24	20.26	20.36	20.44		
20	QPSK	50	50	20.27	20.39	20.49		
20	QPSK	100	0	20.32	20.41	20.46		
20	16QAM	1	0	20.41	20.44	20.48	21.5	0
20	16QAM	1	49	20.35	20.42	20.47		
20	16QAM	1	99	20.40	20.42	20.52		
20	16QAM	50	0	20.86	20.93	20.95	21	0.5
20	16QAM	50	24	20.91	20.93	20.94		
20	16QAM	50	50	20.78	20.92	20.96		
20	16QAM	100	0	20.78	20.69	20.83		
20	64QAM	1	0	19.72	19.84	19.85	21	0.5
20	64QAM	1	49	19.71	19.98	19.80		
20	64QAM	1	99	19.97	19.98	19.99		
20	64QAM	50	0	18.90	18.88	18.99	20	1.5
20	64QAM	50	24	18.95	18.94	18.96		
20	64QAM	50	50	18.92	18.89	18.97		
20	64QAM	100	0	18.91	18.88	18.94		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.59	20.88	20.90	21.5	0
15	QPSK	1	37	20.70	20.75	20.76		
15	QPSK	1	74	20.72	20.78	20.80		
15	QPSK	36	0	20.28	20.38	20.45	21.5	0
15	QPSK	36	20	20.30	20.42	20.46		
15	QPSK	36	39	20.36	20.46	20.46		
15	QPSK	75	0	20.25	20.41	20.50		
15	16QAM	1	0	20.38	20.46	20.46	21.5	0
15	16QAM	1	37	20.20	20.21	20.40		
15	16QAM	1	74	20.51	20.46	20.45		
15	16QAM	36	0	20.19	20.28	20.49	21	0.5
15	16QAM	36	20	20.19	20.33	20.49		
15	16QAM	36	39	20.32	20.34	20.36		
15	16QAM	75	0	20.20	20.32	20.49		
15	64QAM	1	0	19.90	19.95	19.96	21	0.5
15	64QAM	1	37	19.87	19.80	19.84		
15	64QAM	1	74	19.87	19.90	19.92		
15	64QAM	36	0	18.93	18.94	18.97	20	1.5
15	64QAM	36	20	18.94	18.97	18.99		
15	64QAM	36	39	18.85	18.88	18.92		
15	64QAM	75	0	18.87	18.89	18.97		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.84	20.97	21.10	21.5	0
10	QPSK	1	25	20.75	20.92	21.02		
10	QPSK	1	49	21.00	21.09	21.14		
10	QPSK	25	0	20.19	20.41	20.47	21.5	0
10	QPSK	25	12	20.20	20.40	20.44		
10	QPSK	25	25	20.25	20.39	20.45		
10	QPSK	50	0	20.20	20.39	20.44		
10	16QAM	1	0	20.39	20.32	20.44	21.5	0
10	16QAM	1	25	20.33	20.40	20.45		
10	16QAM	1	49	20.48	20.40	20.43		
10	16QAM	25	0	20.14	20.28	20.42	21	0.5
10	16QAM	25	12	20.14	20.30	20.49		
10	16QAM	25	25	20.22	20.31	20.41		
10	16QAM	50	0	20.13	20.29	20.47		
10	64QAM	1	0	19.94	19.49	19.70	21	0.5
10	64QAM	1	25	19.60	19.73	19.70		
10	64QAM	1	49	19.88	19.48	19.88		
10	64QAM	25	0	18.85	18.87	18.89	20	1.5
10	64QAM	25	12	18.77	18.85	18.87		
10	64QAM	25	25	18.72	18.94	18.95		
10	64QAM	50	0	18.70	18.85	18.96		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.94	21.06	21.08	21.5	0
5	QPSK	1	12	20.98	20.70	20.90		
5	QPSK	1	24	20.97	21.11	21.13		
5	QPSK	12	0	20.26	20.45	20.45	21.5	0
5	QPSK	12	7	20.25	20.40	20.43		
5	QPSK	12	13	20.31	20.46	20.47		
5	QPSK	25	0	20.20	20.37	20.43		
5	16QAM	1	0	20.49	20.43	20.49	21.5	0
5	16QAM	1	12	20.17	20.15	20.43		
5	16QAM	1	24	20.50	20.46	20.49		
5	16QAM	12	0	20.24	20.36	20.40	21	0.5
5	16QAM	12	7	20.18	20.32	20.47		
5	16QAM	12	13	20.26	20.36	20.44		
5	16QAM	25	0	20.15	20.30	20.33		
5	64QAM	1	0	19.96	19.91	19.99	21	0.5
5	64QAM	1	12	19.89	19.83	19.93		
5	64QAM	1	24	19.92	19.90	19.94		
5	64QAM	12	0	18.92	18.89	18.87	20	1.5
5	64QAM	12	7	18.84	18.85	18.86		
5	64QAM	12	13	18.80	18.93	18.94		
5	64QAM	25	0	18.86	18.88	18.96		

<Ant.3--Reduced Power Mode for P-Sensor On>

<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	21.59	21.53	21.72	22.5	0
20	QPSK	1	49	21.18	21.10	21.21		
20	QPSK	1	99	21.38	21.47	21.50		
20	QPSK	50	0	21.50	21.44	21.45	22.5	0
20	QPSK	50	24	21.37	21.37	21.45		
20	QPSK	50	50	21.56	21.48	21.58		
20	QPSK	100	0	21.41	21.40	21.47		
20	16QAM	1	0	21.71	21.62	21.54	22.5	0
20	16QAM	1	49	21.51	21.51	21.45		
20	16QAM	1	99	21.62	21.70	21.70		
20	16QAM	50	0	20.91	20.90	20.94	22.0	0.5
20	16QAM	50	24	20.83	20.84	20.89		
20	16QAM	50	50	20.83	20.87	20.91		
20	16QAM	100	0	20.83	20.84	20.90		
20	64QAM	1	0	21.11	21.14	21.08	22.0	0.5
20	64QAM	1	49	20.88	20.93	20.85		
20	64QAM	1	99	21.08	21.11	21.09		
20	64QAM	50	0	19.88	19.93	19.91	21.0	1.5
20	64QAM	50	24	19.81	19.85	19.82		
20	64QAM	50	50	19.88	19.91	19.90		
20	64QAM	100	0	19.80	19.88	19.87		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.46	21.39	21.45	22.5	0
15	QPSK	1	37	20.86	21.05	21.18		
15	QPSK	1	74	21.29	21.34	21.41		
15	QPSK	36	0	21.53	21.46	21.51	22.5	0
15	QPSK	36	20	21.44	21.46	21.46		
15	QPSK	36	39	21.40	21.46	21.50		
15	QPSK	75	0	21.48	21.40	21.46		
15	16QAM	1	0	21.61	21.63	21.61	22.5	0
15	16QAM	1	37	21.20	21.05	21.19		
15	16QAM	1	74	21.56	21.56	21.65		
15	16QAM	36	0	20.97	20.84	20.92	22.0	0.5
15	16QAM	36	20	20.85	20.84	20.93		
15	16QAM	36	39	20.85	20.87	20.89		
15	16QAM	75	0	20.91	20.86	20.88		
15	64QAM	1	0	20.92	20.97	20.95	22.0	0.5
15	64QAM	1	37	20.72	20.70	20.75		
15	64QAM	1	74	20.94	20.95	20.92		
15	64QAM	36	0	19.90	19.92	19.88	21.0	1.5
15	64QAM	36	20	19.88	19.90	19.75		
15	64QAM	36	39	19.92	19.95	19.76		
15	64QAM	75	0	19.90	19.92	19.79		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.53	21.42	21.48	22.5	0
10	QPSK	1	25	21.17	21.19	21.17		
10	QPSK	1	49	21.40	21.44	21.43		
10	QPSK	25	0	21.49	21.39	21.40	22.5	0
10	QPSK	25	12	21.42	21.41	21.43		
10	QPSK	25	25	21.42	21.44	21.42		
10	QPSK	50	0	21.40	21.42	21.39		
10	16QAM	1	0	21.65	21.64	21.66	22.5	0
10	16QAM	1	25	21.42	21.35	21.29		
10	16QAM	1	49	21.63	21.70	21.67		
10	16QAM	25	0	20.91	20.87	20.88	22.0	0.5
10	16QAM	25	12	20.87	20.83	20.86		
10	16QAM	25	25	20.86	20.87	20.88		
10	16QAM	50	0	20.88	20.84	20.86		
10	64QAM	1	0	21.05	21.00	21.03	22.0	0.5
10	64QAM	1	25	20.81	20.84	20.85		
10	64QAM	1	49	21.01	21.09	21.02		
10	64QAM	25	0	19.90	19.92	19.90	21.0	1.5
10	64QAM	25	12	19.82	19.89	19.93		
10	64QAM	25	25	19.80	19.91	19.95		
10	64QAM	50	0	19.99	20.00	20.01		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.51	21.40	21.40	22.5	0
5	QPSK	1	12	21.03	21.02	20.95		
5	QPSK	1	24	21.45	21.44	21.42		
5	QPSK	12	0	21.57	21.46	21.45	22.5	0
5	QPSK	12	7	21.44	21.39	21.40		
5	QPSK	12	13	21.46	21.45	21.41		
5	QPSK	25	0	21.42	21.38	21.39		
5	16QAM	1	0	21.71	21.66	21.66	22.5	0
5	16QAM	1	12	21.43	21.55	21.55		
5	16QAM	1	24	21.67	21.66	21.65		
5	16QAM	12	0	20.97	20.89	20.94	22.0	0.5
5	16QAM	12	7	20.96	20.86	20.88		
5	16QAM	12	13	20.93	20.93	20.90		
5	16QAM	25	0	20.91	20.84	20.80		
5	64QAM	1	0	21.01	21.03	21.05	22.0	0.5
5	64QAM	1	12	20.65	20.63	20.66		
5	64QAM	1	24	21.00	21.04	21.05		
5	64QAM	12	0	20.08	20.12	20.15	21.0	1.5
5	64QAM	12	7	20.00	20.02	20.03		
5	64QAM	12	13	20.01	20.06	20.01		
5	64QAM	25	0	19.92	19.97	20.00		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.52	21.41	21.44	22.5	0
3	QPSK	1	8	21.48	21.40	21.42		
3	QPSK	1	14	21.47	21.41	21.40		
3	QPSK	8	0	21.46	21.35	21.37	22.5	0
3	QPSK	8	4	21.39	21.31	21.33		
3	QPSK	8	7	21.44	21.36	21.39		
3	QPSK	15	0	21.45	21.36	21.40		
3	16QAM	1	0	21.66	21.64	21.67	22.5	0
3	16QAM	1	8	21.63	21.62	21.65		
3	16QAM	1	14	21.62	21.64	21.64		
3	16QAM	8	0	20.92	20.84	20.84	22.0	0.5
3	16QAM	8	4	20.95	20.87	20.89		
3	16QAM	8	7	20.94	20.84	20.90		
3	16QAM	15	0	20.92	20.84	20.86		
3	64QAM	1	0	21.05	21.09	21.02	22.0	0.5
3	64QAM	1	8	21.05	21.03	21.03		
3	64QAM	1	14	21.01	21.07	21.04		
3	64QAM	8	0	19.91	19.88	19.88	21.0	1.5
3	64QAM	8	4	19.92	19.83	19.81		
3	64QAM	8	7	19.81	19.86	19.80		
3	64QAM	15	0	20.02	20.07	20.00		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.52	21.41	21.41	22.5	0
1.4	QPSK	1	3	21.38	21.29	21.27		
1.4	QPSK	1	5	21.52	21.40	21.42		
1.4	QPSK	3	0	21.42	21.29	21.37		
1.4	QPSK	3	1	21.48	21.32	21.36		
1.4	QPSK	3	3	21.39	21.26	21.26		
1.4	QPSK	6	0	21.45	21.32	21.32	22.5	0
1.4	16QAM	1	0	21.68	21.63	21.67	22.5	0
1.4	16QAM	1	3	21.56	21.43	21.43		
1.4	16QAM	1	5	21.65	21.65	21.67		
1.4	16QAM	3	0	21.44	21.34	21.33		
1.4	16QAM	3	1	21.41	21.32	21.32		
1.4	16QAM	3	3	21.41	21.32	21.34		
1.4	16QAM	6	0	20.96	20.83	20.83	22.0	0.5
1.4	64QAM	1	0	21.02	21.08	21.01	22.0	0.5
1.4	64QAM	1	3	20.91	20.99	20.90		
1.4	64QAM	1	5	21.03	21.05	21.06		
1.4	64QAM	3	0	20.98	21.00	21.05		
1.4	64QAM	3	1	20.85	20.89	20.99		
1.4	64QAM	3	3	20.88	20.90	20.93		
1.4	64QAM	6	0	20.05	20.07	20.01	21.0	1.5

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.45	21.58	21.83	22.5	0
20	QPSK	1	49	21.08	21.17	21.08		
20	QPSK	1	99	21.34	21.49	21.50		
20	QPSK	50	0	21.37	21.51	21.56	22.5	0
20	QPSK	50	24	21.33	21.44	21.48		
20	QPSK	50	50	21.35	21.49	21.47		
20	QPSK	100	0	21.39	21.49	21.52		
20	16QAM	1	0	21.57	21.75	21.77	22.5	0
20	16QAM	1	49	21.35	21.55	21.69		
20	16QAM	1	99	21.50	21.78	21.73		
20	16QAM	50	0	20.78	20.91	21.00	22	0.5
20	16QAM	50	24	20.74	20.88	20.97		
20	16QAM	50	50	20.79	20.88	20.94		
20	16QAM	100	0	20.78	20.87	20.95		
20	64QAM	1	0	21.08	21.10	21.16	22	0.5
20	64QAM	1	49	20.80	20.85	20.87		
20	64QAM	1	99	21.13	21.15	21.16		
20	64QAM	50	0	20.05	20.10	20.08	21	1.5
20	64QAM	50	24	20.01	20.04	20.09		
20	64QAM	50	50	20.06	20.09	20.05		
20	64QAM	100	0	20.01	20.03	20.04		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.32	21.4	21.45	22.5	0
15	QPSK	1	37	21.18	20.83	20.79		
15	QPSK	1	74	21.27	21.33	21.35		
15	QPSK	36	0	21.35	21.49	21.54	22.5	0
15	QPSK	36	20	21.35	21.47	21.52		
15	QPSK	36	39	21.31	21.44	21.49		
15	QPSK	75	0	21.32	21.43	21.48		
15	16QAM	1	0	21.56	21.53	21.63	22.5	0
15	16QAM	1	37	21.4	21.47	21.43		
15	16QAM	1	74	21.51	21.51	21.51		
15	16QAM	36	0	20.79	20.89	21	22	0.5
15	16QAM	36	20	20.79	20.88	20.93		
15	16QAM	36	39	20.8	20.87	20.9		
15	16QAM	75	0	20.76	20.94	20.98		
15	64QAM	1	0	20.91	20.96	20.93	22	0.5
15	64QAM	1	37	20.52	20.55	20.56		
15	64QAM	1	74	21.01	21.03	21.05		
15	64QAM	36	0	19.91	19.93	19.73	21	1.5
15	64QAM	36	20	19.82	19.87	19.85		
15	64QAM	36	39	19.90	19.91	19.92		
15	64QAM	75	0	19.85	19.89	19.93		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.36	21.46	21.49	22.5	0
10	QPSK	1	25	21.21	20.84	21.24		
10	QPSK	1	49	21.31	21.33	21.40		
10	QPSK	25	0	21.35	21.47	21.50	22.5	0
10	QPSK	25	12	21.31	21.45	21.44		
10	QPSK	25	25	21.34	21.46	21.45		
10	QPSK	50	0	21.31	21.46	21.49		
10	16QAM	1	0	21.56	21.64	21.70	22.5	0
10	16QAM	1	25	21.25	21.42	21.36		
10	16QAM	1	49	21.57	21.63	21.64		
10	16QAM	25	0	20.80	20.88	20.94	22	0.5
10	16QAM	25	12	20.76	20.89	20.93		
10	16QAM	25	25	20.76	20.88	20.88		
10	16QAM	50	0	20.77	20.90	20.86		
10	64QAM	1	0	21.06	21.06	21.16	22	0.5
10	64QAM	1	25	20.75	20.74	20.75		
10	64QAM	1	49	21.15	21.14	21.24		
10	64QAM	25	0	19.91	19.97	19.92	21	1.5
10	64QAM	25	12	19.91	19.86	19.93		
10	64QAM	25	25	19.92	19.95	19.91		
10	64QAM	50	0	19.98	20.01	20.05		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.37	21.41	21.43	22.5	0
5	QPSK	1	12	21.21	21.09	21.44		
5	QPSK	1	24	21.28	21.45	21.41		
5	QPSK	12	0	21.38	21.45	21.46	22.5	0
5	QPSK	12	7	21.28	21.45	21.37		
5	QPSK	12	13	21.35	21.50	21.47		
5	QPSK	25	0	21.28	21.41	21.42		
5	16QAM	1	0	21.53	21.70	21.67	22.5	0
5	16QAM	1	12	21.33	21.36	21.42		
5	16QAM	1	24	21.51	21.72	21.57		
5	16QAM	12	0	20.80	20.96	20.91	22	0.5
5	16QAM	12	7	20.76	20.89	20.83		
5	16QAM	12	13	20.82	20.92	20.90		
5	16QAM	25	0	20.76	20.88	20.85		
5	64QAM	1	0	21.08	21.13	21.15	22	0.5
5	64QAM	1	12	20.76	20.73	20.88		
5	64QAM	1	24	21.15	21.13	21.15		
5	64QAM	12	0	20.08	20.01	20.07	21	1.5
5	64QAM	12	7	20.17	20.06	20.16		
5	64QAM	12	13	20.07	20.06	20.17		
5	64QAM	25	0	19.91	19.89	19.80		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.35	21.47	21.43	22.5	0
3	QPSK	1	8	21.33	21.43	21.41		
3	QPSK	1	14	21.30	21.49	21.44		
3	QPSK	8	0	21.24	21.30	21.38	22.5	0
3	QPSK	8	4	21.29	21.32	21.41		
3	QPSK	8	7	21.29	21.41	21.34		
3	QPSK	15	0	21.33	21.42	21.38		
3	16QAM	1	0	21.57	21.70	21.67	22.5	0
3	16QAM	1	8	21.55	21.69	21.65		
3	16QAM	1	14	21.54	21.66	21.72		
3	16QAM	8	0	20.80	20.81	20.86	22	0.5
3	16QAM	8	4	20.81	20.89	20.93		
3	16QAM	8	7	20.84	20.98	20.94		
3	16QAM	15	0	20.81	20.91	20.83		
3	64QAM	1	0	21.09	21.13	21.22	22	0.5
3	64QAM	1	8	21.07	21.10	21.20		
3	64QAM	1	14	21.08	21.14	21.18		
3	64QAM	8	0	20.11	20.13	20.18	21	1.5
3	64QAM	8	4	20.15	20.08	20.19		
3	64QAM	8	7	20.16	20.20	20.25		
3	64QAM	15	0	20.02	20.09	20.18		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.31	21.46	21.45	22.5	0
1.4	QPSK	1	3	21.19	21.18	21.30		
1.4	QPSK	1	5	21.36	21.43	21.42		
1.4	QPSK	3	0	21.28	21.36	21.28		
1.4	QPSK	3	1	21.22	21.34	21.32		
1.4	QPSK	3	3	21.12	21.31	21.26		
1.4	QPSK	6	0	21.14	21.36	21.27	22.5	0
1.4	16QAM	1	0	21.54	21.71	21.63	22.5	0
1.4	16QAM	1	3	21.33	21.45	21.28		
1.4	16QAM	1	5	21.62	21.74	21.50		
1.4	16QAM	3	0	21.29	21.49	21.31		
1.4	16QAM	3	1	21.15	21.44	21.27		
1.4	16QAM	3	3	21.29	21.44	21.37		
1.4	16QAM	6	0	20.71	20.86	20.80	22	0.5
1.4	64QAM	1	0	21.19	21.13	21.15	22	0.5
1.4	64QAM	1	3	20.92	20.97	20.98		
1.4	64QAM	1	5	21.15	21.12	21.15		
1.4	64QAM	3	0	21.09	21.08	21.09		
1.4	64QAM	3	1	20.92	20.89	20.91		
1.4	64QAM	3	3	21.05	21.01	21.05		
1.4	64QAM	6	0	20.11	20.08	20.09	21	1.5

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.34	21.52	21.59	22	0
20	QPSK	1	49	21.30	21.26	21.34		
20	QPSK	1	99	21.56	21.59	21.75		
20	QPSK	50	0	21.37	21.47	21.55	22	0
20	QPSK	50	24	21.37	21.43	21.51		
20	QPSK	50	50	21.46	21.52	21.56		
20	QPSK	100	0	21.39	21.44	21.57		
20	16QAM	1	0	21.54	21.73	21.74	22	0
20	16QAM	1	49	21.48	21.67	21.63		
20	16QAM	1	99	21.68	21.74	21.74		
20	16QAM	50	0	20.29	20.39	20.49	21	1
20	16QAM	50	24	20.34	20.38	20.45		
20	16QAM	50	50	20.41	20.46	20.51		
20	16QAM	100	0	20.34	20.42	20.50		
20	64QAM	1	0	20.91	20.98	20.92	21	1
20	64QAM	1	49	20.77	20.80	20.88		
20	64QAM	1	99	20.92	20.96	20.92		
20	64QAM	50	0	19.45	19.47	19.41	20	2
20	64QAM	50	24	19.43	19.45	19.42		
20	64QAM	50	50	19.81	19.86	19.43		
20	64QAM	100	0	19.48	19.50	19.44		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.23	21.42	21.48	22	0
15	QPSK	1	37	20.75	21.00	21.14		
15	QPSK	1	74	21.35	21.41	21.62		
15	QPSK	36	0	21.29	21.46	21.56	22	0
15	QPSK	36	20	21.35	21.47	21.51		
15	QPSK	36	39	21.46	21.55	21.60		
15	QPSK	75	0	21.34	21.50	21.59		
15	16QAM	1	0	21.46	21.65	21.73	22	0
15	16QAM	1	37	21.34	21.49	21.38		
15	16QAM	1	74	21.59	21.74	21.73		
15	16QAM	36	0	20.30	20.43	20.49	21	1
15	16QAM	36	20	20.33	20.42	20.47		
15	16QAM	36	39	20.39	20.51	20.55		
15	16QAM	75	0	20.28	20.42	20.48		
15	64QAM	1	0	20.92	20.96	20.88	21	1
15	64QAM	1	37	20.31	20.39	20.35		
15	64QAM	1	74	20.88	21.00	21.00		
15	64QAM	36	0	19.91	19.93	19.88	20	2
15	64QAM	36	20	19.44	19.59	19.66		
15	64QAM	36	39	19.70	19.90	19.67		
15	64QAM	75	0	19.75	19.91	19.78		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.21	21.43	21.54	22	0
10	QPSK	1	25	20.91	21.10	21.23		
10	QPSK	1	49	21.36	21.50	21.59		
10	QPSK	25	0	21.22	21.41	21.50	22	0
10	QPSK	25	12	21.24	21.41	21.53		
10	QPSK	25	25	21.31	21.46	21.56		
10	QPSK	50	0	21.27	21.43	21.55		
10	16QAM	1	0	21.45	21.69	21.68	22	0
10	16QAM	1	25	21.10	21.30	21.51		
10	16QAM	1	49	21.63	21.66	21.67		
10	16QAM	25	0	20.20	20.40	20.47	21	1
10	16QAM	25	12	20.20	20.37	20.42		
10	16QAM	25	25	20.27	20.44	20.51		
10	16QAM	50	0	20.22	20.38	20.51		
10	64QAM	1	0	20.81	20.88	20.91	21	1
10	64QAM	1	25	20.83	20.85	20.81		
10	64QAM	1	49	20.80	20.81	20.78		
10	64QAM	25	0	19.70	19.73	19.70	20	2
10	64QAM	25	12	19.68	19.72	19.68		
10	64QAM	25	25	19.71	19.79	19.71		
10	64QAM	50	0	19.81	19.88	19.81		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.19	21.41	21.58	22	0
5	QPSK	1	12	20.71	21.04	21.10		
5	QPSK	1	24	21.28	21.47	21.61		
5	QPSK	12	0	21.25	21.46	21.56	22	0
5	QPSK	12	7	21.23	21.40	21.52		
5	QPSK	12	13	21.30	21.50	21.60		
5	QPSK	25	0	21.21	21.42	21.54		
5	16QAM	1	0	21.44	21.64	21.71	22	0
5	16QAM	1	12	21.01	21.44	21.48		
5	16QAM	1	24	21.50	21.71	21.73		
5	16QAM	12	0	20.19	20.41	20.54	21	1
5	16QAM	12	7	20.19	20.37	20.48		
5	16QAM	12	13	20.24	20.46	20.57		
5	16QAM	25	0	20.15	20.37	20.49		
5	64QAM	1	0	20.88	20.91	20.88	21	1
5	64QAM	1	12	20.90	20.92	20.90		
5	64QAM	1	24	20.80	20.88	20.85		
5	64QAM	12	0	19.71	19.78	19.70	20	2
5	64QAM	12	7	19.89	19.99	19.79		
5	64QAM	12	13	19.85	19.95	19.88		
5	64QAM	25	0	19.81	19.88	19.85		

<LTE Carrier Aggregation>

General Note:

This device supports Carrier Aggregation on downlink for intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.

<Intra-Band Carrier Combination>

E-UTRA CA configuration / Bandwidth combination set							
E-UTRA CA configuration	Uplink CA configurations	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_2C	-	5	20			40	0
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_5B	-	5, 10	10			20	0
		10	5				
		3	5			8	1
		5	3				
CA_7C	-	15	15			40	0
		20	20				
		10	20			40	1
		15	15, 20				
		20	10, 15, 20				
		15	10, 15			40	2
		20	15, 20				
CA_12B	-	5	5, 10			15	0

LTE Carrier Aggregation Conducted Power (Downlink)

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 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.

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

<Ant.2--Full Power Mode>

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)	Without CA Tx. Power (dBm)
Intra-Band	Contiguous	Band 2	20M	1900	19100	QPSK	1	0	Band 2	20M	1960.2	902	22.95	23.12
		Band 5	10M	836.5	20525	QPSK	1	0	Band 5	10M	891.4	2624	22.25	22.35
		Band 7	20M	2560	21350	QPSK	1	99	Band 7	20M	2660.2	3152	22.76	22.57
		Band 12	5M	701.5	23035	QPSK	1	0	Band 12	10M	741.2	5132	23.48	23.35

<Ant.2--Reduced Power Mode for Receiver On>

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)	Without CA Tx. Power (dBm)
Intra-Band	Contiguous	Band 2	20M	1900	19100	QPSK	1	0	Band 2	20M	1960.2	902	17.98	18.15
		Band 5	10M	836.5	20525	QPSK	1	0	Band 5	10M	891.4	2624	19.41	19.54
		Band 7	20M	2560	21350	QPSK	1	99	Band 7	20M	2660.2	3152	19.27	19.37
		Band 12	5M	707.5	23095	16QAM	1	0	Band 12	10M	744.7	5023	21.91	22.12

<Ant.3--Full Power Mode>

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)	Without CA Tx. Power (dBm)
Intra-Band	Contiguous	Band 2	20M	1900	19100	QPSK	1	0	Band 2	20M	1960.2	902	23.08	23.13
		Band 5	10M	836.5	20525	QPSK	1	0	Band 5	10M	891.4	2624	22.38	22.44
		Band 7	20M	2560	21350	QPSK	1	99	Band 7	20M	2660.2	3152	22.41	22.45
		Band 12	5M	701.5	23035	QPSK	1	0	Band 12	10M	741.2	5132	23.57	23.52

<Ant.3--Reduced Power Mode for Hotspot On>

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)	Without CA Tx. Power (dBm)
Intra-Band	Contiguous	Band 2	20M	1900	19100	QPSK	1	0	Band 2	20M	1960.2	902	18.77	18.69

<Ant.3--Reduced Power Mode for P-Sensor On>

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)	Without CA Tx. Power (dBm)
Intra-Band	Contiguous	Band 2	20M	1900	19100	QPSK	1	0	Band 2	20M	1960.2	902	21.71	21.72
		Band 7	20M	2560	21350	QPSK	1	99	Band 7	20M	2660.2	3152	21.67	21.75

<WLAN Conducted Power>

General Note:

1. 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.
2. 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).
3. 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.
4. 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.

<Full Power Mode>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	16.63	18.50	98.13
		6	2437	16.59	18.50	
		11	2462	16.66	18.50	
	802.11g 6Mbps	1	2412	12.78	16.00	94.95
		6	2437	13.03	16.00	
		11	2462	13.20	16.00	
	802.11n-HT20 MCS0	1	2412	12.96	15.50	89.12
		6	2437	12.66	15.50	
		11	2462	13.45	15.50	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	14.80	16.00	89.74
		40	5200	14.53	16.00	
		44	5220	14.43	16.00	
		48	5240	14.55	16.00	
	802.11n-HT20 MCS0	36	5180	14.40	15.50	89.12
		40	5200	14.39	15.50	
		44	5220	14.19	15.50	
		48	5240	14.02	15.50	
	802.11n-HT40 MCS0	38	5190	11.91	13.50	89.12
		46	5230	11.37	13.50	
	802.11ac-VHT20 MCS0	36	5180	14.38	15.50	89.19
		40	5200	14.25	15.50	
		44	5220	14.17	15.50	
		48	5240	13.98	15.50	
	802.11ac-VHT40 MCS0	38	5190	11.80	13.50	90.29
		46	5230	11.16	13.50	
	802.11ac-VHT80 MCS0	42	5210	10.44	13.50	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	14.40	16.00	89.74
		56	5280	14.38	16.00	
		60	5300	14.37	16.00	
		64	5320	14.29	16.00	
	802.11n-HT20 MCS0	52	5260	14.03	15.50	89.12
		56	5280	13.93	15.50	
		60	5300	13.90	15.50	
		64	5320	14.01	15.50	
	802.11n-HT40 MCS0	54	5270	11.84	13.50	89.12
		62	5310	11.82	13.50	
	802.11ac-VHT20 MCS0	52	5260	13.99	15.50	89.19
		56	5280	13.98	15.50	
		60	5300	13.88	15.50	
		64	5320	13.97	15.50	
	802.11ac-VHT40 MCS0	54	5270	11.71	13.50	90.29
		62	5310	11.55	13.50	
	802.11ac-VHT80 MCS0	58	5290	9.94	13.50	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	14.62	16.00	89.74
		116	5580	14.20	16.00	
		124	5620	14.51	16.00	
		132	5660	14.17	16.00	
		140	5700	13.98	16.00	
		144	5720	14.21	16.00	
	802.11n-HT20 MCS0	100	5500	14.32	15.50	89.12
		116	5580	13.86	15.50	
		124	5620	13.94	15.50	
		132	5660	13.85	15.50	
		140	5700	13.88	15.50	
		144	5720	14.06	15.50	
	802.11n-HT40 MCS0	102	5510	12.12	13.50	89.12
		110	5550	12.13	13.50	
		126	5630	11.23	13.50	
		134	5670	12.19	13.50	
		142	5710	12.22	13.50	
	802.11ac-VHT20 MCS0	100	5500	14.31	15.50	89.19
		116	5580	13.84	15.50	
		124	5620	13.93	15.50	
		132	5660	13.87	15.50	
		140	5700	13.86	15.50	
		144	5720	14.04	15.50	
	802.11ac-VHT40 MCS0	102	5510	11.97	13.50	90.29
		110	5550	11.57	13.50	
		126	5630	11.64	13.50	
		134	5670	11.06	13.50	
		142	5710	11.15	13.50	
	802.11ac-VHT80 MCS0	106	5530	9.87	13.50	85.71
		122	5610	9.32	13.50	
		138	5690	9.16	13.50	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	14.18	16.00	89.74
		157	5785	14.08	16.00	
		165	5825	14.32	16.00	
	802.11n-HT20 MCS0	149	5745	13.75	15.50	89.12
		157	5785	13.74	15.50	
		165	5825	13.72	15.50	
	802.11n-HT40 MCS0	151	5755	11.34	13.50	89.12
		159	5795	11.32	13.50	
	802.11ac-VHT20 MCS0	149	5745	13.74	15.50	89.19
		157	5785	13.72	15.50	
		165	5825	13.71	15.50	
	802.11ac-VHT40 MCS0	151	5755	11.31	13.50	90.29
		159	5795	11.24	13.50	
	802.11ac-VHT80 MCS0	155	5775	9.31	13.50	85.71

<Reduced Power Mode for Receiver On>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	9.83	13.00	98.13
		6	2437	11.48	13.00	
		11	2462	11.29	13.00	
	802.11g 6Mbps	1	2412	11.19	13.00	94.95
		6	2437	12.76	13.00	
		11	2462	12.57	13.00	
	802.11n-HT20 MCS0	1	2412	11.04	12.50	89.12
		6	2437	12.19	12.50	
		11	2462	11.95	12.50	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	7.35	9.00	89.74
		40	5200	7.28	9.00	
		44	5220	7.16	9.00	
		48	5240	7.08	9.00	
	802.11n-HT20 MCS0	36	5180	6.82	8.50	89.12
		40	5200	6.85	8.50	
		44	5220	6.89	8.50	
		48	5240	6.64	8.50	
	802.11n-HT40 MCS0	38	5190	5.67	8.50	89.12
		46	5230	5.47	8.50	
	802.11ac-VHT20 MCS0	36	5180	6.78	8.50	89.19
		40	5200	6.75	8.50	
		44	5220	6.68	8.50	
		48	5240	6.54	8.50	
	802.11ac-VHT40 MCS0	38	5190	6.15	8.50	90.29
		46	5230	6.08	8.50	
	802.11ac-VHT80 MCS0	42	5210	6.03	8.50	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	7.76	9.00	89.74
		56	5280	7.64	9.00	
		60	5300	7.56	9.00	
		64	5320	7.39	9.00	
	802.11n-HT20 MCS0	52	5260	7.24	8.50	89.12
		56	5280	7.21	8.50	
		60	5300	7.02	8.50	
		64	5320	7.05	8.50	
	802.11n-HT40 MCS0	54	5270	6.08	8.50	89.12
		62	5310	5.88	8.50	
	802.11ac-VHT20 MCS0	52	5260	7.26	8.50	89.19
		56	5280	7.24	8.50	
		60	5300	7.04	8.50	
		64	5320	7.09	8.50	
	802.11ac-VHT40 MCS0	54	5270	6.59	8.50	90.29
		62	5310	6.39	8.50	
	802.11ac-VHT80 MCS0	58	5290	6.42	8.50	85.71

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	7.25	9.00	89.74
		116	5580	6.98	9.00	
		124	5620	5.72	9.00	
		132	5660	5.14	9.00	
		140	5700	5.78	9.00	
		144	5720	5.90	9.00	
	802.11n-HT20 MCS0	100	5500	5.81	8.50	89.12
		116	5580	5.60	8.50	
		124	5620	5.20	8.50	
		132	5660	4.48	8.50	
		140	5700	4.71	8.50	
		144	5720	4.91	8.50	
	802.11n-HT40 MCS0	102	5510	4.80	8.50	89.12
		110	5550	4.42	8.50	
		126	5630	4.18	8.50	
		134	5670	3.53	8.50	
		142	5710	3.58	8.50	
	802.11ac-VHT20 MCS0	100	5500	5.84	8.50	89.19
		116	5580	5.48	8.50	
		124	5620	5.23	8.50	
		132	5660	5.08	8.50	
		140	5700	4.46	8.50	
		144	5720	4.97	8.50	
	802.11ac-VHT40 MCS0	102	5510	5.19	8.50	90.29
		110	5550	4.83	8.50	
		126	5630	4.58	8.50	
		134	5670	3.84	8.50	
		142	5710	3.85	8.50	
	802.11ac-VHT80 MCS0	106	5530	4.82	8.50	85.71
		122	5610	4.10	8.50	
		138	5690	3.54	8.50	

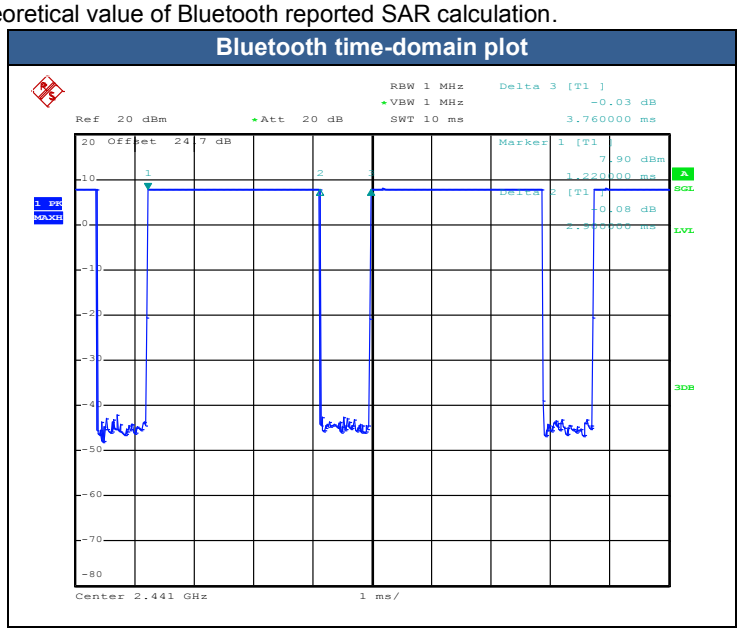
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	6.17	8.40	89.74
		157	5785	6.40	8.40	
		165	5825	6.19	8.40	
	802.11n-HT20 MCS0	149	5745	5.23	8.00	89.12
		157	5785	5.09	8.00	
		165	5825	5.66	8.00	
	802.11n-HT40 MCS0	151	5755	4.44	8.00	89.12
		159	5795	4.21	8.00	
	802.11ac-VHT20 MCS0	149	5745	5.23	8.00	89.19
		157	5785	5.09	8.00	
		165	5825	5.66	8.00	
	802.11ac-VHT40 MCS0	151	5755	4.72	8.00	90.29
		159	5795	4.77	8.00	
	802.11ac-VHT80 MCS0	155	5775	4.32	8.00	85.71

<2.4GHz Bluetooth>

General Note:
General Note:

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

Bluetooth time-domain plot



Mode	Channel	Frequency (MHz)	Average power (dBm)		
			DH5	2DH5	3DH5
BR/EDR	CH 00	2402	7.37	4.48	4.46
	CH 39	2441	8.70	5.99	5.92
	CH 78	2480	7.77	4.65	4.54
Tune-up limit (dBm)			10.70	9.00	9.00

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
BLE	CH 00	2402	2.36
	CH 19	2440	3.87
	CH 39	2480	2.33
Tune-up Limit			6.00

16. Antenna Location

Please refer to Appendix D for Fig.16.1.

17. 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: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
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 when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. 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. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM1900, WCDMA band II/IV and LTE band 2/4/7 at the WWAN main antenna (Ant.3).
6. P-sensor can detect handheld state, for product specific 10g SAR condition at front/back/bottom side, WCDMA band II/IV, LTE band 2/4/7 reduced powers will be active at the WWAN main antenna (Ant.3).
7. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at GSM850, WCDMA Band II/IV/V and LTE band 2/4/5/12/17 at the WWAN second antenna (Ant.2).
8. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at WLAN2.4/5.2/5.3/5.5/5.8GHz.
9. The device has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests, SIM2 only verified the worst case of SIM1 for each position.
10. There are two batteries which with the same capacity, they are only with different suppliers. We only chose battery 1 for full test, and battery 2 only verified the worst case of battery 1 for each position.
11. 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 extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
    a. For this device for WWAN transmitter scaled to reduced power mode for product specific 10g SAR is higher than 1.2W/kg of GSM1900, WCDMA band II/IV and LTE band 2/4, therefore product specific SAR is necessary.
    b. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 2mm for front, 4mm for back and 7mm for bottom face for WCDMA band II/IV and LTE band 2/4.
    c. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
    d. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
12. Additional WLAN 5GHz 2mm for front SAR test was for simultaneous transmission analysis with WWAN.

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, GSM voice for GSM850/GSM1900 is chose to perform head SAR, GPRS 4Tx slots for GSM850/GSM1900 are considered as the primary mode for body SAR.
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.
3. Power reduction which is triggered by receiver on is implemented in GSM850 band, and power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for SAR testing EUT was set in reduced power mode and GSM voice due to its highest frame-average power.

WCDMA 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 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 to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA.

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 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B17 SAR test was covered by B12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. The maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
   b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, 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. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

17.1 Head SAR

<GSM SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Power Mode	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)
01	2	1	1	GSM850	GSM Voice	Right Cheek	Receiver On	251	848.8	27.58	28.60	1.265	-0.07	0.492	**0.622**
	2	1	1	GSM850	GSM Voice	Right Tilted	Receiver On	251	848.8	27.58	28.60	1.265	0.01	0.443	0.560
	2	1	1	GSM850	GSM Voice	Left Cheek	Receiver On	251	848.8	27.58	28.60	1.265	0.03	0.033	0.042
	2	1	1	GSM850	GSM Voice	Left Tilted	Receiver On	251	848.8	27.58	28.60	1.265	0.05	0.038	0.048
02	3	1	1	GSM850	GSM Voice	Right Cheek	Full	251	848.8	31.82	32.80	1.253	0.02	0.210	**0.263**
	3	1	1	GSM850	GSM Voice	Right Tilted	Full	251	848.8	31.82	32.80	1.253	0.04	0.114	0.143
	3	1	1	GSM850	GSM Voice	Left Cheek	Full	251	848.8	31.82	32.80	1.253	-0.02	0.191	0.239
	3	1	1	GSM850	GSM Voice	Left Tilted	Full	251	848.8	31.82	32.80	1.253	0.01	0.107	0.134
03	2	1	1	GSM1900	GSM Voice	Right Cheek	Full	810	1909.8	29.47	30.10	1.156	0.01	0.869	**1.005**
	2	1	1	GSM1900	GSM Voice	Right Tilted	Full	810	1909.8	29.47	30.10	1.156	0.06	0.453	0.524
	2	1	1	GSM1900	GSM Voice	Left Cheek	Full	810	1909.8	29.47	30.10	1.156	0.05	0.301	0.348
	2	1	1	GSM1900	GSM Voice	Left Tilted	Full	810	1909.8	29.47	30.10	1.156	0.01	0.245	0.283
	2	1	1	GSM1900	GSM Voice	Right Cheek	Full	512	1850.2	29.42	30.10	1.169	0.02	0.617	0.722
	2	1	1	GSM1900	GSM Voice	Right Cheek	Full	661	1880	29.46	30.10	1.159	0.02	0.716	0.830
04	3	1	1	GSM1900	GSM Voice	Right Cheek	Full	810	1909.8	30.35	30.80	1.109	0.01	0.068	**0.076**
	3	1	1	GSM1900	GSM Voice	Right Tilted	Full	810	1909.8	30.35	30.80	1.109	0.03	0.027	0.030
	3	1	1	GSM1900	GSM Voice	Left Cheek	Full	810	1909.8	30.35	30.80	1.109	0.06	0.039	0.043
	3	1	1	GSM1900	GSM Voice	Left Tilted	Full	810	1909.8	30.35	30.80	1.109	0.05	0.031	0.034

<WCDMA SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Power Mode	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)
05	2	1	1	WCDMA Band V	RMC 12.2Kbps	Right Cheek	Receiver On	4132	826.4	18.70	19.70	1.259	0.05	0.510	**0.642**
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Right Tilted	Receiver On	4132	826.4	18.70	19.70	1.259	-0.14	0.471	0.593
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Left Cheek	Receiver On	4132	826.4	18.70	19.70	1.259	-0.06	0.301	0.379
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Left Tilted	Receiver On	4132	826.4	18.70	19.70	1.259	-0.04	0.256	0.322
06	3	1	1	WCDMA Band V	RMC 12.2Kbps	Right Cheek	Full	4132	826.4	23.37	24.30	1.239	0.03	0.217	**0.269**
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Right Tilted	Full	4132	826.4	23.37	24.30	1.239	0.03	0.097	0.120
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Left Cheek	Full	4132	826.4	23.37	24.30	1.239	0.06	0.218	0.270
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Left Tilted	Full	4132	826.4	23.37	24.30	1.239	0.08	0.128	0.159
07	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Right Cheek	Receiver On	1312	1712.4	20.35	21.30	1.245	0.08	0.386	**0.480**
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Right Tilted	Receiver On	1312	1712.4	20.35	21.30	1.245	-0.03	0.332	0.413
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Left Cheek	Receiver On	1312	1712.4	20.35	21.30	1.245	0.06	0.125	0.156
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Left Tilted	Receiver On	1312	1712.4	20.35	21.30	1.245	0.07	0.139	0.173
08	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Right Cheek	Full	1312	1712.4	23.37	24.10	1.183	0.01	0.076	**0.090**
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Right Tilted	Full	1312	1712.4	23.37	24.10	1.183	0.02	0.056	0.066
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Left Cheek	Full	1312	1712.4	23.37	24.10	1.183	0.03	0.024	0.028
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Left Tilted	Full	1312	1712.4	23.37	24.10	1.183	0.08	0.009	0.010
09	2	1	1	WCDMA Band II	RMC 12.2Kbps	Right Cheek	Receiver On	9400	1880	18.26	19.20	1.242	0.08	0.470	**0.584**
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Right Tilted	Receiver On	9400	1880	18.26	19.20	1.242	-0.05	0.382	0.474
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Left Cheek	Receiver On	9400	1880	18.26	19.20	1.242	0.06	0.166	0.206
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Left Tilted	Receiver On	9400	1880	18.26	19.20	1.242	0.09	0.189	0.235
10	3	1	1	WCDMA Band II	RMC 12.2Kbps	Right Cheek	Full	9400	1880	24.02	24.80	1.197	0.02	0.118	**0.141**
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Right Tilted	Full	9400	1880	24.02	24.80	1.197	0.07	0.034	0.041
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Left Cheek	Full	9400	1880	24.02	24.80	1.197	0.09	0.069	0.083
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Left Tilted	Full	9400	1880	24.02	24.80	1.197	0.04	0.048	0.057

<LTE SAR>

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	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)
	2	1	1	LTE Band 12	10M	QPSK	1	49	Right Cheek	Receiver On	23095	707.5	22.22	22.90	1.169	0.02	0.840	0.982
	2	1	1	LTE Band 12	10M	QPSK	25	25	Right Cheek	Receiver On	23095	707.5	21.98	22.90	1.236	0.05	0.837	1.034
11	2	1	1	LTE Band 12	10M	QPSK	50	0	Right Cheek	Receiver On	23095	707.5	21.96	22.90	1.242	-0.01	0.876	**1.088**
	2	2	1	LTE Band 12	10M	QPSK	50	0	Right Cheek	Receiver On	23095	707.5	21.96	22.90	1.242	0.03	0.874	1.085
	2	1	2	LTE Band 12	10M	QPSK	50	0	Right Cheek	Receiver On	23095	707.5	21.96	22.90	1.242	-0.04	0.860	1.068
	2	1	1	LTE Band 12	10M	QPSK	1	49	Right Tilted	Receiver On	23095	707.5	22.22	22.90	1.169	0.03	0.762	0.891
	2	1	1	LTE Band 12	10M	QPSK	25	25	Right Tilted	Receiver On	23095	707.5	21.98	22.90	1.236	0.03	0.813	1.005
	2	1	1	LTE Band 12	10M	QPSK	50	0	Right Tilted	Receiver On	23095	707.5	21.96	22.90	1.242	0.03	0.786	0.976
	2	1	1	LTE Band 12	10M	QPSK	1	49	Left Cheek	Receiver On	23095	707.5	22.22	22.90	1.169	0.09	0.723	0.846
	2	1	1	LTE Band 12	10M	QPSK	25	25	Left Cheek	Receiver On	23095	707.5	21.98	22.90	1.236	0.05	0.755	0.933
	2	1	1	LTE Band 12	10M	QPSK	50	0	Left Cheek	Receiver On	23095	707.5	21.96	22.90	1.242	0.01	0.760	0.944
	2	1	1	LTE Band 12	10M	QPSK	1	49	Left Tilted	Receiver On	23095	707.5	22.22	22.90	1.169	0.01	0.598	0.699
	2	1	1	LTE Band 12	10M	QPSK	25	25	Left Tilted	Receiver On	23095	707.5	21.98	22.90	1.236	0.04	0.622	0.769
12	3	1	1	LTE Band 12	10M	QPSK	1	49	Right Cheek	Full	23095	707.5	23.42	24.50	1.282	0.09	0.095	**0.122**
	3	1	1	LTE Band 12	10M	QPSK	25	25	Right Cheek	Full	23095	707.5	22.41	23.50	1.285	0.09	0.078	0.100
	3	1	1	LTE Band 12	10M	QPSK	1	49	Right Tilted	Full	23095	707.5	23.42	24.50	1.282	0.04	0.043	0.055
	3	1	1	LTE Band 12	10M	QPSK	25	25	Right Tilted	Full	23095	707.5	22.41	23.50	1.285	0.18	0.015	0.019
	3	1	1	LTE Band 12	10M	QPSK	1	49	Left Cheek	Full	23095	707.5	23.42	24.50	1.282	0.08	0.086	0.110
	3	1	1	LTE Band 12	10M	QPSK	25	25	Left Cheek	Full	23095	707.5	22.41	23.50	1.285	0.05	0.077	0.099
	3	1	1	LTE Band 12	10M	QPSK	1	49	Left Tilted	Full	23095	707.5	23.42	24.50	1.282	0.01	0.049	0.063
	3	1	1	LTE Band 12	10M	QPSK	25	25	Left Tilted	Full	23095	707.5	22.41	23.50	1.285	0.1	0.034	0.044
	2	1	1	LTE Band 5	10M	QPSK	1	0	Right Cheek	Receiver On	20525	836.5	19.54	20.50	1.247	0.02	0.689	0.859
	2	1	1	LTE Band 5	10M	QPSK	25	25	Right Cheek	Receiver On	20525	836.5	19.39	20.50	1.291	0.03	0.695	0.897
13	2	1	1	LTE Band 5	10M	QPSK	50	0	Right Cheek	Receiver On	20525	836.5	19.32	20.50	1.312	-0.03	0.747	**0.980**
	2	1	1	LTE Band 5	10M	QPSK	1	0	Right Tilted	Receiver On	20525	836.5	19.54	20.50	1.247	0.04	0.558	0.696
	2	1	1	LTE Band 5	10M	QPSK	25	25	Right Tilted	Receiver On	20525	836.5	19.39	20.50	1.291	0.02	0.595	0.768
	2	1	1	LTE Band 5	10M	QPSK	1	0	Left Cheek	Receiver On	20525	836.5	19.54	20.50	1.247	0.03	0.381	0.475
	2	1	1	LTE Band 5	10M	QPSK	25	25	Left Cheek	Receiver On	20525	836.5	19.39	20.50	1.291	0.03	0.415	0.536
	2	1	1	LTE Band 5	10M	QPSK	1	0	Left Tilted	Receiver On	20525	836.5	19.54	20.50	1.247	0.05	0.353	0.440
	2	1	1	LTE Band 5	10M	QPSK	25	25	Left Tilted	Receiver On	20525	836.5	19.39	20.50	1.291	0.04	0.364	0.470
14	3	1	1	LTE Band 5	10M	QPSK	1	0	Right Cheek	Full	20525	836.5	22.44	23.50	1.276	0.09	0.199	**0.254**
	3	1	1	LTE Band 5	10M	QPSK	25	25	Right Cheek	Full	20525	836.5	21.43	22.50	1.279	0.06	0.158	0.202
	3	1	1	LTE Band 5	10M	QPSK	1	0	Right Tilted	Full	20525	836.5	22.44	23.50	1.276	0.03	0.087	0.111
	3	1	1	LTE Band 5	10M	QPSK	25	25	Right Tilted	Full	20525	836.5	21.43	22.50	1.279	0.08	0.072	0.092
	3	1	1	LTE Band 5	10M	QPSK	1	0	Left Cheek	Full	20525	836.5	22.44	23.50	1.276	-0.05	0.168	0.214
	3	1	1	LTE Band 5	10M	QPSK	25	25	Left Cheek	Full	20525	836.5	21.43	22.50	1.279	-0.01	0.141	0.180
	3	1	1	LTE Band 5	10M	QPSK	1	0	Left Tilted	Full	20525	836.5	22.44	23.50	1.276	0.05	0.102	0.130
	3	1	1	LTE Band 5	10M	QPSK	25	25	Left Tilted	Full	20525	836.5	21.43	22.50	1.279	0.09	0.083	0.106

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	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)
	2	1	1	LTE Band 4	20M	QPSK	1	0	Right Cheek	Receiver On	20175	1732.5	21.30	22.20	1.230	0.01	0.483	0.594
15	2	1	1	LTE Band 4	20M	QPSK	50	0	Right Cheek	Receiver On	20175	1732.5	21.26	22.20	1.242	-0.08	0.483	**0.600**
	2	1	1	LTE Band 4	20M	QPSK	1	0	Right Tilted	Receiver On	20175	1732.5	21.30	22.20	1.230	-0.03	0.409	0.503
	2	1	1	LTE Band 4	20M	QPSK	50	0	Right Tilted	Receiver On	20175	1732.5	21.26	22.20	1.242	-0.08	0.411	0.510
	2	1	1	LTE Band 4	20M	QPSK	1	0	Left Cheek	Receiver On	20175	1732.5	21.30	22.20	1.230	0.08	0.151	0.186
	2	1	1	LTE Band 4	20M	QPSK	50	0	Left Cheek	Receiver On	20175	1732.5	21.26	22.20	1.242	0.04	0.154	0.191
	2	1	1	LTE Band 4	20M	QPSK	1	0	Left Tilted	Receiver On	20175	1732.5	21.30	22.20	1.230	0.03	0.169	0.208
	2	1	1	LTE Band 4	20M	QPSK	50	0	Left Tilted	Receiver On	20175	1732.5	21.26	22.20	1.242	0.09	0.170	0.211
16	3	1	1	LTE Band 4	20M	QPSK	1	0	Right Cheek	Full	20175	1732.5	23.29	24.00	1.178	0.03	0.077	**0.091**
	3	1	1	LTE Band 4	20M	QPSK	50	0	Right Cheek	Full	20175	1732.5	21.99	23.00	1.262	0.05	0.052	0.066
	3	1	1	LTE Band 4	20M	QPSK	1	0	Right Tilted	Full	20175	1732.5	23.29	24.00	1.178	0.02	0.058	0.068
	3	1	1	LTE Band 4	20M	QPSK	50	0	Right Tilted	Full	20175	1732.5	21.99	23.00	1.262	0.08	0.041	0.052
	3	1	1	LTE Band 4	20M	QPSK	1	0	Left Cheek	Full	20175	1732.5	23.29	24.00	1.178	0.05	0.030	0.035
	3	1	1	LTE Band 4	20M	QPSK	50	0	Left Cheek	Full	20175	1732.5	21.99	23.00	1.262	0.06	0.070	0.088
	3	1	1	LTE Band 4	20M	QPSK	1	0	Left Tilted	Full	20175	1732.5	23.29	24.00	1.178	0.05	0.009	0.010
	3	1	1	LTE Band 4	20M	QPSK	50	0	Left Tilted	Full	20175	1732.5	21.99	23.00	1.262	0.08	0.024	0.030
	2	1	1	LTE Band 2	20M	QPSK	1	0	Right Cheek	Receiver On	19100	1900	18.15	18.90	1.189	0.05	0.518	0.616
17	2	1	1	LTE Band 2	20M	QPSK	50	50	Right Cheek	Receiver On	19100	1900	17.86	18.90	1.271	-0.07	0.545	**0.692**
	2	1	1	LTE Band 2	20M	QPSK	1	0	Right Tilted	Receiver On	19100	1900	18.15	18.90	1.189	-0.01	0.359	0.427
	2	1	1	LTE Band 2	20M	QPSK	50	50	Right Tilted	Receiver On	19100	1900	17.86	18.90	1.271	-0.06	0.382	0.485
	2	1	1	LTE Band 2	20M	QPSK	1	0	Left Cheek	Receiver On	19100	1900	18.15	18.90	1.189	0.05	0.185	0.220
	2	1	1	LTE Band 2	20M	QPSK	50	50	Left Cheek	Receiver On	19100	1900	17.86	18.90	1.271	0.03	0.197	0.250
	2	1	1	LTE Band 2	20M	QPSK	1	0	Left Tilted	Receiver On	19100	1900	18.15	18.90	1.189	0.01	0.161	0.191
	2	1	1	LTE Band 2	20M	QPSK	50	50	Left Tilted	Receiver On	19100	1900	17.86	18.90	1.271	0.01	0.171	0.217
18	3	1	1	LTE Band 2	20M	QPSK	1	0	Right Cheek	Full	19100	1900	23.13	24.00	1.222	0.10	0.093	**0.114**
	3	1	1	LTE Band 2	20M	QPSK	50	50	Right Cheek	Full	19100	1900	22.04	23.00	1.247	0.15	0.051	0.064
	3	1	1	LTE Band 2	20M	QPSK	1	0	Right Tilted	Full	19100	1900	23.13	24.00	1.222	0.05	0.024	0.029
	3	1	1	LTE Band 2	20M	QPSK	50	50	Right Tilted	Full	19100	1900	22.04	23.00	1.247	0.03	0.031	0.039
	3	1	1	LTE Band 2	20M	QPSK	1	0	Left Cheek	Full	19100	1900	23.13	24.00	1.222	0.03	0.051	0.062
	3	1	1	LTE Band 2	20M	QPSK	50	50	Left Cheek	Full	19100	1900	22.04	23.00	1.247	0.03	0.009	0.012
	3	1	1	LTE Band 2	20M	QPSK	1	0	Left Tilted	Full	19100	1900	23.13	24.00	1.222	0.11	0.054	0.066
	3	1	1	LTE Band 2	20M	QPSK	50	50	Left Tilted	Full	19100	1900	22.04	23.00	1.247	0.02	0.034	0.042

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	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)
	2	1	1	LTE Band 7	20M	QPSK	1	99	Right Cheek	Receiver On	21350	2560	19.37	19.70	1.079	-0.03	0.749	0.808
	2	1	1	LTE Band 7	20M	QPSK	1	99	Right Cheek	Receiver On	20850	2510	18.78	19.70	1.236	0.06	0.784	0.969
	2	1	1	LTE Band 7	20M	QPSK	1	99	Right Cheek	Receiver On	21100	2535	18.91	19.70	1.199	0.03	0.744	0.892
	2	1	1	LTE Band 7	20M	QPSK	50	50	Right Cheek	Receiver On	21350	2560	19.35	19.70	1.084	0.12	0.744	0.806
19	2	1	1	LTE Band 7	20M	QPSK	50	50	Right Cheek	Receiver On	20850	2510	18.73	19.70	1.250	0.08	0.790	**0.988**
	2	1	1	LTE Band 7	20M	QPSK	50	50	Right Cheek	Receiver On	21100	2535	18.83	19.70	1.222	0.08	0.752	0.919
	2	1	1	LTE Band 7	20M	QPSK	100	0	Right Cheek	Receiver On	21350	2560	19.00	19.70	1.175	0.05	0.780	0.916
	2	1	1	LTE Band 7	20M	QPSK	1	99	Right Tilted	Receiver On	21350	2560	19.37	19.70	1.079	0.02	0.478	0.516
	2	1	1	LTE Band 7	20M	QPSK	50	50	Right Tilted	Receiver On	21350	2560	19.35	19.70	1.084	0.03	0.473	0.513
	2	1	1	LTE Band 7	20M	QPSK	1	99	Left Cheek	Receiver On	21350	2560	19.37	19.70	1.079	0.05	0.218	0.235
	2	1	1	LTE Band 7	20M	QPSK	50	50	Left Cheek	Receiver On	21350	2560	19.35	19.70	1.084	0.04	0.214	0.232
	2	1	1	LTE Band 7	20M	QPSK	1	99	Left Tilted	Receiver On	21350	2560	19.37	19.70	1.079	0.02	0.171	0.184
	2	1	1	LTE Band 7	20M	QPSK	50	50	Left Tilted	Receiver On	21350	2560	19.35	19.70	1.084	-0.06	0.173	0.188
20	3	1	1	LTE Band 7	20M	QPSK	1	99	Right Cheek	Full	21350	2560	22.45	23.00	1.135	-0.01	0.136	**0.154**
	3	1	1	LTE Band 7	20M	QPSK	50	50	Right Cheek	Full	21350	2560	21.46	22.00	1.132	-0.03	0.119	0.135
	3	1	1	LTE Band 7	20M	QPSK	1	99	Right Tilted	Full	21350	2560	22.45	23.00	1.135	-0.08	0.024	0.027
	3	1	1	LTE Band 7	20M	QPSK	50	50	Right Tilted	Full	21350	2560	21.46	22.00	1.132	-0.08	0.018	0.020
	3	1	1	LTE Band 7	20M	QPSK	1	99	Left Cheek	Full	21350	2560	22.45	23.00	1.135	0.09	0.050	0.057
	3	1	1	LTE Band 7	20M	QPSK	50	50	Left Cheek	Full	21350	2560	21.46	22.00	1.132	0.09	0.009	0.010
	3	1	1	LTE Band 7	20M	QPSK	1	99	Left Tilted	Full	21350	2560	22.45	23.00	1.135	0.01	0.008	0.009
	3	1	1	LTE Band 7	20M	QPSK	50	50	Left Tilted	Full	21350	2560	21.46	22.00	1.132	0.02	0.020	0.023

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Power Mode	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	Receiver On	6	2437	11.48	13.00	1.419	98.13	1.019	-0.01	0.040	0.058
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Receiver On	6	2437	11.48	13.00	1.419	98.13	1.019	0.03	0.045	0.065
21	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Receiver On	6	2437	11.48	13.00	1.419	98.13	1.019	-0.06	0.166	**0.240**
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Receiver On	6	2437	11.48	13.00	1.419	98.13	1.019	0.07	0.156	0.226

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Power Mode	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)
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	Receiver On	52	5260	7.76	9.00	1.330	89.74	1.114	0.15	0.083	0.123
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	Receiver On	52	5260	7.76	9.00	1.330	89.74	1.114	0.07	0.066	0.098
22	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	Receiver On	52	5260	7.76	9.00	1.330	89.74	1.114	0.11	0.098	**0.145**
	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	Receiver On	52	5260	7.76	9.00	1.330	89.74	1.114	-0.17	0.091	0.135
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	Receiver On	100	5500	7.25	9.00	1.496	89.74	1.114	0.04	0.177	0.295
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	Receiver On	100	5500	7.25	9.00	1.496	89.74	1.114	0.15	0.168	0.280
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	Receiver On	100	5500	7.25	9.00	1.496	89.74	1.114	0.17	0.116	0.193
23	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	Receiver On	100	5500	7.25	9.00	1.496	89.74	1.114	0.16	0.184	**0.307**
	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	Receiver On	157	5785	6.40	8.40	1.585	89.74	1.114	-0.03	0.100	0.177
	WLAN 5.8GHz	802.11a 6Mbps	Right Tilted	Receiver On	157	5785	6.40	8.40	1.585	89.74	1.114	0.09	0.085	0.150
	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	Receiver On	157	5785	6.40	8.40	1.585	89.74	1.114	0.07	0.083	0.147
24	WLAN 5.8GHz	802.11a 6Mbps	Left Tilted	Receiver On	157	5785	6.40	8.40	1.585	89.74	1.114	0.09	0.133	**0.235**

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	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	Right Cheek	39	2441	8.70	10.70	1.585	77.13	1.080	-0.12	0.018	0.031
	Bluetooth	1Mbps	Right Tilted	39	2441	8.70	10.70	1.585	77.13	1.080	-0.05	0.017	0.029
25	Bluetooth	1Mbps	Left Cheek	39	2441	8.70	10.70	1.585	77.13	1.080	0	0.078	**0.134**
	Bluetooth	1Mbps	Left Tilted	39	2441	8.70	10.70	1.585	77.13	1.080	-0.06	0.070	0.120

17.2 Hotspot SAR

<GSM SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	GSM850	GPRS(4 Tx slots)	Front	10	Full	251	848.8	25.50	26.80	1.349	-0.04	0.356	0.480
26	2	1	1	GSM850	GPRS(4 Tx slots)	Back	10	Full	251	848.8	25.50	26.80	1.349	-0.03	0.482	**0.650**
	2	1	1	GSM850	GPRS(4 Tx slots)	Left Side	10	Full	251	848.8	25.50	26.80	1.349	-0.06	0.165	0.223
	2	1	1	GSM850	GPRS(4 Tx slots)	Top Side	10	Full	251	848.8	25.50	26.80	1.349	0.01	0.360	0.486
	3	1	1	GSM850	GPRS(4 Tx slots)	Front	10	Full	251	848.8	25.89	27.00	1.291	0.08	0.175	0.226
	3	1	1	GSM850	GPRS(4 Tx slots)	Back	10	Full	251	848.8	25.89	27.00	1.291	0.07	0.224	0.289
	3	1	1	GSM850	GPRS(4 Tx slots)	Left Side	10	Full	251	848.8	25.89	27.00	1.291	0.01	0.127	0.164
27	3	1	1	GSM850	GPRS(4 Tx slots)	Right Side	10	Full	251	848.8	25.89	27.00	1.291	-0.04	0.298	**0.385**
	3	1	1	GSM850	GPRS(4 Tx slots)	Bottom Side	10	Full	251	848.8	25.89	27.00	1.291	-0.06	0.153	0.198
	2	1	1	GSM1900	GPRS(4 Tx slots)	Front	10	Full	512	1850.2	22.95	24.30	1.365	0.06	0.059	0.081
	2	1	1	GSM1900	GPRS(4 Tx slots)	Back	10	Full	512	1850.2	22.95	24.30	1.365	0.01	0.064	0.087
	2	1	1	GSM1900	GPRS(4 Tx slots)	Left Side	10	Full	512	1850.2	22.95	24.30	1.365	0.18	0.064	0.087
28	2	1	1	GSM1900	GPRS(4 Tx slots)	Top Side	10	Full	512	1850.2	22.95	24.30	1.365	0.04	0.085	**0.116**
	3	1	1	GSM1900	GPRS(4 Tx slots)	Front	10	Hotspot On	810	1909.8	20.93	22.50	1.435	0.02	0.231	0.332
	3	1	1	GSM1900	GPRS(4 Tx slots)	Back	10	Hotspot On	810	1909.8	20.93	22.50	1.435	0.07	0.336	0.482
	3	1	1	GSM1900	GPRS(4 Tx slots)	Left Side	10	Hotspot On	810	1909.8	20.93	22.50	1.435	0.07	0.022	0.031
	3	1	1	GSM1900	GPRS(4 Tx slots)	Right Side	10	Hotspot On	810	1909.8	20.93	22.50	1.435	-0.15	0.020	0.029
	3	1	1	GSM1900	GPRS(4 Tx slots)	Bottom Side	10	Hotspot On	810	1909.8	20.93	22.50	1.435	0.06	0.652	0.936
	3	1	1	GSM1900	GPRS(4 Tx slots)	Bottom Side	10	Hotspot On	512	1850.2	20.88	22.50	1.452	0.05	0.568	0.825
29	3	1	1	GSM1900	GPRS(4 Tx slots)	Bottom Side	10	Hotspot On	661	1880	20.90	22.50	1.445	-0.07	0.665	**0.961**

<WCDMA SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4132	826.4	23.31	24.20	1.227	0.11	0.336	0.412
30	2	1	1	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4132	826.4	23.31	24.20	1.227	-0.01	0.445	**0.546**
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Left Side	10	Full	4132	826.4	23.31	24.20	1.227	-0.03	0.186	0.228
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Top Side	10	Full	4132	826.4	23.31	24.20	1.227	0.05	0.328	0.403
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4132	826.4	23.37	24.30	1.239	0.05	0.205	0.254
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4132	826.4	23.37	24.30	1.239	0.08	0.245	0.304
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Left Side	10	Full	4132	826.4	23.37	24.30	1.239	0.01	0.063	0.078
31	3	1	1	WCDMA Band V	RMC 12.2Kbps	Right Side	10	Full	4132	826.4	23.37	24.30	1.239	-0.02	0.288	**0.357**
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Bottom Side	10	Full	4132	826.4	23.37	24.30	1.239	0.03	0.152	0.188
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	10	Full	1312	1712.4	22.98	23.80	1.208	0.06	0.108	0.130
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1312	1712.4	22.98	23.80	1.208	0.05	0.131	0.158
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Left Side	10	Full	1312	1712.4	22.98	23.80	1.208	0.17	0.100	0.121
32	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Top Side	10	Full	1312	1712.4	22.98	23.80	1.208	0.04	0.183	**0.221**
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	10	Hotspot On	1312	1712.4	17.26	18.30	1.271	0.08	0.339	0.431
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	10	Hotspot On	1312	1712.4	17.26	18.30	1.271	-0.02	0.402	0.511
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Left Side	10	Hotspot On	1312	1712.4	17.26	18.30	1.271	0.03	0.031	0.040
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Right Side	10	Hotspot On	1312	1712.4	17.26	18.30	1.271	0.01	0.034	0.043
33	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Hotspot On	1312	1712.4	17.26	18.30	1.271	-0.1	0.606	**0.770**
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Front	10	Full	9400	1880	22.84	23.70	1.219	0.01	0.261	0.318
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Back	10	Full	9400	1880	22.84	23.70	1.219	0.15	0.306	0.373
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Left Side	10	Full	9400	1880	22.84	23.70	1.219	0.1	0.282	0.344
34	2	1	1	WCDMA Band II	RMC 12.2Kbps	Top Side	10	Full	9400	1880	22.84	23.70	1.219	0.11	0.354	**0.432**
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Front	10	Hotspot On	9400	1880	18.33	19.30	1.250	-0.05	0.224	0.280
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Back	10	Hotspot On	9400	1880	18.33	19.30	1.250	0.05	0.303	0.379
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Left Side	10	Hotspot On	9400	1880	18.33	19.30	1.250	-0.04	0.024	0.030
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Right Side	10	Hotspot On	9400	1880	18.33	19.30	1.250	-0.1	0.023	0.029
35	3	1	1	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Hotspot On	9400	1880	18.33	19.30	1.250	-0.06	0.625	**0.781**

<LTE SAR>

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	23.35	24.40	1.274	0.05	0.431	0.549
	2	1	1	LTE Band 12	10M	QPSK	25	25	Front	10	Full	23095	707.5	22.34	23.40	1.276	0.01	0.353	0.451
36	2	1	1	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	23.35	24.40	1.274	0.07	0.590	**0.751**
	2	1	1	LTE Band 12	10M	QPSK	25	25	Back	10	Full	23095	707.5	22.34	23.40	1.276	0.07	0.480	0.613
	2	1	1	LTE Band 12	10M	QPSK	1	49	Left Side	10	Full	23095	707.5	23.35	24.40	1.274	0.02	0.220	0.280
	2	1	1	LTE Band 12	10M	QPSK	25	25	Left Side	10	Full	23095	707.5	22.34	23.40	1.276	0.02	0.176	0.225
	2	1	1	LTE Band 12	10M	QPSK	1	49	Top Side	10	Full	23095	707.5	23.35	24.40	1.274	-0.12	0.423	0.539
	2	1	1	LTE Band 12	10M	QPSK	25	25	Top Side	10	Full	23095	707.5	22.34	23.40	1.276	-0.14	0.347	0.443
	3	1	1	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	23.42	24.50	1.282	-0.03	0.110	0.141
	3	1	1	LTE Band 12	10M	QPSK	25	25	Front	10	Full	23095	707.5	22.41	23.50	1.285	-0.05	0.089	0.115
	3	1	1	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	23.42	24.50	1.282	-0.06	0.165	0.212
	3	1	1	LTE Band 12	10M	QPSK	25	25	Back	10	Full	23095	707.5	22.41	23.50	1.285	0.06	0.134	0.172
	3	1	1	LTE Band 12	10M	QPSK	1	49	Left Side	10	Full	23095	707.5	23.42	24.50	1.282	-0.01	0.087	0.111
	3	1	1	LTE Band 12	10M	QPSK	25	25	Left Side	10	Full	23095	707.5	22.41	23.50	1.285	0.01	0.065	0.083
37	3	1	1	LTE Band 12	10M	QPSK	1	49	Right Side	10	Full	23095	707.5	23.42	24.50	1.282	-0.05	0.193	**0.247**
	3	1	1	LTE Band 12	10M	QPSK	25	25	Right Side	10	Full	23095	707.5	22.41	23.50	1.285	0.02	0.155	0.199
	3	1	1	LTE Band 12	10M	QPSK	1	49	Bottom Side	10	Full	23095	707.5	23.42	24.50	1.282	-0.03	0.095	0.121
	3	1	1	LTE Band 12	10M	QPSK	25	25	Bottom Side	10	Full	23095	707.5	22.41	23.50	1.285	-0.06	0.079	0.101
	2	1	1	LTE Band 5	10M	QPSK	1	0	Front	10	Full	20525	836.5	22.35	23.50	1.303	-0.08	0.299	0.390
	2	1	1	LTE Band 5	10M	QPSK	25	25	Front	10	Full	20525	836.5	21.31	22.50	1.315	-0.08	0.264	0.347
38	2	1	1	LTE Band 5	10M	QPSK	1	0	Back	10	Full	20525	836.5	22.35	23.50	1.303	0.02	0.410	**0.534**
	2	1	1	LTE Band 5	10M	QPSK	25	25	Back	10	Full	20525	836.5	21.31	22.50	1.315	0.02	0.355	0.467
	2	1	1	LTE Band 5	10M	QPSK	1	0	Left Side	10	Full	20525	836.5	22.35	23.50	1.303	-0.03	0.172	0.224
	2	1	1	LTE Band 5	10M	QPSK	25	25	Left Side	10	Full	20525	836.5	21.31	22.50	1.315	-0.02	0.142	0.187
	2	1	1	LTE Band 5	10M	QPSK	1	0	Top Side	10	Full	20525	836.5	22.35	23.50	1.303	-0.01	0.307	0.400
	2	1	1	LTE Band 5	10M	QPSK	25	25	Top Side	10	Full	20525	836.5	21.31	22.50	1.315	0.04	0.264	0.347
	3	1	1	LTE Band 5	10M	QPSK	1	0	Front	10	Full	20525	836.5	22.44	23.50	1.276	0.06	0.173	0.221
	3	1	1	LTE Band 5	10M	QPSK	25	25	Front	10	Full	20525	836.5	21.43	22.50	1.279	0.02	0.145	0.186
	3	1	1	LTE Band 5	10M	QPSK	1	0	Back	10	Full	20525	836.5	22.44	23.50	1.276	-0.01	0.208	0.265
	3	1	1	LTE Band 5	10M	QPSK	25	25	Back	10	Full	20525	836.5	21.43	22.50	1.279	0.04	0.165	0.211
	3	1	1	LTE Band 5	10M	QPSK	1	0	Left Side	10	Full	20525	836.5	22.44	23.50	1.276	-0.02	0.104	0.133
	3	1	1	LTE Band 5	10M	QPSK	25	25	Left Side	10	Full	20525	836.5	21.43	22.50	1.279	-0.07	0.096	0.123
39	3	1	1	LTE Band 5	10M	QPSK	1	0	Right Side	10	Full	20525	836.5	22.44	23.50	1.276	-0.01	0.213	**0.272**
	3	1	1	LTE Band 5	10M	QPSK	25	25	Right Side	10	Full	20525	836.5	21.43	22.50	1.279	0.05	0.178	0.228
	3	1	1	LTE Band 5	10M	QPSK	1	0	Bottom Side	10	Full	20525	836.5	22.44	23.50	1.276	-0.05	0.113	0.144
	3	1	1	LTE Band 5	10M	QPSK	25	25	Bottom Side	10	Full	20525	836.5	21.43	22.50	1.279	0.07	0.112	0.143

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	LTE Band 4	20M	QPSK	1	0	Front	10	Full	20175	1732.5	22.87	23.70	1.211	0.01	0.112	0.136
	2	1	1	LTE Band 4	20M	QPSK	50	0	Front	10	Full	20175	1732.5	21.85	22.70	1.216	0.18	0.086	0.105
	2	1	1	LTE Band 4	20M	QPSK	1	0	Back	10	Full	20175	1732.5	22.87	23.70	1.211	-0.18	0.131	0.159
	2	1	1	LTE Band 4	20M	QPSK	50	0	Back	10	Full	20175	1732.5	21.85	22.70	1.216	0.18	0.102	0.124
	2	1	1	LTE Band 4	20M	QPSK	1	0	Left Side	10	Full	20175	1732.5	22.87	23.70	1.211	0.12	0.104	0.126
	2	1	1	LTE Band 4	20M	QPSK	50	0	Left Side	10	Full	20175	1732.5	21.85	22.70	1.216	0.09	0.083	0.101
40	2	1	1	LTE Band 4	20M	QPSK	1	0	Top Side	10	Full	20175	1732.5	22.87	23.70	1.211	-0.15	0.182	**0.220**
	2	1	1	LTE Band 4	20M	QPSK	50	0	Top Side	10	Full	20175	1732.5	21.85	22.70	1.216	-0.01	0.142	0.173
	3	1	1	LTE Band 4	20M	QPSK	1	0	Front	10	Hotspot On	20175	1732.5	17.92	19.00	1.282	-0.05	0.410	0.526
	3	1	1	LTE Band 4	20M	QPSK	50	0	Front	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	0.06	0.386	0.500
	3	1	1	LTE Band 4	20M	QPSK	1	0	Back	10	Hotspot On	20175	1732.5	17.92	19.00	1.282	0.15	0.502	0.644
	3	1	1	LTE Band 4	20M	QPSK	50	0	Back	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	0.06	0.500	0.647
	3	1	1	LTE Band 4	20M	QPSK	1	0	Left Side	10	Hotspot On	20175	1732.5	17.92	19.00	1.282	-0.03	0.041	0.052
	3	1	1	LTE Band 4	20M	QPSK	50	0	Left Side	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	-0.03	0.041	0.053
	3	1	1	LTE Band 4	20M	QPSK	1	0	Right Side	10	Hotspot On	20175	1732.5	17.92	19.00	1.282	0.05	0.040	0.052
	3	1	1	LTE Band 4	20M	QPSK	50	0	Right Side	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	0.01	0.040	0.052
	3	1	1	LTE Band 4	20M	QPSK	1	0	Bottom Side	10	Hotspot On	20175	1732.5	17.92	19.00	1.282	-0.03	0.786	1.008
41	3	1	1	LTE Band 4	20M	QPSK	50	0	Bottom Side	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	-0.06	0.847	**1.096**
	3	2	1	LTE Band 4	20M	QPSK	50	0	Bottom Side	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	0.01	0.749	0.969
	3	1	2	LTE Band 4	20M	QPSK	50	0	Bottom Side	10	Hotspot On	20175	1732.5	17.88	19.00	1.294	0.02	0.697	0.902
	3	1	1	LTE Band 4	20M	QPSK	100	0	Bottom Side	10	Hotspot On	20175	1732.5	17.92	19.00	1.282	0.03	0.852	1.093
	2	1	1	LTE Band 2	20M	QPSK	1	0	Front	10	Full	19100	1900	23.12	23.90	1.197	0.14	0.217	0.260
	2	1	1	LTE Band 2	20M	QPSK	50	50	Front	10	Full	19100	1900	22.04	22.90	1.219	0.09	0.171	0.208
	2	1	1	LTE Band 2	20M	QPSK	1	0	Back	10	Full	19100	1900	23.12	23.90	1.197	0.19	0.246	0.294
	2	1	1	LTE Band 2	20M	QPSK	50	50	Back	10	Full	19100	1900	22.04	22.90	1.219	0.14	0.192	0.234
	2	1	1	LTE Band 2	20M	QPSK	1	0	Left Side	10	Full	19100	1900	23.12	23.90	1.197	0.14	0.265	0.317
	2	1	1	LTE Band 2	20M	QPSK	50	50	Left Side	10	Full	19100	1900	22.04	22.90	1.219	0.14	0.211	0.257
42	2	1	1	LTE Band 2	20M	QPSK	1	0	Top Side	10	Full	19100	1900	23.12	23.90	1.197	-0.15	0.308	**0.369**
	2	1	1	LTE Band 2	20M	QPSK	50	50	Top Side	10	Full	19100	1900	22.04	22.90	1.219	-0.14	0.240	0.293
	3	1	1	LTE Band 2	20M	QPSK	1	0	Front	10	Hotspot On	19100	1900	18.69	19.50	1.205	-0.03	0.242	0.292
	3	1	1	LTE Band 2	20M	QPSK	50	50	Front	10	Hotspot On	19100	1900	18.51	19.50	1.256	0.06	0.232	0.291
	3	1	1	LTE Band 2	20M	QPSK	1	0	Back	10	Hotspot On	19100	1900	18.69	19.50	1.205	0.05	0.338	0.407
	3	1	1	LTE Band 2	20M	QPSK	50	50	Back	10	Hotspot On	19100	1900	18.51	19.50	1.256	0.06	0.329	0.413
	3	1	1	LTE Band 2	20M	QPSK	1	0	Left Side	10	Hotspot On	19100	1900	18.69	19.50	1.205	-0.02	0.027	0.032
	3	1	1	LTE Band 2	20M	QPSK	50	50	Left Side	10	Hotspot On	19100	1900	18.51	19.50	1.256	-0.15	0.028	0.035
	3	1	1	LTE Band 2	20M	QPSK	1	0	Right Side	10	Hotspot On	19100	1900	18.69	19.50	1.205	-0.03	0.025	0.030
	3	1	1	LTE Band 2	20M	QPSK	50	50	Right Side	10	Hotspot On	19100	1900	18.51	19.50	1.256	0.01	0.023	0.028
	3	1	1	LTE Band 2	20M	QPSK	1	0	Bottom Side	10	Hotspot On	19100	1900	18.69	19.50	1.205	0.07	0.642	0.774
43	3	1	1	LTE Band 2	20M	QPSK	50	50	Bottom Side	10	Hotspot On	19100	1900	18.51	19.50	1.256	-0.03	0.628	**0.789**

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	LTE Band 7	20M	QPSK	1	99	Front	10	Full	21350	2560	22.57	23.20	1.156	-0.08	0.245	0.283
	2	1	1	LTE Band 7	20M	QPSK	50	50	Front	10	Full	21350	2560	21.46	22.20	1.186	-0.08	0.197	0.234
	2	1	1	LTE Band 7	20M	QPSK	1	99	Back	10	Full	21350	2560	22.57	23.20	1.156	-0.13	0.205	0.237
	2	1	1	LTE Band 7	20M	QPSK	50	50	Back	10	Full	21350	2560	21.46	22.20	1.186	0.11	0.162	0.192
44	2	1	1	LTE Band 7	20M	QPSK	1	99	Left Side	10	Full	21350	2560	22.57	23.20	1.156	0.14	0.279	**0.323**
	2	1	1	LTE Band 7	20M	QPSK	50	50	Left Side	10	Full	21350	2560	21.46	22.20	1.186	0.05	0.219	0.260
	2	1	1	LTE Band 7	20M	QPSK	1	99	Top Side	10	Full	21350	2560	22.57	23.20	1.156	0.04	0.157	0.182
	2	1	1	LTE Band 7	20M	QPSK	50	50	Top Side	10	Full	21350	2560	21.46	22.20	1.186	0.09	0.121	0.143
	3	1	1	LTE Band 7	20M	QPSK	1	99	Front	10	Hotspot On	21350	2560	21.18	21.50	1.076	0.03	0.414	0.446
	3	1	1	LTE Band 7	20M	QPSK	50	50	Front	10	Hotspot On	21350	2560	20.49	21.50	1.262	0.04	0.421	0.531
	3	1	1	LTE Band 7	20M	QPSK	1	99	Back	10	Hotspot On	21350	2560	21.18	21.50	1.076	0.01	0.445	0.479
	3	1	1	LTE Band 7	20M	QPSK	50	50	Back	10	Hotspot On	21350	2560	20.49	21.50	1.262	-0.01	0.457	0.577
	3	1	1	LTE Band 7	20M	QPSK	1	99	Left Side	10	Hotspot On	21350	2560	21.18	21.50	1.076	-0.1	0.016	0.017
	3	1	1	LTE Band 7	20M	QPSK	50	50	Left Side	10	Hotspot On	21350	2560	20.49	21.50	1.262	0.06	0.018	0.023
	3	1	1	LTE Band 7	20M	QPSK	1	99	Right Side	10	Hotspot On	21350	2560	21.18	21.50	1.076	0.06	0.015	0.016
	3	1	1	LTE Band 7	20M	QPSK	50	50	Right Side	10	Hotspot On	21350	2560	20.49	21.50	1.262	-0.05	0.017	0.021
	3	1	1	LTE Band 7	20M	QPSK	1	99	Bottom Side	10	Hotspot On	21350	2560	21.18	21.50	1.076	0.02	0.633	0.681
45	3	1	1	LTE Band 7	20M	QPSK	50	50	Bottom Side	10	Hotspot On	21350	2560	20.49	21.50	1.262	0.05	0.691	**0.872**
	3	1	1	LTE Band 7	20M	QPSK	50	50	Bottom Side	10	Hotspot On	20850	2510	20.27	21.50	1.327	-0.02	0.608	0.807
	3	1	1	LTE Band 7	20M	QPSK	50	50	Bottom Side	10	Hotspot On	21100	2535	20.39	21.50	1.291	0.04	0.630	0.813
	3	1	1	LTE Band 7	20M	QPSK	100	0	Bottom Side	10	Hotspot On	21350	2560	20.46	21.50	1.271	0.01	0.671	0.853

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	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	10	Full	11	2462	16.66	18.50	1.528	98.13	1.019	0.06	0.091	0.142
46	WLAN2.4GHz	802.11b 1Mbps	Back	10	Full	11	2462	16.66	18.50	1.528	98.13	1.019	-0.10	0.152	**0.237**
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10	Full	11	2462	16.66	18.50	1.528	98.13	1.019	0.08	0.107	0.167
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10	Full	11	2462	16.66	18.50	1.528	98.13	1.019	0.11	0.094	0.146

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
47	WLAN5.2GHz	802.11a 6Mbps	Front	10	Full	36	5180	14.80	16.00	1.318	89.74	1.114	-0.09	0.100	**0.147**
	WLAN5.2GHz	802.11a 6Mbps	Back	10	Full	36	5180	14.80	16.00	1.318	89.74	1.114	-0.09	0.056	0.082
	WLAN5.2GHz	802.11a 6Mbps	Right Side	10	Full	36	5180	14.80	16.00	1.318	89.74	1.114	-0.06	0.012	0.018
	WLAN5.2GHz	802.11a 6Mbps	Top Side	10	Full	36	5180	14.80	16.00	1.318	89.74	1.114	0.1	0.046	0.068
	WLAN 5.8GHz	802.11a 6Mbps	Front	10	Full	165	5825	14.32	16.00	1.472	89.74	1.114	-0.15	0.135	0.221
	WLAN 5.8GHz	802.11a 6Mbps	Back	10	Full	165	5825	14.32	16.00	1.472	89.74	1.114	-0.18	0.110	0.180
48	WLAN 5.8GHz	802.11a 6Mbps	Right Side	10	Full	165	5825	14.32	16.00	1.472	89.74	1.114	0.07	0.237	**0.389**
	WLAN 5.8GHz	802.11a 6Mbps	Top Side	10	Full	165	5825	14.32	16.00	1.472	89.74	1.114	0.05	0.160	0.262

<Bluetooth SAR>

Plot No.	Band	Mode	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)
	Bluetooth	1Mbps	Front	10	39	2441	8.70	10.70	1.585	77.13	1.080	-0.03	0.010	0.017
49	Bluetooth	1Mbps	Back	10	39	2441	8.70	10.70	1.585	77.13	1.080	0	0.019	**0.033**
	Bluetooth	1Mbps	Right Side	10	39	2441	8.70	10.70	1.585	77.13	1.080	-0.12	0.018	0.031
	Bluetooth	1Mbps	Top Side	10	39	2441	8.70	10.70	1.585	77.13	1.080	0.1	0.013	0.022

17.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	GSM850	GPRS(4 Tx slots)	Front	15	Full	251	848.8	25.50	26.80	1.349	0.03	0.202	0.272
50	2	1	1	GSM850	GPRS(4 Tx slots)	Back	15	Full	251	848.8	25.50	26.80	1.349	-0.01	0.245	**0.330**
	3	1	1	GSM850	GPRS(4 Tx slots)	Front	15	Full	251	848.8	25.89	27.00	1.291	-0.06	0.197	0.254
51	3	1	1	GSM850	GPRS(4 Tx slots)	Back	15	Full	251	848.8	25.89	27.00	1.291	-0.07	0.221	**0.285**
	2	1	1	GSM1900	GPRS(4 Tx slots)	Front	15	Full	512	1850.2	22.95	24.30	1.365	0.03	0.003	0.005
52	2	1	1	GSM1900	GPRS(4 Tx slots)	Back	15	Full	512	1850.2	22.95	24.30	1.365	-0.06	0.033	**0.045**
	3	1	1	GSM1900	GPRS(4 Tx slots)	Front	15	Full	810	1909.8	23.74	25.00	1.337	-0.09	0.197	0.263
53	3	1	1	GSM1900	GPRS(4 Tx slots)	Back	15	Full	810	1909.8	23.74	25.00	1.337	-0.07	0.305	**0.408**

<WCDMA SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	WCDMA Band V	RMC 12.2Kbps	Front	15	Full	4132	826.4	23.31	24.20	1.227	-0.07	0.206	0.253
54	2	1	1	WCDMA Band V	RMC 12.2Kbps	Back	15	Full	4132	826.4	23.31	24.20	1.227	0.04	0.249	**0.306**
	3	1	1	WCDMA Band V	RMC 12.2Kbps	Front	15	Full	4132	826.4	23.37	24.30	1.239	0.04	0.225	0.279
55	3	1	1	WCDMA Band V	RMC 12.2Kbps	Back	15	Full	4132	826.4	23.37	24.30	1.239	-0.03	0.248	**0.307**
56	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	15	Full	1312	1712.4	22.98	23.80	1.208	-0.01	0.064	**0.077**
	2	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1312	1712.4	22.98	23.80	1.208	0.03	0.044	0.053
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	15	Full	1312	1712.4	23.37	24.10	1.183	-0.08	0.696	0.823
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	15	Full	1413	1732.6	23.35	24.10	1.189	0.07	0.759	0.902
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	15	Full	1513	1752.6	23.30	24.10	1.202	-0.01	0.794	0.955
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1312	1712.4	23.37	24.10	1.183	0.03	0.811	0.959
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1413	1732.6	23.35	24.10	1.189	-0.06	0.868	1.032
57	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1513	1752.6	23.30	24.10	1.202	0.03	0.914	**1.099**
	3	2	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1513	1752.6	23.30	24.10	1.202	0.08	0.910	1.094
	3	2	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1312	1712.4	23.37	24.10	1.183	0.02	0.715	0.846
	3	2	1	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1413	1732.6	23.35	24.10	1.189	-0.06	0.798	0.948
	3	1	2	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1513	1752.6	23.30	24.10	1.202	-0.01	0.809	0.973
	3	1	2	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1312	1712.4	23.37	24.10	1.183	-0.05	0.618	0.731
	3	1	2	WCDMA Band IV	RMC 12.2Kbps	Back	15	Full	1413	1732.6	23.35	24.10	1.189	0.03	0.727	0.864
58	2	1	1	WCDMA Band II	RMC 12.2Kbps	Front	15	Full	9400	1880	22.84	23.70	1.219	-0.04	0.125	**0.152**
	2	1	1	WCDMA Band II	RMC 12.2Kbps	Back	15	Full	9400	1880	22.84	23.70	1.219	0.06	0.104	0.127
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Front	15	Full	9400	1880	24.02	24.80	1.197	0.04	0.435	0.521
59	3	1	1	WCDMA Band II	RMC 12.2Kbps	Back	15	Full	9400	1880	24.02	24.80	1.197	-0.12	0.605	**0.724**

<LTE SAR>

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	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)
	2	1	1	LTE Band 12	10M	QPSK	1	49	Front	15	Full	23095	707.5	23.35	24.40	1.274	0.06	0.242	0.308
	2	1	1	LTE Band 12	10M	QPSK	25	25	Front	15	Full	23095	707.5	22.34	23.40	1.276	-0.03	0.201	0.257
60	2	1	1	LTE Band 12	10M	QPSK	1	49	Back	15	Full	23095	707.5	23.35	24.40	1.274	-0.03	0.313	**0.399**
	2	1	1	LTE Band 12	10M	QPSK	25	25	Back	15	Full	23095	707.5	22.34	23.40	1.276	0.05	0.259	0.331
	3	1	1	LTE Band 12	10M	QPSK	1	49	Front	15	Full	23095	707.5	23.42	24.50	1.282	0.09	0.110	0.141
	3	1	1	LTE Band 12	10M	QPSK	25	25	Front	15	Full	23095	707.5	22.41	23.50	1.285	0.01	0.078	0.100
61	3	1	1	LTE Band 12	10M	QPSK	1	49	Back	15	Full	23095	707.5	23.42	24.50	1.282	-0.05	0.124	**0.159**
	3	1	1	LTE Band 12	10M	QPSK	25	25	Back	15	Full	23095	707.5	22.41	23.50	1.285	0.03	0.099	0.127
	2	1	1	LTE Band 5	10M	QPSK	1	0	Front	15	Full	20525	836.5	22.35	23.50	1.303	-0.01	0.176	0.229
	2	1	1	LTE Band 5	10M	QPSK	25	25	Front	15	Full	20525	836.5	21.31	22.50	1.315	0.02	0.156	0.205
62	2	1	1	LTE Band 5	10M	QPSK	1	0	Back	15	Full	20525	836.5	22.35	23.50	1.303	0.05	0.214	**0.279**
	2	1	1	LTE Band 5	10M	QPSK	25	25	Back	15	Full	20525	836.5	21.31	22.50	1.315	0.06	0.190	0.250
	3	1	1	LTE Band 5	10M	QPSK	1	0	Front	15	Full	20525	836.5	22.44	23.50	1.276	0.09	0.201	0.257
	3	1	1	LTE Band 5	10M	QPSK	25	25	Front	15	Full	20525	836.5	21.43	22.50	1.279	0.03	0.172	0.220
63	3	1	1	LTE Band 5	10M	QPSK	1	0	Back	15	Full	20525	836.5	22.44	23.50	1.276	-0.02	0.219	**0.280**
	3	1	1	LTE Band 5	10M	QPSK	25	25	Back	15	Full	20525	836.5	21.43	22.50	1.279	-0.02	0.185	0.237
	2	1	1	LTE Band 4	20M	QPSK	1	0	Front	15	Full	20175	1732.5	22.87	23.70	1.211	0.01	0.043	0.051
	2	1	1	LTE Band 4	20M	QPSK	50	0	Front	15	Full	20175	1732.5	21.85	22.70	1.216	0.07	0.054	0.066
64	2	1	1	LTE Band 4	20M	QPSK	1	0	Back	15	Full	20175	1732.5	22.87	23.70	1.211	-0.02	0.069	**0.084**
	2	1	1	LTE Band 4	20M	QPSK	50	0	Back	15	Full	20175	1732.5	21.85	22.70	1.216	0.02	0.029	0.035
	3	1	1	LTE Band 4	20M	QPSK	1	0	Front	15	Full	20175	1732.5	23.29	24.00	1.178	0.06	0.767	0.903
	3	1	1	LTE Band 4	20M	QPSK	50	0	Front	15	Full	20175	1732.5	21.99	23.00	1.262	0.05	0.613	0.774
	3	1	1	LTE Band 4	20M	QPSK	100	0	Front	15	Full	20175	1732.5	21.92	23.00	1.282	0.07	0.591	0.758
65	3	1	1	LTE Band 4	20M	QPSK	1	0	Back	15	Full	20175	1732.5	23.29	24.00	1.178	-0.03	0.842	**0.992**
	3	1	1	LTE Band 4	20M	QPSK	50	0	Back	15	Full	20175	1732.5	21.99	23.00	1.262	-0.08	0.698	0.881
	3	1	1	LTE Band 4	20M	QPSK	100	0	Back	15	Full	20175	1732.5	21.92	23.00	1.282	-0.04	0.694	0.890
66	2	1	1	LTE Band 2	20M	QPSK	1	0	Front	15	Full	19100	1900	23.12	23.90	1.197	-0.09	0.141	**0.169**
	2	1	1	LTE Band 2	20M	QPSK	50	50	Front	15	Full	19100	1900	22.04	22.90	1.219	0.05	0.133	0.162
	2	1	1	LTE Band 2	20M	QPSK	1	0	Back	15	Full	19100	1900	23.12	23.90	1.197	-0.02	0.114	0.136
	2	1	1	LTE Band 2	20M	QPSK	50	50	Back	15	Full	19100	1900	22.04	22.90	1.219	0.02	0.099	0.120
	3	1	1	LTE Band 2	20M	QPSK	1	0	Front	15	Full	19100	1900	23.13	24.00	1.222	0.04	0.364	0.445
	3	1	1	LTE Band 2	20M	QPSK	50	50	Front	15	Full	19100	1900	22.04	23.00	1.247	0.01	0.290	0.362
67	3	1	1	LTE Band 2	20M	QPSK	1	0	Back	15	Full	19100	1900	23.13	24.00	1.222	-0.03	0.487	**0.595**
	3	1	1	LTE Band 2	20M	QPSK	50	50	Back	15	Full	19100	1900	22.04	23.00	1.247	-0.1	0.378	0.472
68	2	1	1	LTE Band 7	20M	QPSK	1	99	Front	15	Full	21350	2560	22.57	23.20	1.156	-0.08	0.089	**0.103**
	2	1	1	LTE Band 7	20M	QPSK	50	50	Front	15	Full	21350	2560	21.46	22.20	1.186	0.03	0.079	0.093
	2	1	1	LTE Band 7	20M	QPSK	1	99	Back	15	Full	21350	2560	22.57	23.20	1.156	0.03	0.027	0.031
	2	1	1	LTE Band 7	20M	QPSK	50	50	Back	15	Full	21350	2560	21.46	22.20	1.186	-0.02	0.061	0.072
	3	1	1	LTE Band 7	20M	QPSK	1	99	Front	15	Full	21350	2560	22.45	23.00	1.135	0.06	0.396	0.449
	3	1	1	LTE Band 7	20M	QPSK	50	50	Front	15	Full	21350	2560	21.46	22.00	1.132	-0.05	0.304	0.344
69	3	1	1	LTE Band 7	20M	QPSK	1	99	Back	15	Full	21350	2560	22.45	23.00	1.135	-0.02	0.447	**0.507**
	3	1	1	LTE Band 7	20M	QPSK	50	50	Back	15	Full	21350	2560	21.46	22.00	1.132	0.03	0.345	0.391

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	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	15	Full	11	2462	16.66	18.50	1.528	98.13	1.019	0.09	0.054	0.084
70	WLAN2.4GHz	802.11b 1Mbps	Back	15	Full	11	2462	16.66	18.50	1.528	98.13	1.019	-0.10	0.072	**0.112**

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
71	WLAN5.3GHz	802.11a 6Mbps	Front	15	Full	52	5260	14.40	16.00	1.445	89.74	1.114	-0.10	0.069	**0.111**
	WLAN5.3GHz	802.11a 6Mbps	Back	15	Full	52	5260	14.40	16.00	1.445	89.74	1.114	0	0.022	0.035
72	WLAN5.5GHz	802.11a 6Mbps	Front	15	Full	100	5500	14.62	16.00	1.374	89.74	1.114	0.11	0.212	**0.324**
	WLAN5.5GHz	802.11a 6Mbps	Back	15	Full	100	5500	14.62	16.00	1.374	89.74	1.114	-0.07	0.065	0.099
73	WLAN 5.8GHz	802.11a 6Mbps	Front	15	Full	165	5825	14.32	16.00	1.472	89.74	1.114	0.11	0.073	**0.120**
	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Full	165	5825	14.32	16.00	1.472	89.74	1.114	-0.09	0.045	0.074

<Bluetooth SAR>

Plot No.	Band	Mode	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)
	Bluetooth	1Mbps	Front	15	39	2441	8.70	10.70	1.585	77.13	1.080	0.09	0.008	0.013
74	Bluetooth	1Mbps	Back	15	39	2441	8.70	10.70	1.585	77.13	1.080	-0.02	0.011	**0.019**

17.4 Product specific 10g SAR

<GSM SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
75	3	1	1	GSM1900	GPRS(4 Tx slots)	Bottom Side	0	Full	810	1909.8	23.74	25.00	1.337	0.01	0.955	**1.276**

<WCDMA SAR>

Plot No.	Ant.	SIM	Battery	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	0	P-Sensor On	1312	1712.4	20.68	21.80	1.294	0.07	1.390	1.799
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	0	P-Sensor On	1312	1712.4	20.68	21.80	1.294	0.08	1.750	2.265
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	0	P-Sensor On	1413	1732.6	20.66	21.80	1.300	0.03	1.850	2.405
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	0	P-Sensor On	1513	1752.6	20.64	21.80	1.306	-0.01	1.850	2.416
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	0	P-Sensor On	1312	1712.4	20.68	21.80	1.294	0.03	1.770	2.291
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	0	P-Sensor On	1413	1732.6	20.66	21.80	1.300	0.06	1.800	2.340
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	0	P-Sensor On	1513	1752.6	20.64	21.80	1.306	0.03	1.760	2.299
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1312	1712.4	23.37	24.10	1.183	0.03	2.320	2.745
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	4	Full	1312	1712.4	23.37	24.10	1.183	-0.05	1.700	2.011
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	7	Full	1312	1712.4	23.37	24.10	1.183	0.05	2.050	2.425
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1413	1732.6	23.35	24.10	1.189	0.02	2.450	2.912
76	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1513	1752.6	23.30	24.10	1.202	0.06	2.590	**3.114**
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	4	Full	1413	1732.6	23.35	24.10	1.189	-0.07	1.780	2.116
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Back	4	Full	1513	1752.6	23.30	24.10	1.202	0.04	1.860	2.236
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	7	Full	1413	1732.6	23.35	24.10	1.189	0.06	2.260	2.686
	3	1	1	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	7	Full	1513	1752.6	23.30	24.10	1.202	0.04	2.500	3.006
	3	2	1	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1513	1752.6	23.30	24.10	1.202	0.06	2.530	3.042
	3	2	1	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1312	1712.4	23.37	24.10	1.183	0.01	2.040	2.413
	3	2	1	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1413	1732.6	23.35	24.10	1.189	0.15	2.160	2.567
	3	1	2	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1513	1752.6	23.30	24.10	1.202	0.02	2.120	2.549
	3	1	2	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1312	1712.4	23.37	24.10	1.183	-0.05	1.830	2.165
	3	1	2	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1413	1732.6	23.35	24.10	1.189	0.03	1.950	2.318
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Back	0	P-Sensor On	9400	1880	21.34	22.30	1.247	0.03	1.340	1.671
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Bottom Side	0	P-Sensor On	9400	1880	21.34	22.30	1.247	-0.08	1.500	1.871
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Back	4	Full	9400	1880	24.02	24.80	1.197	0.05	1.270	1.520
77	3	1	1	WCDMA Band II	RMC 12.2Kbps	Bottom Side	7	Full	9400	1880	24.02	24.80	1.197	0.05	2.030	**2.429**
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Bottom Side	7	Full	9262	1852.4	24.01	24.80	1.199	0.02	1.950	2.339
	3	1	1	WCDMA Band II	RMC 12.2Kbps	Bottom Side	7	Full	9538	1907.6	24.00	24.80	1.202	-0.03	1.950	2.344

<LTE SAR>

Plot No.	Ant.	SIM	Battery	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	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)
	3	1	1	LTE Band 4	20M	QPSK	1	0	Front	0	P-Sensor On	20175	1732.5	21.58	22.50	1.236	0.02	1.670	2.064
	3	1	1	LTE Band 4	20M	QPSK	50	0	Front	0	P-Sensor On	20175	1732.5	21.51	22.50	1.256	0.08	1.720	2.160
	3	1	1	LTE Band 4	20M	QPSK	100	0	Front	0	P-Sensor On	20175	1732.5	21.49	22.50	1.262	0.08	1.650	2.082
	3	1	1	LTE Band 4	20M	QPSK	1	0	Back	0	P-Sensor On	20175	1732.5	21.58	22.50	1.236	0.04	1.880	2.324
	3	1	1	LTE Band 4	20M	QPSK	50	0	Back	0	P-Sensor On	20175	1732.5	21.51	22.50	1.256	0.06	1.890	2.374
	3	1	1	LTE Band 4	20M	QPSK	100	0	Back	0	P-Sensor On	20175	1732.5	21.49	22.50	1.262	0.06	1.840	2.322
	3	1	1	LTE Band 4	20M	QPSK	1	0	Bottom Side	0	P-Sensor On	20175	1732.5	21.58	22.50	1.236	0.05	2.180	2.694
78	3	1	1	LTE Band 4	20M	QPSK	50	0	Bottom Side	0	P-Sensor On	20175	1732.5	21.51	22.50	1.256	-0.02	2.170	**2.726**
	3	1	1	LTE Band 4	20M	QPSK	100	0	Bottom Side	0	P-Sensor On	20175	1732.5	21.49	22.50	1.262	0.05	2.130	2.688
	3	1	1	LTE Band 4	20M	QPSK	1	0	Front	2	Full	20175	1732.5	23.29	24.00	1.178	0.02	1.810	2.131
	3	1	1	LTE Band 4	20M	QPSK	50	0	Front	2	Full	20175	1732.5	21.99	23.00	1.262	0.02	1.410	1.779
	3	1	1	LTE Band 4	20M	QPSK	100	0	Front	2	Full	20175	1732.5	21.92	23.00	1.282	0.07	1.420	1.821
	3	1	1	LTE Band 4	20M	QPSK	1	0	Back	4	Full	20175	1732.5	23.29	24.00	1.178	0.1	1.760	2.073
	3	1	1	LTE Band 4	20M	QPSK	50	0	Back	4	Full	20175	1732.5	21.99	23.00	1.262	-0.02	1.380	1.741
	3	1	1	LTE Band 4	20M	QPSK	100	0	Back	4	Full	20175	1732.5	21.92	23.00	1.282	0.13	1.370	1.757
	3	1	1	LTE Band 4	20M	QPSK	1	0	Bottom Side	7	Full	20175	1732.5	23.29	24.00	1.178	0.09	2.140	2.520
	3	1	1	LTE Band 4	20M	QPSK	50	0	Bottom Side	7	Full	20175	1732.5	21.99	23.00	1.262	0.05	1.750	2.208
	3	1	1	LTE Band 4	20M	QPSK	100	0	Bottom Side	7	Full	20175	1732.5	21.92	23.00	1.282	0.07	1.730	2.218
	3	1	1	LTE Band 2	20M	QPSK	1	0	Bottom Side	0	P-Sensor On	19100	1900	21.72	22.50	1.197	0.07	1.700	2.034
	3	1	1	LTE Band 2	20M	QPSK	1	0	Bottom Side	0	P-Sensor On	18700	1860	21.59	22.50	1.233	0.05	1.720	2.121
	3	1	1	LTE Band 2	20M	QPSK	1	0	Bottom Side	0	P-Sensor On	18900	1880	21.53	22.50	1.250	0.04	1.690	2.113
	3	1	1	LTE Band 2	20M	QPSK	50	50	Bottom Side	0	P-Sensor On	19100	1900	21.58	22.50	1.236	0.02	1.710	2.113
	3	1	1	LTE Band 2	20M	QPSK	50	50	Bottom Side	0	P-Sensor On	18700	1860	21.56	22.50	1.242	0.03	1.670	2.074
79	3	1	1	LTE Band 2	20M	QPSK	50	50	Bottom Side	0	P-Sensor On	18900	1880	21.48	22.50	1.265	-0.08	1.880	**2.378**
	3	1	1	LTE Band 2	20M	QPSK	100	0	Bottom Side	0	P-Sensor On	19100	1900	21.47	22.50	1.268	0.02	1.450	1.838
	3	1	1	LTE Band 2	20M	QPSK	1	0	Bottom Side	7	Full	19100	1900	23.13	24.00	1.222	0.08	1.580	1.930
	3	1	1	LTE Band 2	20M	QPSK	50	50	Bottom Side	7	Full	19100	1900	22.04	23.00	1.247	0.03	1.210	1.509

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	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)
80	WLAN5.3GHz	802.11a 6Mbps	Front	0	Full	52	5260	14.40	16.00	1.445	89.74	1.114	-0.12	0.428	**0.689**
	WLAN5.3GHz	802.11a 6Mbps	Back	0	Full	52	5260	14.40	16.00	1.445	89.74	1.114	0.17	0.171	0.275
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0	Full	52	5260	14.40	16.00	1.445	89.74	1.114	0.04	0.038	0.061
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0	Full	52	5260	14.40	16.00	1.445	89.74	1.114	-0.05	0.247	0.398
81	WLAN 5.5GHz	802.11a 6Mbps	Front	0	Full	100	5500	14.62	16.00	1.374	89.74	1.114	0.17	0.733	**1.122**
	WLAN 5.5GHz	802.11a 6Mbps	Front	2	Full	100	5500	14.62	16.00	1.374	89.74	1.114	-0.02	0.337	0.516
	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Full	100	5500	14.62	16.00	1.374	89.74	1.114	-0.02	0.450	0.689
	WLAN 5.5GHz	802.11a 6Mbps	Right Side	0	Full	100	5500	14.62	16.00	1.374	89.74	1.114	0	0.114	0.174
	WLAN 5.5GHz	802.11a 6Mbps	Top Side	0	Full	100	5500	14.62	16.00	1.374	89.74	1.114	0.18	0.554	0.848

17.5 Repeated SAR Measurement

<1g SAR>

No.	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	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 12	-	10M	QPSK	50	0	Right Cheek	0	Receiver On	23095	707.5	21.96	22.90	1.242	-0.01	0.876	1	1.088
2nd	LTE Band 12	-	10M	QPSK	50	0	Right Cheek	0	Receiver On	23095	707.5	21.96	22.90	1.242	0.02	0.875	1.001	1.086
1st	GSM1900	GSM Voice	-	-	-	-	Right Cheek	0	Full	810	1909.8	29.47	30.10	1.156	0.01	0.869	1	1.005
2nd	GSM1900	GSM Voice	-	-	-	-	Right Cheek	0	Full	810	1909.8	29.47	30.10	1.156	0.03	0.868	1.002	1.004
1st	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Back	15	Full	1513	1752.6	23.30	24.10	1.202	0.03	0.914	1	1.099
2nd	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Back	15	Full	1513	1752.6	23.30	24.10	1.202	-0.07	0.909	1.006	1.093

<10g SAR>

No.	Band	Mode	Test Position	Gap (mm)	Power Mode	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	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1513	1752.6	23.30	24.10	1.202	0.06	2.590	1	3.114
2nd	WCDMA Band IV	RMC 12.2Kbps	Front	2	Full	1513	1752.6	23.30	24.10	1.202	0.06	2.500	1.036	3.006
1st	WCDMA Band II	RMC 12.2Kbps	Bottom Side	7	Full	9400	1880	24.02	24.80	1.197	0.05	2.030	1	2.429
2nd	WCDMA Band II	RMC 12.2Kbps	Bottom Side	7	Full	9400	1880	24.02	24.80	1.197	0.17	2.000	1.015	2.393

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured SAR*.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

18. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Head	Body-worn	Hotspot	Product Specific 10g SAR
1.	GSM Voice (Ant.2) + Bluetooth	Yes	Yes		Yes
2.	GSM Voice (Ant.3) + Bluetooth	Yes	Yes		Yes
3.	GPRS/EDGE (Ant.2) + Bluetooth		Yes	Yes	Yes
4.	GPRS/EDGE (Ant.2) + Bluetooth		Yes	Yes	Yes
5.	WCDMA (Ant.2) + Bluetooth	Yes	Yes	Yes	Yes
6.	WCDMA (Ant.3) + Bluetooth	Yes	Yes	Yes	Yes
7.	LTE (Ant.2) + Bluetooth	Yes	Yes	Yes	Yes
8.	LTE (Ant.3) + Bluetooth	Yes	Yes	Yes	Yes
9.	GSM Voice (Ant.2) + WLAN2.4GHz	Yes	Yes		Yes
10.	GSM Voice (Ant.3) + WLAN2.4GHz	Yes	Yes		Yes
11.	GPRS/EDGE (Ant.2) + WLAN2.4GHz		Yes	Yes	Yes
12.	GPRS/EDGE (Ant.3) + WLAN2.4GHz		Yes	Yes	Yes
13.	WCDMA (Ant.2) + WLAN2.4GHz	Yes	Yes	Yes	Yes
14.	WCDMA (Ant.3) + WLAN2.4GHz	Yes	Yes	Yes	Yes
15.	LTE (Ant.2) + WLAN2.4GHz	Yes	Yes	Yes	Yes
16.	LTE (Ant.3) + WLAN2.4GHz	Yes	Yes	Yes	Yes
17.	GSM Voice (Ant.2) + WLAN5.3/5.5GHz	Yes	Yes		Yes
18.	GSM Voice (Ant.3) + WLAN5.3/5.5GHz	Yes	Yes		Yes
19.	GPRS/EDGE (Ant.2) + WLAN5.3/5.5GHz		Yes		Yes
20.	GPRS/EDGE (Ant.3) + WLAN5.3/5.5GHz		Yes		Yes
21.	WCDMA (Ant.2) + WLAN5.3/5.5GHz	Yes	Yes		Yes
22.	WCDMA (Ant.3) + WLAN5.3/5.5GHz	Yes	Yes		Yes
23.	LTE (Ant.2) + WLAN5.3/5.5GHz	Yes	Yes		Yes
24.	LTE (Ant.3) + WLAN5.3/5.5GHz	Yes	Yes		Yes
25.	GSM Voice (Ant.2) + WLAN5.2/5.8GHz	Yes	Yes		Yes
26.	GSM Voice (Ant.3) + WLAN5.2/5.8GHz	Yes	Yes		Yes
27.	GPRS/EDGE (Ant.2) + WLAN5.2/5.8GHz		Yes	Yes	Yes
28.	GPRS/EDGE (Ant.3) + WLAN5.2/5.8GHz		Yes	Yes	Yes
29.	WCDMA (Ant.2) + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
30.	WCDMA (Ant.3) + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
31.	LTE (Ant.2) + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
32.	LTE (Ant.3) + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes

General Note:

1. This device supports VoIP in WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. The 2G/3G/4G main antenna (Ant.3) and second antenna (Ant.2) support the same 2G/3G/4G bands and they can't transmit simultaneously which will be chosen based on the RSSI (Received Signal Strength Indication). Only one antenna can be used for 2G/3G/4G transmissions at a time.
3. For each 2G/3G/4G antenna, EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. WLAN and Bluetooth share the same antenna so can't transmit simultaneously.
5. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
6. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
7. This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
8. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
9. For simultaneous transmission analysis for exposure position of 3mm for back, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
10. The reported SAR summation is calculated based on the same configuration and test position.
11. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/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 for 1g SAR, SPLSR ≤ 0.10 for 10g SAR simultaneously transmission SAR measurement is not necessary.
    iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

18.1 Head Exposure Conditions

<WWAN Main Antenna (Ant.3) + BT/WLAN>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Right Cheek	0.263	0.058	0.295	0.031	0.32	0.56	0.29
		Right Tilted	0.143	0.065	0.280	0.029	0.21	0.42	0.17
		Left Cheek	0.239	0.240	0.193	0.134	0.48	0.43	0.37
		Left Tilted	0.134	0.226	0.307	0.120	0.36	0.44	0.25
	GSM1900	Right Cheek	0.076	0.058	0.295	0.031	0.13	0.37	0.11
		Right Tilted	0.030	0.065	0.280	0.029	0.10	0.31	0.06
		Left Cheek	0.043	0.240	0.193	0.134	0.28	0.24	0.18
		Left Tilted	0.034	0.226	0.307	0.120	0.26	0.34	0.15
WCDMA	Band V	Right Cheek	0.269	0.058	0.295	0.031	0.33	0.56	0.30
		Right Tilted	0.120	0.065	0.280	0.029	0.19	0.40	0.15
		Left Cheek	0.270	0.240	0.193	0.134	0.51	0.46	0.40
		Left Tilted	0.159	0.226	0.307	0.120	0.39	0.47	0.28
	Band IV	Right Cheek	0.090	0.058	0.295	0.031	0.15	0.39	0.12
		Right Tilted	0.066	0.065	0.280	0.029	0.13	0.35	0.10
		Left Cheek	0.028	0.240	0.193	0.134	0.27	0.22	0.16
		Left Tilted	0.010	0.226	0.307	0.120	0.24	0.32	0.13
	Band II	Right Cheek	0.141	0.058	0.295	0.031	0.20	0.44	0.17
		Right Tilted	0.041	0.065	0.280	0.029	0.11	0.32	0.07
		Left Cheek	0.083	0.240	0.193	0.134	0.32	0.28	0.22
		Left Tilted	0.057	0.226	0.307	0.120	0.28	0.36	0.18
LTE	Band 12	Right Cheek	0.122	0.058	0.295	0.031	0.18	0.42	0.15
		Right Tilted	0.055	0.065	0.280	0.029	0.12	0.34	0.08
		Left Cheek	0.110	0.240	0.193	0.134	0.35	0.30	0.24
		Left Tilted	0.063	0.226	0.307	0.120	0.29	0.37	0.18
	Band 5	Right Cheek	0.254	0.058	0.295	0.031	0.31	0.55	0.29
		Right Tilted	0.111	0.065	0.280	0.029	0.18	0.39	0.14
		Left Cheek	0.214	0.240	0.193	0.134	0.45	0.41	0.35
		Left Tilted	0.130	0.226	0.307	0.120	0.36	0.44	0.25
	Band 4	Right Cheek	0.091	0.058	0.295	0.031	0.15	0.39	0.12
		Right Tilted	0.068	0.065	0.280	0.029	0.13	0.35	0.10
		Left Cheek	0.088	0.240	0.193	0.134	0.33	0.28	0.22
		Left Tilted	0.030	0.226	0.307	0.120	0.26	0.34	0.15
	Band 2	Right Cheek	0.114	0.058	0.295	0.031	0.17	0.41	0.15
		Right Tilted	0.039	0.065	0.280	0.029	0.10	0.32	0.07
		Left Cheek	0.062	0.240	0.193	0.134	0.30	0.26	0.20
		Left Tilted	0.066	0.226	0.307	0.120	0.29	0.37	0.19
	Band 7	Right Cheek	0.154	0.058	0.295	0.031	0.21	0.45	0.19
		Right Tilted	0.027	0.065	0.280	0.029	0.09	0.31	0.06
		Left Cheek	0.057	0.240	0.193	0.134	0.30	0.25	0.19
		Left Tilted	0.023	0.226	0.307	0.120	0.25	0.33	0.14

<WWAN Second Antenna (Ant.2) + BT/WLAN>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Right Cheek	0.622	0.058	0.295	0.031	0.68	0.92	0.65
		Right Tilted	0.560	0.065	0.280	0.029	0.63	0.84	0.59
		Left Cheek	0.042	0.240	0.193	0.134	0.28	0.24	0.18
		Left Tilted	0.048	0.226	0.307	0.120	0.27	0.36	0.17
	GSM1900	Right Cheek	1.005	0.058	0.295	0.031	1.06	1.30	1.04
		Right Tilted	0.524	0.065	0.280	0.029	0.59	0.80	0.55
		Left Cheek	0.348	0.240	0.193	0.134	0.59	0.54	0.48
		Left Tilted	0.283	0.226	0.307	0.120	0.51	0.59	0.40
WCDMA	Band V	Right Cheek	0.642	0.058	0.295	0.031	0.70	0.94	0.67
		Right Tilted	0.593	0.065	0.280	0.029	0.66	0.87	0.62
		Left Cheek	0.379	0.240	0.193	0.134	0.62	0.57	0.51
		Left Tilted	0.322	0.226	0.307	0.120	0.55	0.63	0.44
	Band IV	Right Cheek	0.480	0.058	0.295	0.031	0.54	0.78	0.51
		Right Tilted	0.413	0.065	0.280	0.029	0.48	0.69	0.44
		Left Cheek	0.156	0.240	0.193	0.134	0.40	0.35	0.29
		Left Tilted	0.173	0.226	0.307	0.120	0.40	0.48	0.29
	Band II	Right Cheek	0.584	0.058	0.295	0.031	0.64	0.88	0.62
		Right Tilted	0.474	0.065	0.280	0.029	0.54	0.75	0.50
		Left Cheek	0.206	0.240	0.193	0.134	0.45	0.40	0.34
		Left Tilted	0.235	0.226	0.307	0.120	0.46	0.54	0.36
LTE	Band 12	Right Cheek	1.088	0.058	0.295	0.031	1.15	**1.38**	**1.12**
		Right Tilted	1.005	0.065	0.280	0.029	1.07	1.29	1.03
		Left Cheek	0.944	0.240	0.193	0.134	1.18	1.14	1.08
		Left Tilted	0.769	0.226	0.307	0.120	1.00	1.08	0.89
	Band 5	Right Cheek	0.980	0.058	0.295	0.031	1.04	1.28	1.01
		Right Tilted	0.768	0.065	0.280	0.029	0.83	1.05	0.80
		Left Cheek	0.536	0.240	0.193	0.134	0.78	0.73	0.67
		Left Tilted	0.470	0.226	0.307	0.120	0.70	0.78	0.59
	Band 4	Right Cheek	0.600	0.058	0.295	0.031	0.66	0.90	0.63
		Right Tilted	0.510	0.065	0.280	0.029	0.58	0.79	0.54
		Left Cheek	0.191	0.240	0.193	0.134	0.43	0.38	0.33
		Left Tilted	0.211	0.226	0.307	0.120	0.44	0.52	0.33
	Band 2	Right Cheek	0.692	0.058	0.295	0.031	0.75	0.99	0.72
		Right Tilted	0.485	0.065	0.280	0.029	0.55	0.77	0.51
		Left Cheek	0.250	0.240	0.193	0.134	0.49	0.44	0.38
		Left Tilted	0.217	0.226	0.307	0.120	0.44	0.52	0.34
	Band 7	Right Cheek	0.988	0.058	0.295	0.031	1.05	1.28	1.02
		Right Tilted	0.516	0.065	0.280	0.029	0.58	0.80	0.55
		Left Cheek	0.235	0.240	0.193	0.134	0.48	0.43	0.37
		Left Tilted	0.188	0.226	0.307	0.120	0.41	0.50	0.31

18.2 Hotspot Exposure Conditions

<WWAN Main Antenna (Ant.3) + BT/WLAN>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Front	0.226	0.142	0.221	0.017	0.37	0.45	0.24
		Back	0.289	0.237	0.180	0.033	0.53	0.47	0.32
		Left Side	0.164				0.16	0.16	0.16
		Right Side	0.385	0.167	0.389	0.031	0.55	0.77	0.42
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.198				0.20	0.20	0.20
	GSM1900	Front	0.332	0.142	0.221	0.017	0.47	0.55	0.35
		Back	0.482	0.237	0.180	0.033	0.72	0.66	0.52
		Left Side	0.031				0.03	0.03	0.03
		Right Side	0.029	0.167	0.389	0.031	0.20	0.42	0.06
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.961				0.96	0.96	0.96
WCDMA	Band V	Front	0.254	0.142	0.221	0.017	0.40	0.48	0.27
		Back	0.304	0.237	0.180	0.033	0.54	0.48	0.34
		Left Side	0.078				0.08	0.08	0.08
		Right Side	0.357	0.167	0.389	0.031	0.52	0.75	0.39
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.188				0.19	0.19	0.19
	Band IV	Front	0.431	0.142	0.221	0.017	0.57	0.65	0.45
		Back	0.511	0.237	0.180	0.033	0.75	0.69	0.54
		Left Side	0.040				0.04	0.04	0.04
		Right Side	0.043	0.167	0.389	0.031	0.21	0.43	0.07
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.770				0.77	0.77	0.77
	Band II	Front	0.280	0.142	0.221	0.017	0.42	0.50	0.30
		Back	0.379	0.237	0.180	0.033	0.62	0.56	0.41
		Left Side	0.030				0.03	0.03	0.03
		Right Side	0.029	0.167	0.389	0.031	0.20	0.42	0.06
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.781				0.78	0.78	0.78
LTE	Band 12	Front	0.141	0.142	0.221	0.017	0.28	0.36	0.16
		Back	0.212	0.237	0.180	0.033	0.45	0.39	0.25
		Left Side	0.111				0.11	0.11	0.11
		Right Side	0.247	0.167	0.389	0.031	0.41	0.64	0.28
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.121				0.12	0.12	0.12
	Band 5	Front	0.221	0.142	0.221	0.017	0.36	0.44	0.24
		Back	0.265	0.237	0.180	0.033	0.50	0.45	0.30
		Left Side	0.133				0.13	0.13	0.13
		Right Side	0.272	0.167	0.389	0.031	0.44	0.66	0.30
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.144				0.14	0.14	0.14
	Band 4	Front	0.526	0.142	0.221	0.017	0.67	0.75	0.54
		Back	0.647	0.237	0.180	0.033	0.88	0.83	0.68
		Left Side	0.053				0.05	0.05	0.05
		Right Side	0.052	0.167	0.389	0.031	0.22	0.44	0.08
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	1.096				1.10	1.10	1.10
	Band 2	Front	0.292	0.142	0.221	0.017	0.43	0.51	0.31
		Back	0.413	0.237	0.180	0.033	0.65	0.59	0.45
		Left Side	0.035				0.04	0.04	0.04
		Right Side	0.030	0.167	0.389	0.031	0.20	0.42	0.06
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.789				0.79	0.79	0.79
	Band 7	Front	0.531	0.142	0.221	0.017	0.67	0.75	0.55
		Back	0.577	0.237	0.180	0.033	0.81	0.76	0.61
		Left Side	0.023				0.02	0.02	0.02
		Right Side	0.021	0.167	0.389	0.031	0.19	0.41	0.05
		Top Side		0.146	0.262	0.022	0.15	0.26	0.02
		Bottom Side	0.872				0.87	0.87	0.87

<WWAN Second Antenna (Ant.2) + BT/WLAN>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Front	0.480	0.142	0.221	0.017	0.62	0.70	0.50
		Back	0.650	0.237	0.180	0.033	0.89	0.83	0.68
		Left Side	0.223				0.22	0.22	0.22
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.486	0.146	0.262	0.022	0.63	0.75	0.51
	GSM1900	Front	0.081	0.142	0.221	0.017	0.22	0.30	0.10
		Back	0.087	0.237	0.180	0.033	0.32	0.27	0.12
		Left Side	0.087				0.09	0.09	0.09
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.116	0.146	0.262	0.022	0.26	0.38	0.14
WCDMA	Band V	Front	0.412	0.142	0.221	0.017	0.55	0.63	0.43
		Back	0.546	0.237	0.180	0.033	0.78	0.73	0.58
		Left Side	0.228				0.23	0.23	0.23
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.403	0.146	0.262	0.022	0.55	0.67	0.43
	Band IV	Front	0.130	0.142	0.221	0.017	0.27	0.35	0.15
		Back	0.158	0.237	0.180	0.033	0.40	0.34	0.19
		Left Side	0.121				0.12	0.12	0.12
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.221	0.146	0.262	0.022	0.37	0.48	0.24
	Band II	Front	0.318	0.142	0.221	0.017	0.46	0.54	0.34
		Back	0.373	0.237	0.180	0.033	0.61	0.55	0.41
		Left Side	0.344				0.34	0.34	0.34
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.432	0.146	0.262	0.022	0.58	0.69	0.45
LTE	Band 12	Front	0.549	0.142	0.221	0.017	0.69	0.77	0.57
		Back	0.751	0.237	0.180	0.033	0.99	0.93	0.78
		Left Side	0.280				0.28	0.28	0.28
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.539	0.146	0.262	0.022	0.69	0.80	0.56
	Band 5	Front	0.390	0.142	0.221	0.017	0.53	0.61	0.41
		Back	0.534	0.237	0.180	0.033	0.77	0.71	0.57
		Left Side	0.224				0.22	0.22	0.22
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.400	0.146	0.262	0.022	0.55	0.66	0.42
	Band 4	Front	0.136	0.142	0.221	0.017	0.28	0.36	0.15
		Back	0.159	0.237	0.180	0.033	0.40	0.34	0.19
		Left Side	0.126				0.13	0.13	0.13
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.220	0.146	0.262	0.022	0.37	0.48	0.24
	Band 2	Front	0.260	0.142	0.221	0.017	0.40	0.48	0.28
		Back	0.294	0.237	0.180	0.033	0.53	0.47	0.33
		Left Side	0.317				0.32	0.32	0.32
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.369	0.146	0.262	0.022	0.52	0.63	0.39
	Band 7	Front	0.283	0.142	0.221	0.017	0.43	0.50	0.30
		Back	0.237	0.237	0.180	0.033	0.47	0.42	0.27
		Left Side	0.323				0.32	0.32	0.32
		Right Side		0.167	0.389	0.031	0.17	0.39	0.03
		Top Side	0.182	0.146	0.262	0.022	0.33	0.44	0.20

18.3 Body-Worn Accessory Exposure Conditions

<WWAN Main Antenna (Ant.3) + BT/WLAN>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Front	0.254	0.084	0.324	0.013	0.34	0.58	0.27
		Back	0.285	0.112	0.099	0.019	0.40	0.38	0.30
	GSM1900	Front	0.263	0.084	0.324	0.013	0.35	0.59	0.28
		Back	0.408	0.112	0.099	0.019	0.52	0.51	0.43
WCDMA	Band V	Front	0.279	0.084	0.324	0.013	0.36	0.60	0.29
		Back	0.307	0.112	0.099	0.019	0.42	0.41	0.33
	Band IV	Front	0.955	0.084	0.324	0.013	1.04	1.28	0.97
		Back	1.099	0.112	0.099	0.019	**1.21**	1.20	1.12
	Band II	Front	0.521	0.084	0.324	0.013	0.61	0.85	0.53
		Back	0.724	0.112	0.099	0.019	0.84	0.82	0.74
LTE	Band 12	Front	0.141	0.084	0.324	0.013	0.23	0.47	0.15
		Back	0.159	0.112	0.099	0.019	0.27	0.26	0.18
	Band 5	Front	0.257	0.084	0.324	0.013	0.34	0.58	0.27
		Back	0.280	0.112	0.099	0.019	0.39	0.38	0.30
	Band 4	Front	0.903	0.084	0.324	0.013	0.99	1.23	0.92
		Back	0.992	0.112	0.099	0.019	1.10	1.09	1.01
	Band 2	Front	0.445	0.084	0.324	0.013	0.53	0.77	0.46
		Back	0.595	0.112	0.099	0.019	0.71	0.69	0.61
	Band 7	Front	0.449	0.084	0.324	0.013	0.53	0.77	0.46
		Back	0.507	0.112	0.099	0.019	0.62	0.61	0.53

<WWAN Second Antenna (Ant.2) + BT/WLAN>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM	GSM850	Front	0.272	0.084	0.324	0.013	0.36	0.60	0.29
		Back	0.330	0.112	0.099	0.019	0.44	0.43	0.35
	GSM1900	Front	0.005	0.084	0.324	0.013	0.09	0.33	0.02
		Back	0.045	0.112	0.099	0.019	0.16	0.14	0.06
WCDMA	Band V	Front	0.253	0.084	0.324	0.013	0.34	0.58	0.27
		Back	0.306	0.112	0.099	0.019	0.42	0.41	0.33
	Band IV	Front	0.077	0.084	0.324	0.013	0.16	0.40	0.09
		Back	0.053	0.112	0.099	0.019	0.17	0.15	0.07
	Band II	Front	0.152	0.084	0.324	0.013	0.24	0.48	0.17
		Back	0.127	0.112	0.099	0.019	0.24	0.23	0.15
LTE	Band 12	Front	0.308	0.084	0.324	0.013	0.39	0.63	0.32
		Back	0.399	0.112	0.099	0.019	0.51	0.50	0.42
	Band 5	Front	0.229	0.084	0.324	0.013	0.31	0.55	0.24
		Back	0.279	0.112	0.099	0.019	0.39	0.38	0.30
	Band 4	Front	0.066	0.084	0.324	0.013	0.15	0.39	0.08
		Back	0.084	0.112	0.099	0.019	0.20	0.18	0.10
	Band 2	Front	0.169	0.084	0.324	0.013	0.25	0.49	0.18
		Back	0.136	0.112	0.099	0.019	0.25	0.24	0.16
	Band 7	Front	0.103	0.084	0.324	0.013	0.19	0.43	0.12
		Back	0.072	0.112	0.099	0.019	0.18	0.17	0.09

18.4 Product specific 10g SAR Exposure Conditions

<WWAN Main Antenna (Ant.3) + WLAN>

WWAN Band		Exposure Position	1	2	1+2
			WWAN	5GHz WLAN	Summed 10g SAR (W/kg)
			10g SAR (W/kg)	10g SAR (W/kg)	
GSM	GSM1900	Bottom Side at 0mm	1.276		1.28
WCDMA	Band IV	Front at 0mm	1.799	1.122	2.92
		Front at 2mm	3.114	0.516	**3.63**
		Back at 0mm	2.416	0.689	3.11
		Back at 4mm	2.236	0.689	2.93
		Bottom Side at 0mm	2.340		2.34
		Bottom Side at 7mm	3.006		3.01
	Band II	Back at 0mm	1.671	0.689	2.36
		Back at 4mm	1.520	0.689	2.21
		Bottom Side at 0mm	1.871		1.87
		Bottom Side at 7mm	2.429		2.43
LTE	Band 4	Front at 0mm	2.160	1.122	3.28
		Front at 2mm	2.131	0.516	2.65
		Back at 0mm	2.374	0.689	3.06
		Back at 4mm	2.073	0.689	2.76
		Bottom Side at 0mm	2.726		2.73
		Bottom Side at 7mm	2.520		2.52
	Band 2	Bottom Side at 0mm	2.378		2.38
		Bottom Side at 7mm	1.930		1.93

Remark:
For Bluetooth/WLAN 2.4GHz Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.

Test Engineer: Weilong Chen

19. Uncertainty Assessment

Pre KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

20. 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 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

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

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

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

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

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

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

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

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

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

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

Appendix C. DASY Calibration Certificate

The DASY calibration certificates are shown as follows.