FCC SAR Test Report

APPLICANT	: Lemobile Information Technology (Beijing) Co., Ltd
EQUIPMENT	: mobile phone
BRAND NAME	:
MODEL NAME	: Le X829
FCC ID	: 2AFWMLEX829
STANDARD	: FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Prepared by: Mark Qu / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory 2627

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA630205	Rev. 01	Initial issue of report	May 11, 2016

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Lemobile Information Technology (Beijing) Co., Ltd, mobile phone, Le X829** are as follows.

Equipment Class	Frequency Band		Highest 1g SAR Summary			Highest Simultaneous Transmission 1g SAR (W/kg)
			Head (Separation 0mm)	Body-worn (Separation 15mm)	Hotspot (Separation 10mm)	
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.35	0.42	0.74	1.53
		GSM1900	0.19	**0.90**	**1.11**	
	WCDMA	Band V	0.31	0.36	0.67	
		Band IV	0.44	0.73	0.88	
		Band II	0.20	0.63	0.73	
	LTE	Band 12	0.11	0.22	0.27	
		Band 5	0.20	0.18	0.39	
		Band 4	0.19	0.63	1.02	
		Band 2	<0.10	0.56	1.11	
		Band 7	0.20	0.39	0.94	
DTS	WLAN	2.4GHz WLAN	1.01	0.11	0.30	1.41
NII		5GHz WLAN	**1.09**	0.31		1.53
DSS	2.4GHz Band	Bluetooth		<0.10		0.92
Date of Testing:			2016/04/18 ~ 2016/04/24			

Frequency Band	Highest SAR Summary	Highest Simultaneous Transmission
	Product Specific 10g SAR (W/kg) (Gap 0mm)	10g SAR (W/kg)
GSM1900	2.59	3.92
WCDMA Band IV	**3.38**	
WCDMA Band II	2.12	
LTE Band 4	3.09	
LTE Band 2	1.73	
LTE Band 7	2.30	
2.4GHz WLAN	0.58	3.92
5GHz WLAN	0.91	3.88

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; 10-gram SAR for Product Specific 10g SAR, limit: 4.0W/kg) 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 (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958

Applicant	
Company Name	Lemobile Information Technology (Beijing) Co., Ltd
Address	WENHUAYING NORTH (No.1, LINKONG 2nd St), GAOLIYING, SHUNYI DISTRICT, BEIJING

Manufacturer	
Company Name	Lemobile Information Technology (Beijing) Co., Ltd
Address	WENHUAYING NORTH (No.1, LINKONG 2nd St), GAOLIYING, SHUNYI DISTRICT, BEIJING

3. Guidance Standard

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	mobile phone
Brand Name	
Model Name	Le X829
FCC ID	2AFWMLEX829
IMEI Code	SIM1: 869941020005745 SIM2: 869941020005752
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 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz 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 ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz ANT+:2402 MHz ~ 2480 MHz
Mode	· GSM/GPRS/EGPRS · RMC/AMR 12.2Kbps · HSDPA · HSUPA · DC-HSDPA · HSPA+ (16QAM uplink is not supported) · LTE: QPSK, 16QAM · 802.11b/g/n HT20/HT40 · 802.11a/n HT20/HT40 · 802.11ac VHT20/VHT40/VHT80 · Bluetooth v3.0+EDR, Bluetooth v4.1 LE · ANT+: GFSK
HW Version	X2_NA_DVT1
SW Version	FIXNAOP5517302294D
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 GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device supports GPRS/EGPRS mode up to multi-slot class 33.
3. This device 2.4GHz WLAN SISO supports Hotspot operation.
4. This device 2.4GHz WLAN MIMO and all 5GHz WLAN have no hotspot function.
5. When hotspot mode is enabled, power reduction will be activated and limited to GSM1900 / WCDMA Band II / IV / LTE Band2/4/7.
6. The device has 2 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 dual SIM1 card to perform all tests.

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>2AFWMLEX829</td></tr>
<tr><td>Equipment Name</td><td>mobile phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850 MHz ~ 1910 MHz
LTE Band 4: 1710 MHz ~ 1755 MHz
LTE Band 5: 824 MHz ~ 849 MHz
LTE Band 7: 2500 MHz ~ 2570 MHz
LTE Band 12: 699 MHz ~ 716 MHz
LTE Band 17: 704 MHz ~ 716 MHz</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, and 16QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R10, Cat 4</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table></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. Hotspot mode reduced power only for GSM1900/WCDMA Band II/IV/LTE Band 2/4/7.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to page 59.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device does not support full CA features on 3GPP Release 10. It supports a maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

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

LTE Carrier Aggregation Combinations																					
Inter-Band Combinations																				Intra-Band Combinations	
(PCC) B4	(SCC) B17	(PCC) B17	(SCC) B4	(PCC) B2	(SCC) B17	(PCC) B17	(SCC) B2	(PCC) B4	(SCC) B12	(PCC) B12	(SCC) B4	(PCC) B2	(SCC) B12	(PCC) B12	(SCC) B2	(PCC) B2	(SCC) B4	(PCC) B4	(SCC) B2	(PCC) B4	(SCC) B4
10M+10M		10M+10M		10M+10M		10M+10M		20M+10M		10M+20M		20M+10M		10M+20M		20M+20M		20M+20M		20M+20M	
10M+5M		10M+5M		10M+5M		10M+5M		20M+5M		10M+15M		20M+5M		10M+15M		20M+15M		20M+15M			
5M+10M		5M+10M		5M+10M		5M+10M		20M+3M		10M+10M		20M+3M		10M+10M		20M+10M		20M+10M			
5M+5M		5M+5M		5M+5M		5M+5M		15M+10M		10M+5M		15M+10M		10M+5M		20M+5M		20M+5M			
								15M+5M		10M+3M		15M+5M		5M+20M		15M+20M		20M+3M			
								15M+3M		10M+1.4M		15M+3M		5M+15M		15M+15M		20M+1.4M			
								10M+10M		5M+20M		10M+10M		5M+10M		15M+10M		15M+20M			
								10M+5M		5M+15M		10M+5M		5M+5M		15M+5M		15M+15M			
								10M+3M		5M+10M		10M+3M		3M+20M		10M+20M		15M+10M			
								5M+10M		5M+5M		5M+10M		3M+15M		10M+15M		15M+5M			
								5M+5M		5M+3M		5M+5M		3M+10M		10M+10M		15M+3M			
								5M+3M		5M+1.4M		5M+3M		3M+5M		10M+5M		15M+1.4M			
								3M+10M		3M+20M						5M+20M		20M+20M			
								3M+5M		3M+15M						5M+15M		20M+15M			
								3M+3M		3M+10M						5M+10M		20M+10M			
								1.4M+10M		3M+5M						5M+5M		20M+5M			
								1.4M+5M		3M+3M						3M+20M		20M+3M			
								1.4M+3M		3M+1.4M						3M+15M		20M+1.4M			
																3M+10M		20M+20M			
																3M+5M		20M+15M			
																1.4M+20M		20M+10M			
																1.4M+15M		20M+5M			
																1.4M+10M		20M+3M			
																1.4M+5M		20M+1.4M			

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

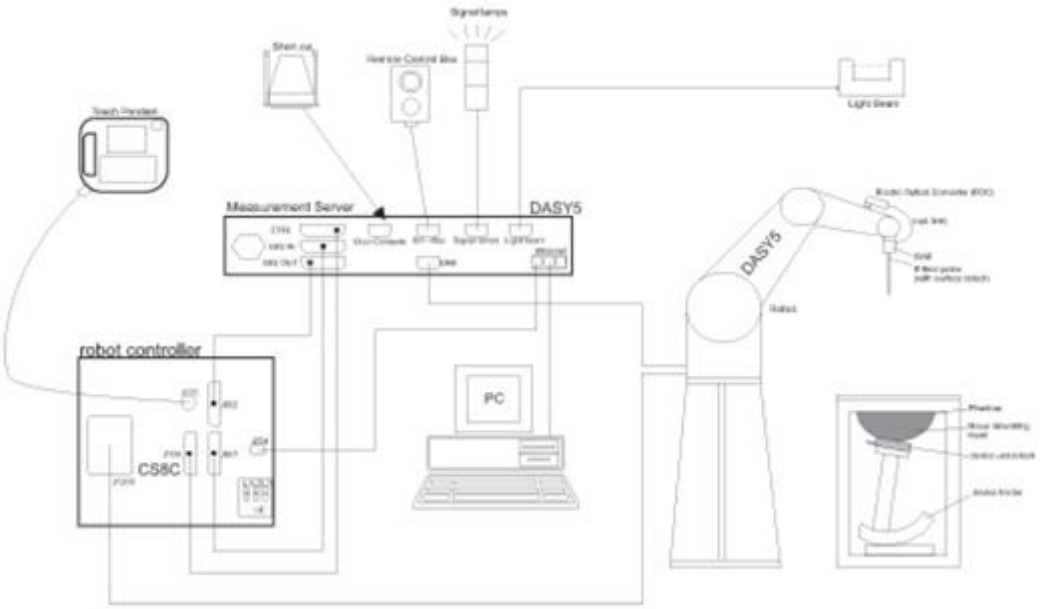
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<EX3DV4 Probe>

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

7.2 Data Acquisition Electronics (DAE)

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

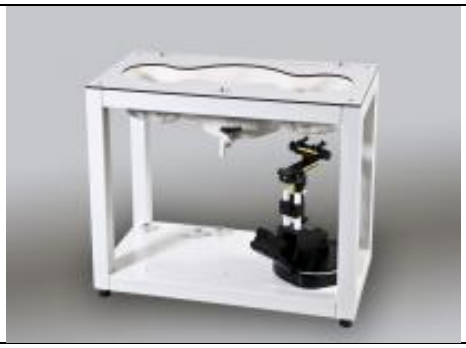
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

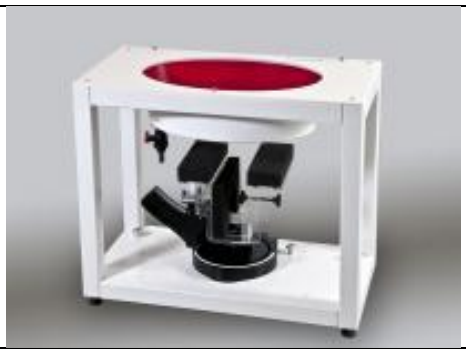
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



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

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1065	Nov. 24, 2015	Nov. 23, 2016
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 24, 2015	Nov. 23, 2016
SPEAG	1750MHz System Validation Kit	D1750V2	1069	Nov. 23, 2015	Nov. 22, 2016
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 23, 2015	Nov. 22, 2016
SPEAG	2450MHz System Validation Kit	D2450V2	840	Nov. 25, 2015	Nov. 24, 2016
SPEAG	2600MHz System Validation Kit	D2600V2	1061	Nov. 25, 2015	Nov. 24, 2016
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	Nov. 26, 2015	Nov. 25, 2016
SPEAG	Data Acquisition Electronics	DAE4	1210	May 21, 2015	May 20, 2016
SPEAG	Data Acquisition Electronics	DAE4	905	Jul. 16, 2015	Jul. 15, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3954	Nov. 27, 2015	Nov. 26, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	May 28, 2015	May 27, 2016
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1477	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1479	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1644	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1542	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300654	Aug. 10, 2015	Aug. 09, 2016
Agilent	Wireless Communication Test Set	E5515C	MY52102706	May 04, 2015	May 03, 2016
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	May 04, 2015	May 03, 2016
SPEAG	DAK Kit	DAK3.5	1144	Nov. 24, 2015	Nov. 23, 2016
R&S	Signal Generator	SMBV100A	258305	Jan. 20, 2016	Jan. 19, 2017
Anritsu	Power Senor	MA2411B	0917070	Jan. 20, 2016	Jan. 19, 2017
Anritsu	Power Meter	ML2495A	1005002	Jan. 20, 2016	Jan. 19, 2017
Anritsu	Power Senor	MA2411B	1339163	Jan. 20, 2016	Jan. 19, 2017
Anritsu	Power Meter	ML2495A	1435004	Jan. 20, 2016	Jan. 19, 2017
R&S	Spectrum Analyzer	FSP40	100319	Aug. 10, 2015	Aug. 09, 2016
ARRA	Power Divider	A3200-2	N/A	Note1	
AR	Amplifier	5S1G4	333096	Note1	
mini-circuits	Amplifier	ZVE-3W-83+	162601250	Note1	
MCL	Attenuation1	BW-S10W5+	N/A	Note1	
MCL	Attenuation2	BW-S10W5+	N/A	Note1	
MCL	Attenuation3	BW-S10W5+	N/A	Note1	

Agilent	Dual Directional Coupler	778D	50422	Note1
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note1

General Note:

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

10. System Verification

10.1 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
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	22.8	0.895	41.825	0.89	41.90	0.56	-0.18	±5	2016/4/23
835	Head	22.8	0.920	41.484	0.90	41.50	2.22	-0.04	±5	2016/4/23
1750	Head	22.6	1.395	40.481	1.37	40.10	1.82	0.95	±5	2016/4/19
1900	Head	22.6	1.410	39.556	1.40	40.00	0.71	-1.11	±5	2016/4/19
2450	Head	22.6	1.779	40.668	1.80	39.20	-1.17	3.74	±5	2016/4/20
2600	Head	22.7	2.006	39.583	1.96	39.00	2.35	1.49	±5	2016/4/21
5250	Head	22.6	4.854	35.393	4.71	35.95	3.06	-1.55	±5	2016/4/22
5600	Head	22.6	5.206	34.730	5.07	35.50	2.68	-2.17	±5	2016/4/21
5750	Head	22.6	5.363	34.495	5.23	35.35	2.54	-2.42	±5	2016/4/20
750	Body	22.8	0.956	54.926	0.96	55.50	-0.42	-1.03	±5	2016/4/24
835	Body	22.8	1.000	53.687	0.97	55.20	3.09	-2.74	±5	2016/4/24
1750	Body	22.6	1.543	53.339	1.49	53.40	3.56	-0.11	±5	2016/4/22
1900	Body	22.6	1.559	52.784	1.52	53.30	2.57	-0.97	±5	2016/4/22
2450	Body	22.7	1.983	51.430	1.95	52.70	1.69	-2.41	±5	2016/4/23
2600	Body	22.7	2.132	52.902	2.16	52.50	-1.30	0.77	±5	2016/4/21
5250	Body	22.7	5.379	49.115	5.36	48.95	0.35	0.34	±5	2016/4/23
5600	Body	22.7	5.872	48.306	5.77	48.50	1.77	-0.40	±5	2016/4/19
5750	Body	22.7	6.070	47.985	5.95	48.27	2.02	-0.59	±5	2016/4/18

10.2 System Performance Check Results

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

<For 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 (%)
2016/4/23	750	Head	250	1065	3954	905	2.08	8.25	8.32	0.85
2016/4/23	835	Head	250	4d091	3954	905	2.42	9.14	9.68	5.91
2016/4/19	1750	Head	250	1069	3857	1210	8.75	37.00	35	-5.41
2016/4/19	1900	Head	250	5d118	3857	1210	10.26	39.40	41.04	4.16
2016/4/20	2450	Head	250	840	3857	1210	13.00	50.40	52	3.17
2016/4/21	2600	Head	250	1061	3857	1210	14.70	58.10	58.8	1.20
2016/4/22	5250	Head	100	1113	3954	905	7.89	80.7	78.9	-2.23
2016/4/21	5600	Head	100	1113	3954	905	7.86	83.7	78.6	-6.09
2016/4/20	5750	Head	100	1113	3954	905	7.78	80.8	77.8	-3.71
2016/4/24	750	Body	250	1065	3954	905	2.21	8.86	8.84	-0.23
2016/4/24	835	Body	250	4d091	3954	905	2.52	9.55	10.08	5.55
2016/4/22	1750	Body	250	1069	3857	1210	9.18	35.90	36.72	2.28
2016/4/22	1900	Body	250	5d118	3857	1210	10.50	40.60	42	3.45
2016/4/23	2450	Body	250	840	3857	1210	12.50	51.10	50	-2.15
2016/4/21	2600	Body	250	1061	3857	1210	12.90	54.60	51.6	-5.49
2016/4/23	5250	Body	100	1113	3954	905	7.76	76.5	77.6	1.44
2016/4/19	5600	Body	100	1113	3954	905	7.97	82.4	79.7	-3.28
2016/4/18	5750	Body	100	1113	3954	905	7.3	76.6	73	-4.70

<For 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 (%)
2016/4/23	750	Head	250	1065	3954	905	1.39	5.38	5.56	3.35
2016/4/23	835	Head	250	4d091	3954	905	1.58	5.94	6.32	6.40
2016/4/19	1750	Head	250	1069	3857	1210	4.66	19.5	18.64	-4.41
2016/4/19	1900	Head	250	5d118	3857	1210	5.13	20.6	20.52	-0.39
2016/4/20	2450	Head	250	840	3857	1210	5.92	23.6	23.68	0.34
2016/4/21	2600	Head	250	1061	3857	1210	6.49	25.8	25.96	0.62
2016/4/22	5250	Head	100	1113	3954	905	2.33	23	23.3	1.30
2016/4/21	5600	Head	100	1113	3954	905	2.36	24	23.6	-1.67
2016/4/20	5750	Head	100	1113	3954	905	2.3	23	23	0.00
2016/4/24	750	Body	250	1065	3954	905	1.51	5.89	6.04	2.55
2016/4/24	835	Body	250	4d091	3954	905	1.66	6.29	6.64	5.56
2016/4/22	1750	Body	250	1069	3857	1210	4.85	19.1	19.4	1.57
2016/4/22	1900	Body	250	5d118	3857	1210	5.47	21.4	21.88	2.24
2016/4/23	2450	Body	250	840	3857	1210	5.76	24.1	23.04	-4.40
2016/4/21	2600	Body	250	1061	3857	1210	5.77	24.4	23.08	-5.41
2016/4/23	5250	Body	100	1113	3954	905	2.26	21.5	22.6	5.12
2016/4/19	5600	Body	100	1113	3954	905	2.32	23	23.2	0.87
2016/4/18	5750	Body	100	1113	3954	905	2.12	21.3	21.2	-0.47

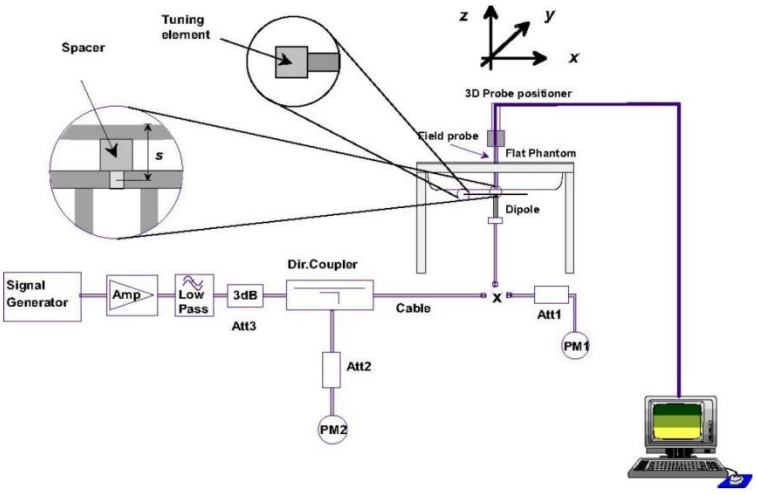


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

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

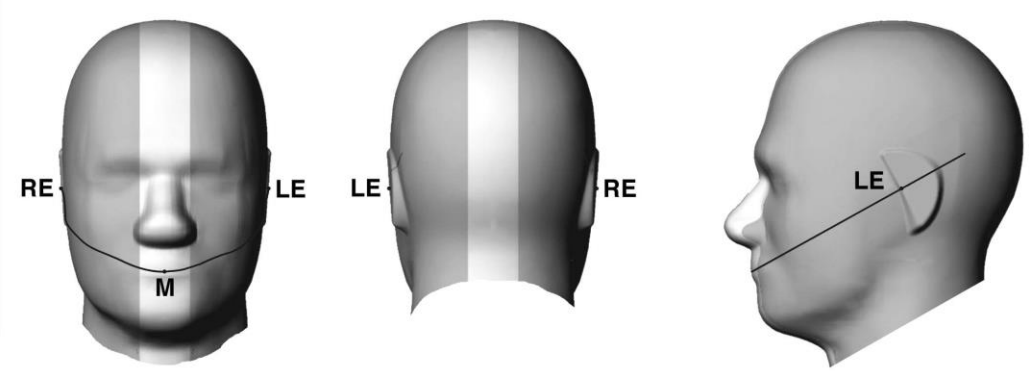


Fig 9.1.1 Front, back, and side views of SAM twin phantom

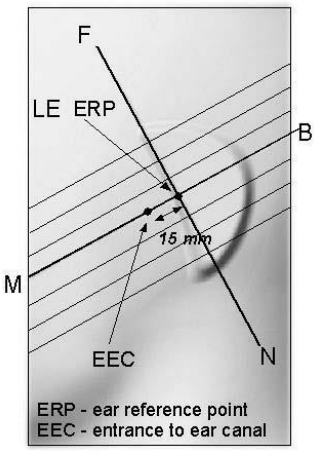


Fig 9.1.2 Close-up side view of phantom showing the ear region.

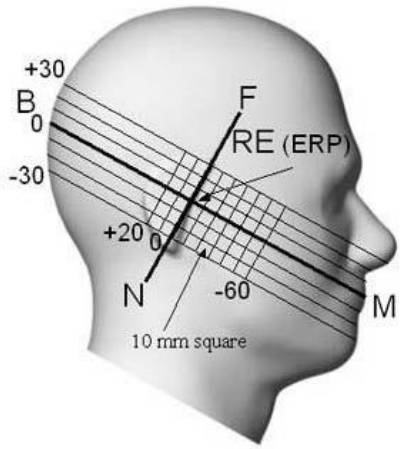


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

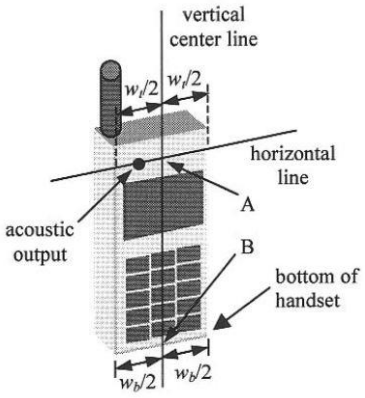


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

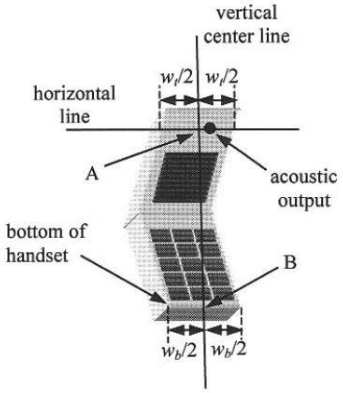


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

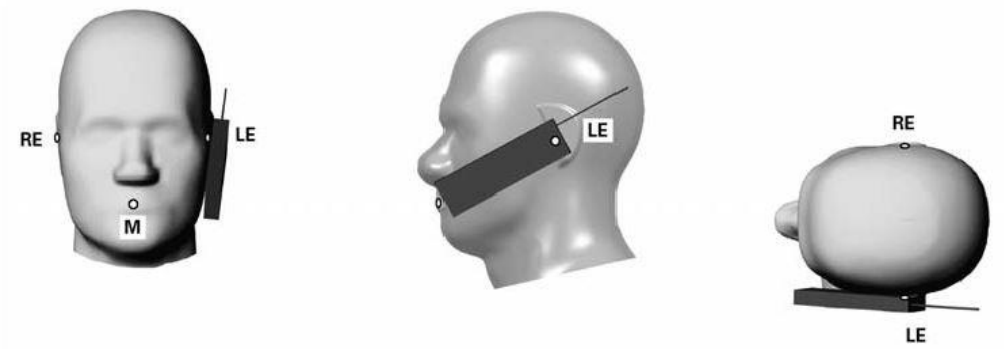


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

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

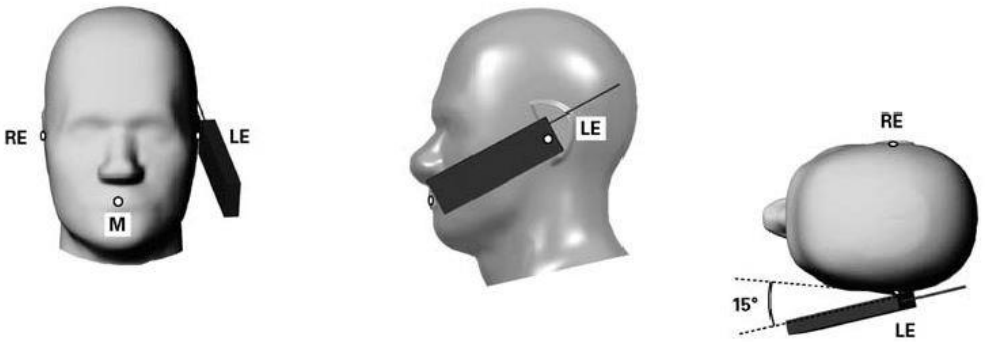


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

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

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

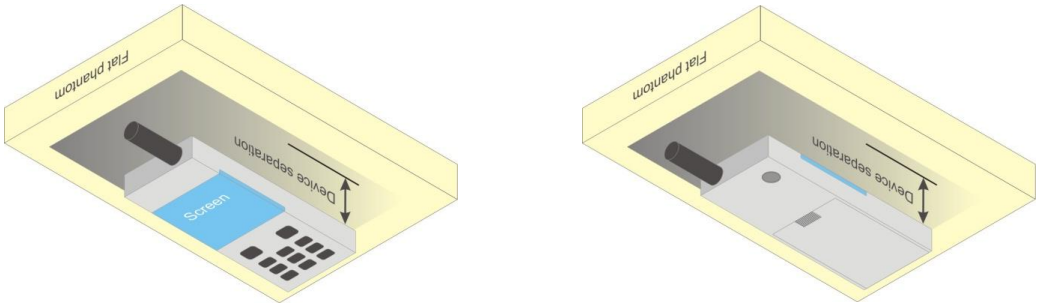


Fig 9.4 Body Worn Position

11.5 Product Specific 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 Product specific 10g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g Product specific 10g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode
4. Power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 4 Tx slot due to its highest frame-average power.

<Full Power Mode>:

Band GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.25	32.40	**32.58**	33.50	23.25	23.40	23.58	24.50
GPRS 1 Tx slot	32.22	32.37	32.56	33.50	23.22	23.37	23.56	24.50
GPRS 2 Tx slots	29.97	30.13	30.23	31.00	23.97	24.13	24.23	25.00
GPRS 3 Tx slots	29.02	29.11	29.18	30.00	24.76	24.85	24.92	25.74
GPRS 4 Tx slots	28.84	28.98	29.11	29.50	25.84	25.98	**26.11**	26.50
EDGE 1 Tx slot	26.75	26.84	26.95	28.00	17.75	17.84	17.95	19.00
EDGE 2 Tx slots	24.83	24.91	25.03	25.50	18.83	18.91	19.03	19.50
EDGE 3 Tx slots	23.78	23.85	23.95	24.50	19.52	19.59	19.69	20.24
EDGE 4 Tx slots	22.91	23.02	23.11	23.50	19.91	20.02	20.11	20.50

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

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.00	29.18	**29.36**	31.00	20.00	20.18	20.36	22.00
GPRS 1 Tx slot	29.02	29.17	29.35	31.00	20.02	20.17	20.35	22.00
GPRS 2 Tx slots	28.40	28.53	28.70	30.00	22.40	22.53	22.70	24.00
GPRS 3 Tx slots	27.53	27.60	27.67	29.00	23.27	23.34	23.41	24.74
GPRS 4 Tx slots	26.49	26.54	26.59	28.00	23.49	23.54	**23.59**	25.00
EDGE 1 Tx slot	25.01	25.02	25.22	27.00	16.01	16.02	16.22	18.00
EDGE 2 Tx slots	23.51	23.53	23.69	25.00	17.51	17.53	17.69	19.00
EDGE 3 Tx slots	22.57	22.59	22.73	24.00	18.31	18.33	18.47	19.74
EDGE 4 Tx slots	21.48	21.51	21.69	23.00	18.48	18.51	18.69	20.00

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

<Hotspot Reduced Power Mode>:

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	26.93	26.84	**27.22**	28.00	17.93	17.84	18.22	19.00
GPRS 1 Tx slot	26.92	26.82	27.21	28.00	17.92	17.82	18.21	19.00
GPRS 2 Tx slots	25.84	25.75	26.08	26.50	19.84	19.75	20.08	20.50
GPRS 3 Tx slots	24.80	24.72	24.78	25.00	20.54	20.46	20.52	20.74
GPRS 4 Tx slots	23.64	23.80	23.85	24.00	20.64	20.80	**20.85**	21.00
EDGE 1 Tx slot	23.10	23.07	23.21	23.50	14.10	14.07	14.21	14.50
EDGE 2 Tx slots	20.67	20.68	20.80	21.00	14.67	14.68	14.80	15.00
EDGE 3 Tx slots	19.73	19.78	19.81	20.00	15.47	15.52	15.55	15.74
EDGE 4 Tx slots	18.71	18.64	18.75	19.00	15.71	15.64	15.75	16.00

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.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

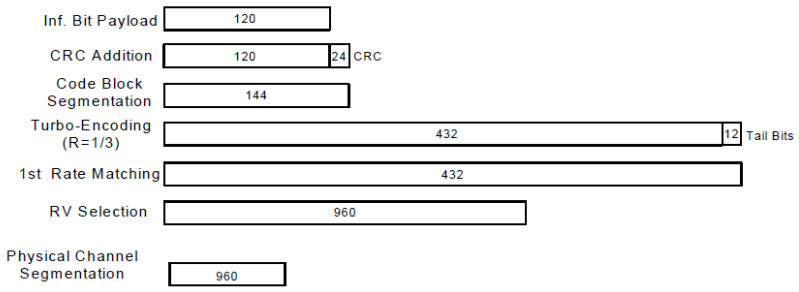


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

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

<Full Power Mode>:

Band		WCDMA Band V			Tune-up Limit (dBm)	WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)
TX Channel		4132	4182	4233		9262	9400	9538		1312	1413	1513	
Rx Channel		4357	4407	4458		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		826.4	836.4	846.6		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	23.51	23.84	23.35	25.00	22.49	22.37	22.48	23.00	22.24	22.03	22.02	23.00
3GPP Rel 99	RMC 12.2Kbps	23.50	**23.85**	23.37	25.00	**22.50**	22.37	22.46	23.00	**22.25**	22.04	22.01	23.00
3GPP Rel 6	HSDPA Subtest-1	22.89	22.81	22.77	23.00	21.19	21.05	21.12	21.50	21.87	21.72	21.54	22.00
3GPP Rel 6	HSDPA Subtest-2	22.90	22.82	22.78	23.00	21.16	21.02	21.10	21.50	21.82	21.69	21.51	22.00
3GPP Rel 6	HSDPA Subtest-3	22.39	22.31	22.26	22.50	20.63	20.48	20.56	21.00	21.28	21.16	20.96	21.50
3GPP Rel 6	HSDPA Subtest-4	22.38	22.29	22.25	22.50	20.65	20.50	20.59	21.00	21.31	21.19	21.00	21.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.83	22.76	22.74	23.00	21.31	21.16	21.12	21.50	22.04	21.90	21.48	22.50
3GPP Rel 8	DC-HSDPA Subtest-2	22.87	22.79	22.72	23.00	21.11	21.03	21.08	21.50	21.81	21.69	21.44	22.50
3GPP Rel 8	DC-HSDPA Subtest-3	22.38	22.31	22.26	22.50	20.62	20.58	20.51	21.00	21.29	21.14	21.01	22.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.37	22.29	22.31	22.50	20.60	20.55	20.50	21.00	21.31	21.17	21.02	22.00
3GPP Rel 6	HSUPA Subtest-1	22.83	22.75	22.69	23.00	21.05	20.92	21.01	21.50	21.76	21.63	21.44	22.00
3GPP Rel 6	HSUPA Subtest-2	20.87	20.80	20.75	21.00	18.99	18.92	18.95	19.50	19.80	19.67	19.49	20.50
3GPP Rel 6	HSUPA Subtest-3	21.85	21.78	21.72	22.00	20.03	20.01	20.05	20.50	20.77	20.64	20.47	21.50
3GPP Rel 6	HSUPA Subtest-4	20.88	20.81	20.75	21.00	19.05	19.02	19.03	19.50	19.79	19.65	19.50	20.50
3GPP Rel 6	HSUPA Subtest-5	22.85	22.78	22.73	23.00	21.28	21.18	21.25	21.50	22.04	21.88	21.71	22.50

<Hotspot Reduced Power Mode>:

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	18.59	18.43	18.26	19.00	17.94	18.08	18.03	18.50
3GPP Rel 99	RMC 12.2Kbps	**18.60**	18.45	18.28	19.00	17.96	**18.09**	18.05	18.50
3GPP Rel 6	HSDPA Subtest-1	17.28	17.14	17.21	17.50	17.72	17.57	17.39	18.00
3GPP Rel 6	HSDPA Subtest-2	17.25	17.11	17.19	17.50	17.67	17.54	17.36	18.00
3GPP Rel 6	HSDPA Subtest-3	16.72	16.57	16.65	17.00	17.13	17.01	16.81	17.50
3GPP Rel 6	HSDPA Subtest-4	16.74	16.59	16.68	17.00	17.16	17.04	16.85	17.50
3GPP Rel 8	DC-HSDPA Subtest-1	17.38	17.24	17.14	17.50	17.89	17.75	17.33	18.00
3GPP Rel 8	DC-HSDPA Subtest-2	17.25	17.08	17.12	17.50	17.66	17.54	17.29	18.00
3GPP Rel 8	DC-HSDPA Subtest-3	16.72	16.56	16.65	17.00	17.14	16.99	16.86	17.50
3GPP Rel 8	DC-HSDPA Subtest-4	16.73	16.58	16.68	17.00	17.16	17.02	16.87	17.50
3GPP Rel 6	HSUPA Subtest-1	17.17	17.03	17.12	17.50	17.61	17.48	17.29	18.00
3GPP Rel 6	HSUPA Subtest-2	15.23	15.09	15.16	15.50	15.65	15.52	15.34	16.00
3GPP Rel 6	HSUPA Subtest-3	16.21	16.06	16.13	16.50	16.62	16.49	16.32	17.00
3GPP Rel 6	HSUPA Subtest-4	15.23	15.09	15.16	15.50	15.64	15.50	15.35	16.00
3GPP Rel 6	HSUPA Subtest-5	17.39	17.22	17.28	17.50	17.89	17.73	17.56	18.00

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B12 / B5 / B4 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

<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	21.56	21.69	21.89	23.00	0
20	QPSK	1	49	21.31	21.68	21.71		
20	QPSK	1	99	21.92	21.94	22.14		
20	QPSK	50	0	20.83	20.86	20.93	22.00	0-1
20	QPSK	50	24	20.51	20.73	20.91		
20	QPSK	50	50	20.85	20.87	21.09		
20	QPSK	100	0	20.81	20.84	20.96		
20	16QAM	1	0	21.16	20.94	21.12	22.00	0-1
20	16QAM	1	49	21.34	20.96	20.54		
20	16QAM	1	99	20.92	21.12	21.41		
20	16QAM	50	0	20.01	19.75	19.75	21.00	0-2
20	16QAM	50	24	20.20	19.73	19.51		
20	16QAM	50	50	19.97	19.85	19.64		
20	16QAM	100	0	19.99	19.83	19.65		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.98	21.72	21.7	23.00	0
15	QPSK	1	37	21.86	21.58	21.17		
15	QPSK	1	74	21.86	21.83	22.01		
15	QPSK	36	0	20.97	20.65	20.38	22.00	0-1
15	QPSK	36	20	21.05	20.73	20.33		
15	QPSK	36	39	21.12	20.80	20.70		
15	QPSK	75	0	21.05	20.72	20.52		
15	16QAM	1	0	21.21	20.95	20.93	22.00	0-1
15	16QAM	1	37	21.11	20.84	20.44		
15	16QAM	1	74	21.10	21.11	21.46		
15	16QAM	36	0	19.94	19.65	19.39	21.00	0-2
15	16QAM	36	20	20.02	19.73	19.34		
15	16QAM	36	39	20.09	19.79	19.69		
15	16QAM	75	0	20.03	19.71	19.52		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.09	21.96	21.99	23.00	0
10	QPSK	1	25	21.90	21.53	21.32		
10	QPSK	1	49	21.70	21.30	21.80		
10	QPSK	25	0	20.71	20.36	20.09	22.00	0-1
10	QPSK	25	12	20.87	20.59	20.44		
10	QPSK	25	25	20.83	20.56	20.74		
10	QPSK	50	0	20.81	20.44	20.52		
10	16QAM	1	0	20.85	20.43	20.01	22.00	0-1
10	16QAM	1	25	21.17	20.82	20.60		
10	16QAM	1	49	20.97	20.59	21.06		
10	16QAM	25	0	19.70	19.35	19.09	21.00	0-2
10	16QAM	25	12	19.86	19.59	19.44		
10	16QAM	25	25	19.82	19.56	19.73		
10	16QAM	50	0	19.81	19.45	19.53		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.76	21.34	21.21	23.00	0
5	QPSK	1	12	21.69	21.48	21.82		
5	QPSK	1	24	21.68	21.42	21.89		
5	QPSK	12	0	20.80	20.53	20.51	22.00	0-1
5	QPSK	12	7	20.79	20.55	20.90		
5	QPSK	12	13	20.84	20.51	21.02		
5	QPSK	25	0	20.75	20.50	20.86		
5	16QAM	1	0	21.03	20.60	20.43	22.00	0-1
5	16QAM	1	12	20.96	20.77	21.06		
5	16QAM	1	24	20.97	20.69	21.14		
5	16QAM	12	0	19.81	19.54	19.49	21.00	0-2
5	16QAM	12	7	19.79	19.56	19.89		
5	16QAM	12	13	19.84	19.53	20.01		
5	16QAM	25	0	19.76	19.51	19.86		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.03	21.6	21.83	23.00	0
3	QPSK	1	8	22.05	21.69	22.04		
3	QPSK	1	14	21.94	21.63	21.99		
3	QPSK	8	0	21.08	20.58	20.96	22.00	0-1
3	QPSK	8	4	21.02	20.61	21.09		
3	QPSK	8	7	20.96	20.61	21.11		
3	QPSK	15	0	20.98	20.58	21.03		
3	16QAM	1	0	21.33	20.83	21.06	22.00	0-1
3	16QAM	1	8	21.27	20.96	21.33		
3	16QAM	1	14	21.14	20.90	21.26		
3	16QAM	8	0	20.06	19.61	19.98	21.00	0-2
3	16QAM	8	4	20.01	19.64	20.13		
3	16QAM	8	7	19.96	19.63	20.16		
3	16QAM	15	0	19.98	19.59	20.04		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.03	21.46	21.90	23.00	0
1.4	QPSK	1	3	22.01	21.56	21.95		
1.4	QPSK	1	5	21.87	21.51	21.84		
1.4	QPSK	3	0	21.95	21.51	21.88		
1.4	QPSK	3	1	21.96	21.54	21.91		
1.4	QPSK	3	3	21.93	21.51	21.90		
1.4	QPSK	6	0	20.94	20.47	20.94	22.00	0-1
1.4	16QAM	1	0	21.18	20.69	21.14	22.00	0-1
1.4	16QAM	1	3	21.21	20.81	21.20		
1.4	16QAM	1	5	21.10	20.77	21.10		
1.4	16QAM	3	0	20.94	20.52	20.91		
1.4	16QAM	3	1	20.96	20.55	20.95		
1.4	16QAM	3	3	20.93	20.53	20.94		
1.4	16QAM	6	0	20.00	19.53	20.03	21.00	0-2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.39	22.32	22.14	23.00	0
20	QPSK	1	49	22.47	22.41	22.37		
20	QPSK	1	99	22.17	22.05	22.01		
20	QPSK	50	0	21.38	21.29	21.24	22.00	0-1
20	QPSK	50	24	21.43	21.39	21.36		
20	QPSK	50	50	21.46	21.45	21.44		
20	QPSK	100	0	21.36	21.29	21.26		
20	16QAM	1	0	21.66	21.61	21.4	22.00	0-1
20	16QAM	1	49	21.76	21.46	21.65		
20	16QAM	1	99	21.46	21.34	21.41		
20	16QAM	50	0	20.37	20.27	20.24	21.00	0-2
20	16QAM	50	24	20.43	20.30	20.36		
20	16QAM	50	50	20.34	20.31	20.43		
20	16QAM	100	0	20.35	20.29	20.25		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.01	22.05	22.17	23.00	0
15	QPSK	1	37	22.03	22.15	22.27		
15	QPSK	1	74	22.06	22.24	22.3		
15	QPSK	36	0	21.49	21.32	21.23	22.00	0-1
15	QPSK	36	20	21.47	21.35	21.46		
15	QPSK	36	39	21.50	21.31	21.48		
15	QPSK	75	0	21.41	21.21	21.35		
15	16QAM	1	0	21.74	21.69	21.41	22.00	0-1
15	16QAM	1	37	21.65	21.44	21.54		
15	16QAM	1	74	21.71	21.54	21.57		
15	16QAM	36	0	20.47	20.3	20.21	21.00	0-2
15	16QAM	36	20	20.47	20.34	20.43		
15	16QAM	36	39	20.48	20.31	20.45		
15	16QAM	75	0	20.40	20.20	20.33		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.12	21.95	21.99	23.00	0
10	QPSK	1	25	22.30	22.13	22.30		
10	QPSK	1	49	22.12	21.81	21.97		
10	QPSK	25	0	21.30	21.09	21.29	22.00	0-1
10	QPSK	25	12	21.35	21.31	21.38		
10	QPSK	25	25	21.32	21.22	21.27		
10	QPSK	50	0	21.26	21.18	21.27		
10	16QAM	1	0	21.36	21.20	21.18	22.00	0-1
10	16QAM	1	25	21.56	21.39	21.53		
10	16QAM	1	49	21.38	21.07	21.20		
10	16QAM	25	0	20.31	20.11	20.27	21.00	0-2
10	16QAM	25	12	20.36	20.33	20.36		
10	16QAM	25	25	20.32	20.22	20.25		
10	16QAM	50	0	20.26	20.17	20.25		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.28	22.08	22.2	23.00	0
5	QPSK	1	12	22.06	22.13	22.17		
5	QPSK	1	24	22.21	22.04	22.13		
5	QPSK	12	0	21.35	21.17	21.24	22.00	0-1
5	QPSK	12	7	21.44	21.36	21.25		
5	QPSK	12	13	21.37	21.27	21.23		
5	QPSK	25	0	21.38	21.29	21.23		
5	16QAM	1	0	21.54	21.35	21.43	22.00	0-1
5	16QAM	1	12	21.62	21.39	21.41		
5	16QAM	1	24	21.50	21.33	21.38		
5	16QAM	12	0	20.36	20.18	20.21	21.00	0-2
5	16QAM	12	7	20.46	20.36	20.22		
5	16QAM	12	13	20.37	20.27	20.21		
5	16QAM	25	0	20.40	20.29	20.21		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.04	22.15	22.09	23.00	0
3	QPSK	1	8	22.09	22.23	22.29		
3	QPSK	1	14	22.01	22.14	22.26		
3	QPSK	8	0	21.41	21.28	21.26	22.00	0-1
3	QPSK	8	4	21.41	21.36	21.19		
3	QPSK	8	7	21.46	21.38	21.25		
3	QPSK	15	0	21.38	21.33	21.25		
3	16QAM	1	0	21.63	21.37	21.51	22.00	0-1
3	16QAM	1	8	21.79	21.50	21.49		
3	16QAM	1	14	21.62	21.37	21.46		
3	16QAM	8	0	20.47	20.33	20.29	21.00	0-2
3	16QAM	8	4	20.46	20.41	20.21		
3	16QAM	8	7	20.51	20.43	20.27		
3	16QAM	15	0	20.40	20.34	20.24		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.11	22.18	22.22	23.00	0
1.4	QPSK	1	3	22.01	22.26	22.04		
1.4	QPSK	1	5	22.09	22.24	22.28		
1.4	QPSK	3	0	22.04	22.20	22.23		
1.4	QPSK	3	1	22.05	22.25	22.29		
1.4	QPSK	3	3	22.06	22.27	22.08		
1.4	QPSK	6	0	21.48	21.37	21.27	22.00	0-1
1.4	16QAM	1	0	21.73	21.41	21.42	22.00	0-1
1.4	16QAM	1	3	21.77	21.51	21.55		
1.4	16QAM	1	5	21.69	21.49	21.51		
1.4	16QAM	3	0	21.48	21.21	21.20		
1.4	16QAM	3	1	21.53	21.27	21.28		
1.4	16QAM	3	3	21.51	21.28	21.30		
1.4	16QAM	6	0	20.55	20.44	20.33	21.00	0-2

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	21.72	21.65	21.21	23.00	0
10	QPSK	1	25	22.34	21.66	21.56		
10	QPSK	1	49	21.81	21.31	21.30		
10	QPSK	25	0	21.06	21.04	20.42	22.00	0-1
10	QPSK	25	12	21.1	21.09	20.67		
10	QPSK	25	25	20.93	20.69	20.51		
10	QPSK	50	0	20.95	20.69	20.39		
10	16QAM	1	0	20.98	20.69	20.45	22.00	0-1
10	16QAM	1	25	21.62	20.86	20.92		
10	16QAM	1	49	21.07	20.33	20.57		
10	16QAM	25	0	20.04	19.99	19.41	21.00	0-2
10	16QAM	25	12	20.07	19.66	19.64		
10	16QAM	25	25	19.88	19.26	19.47		
10	16QAM	50	0	19.90	19.64	19.38		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.91	22.04	21.79	23.00	0
5	QPSK	1	12	22.11	21.61	21.85		
5	QPSK	1	24	21.19	21.18	21.39		
5	QPSK	12	0	20.77	20.91	20.69	22.00	0-1
5	QPSK	12	7	21.06	20.81	20.72		
5	QPSK	12	13	21.04	20.59	20.61		
5	QPSK	25	0	21.08	20.69	20.63		
5	16QAM	1	0	21.13	21.28	21.00	22.00	0-1
5	16QAM	1	12	21.37	20.86	21.07		
5	16QAM	1	24	20.56	20.41	20.65		
5	16QAM	12	0	19.73	19.86	19.64	21.00	0-2
5	16QAM	12	7	20.02	19.77	19.68		
5	16QAM	12	13	20.00	19.55	19.58		
5	16QAM	25	0	20.03	19.64	19.59		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.85	21.91	21.89	23.00	0
3	QPSK	1	8	22.14	21.69	21.86		
3	QPSK	1	14	22.10	21.35	21.42		
3	QPSK	8	0	20.66	20.86	20.67	22.00	0-1
3	QPSK	8	4	20.84	20.66	20.64		
3	QPSK	8	7	20.78	20.52	20.52		
3	QPSK	15	0	20.71	20.75	20.60		
3	16QAM	1	0	21.08	21.13	21.10	22.00	0-1
3	16QAM	1	8	21.40	20.96	21.11		
3	16QAM	1	14	21.38	20.62	20.66		
3	16QAM	8	0	19.68	19.87	19.66	21.00	0-2
3	16QAM	8	4	19.85	19.69	19.65		
3	16QAM	8	7	19.81	19.53	19.54		
3	16QAM	15	0	19.69	19.71	19.56		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.70	21.61	21.64	23.00	0
1.4	QPSK	1	3	21.79	21.62	21.61		
1.4	QPSK	1	5	21.78	21.42	21.33		
1.4	QPSK	3	0	21.76	21.60	21.59		
1.4	QPSK	3	1	21.78	21.61	21.59		
1.4	QPSK	3	3	21.76	21.58	21.54		
1.4	QPSK	6	0	20.57	20.58	20.40	22.00	0-1
1.4	16QAM	1	0	20.94	20.87	20.90	22.00	0-1
1.4	16QAM	1	3	21.04	20.89	20.88		
1.4	16QAM	1	5	21.05	20.68	20.60		
1.4	16QAM	3	0	20.72	20.56	20.57		
1.4	16QAM	3	1	20.73	20.59	20.57		
1.4	16QAM	3	3	20.71	20.55	20.52		
1.4	16QAM	6	0	19.60	19.60	19.43	21.00	0-2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Measured Power			Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.82	21.59	21.89	23.00	0
20	QPSK	1	49	21.56	21.37	21.74		
20	QPSK	1	99	21.67	21.44	21.02		
20	QPSK	50	0	20.88	20.54	21.00	22.00	0-1
20	QPSK	50	24	20.78	20.53	20.85		
20	QPSK	50	50	20.81	20.53	20.59		
20	QPSK	100	0	20.76	20.57	20.79		
20	16QAM	1	0	20.83	20.88	21.16	22.00	0-1
20	16QAM	1	49	21.07	20.68	21.03		
20	16QAM	1	99	20.96	20.75	20.27		
20	16QAM	50	0	19.80	19.58	20.03	21.00	0-2
20	16QAM	50	24	19.88	19.60	19.90		
20	16QAM	50	50	19.90	19.58	19.65		
20	16QAM	100	0	19.81	19.62	19.79		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.89	21.69	22.01	23.00	0
15	QPSK	1	37	21.82	21.51	21.48		
15	QPSK	1	74	22.00	21.66	21.05		
15	QPSK	36	0	21.01	20.70	21.04	22.00	0-1
15	QPSK	36	20	21.06	20.68	20.72		
15	QPSK	36	39	21.05	20.69	20.62		
15	QPSK	75	0	21.00	20.74	20.74		
15	16QAM	1	0	21.13	20.99	21.30	22.00	0-1
15	16QAM	1	37	21.08	20.78	20.85		
15	16QAM	1	74	21.26	20.97	20.51		
15	16QAM	36	0	19.99	19.76	20.10	21.00	0-2
15	16QAM	36	20	20.05	19.73	19.79		
15	16QAM	36	39	20.04	19.75	19.68		
15	16QAM	75	0	20.00	19.79	19.79		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.39	21.27	21.49	23.00	0
10	QPSK	1	25	21.61	21.40	21.40		
10	QPSK	1	49	21.58	21.24	21.06		
10	QPSK	25	0	20.63	20.50	20.59	22.00	0-1
10	QPSK	25	12	20.84	20.60	20.64		
10	QPSK	25	25	20.75	20.47	20.32		
10	QPSK	50	0	20.74	20.48	20.45		
10	16QAM	1	0	20.65	20.62	20.80	22.00	0-1
10	16QAM	1	25	20.90	20.73	20.75		
10	16QAM	1	49	20.87	20.58	20.06		
10	16QAM	25	0	19.68	19.57	19.66	21.00	0-2
10	16QAM	25	12	19.88	19.68	19.72		
10	16QAM	25	25	19.79	19.54	19.41		
10	16QAM	50	0	19.77	19.56	19.54		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.47	21.31	21.40	23.00	0
5	QPSK	1	12	21.47	21.38	21.12		
5	QPSK	1	24	21.57	21.25	21.02		
5	QPSK	12	0	20.56	20.55	20.49	22.00	0-1
5	QPSK	12	7	20.59	20.59	20.38		
5	QPSK	12	13	20.60	20.55	20.23		
5	QPSK	25	0	20.58	20.55	20.34		
5	16QAM	1	0	20.74	20.66	20.72	22.00	0-1
5	16QAM	1	12	20.75	20.71	20.47		
5	16QAM	1	24	20.87	20.57	20.11		
5	16QAM	12	0	19.59	19.63	19.58	21.00	0-2
5	16QAM	12	7	19.62	19.67	19.47		
5	16QAM	12	13	19.64	19.64	19.31		
5	16QAM	25	0	19.61	19.64	19.43		

<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	23.87	23.77	23.49	24.50	0
10	QPSK	1	25	23.63	23.24	23.41		
10	QPSK	1	49	23.25	23.76	22.85		
10	QPSK	25	0	23.13	22.45	22.55	23.50	0-1
10	QPSK	25	12	22.80	22.26	22.26		
10	QPSK	25	25	22.43	22.40	22.45		
10	QPSK	50	0	22.69	22.39	22.31		
10	16QAM	1	0	23.08	23.01	22.24	23.50	0-1
10	16QAM	1	25	22.86	22.47	22.77		
10	16QAM	1	49	22.47	22.98	21.99		
10	16QAM	25	0	22.12	21.42	21.17	22.50	0-2
10	16QAM	25	12	21.77	21.24	21.52		
10	16QAM	25	25	21.39	21.37	21.44		
10	16QAM	50	0	21.66	21.37	21.29		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.78	23.21	23.60	24.50	0
5	QPSK	1	12	24.02	23.14	23.42		
5	QPSK	1	24	23.52	23.32	22.64		
5	QPSK	12	0	23.17	22.22	22.72	23.50	0-1
5	QPSK	12	7	23.20	22.21	22.54		
5	QPSK	12	13	23.13	22.21	22.25		
5	QPSK	25	0	23.05	22.21	22.37		
5	16QAM	1	0	23.00	22.46	22.81	23.50	0-1
5	16QAM	1	12	23.27	22.37	22.69		
5	16QAM	1	24	22.80	22.57	21.91		
5	16QAM	12	0	22.15	21.20	21.71	22.50	0-2
5	16QAM	12	7	22.21	21.22	21.55		
5	16QAM	12	13	22.14	21.17	21.14		
5	16QAM	25	0	22.06	21.12	21.37		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.78	23.20	23.52	24.50	0
3	QPSK	1	8	23.96	23.21	23.02		
3	QPSK	1	14	23.87	23.18	22.89		
3	QPSK	8	0	23.03	22.06	22.34	23.50	0-1
3	QPSK	8	4	23.12	22.22	22.13		
3	QPSK	8	7	23.17	22.21	22.18		
3	QPSK	15	0	23.04	22.10	22.05		
3	16QAM	1	0	22.99	22.43	23.02	23.50	0-1
3	16QAM	1	8	23.32	22.46	22.52		
3	16QAM	1	14	23.27	22.49	22.29		
3	16QAM	8	0	22.05	21.19	21.59	22.50	0-2
3	16QAM	8	4	22.15	21.24	21.22		
3	16QAM	8	7	22.21	21.27	21.26		
3	16QAM	15	0	22.04	21.21	21.25		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.75	23.12	23.50	24.50	0
1.4	QPSK	1	3	23.92	23.15	22.96		
1.4	QPSK	1	5	23.85	23.13	22.85		
1.4	QPSK	3	0	22.98	23.16	22.55		
1.4	QPSK	3	1	23.09	22.53	22.51		
1.4	QPSK	3	3	23.13	22.56	22.51		
1.4	QPSK	6	0	23.02	22.05	22.09	23.50	0-1
1.4	16QAM	1	0	22.94	22.08	22.93	23.50	0-1
1.4	16QAM	1	3	23.29	22.38	22.50		
1.4	16QAM	1	5	23.23	22.43	22.23		
1.4	16QAM	3	0	22.03	21.59	21.56		
1.4	16QAM	3	1	22.10	21.58	21.54		
1.4	16QAM	3	3	22.18	21.53	21.51		
1.4	16QAM	6	0	22.00	21.15	21.19	22.50	0-2

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	22.29	22.18	22.28	24.00	0
10	QPSK	1	25	23.04	23.05	23.19		
10	QPSK	1	49	22.88	22.29	22.05		
10	QPSK	25	0	21.54	21.76	22.11	23.00	0-1
10	QPSK	25	12	22.24	22.33	22.39		
10	QPSK	25	25	22.21	22.28	22.07		
10	QPSK	50	0	22.00	22.07	22.14		
10	16QAM	1	0	21.54	21.54	21.53	23.00	0-1
10	16QAM	1	25	22.32	22.33	22.44		
10	16QAM	1	49	22.13	21.55	21.55		
10	16QAM	25	0	20.51	20.73	21.09	22.00	0-2
10	16QAM	25	12	21.18	21.30	21.36		
10	16QAM	25	25	21.22	21.26	21.05		
10	16QAM	50	0	20.98	21.06	21.11		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.47	22.72	23.30	24.00	0
5	QPSK	1	12	22.43	23.06	22.95		
5	QPSK	1	24	22.98	23.41	22.42		
5	QPSK	12	0	21.64	22.12	22.42	23.00	0-1
5	QPSK	12	7	21.54	22.16	22.21		
5	QPSK	12	13	21.76	22.34	21.69		
5	QPSK	25	0	21.59	22.32	21.92		
5	16QAM	1	0	21.72	21.94	22.54	23.00	0-1
5	16QAM	1	12	21.70	22.29	22.20		
5	16QAM	1	24	22.24	22.64	21.64		
5	16QAM	12	0	20.56	21.09	21.41	22.00	0-2
5	16QAM	12	7	20.53	21.11	21.21		
5	16QAM	12	13	20.73	21.30	20.70		
5	16QAM	25	0	20.58	21.30	20.90		

<Hotspot Reduced 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	20.18	19.94	19.96	20.50	0
20	QPSK	1	49	20.15	19.81	19.43		
20	QPSK	1	99	20.08	19.95	20.07		
20	QPSK	50	0	19.11	18.93	18.98	19.50	0-1
20	QPSK	50	24	19.08	18.82	18.72		
20	QPSK	50	50	19.06	18.95	18.78		
20	QPSK	100	0	19.16	18.86	18.81		
20	16QAM	1	0	19.31	19.20	19.24	19.50	0-1
20	16QAM	1	49	19.41	19.08	18.68		
20	16QAM	1	99	19.11	19.24	19.35		
20	16QAM	50	0	18.06	17.92	17.95	18.50	0-2
20	16QAM	50	24	18.17	17.79	17.72		
20	16QAM	50	50	18.13	17.92	17.77		
20	16QAM	100	0	18.11	17.82	17.77		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	20.08	19.84	19.87	20.50	0
15	QPSK	1	37	19.94	19.67	19.36		
15	QPSK	1	74	20.19	19.94	19.93		
15	QPSK	36	0	18.98	18.81	18.62	19.50	0-1
15	QPSK	36	20	19.07	18.79	18.50		
15	QPSK	36	39	19.25	18.88	18.84		
15	QPSK	75	0	18.97	18.78	18.68		
15	16QAM	1	0	19.35	19.12	19.12	19.50	0-1
15	16QAM	1	37	19.22	18.95	18.61		
15	16QAM	1	74	19.44	19.24	19.43		
15	16QAM	36	0	17.95	17.80	17.62	18.50	0-2
15	16QAM	36	20	18.04	17.80	17.51		
15	16QAM	36	39	18.22	17.86	17.83		
15	16QAM	75	0	17.95	17.76	17.66		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	19.72	19.31	18.99	20.50	0
10	QPSK	1	25	19.96	19.65	19.53		
10	QPSK	1	49	19.76	19.44	19.85		
10	QPSK	25	0	18.73	18.55	18.31	19.50	0-1
10	QPSK	25	12	18.89	18.68	18.64		
10	QPSK	25	25	18.85	18.68	18.90		
10	QPSK	50	0	18.84	18.54	18.72		
10	16QAM	1	0	18.98	18.59	18.27	19.50	0-1
10	16QAM	1	25	19.26	18.96	18.83		
10	16QAM	1	49	19.07	18.75	19.33		
10	16QAM	25	0	17.73	17.55	17.30	18.50	0-2
10	16QAM	25	12	17.89	17.68	17.63		
10	16QAM	25	25	17.84	17.68	17.90		
10	16QAM	50	0	17.83	17.54	17.72		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	19.93	19.47	19.37	20.50	0
5	QPSK	1	12	19.78	19.61	19.99		
5	QPSK	1	24	19.76	19.58	20.01		
5	QPSK	12	0	18.86	18.55	18.69	19.50	0-1
5	QPSK	12	7	18.82	18.66	19.09		
5	QPSK	12	13	18.87	18.62	19.22		
5	QPSK	25	0	18.80	18.61	19.07		
5	16QAM	1	0	19.17	18.73	18.63	19.50	0-1
5	16QAM	1	12	19.07	18.90	19.27		
5	16QAM	1	24	19.04	18.88	19.47		
5	16QAM	12	0	17.86	17.55	17.68	18.50	0-2
5	16QAM	12	7	17.83	17.66	18.09		
5	16QAM	12	13	17.87	17.65	18.21		
5	16QAM	25	0	17.79	17.60	18.06		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	19.92	19.80	20.05	20.50	0
3	QPSK	1	8	20.00	19.89	20.36		
3	QPSK	1	14	19.94	19.84	20.39		
3	QPSK	8	0	18.84	18.75	19.22	19.50	0-1
3	QPSK	8	4	18.86	18.79	19.36		
3	QPSK	8	7	18.87	18.80	19.42		
3	QPSK	15	0	18.84	18.76	19.32		
3	16QAM	1	0	19.11	18.99	19.24	19.50	0-1
3	16QAM	1	8	19.23	19.10	19.36		
3	16QAM	1	14	19.17	19.06	19.39		
3	16QAM	8	0	17.83	17.78	18.24	18.50	0-2
3	16QAM	8	4	17.88	17.82	18.40		
3	16QAM	8	7	17.88	17.83	18.45		
3	16QAM	15	0	17.82	17.76	18.31		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.11	19.58	20.19	20.50	0
1.4	QPSK	1	3	20.09	19.69	20.28		
1.4	QPSK	1	5	19.93	19.65	20.22		
1.4	QPSK	3	0	20.06	19.66	20.22		
1.4	QPSK	3	1	20.07	19.68	20.28		
1.4	QPSK	3	3	20.03	19.66	20.29		
1.4	QPSK	6	0	18.98	18.60	19.27	19.50	0-1
1.4	16QAM	1	0	19.34	18.80	19.37	19.50	0-1
1.4	16QAM	1	3	19.32	18.93	19.41		
1.4	16QAM	1	5	19.17	18.86	19.43		
1.4	16QAM	3	0	19.07	18.67	19.20		
1.4	16QAM	3	1	19.07	18.69	19.26		
1.4	16QAM	3	3	19.03	18.66	19.28		
1.4	16QAM	6	0	18.03	17.64	18.31	18.50	0-2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	19.57	19.55	19.54	20.00	0
20	QPSK	1	49	19.47	19.53	19.46		
20	QPSK	1	99	19.49	19.43	19.38		
20	QPSK	50	0	18.74	18.71	18.60	19.00	0-1
20	QPSK	50	24	18.69	18.61	18.72		
20	QPSK	50	50	18.64	18.54	18.67		
20	QPSK	100	0	18.67	18.62	18.61		
20	16QAM	1	0	18.96	18.77	18.78	19.00	0-1
20	16QAM	1	49	18.92	18.81	18.90		
20	16QAM	1	99	18.75	18.70	18.65		
20	16QAM	50	0	17.67	17.60	17.59	18.00	0-2
20	16QAM	50	24	17.71	17.64	17.71		
20	16QAM	50	50	17.62	17.54	17.74		
20	16QAM	100	0	17.64	17.61	17.59		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	19.83	19.74	19.57	20.00	0
15	QPSK	1	37	19.68	19.53	19.57		
15	QPSK	1	74	19.67	19.65	19.56		
15	QPSK	36	0	18.80	18.67	18.58	19.00	0-1
15	QPSK	36	20	18.80	18.59	18.81		
15	QPSK	36	39	18.79	18.57	18.82		
15	QPSK	75	0	18.72	18.56	18.68		
15	16QAM	1	0	18.88	18.82	18.83	19.00	0-1
15	16QAM	1	37	18.92	18.83	18.85		
15	16QAM	1	74	18.92	18.94	18.85		
15	16QAM	36	0	17.77	17.63	17.55	18.00	0-2
15	16QAM	36	20	17.77	17.58	17.77		
15	16QAM	36	39	17.75	17.56	17.78		
15	16QAM	75	0	17.70	17.55	17.65		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	19.50	19.32	19.32	20.00	0
10	QPSK	1	25	19.64	19.54	19.63		
10	QPSK	1	49	19.40	19.25	19.25		
10	QPSK	25	0	18.65	18.49	18.65	19.00	0-1
10	QPSK	25	12	18.71	18.59	18.74		
10	QPSK	25	25	18.66	18.50	18.63		
10	QPSK	50	0	18.61	18.45	18.64		
10	16QAM	1	0	18.73	18.56	18.55	19.00	0-1
10	16QAM	1	25	18.90	18.81	18.86		
10	16QAM	1	49	18.66	18.51	18.50		
10	16QAM	25	0	17.65	17.49	17.62	18.00	0-2
10	16QAM	25	12	17.70	17.59	17.71		
10	16QAM	25	25	17.65	17.50	17.60		
10	16QAM	50	0	17.60	17.44	17.61		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	19.65	19.46	19.53	20.00	0
5	QPSK	1	12	19.75	19.54	19.46		
5	QPSK	1	24	19.58	19.47	19.38		
5	QPSK	12	0	18.73	18.56	18.61	19.00	0-1
5	QPSK	12	7	18.80	18.61	18.63		
5	QPSK	12	13	18.72	18.55	18.59		
5	QPSK	25	0	18.74	18.57	18.61		
5	16QAM	1	0	18.87	18.71	18.76	19.00	0-1
5	16QAM	1	12	18.91	18.80	18.71		
5	16QAM	1	24	18.81	18.73	18.63		
5	16QAM	12	0	17.73	17.56	17.57	18.00	0-2
5	16QAM	12	7	17.80	17.62	17.60		
5	16QAM	12	13	17.72	17.56	17.57		
5	16QAM	25	0	17.74	17.56	17.58		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	19.71	19.51	19.56	20.00	0
3	QPSK	1	8	19.87	19.59	19.55		
3	QPSK	1	14	19.71	19.50	19.46		
3	QPSK	8	0	18.72	18.49	18.59	19.00	0-1
3	QPSK	8	4	18.71	18.57	18.48		
3	QPSK	8	7	18.74	18.59	18.55		
3	QPSK	15	0	18.68	18.54	18.56		
3	16QAM	1	0	19.00	18.74	18.77	19.00	0-1
3	16QAM	1	8	18.84	18.85	18.77		
3	16QAM	1	14	18.97	18.75	18.70		
3	16QAM	8	0	17.76	17.54	17.62	18.00	0-2
3	16QAM	8	4	17.76	17.64	17.51		
3	16QAM	8	7	17.79	17.66	17.58		
3	16QAM	15	0	17.69	17.56	17.56		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	19.91	19.59	19.51	20.00	0
1.4	QPSK	1	3	19.97	19.68	19.61		
1.4	QPSK	1	5	19.88	19.66	19.53		
1.4	QPSK	3	0	19.90	19.62	19.52		
1.4	QPSK	3	1	19.94	19.67	19.59		
1.4	QPSK	3	3	19.94	19.69	19.62		
1.4	QPSK	6	0	18.90	18.64	18.63	19.00	0-1
1.4	16QAM	1	0	18.92	18.83	18.73	19.00	0-1
1.4	16QAM	1	3	18.89	18.92	18.85		
1.4	16QAM	1	5	18.82	18.90	18.76		
1.4	16QAM	3	0	18.90	18.63	18.50		
1.4	16QAM	3	1	18.94	18.69	18.56		
1.4	16QAM	3	3	18.93	18.69	18.59		
1.4	16QAM	6	0	17.94	17.69	17.67	18.00	0-2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Measured Power			Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.00	21.06	21.10	21.50	0
20	QPSK	1	49	20.83	20.71	20.75		
20	QPSK	1	99	20.85	20.34	20.44		
20	QPSK	50	0	20.10	20.09	20.13	20.50	0-1
20	QPSK	50	24	20.09	19.85	20.07		
20	QPSK	50	50	20.00	19.66	20.01		
20	QPSK	100	0	20.06	19.84	20.07		
20	16QAM	1	0	20.09	20.40	20.07	20.50	0-1
20	16QAM	1	49	20.09	20.02	20.35		
20	16QAM	1	99	20.26	19.68	19.75		
20	16QAM	50	0	18.99	19.05	19.09	19.50	0-2
20	16QAM	50	24	19.10	18.91	19.17		
20	16QAM	50	50	19.11	18.70	19.07		
20	16QAM	100	0	19.06	18.91	19.10		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.75	21.05	21.10	21.50	0
15	QPSK	1	37	20.61	20.56	20.97		
15	QPSK	1	74	20.98	20.38	20.47		
15	QPSK	36	0	19.85	19.91	20.23	20.50	0-1
15	QPSK	36	20	19.96	19.75	20.15		
15	QPSK	36	39	19.94	19.66	19.97		
15	QPSK	75	0	19.92	19.79	20.09		
15	16QAM	1	0	20.01	20.36	20.40	20.50	0-1
15	16QAM	1	37	19.85	19.88	20.29		
15	16QAM	1	74	20.24	19.67	19.83		
15	16QAM	36	0	18.88	18.98	19.27	19.50	0-2
15	16QAM	36	20	18.98	18.82	19.21		
15	16QAM	36	39	18.94	18.72	19.04		
15	16QAM	75	0	18.94	18.86	19.14		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.40	20.61	20.94	21.50	0
10	QPSK	1	25	20.54	20.55	20.88		
10	QPSK	1	49	20.38	20.11	20.13		
10	QPSK	25	0	19.62	19.66	20.08	20.50	0-1
10	QPSK	25	12	19.77	19.76	20.05		
10	QPSK	25	25	19.72	19.54	19.76		
10	QPSK	50	0	19.79	19.60	19.92		
10	16QAM	1	0	19.67	19.95	20.25	20.50	0-1
10	16QAM	1	25	19.81	19.91	20.22		
10	16QAM	1	49	19.65	19.46	19.47		
10	16QAM	25	0	18.66	18.73	19.15	19.50	0-2
10	16QAM	25	12	18.81	18.84	19.12		
10	16QAM	25	25	18.75	18.61	18.83		
10	16QAM	50	0	18.83	18.68	18.98		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.49	20.57	20.83	21.50	0
5	QPSK	1	12	20.44	20.51	20.65		
5	QPSK	1	24	20.43	20.23	20.26		
5	QPSK	12	0	19.60	19.69	19.93	20.50	0-1
5	QPSK	12	7	19.59	19.74	19.84		
5	QPSK	12	13	19.57	19.63	19.70		
5	QPSK	25	0	19.57	19.70	19.79		
5	16QAM	1	0	19.76	19.89	20.14	20.50	0-1
5	16QAM	1	12	19.74	19.86	19.98		
5	16QAM	1	24	19.72	19.56	19.58		
5	16QAM	12	0	18.64	18.76	19.01	19.50	0-2
5	16QAM	12	7	18.64	18.81	18.92		
5	16QAM	12	13	18.61	18.70	18.77		
5	16QAM	25	0	18.62	18.77	18.86		

LTE Carrier Aggregation Conducted Power

General Note:

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

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

iii. The device only supports downlink carrier aggregation. Uplink carrier aggregation is not supported. Power measurements were performed with two DL carriers for the Release 8 configuration that had the highest output power across all bandwidths, channels and RB configuration for each band.

iv. During the carrier aggregation conducted power measurements we have attention to throughput traffic to make sure all the power measurement is corrected.

Configure	PCC						SCC				Measured Power	
	LTE Band	BW (MHz)	Freq. (MHz)	Channel	UL# RB	UL RB Offset	LTE Band	BW (MHz)	Freq. (MHz)	Channel	LTE Rel 10 Tx. Power (dBm)	LTE Rel 8 Tx. Power (dBm)
Inter-Band	Band 2	20M	1860	18700	1	99	Band 4	20M	2132.5	2175	21.93	21.92
	Band 2	20M	1880	18900	1	99	Band 4	20M	2132.5	2175	21.92	21.94
	Band 2	20M	1900	19100	1	99	Band 4	20M	2132.5	2175	22.10	22.14
	Band 4	20M	1720	20050	1	49	Band 2	20M	1960	900	22.49	22.47
	Band 4	20M	1732.5	20175	1	49	Band 2	20M	1960	900	22.42	22.41
	Band 4	20M	1745	20300	1	49	Band 2	20M	1960	900	22.36	22.37
	Band 2	20M	1860	18700	1	99	Band 12	10M	737.5	5095	21.89	21.92
	Band 2	20M	1880	18900	1	99	Band 12	10M	737.5	5095	21.96	21.94
	Band 2	20M	1900	19100	1	99	Band 12	10M	737.5	5095	22.15	22.14
	Band 12	10M	704	23060	1	0	Band 2	20M	1960	900	23.82	23.87
	Band 12	10M	707.5	23095	1	0	Band 2	20M	1960	900	23.69	23.77
	Band 12	10M	711	23130	1	0	Band 2	20M	1960	900	23.52	23.49
	Band 2	10M	1855	18650	1	99	Band 17	10M	739	5780	21.89	21.92
	Band 2	10M	1880	18900	1	99	Band 17	10M	739	5780	21.96	21.94
	Band 2	10M	1905	19150	1	99	Band 17	10M	739	5780	22.13	22.14
	Band 17	10M	709	23780	1	25	Band 2	10M	1960	900	23.06	23.04
	Band 17	10M	710	23790	1	25	Band 2	10M	1960	900	23.02	23.05
	Band 17	10M	711	23800	1	25	Band 2	10M	1960	900	23.15	23.19
	Band 4	20M	1720	20050	1	49	Band 12	10M	737.5	5095	22.42	22.47
	Band 4	20M	1732.5	20175	1	49	Band 12	10M	737.5	5095	22.46	22.41
	Band 4	20M	1745	20300	1	49	Band 12	10M	737.5	5095	22.42	22.37
	Band 12	10M	704	23060	1	0	Band 4	20M	2132.5	2175	23.86	23.87
	Band 12	10M	707.5	23095	1	0	Band 4	20M	2132.5	2175	23.71	23.77
	Band 12	10M	711	23130	1	0	Band 4	20M	2132.5	2175	23.53	23.49
	Band 4	10M	1715	20000	1	49	Band 17	10M	739	5780	22.43	22.47
	Band 4	10M	1732.5	20175	1	49	Band 17	10M	739	5780	22.39	22.41
	Band 4	10M	1750	20350	1	49	Band 17	10M	739	5780	22.43	22.37
	Band 17	10M	709	23780	1	25	Band 4	10M	2132.5	2175	22.99	23.04
	Band 17	10M	710	23790	1	25	Band 4	10M	2132.5	2175	23.06	23.05
	Band 17	10M	711	23800	1	25	Band 4	10M	2132.5	2175	23.15	23.19
Intra-Band	Band 4	20M	1720	20050	1	49	Band 4	20M	2145	2300	22.49	22.47
	Band 4	20M	1745	20300	1	49	Band 4	20M	2120	2050	22.39	22.37

<WLAN Conducted Power>

General Note:

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

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1	802.11b	CH 1	2412	1Mbps	**17.13**	17.50	99.19
		CH 6	2437		16.99	17.50	
		CH 11	2462		16.92	17.50	
	802.11g	CH 1	2412	6Mbps	15.88	16.00	94.67
		CH 6	2437		15.68	16.00	
		CH 11	2462		15.57	16.00	
	802.11n-HT20	CH 1	2412	MCS0	14.81	16.00	94.32
		CH 6	2437		14.46	16.00	
		CH 11	2462		14.37	16.00	
	802.11n-HT40	CH 3	2422	MCS0	14.00	14.50	89.96
		CH 6	2437		13.94	14.50	
		CH 9	2452		13.97	14.50	

<2.4GHz WLAN ANT 2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 2	802.11b	CH 1	2412	1Mbps	**16.26**	16.50	98.96
		CH 6	2437		16.19	16.50	
		CH 11	2462		16.11	16.50	
	802.11g	CH 1	2412	6Mbps	14.10	14.50	95.08
		CH 6	2437		13.94	14.50	
		CH 11	2462		13.89	14.50	
	802.11n-HT20	CH 1	2412	MCS0	12.82	13.00	94.02
		CH 6	2437		12.91	13.00	
		CH 11	2462		12.95	13.00	
	802.11n-HT40	CH 3	2422	MCS0	11.54	12.00	90.47
		CH 6	2437		11.48	12.00	
		CH 9	2452		11.41	12.00	

<2.4GHz WLAN ANT 1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1+2	802.11n-HT20	CH 1	2412	MCS0	**16.34**	18.00	94.05
		CH 6	2437		16.20	18.00	
		CH 11	2462		16.11	18.00	
	802.11n-HT40	CH 3	2422	MCS0	15.72	16.00	89.89
		CH 6	2437		15.78	16.00	
		CH 9	2452		15.66	16.00	

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1	802.11a	CH 36	5180	6Mbps	14.41	15.00	95.32
		CH 40	5200		14.29	15.00	
		CH 44	5220		14.44	15.00	
		CH 48	5240		**14.49**	15.00	
	802.11n-HT20	CH 36	5180	MCS0	14.23	14.50	94.42
		CH 40	5200		14.14	14.50	
		CH 44	5220		14.30	14.50	
		CH 48	5240		14.37	14.50	
	802.11n-HT40	CH 38	5190	MCS0	13.66	14.00	89.44
		CH 46	5230		13.81	14.00	
	802.11ac-VHT20	CH 36	5180	MCS0	14.34	15.00	95.15
		CH 40	5200		14.07	15.00	
		CH 44	5220		14.26	15.00	
		CH 48	5240		14.41	15.00	
	802.11ac-VHT40	CH 38	5190	MCS0	12.56	13.00	90.14
		CH 46	5230		12.79	13.00	
	802.11ac-VHT80	CH 42	5210	MCS0	12.42	13.00	82.64

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1	802.11a	CH 52	5260	6Mbps	**14.54**	15.00	95.32
		CH 56	5280		14.47	15.00	
		CH 60	5300		14.42	15.00	
		CH 64	5320		14.50	15.00	
	802.11n-HT20	CH 52	5260	MCS0	14.32	14.50	94.42
		CH 56	5280		14.23	14.50	
		CH 60	5300		14.20	14.50	
		CH 64	5320		14.11	14.50	
	802.11n-HT40	CH 54	5270	MCS0	13.66	14.00	89.44
		CH 62	5310		13.75	14.00	
	802.11ac-VHT20	CH 52	5260	MCS0	14.31	15.00	95.15
		CH 56	5280		14.23	15.00	
		CH 60	5300		14.19	15.00	
		CH 64	5320		14.15	15.00	
	802.11ac-VHT40	CH 54	5270	MCS0	12.47	13.00	90.14
		CH 62	5310		12.59	13.00	
	802.11ac-VHT80	CH 58	5290	MCS0	12.37	13.00	82.64

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1	802.11a	CH 100	5500	6Mbps	**15.82**	16.00	95.32
		CH 112	5560		15.64	16.00	
		CH 116	5580		15.62	16.00	
		CH 120	5600		15.75	16.00	
		CH 124	5620		15.66	16.00	
		CH 132	5660		15.68	16.00	
		CH 140	5700		15.78	16.00	
	802.11n-HT20	CH 100	5500	MCS0	14.70	15.00	94.42
		CH 112	5560		14.91	15.00	
		CH 116	5580		14.91	15.00	
		CH 120	5600		14.77	15.00	
		CH 124	5620		14.70	15.00	
		CH 132	5660		14.72	15.00	
		CH 140	5700		14.66	15.00	
	802.11n-HT40	CH 102	5510	MCS0	14.12	15.00	89.44
		CH 110	5550		14.17	15.00	
		CH 118	5590		13.99	15.00	
		CH 134	5670		14.31	15.00	
	802.11ac-VHT20	CH 100	5500	MCS0	13.63	14.00	95.15
		CH 112	5560		13.54	14.00	
		CH 116	5580		13.84	14.00	
		CH 124	5620		13.60	14.00	
		CH 132	5660		13.55	14.00	
		CH 140	5700		13.56	14.00	
	802.11ac-VHT40	CH 102	5510	MCS0	12.91	13.50	90.14
		CH 110	5550		12.86	13.50	
		CH 118	5590		12.81	13.50	
		CH 134	5670		13.18	13.50	
	802.11ac-VHT80	CH 106	5530	MCS0	11.51	12.00	82.64
		CH 122	5610		11.88	12.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a	CH 149	5745	MCS0	**15.93**	16.50	95.32
		CH 157	5785		15.83	16.50	
		CH 165	5825		15.64	16.50	
	802.11n-HT20	CH 149	5745	MCS0	14.93	15.50	94.42
		CH 157	5785		14.78	15.50	
		CH 165	5825		14.59	15.50	
	802.11n-HT40	CH 151	5755	MCS0	14.35	15.00	89.44
		CH 159	5795		14.25	15.00	
	802.11ac-VHT20	CH 149	5745	MCS0	13.96	14.00	95.15
		CH 157	5785		13.71	14.00	
		CH 165	5825		13.58	14.00	
	802.11ac-VHT40	CH 151	5755	MCS0	13.16	14.00	90.14
		CH 159	5795		13.07	14.00	
	802.11ac-VHT80	CH 155	5775	MCS0	11.94	12.00	82.64

<5GHz WLAN ANT2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 2	802.11a	CH 36	5180	6Mbps	**14.09**	14.50	95.20
		CH 40	5200		13.89	14.50	
		CH 44	5220		13.66	14.50	
		CH 48	5240		13.53	14.50	
	802.11n-HT20	CH 36	5180	MCS0	13.08	13.50	94.80
		CH 40	5200		12.84	13.50	
		CH 44	5220		12.49	13.50	
		CH 48	5240		12.57	13.50	
	802.11n-HT40	CH 38	5190	MCS0	12.33	13.00	89.88
		CH 46	5230		12.11	13.00	
	802.11ac-VHT20	CH 36	5180	MCS0	12.12	12.50	94.52
		CH 40	5200		11.88	12.50	
		CH 44	5220		11.71	12.50	
		CH 48	5240		11.66	12.50	
	802.11ac-VHT40	CH 38	5190	MCS0	11.33	12.50	90.76
		CH 46	5230		10.91	12.50	
	802.11ac-VHT80	CH 42	5210	MCS0	10.10	11.00	82.69

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 2	802.11a	CH 52	5260	6Mbps	**13.67**	14.00	95.20
		CH 56	5280		13.63	14.00	
		CH 60	5300		13.59	14.00	
		CH 64	5320		13.48	14.00	
	802.11n-HT20	CH 52	5260	MCS0	13.46	13.50	94.80
		CH 56	5280		13.41	13.50	
		CH 60	5300		13.30	13.50	
		CH 64	5320		13.21	13.50	
	802.11n-HT40	CH 54	5270	MCS0	12.02	13.00	89.88
		CH 62	5310		11.94	13.00	
	802.11ac-VHT20	CH 52	5260	MCS0	11.78	12.00	94.52
		CH 56	5280		11.72	12.00	
		CH 60	5300		11.65	12.00	
		CH 64	5320		11.45	12.00	
	802.11ac-VHT40	CH 54	5270	MCS0	10.90	11.00	90.76
		CH 62	5310		10.96	11.00	
	802.11ac-VHT80	CH 58	5290	MCS0	10.07	11.00	82.69

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 2	802.11a	CH 100	5500	6Mbps	**13.77**	14.00	95.20
		CH 112	5560		13.48	14.00	
		CH 116	5580		13.42	14.00	
		CH 120	5600		13.65	14.00	
		CH 124	5620		13.45	14.00	
		CH 132	5660		13.35	14.00	
		CH 140	5700		13.66	14.00	
	802.11n-HT20	CH 100	5500	MCS0	12.76	13.00	94.80
		CH 112	5560		12.38	13.00	
		CH 116	5580		12.38	13.00	
		CH 120	5600		12.47	13.00	
		CH 124	5620		12.31	13.00	
		CH 132	5660		12.42	13.00	
		CH 140	5700		12.44	13.00	
	802.11n-HT40	CH 102	5510	MCS0	12.11	13.00	89.88
		CH 110	5550		12.02	13.00	
		CH 118	5590		11.78	13.00	
		CH 134	5670		11.91	13.00	
	802.11ac-VHT20	CH 100	5500	MCS0	11.79	13.00	94.52
		CH 112	5560		11.40	13.00	
		CH 116	5580		11.33	13.00	
		CH 124	5620		11.25	13.00	
		CH 132	5660		11.35	13.00	
		CH 140	5700		11.36	13.00	
	802.11ac-VHT40	CH 102	5510	MCS0	11.20	12.00	90.76
		CH 110	5550		10.99	12.00	
		CH 118	5590		10.71	12.00	
		CH 134	5670		10.81	12.00	
	802.11ac-VHT80	CH 106	5530	MCS0	9.57	10.00	82.69
		CH 122	5610		9.74	10.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 2	802.11a	CH 149	5745	MCS0	13.62	14.50	95.20
		CH 157	5785		**13.90**	14.50	
		CH 165	5825		13.49	14.50	
	802.11n-HT20	CH 149	5745	MCS0	12.58	13.00	94.80
		CH 157	5785		12.84	13.00	
		CH 165	5825		12.31	13.00	
	802.11n-HT40	CH 151	5755	MCS0	12.07	13.00	89.88
		CH 159	5795		12.21	13.00	
	802.11ac-VHT20	CH 149	5745	MCS0	11.62	12.00	94.52
		CH 157	5785		11.89	12.00	
		CH 165	5825		11.46	12.00	
	802.11ac-VHT40	CH 151	5755	MCS0	10.99	12.00	90.76
		CH 159	5795		11.29	12.00	
	802.11ac-VHT80	CH 155	5775	MCS0	9.91	10.00	82.69

<5GHz WLAN ANT1+2>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1+2	802.11n-HT20	CH 36	5180	MCS0	**16.96**	17.50	94.53
		CH 40	5200		16.69	17.50	
		CH 44	5220		16.65	17.50	
		CH 48	5240		16.69	17.50	
	802.11n-HT40	CH 38	5190	MCS0	16.37	16.50	89.45
		CH 46	5230		16.12	16.50	
	802.11ac-VHT20	CH 36	5180	MCS0	16.02	16.50	94.68
		CH 40	5200		15.78	16.00	
		CH 44	5220		15.76	16.00	
		CH 48	5240		15.73	16.00	
	802.11ac-VHT40	CH 38	5190	MCS0	15.31	16.00	90.01
		CH 46	5230		15.17	16.00	
	802.11ac-VHT80	CH 42	5210	MCS0	14.21	15.00	83.20

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1+2	802.11n-HT20	CH 52	5260	MCS0	**16.74**	17.00	94.53
		CH 56	5280		16.63	17.00	
		CH 60	5300		16.54	17.00	
		CH 64	5320		16.54	17.00	
	802.11n-HT40	CH 54	5270	MCS0	16.07	16.50	89.45
		CH 62	5310		16.14	16.50	
	802.11ac-VHT20	CH 52	5260	MCS0	15.78	16.00	94.68
		CH 56	5280		15.68	16.00	
		CH 60	5300		15.62	16.00	
		CH 64	5320		15.61	16.00	
	802.11ac-VHT40	CH 54	5270	MCS0	15.13	15.50	90.01
		CH 62	5310		15.04	15.50	
	802.11ac-VHT80	CH 58	5290	MCS0	14.24	15.50	83.20

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1+2	802.11n-HT20	CH 100	5500	MCS0	**16.59**	17.00	94.53
		CH 112	5560		16.25	17.00	
		CH 116	5580		16.25	17.00	
		CH 120	5600		16.33	17.00	
		CH 124	5620		16.31	17.00	
		CH 132	5660		16.24	17.00	
		CH 140	5700		16.25	17.00	
	802.11n-HT40	CH 102	5510	MCS0	15.86	16.00	89.45
		CH 110	5550		15.76	16.00	
		CH 118	5590		15.57	16.00	
		CH 134	5670		15.76	16.00	
	802.11ac-VHT20	CH 100	5500	MCS0	15.59	16.00	94.68
		CH 112	5560		15.41	16.00	
		CH 116	5580		15.33	16.00	
		CH 124	5620		15.40	16.00	
		CH 132	5660		15.32	16.00	
		CH 140	5700		15.44	16.00	
	802.11ac-VHT40	CH 102	5510	MCS0	14.86	15.00	90.01
		CH 110	5550		14.78	15.00	
		CH 118	5590		14.61	15.00	
		CH 134	5670		14.70	15.00	
	802.11ac-VHT80	CH 106	5530	MCS0	13.49	14.00	83.20
		CH 122	5610		13.78	14.00	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1+2	802.11n-HT20	CH 149	5745	MCS0	16.35	17.00	94.53
		CH 157	5785		**16.60**	17.00	
		CH 165	5825		16.25	17.00	
	802.11n-HT40	CH 151	5755	MCS0	15.85	16.50	89.45
		CH 159	5795		16.00	16.50	
	802.11ac-VHT20	CH 149	5745	MCS0	15.55	16.00	94.68
		CH 157	5785		15.43	16.00	
		CH 165	5825		15.25	16.00	
	802.11ac-VHT40	CH 151	5755	MCS0	14.85	15.00	90.01
		CH 159	5795		14.98	15.00	
	802.11ac-VHT80	CH 155	5775	MCS0	13.83	15.00	83.20

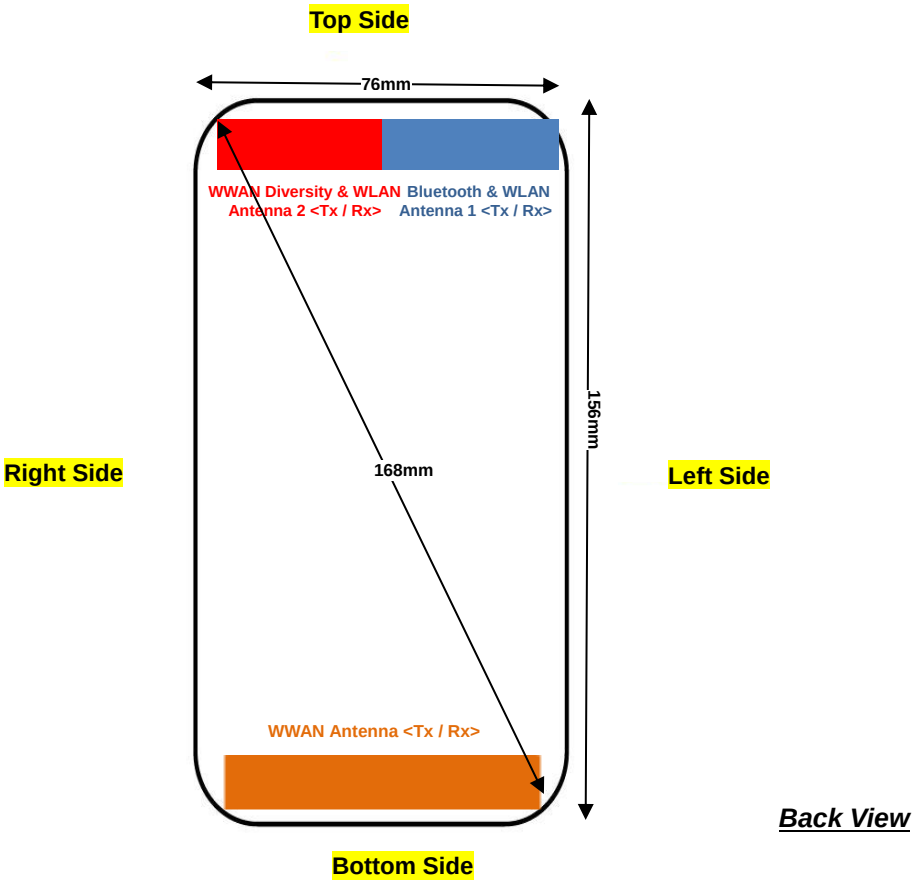
<2.4GHz Bluetooth>

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

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
v3.0 with EDR	CH 00	2402	9.88	6.86	6.82
	CH 39	2441	**10.61**	7.68	7.88
	CH 78	2480	9.20	5.69	5.96
Tune-up Limit			11.00	8.00	8.00

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
v4.1 with LE	CH 00	2402	0.91
	CH 19	2440	**2.03**
	CH 39	2480	0.94
Tune-up Limit			2.50

13. Antenna Location



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	≤ 25mm	≤ 25mm	143mm	≤ 25mm	≤ 25mm	≤ 25mm
BT&WLAN Antenna 1	≤ 25mm	≤ 25mm	≤ 25mm	144mm	38mm	≤ 25mm
WLAN Antenna 2	≤ 25mm	≤ 25mm	≤ 25mm	144mm	≤ 25mm	38mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	Yes	Yes	No	Yes	Yes	Yes
BT&WLAN Antenna 1	Yes	Yes	Yes	No	No	Yes
WLAN Antenna 2	Yes	Yes	Yes	No	Yes	No

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

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
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. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM1900 band, WCDMA band II and IV, LTE band 2/4/7.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g Product specific 10g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. For WLAN2.4GHz antenna 1+2 and WLAN5GHz does not support hotspot function, so Product specific 10g SAR full test.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.
3. Power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 4 Tx slot due to its highest frame-average power.

UMTS Note:

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

LTE Note:

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

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, for U-NII-1 Head and Body-worn SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. 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.
6. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Right Cheek	OFF	251	848.8	29.11	29.50	1.094	-0.04	0.155	0.170
	GSM850	GPRS 4 Tx slots	Right Tilted	OFF	251	848.8	29.11	29.50	1.094	0.15	0.256	0.280
	GSM850	GPRS 4 Tx slots	Left Cheek	OFF	251	848.8	29.11	29.50	1.094	-0.02	0.254	0.278
	GSM850	GPRS 4 Tx slots	Left Tilted	OFF	251	848.8	29.11	29.50	1.094	0.13	0.211	0.231
	GSM850	GPRS 4 Tx slots	Right Tilted	OFF	128	824.2	28.84	29.50	1.164	0.04	0.271	0.315
01	GSM850	GPRS 4 Tx slots	Right Tilted	OFF	189	836.4	28.98	29.50	1.127	-0.12	0.313	**0.353**
	GSM1900	GPRS 4 Tx slots	Right Cheek	OFF	810	1909.8	26.59	28.00	1.384	0.028	0.112	0.155
	GSM1900	GPRS 4 Tx slots	Right Tilted	OFF	810	1909.8	26.59	28.00	1.384	-0.13	0.035	0.048
	GSM1900	GPRS 4 Tx slots	Left Cheek	OFF	810	1909.8	26.59	28.00	1.384	0.09	0.106	0.147
	GSM1900	GPRS 4 Tx slots	Left Tilted	OFF	810	1909.8	26.59	28.00	1.384	0.06	0.045	0.062
02	GSM1900	GPRS 4 Tx slots	Right Cheek	OFF	512	1850.2	26.49	28.00	1.416	0.11	0.137	**0.194**
	GSM1900	GPRS 4 Tx slots	Right Cheek	OFF	661	1880	26.54	28.00	1.400	0.15	0.113	0.158

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC12.2Kbps	Right Cheek	OFF	4182	836.4	23.85	25.00	1.303	-0.08	0.105	0.137
03	WCDMA Band V	RMC12.2Kbps	Right Tilted	OFF	4182	836.4	23.85	25.00	1.303	0.07	0.237	**0.309**
	WCDMA Band V	RMC12.2Kbps	Left Cheek	OFF	4182	836.4	23.85	25.00	1.303	0.02	0.191	0.249
	WCDMA Band V	RMC12.2Kbps	Left Tilted	OFF	4182	836.4	23.85	25.00	1.303	0.09	0.188	0.245
	WCDMA Band V	RMC12.2Kbps	Right Tilted	OFF	4132	826.4	23.50	25.00	1.413	-0.14	0.166	0.234
	WCDMA Band V	RMC12.2Kbps	Right Tilted	OFF	4233	846.6	23.37	25.00	1.455	0.13	0.173	0.252
04	WCDMA Band IV	RMC12.2Kbps	Right Cheek	OFF	1312	1712.4	22.25	23.00	1.189	0.09	0.369	**0.439**
	WCDMA Band IV	RMC12.2Kbps	Right Tilted	OFF	1312	1712.4	22.25	23.00	1.189	0.06	0.067	0.080
	WCDMA Band IV	RMC12.2Kbps	Left Cheek	OFF	1312	1712.4	22.25	23.00	1.189	0.07	0.148	0.176
	WCDMA Band IV	RMC12.2Kbps	Left Tilted	OFF	1312	1712.4	22.25	23.00	1.189	0.1	0.082	0.097
	WCDMA Band IV	RMC12.2Kbps	Right Cheek	OFF	1413	1732.6	22.04	23.00	1.247	-0.04	0.174	0.217
	WCDMA Band IV	RMC12.2Kbps	Right Cheek	OFF	1513	1752.6	22.01	23.00	1.256	0.07	0.173	0.217
05	WCDMA Band II	RMC12.2Kbps	Right Cheek	OFF	9262	1852.4	22.50	23.00	1.122	0.06	0.177	**0.199**
	WCDMA Band II	RMC12.2Kbps	Right Tilted	OFF	9262	1852.4	22.50	23.00	1.122	0.01	0.049	0.055
	WCDMA Band II	RMC12.2Kbps	Left Cheek	OFF	9262	1852.4	22.50	23.00	1.122	0.12	0.129	0.145
	WCDMA Band II	RMC12.2Kbps	Left Tilted	OFF	9262	1852.4	22.50	23.00	1.122	0.03	0.053	0.059
	WCDMA Band II	RMC12.2Kbps	Right Cheek	OFF	9400	1880	22.37	23.00	1.156	0.05	0.109	0.126
	WCDMA Band II	RMC12.2Kbps	Right Cheek	OFF	9538	1907.6	22.46	23.00	1.132	0.12	0.066	0.075

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1RB	0Offset	Right Cheek	OFF	23095	707.5	23.77	24.50	1.183	0.04	0.081	0.096
	LTE Band 12	10M	QPSK	25RB	0Offset	Right Cheek	OFF	23095	707.5	22.45	23.50	1.274	0.17	0.060	0.076
	LTE Band 12	10M	QPSK	1RB	0Offset	Right Tilted	OFF	23095	707.5	23.77	24.50	1.183	-0.08	0.065	0.077
	LTE Band 12	10M	QPSK	25RB	0Offset	Right Tilted	OFF	23095	707.5	22.45	23.50	1.274	-0.08	0.056	0.071
06	LTE Band 12	10M	QPSK	1RB	0Offset	Left Cheek	OFF	23095	707.5	23.77	24.50	1.183	0.06	0.093	**0.110**
	LTE Band 12	10M	QPSK	25RB	0Offset	Left Cheek	OFF	23095	707.5	22.45	23.50	1.274	0.01	0.069	0.088
	LTE Band 12	10M	QPSK	1RB	0Offset	Left Tilted	OFF	23095	707.5	23.77	24.50	1.183	-0.02	0.062	0.074
	LTE Band 12	10M	QPSK	25RB	0Offset	Left Tilted	OFF	23095	707.5	22.45	23.50	1.274	0.02	0.047	0.059
	LTE Band 5	10M	QPSK	1RB	25Offset	Right Cheek	OFF	20525	836.5	21.66	23.00	1.361	-0.11	0.064	0.087
	LTE Band 5	10M	QPSK	25RB	12Offset	Right Cheek	OFF	20525	836.5	21.09	22.00	1.233	-0.02	0.057	0.070
07	LTE Band 5	10M	QPSK	1RB	25Offset	Right Tilted	OFF	20525	836.5	21.66	23.00	1.361	0.15	0.143	**0.195**
	LTE Band 5	10M	QPSK	25RB	12Offset	Right Tilted	OFF	20525	836.5	21.09	22.00	1.233	0.14	0.114	0.141
	LTE Band 5	10M	QPSK	1RB	25Offset	Left Cheek	OFF	20525	836.5	21.66	23.00	1.361	0.04	0.095	0.129
	LTE Band 5	10M	QPSK	25RB	12Offset	Left Cheek	OFF	20525	836.5	21.09	22.00	1.233	-0.04	0.083	0.102
	LTE Band 5	10M	QPSK	1RB	25Offset	Left Tilted	OFF	20525	836.5	21.66	23.00	1.361	0.11	0.098	0.133
	LTE Band 5	10M	QPSK	25RB	12Offset	Left Tilted	OFF	20525	836.5	21.09	22.00	1.233	0.01	0.084	0.104
08	LTE Band 4	20M	QPSK	1RB	49Offset	Right Cheek	OFF	20175	1732.5	22.41	23.00	1.146	0.04	0.162	**0.186**
	LTE Band 4	20M	QPSK	50RB	50Offset	Right Cheek	OFF	20175	1732.5	21.45	22.00	1.135	0.03	0.127	0.144
	LTE Band 4	20M	QPSK	1RB	49Offset	Right Tilted	OFF	20175	1732.5	22.41	23.00	1.146	-0.05	0.066	0.076
	LTE Band 4	20M	QPSK	50RB	50Offset	Right Tilted	OFF	20175	1732.5	21.45	22.00	1.135	-0.03	0.052	0.059
	LTE Band 4	20M	QPSK	1RB	49Offset	Left Cheek	OFF	20175	1732.5	22.41	23.00	1.146	-0.06	0.122	0.140
	LTE Band 4	20M	QPSK	50RB	50Offset	Left Cheek	OFF	20175	1732.5	21.45	22.00	1.135	-0.1	0.098	0.111
	LTE Band 4	20M	QPSK	1RB	49Offset	Left Tilted	OFF	20175	1732.5	22.41	23.00	1.146	-0.09	0.066	0.076
	LTE Band 4	20M	QPSK	50RB	50Offset	Left Tilted	OFF	20175	1732.5	21.45	22.00	1.135	-0.02	0.052	0.059
09	LTE Band 2	20M	QPSK	1RB	99Offset	Right Cheek	OFF	19100	1900	22.14	23.00	1.219	0.08	0.064	**0.078**
	LTE Band 2	20M	QPSK	50RB	50Offset	Right Cheek	OFF	19100	1900	21.09	22.00	1.233	0.03	0.048	0.060
	LTE Band 2	20M	QPSK	1RB	99Offset	Right Tilted	OFF	19100	1900	22.14	23.00	1.219	0.13	0.026	0.031
	LTE Band 2	20M	QPSK	50RB	50Offset	Right Tilted	OFF	19100	1900	21.09	22.00	1.233	-0.07	0.015	0.018
	LTE Band 2	20M	QPSK	1RB	99Offset	Left Cheek	OFF	19100	1900	22.14	23.00	1.219	0.08	0.063	0.077
	LTE Band 2	20M	QPSK	50RB	50Offset	Left Cheek	OFF	19100	1900	21.09	22.00	1.233	0.1	0.043	0.054
	LTE Band 2	20M	QPSK	1RB	99Offset	Left Tilted	OFF	19100	1900	22.14	23.00	1.219	0.09	0.036	0.044
	LTE Band 2	20M	QPSK	50RB	50Offset	Left Tilted	OFF	19100	1900	21.09	22.00	1.233	0.06	0.022	0.027
	LTE Band 2	20M	QPSK	1RB	99Offset	Right Cheek	OFF	18700	1860	21.92	23.00	1.282	0.03	0.052	0.067
	LTE Band 2	20M	QPSK	1RB	99Offset	Right Cheek	OFF	18900	1880	21.94	23.00	1.276	0.05	0.056	0.072
	LTE Band 7	20M	QPSK	1RB	0Offset	Right Cheek	OFF	21350	2560	21.89	23.00	1.291	-0.02	0.152	0.196
	LTE Band 7	20M	QPSK	50RB	0Offset	Right Cheek	OFF	21350	2560	21.00	22.00	1.259	-0.17	0.089	0.112
	LTE Band 7	20M	QPSK	50RB	0Offset	Right Tilted	OFF	21350	2560	21.89	23.00	1.291	0.08	0.083	0.107
	LTE Band 7	20M	QPSK	50RB	0Offset	Right Tilted	OFF	21350	2560	21.00	22.00	1.259	0.15	0.063	0.079
10	LTE Band 7	20M	QPSK	1RB	0Offset	Left Cheek	OFF	21350	2560	21.89	23.00	1.291	0.07	0.156	**0.201**
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Cheek	OFF	21350	2560	21.00	22.00	1.259	0.15	0.128	0.161
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Tilted	OFF	21350	2560	21.89	23.00	1.291	0.1	0.097	0.125
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Tilted	OFF	21350	2560	21.00	22.00	1.259	0.12	0.074	0.093
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Cheek	OFF	20850	2510	21.82	23.00	1.312	0.09	0.098	0.129
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Cheek	OFF	21100	2535	21.59	23.00	1.384	0.04	0.116	0.160

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4 GHz	802.11b 1Mbps	Right Cheek	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	1.153	0.03	0.612	0.672
	WLAN2.4 GHz	802.11b 1Mbps	Right Tilted	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.792	0.01	0.49	0.538
	WLAN2.4 GHz	802.11b 1Mbps	Left Cheek	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.227			
	WLAN2.4 GHz	802.11b 1Mbps	Left Tilted	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.149			
	WLAN2.4 GHz	802.11b 1Mbps	Right Cheek	OFF	Ant 1	6	2437	16.99	17.50	1.125	99.19	1.008		0.02	0.713	0.808
11	WLAN2.4 GHz	802.11b 1Mbps	Right Cheek	OFF	Ant 1	11	2462	16.92	17.50	1.143	99.19	1.008		0.03	0.873	**1.006**
	WLAN2.4 GHz	802.11b 1Mbps	Right Cheek	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.226			
	WLAN2.4 GHz	802.11b 1Mbps	Right Tilted	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.201			
	WLAN2.4 GHz	802.11b 1Mbps	Left Cheek	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.899	0.03	0.507	0.542
	WLAN2.4 GHz	802.11b 1Mbps	Left Tilted	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.735	0.015	0.466	0.498
	WLAN2.4 GHz	802.11b 1Mbps	Left Cheek	OFF	Ant 2	6	2437	16.19	16.50	1.074	98.96	1.011		0.16	0.466	0.506
12	WLAN2.4 GHz	802.11b 1Mbps	Left Cheek	OFF	Ant 2	11	2462	16.11	16.50	1.094	98.96	1.011		0.03	0.625	**0.691**
	WLAN2.4 GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	0.548	0.14	0.265	0.413
	WLAN2.4 GHz	802.11n-HT20 MCS0	Right Tilted	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	0.445	0.03	0.205	0.319
	WLAN2.4 GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	0.382			
	WLAN2.4 GHz	802.11n-HT20 MCS0	Left Tilted	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	0.372			
	WLAN2.4 GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	6	2437	16.20	18.00	1.514	94.05	1.063		0.03	0.315	0.507
13	WLAN2.4 GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	11	2462	16.11	18.00	1.545	94.05	1.063		0.04	0.390	**0.641**

Plot No.	Band	Mode	Test Position	Power Reduction	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 5.3GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	52	5260	14.54	15.00	1.112	95.32	1.049	1.8	0.05	0.811	0.946
	WLAN 5.3GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 1	52	5260	14.54	15.00	1.112	95.32	1.049	1.43	0.01	0.660	0.770
	WLAN 5.3GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 1	52	5260	14.54	15.00	1.112	95.32	1.049	1.27			
	WLAN 5.3GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 1	52	5260	14.54	15.00	1.112	95.32	1.049	1.09			
	WLAN 5.3GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	64	5320	14.50	15.00	1.122	95.32	1.049		0.08	0.832	0.979
14	WLAN 5.3GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	56	5280	14.47	15.00	1.130	95.32	1.049		0.03	0.866	**1.026**
	WLAN 5.2GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 2	36	5180	14.09	14.50	1.099	95.2	1.050	0.404			
	WLAN 5.2GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 2	36	5180	14.09	14.50	1.099	95.2	1.050	0.112			
	WLAN 5.2GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	36	5180	14.09	14.50	1.099	95.2	1.050	0.448	0.02	0.227	0.262
	WLAN 5.2GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 2	36	5180	14.09	14.50	1.099	95.2	1.050	0.285			
	WLAN 5.2GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	40	5200	13.89	14.50	1.151	95.2	1.050		-0.03	0.259	0.313
15	WLAN 5.2GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	48	5240	13.53	14.50	1.250	95.2	1.050		0.09	0.248	**0.326**
16	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	36	5180	16.96	17.50	1.132	94.53	1.058	1.965	0.09	0.871	**1.044**
	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Tilted	OFF	Ant 1+2	36	5180	16.96	17.50	1.132	94.53	1.058	1.53	0.02	0.548	0.657
	WLAN 5.2GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	36	5180	16.96	17.50	1.132	94.53	1.058	1.51			
	WLAN 5.2GHz	802.11n-HT20 MCS0	Left Tilted	OFF	Ant 1+2	36	5180	16.96	17.50	1.132	94.53	1.058	0.951			
	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	40	5200	16.69	17.50	1.205	94.53	1.058		-0.03	0.615	0.784
	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	48	5240	16.69	17.50	1.205	94.53	1.058		0.09	0.682	0.870

Plot No.	Band	Mode	Test Position	Power Reduction	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
17	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	2.32	0.07	1.000	**1.093**
	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	140	5700	15.78	16.00	1.052	95.32	1.049	1.757	0.05	0.789	0.871
	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	112	5560	15.64	16.00	1.086	95.32	1.049	1.925	0.06	0.836	0.953
	WLAN 5.5GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	1.76	0.02	0.816	0.892
	WLAN 5.5GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 1	140	5700	15.78	16.00	1.052	95.32	1.049	1.493	0.01	0.655	0.723
	WLAN 5.5GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	1.62	0.12	0.943	1.031
	WLAN 5.5GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 1	140	5700	15.78	16.00	1.052	95.32	1.049	1.382	0.06	0.643	0.710
	WLAN 5.5GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	1.47	0.04	0.836	0.914
	WLAN 5.5GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 1	140	5700	15.78	16.00	1.052	95.32	1.049	1.131	0.19	0.531	0.586
	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	0.752	0.04	0.280	0.310
	WLAN 5.5GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	0.662			
	WLAN 5.5GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	1	0.08	0.444	0.492
	WLAN 5.5GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	0.742			
	WLAN 5.5GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	140	5700	13.66	14.00	1.081	95.2	1.050		0.08	0.677	0.769
18	WLAN 5.5GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	112	5560	13.48	14.00	1.127	95.2	1.050		0.08	0.653	**0.773**
	WLAN 5.5GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	1.316	0.09	0.634	0.737
	WLAN 5.5GHz	802.11n-HT20 MCS0	Right Tilted	OFF	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	0.981			
19	WLAN 5.5GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	1.94	0.05	0.870	**1.012**
	WLAN 5.5GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	120	5600	16.33	17.00	1.167	94.53	1.058		0.03	0.595	0.735
	WLAN 5.5GHz	802.11n-HT20 MCS0	Left Tilted	OFF	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	0.883			
	WLAN 5.5GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	116	5580	16.25	17.00	1.189	94.53	1.058		0.14	0.546	0.687
	WLAN 5.5GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	140	5700	16.25	17.00	1.189	94.53	1.058		0.04	0.620	0.780

Plot No.	Band	Mode	Test Position	Power Reduction	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	1.55	-0.05	0.72	0.861
	WLAN 5.8GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	1.23	0.03	0.559	0.669
	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	1.1			
	WLAN 5.8GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	1.07			
	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	157	5785	15.83	16.50	1.167	95.32	1.049		0.02	0.696	0.852
20	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 1	165	5825	15.64	16.50	1.219	95.32	1.049		0.02	0.747	**0.955**
	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	OFF	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	0.821			
	WLAN 5.8GHz	802.11a 6Mbps	Right Tilted	OFF	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	0.562			
	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	1.25	0.05	0.655	0.790
	WLAN 5.8GHz	802.11a 6Mbps	Left Tilted	OFF	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	0.891	0.02	0.368	0.444
21	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	149	5745	13.62	14.50	1.225	95.2	1.050		0.09	0.708	**0.910**
	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	OFF	Ant 2	165	5825	13.49	14.50	1.262	95.2	1.050		0.03	0.662	0.877
	WLAN 5.8GHz	802.11n-HT20 MCS0	Right Cheek	OFF	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	1.202			
	WLAN 5.8GHz	802.11n-HT20 MCS0	Right Tilted	OFF	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	1.24	0.05	0.445	0.516
	WLAN 5.8GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	1.406	0.09	0.475	0.551
	WLAN 5.8GHz	802.11n-HT20 MCS0	Left Tilted	OFF	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	1.151			
22	WLAN 5.8GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	149	5745	16.35	17.00	1.161	94.53	1.058		0.09	0.659	**0.810**
	WLAN 5.8GHz	802.11n-HT20 MCS0	Left Cheek	OFF	Ant 1+2	165	5825	16.25	17.00	1.189	94.53	1.058		0.07	0.557	0.700

14.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
23	GSM850	GPRS 4 Tx slots	Front	10	OFF	251	848.8	29.11	29.50	1.094	0.06	0.674	**0.737**
	GSM850	GPRS 4 Tx slots	Back	10	OFF	251	848.8	29.11	29.50	1.094	0.03	0.661	0.723
	GSM850	GPRS 4 Tx slots	Left Side	10	OFF	251	848.8	29.11	29.50	1.094	-0.02	0.162	0.177
	GSM850	GPRS 4 Tx slots	Right Side	10	OFF	251	848.8	29.11	29.50	1.094	0.12	0.148	0.162
	GSM850	GPRS 4 Tx slots	Bottom Side	10	OFF	251	848.8	29.11	29.50	1.094	0.04	0.451	0.493
	GSM850	GPRS 4 Tx slots	Front	10	OFF	128	824.2	28.84	29.50	1.164	0.05	0.627	0.730
	GSM850	GPRS 4 Tx slots	Front	10	OFF	189	836.4	28.98	29.50	1.127	-0.03	0.604	0.681
	GSM1900	GPRS 4 Tx slots	Front	10	ON	810	1909.8	23.85	24.00	1.035	0.04	0.397	0.411
	GSM1900	GPRS 4 Tx slots	Back	10	ON	810	1909.8	23.85	24.00	1.035	-0.13	0.368	0.381
	GSM1900	GPRS 4 Tx slots	Left Side	10	ON	810	1909.8	23.85	24.00	1.035	-0.12	0.171	0.177
	GSM1900	GPRS 4 Tx slots	Right Side	10	ON	810	1909.8	23.85	24.00	1.035	-0.16	0.057	0.059
	GSM1900	GPRS 4 Tx slots	Bottom Side	10	ON	810	1909.8	23.85	24.00	1.035	0.16	0.954	0.988
24	GSM1900	GPRS 4 Tx slots	Bottom Side	10	ON	512	1850.2	23.64	24.00	1.086	0.17	1.020	**1.108**
	GSM1900	GPRS 4 Tx slots	Bottom Side	10	ON	661	1880	23.80	24.00	1.047	0.18	0.928	0.972

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
25	WCDMA Band V	RMC 12.2Kbps	Front	10	OFF	4182	836.4	23.85	25.00	1.303	0.06	0.515	**0.671**
	WCDMA Band V	RMC 12.2Kbps	Back	10	OFF	4182	836.4	23.85	25.00	1.303	-0.02	0.498	0.649
	WCDMA Band V	RMC 12.2Kbps	Left Side	10	OFF	4182	836.4	23.85	25.00	1.303	0.04	0.149	0.194
	WCDMA Band V	RMC 12.2Kbps	Right Side	10	OFF	4182	836.4	23.85	25.00	1.303	0.05	0.089	0.116
	WCDMA Band V	RMC 12.2Kbps	Bottom Side	10	OFF	4182	836.4	23.85	25.00	1.303	0.03	0.333	0.434
	WCDMA Band V	RMC 12.2Kbps	Front	10	OFF	4132	826.4	23.50	25.00	1.413	-0.1	0.315	0.445
	WCDMA Band V	RMC 12.2Kbps	Front	10	OFF	4233	846.6	23.37	25.00	1.455	0.06	0.389	0.566
	WCDMA Band IV	RMC 12.2Kbps	Front	10	ON	1413	1732.6	18.09	18.50	1.099	-0.09	0.462	0.508
	WCDMA Band IV	RMC 12.2Kbps	Back	10	ON	1413	1732.6	18.09	18.50	1.099	-0.07	0.407	0.447
	WCDMA Band IV	RMC 12.2Kbps	Left Side	10	ON	1413	1732.6	18.09	18.50	1.099	0.18	0.123	0.135
	WCDMA Band IV	RMC 12.2Kbps	Right Side	10	ON	1413	1732.6	18.09	18.50	1.099	0.18	0.090	0.099
	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	ON	1413	1732.6	18.09	18.50	1.099	0.17	0.786	0.864
26	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	ON	1312	1712.4	17.96	18.50	1.132	0.1	0.777	**0.880**
	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	ON	1513	1752.6	18.05	18.50	1.109	0.17	0.781	0.866
	WCDMA Band II	RMC 12.2Kbps	Front	10	ON	9262	1852.4	18.60	19.00	1.096	-0.06	0.351	0.385
	WCDMA Band II	RMC 12.2Kbps	Back	10	ON	9262	1852.4	18.60	19.00	1.096	0.04	0.321	0.352
	WCDMA Band II	RMC 12.2Kbps	Left Side	10	ON	9262	1852.4	18.60	19.00	1.096	-0.05	0.142	0.156
	WCDMA Band II	RMC 12.2Kbps	Right Side	10	ON	9262	1852.4	18.60	19.00	1.096	-0.15	0.011	0.012
27	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	ON	9262	1852.4	18.60	19.00	1.096	0.18	0.661	**0.725**
	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	ON	9400	1880	18.45	19.00	1.135	0.19	0.545	0.619
	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	ON	9538	1907.6	18.28	19.00	1.180	0.12	0.503	0.594

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1RB	0Offset	Front	10	OFF	23095	707.5	23.77	24.50	1.183	0.01	0.162	0.192
	LTE Band 12	10M	QPSK	25RB	0Offset	Front	10	OFF	23095	707.5	22.45	23.50	1.274	0.06	0.122	0.155
28	LTE Band 12	10M	QPSK	1RB	0Offset	Back	10	OFF	23095	707.5	23.77	24.50	1.183	-0.03	0.227	**0.269**
	LTE Band 12	10M	QPSK	25RB	0Offset	Back	10	OFF	23095	707.5	22.45	23.50	1.274	-0.08	0.161	0.205
	LTE Band 12	10M	QPSK	1RB	0Offset	Left Side	10	OFF	23095	707.5	23.77	24.50	1.183	-0.02	0.143	0.169
	LTE Band 12	10M	QPSK	25RB	0Offset	Left Side	10	OFF	23095	707.5	22.45	23.50	1.274	0.02	0.115	0.146
	LTE Band 12	10M	QPSK	1RB	0Offset	Right Side	10	OFF	23095	707.5	23.77	24.50	1.183	0.02	0.154	0.182
	LTE Band 12	10M	QPSK	25RB	0Offset	Right Side	10	OFF	23095	707.5	22.45	23.50	1.274	-0.03	0.117	0.149
	LTE Band 12	10M	QPSK	1RB	0Offset	Bottom Side	10	OFF	23095	707.5	23.77	24.50	1.183	-0.09	0.088	0.104
	LTE Band 12	10M	QPSK	25RB	0Offset	Bottom Side	10	OFF	23095	707.5	22.45	23.50	1.274	-0.01	0.064	0.081
	LTE Band 5	10M	QPSK	1RB	25Offset	Front	10	OFF	20525	836.5	21.66	23.00	1.361	-0.04	0.255	0.347
	LTE Band 5	10M	QPSK	25RB	12Offset	Front	10	OFF	20525	836.5	21.09	22.00	1.233	0.01	0.216	0.266
29	LTE Band 5	10M	QPSK	1RB	25Offset	Back	10	OFF	20525	836.5	21.66	23.00	1.361	-0.08	0.286	**0.389**
	LTE Band 5	10M	QPSK	25RB	12Offset	Back	10	OFF	20525	836.5	21.09	22.00	1.233	0.03	0.245	0.302
	LTE Band 5	10M	QPSK	1RB	25Offset	Left Side	10	OFF	20525	836.5	21.66	23.00	1.361	0.01	0.078	0.106
	LTE Band 5	10M	QPSK	25RB	12Offset	Left Side	10	OFF	20525	836.5	21.09	22.00	1.233	0.04	0.064	0.079
	LTE Band 5	10M	QPSK	1RB	25Offset	Right Side	10	OFF	20525	836.5	21.66	23.00	1.361	-0.01	0.025	0.034
	LTE Band 5	10M	QPSK	25RB	12Offset	Right Side	10	OFF	20525	836.5	21.09	22.00	1.233	0.01	0.019	0.023
	LTE Band 5	10M	QPSK	1RB	25Offset	Bottom Side	10	OFF	20525	836.5	21.66	23.00	1.361	-0.04	0.178	0.242
	LTE Band 5	10M	QPSK	25RB	12Offset	Bottom Side	10	OFF	20525	836.5	21.09	22.00	1.233	0.06	0.150	0.185
	LTE Band 4	20M	QPSK	1RB	0Offset	Front	10	ON	20175	1732.5	19.55	20.00	1.109	-0.08	0.549	0.609
	LTE Band 4	20M	QPSK	50RB	0Offset	Front	10	ON	20175	1732.5	18.71	19.00	1.069	0.11	0.431	0.461
	LTE Band 4	20M	QPSK	1RB	0Offset	Back	10	ON	20175	1732.5	19.55	20.00	1.109	0.03	0.488	0.541
	LTE Band 4	20M	QPSK	50RB	0Offset	Back	10	ON	20175	1732.5	18.71	19.00	1.069	0.18	0.382	0.408
	LTE Band 4	20M	QPSK	1RB	0Offset	Left Side	10	ON	20175	1732.5	19.55	20.00	1.109	0.08	0.197	0.219
	LTE Band 4	20M	QPSK	50RB	0Offset	Left Side	10	ON	20175	1732.5	18.71	19.00	1.069	-0.05	0.147	0.157
	LTE Band 4	20M	QPSK	1RB	0Offset	Right Side	10	ON	20175	1732.5	19.55	20.00	1.109	-0.02	0.128	0.142
	LTE Band 4	20M	QPSK	50RB	0Offset	Right Side	10	ON	20175	1732.5	18.71	19.00	1.069	-0.05	0.096	0.103
30	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	20175	1732.5	19.55	20.00	1.109	0.02	0.918	**1.018**
	LTE Band 4	20M	QPSK	50RB	0Offset	Bottom Side	10	ON	20175	1732.5	18.71	19.00	1.069	-0.12	0.698	0.746
	LTE Band 4	20M	QPSK	100RB	0Offset	Bottom Side	10	ON	20175	1732.5	18.62	19.00	1.091	-0.07	0.665	0.726

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1RB	0Offset	Front	10	ON	18700	1860	20.18	20.50	1.076	-0.05	0.552	0.594
	LTE Band 2	20M	QPSK	50RB	0Offset	Front	10	ON	18700	1860	19.11	19.50	1.094	0.06	0.436	0.477
	LTE Band 2	20M	QPSK	1RB	0Offset	Back	10	ON	18700	1860	20.18	20.50	1.076	0.15	0.487	0.524
	LTE Band 2	20M	QPSK	50RB	0Offset	Back	10	ON	18700	1860	19.11	19.50	1.094	0.14	0.382	0.418
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Side	10	ON	18700	1860	20.18	20.50	1.076	-0.06	0.242	0.261
	LTE Band 2	20M	QPSK	50RB	0Offset	Left Side	10	ON	18700	1860	19.11	19.50	1.094	0.04	0.183	0.200
	LTE Band 2	20M	QPSK	1RB	0Offset	Right Side	10	ON	18700	1860	20.18	20.50	1.076	-0.15	0.018	0.019
	LTE Band 2	20M	QPSK	50RB	0Offset	Right Side	10	ON	18700	1860	19.11	19.50	1.094	-0.02	0.012	0.013
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	18700	1860	20.18	20.50	1.076	-0.07	1.020	1.098
31	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	18900	1880	19.94	20.50	1.138	-0.06	0.971	**1.105**
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	19100	1900	19.96	20.50	1.132	-0.11	0.877	0.993
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Side	10	ON	18700	1860	19.11	19.50	1.094	-0.07	0.829	0.907
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Side	10	ON	18900	1880	18.93	19.50	1.140	-0.06	0.754	0.860
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Side	10	ON	19100	1900	18.98	19.50	1.127	-0.06	0.728	0.821
	LTE Band 2	20M	QPSK	100RB	0Offset	Bottom Side	10	ON	18700	1860	19.16	19.50	1.081	-0.07	0.831	0.899
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	10	ON	21350	2560	21.10	21.50	1.096	0.1	0.323	0.354
	LTE Band 7	20M	QPSK	50RB	0Offset	Front	10	ON	21350	2560	20.13	20.50	1.089	0.12	0.221	0.241
	LTE Band 7	20M	QPSK	1RB	0Offset	Back	10	ON	21350	2560	21.10	21.50	1.096	0.17	0.359	0.394
	LTE Band 7	20M	QPSK	50RB	0Offset	Back	10	ON	21350	2560	20.13	20.50	1.089	0.11	0.280	0.305
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Side	10	ON	21350	2560	21.10	21.50	1.096	-0.1	0.108	0.118
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Side	10	ON	21350	2560	20.13	20.50	1.089	-0.04	0.084	0.091
	LTE Band 7	20M	QPSK	1RB	0Offset	Right Side	10	ON	21350	2560	21.10	21.50	1.096	-0.01	0.109	0.120
	LTE Band 7	20M	QPSK	50RB	0Offset	Right Side	10	ON	21350	2560	20.13	20.50	1.089	0.12	0.083	0.090
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	21350	2560	21.10	21.50	1.096	0.02	0.687	0.753
	LTE Band 7	20M	QPSK	50RB	0Offset	Bottom Side	10	ON	21350	2560	20.13	20.50	1.089	0.12	0.531	0.578
32	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	20850	2510	21.00	21.50	1.122	-0.06	0.836	**0.938**
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	21100	2535	21.06	21.50	1.107	0.04	0.785	0.869
	LTE Band 7	20M	QPSK	100RB	0Offset	Bottom Side	10	ON	21350	2560	20.07	20.50	1.104	-0.02	0.436	0.481

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	10	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.193			
	WLAN 2.4GHz	802.11b 1Mbps	Back	10	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.27	0.01	0.212	0.233
	WLAN 2.4GHz	802.11b 1Mbps	Left Side	10	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.245			
	WLAN 2.4GHz	802.11b 1Mbps	Top Side	10	OFF	Ant 1	1	2412	17.13	17.50	1.089	99.19	1.008	0.115			
33	WLAN 2.4GHz	802.11b 1Mbps	Back	10	OFF	Ant 1	6	2437	16.99	17.50	1.125	99.19	1.008	0.443	0.16	0.267	**0.303**
	WLAN 2.4GHz	802.11b 1Mbps	Back	10	OFF	Ant 1	11	2462	16.92	17.50	1.143	99.19	1.008	0.386	0.03	0.253	0.291
	WLAN 2.4GHz	802.11b 1Mbps	Front	10	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.128			
	WLAN 2.4GHz	802.11b 1Mbps	Back	10	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.158	0.14	0.105	0.112
	WLAN 2.4GHz	802.11b 1Mbps	Right Side	10	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.121			
	WLAN 2.4GHz	802.11b 1Mbps	Top Side	10	OFF	Ant 2	1	2412	16.26	16.50	1.057	98.96	1.011	0.0897			
	WLAN 2.4GHz	802.11b 1Mbps	Back	10	OFF	Ant 2	6	2437	16.19	16.50	1.074	98.96	1.011		0.12	0.099	0.107
34	WLAN 2.4GHz	802.11b 1Mbps	Back	10	OFF	Ant 2	11	2462	16.11	16.50	1.094	98.96	1.011		-0.12	0.121	**0.134**

14.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Front	15	OFF	251	848.8	29.11	29.50	1.094	-0.02	0.326	0.357
35	GSM850	GPRS 4 Tx slots	Back	15	OFF	251	848.8	29.11	29.50	1.094	0.04	0.379	**0.415**
	GSM850	GPRS 4 Tx slots	Back	15	OFF	128	824.2	28.84	29.50	1.164	0.02	0.348	0.405
	GSM850	GPRS 4 Tx slots	Back	15	OFF	189	836.4	28.98	29.50	1.127	-0.05	0.362	0.408
	GSM1900	GPRS 4 Tx slots	Front	15	OFF	810	1909.8	26.59	28.00	1.384	-0.06	0.555	0.768
	GSM1900	GPRS 4 Tx slots	Back	15	OFF	810	1909.8	26.59	28.00	1.384	-0.11	0.509	0.704
36	GSM1900	GPRS 4 Tx slots	Front	15	OFF	512	1850.2	26.49	28.00	1.416	0.07	0.638	**0.903**
	GSM1900	GPRS 4 Tx slots	Front	15	OFF	661	1880	26.54	28.00	1.400	-0.06	0.573	0.802

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC12.2Kbps	Front	15	OFF	4182	836.4	23.85	25.00	1.303	0.13	0.245	0.319
37	WCDMA Band V	RMC12.2Kbps	Back	15	OFF	4182	836.4	23.85	25.00	1.303	0.03	0.278	**0.362**
	WCDMA Band V	RMC12.2Kbps	Back	15	OFF	4132	826.4	23.50	25.00	1.413	0.01	0.194	0.274
	WCDMA Band V	RMC12.2Kbps	Back	15	OFF	4233	846.6	23.37	25.00	1.455	0.03	0.237	0.345
38	WCDMA Band IV	RMC12.2Kbps	Front	15	OFF	1312	1712.4	22.25	23.00	1.189	-0.05	0.616	**0.732**
	WCDMA Band IV	RMC12.2Kbps	Back	15	OFF	1312	1712.4	22.25	23.00	1.189	-0.04	0.545	0.648
	WCDMA Band IV	RMC12.2Kbps	Front	15	OFF	1413	1732.6	22.04	23.00	1.247	-0.18	0.576	0.718
	WCDMA Band IV	RMC12.2Kbps	Front	15	OFF	1513	1752.6	22.01	23.00	1.256	0.17	0.569	0.715
39	WCDMA Band II	RMC12.2Kbps	Front	15	OFF	9262	1852.4	22.50	23.00	1.122	-0.08	0.560	**0.628**
	WCDMA Band II	RMC12.2Kbps	Back	15	OFF	9262	1852.4	22.50	23.00	1.122	0.01	0.455	0.511
	WCDMA Band II	RMC12.2Kbps	Front	15	OFF	9400	1880	22.37	23.00	1.156	-0.08	0.537	0.621
	WCDMA Band II	RMC12.2Kbps	Front	15	OFF	9538	1907.6	22.46	23.00	1.132	-0.08	0.367	0.416

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1RB	0Offset	Front	15	OFF	23095	707.5	23.77	24.50	1.183	-0.04	0.144	0.170
	LTE Band 12	10M	QPSK	25RB	0Offset	Front	15	OFF	23095	707.5	22.45	23.50	1.274	0.01	0.109	0.139
40	LTE Band 12	10M	QPSK	1RB	0Offset	Back	15	OFF	23095	707.5	23.77	24.50	1.183	0.12	0.186	**0.220**
	LTE Band 12	10M	QPSK	25RB	0Offset	Back	15	OFF	23095	707.5	22.45	23.50	1.274	-0.02	0.137	0.174
	LTE Band 5	10M	QPSK	1RB	25Offset	Front	15	OFF	20525	836.5	21.66	23.00	1.361	0.1	0.117	0.159
	LTE Band 5	10M	QPSK	25RB	12Offset	Front	15	OFF	20525	836.5	21.09	22.00	1.233	0.05	0.098	0.121
41	LTE Band 5	10M	QPSK	1RB	25Offset	Back	15	OFF	20525	836.5	21.66	23.00	1.361	-0.02	0.133	**0.181**
	LTE Band 5	10M	QPSK	25RB	12Offset	Back	15	OFF	20525	836.5	21.09	22.00	1.233	0.05	0.112	0.138
42	LTE Band 4	20M	QPSK	1RB	49Offset	Front	15	OFF	20175	1732.5	22.41	23.00	1.146	-0.05	0.552	**0.632**
	LTE Band 4	20M	QPSK	50RB	50Offset	Front	15	OFF	20175	1732.5	21.45	22.00	1.135	-0.02	0.426	0.484
	LTE Band 4	20M	QPSK	1RB	49Offset	Back	15	OFF	20175	1732.5	22.41	23.00	1.146	0.02	0.502	0.575
	LTE Band 4	20M	QPSK	50RB	50Offset	Back	15	OFF	20175	1732.5	21.45	22.00	1.135	0.08	0.39	0.443
	LTE Band 2	20M	QPSK	1RB	99Offset	Front	15	OFF	19100	1900	22.14	23.00	1.219	0.01	0.373	0.455
	LTE Band 2	20M	QPSK	50RB	50Offset	Front	15	OFF	19100	1900	21.09	22.00	1.233	0.13	0.281	0.347
	LTE Band 2	20M	QPSK	1RB	99Offset	Back	15	OFF	19100	1900	22.14	23.00	1.219	0.16	0.343	0.418
	LTE Band 2	20M	QPSK	50RB	50Offset	Back	15	OFF	19100	1900	21.09	22.00	1.233	-0.09	0.254	0.313
43	LTE Band 2	20M	QPSK	1RB	99Offset	Front	15	OFF	18700	1860	21.92	23.00	1.282	0.02	0.435	**0.558**
	LTE Band 2	20M	QPSK	1RB	99Offset	Front	15	OFF	18900	1880	21.94	23.00	1.276	-0.16	0.375	0.479
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	15	OFF	21350	2560	21.89	23.00	1.291	-0.09	0.292	0.377
	LTE Band 7	20M	QPSK	50RB	0Offset	Front	15	OFF	21350	2560	21.00	22.00	1.259	-0.19	0.229	0.288
	LTE Band 7	20M	QPSK	1RB	0Offset	Back	15	OFF	21350	2560	21.89	23.00	1.291	0.13	0.295	0.381
	LTE Band 7	20M	QPSK	50RB	0Offset	Back	15	OFF	21350	2560	21.00	22.00	1.259	0.08	0.228	0.287
44	LTE Band 7	20M	QPSK	1RB	0Offset	Back	15	OFF	20850	2510	21.82	23.00	1.312	-0.11	0.294	**0.386**
	LTE Band 7	20M	QPSK	1RB	0Offset	Back	15	OFF	21100	2535	21.59	22.00	1.099	0.16	0.293	0.322

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	15	Ant 1	OFF	1	2412	17.13	17.50	1.089	99.19	1.008	0.0937			
	WLAN 2.4GHz	802.11b 1Mbps	Back	15	Ant 1	OFF	1	2412	17.13	17.50	1.089	99.19	1.008	0.106	0.06	0.073	0.080
45	WLAN 2.4GHz	802.11b 1Mbps	Back	15	Ant 1	OFF	6	2437	16.99	17.50	1.125	99.19	1.008	0.145	-0.03	0.099	**0.112**
	WLAN 2.4GHz	802.11b 1Mbps	Back	15	Ant 1	OFF	11	2462	16.92	17.50	1.143	99.19	1.008	0.127	0.12	0.092	0.106
	WLAN 2.4GHz	802.11b 1Mbps	Front	15	Ant 2	OFF	1	2412	16.26	16.50	1.057	98.96	1.011	0.0502			
	WLAN 2.4GHz	802.11b 1Mbps	Back	15	Ant 2	OFF	1	2412	16.26	16.50	1.057	98.96	1.011	0.056	0.1	0.036	0.038
	WLAN 2.4GHz	802.11b 1Mbps	Back	15	Ant 2	OFF	6	2437	16.19	16.50	1.074	98.96	1.011	0.0492	0.16	0.034	0.037
46	WLAN 2.4GHz	802.11b 1Mbps	Back	15	Ant 2	OFF	11	2462	16.11	16.50	1.094	98.96	1.011	0.0561	0.02	0.036	**0.040**
	WLAN 2.4GHz	802.11n-HT20 MCS0	Front	15	Ant 1+2	OFF	1	2412	16.34	18.00	1.466	94.05	1.063	0.0379	0.11	0.028	0.044
	WLAN 2.4GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	1	2412	16.34	18.00	1.466	94.05	1.063	0.033			
	WLAN 2.4GHz	802.11n-HT20 MCS0	Front	15	Ant 1+2	OFF	6	2437	16.20	18.00	1.514	94.05	1.063	0.05	0.16	0.035	0.056
47	WLAN 2.4GHz	802.11n-HT20 MCS0	Front	15	Ant 1+2	OFF	11	2462	16.11	18.00	1.545	94.05	1.063	0.054	-0.14	0.038	**0.062**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 5.3GHz	802.11a 6Mbps	Front	15	Ant 1	OFF	52	5260	14.54	15.00	1.112	95.32	1.049	0.154			
	WLAN 5.3GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	52	5260	14.54	15.00	1.112	95.32	1.049	0.34	0.03	0.181	0.211
	WLAN 5.3GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	56	5280	14.47	15.00	1.130	95.32	1.049		0.08	0.178	0.211
48	WLAN 5.3GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	64	5320	14.50	15.00	1.122	95.32	1.049		0.04	0.188	**0.221**
	WLAN 5.2GHz	802.11a 6Mbps	Front	15	Ant 2	OFF	36	5180	14.09	14.50	1.099	95.2	1.050	0.013			
	WLAN 5.2GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	36	5180	14.09	14.50	1.099	95.2	1.050	0.101	0	0.021	0.024
	WLAN 5.2GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	40	5200	13.89	14.50	1.151	95.2	1.050		0	0.023	0.028
49	WLAN 5.2GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	48	5240	13.53	14.50	1.250	95.2	1.050		0.03	0.027	**0.035**
	WLAN 5.2GHz	802.11n-HT20 MCS0	Front	15	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	0.093			
	WLAN 5.2GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	0.243	0.07	0.133	0.159
	WLAN 5.2GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	40	5200	16.69	17.50	1.205	94.53	1.058		0.01	0.147	0.187
50	WLAN 5.2GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	48	5240	16.69	17.50	1.205	94.53	1.058		-0.08	0.150	**0.191**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 5.5GHz	802.11a 6Mbps	Front	15	Ant 1	OFF	100	5500	15.82	16.00	1.042	95.32	1.049	0.189			
51	WLAN 5.5GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	100	5500	15.82	16.00	1.042	95.32	1.049	0.481	-0.03	0.249	**0.272**
	WLAN 5.5GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	112	5560	15.64	16.00	1.086	95.32	1.049		0.04	0.180	0.205
	WLAN 5.5GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	140	5700	15.78	16.00	1.052	95.32	1.049		0.09	0.172	0.190
	WLAN 5.5GHz	802.11a 6Mbps	Front	15	Ant 2	OFF	100	5500	13.77	14.00	1.054	95.2	1.050	0.026			
	WLAN 5.5GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	100	5500	13.77	14.00	1.054	95.2	1.050	0.243	0.06	0.104	0.115
	WLAN 5.5GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	112	5560	13.48	14.00	1.127	95.2	1.050		-0.09	0.141	0.167
52	WLAN 5.5GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	140	5700	13.66	14.00	1.081	95.2	1.050		0.01	0.200	**0.227**
	WLAN 5.5GHz	802.11n-HT20 MCS0	Front	15	Ant 1+2	OFF	100	5500	16.59	17.00	1.099	94.53	1.058	0.11			
	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	100	5500	16.59	17.00	1.099	94.53	1.058	0.265	-0.06	0.134	0.156
	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	120	5600	16.33	17.00	1.167	94.53	1.058		0.04	0.142	0.175
	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	116	5580	16.25	17.00	1.189	94.53	1.058		0.09	0.132	0.166
53	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	140	5700	16.25	17.00	1.189	94.53	1.058		0.01	0.163	**0.205**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 5.8GHz	802.11a 6Mbps	Front	15	Ant 1	OFF	149	5745	15.93	16.50	1.140	95.32	1.049	0.265			
	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	149	5745	15.93	16.50	1.140	95.32	1.049	0.288	-0.01	0.139	0.166
54	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	157	5785	15.83	16.50	1.167	95.32	1.049		-0.1	0.138	**0.169**
	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Ant 1	OFF	165	5825	15.64	16.50	1.219	95.32	1.049		0.11	0.129	0.165
	WLAN 5.8GHz	802.11a 6Mbps	Front	15	Ant 2	OFF	157	5785	13.90	14.50	1.148	95.2	1.050	0.101			
55	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	157	5785	13.90	14.50	1.148	95.2	1.050	0.466	0.05	0.253	**0.305**
	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	149	5745	13.62	14.50	1.225	95.2	1.050		0.09	0.230	0.296
	WLAN 5.8GHz	802.11a 6Mbps	Back	15	Ant 2	OFF	165	5785	13.49	14.50	1.262	95.2	1.050		0.01	0.229	0.303
	WLAN 5.8GHz	802.11n-HT20 MCS0	Front	15	Ant 1+2	OFF	157	5785	16.60	17.00	1.096	94.53	1.058	0.0757			
56	WLAN 5.8GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	157	5785	16.60	17.00	1.096	94.53	1.058	0.453	0.09	0.227	**0.263**
	WLAN 5.8GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	149	5785	16.35	17.00	1.161	94.53	1.058		0.03	0.170	0.209
	WLAN 5.8GHz	802.11n-HT20 MCS0	Back	15	Ant 1+2	OFF	165	5785	16.25	17.00	1.189	94.53	1.058		0.04	0.188	0.236

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	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)
57	Bluetooth	1Mbps	Front	15	Ant 1	OFF	39	2441	10.61	11.00	1.094	100	1.000	0.05	0.019	**0.021**
	Bluetooth	1Mbps	Back	15	Ant 1	OFF	39	2441	10.61	11.00	1.094	100	1.000	0.09	0.0138	0.015
	Bluetooth	1Mbps	Front	15	Ant 1	OFF	0	2402	9.88	11.00	1.294	100	1.000	0.01	0.00683	0.009
	Bluetooth	1Mbps	Front	15	Ant 1	OFF	78	2480	9.20	11.00	1.514	100	1.000	0.06	0.014	0.021

14.4 Product specific 10g SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
	GSM1900	GPRS 4 Tx slots	Bottom Side	0	OFF	810	1909.8	26.59	28.00	1.384	0.13	1.530	2.117
58	GSM1900	GPRS 4 Tx slots	Bottom Side	0	OFF	512	1850.2	26.49	28.00	1.416	0.08	1.830	**2.591**
	GSM1900	GPRS 4 Tx slots	Bottom Side	0	OFF	661	1880	26.54	28.00	1.400	0.11	1.650	2.309

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	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)
	WCDMA Band IV	RMC12.2Kbps	Front	0	OFF	1312	1712.4	22.25	23.00	1.189	0.04	2.810	3.340
	WCDMA Band IV	RMC12.2Kbps	Front	0	OFF	1413	1732.6	22.04	23.00	1.247	0.09	2.640	3.293
	WCDMA Band IV	RMC12.2Kbps	Front	0	OFF	1513	1752.6	22.01	23.00	1.256	0.03	2.570	3.228
	WCDMA Band IV	RMC12.2Kbps	Back	0	OFF	1312	1712.4	22.25	23.00	1.189	0.11	2.150	2.555
	WCDMA Band IV	RMC12.2Kbps	Back	0	OFF	1413	1732.6	22.04	23.00	1.247	0.06	2.100	2.620
	WCDMA Band IV	RMC12.2Kbps	Back	0	OFF	1513	1752.6	22.01	23.00	1.256	-0.08	1.980	2.487
59	WCDMA Band IV	RMC12.2Kbps	Bottom Side	0	OFF	1312	1712.4	22.25	23.00	1.189	0.06	2.840	**3.375**
	WCDMA Band IV	RMC12.2Kbps	Bottom Side	0	OFF	1413	1732.6	22.04	23.00	1.247	0.09	2.700	3.368
	WCDMA Band IV	RMC12.2Kbps	Bottom Side	0	OFF	1513	1752.6	22.01	23.00	1.256	0.11	2.630	3.303
60	WCDMA Band II	RMC12.2Kbps	Bottom Side	0	OFF	9262	1852.4	22.50	23.00	1.122	0.06	1.890	**2.121**
	WCDMA Band II	RMC12.2Kbps	Bottom Side	0	OFF	9400	1880	22.37	23.00	1.156	0.07	1.510	1.746
	WCDMA Band II	RMC12.2Kbps	Bottom Side	0	OFF	9538	1907.6	22.46	23.00	1.132	0.06	1.000	1.132

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 4	20M	QPSK	1RB	49Offset	Bottom Side	0	OFF	20175	1732.5	22.41	23.00	1.146	-0.09	2.380	2.726
	LTE Band 4	20M	QPSK	50RB	50Offset	Bottom Side	0	OFF	20175	1732.5	21.45	22.00	1.135	0.03	1.980	2.247
	LTE Band 4	20M	QPSK	100RB	0Offset	Bottom Side	0	OFF	20175	1732.5	21.29	22.00	1.178	0.06	1.860	2.190
61	LTE Band 4	20M	QPSK	1RB	49Offset	Front	0	OFF	20175	1732.5	22.41	23.00	1.146	0.06	2.700	**3.093**
62	LTE Band 2	20M	QPSK	1RB	99Offset	Bottom Side	0	OFF	18700	1860	21.92	23.00	1.282	0.03	1.350	**1.731**
	LTE Band 2	20M	QPSK	1RB	99Offset	Bottom Side	0	OFF	18900	1880	21.94	23.00	1.276	0.01	0.891	1.137
	LTE Band 2	20M	QPSK	1RB	99Offset	Bottom Side	0	OFF	19100	1900	22.14	23.00	1.219	-0.06	1.110	1.353
63	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	0	OFF	20850	2510	21.82	23.00	1.312	0.15	1.750	**2.296**
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	0	OFF	21100	2535	21.59	23.00	1.384	-0.01	1.380	1.909
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	0	OFF	21350	2560	21.89	23.00	1.291	0.02	1.150	1.485

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN 2.4GHz	802.11n-HT 20 MCS0	Front	0	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	1.69	0.09	0.326	0.508
	WLAN 2.4GHz	802.11n-HT 20 MCS0	Back	0	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	1.59			
	WLAN 2.4GHz	802.11n-HT 20 MCS0	Left Side	0	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	1.53			
	WLAN 2.4GHz	802.11n-HT 20 MCS0	Right Side	0	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	0.466			
	WLAN 2.4GHz	802.11n-HT 20 MCS0	Top Side	0	OFF	Ant 1+2	1	2412	16.34	18.00	1.466	94.05	1.063	0.707			
64	WLAN 2.4GHz	802.11n-HT 20 MCS0	Front	0	OFF	Ant 1+2	6	2437	16.20	18.00	1.514	94.05	1.063		0.05	0.358	**0.576**
	WLAN 2.4GHz	802.11n-HT 20 MCS0	Front	0	OFF	Ant 1+2	11	2462	16.11	18.00	1.545	94.05	1.063		0.11	0.343	0.563

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN 5.3GHz	802.11a 6Mbps	Front	0	Ant 1	OFF	52	5260	14.54	15.00	1.112	95.32	1.049	3.38	0.11	0.297	0.346
	WLAN 5.3GHz	802.11a 6Mbps	Back	0	Ant 1	OFF	52	5260	14.54	15.00	1.112	95.32	1.049	3.42	0.13	0.334	0.390
	WLAN 5.3GHz	802.11a 6Mbps	Left Side	0	Ant 1	OFF	52	5260	14.54	15.00	1.112	95.32	1.049	1.44			
	WLAN 5.3GHz	802.11a 6Mbps	Top Side	0	Ant 1	OFF	52	5260	14.54	15.00	1.112	95.32	1.049	1.44			
65	WLAN 5.3GHz	802.11a 6Mbps	Back	0	Ant 1	OFF	56	5280	14.47	15.00	1.130	95.32	1.049		0.07	0.547	**0.648**
	WLAN 5.3GHz	802.11a 6Mbps	Back	0	Ant 1	OFF	64	5320	14.50	15.00	1.122	95.32	1.049		0.03	0.530	0.624
	WLAN 5.2GHz	802.11a 6Mbps	Front	0	Ant 2	OFF	36	5180	14.09	14.50	1.099	95.2	1.050	1.24	0.08	0.125	0.144
	WLAN 5.2GHz	802.11a 6Mbps	Back	0	Ant 2	OFF	36	5180	14.09	14.50	1.099	95.2	1.050	2.7	0.06	0.197	0.227
	WLAN 5.2GHz	802.11a 6Mbps	Right Side	0	Ant 2	OFF	36	5180	14.09	14.50	1.099	95.2	1.050	0.561			
	WLAN 5.2GHz	802.11a 6Mbps	Top Side	0	Ant 2	OFF	36	5180	14.09	14.50	1.099	95.2	1.050	0.331			
	WLAN 5.2GHz	802.11a 6Mbps	Back	0	Ant 2	OFF	40	5200	13.89	14.50	1.151	95.2	1.050		0.1	0.209	0.253
66	WLAN 5.2GHz	802.11a 6Mbps	Back	0	Ant 2	OFF	48	5240	13.53	14.50	1.250	95.2	1.050		0.02	0.226	**0.297**
	WLAN 5.2GHz	802.11n-HT20 MCS0	Front	0	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	2.5	0.11	0.295	0.353
	WLAN 5.2GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	2.84	0.19	0.352	0.422
	WLAN 5.2GHz	802.11n-HT20 MCS0	Left Side	0	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	1.51			
	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Side	0	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	0.494			
	WLAN 5.2GHz	802.11n-HT20 MCS0	Top Side	0	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	0.77			
67	WLAN 5.2GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	OFF	40	5200	16.69	17.50	1.205	94.53	1.058		0.02	0.448	**0.571**
	WLAN 5.2GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	OFF	48	5240	16.69	17.50	1.205	94.53	1.058		0.01	0.372	0.474

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN 5.5GHz	802.11a 6Mbps	Front	0	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	4	0.06	0.300	0.328
68	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	5.55	0.07	0.662	**0.724**
	WLAN 5.5GHz	802.11a 6Mbps	Left Side	0	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	1.296			
	WLAN 5.5GHz	802.11a 6Mbps	Top Side	0	Ant 1	100	5500	15.82	16.00	1.042	95.32	1.049	1.52			
	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Ant 1	112	5560	15.64	16.00	1.086	95.32	1.049		0.02	0.518	0.590
	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Ant 1	140	5700	15.78	16.00	1.052	95.32	1.049		0.02	0.511	0.564
	WLAN 5.5GHz	802.11a 6Mbps	Front	0	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	2.24	0.06	0.256	0.283
	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	5.58	0.01	0.420	0.465
	WLAN 5.5GHz	802.11a 6Mbps	Right Side	0	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	0.585			
	WLAN 5.5GHz	802.11a 6Mbps	Top Side	0	Ant 2	100	5500	13.77	14.00	1.054	95.2	1.050	0.593			
	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Ant 2	112	5560	13.48	14.00	1.127	95.2	1.050		0	0.663	0.785
69	WLAN 5.5GHz	802.11a 6Mbps	Back	0	Ant 2	140	5700	13.66	14.00	1.081	95.2	1.050		-0.07	0.799	**0.907**
	WLAN 5.5GHz	802.11n-HT20 MCS0	Front	0	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	3.205	0.09	0.464	0.540
	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	4.45	0.01	0.652	0.758
	WLAN 5.5GHz	802.11n-HT20 MCS0	Left Side	0	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	1.357			
	WLAN 5.5GHz	802.11n-HT20 MCS0	Right Side	0	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	0.99			
	WLAN 5.5GHz	802.11n-HT20 MCS0	Top Side	0	Ant 1+2	100	5500	16.59	17.00	1.099	94.53	1.058	1.28			
	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	120	5600	16.33	17.00	1.167	94.53	1.058		-0.16	0.623	0.769
	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	116	5580	16.25	17.00	1.189	94.53	1.058		-0.15	0.611	0.768
70	WLAN 5.5GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	140	5700	16.25	17.00	1.189	94.53	1.058		0.01	0.657	**0.826**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	peak SAR	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN 5.8GHz	802.11a 6Mbps	Front	0	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	2.96	0.06	0.323	0.386
	WLAN 5.8GHz	802.11a 6Mbps	Back	0	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	3.52	0.08	0.393	0.470
	WLAN 5.8GHz	802.11a 6Mbps	Left Side	0	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	0.801			
	WLAN 5.8GHz	802.11a 6Mbps	Top Side	0	Ant 1	149	5745	15.93	16.50	1.140	95.32	1.049	0.894			
	WLAN 5.8GHz	802.11a 6Mbps	Back	0	Ant 1	157	5785	15.83	16.50	1.167	95.32	1.049		0.15	0.371	0.454
71	WLAN 5.8GHz	802.11a 6Mbps	Back	0	Ant 1	165	5825	15.64	16.50	1.219	95.32	1.049		0.01	0.462	**0.591**
	WLAN 5.8GHz	802.11a 6Mbps	Front	0	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	2.511	0.02	0.303	0.365
72	WLAN 5.8GHz	802.11a 6Mbps	Back	0	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	11.765	0.06	0.730	**0.880**
	WLAN 5.8GHz	802.11a 6Mbps	Right Side	0	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	0.749			
	WLAN 5.8GHz	802.11a 6Mbps	Top Side	0	Ant 2	157	5785	13.90	14.50	1.148	95.2	1.050	1.525			
	WLAN 5.8GHz	802.11a 6Mbps	Back	0	Ant 2	149	5745	13.62	14.50	1.225	95.2	1.050		0.11	0.614	0.790
	WLAN 5.8GHz	802.11a 6Mbps	Back	0	Ant 2	165	5785	13.49	14.50	1.262	95.2	1.050		0.16	0.468	0.620
	WLAN 5.8GHz	802.11n-HT20 MCS0	Front	0	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	1.36	0.09	0.159	0.184
	WLAN 5.8GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	4.57	0.1	0.560	0.650
	WLAN 5.8GHz	802.11n-HT20 MCS0	Left Side	0	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	0.119			
	WLAN 5.8GHz	802.11n-HT20 MCS0	Right Side	0	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	0.684			
	WLAN 5.8GHz	802.11n-HT20 MCS0	Top Side	0	Ant 1+2	157	5785	16.60	17.00	1.096	94.53	1.058	1.38			
	WLAN 5.8GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	149	5785	16.35	17.00	1.161	94.53	1.058		0.08	0.561	0.689
73	WLAN 5.8GHz	802.11n-HT20 MCS0	Back	0	Ant 1+2	165	5785	16.25	17.00	1.189	94.53	1.058		-0.03	0.567	**0.713**

14.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	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)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN 2.4GHz	802.11b 1Mbps	Right Cheek	-	Ant 1	OFF	11	2462	16.92	17.50	1.143	99.19	1.008	0.03	0.873	1	1.006
2nd	WLAN 2.4GHz	802.11b 1Mbps	Right Cheek	-	Ant 1	OFF	11	2462	16.92	17.50	1.143	99.19	1.008	0.1	0.850	1.027	0.979
1st	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Cheek	-	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	0.09	0.871	1	1.044
2nd	WLAN 5.2GHz	802.11n-HT20 MCS0	Right Cheek	-	Ant 1+2	OFF	36	5180	16.96	17.50	1.132	94.53	1.058	0.05	0.868	1.003	1.040
1st	WLAN 5.3GHz	802.11a 6Mbps	Right Cheek	-	Ant 1	OFF	56	5280	14.47	15.00	1.130	95.32	1.049	0.03	0.866	1	1.026
2nd	WLAN 5.3GHz	802.11a 6Mbps	Right Cheek	-	Ant 1	OFF	56	5280	14.47	15.00	1.130	95.32	1.049	0.01	0.855	1.013	1.013
1st	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	-	Ant 1	OFF	100	5500	15.82	16.00	1.042	95.32	1.049	0.07	1.000	1	1.093
2nd	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	-	Ant 1	OFF	100	5500	15.82	16.00	1.042	95.32	1.049	0.17	0.998	1.002	1.091

No.	Band	BW (MHz)	RB Size	RB offset	Mode	Test Position	Gap (mm)	Power Reduction	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	GSM1900	-	-	-	GPRS 4 Tx slots	Bottom Side	10	ON	512	1850.2	23.64	24.00	1.086	0.17	1.020	1	1.108
2nd	GSM1900	-	-	-	GPRS 4 Tx slots	Bottom Side	10	ON	512	1850.2	23.64	24.00	1.086	0.12	0.998	1.022	1.084
1st	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	20175	1732.5	19.55	20.00	1.109	0.02	0.918	1	1.018
2nd	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	20175	1732.5	19.55	20.00	1.109	0.08	0.912	1.007	1.012
1st	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	18900	1880	19.94	20.50	1.138	-0.07	1.020	1	1.098
2nd	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	18900	1880	19.94	20.50	1.138	-0.05	0.998	1.022	1.074
1st	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	20850	2510	21.00	21.50	1.122	-0.06	0.836	1	0.938
2nd	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	10	ON	20850	2510	21.00	21.50	1.122	-0.12	0.832	1.005	0.934

No.	Band	BW (MHz)	RB Size	RB offset	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA Band IV	-	-	-	RMC12.2Kbps	Bottom Side	0	OFF	1312	1712.4	22.25	23.00	1.189	0.06	2.840	1	3.375
2nd	WCDMA Band IV	-	-	-	RMC12.2Kbps	Bottom Side	0	OFF	1312	1712.4	22.25	23.00	1.189	0.06	2.810	1.011	3.340
1st	LTE Band 4	20M	QPSK	1RB	49Offset	Front	0	OFF	20175	1732.5	22.41	23.00	1.146	0.06	2.700	1	3.093
2nd	LTE Band 4	20M	QPSK	1RB	49Offset	Front	0	OFF	20175	1732.5	22.41	23.00	1.146	0.09	2.610	1.034	2.990

General Note:

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

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			Note
		Head	Body-worn	Hotspot	
1.	GSM Voice + WLAN2.4GHz(SISO)	Yes	Yes		
2.	GPRS/EDGE + WLAN2.4GHz(SISO)	Yes	Yes	Yes	Hotspot
3.	WCDMA + WLAN2.4GHz(SISO)	Yes	Yes	Yes	Hotspot
4.	LTE + WLAN2.4GHz(SISO) (MIMO)	Yes	Yes	Yes	Hotspot
5.	GSM Voice + WLAN2.4GHz(MIMO)	Yes	Yes		
6.	GPRS/EDGE + WLAN2.4GHz(MIMO)	Yes	Yes		WWAN VoIP
7.	WCDMA + WLAN2.4GHz(MIMO)	Yes	Yes		WWAN VoIP
8.	LTE + WLAN2.4GHz(MIMO)	Yes	Yes		WWAN VoIP
9.	GSM Voice + Bluetooth		Yes		
10.	GPRS/EDGE + Bluetooth		Yes		WWAN VoIP
11.	WCDMA+ Bluetooth		Yes		WWAN VoIP
12.	LTE + Bluetooth		Yes		WWAN VoIP
13.	GSM Voice + WLAN5GHz(SISO)	Yes	Yes		
14.	GPRS/EDGE + WLAN5GHz(SISO)	Yes	Yes		WWAN VoIP
15.	WCDMA + WLAN5GHz(SISO)	Yes	Yes		WWAN VoIP
16.	LTE + WLAN5GHz(SISO)	Yes	Yes		WWAN VoIP
17.	GSM Voice + WLAN5GHz(MIMO)	Yes	Yes		
18.	GPRS/EDGE + WLAN5GHz(MIMO)	Yes	Yes		WWAN VoIP
19.	WCDMA + WLAN5GHz(MIMO)	Yes	Yes		WWAN VoIP
20.	LTE + WLAN5GHz(MIMO)	Yes	Yes		WWAN VoIP

General Note:

1. This device supported VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. 3rd party VoIP) and LTE Supports VoLTE operation.
2. This device 2.4GHz WLAN SISO supports Hotspot operation.
3. This device 2.4GHz WLAN MIMO and all 5GHz WLAN have no hotspot function.
4. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
5. WLAN2.4GHz and Bluetooth share the same antenna, and cannot transmit simultaneously.
6. 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.
7. Chose the worse zoom scan SAR of WLAN2.4GHz and WLAN 5GHz SAR for co-located with WWAN analysis.
8. According to EUT character, WWAN+WLAN5GHz+Bluetooth three transmission is not supported.
9. The Scaled SAR summation is calculated based on the same configuration and test position.
10. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) Scalar SAR summation < 1.6W/kg.
    ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
    iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
    iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

15.1 Head Exposure Conditions

<WWAN + WLAN2.4GHz Ant.1>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.170	1.006	1.18
		Right Tilted	0.353	1.006	1.36
		Left Cheek	0.278	1.006	1.28
		Left Tilted	0.231	1.006	1.24
	GSM1900	Right Cheek	0.194	1.006	1.20
		Right Tilted	0.048	1.006	1.05
		Left Cheek	0.147	1.006	1.15
		Left Tilted	0.062	1.006	1.07
WCDMA	Band V	Right Cheek	0.137	1.006	1.14
		Right Tilted	0.309	1.006	1.32
		Left Cheek	0.249	1.006	1.26
		Left Tilted	0.245	1.006	1.25
	Band IV	Right Cheek	0.439	1.006	1.45
		Right Tilted	0.080	1.006	1.09
		Left Cheek	0.176	1.006	1.18
		Left Tilted	0.097	1.006	1.10
	Band II	Right Cheek	0.199	1.006	1.21
		Right Tilted	0.055	1.006	1.06
		Left Cheek	0.145	1.006	1.15
		Left Tilted	0.059	1.006	1.07

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Right Cheek	0.096	1.006	1.10
		Right Tilted	0.077	1.006	1.08
		Left Cheek	0.110	1.006	1.12
		Left Tilted	0.074	1.006	1.08
	Band 5	Right Cheek	0.087	1.006	1.09
		Right Tilted	0.195	1.006	1.20
		Left Cheek	0.129	1.006	1.14
		Left Tilted	0.133	1.006	1.14
	Band 4	Right Cheek	0.186	1.006	1.19
		Right Tilted	0.076	1.006	1.08
		Left Cheek	0.140	1.006	1.15
		Left Tilted	0.076	1.006	1.08
	Band 2	Right Cheek	0.078	1.006	1.08
		Right Tilted	0.031	1.006	1.04
		Left Cheek	0.077	1.006	1.08
		Left Tilted	0.044	1.006	1.05
	Band 7	Right Cheek	0.196	1.006	1.20
		Right Tilted	0.107	1.006	1.11
		Left Cheek	0.201	1.006	1.21
		Left Tilted	0.125	1.006	1.13

<WWAN + WLAN2.4GHz Ant.2>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.170	0.691	0.86
		Right Tilted	0.353	0.691	1.04
		Left Cheek	0.278	0.691	0.97
		Left Tilted	0.231	0.691	0.92
	GSM1900	Right Cheek	0.194	0.691	0.89
		Right Tilted	0.048	0.691	0.74
		Left Cheek	0.147	0.691	0.84
		Left Tilted	0.062	0.691	0.75
WCDMA	Band V	Right Cheek	0.137	0.691	0.83
		Right Tilted	0.309	0.691	1.00
		Left Cheek	0.249	0.691	0.94
		Left Tilted	0.245	0.691	0.94
	Band IV	Right Cheek	0.439	0.691	1.13
		Right Tilted	0.080	0.691	0.77
		Left Cheek	0.176	0.691	0.87
		Left Tilted	0.097	0.691	0.79
	Band II	Right Cheek	0.199	0.691	0.89
		Right Tilted	0.055	0.691	0.75
		Left Cheek	0.145	0.691	0.84
		Left Tilted	0.059	0.691	0.75

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Right Cheek	0.096	0.691	0.79
		Right Tilted	0.077	0.691	0.77
		Left Cheek	0.110	0.691	0.80
		Left Tilted	0.074	0.691	0.77
	Band 5	Right Cheek	0.087	0.691	0.78
		Right Tilted	0.195	0.691	0.89
		Left Cheek	0.129	0.691	0.82
		Left Tilted	0.133	0.691	0.82
	Band 4	Right Cheek	0.186	0.691	0.88
		Right Tilted	0.076	0.691	0.77
		Left Cheek	0.140	0.691	0.83
		Left Tilted	0.076	0.691	0.77
	Band 2	Right Cheek	0.078	0.691	0.77
		Right Tilted	0.031	0.691	0.72
		Left Cheek	0.077	0.691	0.77
		Left Tilted	0.044	0.691	0.74
	Band 7	Right Cheek	0.196	0.691	0.89
		Right Tilted	0.107	0.691	0.80
		Left Cheek	0.201	0.691	0.89
		Left Tilted	0.125	0.691	0.82

<WWAN + WLAN2.4GHz Ant.1+2>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1+2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.170	0.641	0.81
		Right Tilted	0.353	0.641	0.99
		Left Cheek	0.278	0.641	0.92
		Left Tilted	0.231	0.641	0.87
	GSM1900	Right Cheek	0.194	0.641	0.84
		Right Tilted	0.048	0.641	0.69
		Left Cheek	0.147	0.641	0.79
		Left Tilted	0.062	0.641	0.70
WCDMA	Band V	Right Cheek	0.137	0.641	0.78
		Right Tilted	0.309	0.641	0.95
		Left Cheek	0.249	0.641	0.89
		Left Tilted	0.245	0.641	0.89
	Band IV	Right Cheek	0.439	0.641	1.08
		Right Tilted	0.080	0.641	0.72
		Left Cheek	0.176	0.641	0.82
		Left Tilted	0.097	0.641	0.74
	Band II	Right Cheek	0.199	0.641	0.84
		Right Tilted	0.055	0.641	0.70
		Left Cheek	0.145	0.641	0.79
		Left Tilted	0.059	0.641	0.70

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Right Cheek	0.096	0.641	0.74
		Right Tilted	0.077	0.641	0.72
		Left Cheek	0.110	0.641	0.75
		Left Tilted	0.074	0.641	0.72
	Band 5	Right Cheek	0.087	0.641	0.73
		Right Tilted	0.195	0.641	0.84
		Left Cheek	0.129	0.641	0.77
		Left Tilted	0.133	0.641	0.77
	Band 4	Right Cheek	0.186	0.641	0.83
		Right Tilted	0.076	0.641	0.72
		Left Cheek	0.140	0.641	0.78
		Left Tilted	0.076	0.641	0.72
	Band 2	Right Cheek	0.078	0.641	0.72
		Right Tilted	0.031	0.641	0.67
		Left Cheek	0.077	0.641	0.72
		Left Tilted	0.044	0.641	0.69
	Band 7	Right Cheek	0.196	0.641	0.84
		Right Tilted	0.107	0.641	0.75
		Left Cheek	0.201	0.641	0.84
		Left Tilted	0.125	0.641	0.77

<WWAN + WLAN5GHz Ant.1>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.170	1.093	1.26
		Right Tilted	0.353	1.093	1.45
		Left Cheek	0.278	1.093	1.37
		Left Tilted	0.231	1.093	1.32
	GSM1900	Right Cheek	0.194	1.093	1.29
		Right Tilted	0.048	1.093	1.14
		Left Cheek	0.147	1.093	1.24
		Left Tilted	0.062	1.093	1.16
WCDMA	Band V	Right Cheek	0.137	1.093	1.23
		Right Tilted	0.309	1.093	1.40
		Left Cheek	0.249	1.093	1.34
		Left Tilted	0.245	1.093	1.34
	Band IV	Right Cheek	0.439	1.093	**1.53**
		Right Tilted	0.080	1.093	1.17
		Left Cheek	0.176	1.093	1.27
		Left Tilted	0.097	1.093	1.19
	Band II	Right Cheek	0.199	1.093	1.29
		Right Tilted	0.055	1.093	1.15
		Left Cheek	0.145	1.093	1.24
		Left Tilted	0.059	1.093	1.15

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Right Cheek	0.096	1.093	1.19
		Right Tilted	0.077	1.093	1.17
		Left Cheek	0.110	1.093	1.20
		Left Tilted	0.074	1.093	1.17
	Band 5	Right Cheek	0.087	1.093	1.18
		Right Tilted	0.195	1.093	1.29
		Left Cheek	0.129	1.093	1.22
		Left Tilted	0.133	1.093	1.23
	Band 4	Right Cheek	0.186	1.093	1.28
		Right Tilted	0.076	1.093	1.17
		Left Cheek	0.140	1.093	1.23
		Left Tilted	0.076	1.093	1.17
	Band 2	Right Cheek	0.078	1.093	1.17
		Right Tilted	0.031	1.093	1.12
		Left Cheek	0.077	1.093	1.17
		Left Tilted	0.044	1.093	1.14
	Band 7	Right Cheek	0.196	1.093	1.29
		Right Tilted	0.107	1.093	1.20
		Left Cheek	0.201	1.093	1.29
		Left Tilted	0.125	1.093	1.22

<WWAN + WLAN5GHz Ant.2>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.170	0.910	1.08
		Right Tilted	0.353	0.910	1.26
		Left Cheek	0.278	0.910	1.19
		Left Tilted	0.231	0.910	1.14
	GSM1900	Right Cheek	0.194	0.910	1.10
		Right Tilted	0.048	0.910	0.96
		Left Cheek	0.147	0.910	1.06
		Left Tilted	0.062	0.910	0.97
WCDMA	Band V	Right Cheek	0.137	0.910	1.05
		Right Tilted	0.309	0.910	1.22
		Left Cheek	0.249	0.910	1.16
		Left Tilted	0.245	0.910	1.16
	Band IV	Right Cheek	0.439	0.910	1.35
		Right Tilted	0.080	0.910	0.99
		Left Cheek	0.176	0.910	1.09
		Left Tilted	0.097	0.910	1.01
	Band II	Right Cheek	0.199	0.910	1.11
		Right Tilted	0.055	0.910	0.97
		Left Cheek	0.145	0.910	1.06
		Left Tilted	0.059	0.910	0.97

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Right Cheek	0.096	0.910	1.01
		Right Tilted	0.077	0.910	0.99
		Left Cheek	0.110	0.910	1.02
		Left Tilted	0.074	0.910	0.98
	Band 5	Right Cheek	0.087	0.910	1.00
		Right Tilted	0.195	0.910	1.11
		Left Cheek	0.129	0.910	1.04
		Left Tilted	0.133	0.910	1.04
	Band 4	Right Cheek	0.186	0.910	1.10
		Right Tilted	0.076	0.910	0.99
		Left Cheek	0.140	0.910	1.05
		Left Tilted	0.076	0.910	0.99
	Band 2	Right Cheek	0.078	0.910	0.99
		Right Tilted	0.031	0.910	0.94
		Left Cheek	0.077	0.910	0.99
		Left Tilted	0.044	0.910	0.95
	Band 7	Right Cheek	0.196	0.910	1.11
		Right Tilted	0.107	0.910	1.02
		Left Cheek	0.201	0.910	1.11
		Left Tilted	0.125	0.910	1.04

<WWAN + WLAN5GHz Ant.1+2>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1+2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.170	1.044	1.21
		Right Tilted	0.353	1.044	1.40
		Left Cheek	0.278	1.044	1.32
		Left Tilted	0.231	1.044	1.28
	GSM1900	Right Cheek	0.194	1.044	1.24
		Right Tilted	0.048	1.044	1.09
		Left Cheek	0.147	1.044	1.19
		Left Tilted	0.062	1.044	1.11
WCDMA	Band V	Right Cheek	0.137	1.044	1.18
		Right Tilted	0.309	1.044	1.35
		Left Cheek	0.249	1.044	1.29
		Left Tilted	0.245	1.044	1.29
	Band IV	Right Cheek	0.439	1.044	1.48
		Right Tilted	0.080	1.044	1.12
		Left Cheek	0.176	1.044	1.22
		Left Tilted	0.097	1.044	1.14
	Band II	Right Cheek	0.199	1.044	1.24
		Right Tilted	0.055	1.044	1.10
		Left Cheek	0.145	1.044	1.19
		Left Tilted	0.059	1.044	1.10

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1+2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Right Cheek	0.096	1.044	1.14
		Right Tilted	0.077	1.044	1.12
		Left Cheek	0.110	1.044	1.15
		Left Tilted	0.074	1.044	1.12
	Band 5	Right Cheek	0.087	1.044	1.13
		Right Tilted	0.195	1.044	1.24
		Left Cheek	0.129	1.044	1.17
		Left Tilted	0.133	1.044	1.18
	Band 4	Right Cheek	0.186	1.044	1.23
		Right Tilted	0.076	1.044	1.12
		Left Cheek	0.140	1.044	1.18
		Left Tilted	0.076	1.044	1.12
	Band 2	Right Cheek	0.078	1.044	1.12
		Right Tilted	0.031	1.044	1.08
		Left Cheek	0.077	1.044	1.12
		Left Tilted	0.044	1.044	1.09
	Band 7	Right Cheek	0.196	1.044	1.24
		Right Tilted	0.107	1.044	1.15
		Left Cheek	0.201	1.044	1.25
		Left Tilted	0.125	1.044	1.17

15.2 Hotspot Exposure Conditions

<WWAN + WLAN2.4GHz Ant.1>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.737	0.303	1.04
		Back	0.723	0.303	1.03
		Left side	0.177	0.303	0.48
		Right side	0.162		0.16
		Bottom side	0.493	0.303	0.80
	GSM1900	Front	0.411	0.303	0.71
		Back	0.381	0.303	0.68
		Left side	0.177	0.303	0.48
		Right side	0.059		0.06
		Bottom side	1.108	0.303	**1.41**
WCDMA	Band V	Front	0.671	0.303	0.97
		Back	0.649	0.303	0.95
		Left side	0.194	0.303	0.50
		Right side	0.116		0.12
		Bottom side	0.434	0.303	0.74
	Band IV	Front	0.508	0.303	0.81
		Back	0.447	0.303	0.75
		Left side	0.135	0.303	0.44
		Right side	0.099		0.10
		Bottom side	0.880	0.303	1.18
	Band II	Front	0.385	0.303	0.69
		Back	0.352	0.303	0.66
		Left side	0.156	0.303	0.46
		Right side	0.012		0.01
		Bottom side	0.725	0.303	1.03

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Front	0.192	0.303	0.50
		Back	0.269	0.303	0.57
		Left side	0.169	0.303	0.47
		Right side	0.182		0.18
		Bottom side	0.104	0.303	0.41
	Band 5	Front	0.347	0.303	0.65
		Back	0.389	0.303	0.69
		Left side	0.106	0.303	0.41
		Right side	0.034		0.03
		Bottom side	0.242	0.303	0.55
	Band 4	Front	0.609	0.303	0.91
		Back	0.541	0.303	0.84
		Left side	0.219	0.303	0.52
		Right side	0.142		0.14
		Bottom side	1.018	0.303	1.32
	Band 2	Front	0.594	0.303	0.90
		Back	0.524	0.303	0.83
		Left side	0.261	0.303	0.56
		Right side	0.019		0.02
		Bottom side	1.105	0.303	1.41
	Band 7	Front	0.354	0.303	0.66
		Back	0.394	0.303	0.70
		Left side	0.118	0.303	0.42
		Right side	0.120		0.12
		Bottom side	0.938	0.303	1.24

<WWAN + WLAN2.4GHz Ant.2>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.737	0.134	0.87
		Back	0.723	0.134	0.86
		Left side	0.177		0.18
		Right side	0.162	0.134	0.30
		Bottom side	0.493	0.134	0.63
	GSM1900	Front	0.411	0.134	0.55
		Back	0.381	0.134	0.52
		Left side	0.177		0.18
		Right side	0.059	0.134	0.19
		Bottom side	1.108	0.134	1.24
WCDMA	Band V	Front	0.671	0.134	0.81
		Back	0.649	0.134	0.78
		Left side	0.194		0.19
		Right side	0.116	0.134	0.25
		Bottom side	0.434	0.134	0.57
	Band IV	Front	0.508	0.134	0.64
		Back	0.447	0.134	0.58
		Left side	0.135		0.14
		Right side	0.099	0.134	0.23
		Bottom side	0.880	0.134	1.01
	Band II	Front	0.385	0.134	0.52
		Back	0.352	0.134	0.49
		Left side	0.156		0.16
		Right side	0.012	0.134	0.15
		Bottom side	0.725	0.134	0.86

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 12	Front	0.192	0.134	0.33
		Back	0.269	0.134	0.40
		Left side	0.169		0.17
		Right side	0.182	0.134	0.32
		Bottom side	0.104	0.134	0.24
	Band 5	Front	0.347	0.134	0.48
		Back	0.389	0.134	0.52
		Left side	0.106		0.11
		Right side	0.034	0.134	0.17
		Bottom side	0.242	0.134	0.38
	Band 4	Front	0.609	0.134	0.74
		Back	0.541	0.134	0.68
		Left side	0.219		0.22
		Right side	0.142	0.134	0.28
		Bottom side	1.018	0.134	1.15
	Band 2	Front	0.594	0.134	0.73
		Back	0.524	0.134	0.66
		Left side	0.261		0.26
		Right side	0.019	0.134	0.15
		Bottom side	1.105	0.134	1.24
	Band 7	Front	0.354	0.134	0.49
		Back	0.394	0.134	0.53
		Left side	0.118		0.12
		Right side	0.120	0.134	0.25
		Bottom side	0.938	0.134	1.07

15.3 Body-Worn Accessory Exposure Conditions

<WWAN + WLAN2.4GHz Ant.1>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.112	0.47
		Back	0.415	0.112	0.53
	GSM1900	Front	0.903	0.112	1.02
		Back	0.704	0.112	0.82
WCDMA	Band V	Front	0.319	0.112	0.43
		Back	0.362	0.112	0.47
	Band IV	Front	0.732	0.112	0.84
		Back	0.648	0.112	0.76
	Band II	Front	0.628	0.112	0.74
		Back	0.511	0.112	0.62
LTE	Band 12	Front	0.170	0.112	0.28
		Back	0.220	0.112	0.33
	Band 5	Front	0.159	0.112	0.27
		Back	0.181	0.112	0.29
	Band 4	Front	0.632	0.112	0.74
		Back	0.575	0.112	0.69
	Band 2	Front	0.558	0.112	0.67
		Back	0.418	0.112	0.53
	Band 7	Front	0.377	0.112	0.49
		Back	0.386	0.112	0.50

<WWAN + WLAN2.4GHz Ant.2>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.040	0.40
		Back	0.415	0.040	0.46
	GSM1900	Front	0.903	0.040	0.94
		Back	0.704	0.040	0.74
WCDMA	Band V	Front	0.319	0.040	0.36
		Back	0.362	0.040	0.40
	Band IV	Front	0.732	0.040	0.77
		Back	0.648	0.040	0.69
	Band II	Front	0.628	0.040	0.67
		Back	0.511	0.040	0.55
LTE	Band 12	Front	0.170	0.040	0.21
		Back	0.220	0.040	0.26
	Band 5	Front	0.159	0.040	0.20
		Back	0.181	0.040	0.22
	Band 4	Front	0.632	0.040	0.67
		Back	0.575	0.040	0.62
	Band 2	Front	0.558	0.040	0.60
		Back	0.418	0.040	0.46
	Band 7	Front	0.377	0.040	0.42
		Back	0.386	0.040	0.43

<WWAN + WLAN2.4GHz Ant.1+2>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1+2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.062	0.42
		Back	0.415	0.062	0.48
	GSM1900	Front	0.903	0.062	0.97
		Back	0.704	0.062	0.77
WCDMA	Band V	Front	0.319	0.062	0.38
		Back	0.362	0.062	0.42
	Band IV	Front	0.732	0.062	0.79
		Back	0.648	0.062	0.71
	Band II	Front	0.628	0.062	0.69
		Back	0.511	0.062	0.57
LTE	Band 12	Front	0.170	0.062	0.23
		Back	0.220	0.062	0.28
	Band 5	Front	0.159	0.062	0.22
		Back	0.181	0.062	0.24
	Band 4	Front	0.632	0.062	0.69
		Back	0.575	0.062	0.64
	Band 2	Front	0.558	0.062	0.62
		Back	0.418	0.062	0.48
	Band 7	Front	0.377	0.062	0.44
		Back	0.386	0.062	0.45

<WWAN + WLAN5GHz Ant.1>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.272	0.63
		Back	0.415	0.272	0.69
	GSM1900	Front	0.903	0.272	1.18
		Back	0.704	0.272	0.98
WCDMA	Band V	Front	0.319	0.272	0.59
		Back	0.362	0.272	0.63
	Band IV	Front	0.732	0.272	1.00
		Back	0.648	0.272	0.92
	Band II	Front	0.628	0.272	0.90
		Back	0.511	0.272	0.78
LTE	Band 12	Front	0.170	0.272	0.44
		Back	0.220	0.272	0.49
	Band 5	Front	0.159	0.272	0.43
		Back	0.181	0.272	0.45
	Band 4	Front	0.632	0.272	0.90
		Back	0.575	0.272	0.85
	Band 2	Front	0.558	0.272	0.83
		Back	0.418	0.272	0.69
	Band 7	Front	0.377	0.272	0.65
		Back	0.386	0.272	0.66

<WWAN + WLAN5GHz Ant.2>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.305	0.66
		Back	0.415	0.305	0.72
	GSM1900	Front	0.903	0.305	1.21
		Back	0.704	0.305	1.01
WCDMA	Band V	Front	0.319	0.305	0.62
		Back	0.362	0.305	0.67
	Band IV	Front	0.732	0.305	1.04
		Back	0.648	0.305	0.95
	Band II	Front	0.628	0.305	0.93
		Back	0.511	0.305	0.82
LTE	Band 12	Front	0.170	0.305	0.48
		Back	0.220	0.305	0.53
	Band 5	Front	0.159	0.305	0.46
		Back	0.181	0.305	0.49
	Band 4	Front	0.632	0.305	0.94
		Back	0.575	0.305	0.88
	Band 2	Front	0.558	0.305	0.86
		Back	0.418	0.305	0.72
	Band 7	Front	0.377	0.305	0.68
		Back	0.386	0.305	0.69

<WWAN + WLAN5GHz Ant.1+2>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1+2	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.263	0.62
		Back	0.415	0.263	0.68
	GSM1900	Front	0.903	0.263	1.17
		Back	0.704	0.263	0.97
WCDMA	Band V	Front	0.319	0.263	0.58
		Back	0.362	0.263	0.63
	Band IV	Front	0.732	0.263	1.00
		Back	0.648	0.263	0.91
	Band II	Front	0.628	0.263	0.89
		Back	0.511	0.263	0.77
LTE	Band 12	Front	0.170	0.263	0.43
		Back	0.220	0.263	0.48
	Band 5	Front	0.159	0.263	0.42
		Back	0.181	0.263	0.44
	Band 4	Front	0.632	0.263	0.90
		Back	0.575	0.263	0.84
	Band 2	Front	0.558	0.263	0.82
		Back	0.418	0.263	0.68
	Band 7	Front	0.377	0.263	0.64
		Back	0.386	0.263	0.65

<WWAN + Bluetooth >

WWAN Band		Exposure Position	WWAN	Bluetooth	Summed 1g SAR (W/kg)
			1g SAR (W/kg)	Estimated 1g SAR (W/kg)	
GSM	GSM850	Front	0.357	0.021	0.38
		Back	0.415	0.015	0.43
	GSM1900	Front	0.903	0.021	**0.92**
		Back	0.704	0.015	0.72
WCDMA	Band V	Front	0.319	0.021	0.34
		Back	0.362	0.015	0.38
	Band IV	Front	0.732	0.021	0.75
		Back	0.648	0.015	0.66
	Band II	Front	0.628	0.021	0.65
		Back	0.511	0.015	0.53
LTE	Band 12	Front	0.170	0.021	0.19
		Back	0.220	0.015	0.24
	Band 5	Front	0.159	0.021	0.18
		Back	0.181	0.015	0.20
	Band 4	Front	0.632	0.021	0.65
		Back	0.575	0.015	0.59
	Band 2	Front	0.558	0.021	0.58
		Back	0.418	0.015	0.43
	Band 7	Front	0.377	0.021	0.40
		Back	0.386	0.015	0.40

15.4 Product Specific 10g SAR Exposure Conditions

<WWAN + WLAN2.4GHz Ant.1+2>

WWAN Band		Exposure Position	WWAN	2.4GHz WLAN Ant 1+2	Summed 10g SAR (W/kg)
			10g SAR (W/kg)	10g SAR (W/kg)	
GSM	GSM1900	Bottom side	2.591		2.59
WCDMA	Band II	Bottom side	2.121		2.12
	Band IV	Front	3.340	0.576	**3.92**
		Back	2.620	0.576	3.20
		Bottom side	3.375		3.38
LTE	Band 4	Front	3.093	0.576	3.67
		Bottom side	2.726		2.73
	Band 2	Bottom side	1.731		1.73
	Band 7	Bottom side	2.296		2.30

<WWAN + WLAN5GHz Ant.1>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1	Summed 10g SAR (W/kg)
			10g SAR (W/kg)	10g SAR (W/kg)	
GSM	GSM1900	Bottom side	2.591		2.59
WCDMA	Band II	Bottom side	2.121		2.12
	Band IV	Front	3.340	0.386	3.73
		Back	2.620	0.724	3.34
		Bottom side	3.375		3.38
LTE	Band 4	Front	3.093	0.386	3.48
		Bottom side	2.726		2.73
	Band 2	Bottom side	1.731		1.73
	Band 7	Bottom side	2.296		2.30

<WWAN + WLAN5GHz Ant.2>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 2	Summed 10g SAR (W/kg)
			10g SAR (W/kg)	10g SAR (W/kg)	
GSM	GSM1900	Bottom side	2.591		2.59
WCDMA	Band II	Bottom side	2.121		2.12
	Band IV	Front	3.340	0.365	3.71
		Back	2.620	0.907	3.53
		Bottom side	3.375		3.38
LTE	Band 4	Front	3.093	0.365	3.46
		Bottom side	2.726		2.73
	Band 2	Bottom side	1.731		1.73
	Band 7	Bottom side	2.296		2.30

<WWAN + WLAN5GHz Ant.1+2>

WWAN Band		Exposure Position	WWAN	5GHz WLAN Ant 1+2	Summed 10g SAR (W/kg)
			10g SAR (W/kg)	10g SAR (W/kg)	
GSM	GSM1900	Bottom side	2.591		2.59
WCDMA	Band II	Bottom side	2.121		2.12
	Band IV	Front	3.340	0.540	**3.88**
		Back	2.620	0.826	3.45
		Bottom side	3.375		3.38
LTE	Band 4	Front	3.093	0.540	3.63
		Bottom side	2.726		2.73
	Band 2	Bottom side	1.731		1.73
	Band 7	Bottom side	2.296		2.30

Test Engineer： Frank Qiao

16. Uncertainty Assessment

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

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

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

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

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

(b) κ is the coverage factor

Table 16.1. Standard Uncertainty for Assumed Distribution

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

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

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

Table 16.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

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

Table 16.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

17. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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

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

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

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.23

System Check_Head_750MHz_160423

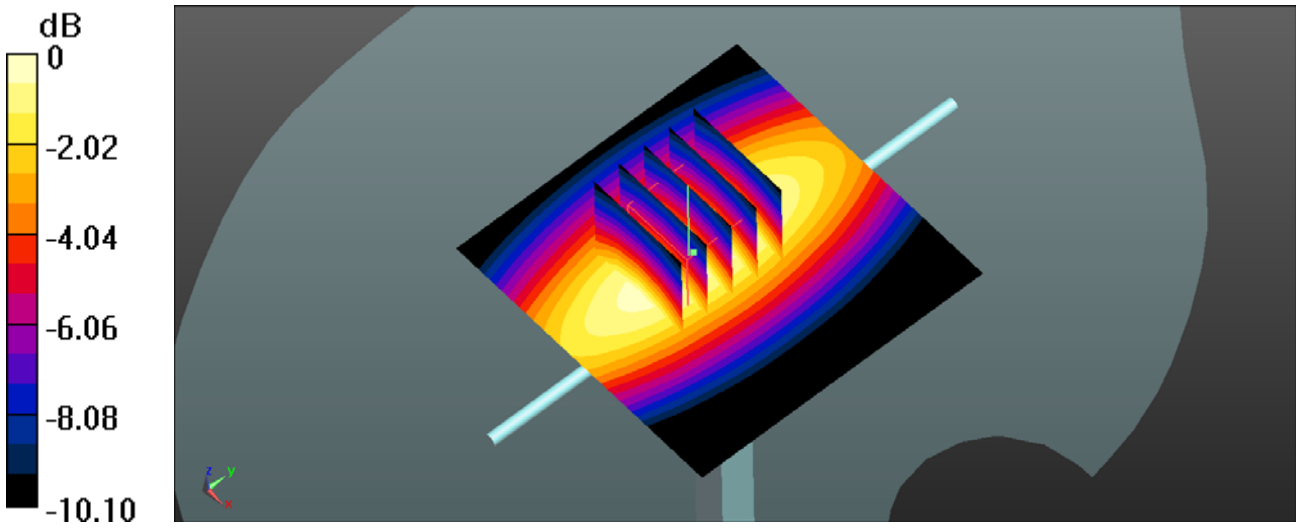
DUT: D750V2 - SN:1065

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750_160423 Medium parameters used: f = 750 MHz; σ = 0.895 S/m; ε_r = 41.825; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(10.52, 10.52, 10.52); Calibrated: 2015.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM1; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.60 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.97 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.04 W/kg
SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 2.62 W/kg



0 dB = 2.62 W/kg = 4.18 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.23

System Check_Head_835MHz_160423

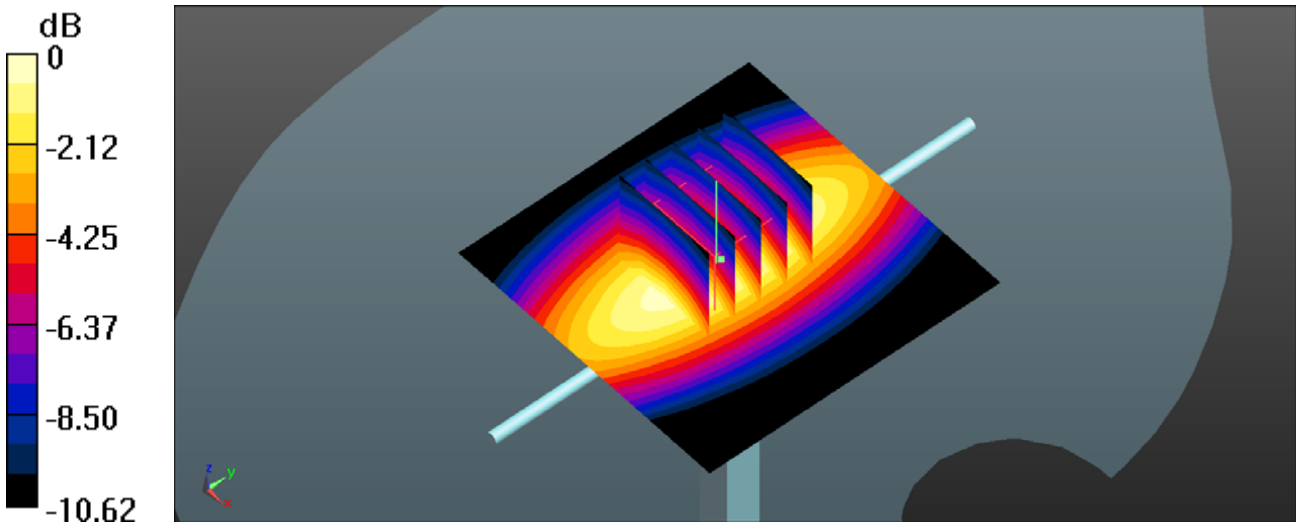
DUT: D835V2 - SN:4d091

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835_160423 Medium parameters used: f = 835 MHz; σ = 0.92 S/m; ε_r = 41.484; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(10.1, 10.1, 10.1); Calibrated: 2015.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM1; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.06 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.04 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 3.06 W/kg



0 dB = 3.06 W/kg = 4.86 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.19

System Check_Head_1750MHz_160419

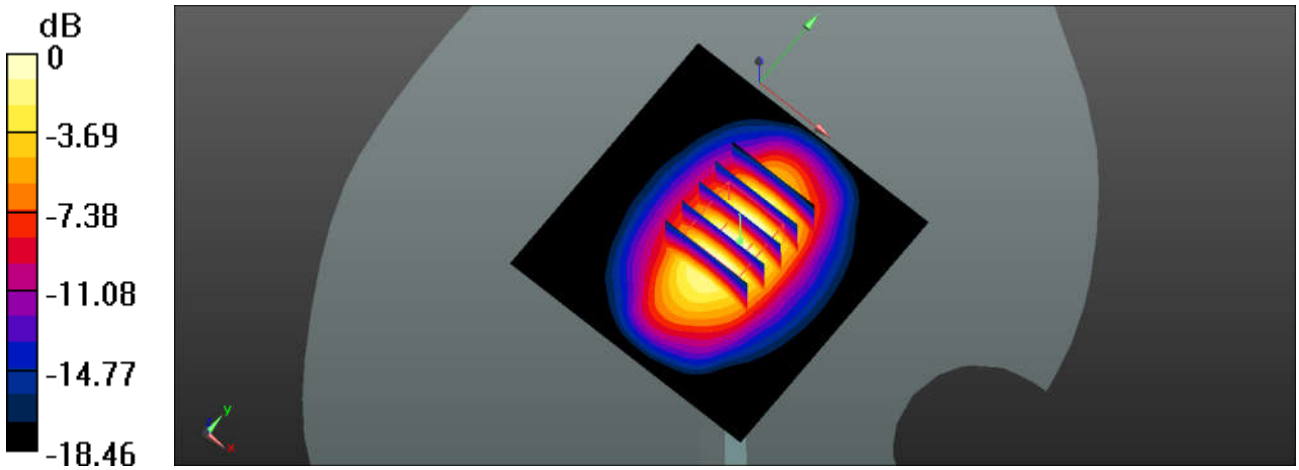
DUT: D1750V2 - SN:1069

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750_160419 Medium parameters used: f = 1750 MHz; σ = 1.395 S/m; ε_r = 40.481; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.06, 8.06, 8.06); Calibrated: 2015.5.28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.5.21
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 12.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 78.27 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 15.8 W/kg
SAR(1 g) = 8.75 W/kg; SAR(10 g) = 4.66 W/kg
Maximum value of SAR (measured) = 12.1 W/kg



0 dB = 12.1 W/kg = 10.83 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.19

System Check_Head_1900MHz_160419

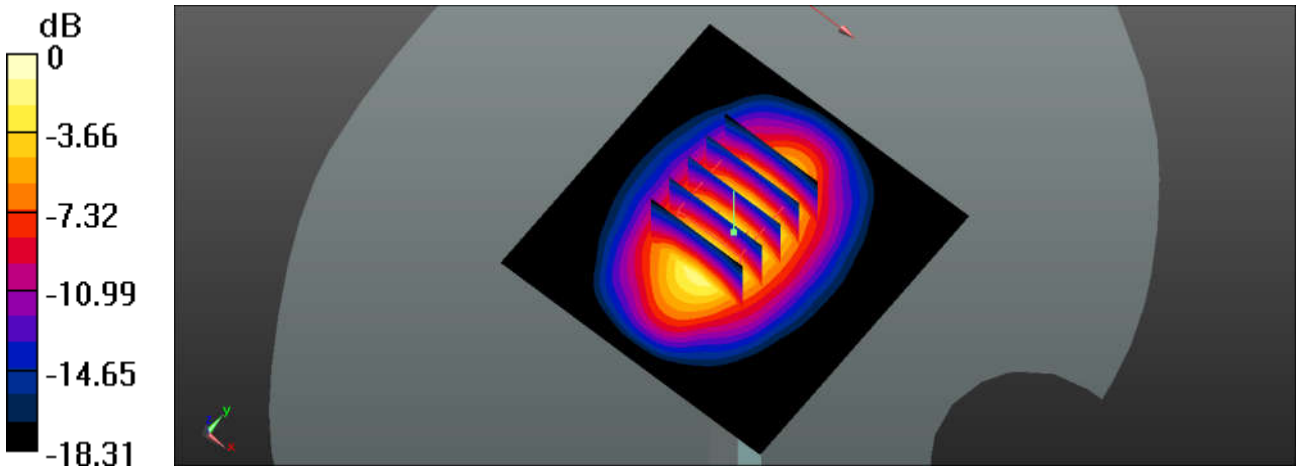
DUT: D1900V2 - SN:5d118

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900_160419 Medium parameters used: f = 1900 MHz; σ = 1.41 S/m; ε_r = 39.556; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.81, 7.81, 7.81); Calibrated: 2015.5.28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.5.21
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 92.52 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 20.7 W/kg
SAR(1 g) = 10.26 W/kg; SAR(10 g) = 5.13 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



0 dB = 15.1 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.20

System Check_Head_2450MHz_160420

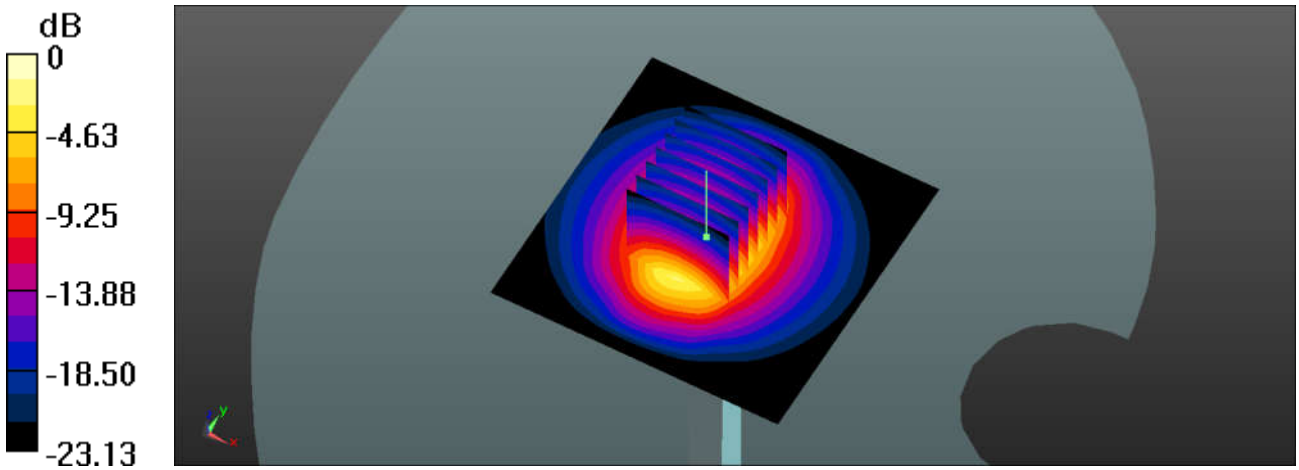
DUT: D2450V2 - SN:840

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450_160420 Medium parameters used: f = 2450 MHz; σ = 1.779 S/m; ε_r = 40.668; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.08, 7.08, 7.08); Calibrated: 2015.5.28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.5.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 20.9 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.91 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 27.5 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 5.92 W/kg
Maximum value of SAR (measured) = 20.3 W/kg



0 dB = 20.3 W/kg = 13.07 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.21

System Check_Head_2600MHz_160421

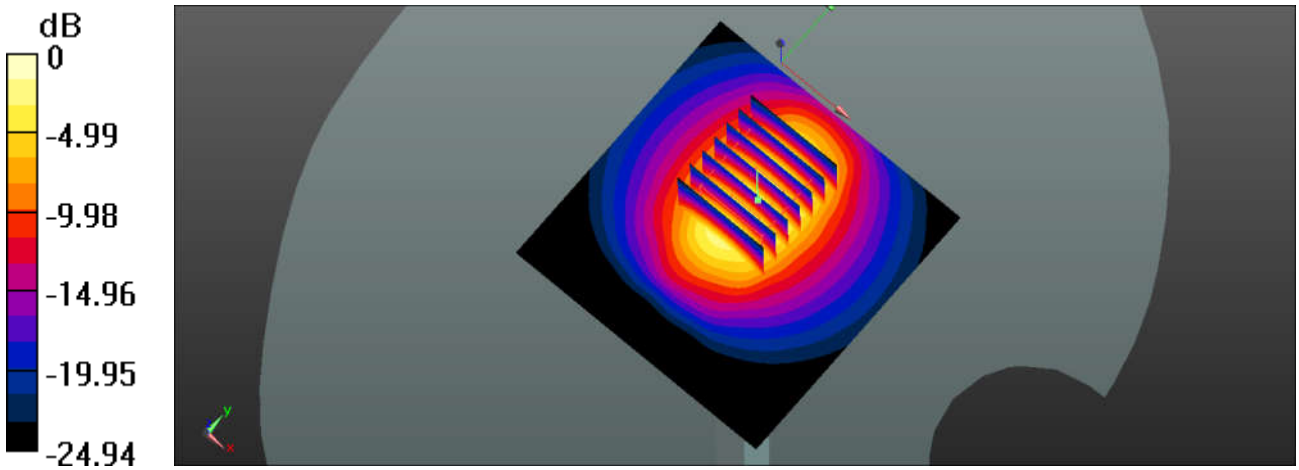
DUT: D2600V2 - SN:1061

Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600_160421 Medium parameters used: f = 2600 MHz; σ = 2.006 S/m; ε_r = 39.583; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.05, 7.05, 7.05); Calibrated: 2015.5.28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.5.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.4 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.04 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 31.9 W/kg
SAR(1 g) = 14.7 W/kg; SAR(10 g) = 6.49 W/kg
Maximum value of SAR (measured) = 23.2 W/kg



0 dB = 23.2 W/kg = 13.65 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.22

System Check_Head_5250MHz_160422

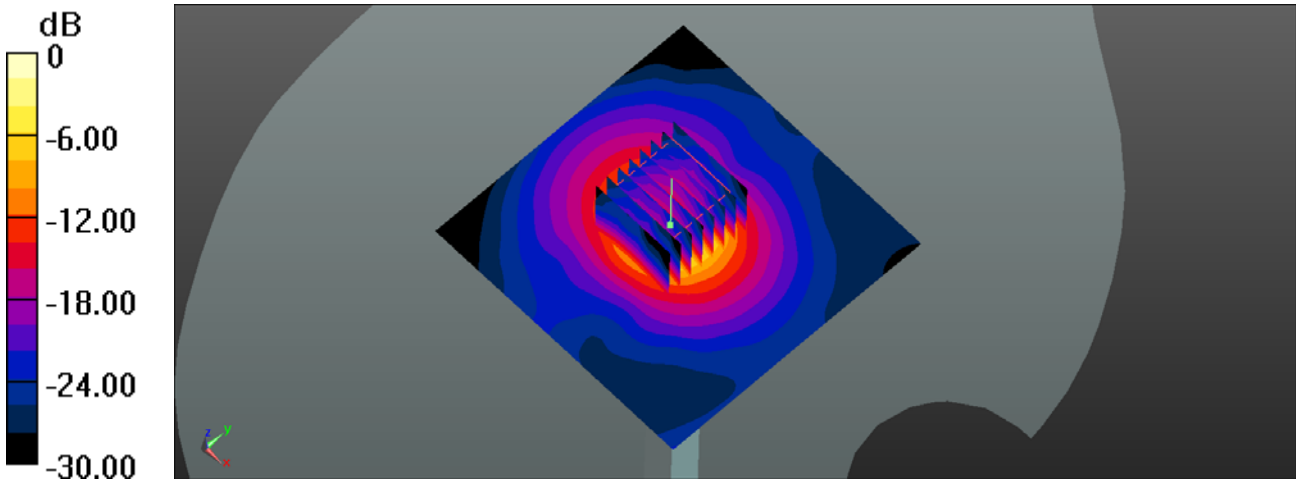
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: HSL_5000_160422 Medium parameters used: f = 5250 MHz; σ = 4.854 S/m; ε_r = 35.393; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(4.97, 4.97, 4.97); Calibrated: 2015.11.27;
- Sensor-Surface: 1.4mm (Mechanical SurfaceDetection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM1; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 15.6 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 40.56 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 29.4 W/kg
SAR(1 g) = 7.89 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.21

System Check_Head_5600MHz_160421

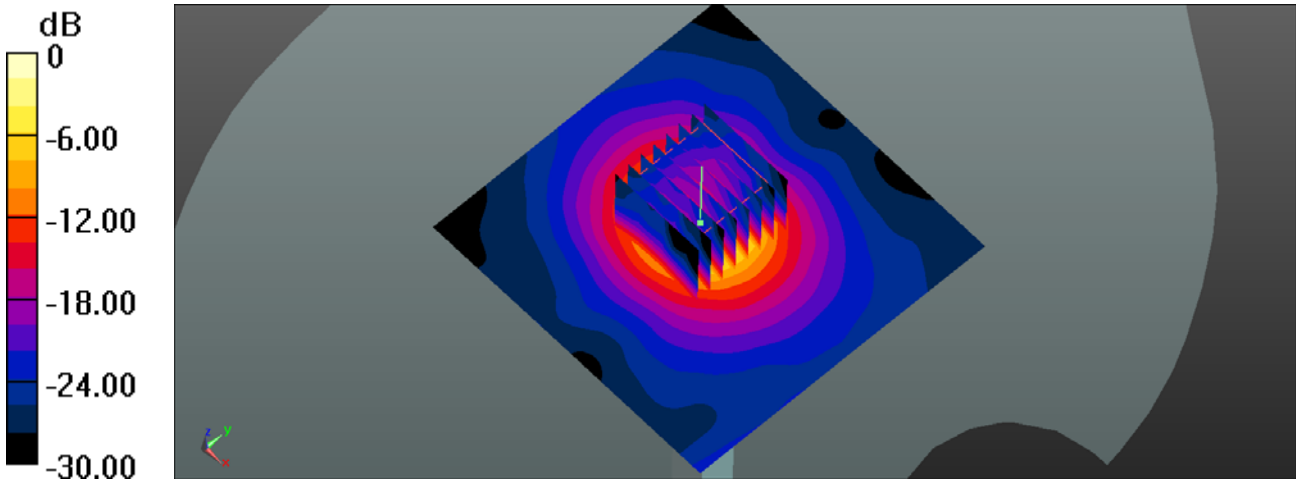
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: HSL_5000_160421 Medium parameters used: f = 5600 MHz; σ = 5.206 S/m; ε_r = 34.73; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(4.37, 4.37, 4.37); Calibrated: 2015.11.27;
- Sensor-Surface: 1.4mm (Mechanical SurfaceDetection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM1; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 15.2 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 38.46 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 30.0 W/kg
SAR(1 g) = 7.86 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 18.9 W/kg



0 dB = 18.9 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.20

System Check_Head_5750MHz_160420

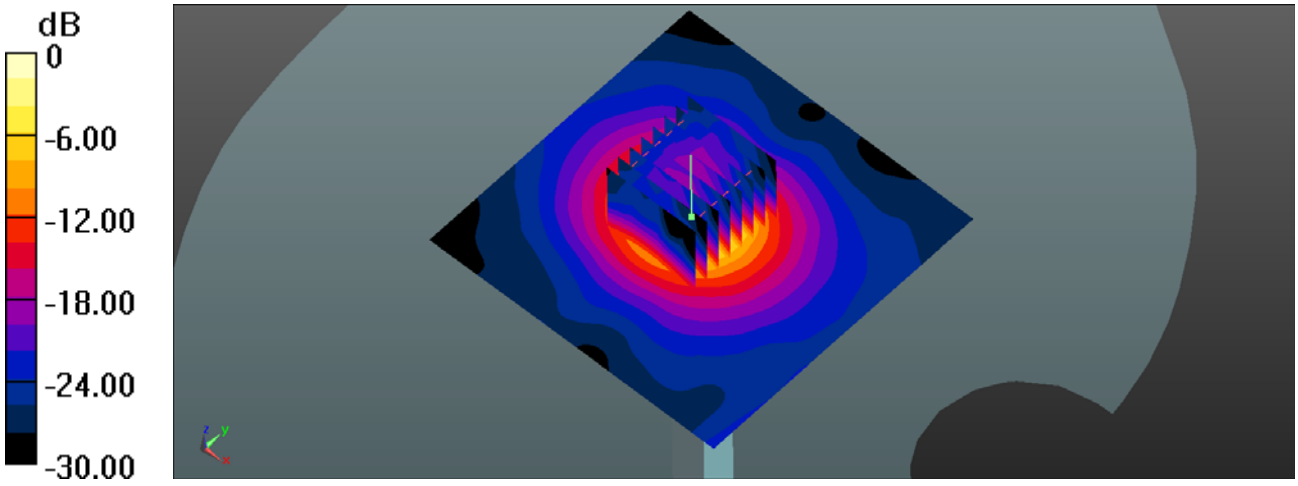
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: HSL_5000_160420 Medium parameters used: f = 5750 MHz; σ = 5.363 S/m; ε_r = 34.495; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(4.38, 4.38, 4.38); Calibrated: 2015.11.27;
- Sensor-Surface: 1.4mm (Mechanical SurfaceDetection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM1; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 15.6 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 38.42 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 30.8 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 18.8 W/kg



0 dB = 18.8 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.24

System Check_Body_750MHz_160424

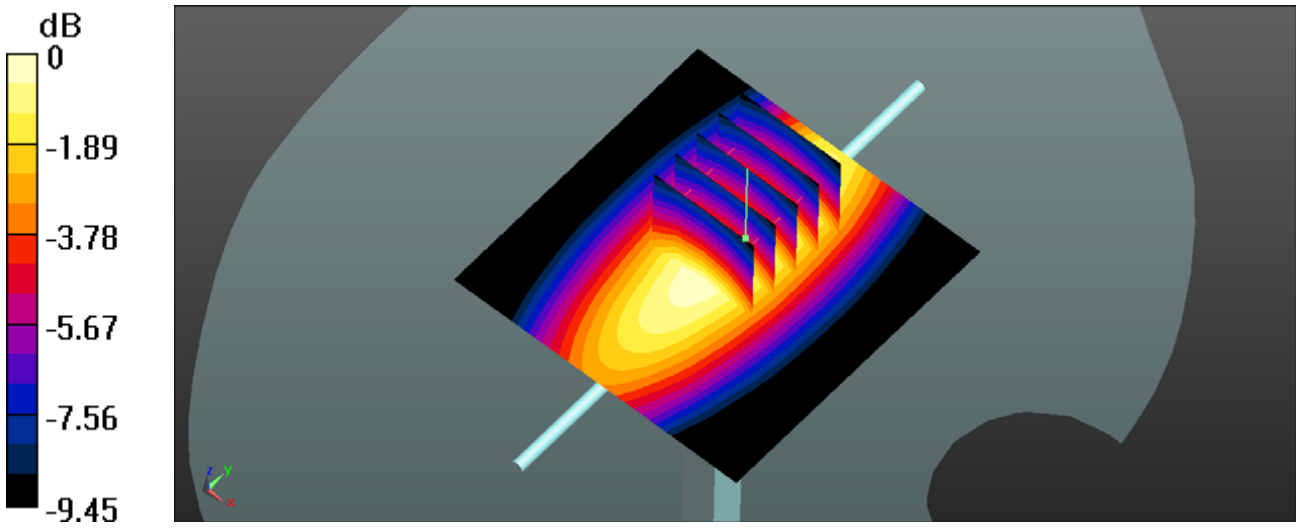
DUT: D750V2 - SN:1065

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750_160424 Medium parameters used: f = 750 MHz; σ = 0.956 S/m; ε_r = 54.926; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(10.22, 10.22, 10.22); Calibrated: 2015.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM2; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.77 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.61 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 3.11 W/kg
SAR(1 g) = 2.21 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (measured) = 2.72 W/kg



0 dB = 2.72 W/kg = 4.35 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.24

System Check_Body_835MHz_160424

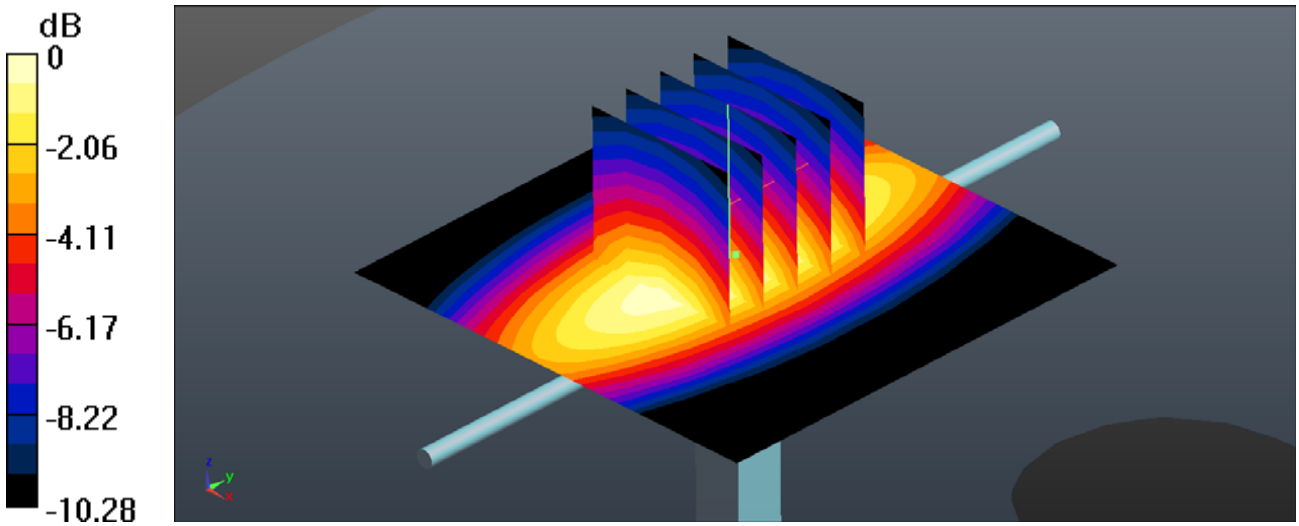
DUT: D835V2 - SN:4d091

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_160424 Medium parameters used: f = 835 MHz; σ = 1 S/m; ε_r = 53.687; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3954; ConvF(10.17, 10.17, 10.17); Calibrated: 2015.11.27;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2015.7.16
- Phantom: SAM2; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.16 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.96 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 3.63 W/kg
SAR(1 g) = 2.52 W/kg; SAR(10 g) = 1.66 W/kg
Maximum value of SAR (measured) = 3.16 W/kg



0 dB = 3.16 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2016.4.22

System Check_Body_1750MHz_160422

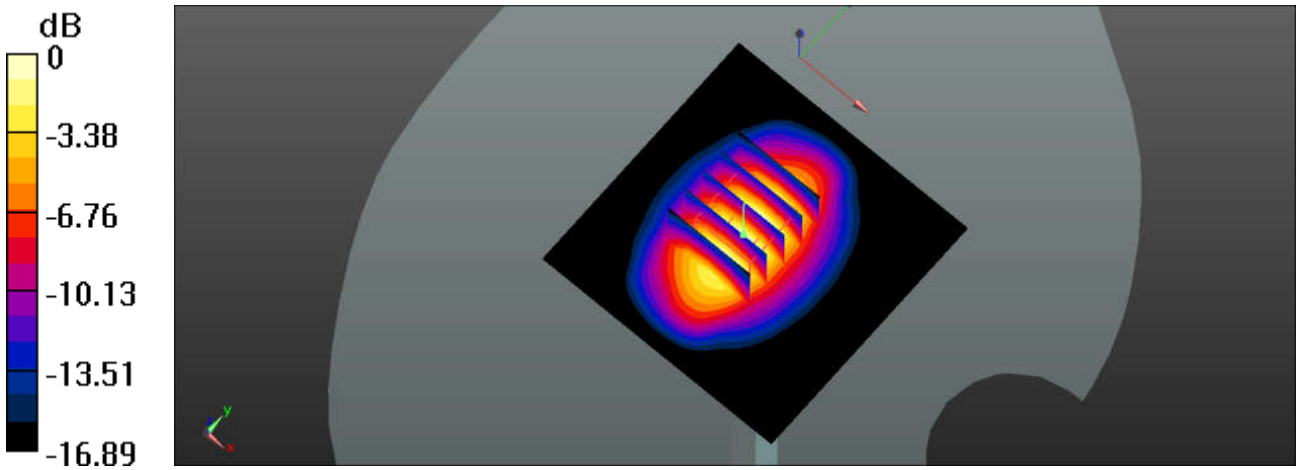
DUT: D1750V2 - SN:1069

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1750_1604.22 Medium parameters used: f = 1750 MHz; σ = 1.543 S/m;ε = 53.339; ρ =1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.77, 7.77, 7.77); Calibrated: 2015.5.28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.5.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 12.8 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 78.49 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 9.18 W/kg; SAR(10 g) = 4.85 W/kg
Maximum value of SAR (measured) = 13.0 W/kg



0 dB = 13.0 W/kg = 11.14 dBW/kg