FCC SAR Test Report

APPLICANT	:	ZTE CORPORATION
EQUIPMENT	:	LTE/WCDMA/CDMA/GSM (GPRS) Multi-Mode Digital Mobile Phone
BRAND NAME	:	ZTE
MODEL NAME	:	Z610DL
FCC ID	:	SRQ-Z610DL
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.

Mark Qu

Approved by: Mark Qu / Manager

NVLAP®
TESTING
NVLAP LAB CODE 600155-0

Sporton International (Kunshan) Inc.
No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China

Table of Contents

1. Statement of Compliance 4
2. Administration Data 5
3. Guidance Applied 5
4. Equipment Under Test (EUT) Information 6
4.1 General Information 6
4.2 General LTE SAR Test and Reporting Considerations 7
5. RF Exposure Limits 9
5.1 Uncontrolled Environment 9
5.2 Controlled Environment 9
6. Specific Absorption Rate (SAR) 10
6.1 Introduction 10
6.2 SAR Definition 10
7. System Description and Setup 11
7.1 E-Field Probe 12
7.2 Data Acquisition Electronics (DAE) 12
7.3 Phantom 13
7.4 Device Holder 14
8. Measurement Procedures 15
8.1 Spatial Peak SAR Evaluation 15
8.2 Power Reference Measurement 16
8.3 Area Scan 16
8.4 Zoom Scan 17
8.5 Volume Scan Procedures 17
8.6 Power Drift Monitoring 17
9. Test Equipment List 18
10. System Verification 19
10.1 Tissue Simulating Liquids 19
10.2 Tissue Verification 20
10.3 System Performance Check Results 21
11. RF Exposure Positions 22
11.1 Ear and handset reference point 22
11.2 Definition of the cheek position 23
11.3 Definition of the tilt position 24
11.4 Body Worn Accessory 25
11.5 Product Specific 10g SAR Exposure 25
11.6 Wireless Router 26
12. Conducted RF Output Power (Unit: dBm) 27
13. Bluetooth Exclusions Applied 70
14. Antenna Dimensions and Separation Distances 71
15. SAR Test Results 72
15.1 Head SAR 74
15.2 Hotspot SAR 78
15.3 Body Worn Accessory SAR 83
15.4 Product specific 10g SAR 86
15.5 Repeated SAR Measurement 88
16. Simultaneous Transmission Analysis 89
16.1 Head Exposure Conditions 90
16.2 Hotspot Exposure Conditions 93
16.3 Body-Worn Accessory Exposure Conditions 96
16.4 Product Specific 10g SAR Exposure Conditions 98
17. Uncertainty Assessment 99
18. References 100
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement
Appendix C. DASY Calibration Certificate
Appendix D. Test Setup Photos

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA7O2002	Rev. 01	Initial issue of report	Dec. 22, 2017

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION, LTE/WCDMA/CDMA/GSM (GPRS) Multi-Mode Digital Mobile Phone, Z610DL,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.49	0.96	0.96	1.54
		GSM1900	<0.10	0.78	**1.06**	
	WCDMA	Band V	0.55	0.68	0.68	
		Band IV	0.17	0.87	0.98	
		Band II	0.11	0.77	1.01	
	CDMA2000	BC0	0.75	0.60	0.62	
		BC1	0.16	0.82	0.61	
	LTE	Band 13	0.82	0.51	0.51	
		Band 12	**0.93**	0.47	0.47	
		Band 5	0.91	0.57	0.57	
		Band 66/Band 4	0.11	**0.98**	0.66	
		Band 2	0.14	0.78	0.94	
DTS	WLAN	2.4GHz WLAN	0.35	0.12	0.12	1.28
NII		5GHz WLAN	0.61	0.53		1.54

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	WCDMA	Band IV	2.94	3.75
		Band II	2.74	
	CDMA2000	BC1	**3.75**	
	LTE	Band 66/Band 4	3.32	
		Band 2	3.10	
NII	WLAN	5GHz WLAN	1.62	3.75
Date of Testing:			2017.11.21 ~ 2017.12.8	

Remark: This device supports both LTE B4 and B66. Since the supported frequency span for LTE B4 falls completely within the supports frequency span for LTE B66, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66.

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 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958

Applicant	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

Manufacturer	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	LTE/WCDMA/CDMA/GSM (GPRS) Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z610DL
FCC ID	SRQ-Z610DL
IMEI Code	990008950013131
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA HSPA+ (16QAM uplink is not supported) CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n HT20/HT40 WLAN 5GHz : 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth v3.0+EDR, Bluetooth v4.0 LE, Bluetooth v4.1 LE, Bluetooth v4.2 LE
HW Version	Z610DLHW1.0
SW Version	Z610DLV1.0.0B03
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) and LTE supports VoLTE operation.
2. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 10.
3. This device WLAN 2.4GHz supports hotspot operation.
4. This device 5.2GHz WLAN/5.8GHz WLAN does not support hotspot operation.
5. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of WCDMA B2 / B4, CDMA2000 BC1 and LTE B2 / B4 / B66.
6. While the device is in talking mode and receiver worked, then power reduction will be implemented immediately at WLAN5.2GHz and WLAN5.8GHz.
7. This device has two antennas. One antenna is located on the bottom edge of the device and another antenna is located on the top edge of the device. Top antenna frequency band includes WCDMA B5, CDMA2000 BC0, LTE Band 5/12/13 and Bottom antenna frequency band includes GSM850/1900, WCDMA B2 / B4 / B5, CDMA2000 BC0 / 1, and LTE Band 2/4/5/12/13/66. And they can't transmit simultaneously.

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>SRQ-Z610DL</td></tr>
<tr><td>Equipment Name</td><td>LTE/WCDMA/CDMA/GSM (GPRS) Multi-Mode Digital Mobile Phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz
LTE Band 4: 1710.7 MHz ~ 1754.3 MHz
LTE Band 5: 824.7 MHz ~ 848.3 MHz
LTE Band 12: 699.7 MHz ~ 715.3 MHz
LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 66: 1710.7 MHz ~ 1779.3 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 12:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 13: 5MHz, 10MHz
LTE Band 66: 1.4MHz, 3MHz,5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R10, Cat6</td></tr>
<tr><td>CA Support</td><td>Yes, Downlink Only</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 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, when operating in hotspot mode that LTE B2 / B4 / B66 power reduction applied to satisfy SAR compliance.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to section 12.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>This device supports maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 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 13								
	Bandwidth 5 MHz				Bandwidth 10 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23205		779.5		23230		782	
M	23230		782					
H	23255		784.5					
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

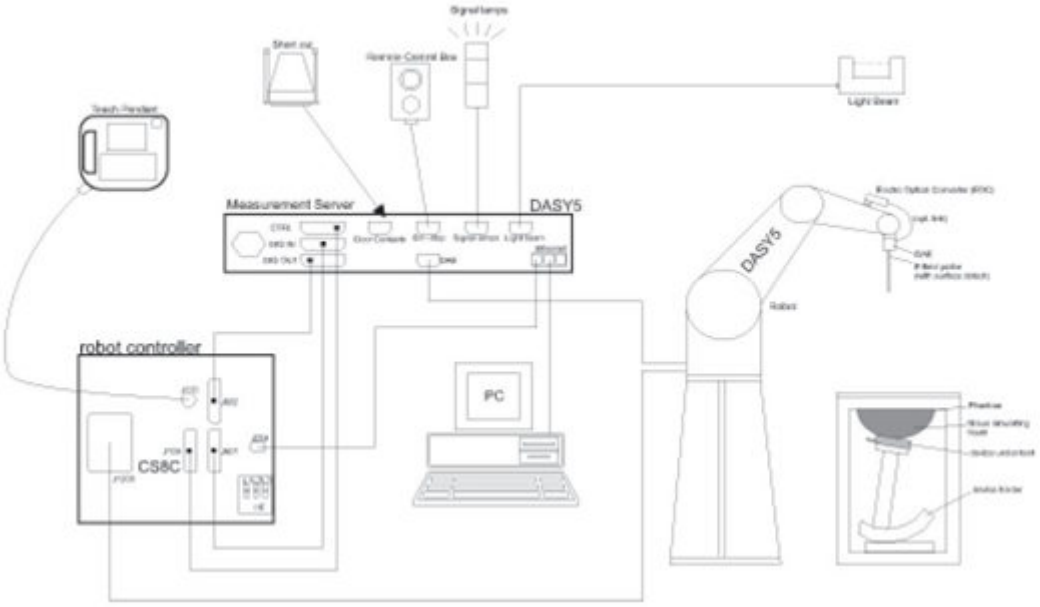
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<EX3DV4 Probe>

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

7.2 Data Acquisition Electronics (DAE)

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

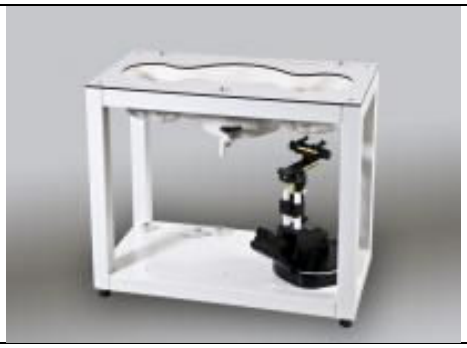
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

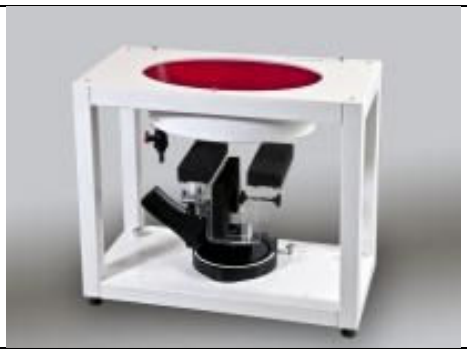
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



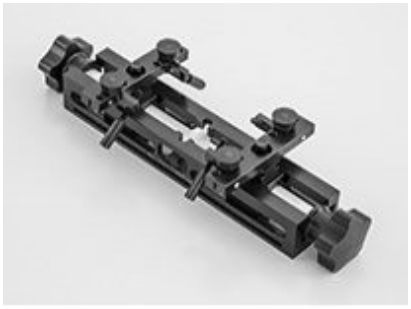
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2017/3/20	2018/3/19
SPEAG	835MHz System Validation Kit	D835V2	4d151	2017/3/20	2018/3/19
SPEAG	1750MHz System Validation Kit	D1750V2	1137	2017/6/5	2018/6/4
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2017/3/22	2018/3/21
SPEAG	2450MHz System Validation Kit	D2450V2	924	2017/3/21	2018/3/20
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2016/12/13	2017/12/12
SPEAG	Data Acquisition Electronics	DAE4	1210	2017/5/25	2018/5/24
SPEAG	Data Acquisition Electronics	DAE4	1326	2017/9/15	2018/9/14
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2017/5/26	2018/5/25
SPEAG	Dosimetric E-Field Probe	EX3DV4	3293	2017/9/25	2018/9/24
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1164	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1542	NCR	NCR
SPEAG	ELI4 Phantom	QD 000 P40 CB	TP-1644	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1839	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201563814	2017/1/19	2018/1/18
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2017/4/18	2018/4/17
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2017/4/18	2018/4/17
SPEAG	DAK Kit	DAK-3.5	1126	2017/9/26	2018/9/25
R&S	Signal Generator	SMR40	100455	2017/1/19	2018/1/18
Anritsu	Power Senor	MA2411B	1644003	2016/12/23	2017/12/22
Anritsu	Power Meter	ML2495A	1531197	2016/12/23	2017/12/22
Anritsu	Power Senor	MA2411B	1644004	2016/12/23	2017/12/22
Anritsu	Power Meter	ML2495A	1531198	2016/12/23	2017/12/22
R&S	CBT BLUETOOTH TESTER	CBT	100783	2017/8/8	2018/8/7
EXA	Spectrum Analyzer	N9010A	MY55150244	2017/4/18	2018/4/17
WISEWIND	Hygrometer	WISEWIND 0905	0905	2017/4/20	2018/4/19
JM	DIGITAC THERMOMETER	JM222	AA1207166	2017/4/19	2018/4/18
ARRA	Power Divider	A3200-2	N/A	Note	
Agilent	Dual Directional Coupler	778D	50422	Note	
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
AR	Amplifier	5S1G4	333096	Note	
mini-circuits	Amplifier	ZVE-3W-83+	162601250	Note	

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

10. System Verification

10.1 Tissue Simulating Liquids

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

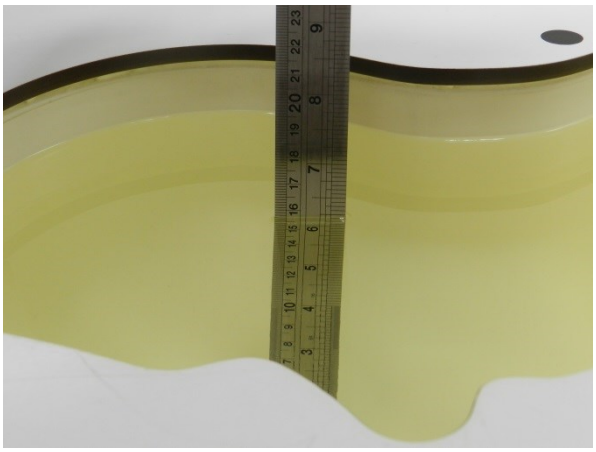


Fig 10.1Photo of Liquid Height for Head SAR

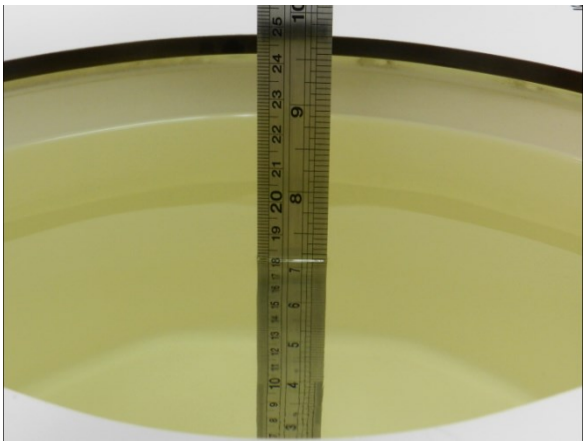


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
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
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

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	22.6	0.915	42.792	0.89	41.90	2.81	2.13	±5	2017/11/27
835	Head	22.6	0.916	42.845	0.90	41.50	1.78	3.24	±5	2017/11/28
1750	Head	22.7	1.379	40.261	1.37	40.10	0.66	0.40	±5	2017/11/30
1900	Head	22.6	1.422	39.84	1.40	40.00	1.57	-0.40	±5	2017/11/21
2450	Head	22.5	1.838	38.262	1.80	39.20	2.11	-2.39	±5	2017/11/23
5250	Head	22.6	4.731	37.474	4.71	35.95	0.45	4.24	±5	2011/12/7
5750	Head	22.6	5.248	36.784	5.22	35.35	0.54	4.06	±5	2011/12/7
750	Body	22.7	0.985	55.749	0.96	55.50	2.60	0.45	±5	2017/12/4
835	Body	22.7	0.975	55.456	0.97	55.20	0.52	0.46	±5	2017/12/5
1750	Body	22.8	1.451	54.781	1.49	53.40	-2.62	2.59	±5	2017/12/2
1900	Body	22.9	1.538	53.407	1.52	53.30	1.18	0.20	±5	2017/11/29
2450	Body	22.5	2.029	52.914	1.95	52.70	4.05	0.41	±5	2017/11/23
5250	Body	22.5	5.379	49.115	5.36	48.95	0.35	0.34	±5	2017/12/8
5750	Body	22.5	6.07	47.985	5.94	48.28	2.19	-0.61	±5	2017/12/8
750	Body	22.8	0.997	55.645	0.96	55.50	3.85	0.26	±5	2017/11/22
835	Body	22.8	0.983	55.223	0.97	55.20	1.34	0.04	±5	2017/11/22

10.3 System Performance Check Results

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

<1g SAR>:

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2017/11/27	750	Head	250	1087	3857	1210	2.19	8.37	8.76	4.66
2017/11/28	835	Head	250	4d151	3857	1210	2.42	9.73	9.68	-0.51
2017/11/30	1750	Head	250	1137	3857	1210	9.65	36.60	38.60	5.46
2017/11/21	1900	Head	250	5d170	3857	1210	9.86	40.00	39.44	-1.40
2017/11/23	2450	Head	250	924	3857	1210	13.2	52.40	52.80	0.76
2011/12/7	5250	Head	100	1113	3857	1210	8.04	76.40	80.40	5.24
2011/12/7	5750	Head	100	1113	3857	1210	8.21	80.30	82.10	2.24
2017/12/4	750	Body	250	1087	3857	1210	2.34	8.73	9.36	7.22
2017/12/5	835	Body	250	4d151	3857	1210	2.53	9.72	10.12	4.12
2017/12/2	1750	Body	250	1137	3857	1210	8.82	37.00	35.28	-4.65
2017/11/29	1900	Body	250	5d170	3857	1210	9.82	40.70	39.28	-3.49
2017/11/23	2450	Body	250	924	3857	1210	13.3	50.50	53.20	5.35
2017/12/8	5250	Body	100	1113	3857	1210	7.69	76.10	76.90	1.05
2017/12/8	5750	Body	100	1113	3857	1210	7.81	75.20	78.10	3.86
2017/11/22	750	Body	250	1087	3293	1326	2.13	8.73	8.52	-2.41
2017/11/22	835	Body	250	4d151	3293	1326	2.42	9.72	9.68	-0.41

<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 (%)
2017/12/2	1750	Body	250	1137	3857	1210	4.73	19.70	18.92	-3.96
2017/11/29	1900	Body	250	5d170	3857	1210	5.09	21.40	20.36	-4.86
2017/12/8	5250	Body	100	1113	3857	1210	2.12	21.50	21.20	-1.40
2017/12/8	5750	Body	100	1113	3857	1210	2.06	21.10	20.6	-2.37

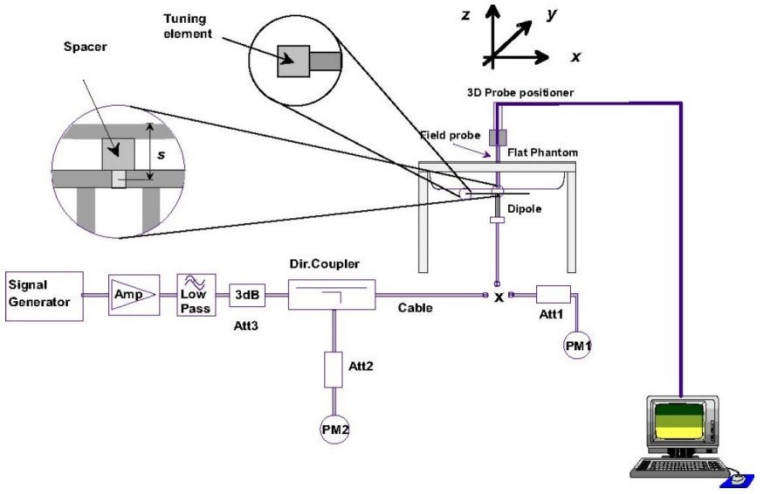


Fig 8.3.1 System Performance Check Setup

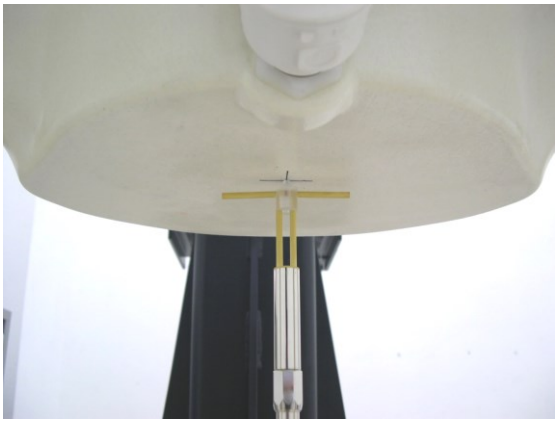


Fig 8.3.2 Setup Photo

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.

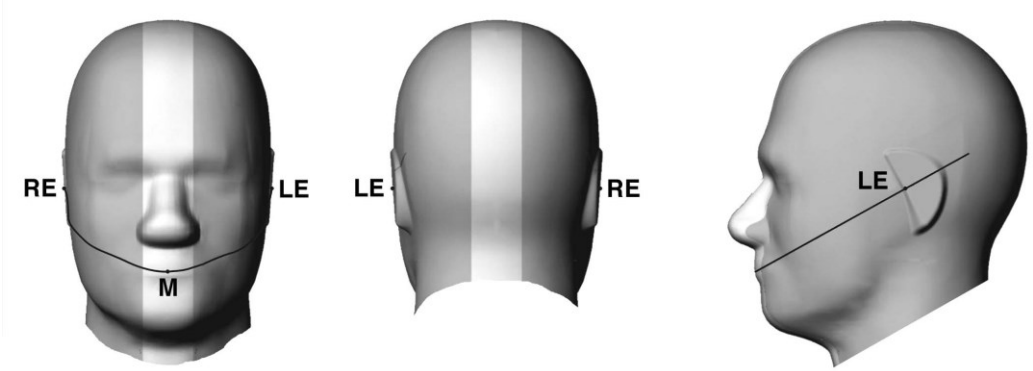


Fig 9.1.1 Front, back, and side views of SAM twin phantom

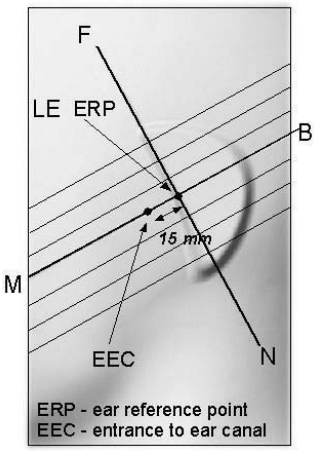


Fig 9.1.2 Close-up side view of phantom showing the ear region.

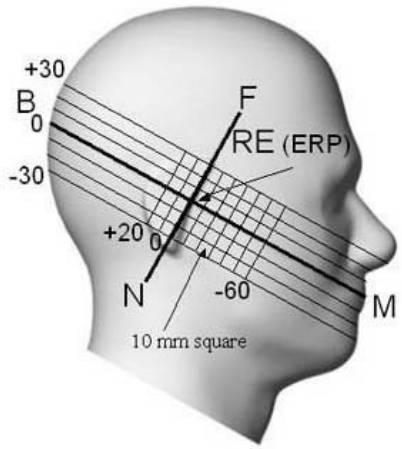


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

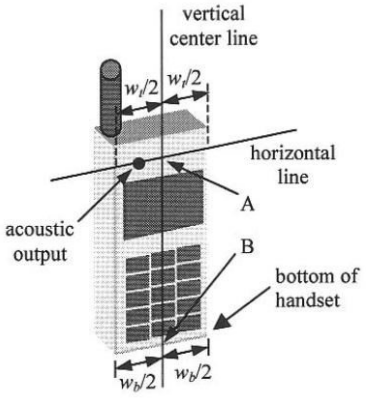


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

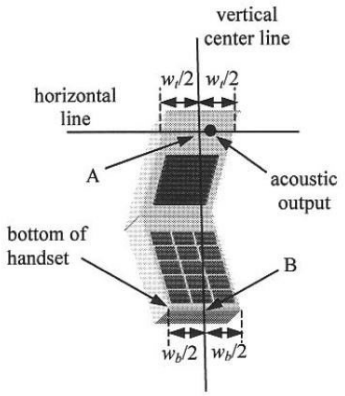


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

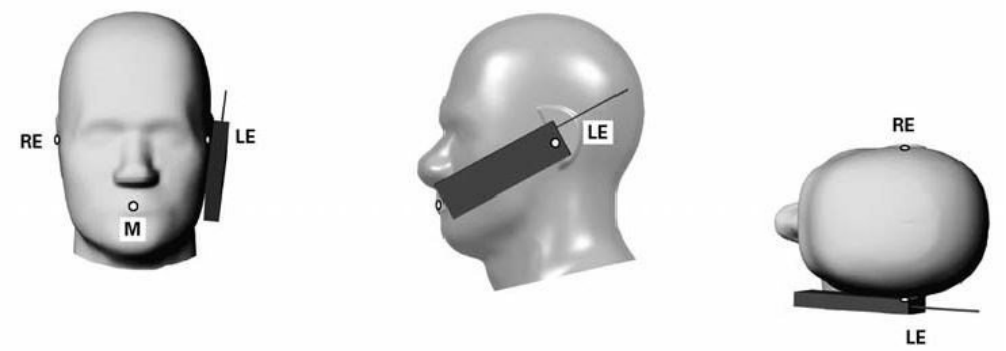


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

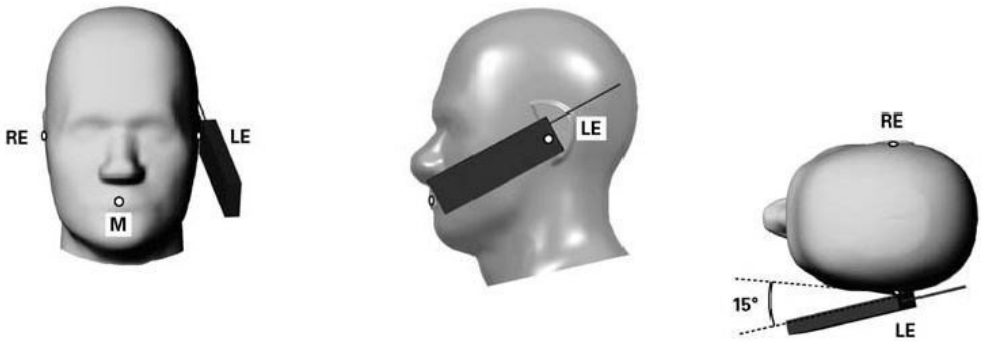


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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.

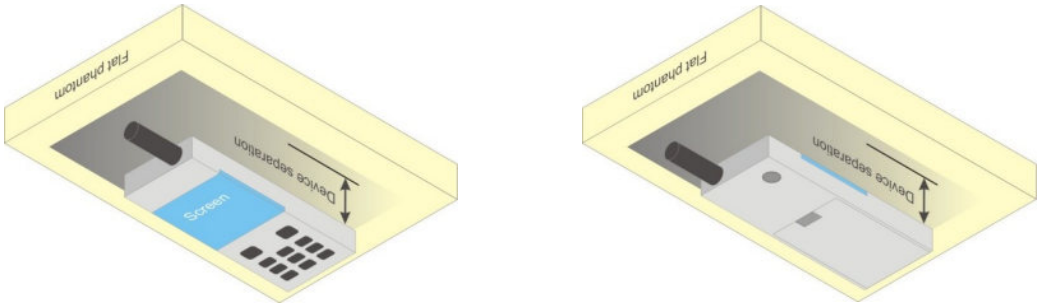


Fig 9.4 Body Worn Position

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

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (2Tx 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

<Bottom Antenna--Full Power Mode>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
Tx Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	31.76	31.65	31.83	32.00	22.76	22.65	22.83	23.00
GPRS 1 Tx slot	31.75	31.64	31.81	32.00	22.75	22.64	22.81	23.00
GPRS 2 Tx slots	31.58	**31.76**	31.69	32.00	25.58	**25.76**	25.69	26.00
EDGE 1 Tx slot	26.74	26.76	26.86	27.50	17.74	17.76	17.86	18.50
EDGE 2 Tx slots	26.61	26.72	26.7	27.50	20.61	20.72	20.7	21.50
GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
Tx Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.48	29.52	29.35	30.00	20.48	20.52	20.35	21.00
GPRS 1 Tx slot	29.47	29.51	29.34	30.00	20.47	20.51	20.34	21.00
GPRS 2 Tx slots	**28.50**	28.33	28.34	29.00	**22.50**	22.33	22.34	23.00
EDGE 1 Tx slot	25.46	25.45	25.52	26.00	16.46	16.45	16.52	17.00
EDGE 2 Tx slots	25.32	25.36	25.43	26.00	19.32	19.36	19.43	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

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	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	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

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

Setup Configuration

<WCDMA Conducted Power>

General Note:

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

<Top Antenna--Full Power Mode>

Band		WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		4132	4182	4233	
Rx Channel		4357	4407	4458	
Frequency (MHz)		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	22.58	22.83	22.72	23.00
3GPP Rel 99	RMC 12.2Kbps	22.60	**22.84**	22.73	23.00
3GPP Rel 6	HSDPA Subtest-1	21.35	21.56	21.46	22.00
3GPP Rel 6	HSDPA Subtest-2	21.34	21.57	21.46	22.00
3GPP Rel 6	HSDPA Subtest-3	20.87	21.05	20.94	21.50
3GPP Rel 6	HSDPA Subtest-4	20.86	21.04	20.94	21.50
3GPP Rel 6	HSUPA Subtest-1	21.33	21.51	21.42	22.00
3GPP Rel 6	HSUPA Subtest-2	19.33	19.47	19.41	20.00
3GPP Rel 6	HSUPA Subtest-3	20.31	20.51	20.42	21.00
3GPP Rel 6	HSUPA Subtest-4	19.30	19.52	19.42	20.00
3GPP Rel 6	HSUPA Subtest-5	21.30	21.50	21.40	22.00

<Bottom Antenna--Full Power Mode>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)	WCDMA Band V			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	23.23	23.4	23.48	24.00	22.72	22.66	22.49	23.00	23.01	23.42	23.38	24.00
3GPP Rel 99	RMC 12.2Kbps	23.24	23.41	**23.50**	24.00	**22.74**	22.68	22.55	23.00	23.02	**23.44**	23.39	24.00
3GPP Rel 6	HSDPA Subtest-1	22.07	22.19	22.20	22.50	21.41	21.37	21.41	22.50	21.87	22.16	21.99	22.50
3GPP Rel 6	HSDPA Subtest-2	22.02	22.16	22.16	22.50	21.44	21.36	21.41	22.50	21.89	22.14	22.01	22.50
3GPP Rel 6	HSDPA Subtest-3	21.52	21.32	21.66	22.00	21.03	20.89	20.91	22.00	21.38	21.61	21.49	22.00
3GPP Rel 6	HSDPA Subtest-4	21.55	21.65	21.68	22.00	21.02	20.87	20.89	22.00	21.37	21.63	21.49	22.00
3GPP Rel 6	HSUPA Subtest-1	22.09	22.21	22.24	23.00	21.50	21.43	21.42	22.00	22.05	22.21	22.11	23.00
3GPP Rel 6	HSUPA Subtest-2	20.10	20.21	20.26	21.00	19.47	19.38	19.35	20.00	20.04	20.21	20.09	21.00
3GPP Rel 6	HSUPA Subtest-3	21.12	21.22	21.27	22.00	20.46	20.40	20.38	21.00	21.02	21.22	21.14	22.00
3GPP Rel 6	HSUPA Subtest-4	20.12	20.19	20.29	21.00	19.50	19.38	19.37	20.00	20.01	20.23	20.08	21.00
3GPP Rel 6	HSUPA Subtest-5	22.10	22.20	22.30	23.00	21.55	21.39	21.40	22.00	22.10	22.20	22.10	23.00

<Bottom Antenna--Reduced Power Mode for Hotspot On>

Band		WCDMA Band II			Tune-up Limit (dBm)	WCDMA Band IV			Tune-up Limit (dBm)
Tx Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	21.86	21.89	22.00	22.50	20.50	20.48	20.37	21.00
3GPP Rel 99	RMC 12.2Kbps	21.88	21.90	**22.02**	22.50	**20.52**	20.49	20.39	21.00
3GPP Rel 6	HSDPA Subtest-1	20.71	20.82	20.78	21.50	19.02	19.15	18.98	19.50
3GPP Rel 6	HSDPA Subtest-2	20.72	20.77	20.79	21.50	19.02	19.13	18.99	19.50
3GPP Rel 6	HSDPA Subtest-3	20.18	20.28	20.28	21.00	18.52	18.63	18.47	19.00
3GPP Rel 6	HSDPA Subtest-4	20.18	20.30	20.28	21.00	18.50	18.63	18.46	19.00
3GPP Rel 6	HSUPA Subtest-1	20.67	20.79	20.81	21.00	19.03	19.16	18.99	20.00
3GPP Rel 6	HSUPA Subtest-2	18.70	18.79	18.78	19.00	17.04	17.12	16.95	18.00
3GPP Rel 6	HSUPA Subtest-3	19.72	19.80	19.80	20.00	18.04	18.11	17.93	19.00
3GPP Rel 6	HSUPA Subtest-4	18.65	18.77	18.77	19.00	17.01	17.14	16.98	18.00
3GPP Rel 6	HSUPA Subtest-5	20.72	20.82	20.81	21.00	19.00	19.10	19.00	20.00

<CDMA2000 Conducted Power>

General Note:

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

<Top Antenna--Full Power Mode>

Band	CDMA2000 BC0			Tune-up Limit (dBm)
Tx Channel	1013	384	777	
Frequency (MHz)	824.7	836.52	848.31	
RC1 SO55	21.84	21.80	21.83	22.50
RC3 SO55	21.91	21.85	21.92	22.50
RC3 SO32 (F+SCH)	**22.03**	21.91	21.94	22.50
RC3 SO32 (+SCH)	21.91	21.90	21.89	22.50
RTAP 153.6Kbps	21.95	21.89	21.93	22.50
RETAP 4096Bits	21.81	21.71	21.72	22.50

<Bottom Antenna--Full Power Mode>

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)
Tx Channel	1013	384	777		25	600	1175	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75	
RC1 SO55	23.50	23.48	23.51	24.00	21.62	21.60	21.63	23.20
RC3 SO55	23.53	23.49	23.51	24.00	21.63	21.62	**21.64**	23.20
RC3 SO32 (F+SCH)	23.59	23.58	23.58	24.00	21.62	21.62	21.63	23.20
RC3 SO32 (+SCH)	**23.62**	23.60	23.59	24.00	21.61	21.59	21.63	23.20
RTAP 153.6Kbps	23.58	23.53	23.57	24.00	21.61	21.48	21.62	23.20
RETAP 4096Bits	23.36	23.30	23.36	24.00	21.49	21.37	21.53	23.20

<Bottom Antenna--Reduced Power Mode for Hotspot On>

Band	CDMA2000 BC1			Tune-up Limit (dBm)
Tx Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RC1 SO55	19.15	19.15	19.17	20.00
RC3 SO55	19.15	19.13	19.16	20.00
RC3 SO32 (F+SCH)	19.12	19.16	19.19	20.00
RC3 SO32 (+SCH)	19.11	19.10	19.13	20.00
RTAP 153.6Kbps	18.98	18.93	**19.21**	20.00
RETAP 4096Bits	19.13	19.18	19.20	20.00

<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 B4 / B5 / B12 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 4 SAR test was covered by Band 66; 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

<Top Antenna--Full Power Mode>

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.06	22.13	22.06	23.00	0
10	QPSK	1	25	21.97	22.24	22.12		
10	QPSK	1	49	22.1	22.36	22.13		
10	QPSK	25	0	21.14	21.42	21.28	22.00	1
10	QPSK	25	12	21.13	21.38	21.27		
10	QPSK	25	25	21.11	21.38	21.21		
10	QPSK	50	0	21.1	21.38	21.31		
10	16QAM	1	0	21.46	21.68	21.62	22.00	1
10	16QAM	1	25	21.39	21.65	21.52		
10	16QAM	1	49	21.4	21.7	21.46		
10	16QAM	25	0	20.17	20.45	20.27	21.00	2
10	16QAM	25	12	20.18	20.4	20.36		
10	16QAM	25	25	20.1	20.41	20.19		
10	16QAM	50	0	20.09	20.41	20.29		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.86	21.9	22.03	23.00	0
5	QPSK	1	12	21.74	22.17	22.06		
5	QPSK	1	24	21.95	22.28	22.13		
5	QPSK	12	0	20.98	21.36	21.22	22.00	1
5	QPSK	12	7	21.05	21.32	21.2		
5	QPSK	12	13	21.11	21.31	21.24		
5	QPSK	25	0	21.02	21.34	21.17		
5	16QAM	1	0	21.26	21.55	21.4	22.00	1
5	16QAM	1	12	21.23	21.41	21.41		
5	16QAM	1	24	21.33	21.5	21.38		
5	16QAM	12	0	20.06	20.34	20.26	21.00	2
5	16QAM	12	7	20.03	20.39	20.2		
5	16QAM	12	13	20.12	20.37	20.28		
5	16QAM	25	0	20.01	20.34	20.16		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.86	21.89	21.99	23.00	0
3	QPSK	1	8	21.89	22.12	22.17		
3	QPSK	1	14	21.9	22.19	22.01		
3	QPSK	8	0	20.93	21.28	21.04	22.00	1
3	QPSK	8	4	20.98	21.3	21.12		
3	QPSK	8	7	21.06	21.26	21.07		
3	QPSK	15	0	20.98	21.27	21.12		
3	16QAM	1	0	21.21	21.56	21.27	22.00	1
3	16QAM	1	8	21.32	21.49	21.57		
3	16QAM	1	14	21.26	21.47	21.3		
3	16QAM	8	0	20.06	20.32	20.11	21.00	2
3	16QAM	8	4	20.06	20.38	20.16		
3	16QAM	8	7	20.17	20.38	20.13		
3	16QAM	15	0	20.03	20.27	20.17		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.87	21.97	22.09	23.00	0
1.4	QPSK	1	3	22	22.16	22.04		
1.4	QPSK	1	5	21.81	22.23	22.05		
1.4	QPSK	3	0	21.94	22.22	21.98		
1.4	QPSK	3	1	21.99	22.28	22.05		
1.4	QPSK	3	3	22.02	22.27	22.02		
1.4	QPSK	6	0	21.06	21.27	21.07	22.00	1
1.4	16QAM	1	0	21.28	21.52	21.27	22.00	1
1.4	16QAM	1	3	21.38	21.43	21.5		
1.4	16QAM	1	5	21.17	21.55	21.36		
1.4	16QAM	3	0	21.01	21.24	21.02		
1.4	16QAM	3	1	21.06	21.31	21.16		
1.4	16QAM	3	3	21.08	21.3	21.09		
1.4	16QAM	6	0	20.12	20.32	20.1	21.00	2

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	20.49	20.54	20.51	21.00	0
10	QPSK	1	25	20.37	20.39	20.32		
10	QPSK	1	49	20.61	20.6	20.74		
10	QPSK	25	0	20.44	20.49	20.52	21.00	0
10	QPSK	25	12	20.39	20.39	20.39		
10	QPSK	25	25	20.47	20.51	20.43		
10	QPSK	50	0	20.49	20.53	20.56		
10	16QAM	1	0	20.73	20.57	20.61	21.00	0
10	16QAM	1	25	20.56	20.45	20.28		
10	16QAM	1	49	20.74	20.94	20.59		
10	16QAM	25	0	20.62	20.56	20.64	21.00	0
10	16QAM	25	12	20.42	20.41	20.43		
10	16QAM	25	25	20.49	20.44	20.54		
10	16QAM	50	0	20.4	20.54	20.42		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	20.13	20.04	20.11	21.00	0
5	QPSK	1	12	20.28	20.14	20.3		
5	QPSK	1	24	20.19	20.33	20.35		
5	QPSK	12	0	20.17	20.32	20.42	21.00	0
5	QPSK	12	7	20.26	20.42	20.35		
5	QPSK	12	13	20.29	20.45	20.32		
5	QPSK	25	0	20.28	20.4	20.47		
5	16QAM	1	0	20.4	20.58	20.51	21.00	0
5	16QAM	1	12	20.37	20.22	20.37		
5	16QAM	1	24	20.29	20.51	20.53		
5	16QAM	12	0	20.1	20.42	20.44	21.00	0
5	16QAM	12	7	20.28	20.41	20.38		
5	16QAM	12	13	20.33	20.43	20.44		
5	16QAM	25	0	20.13	20.32	20.4		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	20.01	20.07	20.18	21.00	0
3	QPSK	1	8	20.06	20.39	20.34		
3	QPSK	1	14	20.14	20.43	20.3		
3	QPSK	8	0	20.23	20.37	20.3	21.00	0
3	QPSK	8	4	20.22	20.36	20.39		
3	QPSK	8	7	20.14	20.39	20.3		
3	QPSK	15	0	20.21	20.38	20.44		
3	16QAM	1	0	20.69	20.84	20.92	21.00	0
3	16QAM	1	8	20.81	20.76	20.83		
3	16QAM	1	14	20.64	20.95	21.06		
3	16QAM	8	0	20.3	20.44	20.34	21.00	0
3	16QAM	8	4	20.21	20.51	20.51		
3	16QAM	8	7	20.29	20.4	20.54		
3	16QAM	15	0	20.23	20.39	20.36		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	20.26	20.2	20.1	21.00	0
1.4	QPSK	1	3	20.34	20.37	20.33		
1.4	QPSK	1	5	20.24	20.38	20.29		
1.4	QPSK	3	0	20.33	20.3	20.3		
1.4	QPSK	3	1	20.25	20.36	20.34		
1.4	QPSK	3	3	20.37	20.41	20.39		
1.4	QPSK	6	0	20.32	20.33	20.39	21.00	0
1.4	16QAM	1	0	20.53	20.76	20.62	21.00	0
1.4	16QAM	1	3	20.62	20.79	20.76		
1.4	16QAM	1	5	20.51	20.66	20.8		
1.4	16QAM	3	0	20.34	20.34	20.2		
1.4	16QAM	3	1	20.4	20.45	20.5		
1.4	16QAM	3	3	20.4	20.45	20.55		
1.4	16QAM	6	0	20.39	20.5	20.49	21.00	0

<LTE Band 13>

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					23230			
Frequency (MHz)					782			
10	QPSK	1	0		21.38		22.00	0
10	QPSK	1	25		21.35			
10	QPSK	1	49		21.67			
10	QPSK	25	0		21.78		22.00	0
10	QPSK	25	12		21.75			
10	QPSK	25	25		21.51			
10	QPSK	50	0		21.69			
10	16QAM	1	0		21.86		22.00	0
10	16QAM	1	25		21.78			
10	16QAM	1	49		21.82			
10	16QAM	25	0		21.93		22.00	0
10	16QAM	25	12		21.82			
10	16QAM	25	25		21.55			
10	16QAM	50	0		21.59			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	21.64	21.12	21.31	22.00	0
5	QPSK	1	12	21.5	21.26	21.35		
5	QPSK	1	24	21.45	21.35	21.43		
5	QPSK	12	0	21.59	21.63	21.4	22.00	0
5	QPSK	12	7	21.63	21.48	21.53		
5	QPSK	12	13	21.53	21.51	21.29		
5	QPSK	25	0	21.66	21.38	21.48		
5	16QAM	1	0	21.72	21.8	21.85	22.00	0
5	16QAM	1	12	21.73	21.88	21.7		
5	16QAM	1	24	21.74	21.8	21.76		
5	16QAM	12	0	21.72	21.36	21.4	22.00	0
5	16QAM	12	7	21.61	21.58	21.46		
5	16QAM	12	13	21.54	21.43	21.43		
5	16QAM	25	0	21.69	21.54	21.44		

<Bottom Antenna--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	23	22.95	23.1	23.50	0
20	QPSK	1	49	22.71	22.75	22.76		
20	QPSK	1	99	23.01	23.29	23.11		
20	QPSK	50	0	21.82	21.82	21.94	22.50	1
20	QPSK	50	24	21.73	21.84	21.96		
20	QPSK	50	50	21.82	21.97	21.96		
20	QPSK	100	0	21.81	21.85	21.82		
20	16QAM	1	0	22.23	22.24	22.07	22.50	1
20	16QAM	1	49	21.9	22.04	22.08		
20	16QAM	1	99	22.13	22	22.38		
20	16QAM	50	0	20.94	20.85	20.9	21.50	2
20	16QAM	50	24	20.8	20.82	20.9		
20	16QAM	50	50	20.79	21.02	21		
20	16QAM	100	0	20.78	20.77	20.96		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.06	23	23.07	23.50	0
15	QPSK	1	37	22.66	22.65	21.97		
15	QPSK	1	74	23.05	22.95	23.44		
15	QPSK	36	0	21.83	21.89	21.95	22.50	1
15	QPSK	36	20	21.8	21.78	21.89		
15	QPSK	36	39	21.8	21.88	22.01		
15	QPSK	75	0	21.79	21.9	21.99		
15	16QAM	1	0	22.34	22.25	22.31	22.50	1
15	16QAM	1	37	21.82	21.79	22.31		
15	16QAM	1	74	22.29	22.19	22.35		
15	16QAM	36	0	20.87	20.87	20.94	21.50	2
15	16QAM	36	20	20.78	20.83	20.95		
15	16QAM	36	39	20.82	20.84	21.03		
15	16QAM	75	0	20.84	20.82	20.93		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.93	22.96	23.02	23.50	0
10	QPSK	1	25	22.7	22.77	22.85		
10	QPSK	1	49	23.1	23.15	23.35		
10	QPSK	25	0	21.85	21.89	22.09	22.50	1
10	QPSK	25	12	21.79	21.86	22.1		
10	QPSK	25	25	21.85	21.89	22.09		
10	QPSK	50	0	21.86	21.9	22.08		
10	16QAM	1	0	22.14	22.24	22.34	22.50	1
10	16QAM	1	25	21.86	22.02	22.19		
10	16QAM	1	49	22.18	22.2	22.45		
10	16QAM	25	0	20.84	20.91	21.09	21.50	2
10	16QAM	25	12	20.77	20.9	21.1		
10	16QAM	25	25	20.82	20.87	21.14		
10	16QAM	50	0	20.82	20.87	21.09		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.73	22.83	22.76	23.50	0
5	QPSK	1	12	22.62	22.82	22.76		
5	QPSK	1	24	22.65	22.78	23		
5	QPSK	12	0	21.73	21.79	22	22.50	1
5	QPSK	12	7	21.73	21.79	21.96		
5	QPSK	12	13	21.68	21.85	21.92		
5	QPSK	25	0	21.71	21.87	21.96		
5	16QAM	1	0	22	22.1	22.19	22.50	1
5	16QAM	1	12	21.89	21.95	22.09		
5	16QAM	1	24	21.88	21.98	22.11		
5	16QAM	12	0	20.69	20.84	21.01	21.50	2
5	16QAM	12	7	20.74	20.83	20.95		
5	16QAM	12	13	20.66	20.87	20.93		
5	16QAM	25	0	20.73	20.86	20.89		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.67	22.7	22.76	23.50	0
3	QPSK	1	8	22.64	22.83	22.91		
3	QPSK	1	14	22.56	22.66	22.95		
3	QPSK	8	0	21.65	21.81	21.97	22.50	1
3	QPSK	8	4	21.71	21.85	21.91		
3	QPSK	8	7	21.69	21.82	21.92		
3	QPSK	15	0	21.66	21.81	21.91		
3	16QAM	1	0	21.91	21.99	22.13	22.50	1
3	16QAM	1	8	21.89	22.03	22.16		
3	16QAM	1	14	21.85	21.98	22.31		
3	16QAM	8	0	20.75	20.85	20.96	21.50	2
3	16QAM	8	4	20.74	20.93	21.04		
3	16QAM	8	7	20.69	20.91	20.96		
3	16QAM	15	0	20.68	20.87	20.96		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.61	22.72	22.76	23.50	0
1.4	QPSK	1	3	22.64	22.77	22.92		
1.4	QPSK	1	5	22.59	22.71	22.8		
1.4	QPSK	3	0	22.58	22.7	22.87		
1.4	QPSK	3	1	22.64	22.76	22.93		
1.4	QPSK	3	3	22.66	22.72	22.91		
1.4	QPSK	6	0	21.63	21.82	21.9	22.50	1
1.4	16QAM	1	0	21.78	21.94	22.14	22.50	1
1.4	16QAM	1	3	21.91	22.04	22.31		
1.4	16QAM	1	5	21.82	21.99	22.15		
1.4	16QAM	3	0	21.63	21.75	21.91		
1.4	16QAM	3	1	21.67	21.8	21.86		
1.4	16QAM	3	3	21.64	21.78	21.91		
1.4	16QAM	6	0	20.69	20.85	20.99	21.50	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.69	21.59	21.65	22.00	0
20	QPSK	1	49	21.71	21.56	21.77		
20	QPSK	1	99	21.69	21.78	21.72		
20	QPSK	50	0	20.78	20.80	20.74	21.00	1
20	QPSK	50	24	20.71	20.72	20.75		
20	QPSK	50	50	20.60	20.66	20.66		
20	QPSK	100	0	20.74	20.64	20.76		
20	16QAM	1	0	20.94	20.89	20.94	21.00	1
20	16QAM	1	49	21.00	20.90	20.91		
20	16QAM	1	99	20.91	20.98	20.93		
20	16QAM	50	0	19.74	19.71	19.85	20.00	2
20	16QAM	50	24	19.78	19.75	19.79		
20	16QAM	50	50	19.66	19.65	19.70		
20	16QAM	100	0	19.70	19.69	19.73		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.85	21.75	21.97	22.00	0
15	QPSK	1	37	21.46	21.48	21.56		
15	QPSK	1	74	21.69	21.7	21.49		
15	QPSK	36	0	20.83	20.79	20.7	21.00	1
15	QPSK	36	20	20.82	20.71	20.65		
15	QPSK	36	39	20.75	20.66	20.63		
15	QPSK	75	0	20.8	20.78	20.76		
15	16QAM	1	0	20.92	20.96	20.97	21.00	1
15	16QAM	1	37	21	20.84	20.94		
15	16QAM	1	74	20.87	20.97	20.58		
15	16QAM	36	0	19.83	19.74	19.72	20.00	2
15	16QAM	36	20	19.88	19.75	19.63		
15	16QAM	36	39	19.76	19.7	19.58		
15	16QAM	75	0	19.77	19.74	19.72		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.95	21.94	21.98	22.00	0
10	QPSK	1	25	21.80	21.60	21.53		
10	QPSK	1	49	21.98	21.99	21.96		
10	QPSK	25	0	20.93	20.86	20.83	21.00	1
10	QPSK	25	12	20.92	20.75	20.87		
10	QPSK	25	25	20.93	20.89	20.93		
10	QPSK	50	0	20.96	20.80	20.86		
10	16QAM	1	0	21.00	20.81	20.87	21.00	1
10	16QAM	1	25	20.69	20.41	20.64		
10	16QAM	1	49	20.95	20.96	20.92		
10	16QAM	25	0	19.40	19.32	19.28	20.00	2
10	16QAM	25	12	19.40	19.31	19.31		
10	16QAM	25	25	19.46	19.39	19.37		
10	16QAM	50	0	19.46	19.35	19.37		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.88	21.85	21.83	22.00	0
5	QPSK	1	12	21.79	21.68	21.69		
5	QPSK	1	24	21.78	21.62	21.74		
5	QPSK	12	0	20.94	20.83	20.80	21.00	1
5	QPSK	12	7	20.86	20.70	20.82		
5	QPSK	12	13	20.87	20.75	20.74		
5	QPSK	25	0	20.89	20.86	20.76		
5	16QAM	1	0	20.98	20.85	20.91	21.00	1
5	16QAM	1	12	20.69	20.73	20.73		
5	16QAM	1	24	20.80	20.72	20.69		
5	16QAM	12	0	19.69	19.52	19.53	20.00	2
5	16QAM	12	7	19.54	19.47	19.50		
5	16QAM	12	13	19.55	19.50	19.47		
5	16QAM	25	0	19.58	19.52	19.46		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.92	21.85	21.80	22.00	0
3	QPSK	1	8	21.83	21.86	21.83		
3	QPSK	1	14	21.86	21.80	21.70		
3	QPSK	8	0	20.96	20.85	20.82	21.00	1
3	QPSK	8	4	20.91	20.94	20.77		
3	QPSK	8	7	20.89	20.88	20.73		
3	QPSK	15	0	20.84	20.89	20.82		
3	16QAM	1	0	20.85	20.89	20.76	21.00	1
3	16QAM	1	8	20.83	20.94	20.85		
3	16QAM	1	14	20.67	20.73	20.58		
3	16QAM	8	0	19.76	19.62	19.53	20.00	2
3	16QAM	8	4	19.64	19.71	19.57		
3	16QAM	8	7	19.62	19.61	19.52		
3	16QAM	15	0	19.54	19.65	19.49		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.85	21.72	21.72	22.00	0
1.4	QPSK	1	3	21.89	21.83	21.86		
1.4	QPSK	1	5	21.85	21.83	21.73		
1.4	QPSK	3	0	21.91	21.84	21.71		
1.4	QPSK	3	1	21.87	21.78	21.75		
1.4	QPSK	3	3	21.94	21.97	21.76		
1.4	QPSK	6	0	20.87	20.80	20.72	21.00	1
1.4	16QAM	1	0	20.91	20.83	20.70	21.00	1
1.4	16QAM	1	3	20.96	20.93	20.81		
1.4	16QAM	1	5	20.93	20.89	20.76		
1.4	16QAM	3	0	20.68	20.62	20.56		
1.4	16QAM	3	1	20.75	20.65	20.54		
1.4	16QAM	3	3	20.73	20.72	20.62		
1.4	16QAM	6	0	19.72	19.65	19.60	20.00	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	22.58	22.61	22.6	23.50	0
10	QPSK	1	25	22.59	22.72	22.75		
10	QPSK	1	49	22.56	22.71	22.68		
10	QPSK	25	0	21.71	21.91	21.92	22.50	1
10	QPSK	25	12	21.7	21.89	21.89		
10	QPSK	25	25	21.65	21.82	21.83		
10	QPSK	50	0	21.65	21.86	21.83		
10	16QAM	1	0	21.98	22.17	22.1	22.50	1
10	16QAM	1	25	21.8	22.02	22.09		
10	16QAM	1	49	21.95	22.07	21.99		
10	16QAM	25	0	20.69	20.9	20.85	21.50	2
10	16QAM	25	12	20.74	20.89	20.87		
10	16QAM	25	25	20.69	20.83	20.74		
10	16QAM	50	0	20.62	20.82	20.84		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.55	22.53	22.61	23.50	0
5	QPSK	1	12	22.49	22.61	22.44		
5	QPSK	1	24	22.52	22.71	22.58		
5	QPSK	12	0	21.61	21.81	21.68	22.50	1
5	QPSK	12	7	21.57	21.78	21.65		
5	QPSK	12	13	21.66	21.81	21.73		
5	QPSK	25	0	21.63	21.81	21.65		
5	16QAM	1	0	21.9	22.04	21.88	22.50	1
5	16QAM	1	12	21.72	22	21.86		
5	16QAM	1	24	21.78	22.16	22.11		
5	16QAM	12	0	20.62	20.83	20.71	21.50	2
5	16QAM	12	7	20.65	20.86	20.67		
5	16QAM	12	13	20.68	20.86	20.73		
5	16QAM	25	0	20.59	20.81	20.64		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.5	22.43	22.55	23.50	0
3	QPSK	1	8	22.29	22.61	22.66		
3	QPSK	1	14	22.34	22.64	22.41		
3	QPSK	8	0	21.43	21.74	21.52	22.50	1
3	QPSK	8	4	21.46	21.77	21.59		
3	QPSK	8	7	21.53	21.75	21.54		
3	QPSK	15	0	21.47	21.75	21.54		
3	16QAM	1	0	21.72	22.08	21.75	22.50	1
3	16QAM	1	8	21.91	22.1	21.89		
3	16QAM	1	14	21.69	21.99	21.75		
3	16QAM	8	0	20.53	20.86	20.55	21.50	2
3	16QAM	8	4	20.57	20.84	20.64		
3	16QAM	8	7	20.57	20.83	20.58		
3	16QAM	15	0	20.49	20.77	20.64		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.53	22.49	22.61	23.50	0
1.4	QPSK	1	3	22.64	22.66	22.65		
1.4	QPSK	1	5	22.36	22.67	22.56		
1.4	QPSK	3	0	22.48	22.66	22.45		
1.4	QPSK	3	1	22.52	22.67	22.46		
1.4	QPSK	3	3	22.55	22.69	22.48		
1.4	QPSK	6	0	21.56	21.73	21.52	22.50	1
1.4	16QAM	1	0	21.72	21.96	21.75	22.50	1
1.4	16QAM	1	3	21.76	21.92	21.67		
1.4	16QAM	1	5	21.69	21.96	21.8		
1.4	16QAM	3	0	21.52	21.76	21.52		
1.4	16QAM	3	1	21.56	21.82	21.63		
1.4	16QAM	3	3	21.6	21.81	21.54		
1.4	16QAM	6	0	20.68	20.76	20.52	21.50	2

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.71	23.82	23.77	24.50	0
10	QPSK	1	25	23.74	23.55	23.68		
10	QPSK	1	49	23.84	24.24	23.98		
10	QPSK	25	0	22.69	22.76	22.75	23.50	1
10	QPSK	25	12	22.59	22.67	22.69		
10	QPSK	25	25	22.67	22.71	22.74		
10	QPSK	50	0	22.75	22.76	22.71		
10	16QAM	1	0	22.98	23.09	23.19	23.50	1
10	16QAM	1	25	22.96	22.93	22.91		
10	16QAM	1	49	23.1	23.17	23.12		
10	16QAM	25	0	21.76	21.68	21.78	22.50	2
10	16QAM	25	12	21.58	21.7	21.67		
10	16QAM	25	25	21.7	21.71	21.77		
10	16QAM	50	0	21.73	21.74	21.74		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.31	23.35	23.4	24.50	0
5	QPSK	1	12	23.5	23.56	23.67		
5	QPSK	1	24	23.6	23.65	23.74		
5	QPSK	12	0	22.47	22.64	22.79	23.50	1
5	QPSK	12	7	22.56	22.6	22.73		
5	QPSK	12	13	22.61	22.58	22.71		
5	QPSK	25	0	22.6	22.64	22.8		
5	16QAM	1	0	22.89	22.75	22.95	23.50	1
5	16QAM	1	12	22.66	22.74	22.8		
5	16QAM	1	24	22.84	22.89	22.84		
5	16QAM	12	0	21.57	21.66	21.83	22.50	2
5	16QAM	12	7	21.59	21.62	21.75		
5	16QAM	12	13	21.63	21.65	21.79		
5	16QAM	25	0	21.57	21.6	21.71		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.31	23.29	23.37	24.50	0
3	QPSK	1	8	23.43	23.52	23.77		
3	QPSK	1	14	23.45	23.67	23.58		
3	QPSK	8	0	22.59	22.64	22.64	23.50	1
3	QPSK	8	4	22.53	22.63	22.69		
3	QPSK	8	7	22.53	22.58	22.71		
3	QPSK	15	0	22.49	22.57	22.73		
3	16QAM	1	0	22.95	22.83	22.86	23.50	1
3	16QAM	1	8	22.85	22.86	23.18		
3	16QAM	1	14	22.87	22.9	22.8		
3	16QAM	8	0	21.59	21.7	21.7	22.50	2
3	16QAM	8	4	21.6	21.65	21.74		
3	16QAM	8	7	21.55	21.63	21.72		
3	16QAM	15	0	21.58	21.6	21.73		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.3	23.23	23.39	24.50	0
1.4	QPSK	1	3	23.62	23.53	23.62		
1.4	QPSK	1	5	23.46	23.57	23.58		
1.4	QPSK	3	0	23.45	23.52	23.62		
1.4	QPSK	3	1	23.53	23.45	23.71		
1.4	QPSK	3	3	23.62	23.58	23.61		
1.4	QPSK	6	0	22.56	22.47	22.69	23.50	1
1.4	16QAM	1	0	22.67	22.68	23	23.50	1
1.4	16QAM	1	3	22.77	22.82	23.12		
1.4	16QAM	1	5	22.75	23.02	22.94		
1.4	16QAM	3	0	22.58	22.52	22.79		
1.4	16QAM	3	1	22.59	22.58	22.69		
1.4	16QAM	3	3	22.49	22.58	22.61		
1.4	16QAM	6	0	21.62	21.58	21.78	22.50	2

<LTE Band 13>

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					23230			
Frequency (MHz)					782			
10	QPSK	1	0		24.87		25.50	0
10	QPSK	1	25		24.91			
10	QPSK	1	49		24.68			
10	QPSK	25	0		23.73		24.50	1
10	QPSK	25	12		23.7			
10	QPSK	25	25		23.55			
10	QPSK	50	0		23.69			
10	16QAM	1	0		23.88		24.50	1
10	16QAM	1	25		23.71			
10	16QAM	1	49		23.7			
10	16QAM	25	0		22.68		23.50	2
10	16QAM	25	12		22.58			
10	16QAM	25	25		22.52			
10	16QAM	50	0		22.62			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	24.72	24.27	24.32	25.50	0
5	QPSK	1	12	24.76	24.44	24.49		
5	QPSK	1	24	24.57	24.46	24.49		
5	QPSK	12	0	23.63	23.41	23.46	24.50	1
5	QPSK	12	7	23.62	23.53	23.49		
5	QPSK	12	13	23.55	23.48	23.46		
5	QPSK	25	0	23.53	23.52	23.55		
5	16QAM	1	0	23.57	23.62	23.7	24.50	1
5	16QAM	1	12	23.23	23.61	23.54		
5	16QAM	1	24	23.8	23.71	23.93		
5	16QAM	12	0	22.68	22.58	22.51	23.50	2
5	16QAM	12	7	22.67	22.51	22.58		
5	16QAM	12	13	22.57	22.54	22.39		
5	16QAM	25	0	22.61	22.5	22.5		

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	20.75	20.89	21.07	22.00	0
20	QPSK	1	49	20.46	20.64	20.71		
20	QPSK	1	99	20.49	20.68	20.76		
20	QPSK	50	0	19.69	19.82	19.94	21.00	1
20	QPSK	50	24	19.65	19.74	19.89		
20	QPSK	50	50	19.58	19.71	19.8		
20	QPSK	100	0	19.66	19.74	19.92		
20	16QAM	1	0	20.01	20.28	20.31	21.00	1
20	16QAM	1	49	19.82	19.96	19.93		
20	16QAM	1	99	19.8	19.94	20.07		
20	16QAM	50	0	18.7	18.78	18.93	20.00	2
20	16QAM	50	24	18.62	18.72	18.86		
20	16QAM	50	50	18.58	18.67	18.82		
20	16QAM	100	0	18.62	18.78	18.88		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	20.54	20.79	20.87	22.00	0
15	QPSK	1	37	20.41	20.66	20.59		
15	QPSK	1	74	20.59	20.75	20.81		
15	QPSK	36	0	19.58	19.75	19.87	21.00	1
15	QPSK	36	20	19.53	19.76	19.82		
15	QPSK	36	39	19.56	19.69	19.78		
15	QPSK	75	0	19.58	19.74	19.81		
15	16QAM	1	0	19.86	19.98	20.16	21.00	1
15	16QAM	1	37	19.64	19.91	19.9		
15	16QAM	1	74	19.86	20.08	20.12		
15	16QAM	36	0	18.62	18.74	18.83	20.00	2
15	16QAM	36	20	18.57	18.71	18.83		
15	16QAM	36	39	18.53	18.63	18.84		
15	16QAM	75	0	18.55	18.68	18.85		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	20.85	20.93	21.05	22.00	0
10	QPSK	1	25	20.55	20.71	20.81		
10	QPSK	1	49	20.76	20.89	21.03		
10	QPSK	25	0	19.75	19.87	20.07	21.00	1
10	QPSK	25	12	19.7	19.86	19.95		
10	QPSK	25	25	19.7	19.77	19.98		
10	QPSK	50	0	19.69	19.83	20.02		
10	16QAM	1	0	20.03	20.21	20.36	21.00	1
10	16QAM	1	25	19.85	20.08	20.14		
10	16QAM	1	49	19.96	20.21	20.28		
10	16QAM	25	0	18.69	18.91	19.04	20.00	2
10	16QAM	25	12	18.67	18.89	19.01		
10	16QAM	25	25	18.65	18.8	18.92		
10	16QAM	50	0	18.77	18.88	18.99		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	20.72	20.88	21.05	22.00	0
5	QPSK	1	12	20.58	20.79	20.94		
5	QPSK	1	24	20.59	20.77	20.91		
5	QPSK	12	0	19.69	19.84	20	21.00	1
5	QPSK	12	7	19.58	19.78	19.97		
5	QPSK	12	13	19.58	19.8	19.95		
5	QPSK	25	0	19.64	19.82	20.01		
5	16QAM	1	0	20.04	20.2	20.36	21.00	1
5	16QAM	1	12	19.8	19.96	20.15		
5	16QAM	1	24	19.92	20	20.23		
5	16QAM	12	0	18.68	18.86	19.01	20.00	2
5	16QAM	12	7	18.65	18.83	18.93		
5	16QAM	12	13	18.61	18.8	18.94		
5	16QAM	25	0	18.6	18.81	18.98		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	20.69	20.74	20.94	22.00	0
3	QPSK	1	8	20.68	20.9	21.01		
3	QPSK	1	14	20.64	20.78	20.92		
3	QPSK	8	0	19.76	19.89	20.01	21.00	1
3	QPSK	8	4	19.7	19.88	20.09		
3	QPSK	8	7	19.68	19.83	20.02		
3	QPSK	15	0	19.7	19.9	20.07		
3	16QAM	1	0	20.01	20.17	20.31	21.00	1
3	16QAM	1	8	19.97	20.2	20.27		
3	16QAM	1	14	19.93	20.09	20.25		
3	16QAM	8	0	18.73	18.94	19.11	20.00	2
3	16QAM	8	4	18.75	18.92	19.09		
3	16QAM	8	7	18.73	18.91	19.06		
3	16QAM	15	0	18.69	18.91	19.04		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	20.5	20.71	20.95	22.00	0
1.4	QPSK	1	3	20.65	20.85	21.02		
1.4	QPSK	1	5	20.65	20.78	20.9		
1.4	QPSK	3	0	20.63	20.84	20.82		
1.4	QPSK	3	1	20.65	20.84	20.94		
1.4	QPSK	3	3	20.65	20.84	20.94		
1.4	QPSK	6	0	19.65	19.87	19.91	21.00	1
1.4	16QAM	1	0	19.93	20.12	20.19	21.00	1
1.4	16QAM	1	3	19.95	20.13	20.27		
1.4	16QAM	1	5	19.93	20.11	20.13		
1.4	16QAM	3	0	19.68	19.88	19.89		
1.4	16QAM	3	1	19.74	19.9	19.94		
1.4	16QAM	3	3	19.7	19.9	19.96		
1.4	16QAM	6	0	18.73	18.91	18.98	20.00	2

<Bottom Antenna--Reduced Power Mode for Hotspot On>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	21.54	21.47	21.48	22.00	0
20	QPSK	1	49	21.14	21.19	20.85		
20	QPSK	1	99	21.59	21.65	21.6		
20	QPSK	50	0	21.43	21.29	21.51	22.00	0
20	QPSK	50	24	21.26	21.26	21.48		
20	QPSK	50	50	21.45	21.56	21.53		
20	QPSK	100	0	21.42	21.5	21.48		
20	16QAM	1	0	21.83	21.74	21.8	22.00	0
20	16QAM	1	49	21.48	21.49	21.9		
20	16QAM	1	99	21.65	21.58	21.95		
20	16QAM	50	0	20.91	20.76	20.98	22.00	0
20	16QAM	50	24	20.81	20.8	21.04		
20	16QAM	50	50	20.9	20.9	21.09		
20	16QAM	100	0	20.86	20.79	21.02		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.63	21.54	21.64	22.00	0
15	QPSK	1	37	21.13	21.18	21.11		
15	QPSK	1	74	21.63	21.67	21.83		
15	QPSK	36	0	21.34	21.33	21.5	22.00	0
15	QPSK	36	20	21.31	21.39	21.45		
15	QPSK	36	39	21.36	21.44	21.6		
15	QPSK	75	0	21.3	21.39	21.54		
15	16QAM	1	0	21.89	21.83	21.85	22.00	0
15	16QAM	1	37	21.18	21.52	21.83		
15	16QAM	1	74	21.85	21.88	21.95		
15	16QAM	36	0	20.86	20.88	21	22.00	0
15	16QAM	36	20	20.86	20.9	20.99		
15	16QAM	36	39	20.84	20.9	21.12		
15	16QAM	75	0	20.85	20.9	21.03		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.41	21.43	21.54	22.00	0
10	QPSK	1	25	21.15	21.2	20.96		
10	QPSK	1	49	21.55	21.56	21.78		
10	QPSK	25	0	21.34	21.46	21.57	22.00	0
10	QPSK	25	12	21.35	21.43	21.58		
10	QPSK	25	25	21.42	21.47	21.52		
10	QPSK	50	0	21.34	21.51	21.54		
10	16QAM	1	0	21.74	21.75	21.92	22.00	0
10	16QAM	1	25	21.46	21.54	21.8		
10	16QAM	1	49	21.72	21.84	21.89		
10	16QAM	25	0	20.9	21	21.04	22.00	0
10	16QAM	25	12	20.84	20.95	21.05		
10	16QAM	25	25	20.88	20.93	20.99		
10	16QAM	50	0	20.97	20.97	21.04		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.22	21.35	21.28	22.00	0
5	QPSK	1	12	21.11	21.18	21.33		
5	QPSK	1	24	21.15	21.29	21.45		
5	QPSK	12	0	21.29	21.36	21.55	22.00	0
5	QPSK	12	7	21.24	21.36	21.53		
5	QPSK	12	13	21.22	21.44	21.49		
5	QPSK	25	0	21.28	21.38	21.55		
5	16QAM	1	0	21.53	21.68	21.85	22.00	0
5	16QAM	1	12	21.45	21.63	21.63		
5	16QAM	1	24	21.37	21.6	21.79		
5	16QAM	12	0	20.74	20.91	21.11	22.00	0
5	16QAM	12	7	20.78	20.92	21.03		
5	16QAM	12	13	20.72	20.91	21.03		
5	16QAM	25	0	20.72	20.89	20.99		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.12	21.24	21.32	22.00	0
3	QPSK	1	8	21.15	21.41	21.52		
3	QPSK	1	14	21.09	21.23	21.4		
3	QPSK	8	0	21.2	21.34	21.53	22.00	0
3	QPSK	8	4	21.2	21.35	21.55		
3	QPSK	8	7	21.2	21.35	21.47		
3	QPSK	15	0	21.17	21.84	21.52		
3	16QAM	1	0	21.39	21.9	21.68	22.00	0
3	16QAM	1	8	21.41	21.86	21.85		
3	16QAM	1	14	21.29	21.92	21.67		
3	16QAM	8	0	20.77	20.93	21.1	22.00	0
3	16QAM	8	4	20.78	20.96	21.09		
3	16QAM	8	7	20.74	20.94	21.02		
3	16QAM	15	0	20.69	20.92	21.04		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.12	21.24	21.37	22.00	0
1.4	QPSK	1	3	21.12	21.26	21.51		
1.4	QPSK	1	5	21	21.27	21.46		
1.4	QPSK	3	0	21.06	21.21	21.38		
1.4	QPSK	3	1	21.12	21.26	21.38		
1.4	QPSK	3	3	21.14	21.26	21.42		
1.4	QPSK	6	0	21.16	21.35	21.5	22.00	0
1.4	16QAM	1	0	21.28	21.46	21.72	22.00	0
1.4	16QAM	1	3	21.34	21.48	21.8		
1.4	16QAM	1	5	21.26	21.52	21.65		
1.4	16QAM	3	0	21.16	21.31	21.42		
1.4	16QAM	3	1	21.2	21.35	21.51		
1.4	16QAM	3	3	21.22	21.38	21.53		
1.4	16QAM	6	0	20.74	20.83	20.96	22.00	0

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	18.70	18.70	18.64	19.00	0
20	QPSK	1	49	18.79	18.65	18.69		
20	QPSK	1	99	18.73	18.79	18.78		
20	QPSK	50	0	18.73	18.71	18.83	19.00	0
20	QPSK	50	24	18.77	18.73	18.75		
20	QPSK	50	50	18.63	18.62	18.70		
20	QPSK	100	0	18.81	18.71	18.77		
20	16QAM	1	0	18.57	18.87	18.97	19.00	0
20	16QAM	1	49	18.95	18.99	18.94		
20	16QAM	1	99	18.89	18.98	18.94		
20	16QAM	50	0	18.81	18.71	18.85	19.00	0
20	16QAM	50	24	18.76	18.72	18.76		
20	16QAM	50	50	18.72	18.65	18.72		
20	16QAM	100	0	18.76	18.67	18.79		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	18.85	18.74	18.9	19.00	0
15	QPSK	1	37	18.77	18.95	18.17		
15	QPSK	1	74	18.63	18.68	18.67		
15	QPSK	36	0	18.89	18.77	18.72	19.00	0
15	QPSK	36	20	18.87	18.7	18.61		
15	QPSK	36	39	18.8	18.69	18.6		
15	QPSK	75	0	18.76	18.73	18.74		
15	16QAM	1	0	18.98	18.68	18.93	19.00	0
15	16QAM	1	37	18.35	18.84	18.73		
15	16QAM	1	74	18.95	18.94	18.96		
15	16QAM	36	0	18.85	18.82	18.73	19.00	0
15	16QAM	36	20	18.82	18.77	18.64		
15	16QAM	36	39	18.75	18.69	18.6		
15	16QAM	75	0	18.84	18.8	18.71		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	18.66	18.55	18.52	19.00	0
10	QPSK	1	25	18.4	18.17	18.22		
10	QPSK	1	49	18.81	18.78	18.73		
10	QPSK	25	0	18.4	18.37	18.38	19.00	0
10	QPSK	25	12	18.4	18.24	18.35		
10	QPSK	25	25	18.48	18.35	18.39		
10	QPSK	50	0	18.49	18.34	18.4		
10	16QAM	1	0	18.98	18.81	18.82	19.00	0
10	16QAM	1	25	18.52	18.46	18.5		
10	16QAM	1	49	18.95	18.99	18.95		
10	16QAM	25	0	18.5	18.33	18.34	19.00	0
10	16QAM	25	12	18.45	18.25	18.35		
10	16QAM	25	25	18.48	18.37	18.4		
10	16QAM	50	0	18.48	18.34	18.39		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	18.89	18.85	18.93	19.00	0
5	QPSK	1	12	18.82	18.92	18.71		
5	QPSK	1	24	18.87	18.73	18.79		
5	QPSK	12	0	18.76	18.81	18.59	19.00	0
5	QPSK	12	7	18.66	18.62	18.56		
5	QPSK	12	13	18.68	18.65	18.53		
5	QPSK	25	0	18.69	18.75	18.62		
5	16QAM	1	0	18.99	18.97	18.92	19.00	0
5	16QAM	1	12	18.76	18.92	18.69		
5	16QAM	1	24	18.93	18.79	18.81		
5	16QAM	12	0	18.82	18.79	18.59	19.00	0
5	16QAM	12	7	18.67	18.65	18.58		
5	16QAM	12	13	18.69	18.67	18.55		
5	16QAM	25	0	18.7	18.73	18.59		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	18.81	18.83	18.83	19.00	0
3	QPSK	1	8	18.81	18.95	18.77		
3	QPSK	1	14	18.8	18.77	18.67		
3	QPSK	8	0	18.91	18.87	18.79	19.00	0
3	QPSK	8	4	18.81	18.88	18.77		
3	QPSK	8	7	18.81	18.82	18.73		
3	QPSK	15	0	18.82	18.94	18.73		
3	16QAM	1	0	18.86	18.81	18.69	19.00	0
3	16QAM	1	8	18.61	18.98	18.67		
3	16QAM	1	14	18.69	18.83	18.65		
3	16QAM	8	0	18.71	18.6	18.5	19.00	0
3	16QAM	8	4	18.58	18.69	18.54		
3	16QAM	8	7	18.58	18.63	18.5		
3	16QAM	15	0	18.55	18.66	18.46		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	18.71	18.7	18.68	19.00	0
1.4	QPSK	1	3	18.94	18.71	18.77		
1.4	QPSK	1	5	18.72	18.75	18.68		
1.4	QPSK	3	0	18.87	18.76	18.74		
1.4	QPSK	3	1	18.85	18.79	18.79		
1.4	QPSK	3	3	18.87	18.88	18.75		
1.4	QPSK	6	0	18.81	18.76	18.73	19.00	0
1.4	16QAM	1	0	18.89	18.84	18.77	19.00	0
1.4	16QAM	1	3	18.98	18.88	18.77		
1.4	16QAM	1	5	18.93	18.77	18.48		
1.4	16QAM	3	0	18.66	18.6	18.58		
1.4	16QAM	3	1	18.69	18.63	18.53		
1.4	16QAM	3	3	18.7	18.65	18.65		
1.4	16QAM	6	0	18.72	18.65	18.62	19.00	0

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	17.84	18	18.11	19.00	0
20	QPSK	1	49	17.43	17.56	17.62		
20	QPSK	1	99	17.6	17.61	17.75		
20	QPSK	50	0	17.68	17.79	17.86	19.00	0
20	QPSK	50	24	17.62	17.78	17.81		
20	QPSK	50	50	17.56	17.71	17.77		
20	QPSK	100	0	17.62	17.67	17.88		
20	16QAM	1	0	17.8	18.12	18.24	19.00	0
20	16QAM	1	49	17.59	17.79	18.01		
20	16QAM	1	99	17.75	17.86	17.97		
20	16QAM	50	0	17.66	17.79	17.85	19.00	0
20	16QAM	50	24	17.64	17.81	17.8		
20	16QAM	50	50	17.58	17.7	17.77		
20	16QAM	100	0	17.62	17.73	17.8		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	17.64	17.78	17.78	19.00	0
15	QPSK	1	37	17.72	17.61	17.74		
15	QPSK	1	74	17.5	17.64	17.71		
15	QPSK	36	0	17.55	17.68	17.85	19.00	0
15	QPSK	36	20	17.55	17.66	17.84		
15	QPSK	36	39	17.52	17.67	17.75		
15	QPSK	75	0	17.54	17.73	17.81		
15	16QAM	1	0	17.6	17.92	18.08	19.00	0
15	16QAM	1	37	17.74	17.76	17.96		
15	16QAM	1	74	17.75	17.96	17.94		
15	16QAM	36	0	17.58	17.71	17.84	19.00	0
15	16QAM	36	20	17.55	17.69	17.8		
15	16QAM	36	39	17.49	17.64	17.84		
15	16QAM	75	0	17.52	17.7	17.84		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	17.75	17.9	18.08	19.00	0
10	QPSK	1	25	17.62	17.73	17.95		
10	QPSK	1	49	17.7	17.82	17.95		
10	QPSK	25	0	17.7	17.91	17.99	19.00	0
10	QPSK	25	12	17.67	17.82	17.94		
10	QPSK	25	25	17.64	17.74	17.93		
10	QPSK	50	0	17.66	17.83	17.91		
10	16QAM	1	0	17.98	18.17	18.25	19.00	0
10	16QAM	1	25	17.73	17.91	18.12		
10	16QAM	1	49	17.9	18.11	18.18		
10	16QAM	25	0	17.7	17.84	18.03	19.00	0
10	16QAM	25	12	17.72	17.83	17.99		
10	16QAM	25	25	17.62	17.77	17.93		
10	16QAM	50	0	17.68	17.87	17.98		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	17.71	17.87	18	19.00	0
5	QPSK	1	12	17.53	17.73	17.82		
5	QPSK	1	24	17.57	17.78	17.88		
5	QPSK	12	0	17.63	17.84	17.93	19.00	0
5	QPSK	12	7	17.61	17.75	17.92		
5	QPSK	12	13	17.57	17.77	17.86		
5	QPSK	25	0	17.57	17.76	17.96		
5	16QAM	1	0	17.93	18.12	18.08	19.00	0
5	16QAM	1	12	17.74	18.02	18.22		
5	16QAM	1	24	17.85	18	18.12		
5	16QAM	12	0	17.64	17.79	17.96	19.00	0
5	16QAM	12	7	17.58	17.8	17.92		
5	16QAM	12	13	17.58	17.77	17.93		
5	16QAM	25	0	17.65	17.83	17.95		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	17.57	17.8	17.91	19.00	0
3	QPSK	1	8	17.57	17.74	17.88		
3	QPSK	1	14	17.53	17.74	17.86		
3	QPSK	8	0	17.56	17.78	17.93	19.00	0
3	QPSK	8	4	17.6	17.76	17.92		
3	QPSK	8	7	17.56	17.74	17.86		
3	QPSK	15	0	17.57	17.75	17.9		
3	16QAM	1	0	17.86	18.01	18.2	19.00	0
3	16QAM	1	8	17.75	17.98	18.13		
3	16QAM	1	14	17.79	17.93	18.14		
3	16QAM	8	0	17.58	17.78	17.97	19.00	0
3	16QAM	8	4	17.68	17.84	17.96		
3	16QAM	8	7	17.58	17.8	17.93		
3	16QAM	15	0	17.55	17.77	17.9		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	17.62	17.67	17.81	19.00	0
1.4	QPSK	1	3	17.54	17.75	17.86		
1.4	QPSK	1	5	17.45	17.65	17.8		
1.4	QPSK	3	0	17.44	17.72	17.86		
1.4	QPSK	3	1	17.52	17.73	17.86		
1.4	QPSK	3	3	17.57	17.76	17.92		
1.4	QPSK	6	0	17.5	17.71	17.86	19.00	0
1.4	16QAM	1	0	17.72	17.93	18.12	19.00	0
1.4	16QAM	1	3	17.79	18.04	18.11		
1.4	16QAM	1	5	17.64	17.92	18.13		
1.4	16QAM	3	0	17.54	17.73	17.92		
1.4	16QAM	3	1	17.55	17.77	17.93		
1.4	16QAM	3	3	17.59	17.79	17.94		
1.4	16QAM	6	0	17.66	17.79	17.98	19.00	0

<LTE Carrier Aggregation>

General Note:

This device supports Carrier Aggregation on downlink for inter and intra band, uplink CA is not supported. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.

<Inter-Band Carrier Combination>

E-UTRA CA configuration / Bandwidth combination set										
E-UTRA CA Configuration	Uplink CA configurations	E- UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-4A	-	2	Yes	Yes	Yes	Yes	Yes	Yes	40	0
		4			Yes	Yes	Yes	Yes		
		2			Yes	Yes			20	1
		4			Yes	Yes				
		2			Yes	Yes	Yes	Yes	40	2
		4			Yes	Yes	Yes	Yes		
CA_2A-12A	-	2			Yes	Yes	Yes	Yes	30	0
		12			Yes	Yes				
		2			Yes	Yes	Yes	Yes	30	1
		12		Yes	Yes	Yes				
		2			Yes	Yes			20	2
		12			Yes	Yes				
CA_2A-66A	-	2	Yes	Yes	Yes	Yes	Yes	Yes	40	0
		66			Yes	Yes	Yes	Yes		
		2			Yes	Yes			20	1
		66			Yes	Yes				
		2			Yes	Yes	Yes	Yes	40	2
		66			Yes	Yes	Yes	Yes		
CA_4A-12A	-	4	Yes	Yes	Yes	Yes			20	0
		12			Yes	Yes				
		4	Yes	Yes	Yes	Yes	Yes	Yes	30	1
		12			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	2
		12		Yes	Yes	Yes				
		4			Yes	Yes			20	3
		12			Yes	Yes				
		4			Yes	Yes	Yes	Yes	30	4
		12			Yes	Yes				
		4			Yes	Yes	Yes		20	5
		12			Yes					
CA_12A-66A	-	12			Yes	Yes			20	0
		66	Yes	Yes	Yes	Yes				
		12			Yes	Yes			30	1
		66	Yes	Yes	Yes	Yes	Yes	Yes		
		12		Yes	Yes	Yes			30	2
		66			Yes	Yes	Yes	Yes		
		12			Yes	Yes			20	3
		66			Yes	Yes				
		12			Yes	Yes			30	4
		66			Yes	Yes	Yes	Yes		
		12			Yes				20	5
		66			Yes	Yes	Yes			

<Intra-Band Carrier Combination>

E-UTRA CA configuration / Bandwidth combination set							
E-UTRA CA configuration	Uplink CA configurations	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_66B	-	5	5, 10, 15			20	0
		10	5, 10				
		15	5				
CA_66C	-	5	20			40	0
		10	15, 20				
		15	10, 15, 20				
		20	5, 10, 15, 20				
CA_4A-4A	-	5, 10, 15, 20	5, 10, 15, 20			40	0
		5, 10	5, 10			20	1
CA_66A-66A	-	5, 10, 15, 20	5, 10, 15, 20			40	0

LTE Carrier Aggregation Conducted Power (Downlink)

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. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

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

v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

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

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

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

<Bottom Antenna--Full Power Mode>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		Band 2	20M	1880	18900	QPSK	1	99	Band 4	20M	2132.5	2175	23.28	23.29
		Band 4	20M	1732.5	20175	QPSK	1	99	Band 2	20M	1960	900	21.75	21.78
		Band 2	20M	1880	18900	QPSK	1	99	Band 12	10M	737.5	5095	23.26	23.29
		Band 12	10M	707.5	23095	QPSK	25	0	Band 2	20M	1960	900	24.20	24.76
		Band 2	20M	1880	18900	QPSK	1	99	Band 66	20M	2155	66886	23.25	23.29
		Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	21.03	21.07
		Band 4	20M	1732.5	20175	QPSK	1	99	Band 12	10M	737.5	5095	21.71	21.78
		Band 12	10M	707.5	23095	QPSK	25	0	Band 4	20M	2132.5	2175	24.20	24.76
		Band 12	10M	707.5	23095	QPSK	25	0	Band 66	20M	2155	66886	24.23	24.76
		Band 66	20M	1770	132572	QPSK	1	0	Band 12	10M	737.5	5095	21.06	21.07
Intra-Band	Contiguous	Band 66	15M	1772.5	132597	QPSK	1	0	Band 66	5M	2188.2	67218	20.81	20.87
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	21.05	21.07
	Non-Contiguous	Band 4	20M	1732.5	20175	QPSK	1	99	Band 4	5M	2152.5	2375	21.73	21.78
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	21.06	21.07

<Bottom Antenna--Reduced Power Mode for Hotspot On>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx. Power (dBm)	Without CA Tx. Power (dBm)
Inter-Band		Band 2	20M	1880	18900	QPSK	1	99	Band 4	20M	2132.5	2175	21.63	21.65
		Band 4	20M	1732.5	20175	QPSK	1	99	Band 2	20M	1960	900	18.71	18.79
		Band 2	20M	1880	18900	QPSK	1	99	Band 66	20M	2155	66886	21.61	21.65
		Band 66	20M	1770	132572	QPSK	1	0	Band 2	20M	1960	900	18.05	18.11
Intra-Band	Contiguous	Band 66	15M	1772.5	132597	64QAM	1	0	Band 66	5M	2188.2	67218	18.02	18.08
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	20M	2170.2	67038	18.07	18.11
	Non-Contiguous	Band 4	20M	1732.5	20175	QPSK	1	99	Band 4	5M	2152.5	2375	18.72	18.79
		Band 66	20M	1770	132572	QPSK	1	0	Band 66	5M	2112.5	66461	18.08	18.11

<WLAN Conducted Power>

General Note:

1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<Full Power>

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	14.43	15.50	97.59
		6	2437	**14.97**	15.50	
		11	2462	14.07	15.50	
	802.11g 6Mbps	1	2412	12.90	13.50	87.5
		6	2437	13.16	13.50	
		11	2462	12.59	13.50	
	802.11n-HT20 MCS0	1	2412	12.00	13.00	86.27
		6	2437	12.15	13.00	
		11	2462	11.56	13.00	
	802.11n-HT40 MCS0	3	2422	12.03	13.00	85.86
		6	2437	11.75	13.00	
		9	2452	11.42	13.00	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	18.49	19.50	87.04
		40	5200	18.58	19.50	
		44	5220	18.55	19.50	
		48	5240	**18.88**	19.50	
	802.11n-HT20 MCS0	36	5180	18.80	19.00	86.27
		40	5200	18.75	19.00	
		44	5220	18.78	19.00	
		48	5240	18.86	19.00	
	802.11n-HT40 MCS0	38	5190	18.85	19.00	85.83
		46	5230	18.80	19.00	
	802.11ac-VHT20 MCS0	36	5180	18.83	19.00	83.33
		40	5200	18.74	19.00	
		44	5220	18.76	19.00	
		48	5240	18.85	19.00	
	802.11ac-VHT40 MCS0	38	5190	18.71	19.00	70.98
		46	5230	18.82	19.00	
	802.11ac-VHT80 MCS0	42	5210	18.79	19.00	55.34

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	**19.02**	19.50	87.04
		157	5785	18.80	19.50	
		165	5825	18.66	19.50	
	802.11n-HT20 MCS0	149	5745	19.01	19.50	86.27
		157	5785	18.76	19.50	
		165	5825	18.70	19.50	
	802.11n-HT40 MCS0	151	5755	18.89	19.00	85.83
		159	5795	18.64	19.00	
	802.11ac-VHT20 MCS0	149	5745	18.97	19.00	83.33
		157	5785	18.86	19.00	
		165	5825	18.70	19.00	
	802.11ac-VHT40 MCS0	151	5755	18.86	19.00	70.98
		159	5795	18.71	19.00	
	802.11ac-VHT80 MCS0	155	5775	18.91	19.00	55.34

<Reduced Power for Receiver On>

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	16.93	17.50	87.04
		40	5200	16.77	17.50	
		44	5220	16.79	17.50	
		48	5240	17.01	17.50	
	802.11n-HT20 MCS0	36	5180	16.36	17.00	86.27
		40	5200	16.25	17.00	
		44	5220	16.22	17.00	
		48	5240	16.50	17.00	
	802.11n-HT40 MCS0	38	5190	16.45	17.00	85.83
		46	5230	16.48	17.00	
	802.11ac-VHT20 MCS0	36	5180	16.31	17.00	83.33
		40	5200	16.22	17.00	
		44	5220	16.30	17.00	
		48	5240	16.48	17.00	
	802.11ac-VHT40 MCS0	38	5190	16.30	17.00	70.98
		46	5230	16.13	17.00	
	802.11ac-VHT80 MCS0	42	5210	16.38	17.00	55.34

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	16.82	17.50	87.04
		157	5785	16.12	17.50	
		165	5825	16.69	17.50	
	802.11n-HT20 MCS0	149	5745	16.30	16.50	86.27
		157	5785	15.60	16.50	
		165	5825	16.07	16.50	
	802.11n-HT40 MCS0	151	5755	16.24	16.50	85.83
		159	5795	16.00	16.50	
	802.11ac-VHT20 MCS0	149	5745	16.27	16.50	83.33
		157	5785	15.48	16.50	
		165	5825	16.10	16.50	
	802.11ac-VHT40 MCS0	151	5755	15.71	16.50	70.98
		159	5795	15.50	16.50	
	802.11ac-VHT80 MCS0	155	5775	16.06	16.50	55.34

13. Bluetooth Exclusions Applied

Mode Band	Average power(dBm)	
	Bluetooth v3.0+EDR	Bluetooth v4.0 LE / v4.1 LE / v4.2 LE
2.4GHz Bluetooth	9.0	0.5

Note:

Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Bluetooth Max Power (dBm)	Frequency (GHz)	Separation Distance (mm)		Exclusion Thresholds	
		1-g SAR	10-g Extremity SAR	1-g SAR	10-g Extremity SAR
9.0	2.48	10	0	1.3	2.5

Note:

1. Per KDB 447498 D01v06, a distance of 10 mm is applied to determine 1g SAR test exclusion. The test exclusion threshold is 1.3 which is <= 3, SAR testing is not required.
2. Per KDB 447498 D01v06, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR 10g SAR test exclusion. The test exclusion threshold is 2.5 which is <= 7.5, SAR testing is not required.

14. Antenna Dimensions and Separation Distances

Please refer to the separate filing document.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of WCDMA B2 / B4, CDMA2000 BC1 and LTE B2 / B4 / B66.
6. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device only bottom side SAR for WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of WCDMA B2 / B4, CDMA2000 BC1 and LTE B2 / B66, therefore product specific SAR is necessary.
7. For 5.2GHz / 5.8GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16cm and it does not support hotspot operation.
8. This device has two antennas. One antenna is located on the bottom edge of the device and another antenna is located on the top edge of the device. Top antenna frequency band includes WCDMA B5, CDMA2000 BC0, LTE Band 5/12/13 and Bottom antenna frequency band includes GSM850/1900, WCDMA B2 / B4 / B5, CDMA2000 BC0 / 1 and LTE Band 2/4/5/12/13/66. And they can't transmit simultaneously.
9. 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.
   a) For WWAN Bottom transmitter antenna, front/back/bottom side/right side/left side located within 25mm from that surface or edge, therefore these surfaces hotspot SAR is necessary.
   b) For WWAN Top transmitter antenna, front/back/top side/right side/left side located within 25mm from that surface or edge, therefore these surfaces hotspot SAR is necessary.
   c) For WLAN transmitter antenna, front/back/top side/left side located within 25mm from that surface or edge, therefore these surfaces hotspot SAR is necessary.

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 (2Tx 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.

WCDMA Note:

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

LTE Note:

3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 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 4 SAR test was covered by Band 66; 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. 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.
3. 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.
4. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Head SAR

<GSM SAR>

Plot No.	Antenna	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1	Bottom	GSM850	GPRS 2 Tx slots	Right Cheek	Full	189	836.4	31.76	32.00	1.057	-0.06	0.462	**0.488**
	Bottom	GSM850	GPRS 2 Tx slots	Right Tilted	Full	189	836.4	31.76	32.00	1.057	0.02	0.239	0.253
	Bottom	GSM850	GPRS 2 Tx slots	Left Cheek	Full	189	836.4	31.76	32.00	1.057	0.1	0.318	0.336
	Bottom	GSM850	GPRS 2 Tx slots	Left Tilted	Full	189	836.4	31.76	32.00	1.057	-0.05	0.242	0.256
2	Bottom	GSM1900	GPRS 2 Tx slots	Right Cheek	Full	512	1850.2	28.50	29.00	1.122	0.08	0.064	**0.072**
	Bottom	GSM1900	GPRS 2 Tx slots	Right Tilted	Full	512	1850.2	28.50	29.00	1.122	0.1	0.042	0.047
	Bottom	GSM1900	GPRS 2 Tx slots	Left Cheek	Full	512	1850.2	28.50	29.00	1.122	0.02	0.062	0.070
	Bottom	GSM1900	GPRS 2 Tx slots	Left Tilted	Full	512	1850.2	28.50	29.00	1.122	-0.11	0.033	0.037

<WCDMA SAR>

Plot No.	Antenna	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	WCDMA Band V	RMC 12.2Kbps	Right Cheek	Full	4182	836.4	23.44	24.00	1.138	0.05	0.302	0.344
	Bottom	WCDMA Band V	RMC 12.2Kbps	Right Tilted	Full	4182	836.4	23.44	24.00	1.138	0.02	0.149	0.170
	Bottom	WCDMA Band V	RMC 12.2Kbps	Left Cheek	Full	4182	836.4	23.44	24.00	1.138	0.08	0.201	0.229
	Bottom	WCDMA Band V	RMC 12.2Kbps	Left Tilted	Full	4182	836.4	23.44	24.00	1.138	0.12	0.164	0.187
3	Top	WCDMA Band V	RMC 12.2Kbps	Right Cheek	Full	4182	836.4	22.84	23.00	1.038	-0.06	0.529	**0.549**
	Top	WCDMA Band V	RMC 12.2Kbps	Right Tilted	Full	4182	836.4	22.84	23.00	1.038	-0.01	0.42	0.436
	Top	WCDMA Band V	RMC 12.2Kbps	Left Cheek	Full	4182	836.4	22.84	23.00	1.038	-0.13	0.425	0.441
	Top	WCDMA Band V	RMC 12.2Kbps	Left Tilted	Full	4182	836.4	22.84	23.00	1.038	-0.12	0.372	0.386
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Right Cheek	Full	1312	1712.4	22.74	23.00	1.062	0.03	0.099	0.105
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Right Tilted	Full	1312	1712.4	22.74	23.00	1.062	0.07	0.052	0.055
4	Bottom	WCDMA Band IV	RMC 12.2Kbps	Left Cheek	Full	1312	1712.4	22.74	23.00	1.062	0.1	0.158	**0.168**
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Left Tilted	Full	1312	1712.4	22.74	23.00	1.062	0.02	0.06	0.064
	Bottom	WCDMA Band II	RMC 12.2Kbps	Right Cheek	Full	9538	1907.6	23.50	24.00	1.122	0.04	0.098	0.110
	Bottom	WCDMA Band II	RMC 12.2Kbps	Right Tilted	Full	9538	1907.6	23.50	24.00	1.122	0.01	0.066	0.074
5	Bottom	WCDMA Band II	RMC 12.2Kbps	Left Cheek	Full	9538	1907.6	23.50	24.00	1.122	0.08	0.102	**0.114**
	Bottom	WCDMA Band II	RMC 12.2Kbps	Left Tilted	Full	9538	1907.6	23.50	24.00	1.122	0.18	0.053	0.059

<CDMA2000 SAR>

Plot No.	Antenna	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	1013	824.7	23.53	24.00	1.114	0.05	0.285	0.318
	Bottom	CDMA2000 BC0	RC3 SO55	Right Tilted	Full	1013	824.7	23.53	24.00	1.114	0.17	0.14	0.156
	Bottom	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	1013	824.7	23.53	24.00	1.114	0.01	0.195	0.217
	Bottom	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	1013	824.7	23.53	24.00	1.114	0.17	0.147	0.164
6	Top	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	777	848.31	21.92	22.50	1.143	-0.1	0.654	**0.747**
	Top	CDMA2000 BC0	RC3 SO55	Right Tilted	Full	777	848.31	21.92	22.50	1.143	-0.01	0.503	0.575
	Top	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	777	848.31	21.92	22.50	1.143	-0.02	0.453	0.518
	Top	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	777	848.31	21.92	22.50	1.143	0.12	0.402	0.459
	Bottom	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	1175	1908.75	21.64	23.20	1.432	0.16	0.086	0.123
	Bottom	CDMA2000 BC1	RC3 SO55	Right Tilted	Full	1175	1908.75	21.64	23.20	1.432	0.08	0.063	0.090
7	Bottom	CDMA2000 BC1	RC3 SO55	Left Cheek	Full	1175	1908.75	21.64	23.20	1.432	0.18	0.108	**0.155**
	Bottom	CDMA2000 BC1	RC3 SO55	Left Tilted	Full	1175	1908.75	21.64	23.20	1.432	0.06	0.062	0.089

<LTE SAR>

Plot No.	Antenna	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	LTE Band 13	10M	QPSK	1	25	Right Cheek	Full	23230	782	24.91	25.50	1.146	0.02	0.243	0.278
	Bottom	LTE Band 13	10M	QPSK	25	0	Right Cheek	Full	23230	782	23.73	24.50	1.194	0.01	0.213	0.254
	Bottom	LTE Band 13	10M	QPSK	1	25	Right Tilted	Full	23230	782	24.91	25.50	1.146	0.07	0.124	0.142
	Bottom	LTE Band 13	10M	QPSK	25	0	Right Tilted	Full	23230	782	23.73	24.50	1.194	0.15	0.106	0.127
	Bottom	LTE Band 13	10M	QPSK	1	25	Left Cheek	Full	23230	782	24.91	25.50	1.146	-0.11	0.154	0.176
	Bottom	LTE Band 13	10M	QPSK	25	0	Left Cheek	Full	23230	782	23.73	24.50	1.194	0.07	0.129	0.154
	Bottom	LTE Band 13	10M	QPSK	1	25	Left Tilted	Full	23230	782	24.91	25.50	1.146	0.02	0.133	0.152
	Bottom	LTE Band 13	10M	QPSK	25	0	Left Tilted	Full	23230	782	23.73	24.50	1.194	0.04	0.118	0.141
	Top	LTE Band 13	10M	QPSK	1	49	Right Cheek	Full	23230	782	21.67	22.00	1.079	0.12	0.729	0.787
8	Top	LTE Band 13	10M	QPSK	25	0	Right Cheek	Full	23230	782	21.78	22.00	1.052	-0.1	0.780	**0.821**
	Top	LTE Band 13	10M	QPSK	50	0	Right Cheek	Full	23230	782	21.69	22.00	1.074	0.01	0.751	0.807
	Top	LTE Band 13	10M	QPSK	1	49	Right Tilted	Full	23230	782	21.67	22.00	1.079	-0.05	0.55	0.593
	Top	LTE Band 13	10M	QPSK	25	0	Right Tilted	Full	23230	782	21.78	22.00	1.052	0.01	0.598	0.629
	Top	LTE Band 13	10M	QPSK	1	49	Left Cheek	Full	23230	782	21.67	22.00	1.079	0.11	0.482	0.520
	Top	LTE Band 13	10M	QPSK	25	0	Left Cheek	Full	23230	782	21.78	22.00	1.052	-0.02	0.509	0.535
	Top	LTE Band 13	10M	QPSK	1	49	Left Tilted	Full	23230	782	21.67	22.00	1.079	-0.03	0.417	0.450
	Top	LTE Band 13	10M	QPSK	25	0	Left Tilted	Full	23230	782	21.78	22.00	1.052	-0.08	0.449	0.472
	Bottom	LTE Band 12	10M	QPSK	1	49	Right Cheek	Full	23095	707.5	24.24	24.50	1.062	-0.12	0.209	0.222
	Bottom	LTE Band 12	10M	QPSK	25	0	Right Cheek	Full	23095	707.5	22.76	23.50	1.186	0.01	0.137	0.162
	Bottom	LTE Band 12	10M	QPSK	1	49	Right Tilted	Full	23095	707.5	24.24	24.50	1.062	0.16	0.103	0.109
	Bottom	LTE Band 12	10M	QPSK	25	0	Right Tilted	Full	23095	707.5	22.76	23.50	1.186	0.1	0.067	0.079
	Bottom	LTE Band 12	10M	QPSK	1	49	Left Cheek	Full	23095	707.5	24.24	24.50	1.062	0.18	0.152	0.161
	Bottom	LTE Band 12	10M	QPSK	25	0	Left Cheek	Full	23095	707.5	22.76	23.50	1.186	0.15	0.101	0.120
	Bottom	LTE Band 12	10M	QPSK	1	49	Left Tilted	Full	23095	707.5	24.24	24.50	1.062	-0.02	0.105	0.111
	Bottom	LTE Band 12	10M	QPSK	25	0	Left Tilted	Full	23095	707.5	22.76	23.50	1.186	0.13	0.068	0.081
	Top	LTE Band 12	10M	QPSK	1	49	Right Cheek	Full	23095	707.5	20.60	21.00	1.096	-0.09	0.82	0.899
9	Top	LTE Band 12	10M	QPSK	25	0	Right Cheek	Full	23095	707.5	20.49	21.00	1.125	0.04	0.827	**0.930**
	Top	LTE Band 12	10M	QPSK	50	0	Right Cheek	Full	23095	707.5	20.53	21.00	1.114	-0.02	0.811	0.904
	Top	LTE Band 12	10M	QPSK	1	49	Right Tilted	Full	23095	707.5	20.60	21.00	1.096	0	0.656	0.719
	Top	LTE Band 12	10M	QPSK	25	0	Right Tilted	Full	23095	707.5	20.49	21.00	1.125	-0.01	0.669	0.752
	Top	LTE Band 12	10M	QPSK	1	49	Left Cheek	Full	23095	707.5	20.60	21.00	1.096	-0.02	0.595	0.652
	Top	LTE Band 12	10M	QPSK	25	0	Left Cheek	Full	23095	707.5	20.49	21.00	1.125	-0.01	0.623	0.701
	Top	LTE Band 12	10M	QPSK	1	49	Left Tilted	Full	23095	707.5	20.60	21.00	1.096	-0.05	0.512	0.561
	Top	LTE Band 12	10M	QPSK	25	0	Left Tilted	Full	23095	707.5	20.49	21.00	1.125	-0.05	0.539	0.606

Plot No.	Antenna	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	LTE Band 5	10M	QPSK	1	25	Right Cheek	Full	20525	836.5	22.72	23.50	1.197	0.12	0.305	0.365
	Bottom	LTE Band 5	10M	QPSK	25	0	Right Cheek	Full	20525	836.5	21.91	22.50	1.146	0.08	0.246	0.282
	Bottom	LTE Band 5	10M	QPSK	1	25	Right Tilted	Full	20525	836.5	22.72	23.50	1.197	0.05	0.151	0.181
	Bottom	LTE Band 5	10M	QPSK	25	0	Right Tilted	Full	20525	836.5	21.91	22.50	1.146	0.06	0.121	0.139
	Bottom	LTE Band 5	10M	QPSK	1	25	Left Cheek	Full	20525	836.5	22.72	23.50	1.197	0.03	0.174	0.208
	Bottom	LTE Band 5	10M	QPSK	25	0	Left Cheek	Full	20525	836.5	21.91	22.50	1.146	0.15	0.142	0.163
	Bottom	LTE Band 5	10M	QPSK	1	25	Left Tilted	Full	20525	836.5	22.72	23.50	1.197	0.01	0.155	0.185
	Bottom	LTE Band 5	10M	QPSK	25	0	Left Tilted	Full	20525	836.5	21.91	22.50	1.146	-0.07	0.124	0.142
10	Top	LTE Band 5	10M	QPSK	1	49	Right Cheek	Full	20525	836.5	22.36	23.00	1.159	-0.11	0.789	**0.914**
	Top	LTE Band 5	10M	QPSK	25	0	Right Cheek	Full	20525	836.5	21.42	22.00	1.143	0.04	0.685	0.783
	Top	LTE Band 5	10M	QPSK	50	0	Right Cheek	Full	20525	836.5	21.38	22.00	1.153	0.01	0.675	0.779
	Top	LTE Band 5	10M	QPSK	1	49	Right Tilted	Full	20525	836.5	22.36	23.00	1.159	0.07	0.611	0.708
	Top	LTE Band 5	10M	QPSK	25	0	Right Tilted	Full	20525	836.5	21.42	22.00	1.143	0.06	0.515	0.589
	Top	LTE Band 5	10M	QPSK	1	49	Left Cheek	Full	20525	836.5	22.36	23.00	1.159	0.02	0.578	0.670
	Top	LTE Band 5	10M	QPSK	25	0	Left Cheek	Full	20525	836.5	21.42	22.00	1.143	-0.05	0.493	0.563
	Top	LTE Band 5	10M	QPSK	1	49	Left Tilted	Full	20525	836.5	22.36	23.00	1.159	0.07	0.47	0.545
	Top	LTE Band 5	10M	QPSK	25	0	Left Tilted	Full	20525	836.5	21.42	22.00	1.143	-0.09	0.417	0.477
	Bottom	LTE Band 66	20M	QPSK	1	0	Right Cheek	Full	132572	1770	21.07	22.00	1.239	0.19	0.057	0.071
	Bottom	LTE Band 66	20M	QPSK	50	0	Right Cheek	Full	132572	1770	19.94	21.00	1.276	-0.12	0.043	0.055
	Bottom	LTE Band 66	20M	QPSK	1	0	Right Tilted	Full	132572	1770	21.07	22.00	1.239	0.14	0.037	0.046
	Bottom	LTE Band 66	20M	QPSK	50	0	Right Tilted	Full	132572	1770	19.94	21.00	1.276	0.1	0.024	0.031
11	Bottom	LTE Band 66	20M	QPSK	1	0	Left Cheek	Full	132572	1770	21.07	22.00	1.239	0.03	0.091	**0.113**
	Bottom	LTE Band 66	20M	QPSK	50	0	Left Cheek	Full	132572	1770	19.94	21.00	1.276	0.16	0.068	0.087
	Bottom	LTE Band 66	20M	QPSK	1	0	Left Tilted	Full	132572	1770	21.07	22.00	1.239	0.09	0.038	0.047
	Bottom	LTE Band 66	20M	QPSK	50	0	Left Tilted	Full	132572	1770	19.94	21.00	1.276	0.13	0.028	0.036
12	Bottom	LTE Band 2	20M	QPSK	1	99	Right Cheek	Full	18900	1880	23.29	23.50	1.050	0.03	0.13	**0.136**
	Bottom	LTE Band 2	20M	QPSK	50	50	Right Cheek	Full	18900	1880	21.97	22.50	1.130	0.18	0.101	0.114
	Bottom	LTE Band 2	20M	QPSK	1	99	Right Tilted	Full	18900	1880	23.29	23.50	1.050	-0.02	0.094	0.099
	Bottom	LTE Band 2	20M	QPSK	50	50	Right Tilted	Full	18900	1880	21.97	22.50	1.130	0.02	0.063	0.071
	Bottom	LTE Band 2	20M	QPSK	1	99	Left Cheek	Full	18900	1880	23.29	23.50	1.050	-0.05	0.106	0.111
	Bottom	LTE Band 2	20M	QPSK	50	50	Left Cheek	Full	18900	1880	21.97	22.50	1.130	0.01	0.077	0.087
	Bottom	LTE Band 2	20M	QPSK	1	99	Left Tilted	Full	18900	1880	23.29	23.50	1.050	0.08	0.076	0.080
	Bottom	LTE Band 2	20M	QPSK	50	50	Left Tilted	Full	18900	1880	21.97	22.50	1.130	0.07	0.044	0.050

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Max Area Scan SAR	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
13	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	6	2437	14.97	15.50	1.130	97.59	1.025	-0.01	0.572	0.299	**0.346**
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	6	2437	14.97	15.50	1.130	97.59	1.025		0.563		
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	6	2437	14.97	15.50	1.130	97.59	1.025		0.232		
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	6	2437	14.97	15.50	1.130	97.59	1.025		0.284		

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Max Area Scan SAR	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Right Cheek	Reduced	48	5240	17.01	17.50	1.119	87.04	1.149	-0.02	1.03	0.444	0.571
14	WLAN5.2GHz	802.11a 6Mbps	Right Tilted	Reduced	48	5240	17.01	17.50	1.119	87.04	1.149	0.15	1.041	0.47	**0.605**
	WLAN5.2GHz	802.11a 6Mbps	Left Cheek	Reduced	48	5240	17.01	17.50	1.119	87.04	1.149		0.484		
	WLAN5.2GHz	802.11a 6Mbps	Left Tilted	Reduced	48	5240	17.01	17.50	1.119	87.04	1.149		0.509		
15	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	Reduced	149	5745	16.82	17.50	1.169	87.04	1.149	-0.09	0.986	0.439	**0.590**
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	Reduced	149	5745	16.82	17.50	1.169	87.04	1.149	0.01	:0.690	0.381	0.512
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	Reduced	149	5745	16.82	17.50	1.169	87.04	1.149		0.515		
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	Reduced	149	5745	16.82	17.50	1.169	87.04	1.149		0.487		

15.2 Hotspot SAR

<GSM SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	GSM850	GPRS 2 Tx slots	Front	10	Full	189	836.4	31.76	32.00	1.057	-0.04	0.85	0.898
	Bottom	GSM850	GPRS 2 Tx slots	Front	10	Full	128	824.2	31.58	32.00	1.102	0.02	0.759	0.836
16	Bottom	GSM850	GPRS 2 Tx slots	Front	10	Full	251	848.8	31.69	32.00	1.074	0.03	0.889	**0.955**
	Bottom	GSM850	GPRS 2 Tx slots	Back	10	Full	189	836.4	31.76	32.00	1.057	-0.01	0.786	0.831
	Bottom	GSM850	GPRS 2 Tx slots	Back	10	Full	128	824.2	31.58	32.00	1.102	0	0.699	0.770
	Bottom	GSM850	GPRS 2 Tx slots	Back	10	Full	251	848.8	31.69	32.00	1.074	0.02	0.829	0.890
	Bottom	GSM850	GPRS 2 Tx slots	Left Side	10	Full	189	836.4	31.76	32.00	1.057	0.04	0.109	0.115
	Bottom	GSM850	GPRS 2 Tx slots	Right Side	10	Full	189	836.4	31.76	32.00	1.057	-0.03	0.519	0.548
	Bottom	GSM850	GPRS 2 Tx slots	Bottom Side	10	Full	189	836.4	31.76	32.00	1.057	-0.14	0.478	0.505
	Bottom	GSM1900	GPRS 2 Tx slots	Front	10	Full	512	1850.2	28.50	29.00	1.122	-0.1	0.544	0.610
	Bottom	GSM1900	GPRS 2 Tx slots	Back	10	Full	512	1850.2	28.50	29.00	1.122	-0.16	0.696	0.781
	Bottom	GSM1900	GPRS 2 Tx slots	Left Side	10	Full	512	1850.2	28.50	29.00	1.122	-0.1	0.062	0.070
	Bottom	GSM1900	GPRS 2 Tx slots	Right Side	10	Full	512	1850.2	28.50	29.00	1.122	-0.03	0.26	0.292
	Bottom	GSM1900	GPRS 2 Tx slots	Bottom Side	10	Full	512	1850.2	28.50	29.00	1.122	-0.12	0.911	1.022
17	Bottom	GSM1900	GPRS 2 Tx slots	Bottom Side	10	Full	661	1880	28.33	29.00	1.167	-0.09	0.905	**1.056**
	Bottom	GSM1900	GPRS 2 Tx slots	Bottom Side	10	Full	810	1909.8	28.34	29.00	1.164	-0.05	0.821	0.956

<WCDMA SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
18	Bottom	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4182	836.4	23.44	24.00	1.138	-0.01	0.600	**0.683**
	Bottom	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4182	836.4	23.44	24.00	1.138	-0.04	0.555	0.631
	Bottom	WCDMA Band V	RMC 12.2Kbps	Left Side	10	Full	4182	836.4	23.44	24.00	1.138	0.05	0.076	0.086
	Bottom	WCDMA Band V	RMC 12.2Kbps	Right Side	10	Full	4182	836.4	23.44	24.00	1.138	-0.01	0.360	0.410
	Bottom	WCDMA Band V	RMC 12.2Kbps	Bottom Side	10	Full	4182	836.4	23.44	24.00	1.138	-0.13	0.329	0.374
	Top	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4182	836.4	22.84	23.00	1.038	0.05	0.259	0.269
	Top	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4182	836.4	22.84	23.00	1.038	-0.06	0.263	0.273
	Top	WCDMA Band V	RMC 12.2Kbps	Left Side	10	Full	4182	836.4	22.84	23.00	1.038	-0.04	0.012	0.012
	Top	WCDMA Band V	RMC 12.2Kbps	Right Side	10	Full	4182	836.4	22.84	23.00	1.038	-0.06	0.061	0.063
	Top	WCDMA Band V	RMC 12.2Kbps	Top Side	10	Full	4182	836.4	22.84	23.00	1.038	-0.1	0.109	0.113
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Front	10	Reduced	1312	1712.4	20.52	21.00	1.117	-0.08	0.476	0.532
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Back	10	Reduced	1312	1712.4	20.52	21.00	1.117	-0.03	0.628	0.701
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Left Side	10	Reduced	1312	1712.4	20.52	21.00	1.117	0.15	0.089	0.099
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Right Side	10	Reduced	1312	1712.4	20.52	21.00	1.117	0.01	0.151	0.169
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Reduced	1312	1712.4	20.52	21.00	1.117	0.07	0.769	0.859
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Reduced	1413	1732.6	20.49	21.00	1.125	0.13	0.855	0.962
19	Bottom	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	10	Reduced	1513	1752.6	20.39	21.00	1.151	0.07	0.848	**0.976**
	Bottom	WCDMA Band II	RMC 12.2Kbps	Front	10	Reduced	9538	1907.6	22.02	22.50	1.117	-0.03	0.418	0.467
	Bottom	WCDMA Band II	RMC 12.2Kbps	Back	10	Reduced	9538	1907.6	22.02	22.50	1.117	-0.18	0.576	0.643
	Bottom	WCDMA Band II	RMC 12.2Kbps	Left Side	10	Reduced	9538	1907.6	22.02	22.50	1.117	-0.04	0.161	0.180
	Bottom	WCDMA Band II	RMC 12.2Kbps	Right Side	10	Reduced	9538	1907.6	22.02	22.50	1.117	0.02	0.152	0.170
	Bottom	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Reduced	9538	1907.6	22.02	22.50	1.117	0.06	0.817	0.912
	Bottom	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Reduced	9262	1852.4	21.88	22.50	1.153	0.03	0.848	0.978
20	Bottom	WCDMA Band II	RMC 12.2Kbps	Bottom Side	10	Reduced	9400	1880	21.90	22.50	1.148	0.06	0.878	**1.008**

<CDMA2000 SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
21	Bottom	CDMA2000 BC0	RTAP 153.6Kbps	Front	10	Full	1013	824.7	23.58	24.00	1.102	-0.01	0.562	**0.619**
	Bottom	CDMA2000 BC0	RTAP 153.6Kbps	Back	10	Full	1013	824.7	23.58	24.00	1.102	-0.03	0.439	0.484
	Bottom	CDMA2000 BC0	RTAP 153.6Kbps	Left Side	10	Full	1013	824.7	23.58	24.00	1.102	0.05	0.057	0.063
	Bottom	CDMA2000 BC0	RTAP 153.6Kbps	Right Side	10	Full	1013	824.7	23.58	24.00	1.102	0	0.242	0.267
	Bottom	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Side	10	Full	1013	824.7	23.58	24.00	1.102	0.07	0.260	0.286
	Top	CDMA2000 BC0	RTAP 153.6Kbps	Front	10	Full	1013	824.7	21.95	22.50	1.135	0.13	0.202	0.229
	Top	CDMA2000 BC0	RTAP 153.6Kbps	Back	10	Full	1013	824.7	21.95	22.50	1.135	0.16	0.197	0.224
	Top	CDMA2000 BC0	RTAP 153.6Kbps	Left Side	10	Full	1013	824.7	21.95	22.50	1.135	0.11	0.012	0.014
	Top	CDMA2000 BC0	RTAP 153.6Kbps	Right Side	10	Full	1013	824.7	21.95	22.50	1.135	-0.08	0.061	0.069
	Top	CDMA2000 BC0	RTAP 153.6Kbps	Top Side	10	Full	1013	824.7	21.95	22.50	1.135	0.02	0.104	0.118
	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Front	10	Reduced	1175	1908.75	19.21	20.00	1.199	0.08	0.250	0.300
	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	1175	1908.75	19.21	20.00	1.199	-0.01	0.334	0.401
	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Left Side	10	Reduced	1175	1908.75	19.21	20.00	1.199	-0.04	0.106	0.127
	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Right Side	10	Reduced	1175	1908.75	19.21	20.00	1.199	-0.06	0.088	0.106
22	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	10	Reduced	1175	1908.75	19.21	20.00	1.199	-0.07	0.510	**0.612**

<LTE SAR>

Plot No.	Antenna	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
23	Bottom	LTE Band 13	10M	QPSK	1	25	Front	10	Full	23230	782	24.91	25.50	1.146	-0.09	0.449	**0.514**
	Bottom	LTE Band 13	10M	QPSK	25	0	Front	10	Full	23230	782	23.73	24.50	1.194	-0.19	0.38	0.454
	Bottom	LTE Band 13	10M	QPSK	1	25	Back	10	Full	23230	782	24.91	25.50	1.146	0.01	0.44	0.504
	Bottom	LTE Band 13	10M	QPSK	25	0	Back	10	Full	23230	782	23.73	24.50	1.194	0.05	0.395	0.472
	Bottom	LTE Band 13	10M	QPSK	1	25	Left Side	10	Full	23230	782	24.91	25.50	1.146	0.16	0.156	0.179
	Bottom	LTE Band 13	10M	QPSK	25	0	Left Side	10	Full	23230	782	23.73	24.50	1.194	-0.08	0.13	0.155
	Bottom	LTE Band 13	10M	QPSK	1	25	Right Side	10	Full	23230	782	24.91	25.50	1.146	0.02	0.434	0.497
	Bottom	LTE Band 13	10M	QPSK	25	0	Right Side	10	Full	23230	782	23.73	24.50	1.194	0.04	0.364	0.435
	Bottom	LTE Band 13	10M	QPSK	1	25	Bottom Side	10	Full	23230	782	24.91	25.50	1.146	0.08	0.279	0.320
	Bottom	LTE Band 13	10M	QPSK	25	0	Bottom Side	10	Full	23230	782	23.73	24.50	1.194	0.08	0.239	0.285
	Top	LTE Band 13	10M	QPSK	1	49	Front	10	Full	23230	782	21.67	22.00	1.079	0.11	0.273	0.295
	Top	LTE Band 13	10M	QPSK	25	0	Front	10	Full	23230	782	21.78	22.00	1.052	0.08	0.298	0.313
	Top	LTE Band 13	10M	QPSK	1	49	Back	10	Full	23230	782	21.67	22.00	1.079	0.03	0.277	0.299
	Top	LTE Band 13	10M	QPSK	25	0	Back	10	Full	23230	782	21.78	22.00	1.052	0.08	0.298	0.313
	Top	LTE Band 13	10M	QPSK	1	49	Left Side	10	Full	23230	782	21.67	22.00	1.079	-0.11	0.027	0.029
	Top	LTE Band 13	10M	QPSK	25	0	Left Side	10	Full	23230	782	21.78	22.00	1.052	-0.1	0.031	0.033
	Top	LTE Band 13	10M	QPSK	1	49	Right Side	10	Full	23230	782	21.67	22.00	1.079	0	0.149	0.161
	Top	LTE Band 13	10M	QPSK	25	0	Right Side	10	Full	23230	782	21.78	22.00	1.052	-0.08	0.174	0.183
	Top	LTE Band 13	10M	QPSK	1	49	Top Side	10	Full	23230	782	21.67	22.00	1.079	0.15	0.143	0.154
	Top	LTE Band 13	10M	QPSK	25	0	Top Side	10	Full	23230	782	21.78	22.00	1.052	0.08	0.164	0.173
	Bottom	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	24.24	24.50	1.062	-0.15	0.417	0.443
	Bottom	LTE Band 12	10M	QPSK	25	0	Front	10	Full	23095	707.5	22.76	23.50	1.186	-0.03	0.271	0.321
24	Bottom	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	24.24	24.50	1.062	0.09	0.442	**0.469**
	Bottom	LTE Band 12	10M	QPSK	25	0	Back	10	Full	23095	707.5	22.76	23.50	1.186	0.07	0.305	0.362
	Bottom	LTE Band 12	10M	QPSK	1	49	Left Side	10	Full	23095	707.5	24.24	24.50	1.062	-0.03	0.158	0.168
	Bottom	LTE Band 12	10M	QPSK	25	0	Left Side	10	Full	23095	707.5	22.76	23.50	1.186	-0.06	0.101	0.120
	Bottom	LTE Band 12	10M	QPSK	1	49	Right Side	10	Full	23095	707.5	24.24	24.50	1.062	-0.11	0.238	0.253
	Bottom	LTE Band 12	10M	QPSK	25	0	Right Side	10	Full	23095	707.5	22.76	23.50	1.186	-0.01	0.143	0.170
	Bottom	LTE Band 12	10M	QPSK	1	49	Bottom Side	10	Full	23095	707.5	24.24	24.50	1.062	0.08	0.246	0.261
	Bottom	LTE Band 12	10M	QPSK	25	0	Bottom Side	10	Full	23095	707.5	22.76	23.50	1.186	-0.03	0.179	0.212
	Top	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	20.60	21.00	1.096	-0.1	0.266	0.292
	Top	LTE Band 12	10M	QPSK	25	0	Front	10	Full	23095	707.5	20.49	21.00	1.125	0.09	0.243	0.273
	Top	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	20.60	21.00	1.096	0.04	0.274	0.300
	Top	LTE Band 12	10M	QPSK	25	0	Back	10	Full	23095	707.5	20.49	21.00	1.125	0.08	0.250	0.281
	Top	LTE Band 12	10M	QPSK	1	49	Left Side	10	Full	23095	707.5	20.60	21.00	1.096	-0.04	0.050	0.055
	Top	LTE Band 12	10M	QPSK	25	0	Left Side	10	Full	23095	707.5	20.49	21.00	1.125	-0.05	0.046	0.052
	Top	LTE Band 12	10M	QPSK	1	49	Right Side	10	Full	23095	707.5	20.60	21.00	1.096	0.02	0.129	0.141
	Top	LTE Band 12	10M	QPSK	25	0	Right Side	10	Full	23095	707.5	20.49	21.00	1.125	0.1	0.116	0.130
	Top	LTE Band 12	10M	QPSK	1	49	Top Side	10	Full	23095	707.5	20.60	21.00	1.096	0.03	0.170	0.186
	Top	LTE Band 12	10M	QPSK	25	0	Top Side	10	Full	23095	707.5	20.49	21.00	1.125	0.1	0.164	0.184

Plot No.	Antenna	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	LTE Band 5	10M	QPSK	1	25	Front	10	Full	20525	836.5	22.72	23.50	1.197	-0.02	0.459	0.549
	Bottom	LTE Band 5	10M	QPSK	25	0	Front	10	Full	20525	836.5	21.91	22.50	1.146	-0.19	0.414	0.474
	Bottom	LTE Band 5	10M	QPSK	1	25	Back	10	Full	20525	836.5	22.72	23.50	1.197	-0.05	0.43	0.515
	Bottom	LTE Band 5	10M	QPSK	25	0	Back	10	Full	20525	836.5	21.91	22.50	1.146	-0.08	0.362	0.415
	Bottom	LTE Band 5	10M	QPSK	1	25	Left Side	10	Full	20525	836.5	22.72	23.50	1.197	-0.07	0.062	0.074
	Bottom	LTE Band 5	10M	QPSK	25	0	Left Side	10	Full	20525	836.5	21.91	22.50	1.146	-0.05	0.05	0.057
	Bottom	LTE Band 5	10M	QPSK	1	25	Right Side	10	Full	20525	836.5	22.72	23.50	1.197	-0.14	0.362	0.433
	Bottom	LTE Band 5	10M	QPSK	25	0	Right Side	10	Full	20525	836.5	21.91	22.50	1.146	-0.09	0.29	0.332
	Bottom	LTE Band 5	10M	QPSK	1	25	Bottom Side	10	Full	20525	836.5	22.72	23.50	1.197	0.03	0.289	0.346
	Bottom	LTE Band 5	10M	QPSK	25	0	Bottom Side	10	Full	20525	836.5	21.91	22.50	1.146	-0.16	0.241	0.276
25	Top	LTE Band 5	10M	QPSK	1	49	Front	10	Full	20525	836.5	22.36	23.00	1.159	-0.05	0.490	**0.568**
	Top	LTE Band 5	10M	QPSK	25	0	Front	10	Full	20525	836.5	21.42	22.00	1.143	-0.07	0.403	0.461
	Top	LTE Band 5	10M	QPSK	1	49	Back	10	Full	20525	836.5	22.36	23.00	1.159	0.12	0.479	0.555
	Top	LTE Band 5	10M	QPSK	25	0	Back	10	Full	20525	836.5	21.42	22.00	1.143	0.01	0.428	0.489
	Top	LTE Band 5	10M	QPSK	1	49	Left Side	10	Full	20525	836.5	22.36	23.00	1.159	-0.04	0.047	0.054
	Top	LTE Band 5	10M	QPSK	25	0	Left Side	10	Full	20525	836.5	21.42	22.00	1.143	-0.03	0.04	0.046
	Top	LTE Band 5	10M	QPSK	1	49	Right Side	10	Full	20525	836.5	22.36	23.00	1.159	0.19	0.213	0.247
	Top	LTE Band 5	10M	QPSK	25	0	Right Side	10	Full	20525	836.5	21.42	22.00	1.143	-0.11	0.16	0.183
	Top	LTE Band 5	10M	QPSK	1	49	Top Side	10	Full	20525	836.5	22.36	23.00	1.159	0.09	0.262	0.304
	Top	LTE Band 5	10M	QPSK	25	0	Top Side	10	Full	20525	836.5	21.42	22.00	1.143	-0.13	0.225	0.257
	Bottom	LTE Band 66	20M	QPSK	1	0	Front	10	Reduced	132572	1770	18.11	19.00	1.227	0.16	0.314	0.385
	Bottom	LTE Band 66	20M	QPSK	50	0	Front	10	Reduced	132572	1770	17.86	19.00	1.300	0.06	0.302	0.393
	Bottom	LTE Band 66	20M	QPSK	1	0	Back	10	Reduced	132572	1770	18.11	19.00	1.227	-0.12	0.381	0.468
	Bottom	LTE Band 66	20M	QPSK	50	0	Back	10	Reduced	132572	1770	17.86	19.00	1.300	-0.16	0.357	0.464
	Bottom	LTE Band 66	20M	QPSK	1	0	Left Side	10	Reduced	132572	1770	18.11	19.00	1.227	0.02	0.041	0.050
	Bottom	LTE Band 66	20M	QPSK	50	0	Left Side	10	Reduced	132572	1770	17.86	19.00	1.300	-0.08	0.038	0.049
	Bottom	LTE Band 66	20M	QPSK	1	0	Right Side	10	Reduced	132572	1770	18.11	19.00	1.227	0.12	0.065	0.080
	Bottom	LTE Band 66	20M	QPSK	50	0	Right Side	10	Reduced	132572	1770	17.86	19.00	1.300	0.02	0.064	0.083
26	Bottom	LTE Band 66	20M	QPSK	1	0	Bottom Side	10	Reduced	132572	1770	18.11	19.00	1.227	-0.04	0.535	**0.657**
	Bottom	LTE Band 66	20M	QPSK	50	0	Bottom Side	10	Reduced	132572	1770	17.86	19.00	1.300	0.04	0.504	0.655
	Bottom	LTE Band 2	20M	QPSK	1	99	Front	10	Reduced	18900	1880	21.65	22.00	1.084	-0.1	0.427	0.463
	Bottom	LTE Band 2	20M	QPSK	50	50	Front	10	Reduced	18900	1880	21.56	22.00	1.107	-0.03	0.389	0.430
	Bottom	LTE Band 2	20M	QPSK	1	99	Back	10	Reduced	18900	1880	21.65	22.00	1.084	-0.11	0.510	0.553
	Bottom	LTE Band 2	20M	QPSK	50	50	Back	10	Reduced	18900	1880	21.56	22.00	1.107	-0.04	0.459	0.508
	Bottom	LTE Band 2	20M	QPSK	1	99	Left Side	10	Reduced	18900	1880	21.65	22.00	1.084	-0.01	0.159	0.172
	Bottom	LTE Band 2	20M	QPSK	50	50	Left Side	10	Reduced	18900	1880	21.56	22.00	1.107	-0.02	0.136	0.151
	Bottom	LTE Band 2	20M	QPSK	1	99	Right Side	10	Reduced	18900	1880	21.65	22.00	1.084	0.11	0.138	0.150
	Bottom	LTE Band 2	20M	QPSK	50	50	Right Side	10	Reduced	18900	1880	21.56	22.00	1.107	0.16	0.121	0.134
	Bottom	LTE Band 2	20M	QPSK	1	99	Bottom Side	10	Reduced	18900	1880	21.65	22.00	1.084	0.17	0.857	0.929
27	Bottom	LTE Band 2	20M	QPSK	1	99	Bottom Side	10	Reduced	18700	1860	21.59	22.00	1.099	0.13	0.859	**0.944**
	Bottom	LTE Band 2	20M	QPSK	1	99	Bottom Side	10	Reduced	19100	1900	21.60	22.00	1.096	0.14	0.82	0.899
	Bottom	LTE Band 2	20M	QPSK	50	50	Bottom Side	10	Reduced	18900	1880	21.56	22.00	1.107	0.11	0.74	0.819
	Bottom	LTE Band 2	20M	QPSK	50	50	Bottom Side	10	Reduced	18700	1860	21.45	22.00	1.135	-0.02	0.752	0.854
	Bottom	LTE Band 2	20M	QPSK	50	50	Bottom Side	10	Reduced	19100	1900	21.53	22.00	1.114	0.1	0.693	0.772
	Bottom	LTE Band 2	20M	QPSK	100	0	Bottom Side	10	Reduced	18900	1880	21.50	22.00	1.122	-0.16	0.725	0.813

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Max Area Scan SAR	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10	6	2437	14.97	15.50	1.130	97.59	1.025		0.083		
28	WLAN2.4GHz	802.11b 1Mbps	Back	10	6	2437	14.97	15.50	1.130	97.59	1.025	-0.04	0.156	0.105	**0.122**
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10	6	2437	14.97	15.50	1.130	97.59	1.025		0.145		
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10	6	2437	14.97	15.50	1.130	97.59	1.025		0.137		

15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bottom	GSM850	GPRS 2 Tx slots	Front	10	Full	189	836.4	31.76	32.00	1.057	-0.04	0.85	0.898
	Bottom	GSM850	GPRS 2 Tx slots	Front	10	Full	128	824.2	31.58	32.00	1.102	0.02	0.759	0.836
29	Bottom	GSM850	GPRS 2 Tx slots	Front	10	Full	251	848.8	31.69	32.00	1.074	0.03	0.889	**0.955**
	Bottom	GSM850	GPRS 2 Tx slots	Back	10	Full	189	836.4	31.76	32.00	1.057	-0.01	0.786	0.831
	Bottom	GSM850	GPRS 2 Tx slots	Back	10	Full	128	824.2	31.58	32.00	1.102	0	0.699	0.770
	Bottom	GSM850	GPRS 2 Tx slots	Back	10	Full	251	848.8	31.69	32.00	1.074	0.02	0.829	0.890
	Bottom	GSM1900	GPRS 2 Tx slots	Front	10	Full	512	1850.2	28.50	29.00	1.122	-0.1	0.544	0.610
30	Bottom	GSM1900	GPRS 2 Tx slots	Back	10	Full	512	1850.2	28.50	29.00	1.122	-0.16	0.696	**0.781**

<WCDMA SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
31	Bottom	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4182	836.4	23.44	24.00	1.138	-0.01	0.600	**0.683**
	Bottom	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4182	836.4	23.44	24.00	1.138	-0.04	0.555	0.631
	Top	WCDMA Band V	RMC 12.2Kbps	Front	10	Full	4182	836.4	22.84	23.00	1.038	0.05	0.259	0.269
	Top	WCDMA Band V	RMC 12.2Kbps	Back	10	Full	4182	836.4	22.84	23.00	1.038	-0.06	0.263	0.273
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Front	10	Full	1312	1712.4	22.74	23.00	1.062	-0.14	0.618	0.656
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1312	1712.4	22.74	23.00	1.062	-0.11	0.758	0.805
32	Bottom	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1413	1732.6	22.68	23.00	1.076	-0.05	0.812	**0.874**
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Back	10	Full	1513	1752.6	22.55	23.00	1.109	-0.05	0.763	0.846
	Bottom	WCDMA Band II	RMC 12.2Kbps	Front	10	Full	9538	1907.6	23.50	24.00	1.122	-0.03	0.520	0.583
33	Bottom	WCDMA Band II	RMC 12.2Kbps	Back	10	Full	9538	1907.6	23.50	24.00	1.122	-0.19	0.684	**0.767**

<CDMA2000 SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
34	Bottom	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	10	Full	1013	824.7	23.59	24.00	1.099	-0.02	0.543	**0.597**
	Bottom	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	10	Full	1013	824.7	23.59	24.00	1.099	-0.06	0.501	0.551
	Top	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	10	Full	1013	824.7	22.03	22.50	1.114	0.09	0.223	0.248
	Top	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	10	Full	1013	824.7	22.03	22.50	1.114	0.08	0.207	0.231
	Bottom	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	10	Full	1175	1908.75	21.63	23.20	1.435	-0.14	0.416	0.597
35	Bottom	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	10	Full	1175	1908.75	21.63	23.20	1.435	-0.01	0.569	**0.817**
	Bottom	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	10	Full	25	1851.25	21.62	23.20	1.439	0.02	0.556	0.800
	Bottom	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	10	Full	600	1880	21.62	23.20	1.439	0.05	0.561	0.807

<LTE SAR>

Plot No.	Antenna	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
36	Bottom	LTE Band 13	10M	QPSK	1	25	Front	10	Full	23230	782	24.91	25.50	1.146	-0.09	0.449	**0.514**
	Bottom	LTE Band 13	10M	QPSK	25	0	Front	10	Full	23230	782	23.73	24.50	1.194	-0.19	0.380	0.454
	Bottom	LTE Band 13	10M	QPSK	1	25	Back	10	Full	23230	782	24.91	25.50	1.146	0.01	0.440	0.504
	Bottom	LTE Band 13	10M	QPSK	25	0	Back	10	Full	23230	782	23.73	24.50	1.194	0.05	0.395	0.472
	Top	LTE Band 13	10M	QPSK	1	49	Front	10	Full	23230	782	21.67	22.00	1.079	0.11	0.273	0.295
	Top	LTE Band 13	10M	QPSK	25	0	Front	10	Full	23230	782	21.78	22.00	1.052	0.08	0.298	0.313
	Top	LTE Band 13	10M	QPSK	1	49	Back	10	Full	23230	782	21.67	22.00	1.079	0.03	0.277	0.299
	Top	LTE Band 13	10M	QPSK	25	0	Back	10	Full	23230	782	21.78	22.00	1.052	0.08	0.298	0.313
	Bottom	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	24.24	24.50	1.062	-0.15	0.417	0.443
	Bottom	LTE Band 12	10M	QPSK	25	0	Front	10	Full	23095	707.5	22.76	23.50	1.186	-0.03	0.271	0.321
37	Bottom	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	24.24	24.50	1.062	0.09	0.442	**0.469**
	Bottom	LTE Band 12	10M	QPSK	25	0	Back	10	Full	23095	707.5	22.76	23.50	1.186	0.07	0.305	0.362
	Top	LTE Band 12	10M	QPSK	1	49	Front	10	Full	23095	707.5	20.60	21.00	1.096	-0.1	0.266	0.292
	Top	LTE Band 12	10M	QPSK	25	0	Front	10	Full	23095	707.5	20.49	21.00	1.125	0.09	0.243	0.273
	Top	LTE Band 12	10M	QPSK	1	49	Back	10	Full	23095	707.5	20.60	21.00	1.096	0.04	0.274	0.300
	Top	LTE Band 12	10M	QPSK	25	0	Back	10	Full	23095	707.5	20.49	21.00	1.125	0.08	0.250	0.281
	Bottom	LTE Band 5	10M	QPSK	1	25	Front	10	Full	20525	836.5	22.72	23.50	1.197	-0.02	0.459	0.549
	Bottom	LTE Band 5	10M	QPSK	25	0	Front	10	Full	20525	836.5	21.91	22.50	1.146	-0.19	0.414	0.474
	Bottom	LTE Band 5	10M	QPSK	1	25	Back	10	Full	20525	836.5	22.72	23.50	1.197	-0.05	0.43	0.515
	Bottom	LTE Band 5	10M	QPSK	25	0	Back	10	Full	20525	836.5	21.91	22.50	1.146	-0.08	0.362	0.415
38	Top	LTE Band 5	10M	QPSK	1	49	Front	10	Full	20525	836.5	22.36	23.00	1.159	-0.05	0.49	**0.568**
	Top	LTE Band 5	10M	QPSK	25	0	Front	10	Full	20525	836.5	21.42	22.00	1.143	-0.07	0.403	0.461
	Top	LTE Band 5	10M	QPSK	1	49	Back	10	Full	20525	836.5	22.36	23.00	1.159	0.12	0.479	0.555
	Top	LTE Band 5	10M	QPSK	25	0	Back	10	Full	20525	836.5	21.42	22.00	1.143	0.01	0.428	0.489
	Bottom	LTE Band 66	20M	QPSK	1	0	Front	10	Full	132572	1770	21.07	22.00	1.239	0.04	0.627	0.777
	Bottom	LTE Band 66	20M	QPSK	50	0	Front	10	Full	132572	1770	19.94	21.00	1.276	0.08	0.476	0.608
	Bottom	LTE Band 66	20M	QPSK	1	0	Back	10	Full	132572	1770	21.07	22.00	1.239	0.04	0.759	0.940
	Bottom	LTE Band 66	20M	QPSK	1	0	Back	10	Full	132072	1720	20.75	22.00	1.334	-0.1	0.692	0.923
39	Bottom	LTE Band 66	20M	QPSK	1	0	Back	10	Full	132322	1745	20.89	22.00	1.291	-0.07	0.760	**0.981**
	Bottom	LTE Band 66	20M	QPSK	50	0	Back	10	Full	132572	1770	19.94	21.00	1.276	0.07	0.573	0.731
	Bottom	LTE Band 66	20M	QPSK	100	0	Back	10	Full	132572	1770	19.92	21.00	1.282	-0.19	0.543	0.696
	Bottom	LTE Band 2	20M	QPSK	1	99	Front	10	Full	18900	1880	23.29	24.00	1.178	-0.03	0.515	0.606
	Bottom	LTE Band 2	20M	QPSK	50	50	Front	10	Full	18900	1880	21.97	23.00	1.268	-0.04	0.378	0.479
40	Bottom	LTE Band 2	20M	QPSK	1	99	Back	10	Full	18900	1880	23.29	24.00	1.178	-0.05	0.663	**0.781**
	Bottom	LTE Band 2	20M	QPSK	50	50	Back	10	Full	18900	1880	21.97	23.00	1.268	-0.04	0.511	0.648

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Max Area Scan SAR	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10	6	2437	14.97	15.50	1.130	97.59	1.025		0.083		
41	WLAN2.4GHz	802.11b 1Mbps	Back	10	6	2437	14.97	15.50	1.130	97.59	1.025	-0.04	0.156	0.105	**0.122**

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Max Area Scan SAR	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	10	48	5240	18.88	19.50	1.153	87.04	1.149		0.24		
42	WLAN5.2GHz	802.11a 6Mbps	Back	10	48	5240	18.88	19.50	1.153	87.04	1.149	0.03	0.589	0.243	**0.322**
	WLAN5.8GHz	802.11a 6Mbps	Front	10	149	5745	19.02	19.50	1.117	87.04	1.149	-0.12	0.325	0.120	0.154
43	WLAN5.8GHz	802.11a 6Mbps	Back	10	149	5745	19.02	19.50	1.117	87.04	1.149	-0.13	0.969	0.410	**0.526**

15.4 Product specific 10g SAR

<WCDMA SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	0	Full	1312	1712.4	22.74	23.00	1.062	-0.08	2.540	2.697
	Bottom	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	0	Full	1413	1732.6	22.68	23.00	1.076	0.06	2.460	2.648
44	Bottom	WCDMA Band IV	RMC 12.2Kbps	Bottom Side	0	Full	1513	1752.6	22.55	23.00	1.109	0.04	2.650	**2.939**
	Bottom	WCDMA Band II	RMC 12.2Kbps	Bottom Side	0	Full	9538	1907.6	23.50	24.00	1.122	-0.12	2.090	2.345
45	Bottom	WCDMA Band II	RMC 12.2Kbps	Bottom Side	0	Full	9262	1852.4	23.24	24.00	1.191	0.08	2.30	**2.740**
	Bottom	WCDMA Band II	RMC 12.2Kbps	Bottom Side	0	Full	9400	1880	23.41	24.00	1.146	0.18	2.260	2.589

<CDMA2000 SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0	Full	1175	1908.75	21.62	23.20	1.439	-0.18	2.24	3.223
46	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0	Full	25	1851.25	21.61	23.20	1.442	-0.19	2.6	**3.749**
	Bottom	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0	Full	600	1880	21.48	23.20	1.486	-0.17	2.44	3.626

<LTE SAR>

Plot No.	Antenna	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	Bottom	LTE Band 66	20M	QPSK	1	0	Bottom Side	0	Full	132572	1770	21.07	22.00	1.239	-0.02	2.27	2.812
47	Bottom	LTE Band 66	20M	QPSK	1	0	Bottom Side	0	Full	132072	1720	20.75	22.00	1.334	-0.03	2.49	**3.320**
	Bottom	LTE Band 66	20M	QPSK	1	0	Bottom Side	0	Full	132322	1745	20.89	22.00	1.291	-0.01	2.45	3.163
	Bottom	LTE Band 66	20M	QPSK	50	0	Bottom Side	0	Full	132572	1770	19.94	21.00	1.276	0.15	1.71	2.183
	Bottom	LTE Band 66	20M	QPSK	50	0	Bottom Side	0	Full	132072	1720	19.69	21.00	1.352	0.06	1.85	2.501
	Bottom	LTE Band 66	20M	QPSK	50	0	Bottom Side	0	Full	132322	1745	19.82	21.00	1.312	0.17	1.69	2.218
	Bottom	LTE Band 66	20M	QPSK	100	0	Bottom Side	0	Full	132572	1770	19.92	21.00	1.282	-0.01	1.67	2.141
	Bottom	LTE Band 2	20M	QPSK	1	99	Bottom Side	0	Full	18900	1880	23.29	23.50	1.050	-0.13	2.59	2.718
48	Bottom	LTE Band 2	20M	QPSK	1	99	Bottom Side	0	Full	18700	1860	23.01	23.50	1.119	-0.03	2.77	**3.101**
	Bottom	LTE Band 2	20M	QPSK	1	99	Bottom Side	0	Full	19100	1900	23.11	23.50	1.094	0.09	2.34	2.560
	Bottom	LTE Band 2	20M	QPSK	50	50	Bottom Side	0	Full	18900	1880	21.97	22.50	1.130	0.1	1.98	2.237
	Bottom	LTE Band 2	20M	QPSK	50	50	Bottom Side	0	Full	18700	1860	21.82	22.50	1.169	0.07	2.07	2.421
	Bottom	LTE Band 2	20M	QPSK	50	50	Bottom Side	0	Full	19100	1900	21.96	22.50	1.132	0.1	1.84	2.084
	Bottom	LTE Band 2	20M	QPSK	100	0	Bottom Side	0	Full	18900	1880	21.85	22.50	1.161	0.04	1.95	2.265

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	0	48	5240	18.88	19.50	1.153	87.04	1.149	0.05	0.205	0.272
49	WLAN5.2GHz	802.11a 6Mbps	Back	0	48	5240	18.88	19.50	1.153	87.04	1.149	0.01	1.080	**1.431**
	WLAN5.2GHz	802.11a 6Mbps	Left Top	0	48	5240	18.88	19.50	1.153	87.04	1.149	0.05	0.265	0.351
	WLAN5.2GHz	802.11a 6Mbps	Top Side	0	48	5240	18.88	19.50	1.153	87.04	1.149	0.02	0.354	0.469
	WLAN5.8GHz	802.11a 6Mbps	Front	0	149	5745	19.02	19.50	1.117	87.04	1.149	0.05	0.742	0.952
50	WLAN5.8GHz	802.11a 6Mbps	Back	0	149	5745	19.02	19.50	1.117	87.04	1.149	0.12	1.260	**1.617**
	WLAN5.8GHz	802.11a 6Mbps	Left Top	0	149	5745	19.02	19.50	1.117	87.04	1.149	0.05	0.483	0.620
	WLAN5.8GHz	802.11a 6Mbps	Top Side	0	149	5745	19.02	19.50	1.117	87.04	1.149	0.12	0.813	1.043

15.5 Repeated SAR Measurement

<1g SAR>

No.	Antenna	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	Bottom	GSM850	GPRS 2 Tx slots	-	-	-	-	Front	10	Full	251	848.8	31.69	32.00	1.074	0.03	0.889	1	0.955
2nd	Bottom	GSM850	GPRS 2 Tx slots	-	-	-	-	Front	10	Full	251	848.8	31.69	32.00	1.074	0.12	0.863	1.030	0.927
1st	Bottom	GSM1900	GPRS 2 Tx slots					Bottom Side	10	Full	512	1850.2	28.50	29.00	1.122	-0.12	0.911	1	1.022
2nd	Bottom	GSM1900	GPRS 2 Tx slots					Bottom Side	10	Full	512	1850.2	28.50	29.00	1.122	-0.12	0.909	1.002	1.020
1st	Bottom	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Bottom Side	10	Reduced	1413	1732.6	20.49	21.00	1.125	0.13	0.855	1	0.962
2nd	Bottom	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Bottom Side	10	Reduced	1413	1732.6	20.49	21.00	1.125	0.02	0.842	1.015	0.947
1st	Top	LTE Band 12	-	10M	QPSK	25	0	Right Cheek	0	Full	23095	707.5	20.49	21.00	1.125	0.04	0.827	1	0.930
2nd	Top	LTE Band 12	-	10M	QPSK	25	0	Right Cheek	0	Full	23095	707.5	20.49	21.00	1.125	0.04	0.823	1.005	0.926

<10g SAR>

No.	Antenna	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	Bottom	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Bottom Side	0	Full	1513	1752.6	22.55	23.00	1.109	0.04	2.650	1	2.939
2nd	Bottom	WCDMA Band IV	RMC 12.2Kbps	-	-	-	-	Bottom Side	0	Full	1513	1752.6	22.55	23.00	1.109	0.15	2.550	1.039	2.828
1st	2	LTE Band 2	-	20M	QPSK	1	99	Bottom Side	0	Full	18700	1860	23.01	23.50	1.119	-0.03	2.770	1	3.101
2nd	2	LTE Band 2	-	20M	QPSK	1	99	Bottom Side	0	Full	18700	1860	23.01	23.50	1.119	0.12	2.710	1.022	3.034

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.

16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			Note
		Head	Body-worn	Hotspot	
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	WWAN VoIP
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	WWAN VoIP
4.	CDMA + WLAN2.4GHz	Yes	Yes	Yes	WWAN VoIP
5.	LTE + WLAN2.4GHz	Yes	Yes	Yes	WWAN VoIP
6.	GSM Voice + WLAN5.2/5.8GHz	Yes	Yes		
7.	GPRS/EDGE + WLAN5.2/5.8GHz	Yes	Yes		WWAN VoIP
8.	WCDMA + WLAN5.2/5.8GHz	Yes	Yes		WWAN VoIP
9.	CDMA + WLAN5.2/5.8GHz	Yes	Yes		WWAN VoIP
10.	LTE + WLAN5.2/5.8GHz	Yes	Yes		WWAN VoIP
11.	GSM Voice + Bluetooth		Yes		
12.	GPRS/EDGE + Bluetooth		Yes		WWAN VoIP
13.	WCDMA + Bluetooth		Yes		WWAN VoIP
14.	CDMA + Bluetooth		Yes		WWAN VoIP
15.	LTE + Bluetooth		Yes		WWAN VoIP

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. This device WLAN 2.4GHz supports hotspot operation.
4. This device 5.2GHz WLAN/5.8GHz WLAN does not support hotspot operation.
5. Bluetooth share the same antenna with WLAN antenna so can't 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 though they have independent antenna.
7. According to the EUT character, WLAN 5GHz and Bluetooth can't transmit simultaneously.
8. Chose the worst zoom scan SAR for each EUT type of WLAN correspondingly for co-located with WWAN analysis.
9. The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation.
10. This device has two antennas. One antenna is located on the bottom edge of the device and another antenna is located on the top edge of the device. Top antenna frequency band includes WCDMA B5, CDMA2000 BC0, LTE Band 5/12/13 and Bottom antenna frequency band includes GSM850/1900, WCDMA B2 / B4 / B5, CDMA2000 BC0 / 1, and LTE Band 2/4/5/12/13/66. And they can't transmit simultaneously.
11. The reported SAR summation is calculated based on the same configuration and test position.
12. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
    i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
    ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
    iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

<1g SAR>

Bluetooth Max Power (dBm)	Exposure Position	Body worn
	Test separation	10 mm
9.0	Estimated 1g SAR (W/kg)	0.168

<10g SAR>

Bluetooth Max Power (dBm)	Exposure Position	Product specific 10g SAR
	Test separation	0 mm
9.0	Estimated 10g SAR (W/kg)	0.134

16.1 Head Exposure Conditions

<Bottom Antenna>

WWAN Band		Exposure Position	1	2	4	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM850	Right Cheek	0.488	0.346	0.605	0.83	1.09
		Right Tilted	0.253	0.346	0.605	0.60	0.86
		Left Cheek	0.336	0.346	0.605	0.68	0.94
		Left Tilted	0.256	0.346	0.605	0.60	0.86
	GSM1900	Right Cheek	0.072	0.346	0.605	0.42	0.68
		Right Tilted	0.047	0.346	0.605	0.39	0.65
		Left Cheek	0.070	0.346	0.605	0.42	0.68
		Left Tilted	0.037	0.346	0.605	0.38	0.64
WCDMA	Band V	Right Cheek	0.344	0.346	0.605	0.69	0.95
		Right Tilted	0.170	0.346	0.605	0.52	0.78
		Left Cheek	0.229	0.346	0.605	0.58	0.83
		Left Tilted	0.187	0.346	0.605	0.53	0.79
	Band IV	Right Cheek	0.105	0.346	0.605	0.45	0.71
		Right Tilted	0.055	0.346	0.605	0.40	0.66
		Left Cheek	0.168	0.346	0.605	0.51	0.77
		Left Tilted	0.064	0.346	0.605	0.41	0.67
	Band II	Right Cheek	0.110	0.346	0.605	0.46	0.72
		Right Tilted	0.074	0.346	0.605	0.42	0.68
		Left Cheek	0.114	0.346	0.605	0.46	0.72
		Left Tilted	0.059	0.346	0.605	0.41	0.66
CDMA2000	BC0	Right Cheek	0.318	0.346	0.605	0.66	0.92
		Right Tilted	0.156	0.346	0.605	0.50	0.76
		Left Cheek	0.217	0.346	0.605	0.56	0.82
		Left Tilted	0.164	0.346	0.605	0.51	0.77
	BC1	Right Cheek	0.123	0.346	0.605	0.47	0.73
		Right Tilted	0.090	0.346	0.605	0.44	0.70
		Left Cheek	0.155	0.346	0.605	0.50	0.76
		Left Tilted	0.089	0.346	0.605	0.44	0.69

WWAN Band		Exposure Position	1	2	4	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE	Band 13	Right Cheek	0.278	0.346	0.605	0.62	0.88
		Right Tilted	0.142	0.346	0.605	0.49	0.75
		Left Cheek	0.176	0.346	0.605	0.52	0.78
		Left Tilted	0.152	0.346	0.605	0.50	0.76
	Band 12	Right Cheek	0.222	0.346	0.605	0.57	0.83
		Right Tilted	0.109	0.346	0.605	0.46	0.71
		Left Cheek	0.161	0.346	0.605	0.51	0.77
		Left Tilted	0.111	0.346	0.605	0.46	0.72
	Band 5	Right Cheek	0.365	0.346	0.605	0.71	0.97
		Right Tilted	0.181	0.346	0.605	0.53	0.79
		Left Cheek	0.208	0.346	0.605	0.55	0.81
		Left Tilted	0.185	0.346	0.605	0.53	0.79
	Band 66	Right Cheek	0.071	0.346	0.605	0.42	0.68
		Right Tilted	0.046	0.346	0.605	0.39	0.65
		Left Cheek	0.113	0.346	0.605	0.46	0.72
		Left Tilted	0.047	0.346	0.605	0.39	0.65
	Band 2	Right Cheek	0.136	0.346	0.605	0.48	0.74
		Right Tilted	0.099	0.346	0.605	0.45	0.70
		Left Cheek	0.111	0.346	0.605	0.46	0.72
		Left Tilted	0.080	0.346	0.605	0.43	0.69

<Top Antenna>

WWAN Band		Exposure Position	1	2	4	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
WCDMA	Band V	Right Cheek	0.549	0.346	0.605	0.90	1.15
		Right Tilted	0.436	0.346	0.605	0.78	1.04
		Left Cheek	0.441	0.346	0.605	0.79	1.05
		Left Tilted	0.386	0.346	0.605	0.73	0.99
CDMA2000	BC0	Right Cheek	0.747	0.346	0.605	1.09	1.35
		Right Tilted	0.575	0.346	0.605	0.92	1.18
		Left Cheek	0.518	0.346	0.605	0.86	1.12
		Left Tilted	0.459	0.346	0.605	0.81	1.06
LTE	Band 13	Right Cheek	0.821	0.346	0.605	1.17	1.43
		Right Tilted	0.629	0.346	0.605	0.98	1.23
		Left Cheek	0.535	0.346	0.605	0.88	1.14
		Left Tilted	0.472	0.346	0.605	0.82	1.08
	Band 12	Right Cheek	0.930	0.346	0.605	**1.28**	**1.54**
		Right Tilted	0.752	0.346	0.605	1.10	1.36
		Left Cheek	0.701	0.346	0.605	1.05	1.31
		Left Tilted	0.606	0.346	0.605	0.95	1.21
	Band 5	Right Cheek	0.914	0.346	0.605	1.26	1.52
		Right Tilted	0.708	0.346	0.605	1.05	1.31
		Left Cheek	0.670	0.346	0.605	1.02	1.28
		Left Tilted	0.545	0.346	0.605	0.89	1.15

16.2 Hotspot Exposure Conditions

<Bottom Antenna>

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Front	0.955	0.122	1.08
		Back	0.890	0.122	1.01
		Left side	0.115	0.122	0.24
		Right side	0.548		0.55
		Top side		0.122	0.12
		Bottom side	0.505		0.51
	GSM1900	Front	0.610	0.122	0.73
		Back	0.781	0.122	0.90
		Left side	0.070	0.122	0.19
		Right side	0.292		0.29
		Top side		0.122	0.12
		Bottom side	1.056		1.06
WCDMA	Band V	Front	0.683	0.122	0.81
		Back	0.631	0.122	0.75
		Left side	0.086	0.122	0.21
		Right side	0.410		0.41
		Top side		0.122	0.12
		Bottom side	0.374		0.37
	Band IV	Front	0.532	0.122	0.65
		Back	0.701	0.122	0.82
		Left side	0.099	0.122	0.22
		Right side	0.169		0.17
		Top side		0.122	0.12
		Bottom side	0.976		0.98
	Band II	Front	0.467	0.122	0.59
		Back	0.643	0.122	0.77
		Left side	0.180	0.122	0.30
		Right side	0.170		0.17
		Top side		0.122	0.12
		Bottom side	1.008		1.01
CDMA2000	BC0	Front	0.619	0.122	0.74
		Back	0.484	0.122	0.61
		Left side	0.063	0.122	0.19
		Right side	0.267		0.27
		Top side		0.122	0.12
		Bottom side	0.286		0.29
	BC1	Front	0.300	0.122	0.42
		Back	0.401	0.122	0.52
		Left side	0.127	0.122	0.25
		Right side	0.106		0.11
		Top side		0.122	0.12
		Bottom side	0.612		0.61

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	
			1g SAR (W/kg)	1g SAR (W/kg)	
LTE	Band 13	Front	0.514	0.122	0.64
		Back	0.504	0.122	0.63
		Left side	0.179	0.122	0.30
		Right side	0.497		0.50
		Top side		0.122	0.12
		Bottom side	0.320		0.32
	Band 12	Front	0.443	0.122	0.57
		Back	0.469	0.122	0.59
		Left side	0.168	0.122	0.29
		Right side	0.253		0.25
		Top side		0.122	0.12
		Bottom side	0.261		0.26
	Band 5	Front	0.549	0.122	0.67
		Back	0.515	0.122	0.64
		Left side	0.074	0.122	0.20
		Right side	0.433		0.43
		Top side		0.122	0.12
		Bottom side	0.346		0.35
	Band 66	Front	0.393	0.122	0.52
		Back	0.468	0.122	0.59
		Left side	0.050	0.122	0.17
		Right side	0.083		0.08
		Top side		0.122	0.12
		Bottom side	0.657		0.66
	Band 2	Front	0.463	0.122	0.59
		Back	0.553	0.122	0.68
		Left side	0.172	0.122	0.29
		Right side	0.150		0.15
		Top side		0.122	0.12
		Bottom side	0.944		0.94

<Top Antenna>

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	
			1g SAR (W/kg)	1g SAR (W/kg)	
WCDMA	Band V	Front	0.269	0.122	0.39
		Back	0.273	0.122	0.40
		Left side	0.012	0.122	0.13
		Right side	0.063		0.06
		Top side	0.113	0.122	0.24
CDMA2000	BC0	Front	0.229	0.122	0.35
		Back	0.224	0.122	0.35
		Left side	0.014	0.122	0.14
		Right side	0.069		0.07
		Top side	0.118	0.122	0.24
LTE	Band 13	Front	0.313	0.122	0.44
		Back	0.313	0.122	0.44
		Left side	0.033	0.122	0.16
		Right side	0.183		0.18
		Top side	0.173	0.122	0.30
	Band 12	Front	0.292	0.122	0.41
		Back	0.300	0.122	0.42
		Left side	0.055	0.122	0.18
		Right side	0.141		0.14
		Top side	0.186	0.122	0.31
	Band 5	Front	0.568	0.122	0.69
		Back	0.555	0.122	0.68
		Left side	0.054	0.122	0.18
		Right side	0.247		0.25
		Top side	0.304	0.122	0.43

16.3 Body-Worn Accessory Exposure Conditions

<Bottom Antenna>

WWAN Band		Exposure Position	1	2	4	5	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+5 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)			
GSM	GSM850	Front	0.955	0.122	0.526	0.168	1.08	1.48	1.12
		Back	0.890	0.122	0.526	0.168	1.01	1.42	1.06
	GSM1900	Front	0.610	0.122	0.526	0.168	0.73	1.14	0.78
		Back	0.781	0.122	0.526	0.168	0.90	1.31	0.95
WCDMA	Band V	Front	0.683	0.122	0.526	0.168	0.81	1.21	0.85
		Back	0.631	0.122	0.526	0.168	0.75	1.16	0.80
	Band IV	Front	0.656	0.122	0.526	0.168	0.78	1.18	0.82
		Back	0.874	0.122	0.526	0.168	1.00	1.40	1.04
	Band II	Front	0.583	0.122	0.526	0.168	0.71	1.11	0.75
		Back	0.767	0.122	0.526	0.168	0.89	1.29	0.94
CDMA2000	BC0	Front	0.597	0.122	0.526	0.168	0.72	1.12	0.77
		Back	0.551	0.122	0.526	0.168	0.67	1.08	0.72
	BC1	Front	0.597	0.122	0.526	0.168	0.72	1.12	0.77
		Back	0.817	0.122	0.526	0.168	0.94	1.34	0.99
LTE	Band 13	Front	0.514	0.122	0.526	0.168	0.64	1.04	0.68
		Back	0.504	0.122	0.526	0.168	0.63	1.03	0.67
	Band 12	Front	0.443	0.122	0.526	0.168	0.57	0.97	0.61
		Back	0.469	0.122	0.526	0.168	0.59	1.00	0.64
	Band 5	Front	0.549	0.122	0.526	0.168	0.67	1.08	0.72
		Back	0.515	0.122	0.526	0.168	0.64	1.04	0.68
	Band 66	Front	0.777	0.122	0.526	0.168	0.90	1.30	0.95
		Back	0.981	0.122	0.526	0.168	1.10	1.51	1.15
	Band 2	Front	0.606	0.122	0.526	0.168	0.73	1.13	0.77
		Back	0.781	0.122	0.526	0.168	0.90	1.31	0.95

<Top Antenna>

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)			
WCDMA	Band V	Front	0.269	0.122	0.526	0.168	0.39	0.80	0.44
		Back	0.273	0.122	0.526	0.168	0.40	0.80	0.44
CDMA2000	BC0	Front	0.248	0.122	0.526	0.168	0.37	0.77	0.42
		Back	0.231	0.122	0.526	0.168	0.35	0.76	0.40
LTE	Band 13	Front	0.313	0.122	0.526	0.168	0.44	0.84	0.48
		Back	0.313	0.122	0.526	0.168	0.44	0.84	0.48
	Band 12	Front	0.292	0.122	0.526	0.168	0.41	0.82	0.46
		Back	0.300	0.122	0.526	0.168	0.42	0.83	0.47
	Band 5	Front	0.568	0.122	0.526	0.168	0.69	1.09	0.74
		Back	0.555	0.122	0.526	0.168	0.68	1.08	0.72

16.4 Product Specific 10g SAR Exposure Conditions

<Bottom Antenna>

WWAN Band		Exposure Position	1	2	3	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)
			WWAN	5GHz WLAN	Bluetooth		
			10g SAR (W/kg)	10g SAR (W/kg)	Estimated 10g SAR (W/kg)		
WCDMA	Band IV	Front		0.952	0.134	0.95	0.13
		Back		1.617	0.134	1.62	0.13
		Left side		0.620	0.134	0.62	0.13
		Top side		1.043	0.134	1.04	0.13
		Bottom side	2.939			2.94	2.94
	Band II	Front		0.952	0.134	0.95	0.13
		Back		1.617	0.134	1.62	0.13
		Left side		0.620	0.134	0.62	0.13
		Top side		1.043	0.134	1.04	0.13
		Bottom side	2.740			2.74	2.74
CDMA2000	BC1	Front		0.952	0.134	0.95	0.13
		Back		1.617	0.134	1.62	0.13
		Left side		0.620	0.134	0.62	0.13
		Top side		1.043	0.134	1.04	0.13
		Bottom side	3.749			**3.75**	3.75
LTE	Band 66	Front		0.952	0.134	0.95	0.13
		Back		1.617	0.134	1.62	0.13
		Left side		0.620	0.134	0.62	0.13
		Top side		1.043	0.134	1.04	0.13
		Bottom side	3.32			3.32	3.32
	Band 2	Front		0.952	0.134	0.95	0.13
		Back		1.617	0.134	1.62	0.13
		Left side		0.620	0.134	0.62	0.13
		Top side		1.043	0.134	1.04	0.13
		Bottom side	3.101			3.10	3.10

Test Engineer : Nick Hu

17. Uncertainty Assessment

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

18. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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

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

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

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.27

System Check_Head_750MHz

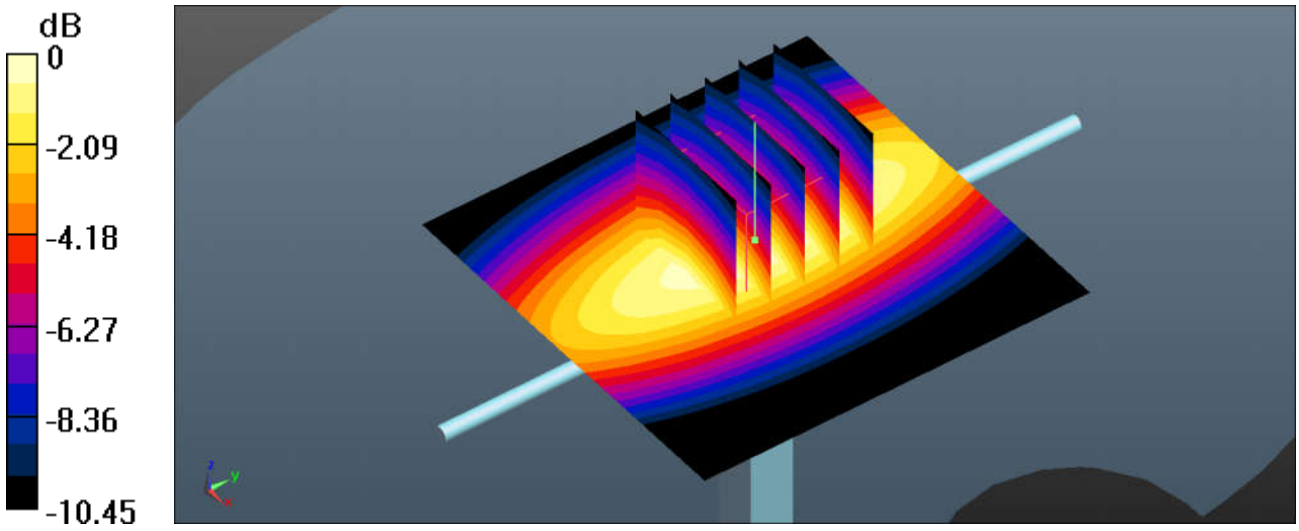
DUT: D750V3 - SN:1087

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 750 MHz; σ = 0.915 S/m; ε_r = 42.792; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(10.01, 10.01, 10.01); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; 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) = 2.75 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.46 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 3.25 W/kg
SAR(1 g) = 2.19 W/kg; SAR(10 g) = 1.44 W/kg
Maximum value of SAR (measured) = 2.77 W/kg



0 dB = 2.77 W/kg = 4.42 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.28

System Check_Head_835MHz

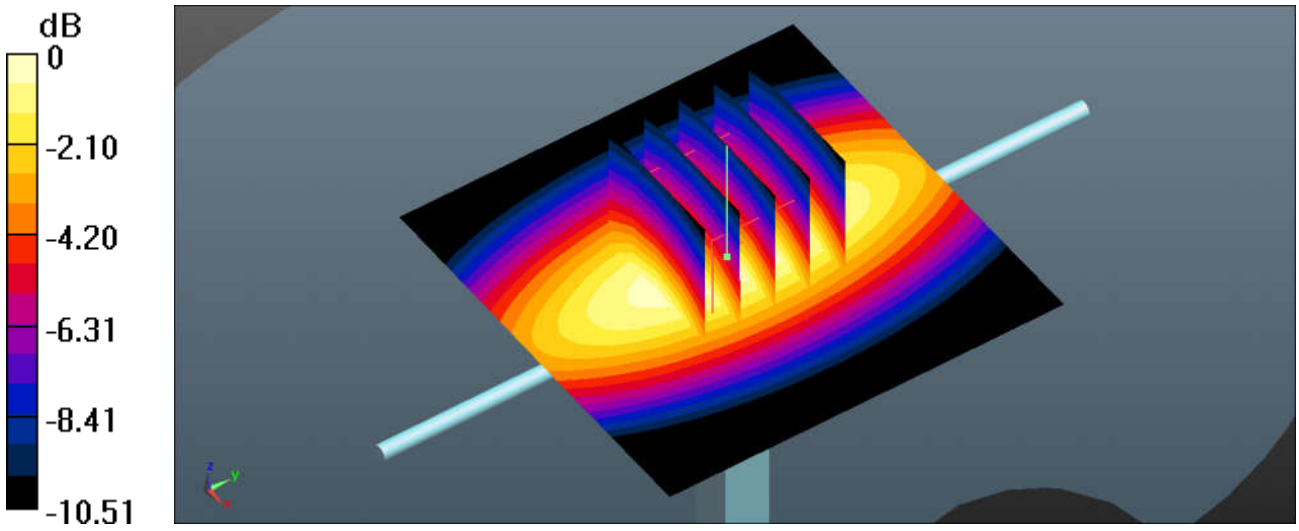
DUT: D835V2 - SN:4d151

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 835 MHz; σ = 0.916 S/m; ε_r = 42.845; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.73, 9.73, 9.73); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; 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) = 3.07 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.41 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.6 W/kg
Maximum value of SAR (measured) = 3.04 W/kg



0 dB = 3.04 W/kg = 4.83 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.30

System Check_Head_1750MHz

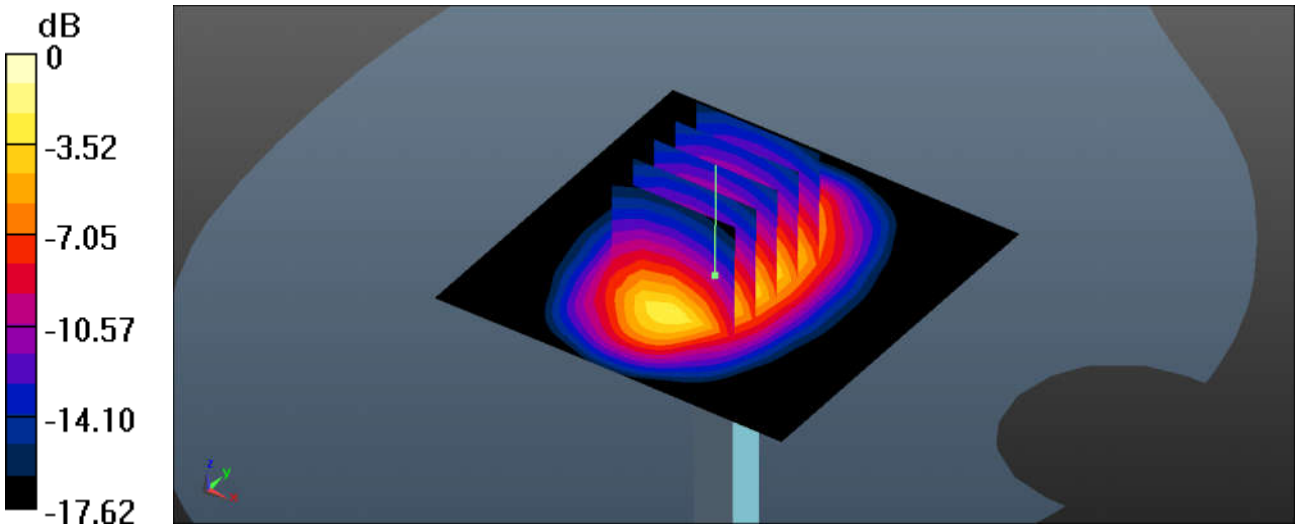
DUT: D1750V2 - SN:1137

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.379 S/m; ε_r = 40.261; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.47, 8.47, 8.47); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; 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) = 14.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 89.96 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 9.65 W/kg; SAR(10 g) = 4.98 W/kg
Maximum value of SAR (measured) = 14.1 W/kg



0 dB = 14.1 W/kg = 11.49 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.21

System Check_Head_1900MHz

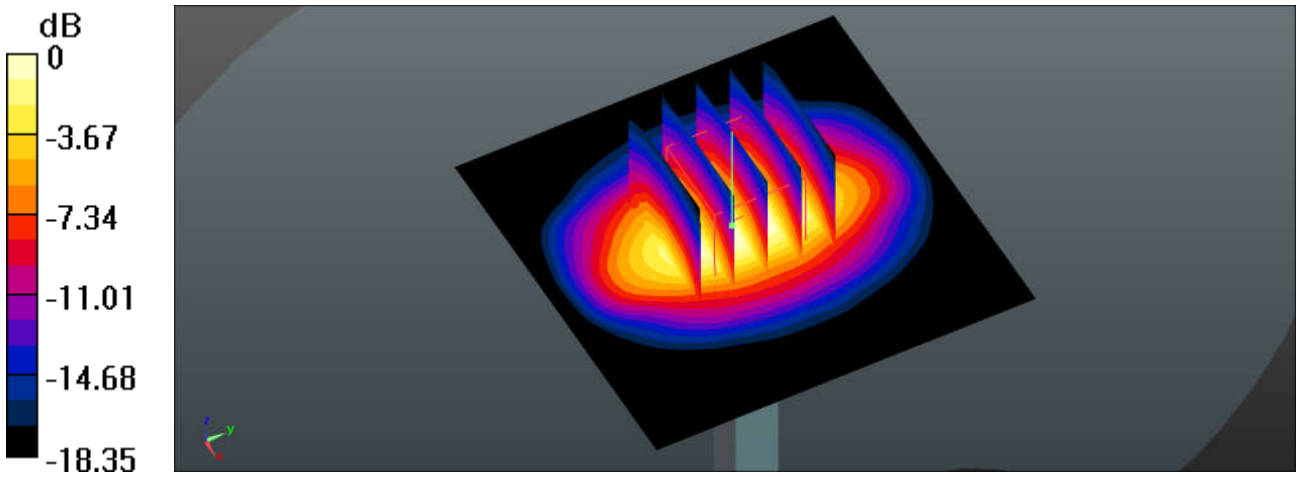
DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.422 S/m; ε_r = 39.84; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; 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) = 14.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 85.64 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 9.86 W/kg; SAR(10 g) = 5.09 W/kg
Maximum value of SAR (measured) = 14.3 W/kg



0 dB = 14.3 W/kg = 11.55 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.23

System Check_Head_2450MHz

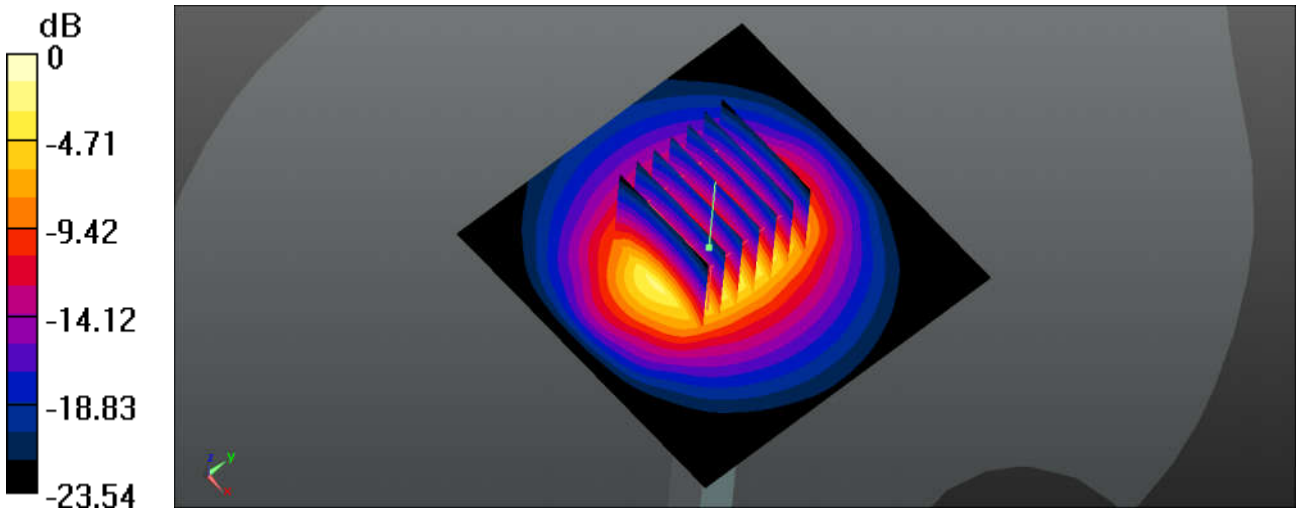
DUT: D2450V2 - SN:924

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: f = 2450 MHz; σ = 1.838 S/m; ε_r = 38.262; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.71, 7.71, 7.71); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- 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) = 21.2 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.41 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 13.2 W/kg; SAR(10 g) = 5.97 W/kg
Maximum value of SAR (measured) = 20.7 W/kg



0 dB = 20.7 W/kg = 13.16 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.7

System Check_Head_5250MHz

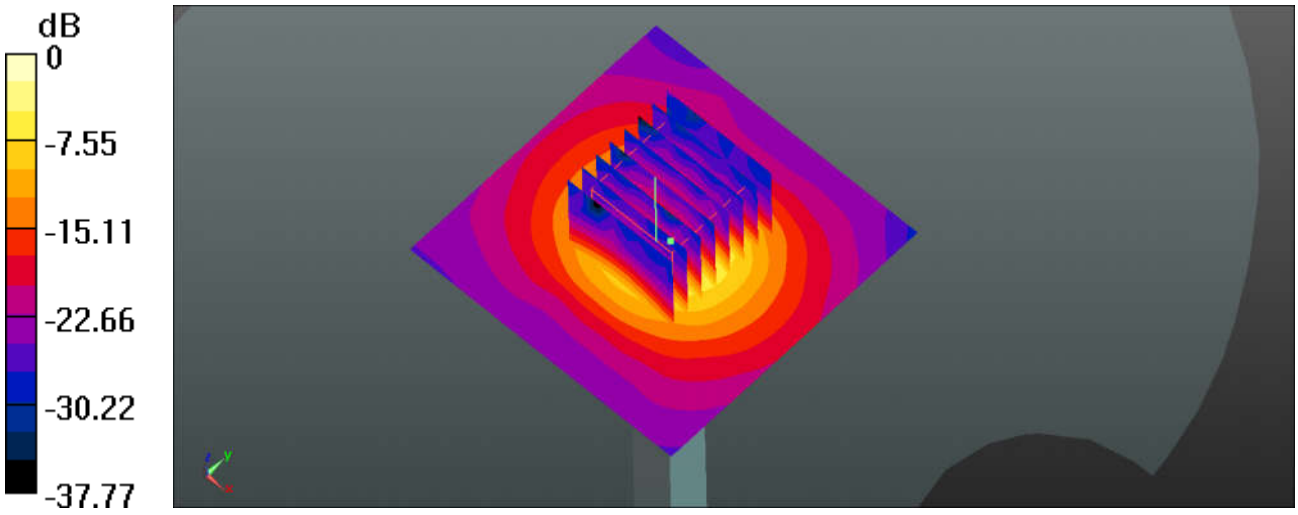
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW; Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5250 MHz; σ = 4.731 S/m; ε_r = 37.474; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(5.39, 5.39, 5.39); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.4 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 44.13 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 33.3 W/kg
SAR(1 g) = 8.04 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 18.8 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.7

System Check_Head_5750MHz

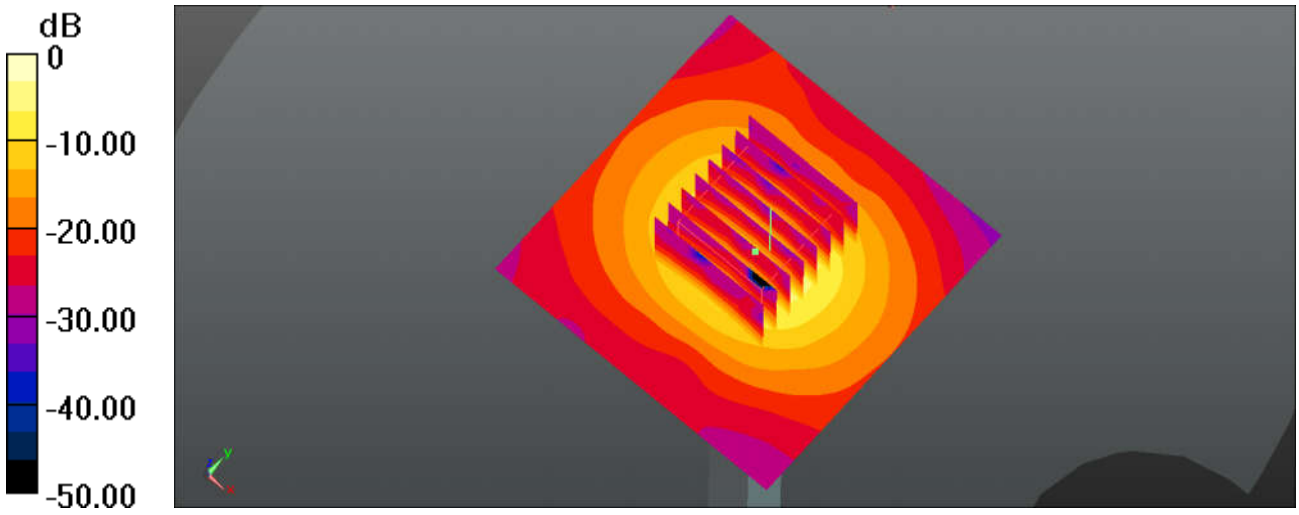
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5750 MHz; σ = 5.248 S/m; ε_r = 36.784; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(5.34, 5.34, 5.34); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.6 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 42.42 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 34.9 W/kg
SAR(1 g) = 8.21 W/kg; SAR(10 g) = 2.32 W/kg
Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.3 W/kg = 12.86 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.4

System Check_Body_750MHz

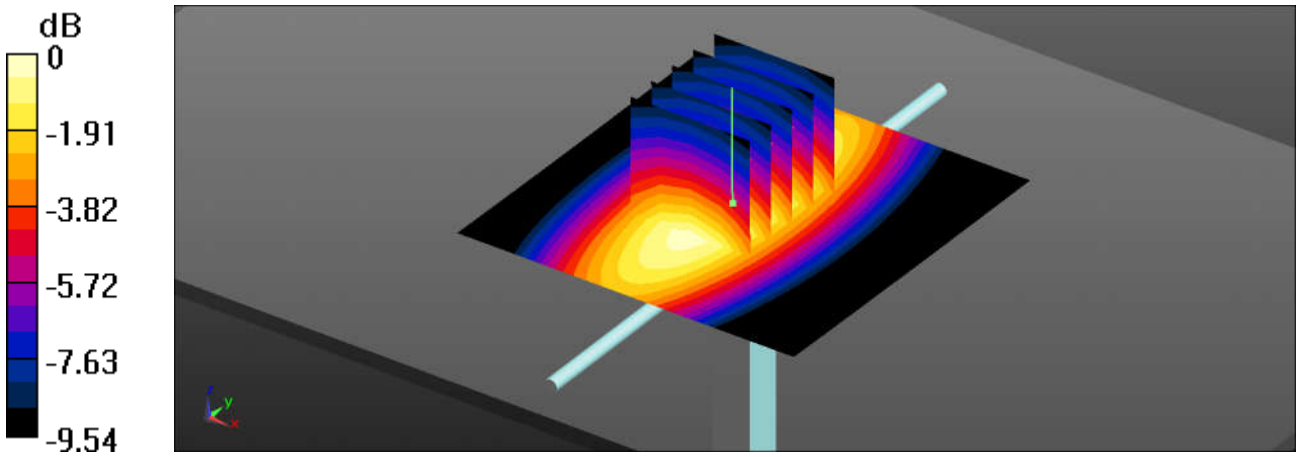
DUT: D750V3 - SN:1087

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750 Medium parameters used: f = 750 MHz; σ = 0.985 S/m; ε_r = 55.749; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.96, 9.96, 9.96); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- 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) = 2.90 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.97 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.38 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 2.91 W/kg



0 dB = 2.91 W/kg = 4.64 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.5

System Check_Body_835MHz

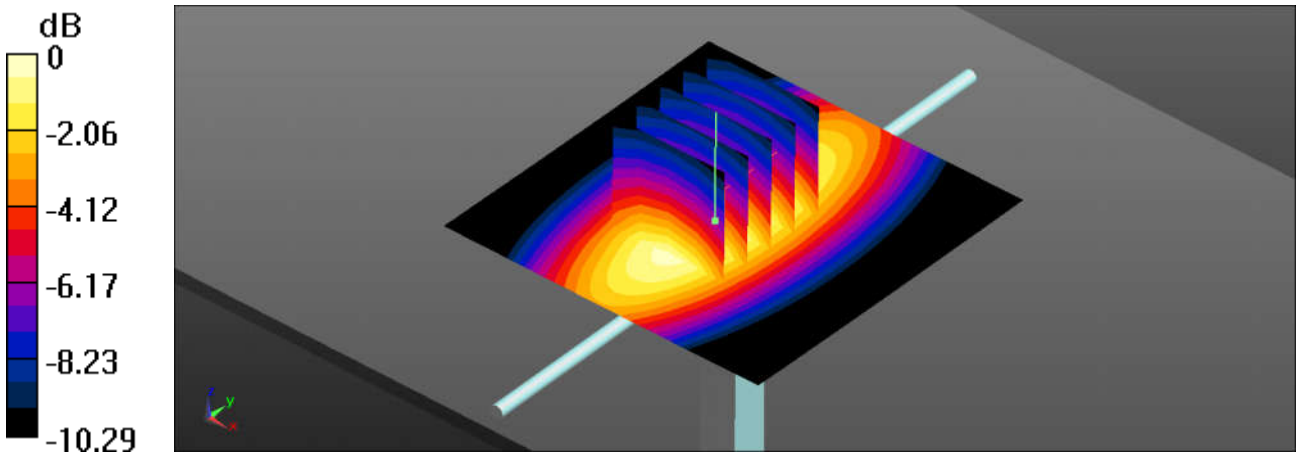
DUT: Dipole 835 MHz 4d151

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850 Medium parameters used: f = 835 MHz; σ = 0.975 S/m; ε_r = 55.456; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- 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) = 3.20 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 52.82 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.72 W/kg
SAR(1 g) = 2.53 W/kg; SAR(10 g) = 1.68 W/kg
Maximum value of SAR (measured) = 3.19 W/kg



0 dB = 3.19 W/kg = 5.04 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.2

System Check_Body_1750MHz

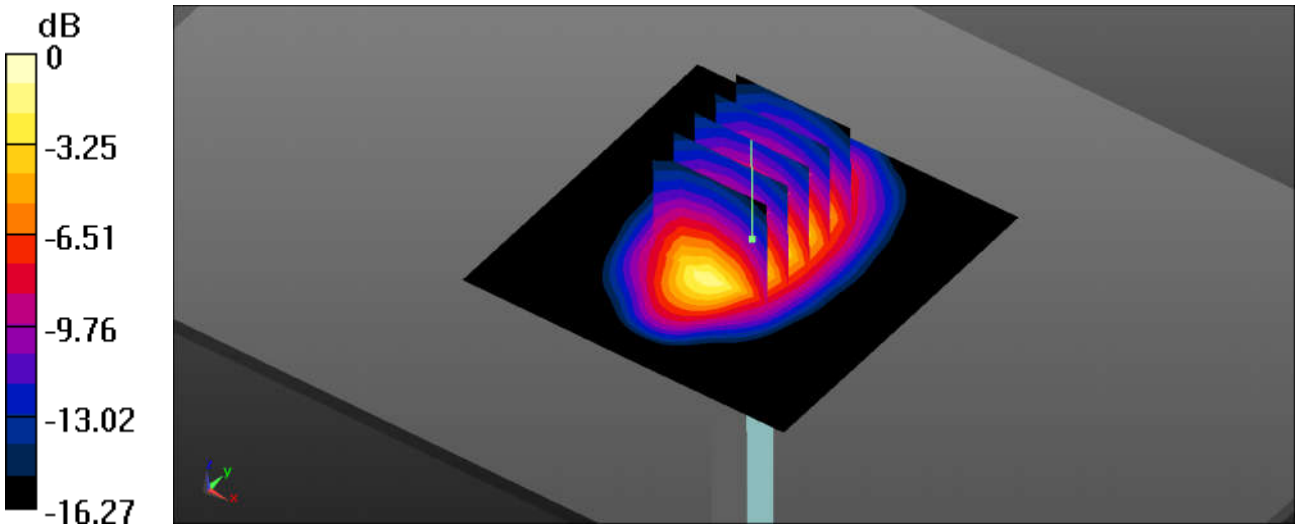
DUT: D1750V2 - SN:1137

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.451 S/m; ε_r = 54.781; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- 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) = 12.6 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 81.83 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 15.5 W/kg
SAR(1 g) = 8.82 W/kg; SAR(10 g) = 4.73 W/kg
Maximum value of SAR (measured) = 12.4 W/kg



0 dB = 12.4 W/kg = 10.93 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.29

System Check_Body_1900MHz

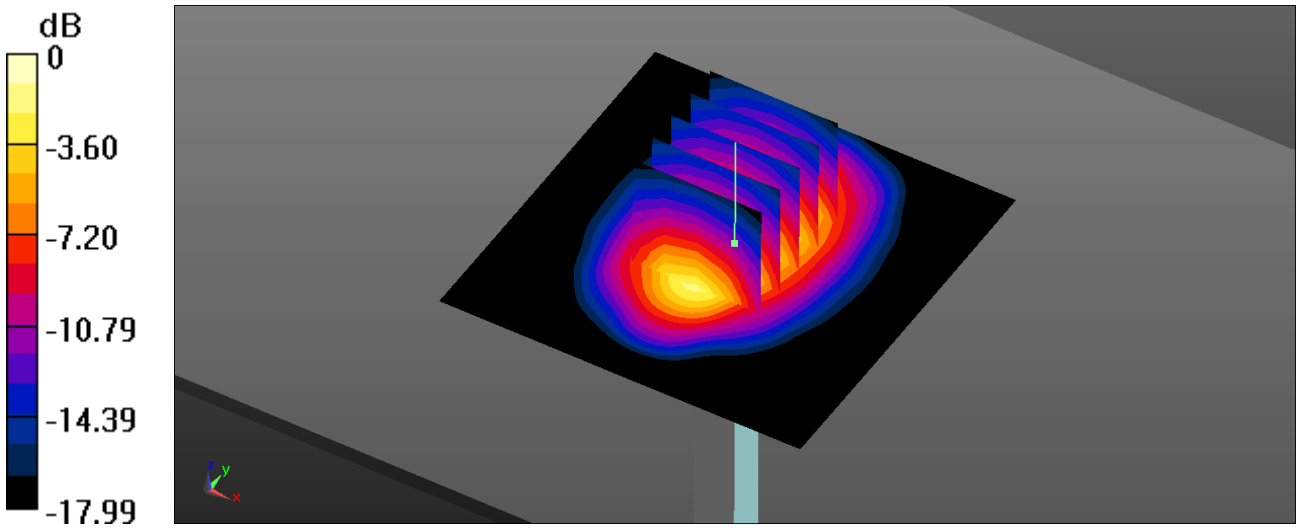
DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.538 S/m; ε_r = 53.407; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.08, 8.08, 8.08); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- 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) = 14.3 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 84.24 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 9.82 W/kg; SAR(10 g) = 5.09 W/kg
Maximum value of SAR (measured) = 14.1 W/kg



0 dB = 14.1 W/kg = 11.49 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.23

System Check_Body_2450MHz

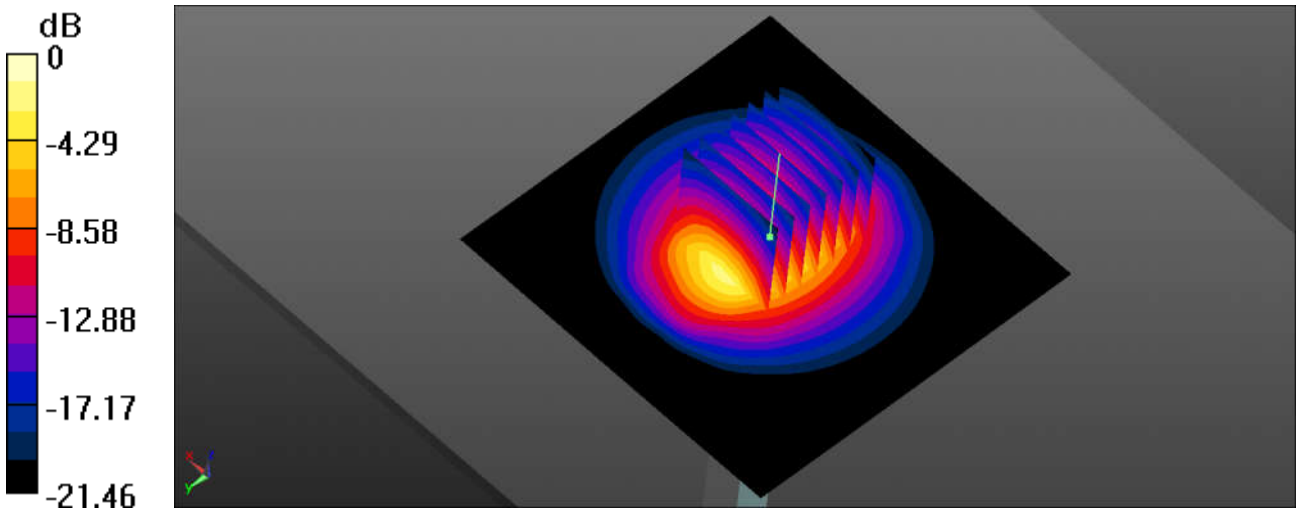
DUT: D2450V2 - SN:924

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450 Medium parameters used: f = 2450 MHz; σ = 2.029 S/m; ε_r = 52.914; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.7, 7.7, 7.7); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 20.0 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.09 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 26.5 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.25 W/kg
Maximum value of SAR (measured) = 19.9 W/kg



0 dB = 19.9 W/kg = 12.99 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.8

System Check_Body_5250MHz

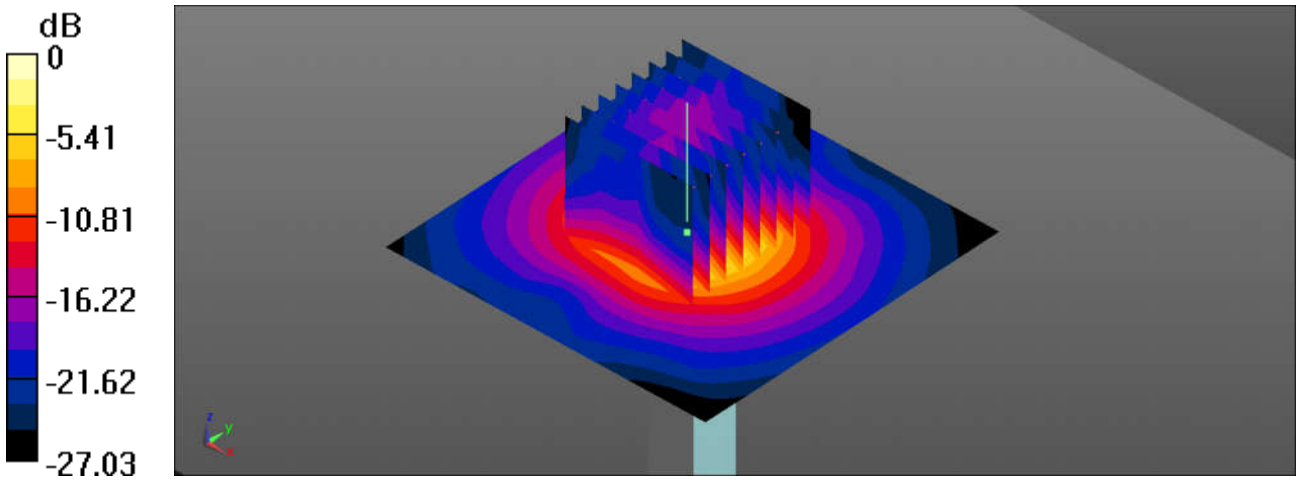
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: MSL_5000 Medium parameters used: f = 5250 MHz; σ = 5.379 S/m; ε_r = 49.115; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(4.72, 4.72, 4.72); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 17.4 W/kg

CW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 39.64 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 7.69 W/kg; SAR(10 g) = 2.12 W/kg
Maximum value of SAR (measured) = 16.9 W/kg



0 dB = 16.9 W/kg = 12.28 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.12.8

System Check_Body_5750MHz

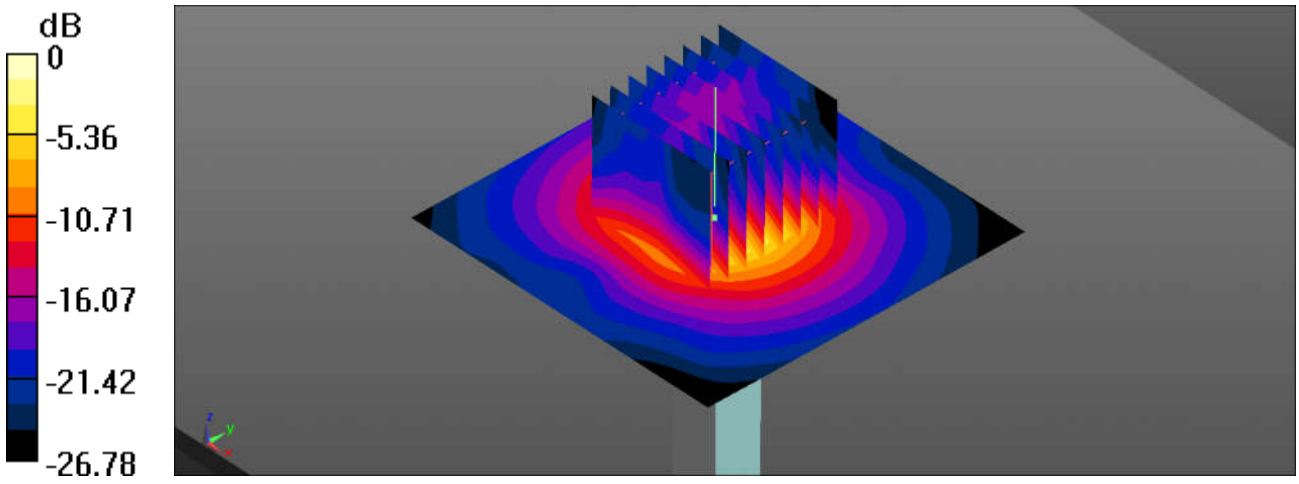
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: MSL_5000 Medium parameters used: f = 5750 MHz; σ = 6.07 S/m; ε_r = 47.985; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(4.31, 4.31, 4.31); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM1; Type: SAM; Serial: TP-1164
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 20.2 W/kg

CW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 41.49 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 31.1 W/kg
SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.06 W/kg
Maximum value of SAR (measured) = 19.7 W/kg



0 dB = 19.7 W/kg = 12.94 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.22

System Check_Body_750MHz

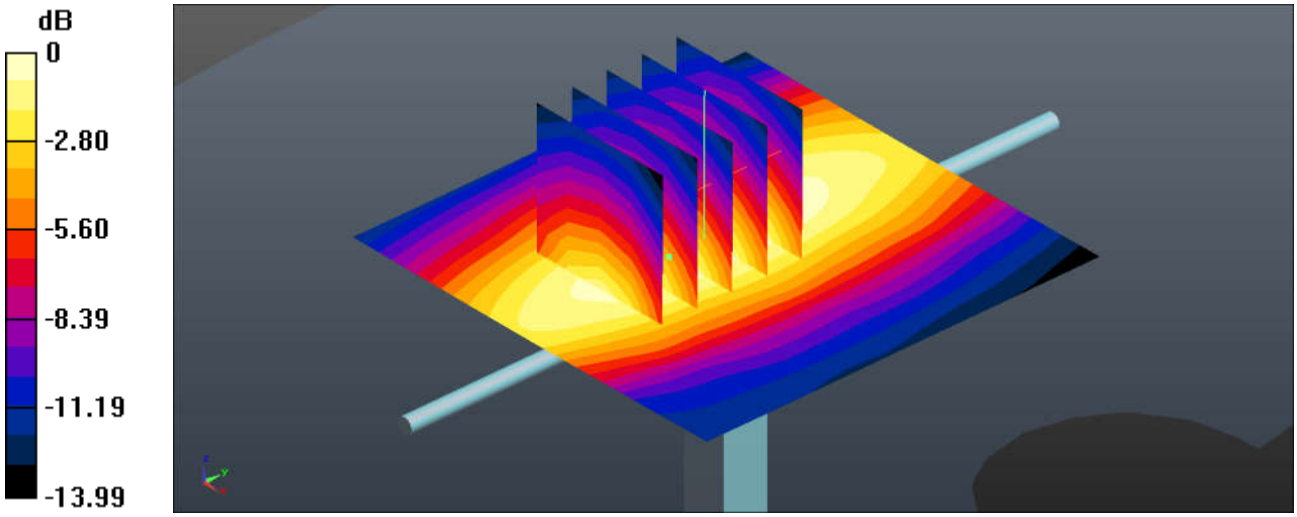
DUT: D750V3 - SN:1087

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750 Medium parameters used: f = 750 MHz; σ = 0.997 S/m; ε_r = 55.645; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.43, 6.43, 6.43); Calibrated: 2017.9.25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1326; Calibrated: 2017.9.15
- Phantom: SAM3; Type: SAM; Serial: TP-1839
- 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) = 2.66 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.10 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 2.74 W/kg
SAR(1 g) = 2.13 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (measured) = 2.52 W/kg



0 dB = 2.66 W/kg = 4.25 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.22

System Check_Body_835MHz

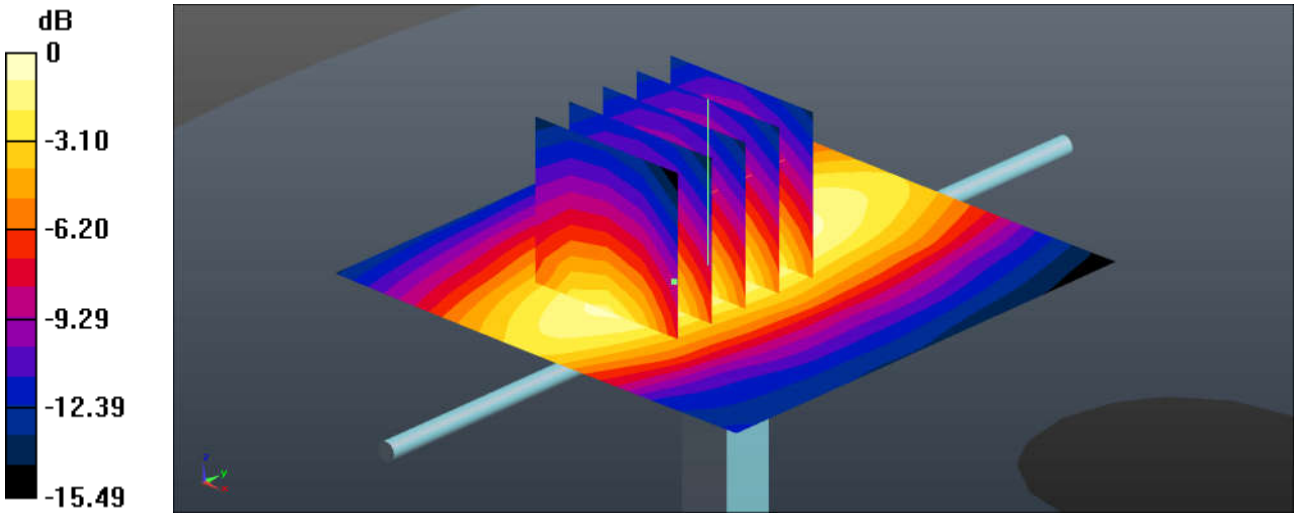
DUT: D835V2 - SN:4d151

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850 Medium parameters used: f = 835 MHz; σ = 0.983 S/m; ε_r = 55.223; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3293; ConvF(6.19, 6.19, 6.19); Calibrated: 2017.9.25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1326; Calibrated: 2017.9.15
- Phantom: SAM3; Type: SAM; Serial: TP-1839
- 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) = 3.04 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.33 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.15 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.7 W/kg
Maximum value of SAR (measured) = 2.87 W/kg



0 dB = 3.04 W/kg = 4.83 dBW/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

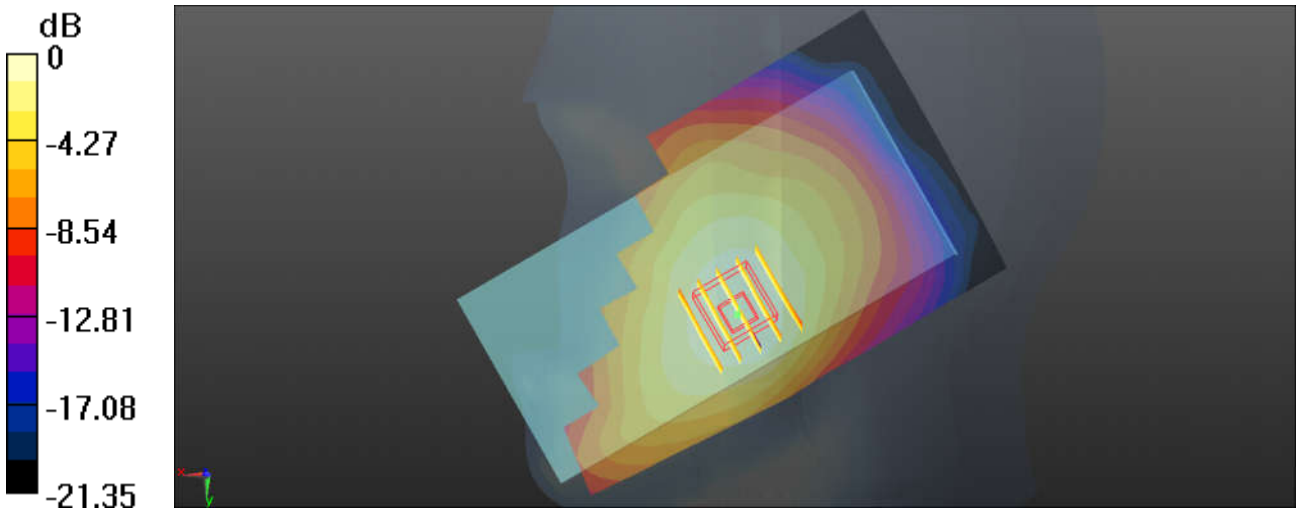
1_GSM850_GPRS 2 Tx slots_Right Cheek_0mm_Ch189

Communication System: UID 0, GPRS/EDGE (2 Tx slots) (0); Frequency: 836.4 MHz;Duty Cycle: 1:4.15
Medium: HSL_850 Medium parameters used: f = 836.4 MHz; σ = 0.918 S/m; ε_r = 42.826; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.73, 9.73, 9.73); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch189/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.554 W/kg

Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.200 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.592 W/kg
SAR(1 g) = 0.462 W/kg; SAR(10 g) = 0.349 W/kg
Maximum value of SAR (measured) = 0.545 W/kg



0 dB = 0.545 W/kg = -2.64 dBW/kg

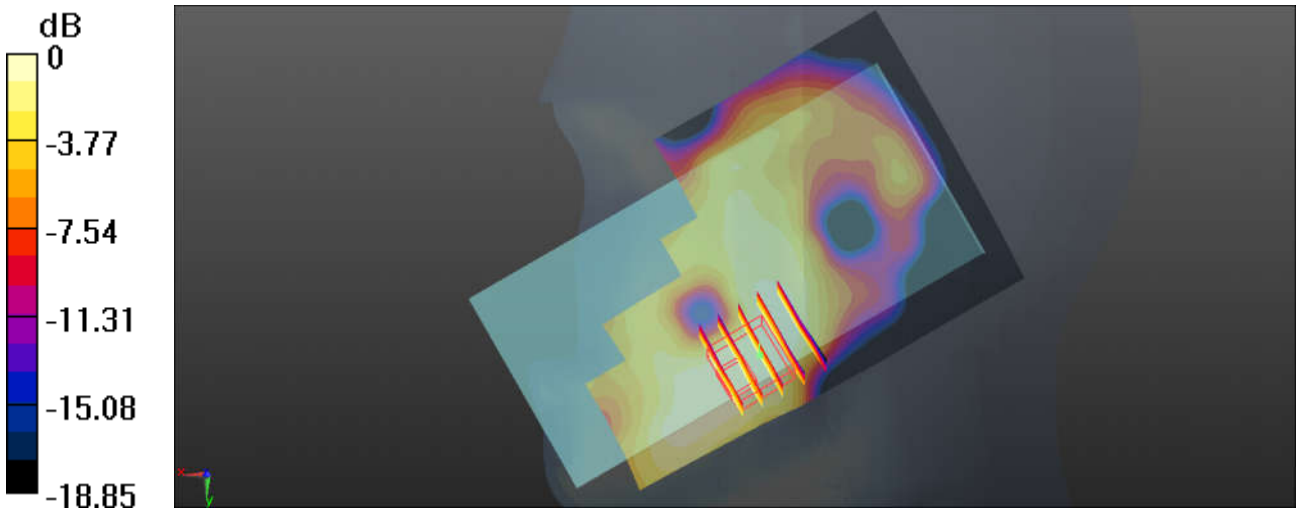
2_GSM1900_GPRS 2 Tx slots_Right Cheek_0mm_Ch512

Communication System: UID 0, GPRS/EDGE (2 Tx slots) (0); Frequency: 1850.2 MHz;Duty Cycle: 1:4.15
Medium: HSL_1900 Medium parameters used: f = 1850.2 MHz; σ = 1.368 S/m; ε_r = 40.075; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch512/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0953 W/kg

Ch512/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.706 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.101 W/kg
SAR(1 g) = 0.064 W/kg; SAR(10 g) = 0.041 W/kg
Maximum value of SAR (measured) = 0.0825 W/kg



0 dB = 0.0825 W/kg = -10.84 dBW/kg

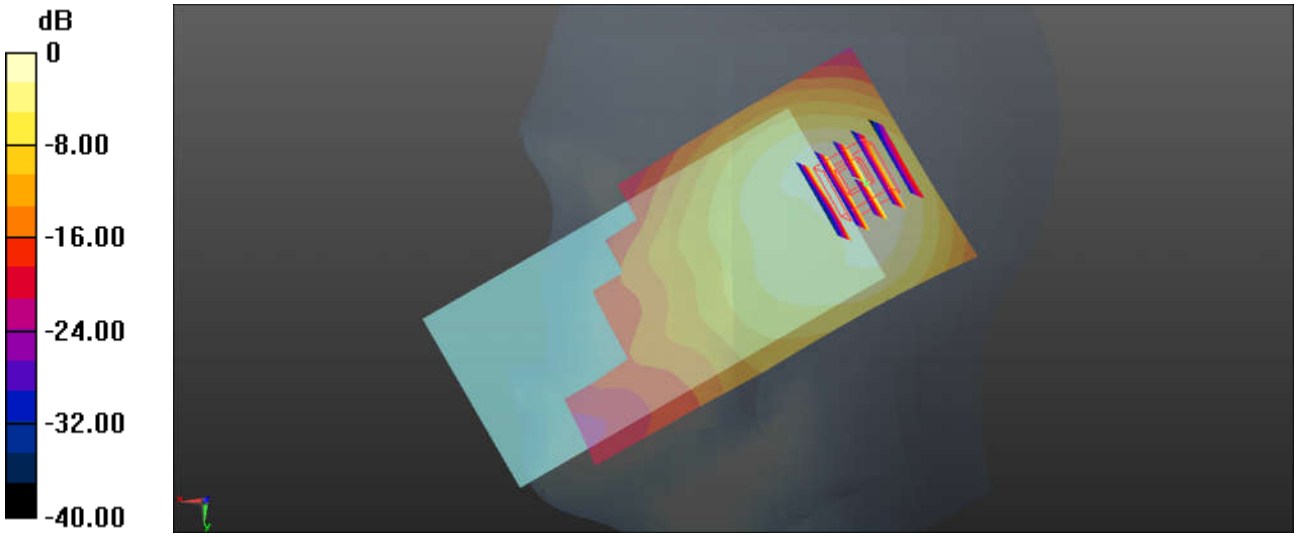
3_WCDMA V_RMC 12.2Kbps_Right Cheek_0mm_Ch4182

Communication System: UID 0, UMTS (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 836.4 MHz; σ = 0.918 S/m; ε_r = 42.826; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.73, 9.73, 9.73); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4182/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.616 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.64 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.937 W/kg
SAR(1 g) = 0.529 W/kg; SAR(10 g) = 0.302 W/kg
Maximum value of SAR (measured) = 0.718 W/kg



0 dB = 0.616 W/kg = -2.10 dBW/kg

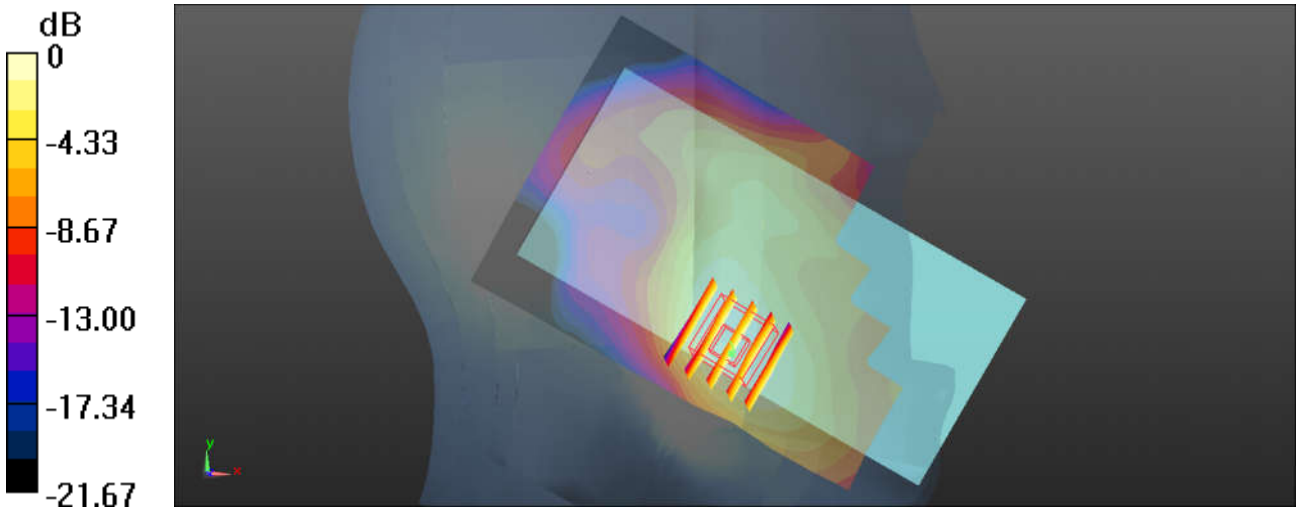
4_WCDMA IV_RMC12.2Kbps_Left Cheek_0mm_Ch1312

Communication System: UID 0, UMTS (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1712.4 MHz; σ = 1.342 S/m; ε_r = 40.429; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.47, 8.47, 8.47); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1312/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.196 W/kg

Ch1312/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.783 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.103 W/kg
Maximum value of SAR (measured) = 0.195 W/kg



0 dB = 0.195 W/kg = -7.10 dBW/kg

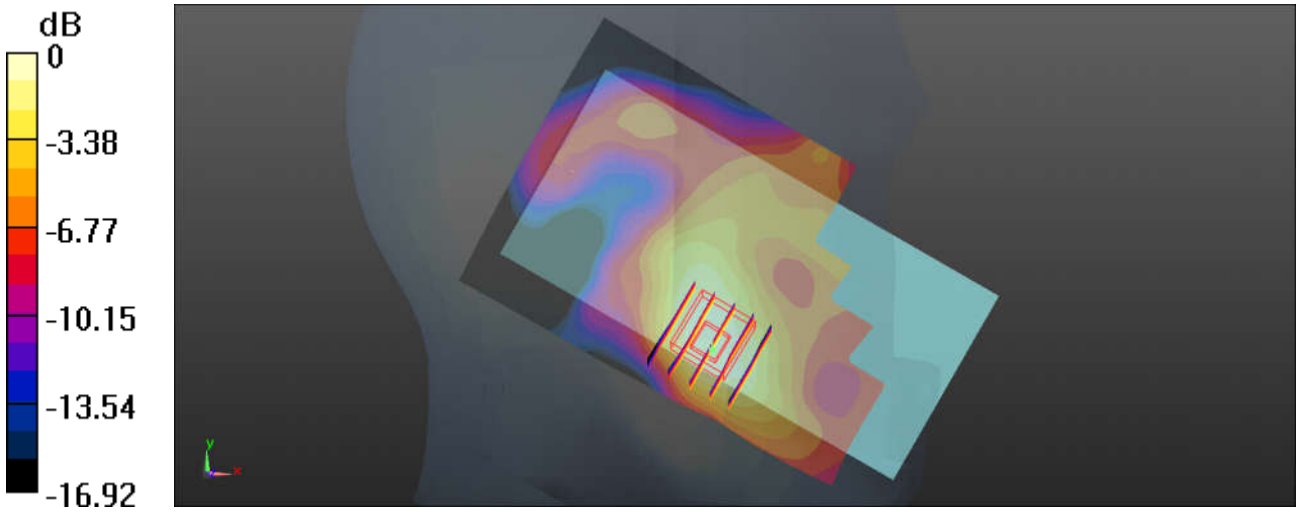
5_WCDMA II_RMC12.2Kbps_Left Cheek_0mm_Ch9538

Communication System: UID 0, UMTS (0); Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1907.6 MHz; σ = 1.431 S/m; ε_r = 39.819; ρ = $1000_{kg/m^3}$
Ambient Temperature：23.4 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9538/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.139 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.413 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.163 W/kg
SAR(1 g) = 0.102 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.134 W/kg



0 dB = 0.134 W/kg = -8.73 dBW/kg

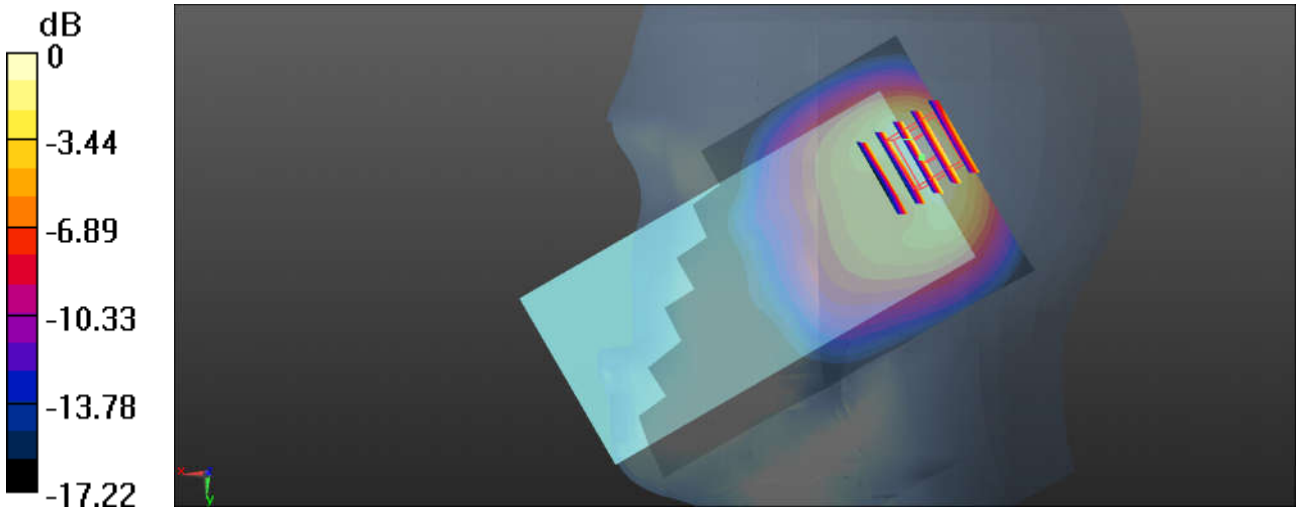
6_CDMA2000 BC0_RC3 SO55_Right Cheek_0mm_Ch777

Communication System: UID 0, CDMA2000 (0); Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 848.31 MHz; σ = 0.929 S/m; ε_r = 42.674; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.73, 9.73, 9.73); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch777/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.972 W/kg

Ch777/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.55 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.654 W/kg; SAR(10 g) = 0.333 W/kg
Maximum value of SAR (measured) = 0.968 W/kg



0 dB = 0.968 W/kg = -0.14 dBW/kg

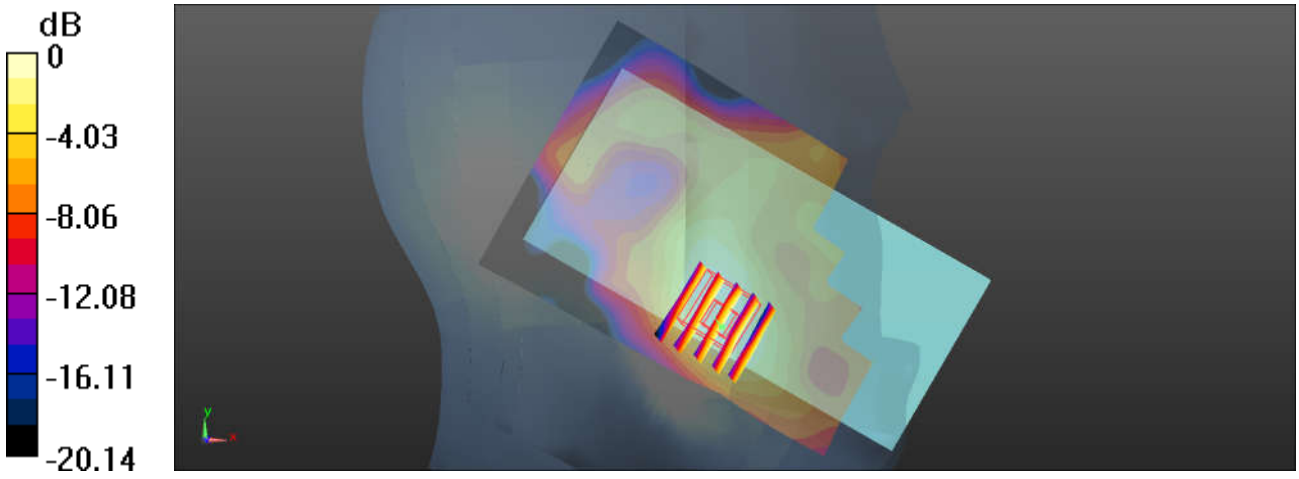
7_CDMA2000 BC1_RC3 SO55_Left Cheek_0mm_Ch1175

Communication System: UID 0, CDMA2000 (0); Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1908.75 MHz; σ = 1.432 S/m; ε_r = 39.814; ρ = $1000 kg/m^3$
Ambient Temperature：23.4 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1175/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.133 W/kg

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.814 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.168 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.138 W/kg



0 dB = 0.138 W/kg = -8.60 dBW/kg

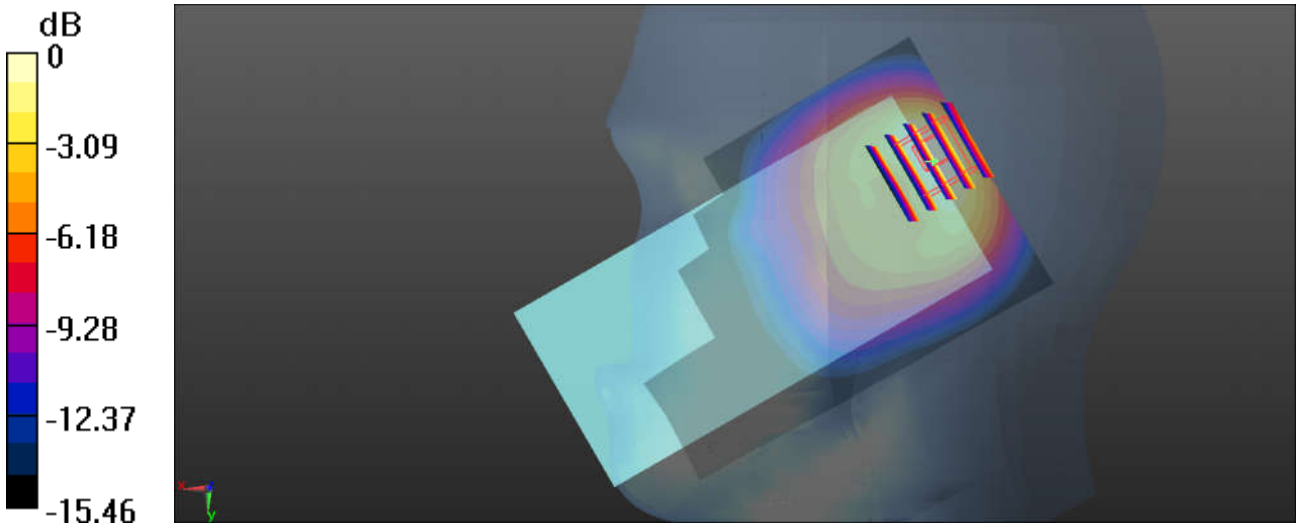
8_LTE Band 13_10M_QPSK_25RB_0Offset_Right Cheek_0mm_Ch23230

Communication System: UID 0, FDD_LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 782 MHz; σ = 0.866 S/m; ε_r = 43.507; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.73, 9.73, 9.73); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23230/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.16 W/kg

Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.93 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.780 W/kg; SAR(10 g) = 0.413 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 1.16 W/kg = 0.64 dBW/kg

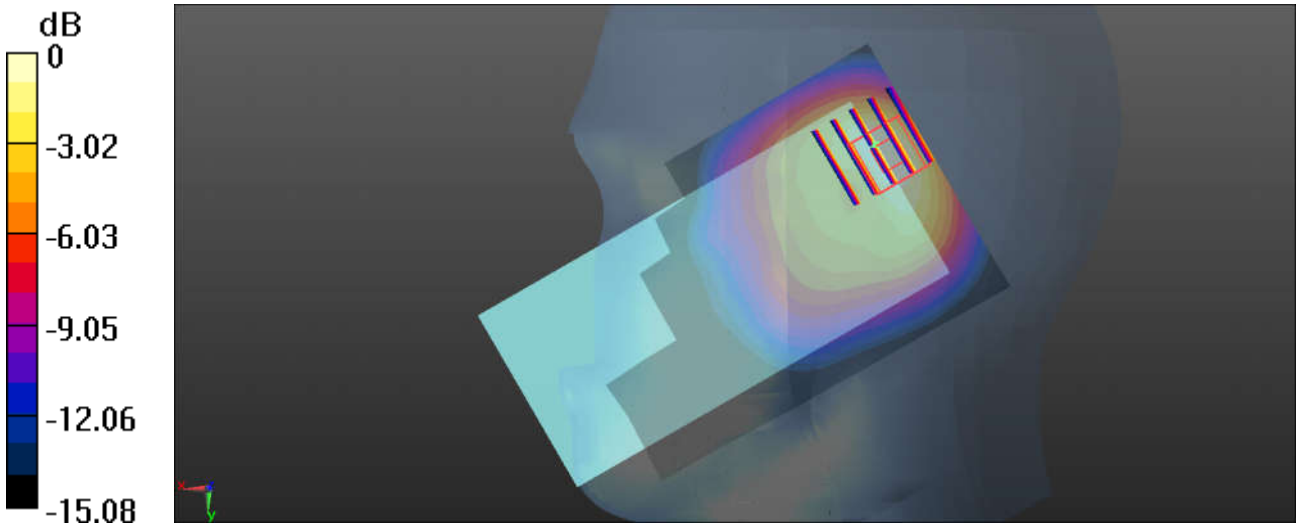
9_LTE Band 12_10M_QPSK_25RB_0Offset_Right Cheek_0mm_Ch23095

Communication System: UID 0, FDD_LTE (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 707.5 MHz; σ = 0.875 S/m; ε_r = 43.399; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(10.01, 10.01, 10.01); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23095/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.23 W/kg

Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.50 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.827 W/kg; SAR(10 g) = 0.441 W/kg
Maximum value of SAR (measured) = 1.22 W/kg



0 dB = 1.22 W/kg = 0.86 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017.11.28

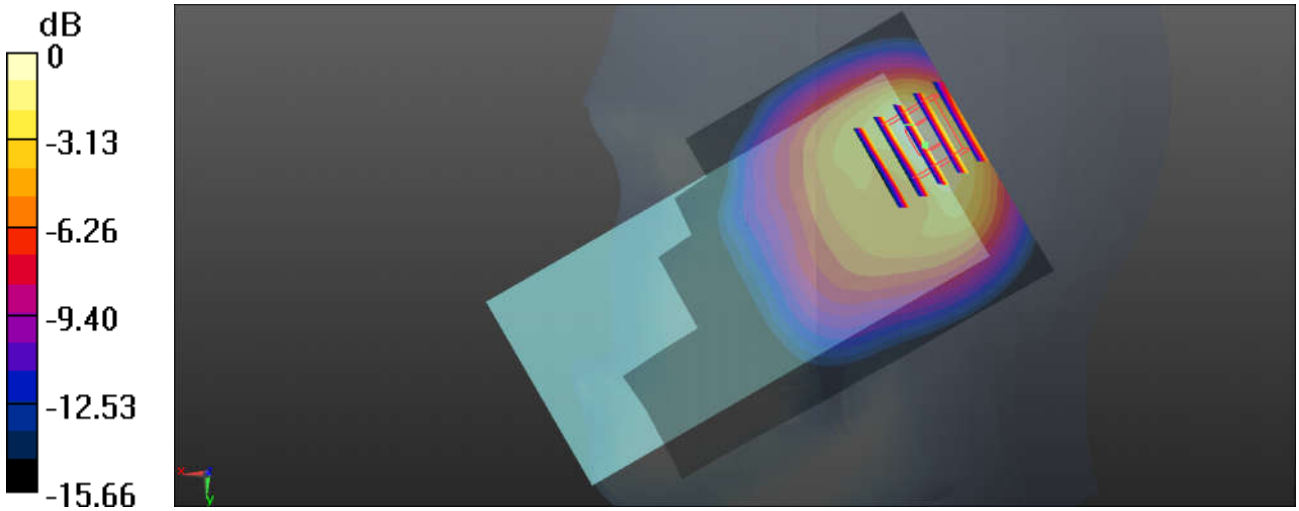
10_LTE Band 5_10M_QPSK_1RB_49Offset_Right Cheek_0mm_Ch20525

Communication System: UID 0, FDD_LTE (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 836.5 MHz; σ = 0.918 S/m; ε_r = 42.825; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(9.73, 9.73, 9.73); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20525/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

Ch20525/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.88 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.789 W/kg; SAR(10 g) = 0.415 W/kg
Maximum value of SAR (measured) = 1.15 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

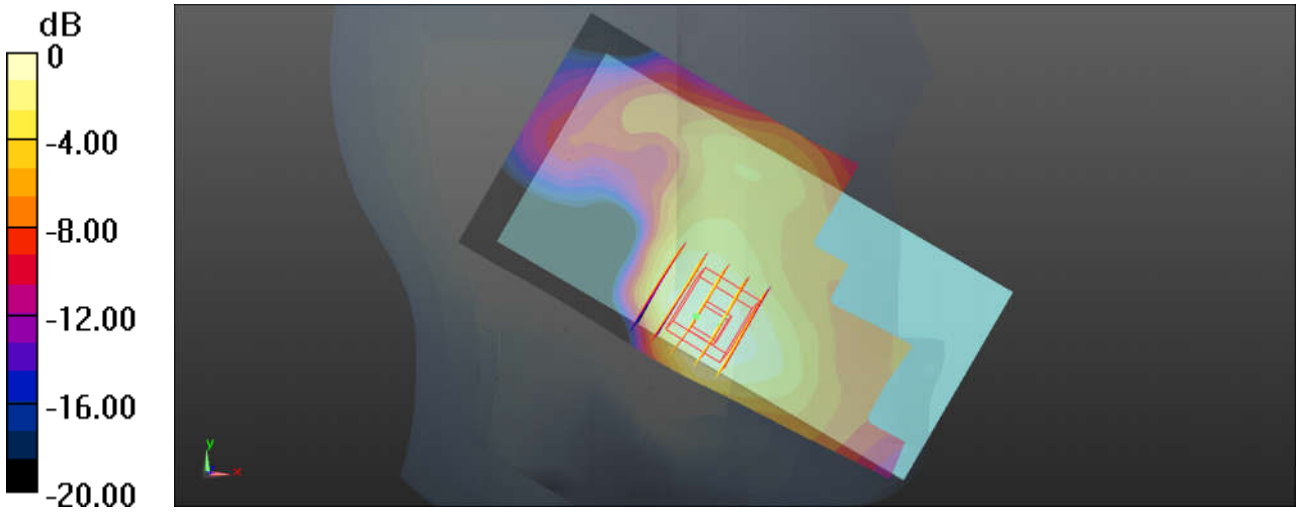
11_LTE Band66_20M_QPSK_1RB_0Offset_Left Cheek_0mm_Ch132572

Communication System: UID 0, FDD_LTE (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1770 MHz; σ = 1.399 S/m; ε_r = 40.17; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.47, 8.47, 8.47); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM2; Type: SAM; Serial: TP-1644
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch132572/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.118 W/kg

Ch132572/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.029 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.091 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.113 W/kg



0 dB = 0.113 W/kg = -9.47 dBW/kg

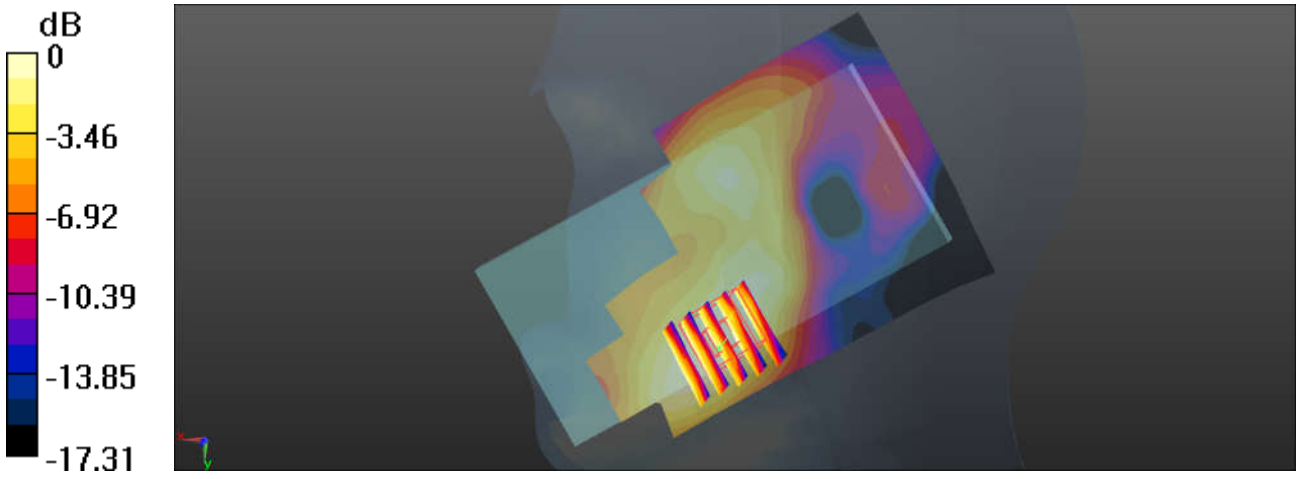
12_LTE Band2_20M_QPSK_1RB_99Offset_Right Cheek_0mm_Ch18900

Communication System: UID 0, FDD_LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1880 MHz; σ = 1.399 S/m; ε_r = 39.911; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.178 W/kg

Ch18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.894 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.130 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.163 W/kg



0 dB = 0.163 W/kg = -7.88 dBW/kg

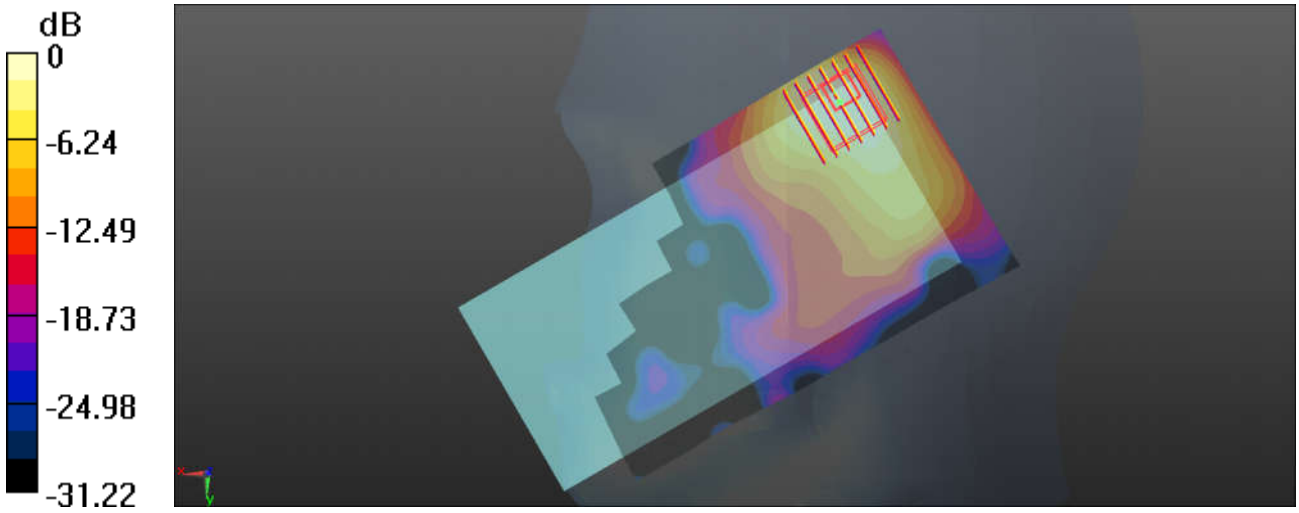
13_WLAN2.4GHz_802.11b 1Mbps_Right Cheek_0mm_Ch6

Communication System: UID 0, WIFI (0); Frequency: 2437 MHz;Duty Cycle: 1:1.025
Medium: HSL_2450 Medium parameters used: f = 2437 MHz; σ = 1.822 S/m; ε_r = 38.312; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(7.71, 7.71, 7.71); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch6/Area Scan (81x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.511 W/kg

Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.16 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.687 W/kg
SAR(1 g) = 0.299 W/kg; SAR(10 g) = 0.150 W/kg
Maximum value of SAR (measured) = 0.486 W/kg



0 dB = 0.486 W/kg = -3.13 dBW/kg

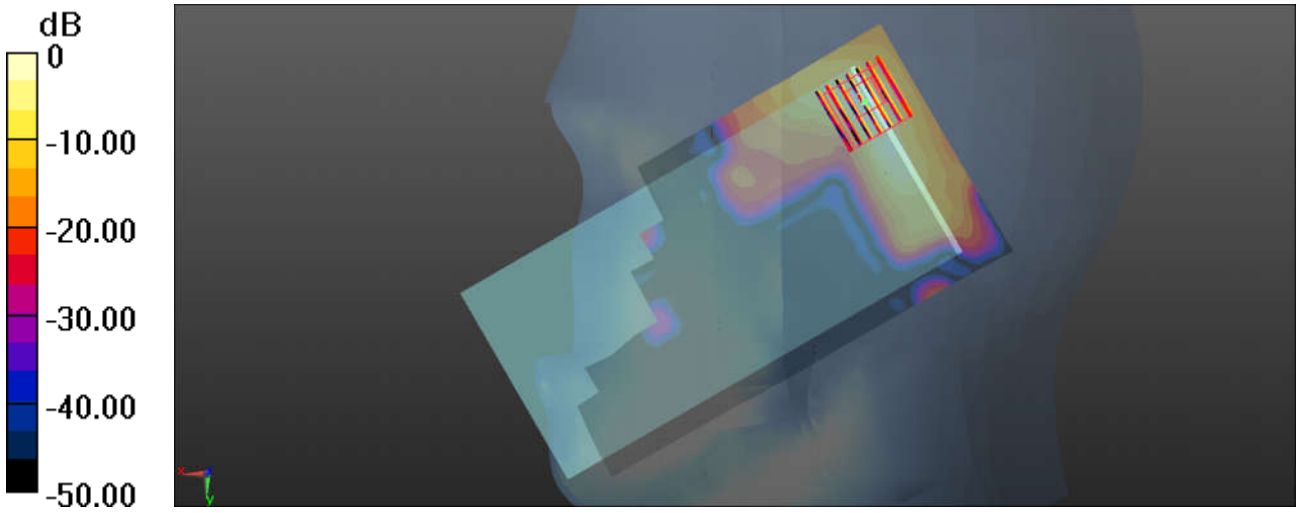
14_WLAN5.2GHz_802.11a 6Mbps_Right Tilted_0mm_Ch48

Communication System: UID 0, WIFI (0); Frequency: 5240 MHz;Duty Cycle: 1:1.149
Medium: HSL_5000 Medium parameters used: f = 5240 MHz; σ = 4.723 S/m; ε_r = 37.486; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(5.39, 5.39, 5.39); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch48/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.04 W/kg

Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 8.338 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 2.42 W/kg
SAR(1 g) = 0.470 W/kg; SAR(10 g) = 0.116 W/kg
Maximum value of SAR (measured) = 1.35 W/kg



0 dB = 1.35 W/kg = 1.30 dBW/kg

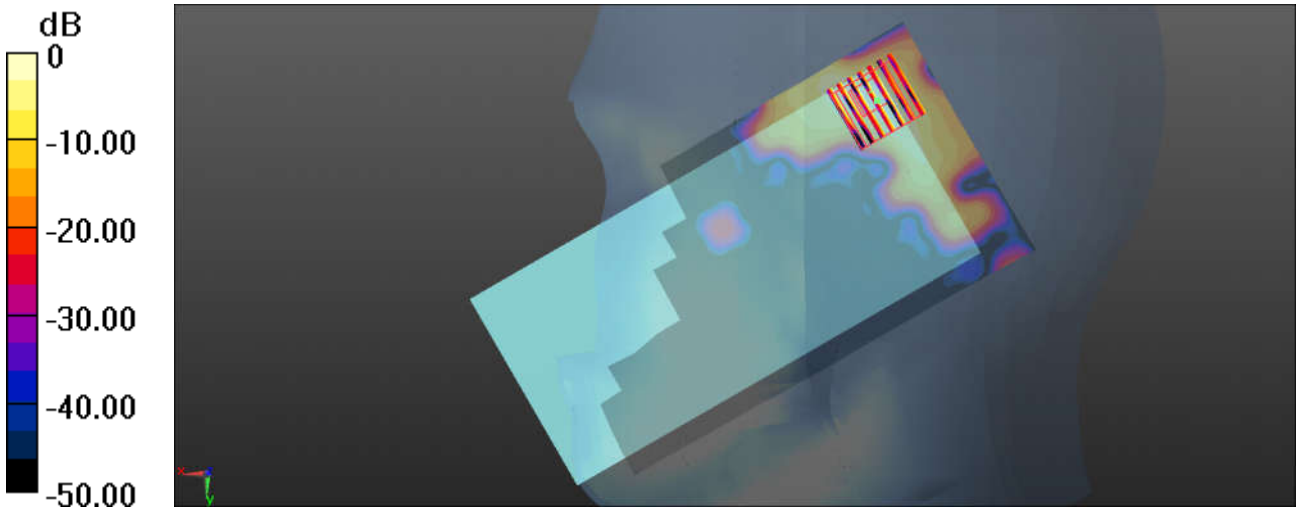
15_WLAN5.8GHz_802.11a 6Mbps_Right Cheek_0mm_Ch149

Communication System: UID 0, WIFI (0); Frequency: 5745 MHz;Duty Cycle: 1:1.149
Medium: HSL_5000 Medium parameters used: f = 5745 MHz; σ = 5.242 S/m; ε_r = 36.79; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(5.34, 5.34, 5.34); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM3; Type: SAM; Serial: TP-1542
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch149/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.986 W/kg

Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.864 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 2.58 W/kg
SAR(1 g) = 0.439 W/kg; SAR(10 g) = 0.111 W/kg
Maximum value of SAR (measured) = 1.33 W/kg



0 dB = 1.33 W/kg = 1.24 dBW/kg