FCC SAR Test Report

APPLICANT : **Sonim Technologies, Inc.**
EQUIPMENT : **LTE Smartphone**
BRAND NAME : **Sonim**
MODEL NAME : **XP7700**
MARKETING NAME : **XP7**
FCC ID : **WYPL22V012AA**
STANDARD : **FCC 47 CFR Part 2 (2.1093)**
ANSI/IEEE C95.1-1992
IEEE 1528-2013

We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.

Eric Huang

Reviewed by: Eric Huang / Deputy Manager

Jones Tsai

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

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Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA571301	Rev. 01	Initial issue of report	Sep. 21, 2015

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Sonim Technologies, Inc., LTE Smartphone, XP7700** are as follows.

Equipment Class	Frequency Band	Highest SAR Summary			
		Head 1g SAR (W/kg)	Wireless Router (Separation 1cm) 1g SAR (W/kg)	Body-worn (Separation 1cm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
	CDMA 2000 BC0	0.34	0.43	0.26	1.42
	CDMA 2000 BC1	**0.79**	0.66	0.69	
	LTE Band 13	0.50	0.47	0.47	
	LTE Band 14	0.44	0.43	0.42	
	LTE Band 4	0.71	**0.69**	**0.69**	
	LTE Band 2	0.53	0.61	0.59	
DTS	2.4GHz WLAN	<0.10	<0.10	<0.10	1.39
NII	WLAN 5.2GHz	<0.10		0.16	1.42
	WLAN 5.5GHz	<0.10		0.31	
	WLAN 5.8GHz	<0.10		0.28	
Date of Testing:		Jul. 28, 2015 ~ Aug. 15, 2015			

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/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 (SHENZHEN) INC.
Test Site Location	1F & 2F,Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	Sonim Technologies, Inc.
Address	1825 S. Grant St., Suite 200., San Mateo,CA,94402

Manufacturer	
Company Name	Sonim Technologies (Shenzhen) Limited
Address	2nd Floor, No. 2 Building Phase B, Daqian Industrial park, Longchang Road, 67 District, Baoan, Shenzhen, P. R. China

3. Guidance Standard

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r02
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r01
- FCC KDB 941225 D01 3G SAR Procedures v03
- FCC KDB 941225 D05 SAR for LTE Devices v02r03
- FCC KDB 941225 D06 Hotspot Mode SAR v02

4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	LTE Smartphone
Brand Name	Sonim
Model Name	XP7700
Marketing Name	XP7
FCC ID	WYPL22V012AA
MEID Code	990005160203395
Type Number	L22V012AA
Wireless Technology and Frequency Range	CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 14: 790.5 MHz ~ 795.5 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	· CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xAdvance/1xEv-Do(Rev.A) · LTE: QPSK, 16QAM · 802.11a/b/g/n HT20/HT40 · Bluetooth v2.1+EDR, Bluetooth v4.0 LE · NFC:ASK
HW Version	A
SW Version	7A.0.0-00-4.4.4-15.01.07
EUT Stage	Identical Prototype

Remark:

1. This device supports VoIP in CDMA and LTE (e.g. 3rd party VoIP).
2. This device supports VOLTE.
3. This device 2.4GHz WLAN supports hotspot operation.
4. This device on TDWR band(5600MHz-5650MHz) is notched.
5. This device 2.4GHz WLAN supports Hotspot operation, and 2.4GHz/ 5.2GHz / 5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).

4.2 Maximum Tune-up Limit

Average Power (dBm)		
Band	CDMA2000 BC0	CDMA2000 BC1
1xRTT RC1 SO55	24.50	24.50
1xRTT RC3 SO55	24.50	24.50
1xRTT RC3 SO32 (+ F-SCH)	24.50	24.50
1xRTT RC3 SO32 (+SCH)	24.50	24.50
1xEV-DO Rev 0 (RTAP 153.6kbps)	24.50	24.50
1xEV-DO Rev A (RETAP 4096bits)	24.50	24.50
1xAdvance Fwd11/Rvs8 SO75 (Loopback)	24.50	24.50

LTE Band 14				
Average Power (dBm)				
Modulation	BW (MHz)	RB size	MPR	Normal Power
QPSK	10	≤ 12	0	23.50
QPSK	10	> 12	1	22.50
16QAM	10	≤ 12	1	22.50
16QAM	10	> 12	2	21.50
QPSK	5	≤ 8	0	23.50
QPSK	5	> 8	1	22.50
16QAM	5	≤ 8	1	22.50
16QAM	5	> 8	2	21.50

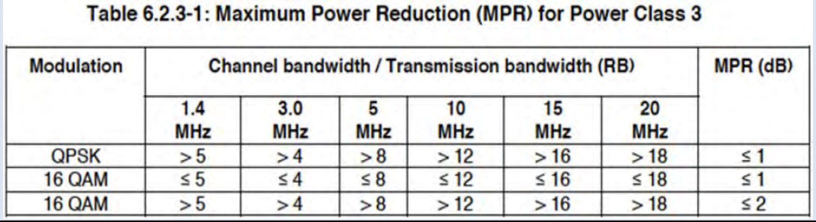
LTE Band 13					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Normal Power	Reduced Power
QPSK	10	≤ 12	0	23.00	20.00
QPSK	10	> 12	1	22.00	19.00
16QAM	10	≤ 12	1	22.00	19.00
16QAM	10	> 12	2	21.00	18.00
QPSK	5	≤ 8	0	23.00	20.00
QPSK	5	> 8	1	22.00	19.00
16QAM	5	≤ 8	1	22.00	19.00
16QAM	5	> 8	2	21.00	18.00

LTE Band 4					
Average Power (dBm)					
Modulation	BW (MHz)	RB size	MPR	Normal Power	Reduced Power
QPSK	20	≤ 18	0	24.00	20.00
QPSK	20	> 18	1	23.00	19.00
16QAM	20	≤ 18	1	23.00	19.00
16QAM	20	> 18	2	22.00	18.00
QPSK	15	≤ 16	0	24.00	20.00
QPSK	15	> 16	1	23.00	19.00
16QAM	15	≤ 16	1	23.00	19.00
16QAM	15	> 16	2	22.00	18.00
QPSK	10	≤ 12	0	24.00	20.00
QPSK	10	> 12	1	23.00	19.00
16QAM	10	≤ 12	1	23.00	19.00
16QAM	10	> 12	2	22.00	18.00
QPSK	5	≤ 8	0	24.00	20.00
QPSK	5	> 8	1	23.00	19.00
16QAM	5	≤ 8	1	23.00	19.00
16QAM	5	> 8	2	22.00	18.00
QPSK	3	≤ 4	0	24.00	20.00
QPSK	3	> 4	1	23.00	19.00
16QAM	3	≤ 4	1	23.00	19.00
16QAM	3	> 4	2	22.00	18.00
QPSK	1.4	≤ 5	0	24.00	20.00
QPSK	1.4	> 5	1	23.00	19.00
16QAM	1.4	≤ 5	1	23.00	19.00
16QAM	1.4	> 5	2	22.00	18.00

LTE Band 2				
Average Power (dBm)				
Modulation	BW (MHz)	RB size	MPR	Normal Power
QPSK	20	≤ 18	0	23.50
QPSK	20	> 18	1	22.50
16QAM	20	≤ 18	1	22.50
16QAM	20	> 18	2	21.50
QPSK	15	≤ 16	0	23.50
QPSK	15	> 16	1	22.50
16QAM	15	≤ 16	1	22.50
16QAM	15	> 16	2	21.50
QPSK	10	≤ 12	0	23.50
QPSK	10	> 12	1	22.50
16QAM	10	≤ 12	1	22.50
16QAM	10	> 12	2	21.50
QPSK	5	≤ 8	0	23.50
QPSK	5	> 8	1	22.50
16QAM	5	≤ 8	1	22.50
16QAM	5	> 8	2	21.50
QPSK	3	≤ 4	0	23.50
QPSK	3	> 4	1	22.50
16QAM	3	≤ 4	1	22.50
16QAM	3	> 4	2	21.50
QPSK	1.4	≤ 5	0	23.50
QPSK	1.4	> 5	1	22.50
16QAM	1.4	≤ 5	1	22.50
16QAM	1.4	> 5	2	21.50

Mode			Average Power (dBm)
2.4GHz	802.11b		12.00
	802.11g		11.00
	802.11n-HT20		10.00
	802.11n-HT40		10.00
5.2GHz	802.11a		9.50
	802.11n-HT20		9.00
	802.11n-HT40		9.00
5.3GHz	802.11a		9.00
	802.11n-HT20	CH 52	9.00
		CH 56	8.50
		CH 60	8.50
		CH 64	8.50
	802.11n-HT40	CH 54	9.00
		CH 62	8.50
5.5GHz	802.11a	CH 100	10.00
		CH 116	10.00
		CH 132	10.00
		CH 140	9.00
	802.11n-HT20	CH 100	9.00
		CH 116	9.50
		CH 132	9.50
		CH 140	8.00
	802.11n-HT40		9.50
5.8GHz	802.11a		10.00
	802.11n-HT20	CH 149	9.00
		CH 157	9.50
		CH 165	9.50
	802.11n-HT40		9.50
Bluetooth v2.1+ EDR			9.00
Bluetooth v4.0 LE			1.00

4.3 General LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r03</th></tr>
<tr><td>FCC ID</td><td>WYPL22V012AA</td></tr>
<tr><td>Equipment Name</td><td>LTE Smartphone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 14: 790.5 MHz ~ 795.5 MHz
LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 4: 1710.7 MHz ~ 1754.3 MHz
LTE Band 2: 1850.7 MHz ~ 1909.3 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 14: 5MHz, 10MHz
LTE Band 13: 5MHz, 10MHz
LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK, and 16QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th>Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th>MPR (dB)</th></tr>
<tr><th></th><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><th></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, LTE mode power reduction is triggered when the device in SVLTE mode</td></tr>
</table>

The SVLTE operating mode, which means CDMA 1x RTT(voice) and LTE (data) transmitting simultaneously. In power reduction for LTE mode is implemented on this device and cannot be changed by end users or overridden by power control command from base stations.

The power reduction implementation is defined as following table.

CDMA2000 1x voice BC0-Output power level	CDMA2000 1x voice BC1-Output power level	LTE data mode Band13	LTE data mode Band 4	Remark
P ≥ 22	P ≥ 22	20	20	LTE Power reduction triggered
P < 22	P < 22	23	24	LTE in normal full power mode

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 14				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23305	790.5	23330	793
M	23330	793		
H	23355	795.5		

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 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 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

5. RF Exposure Limits

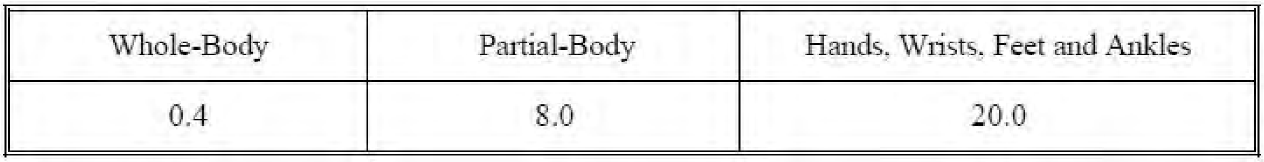
5.1 Uncontrolled Environment

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

5.2 Controlled Environment

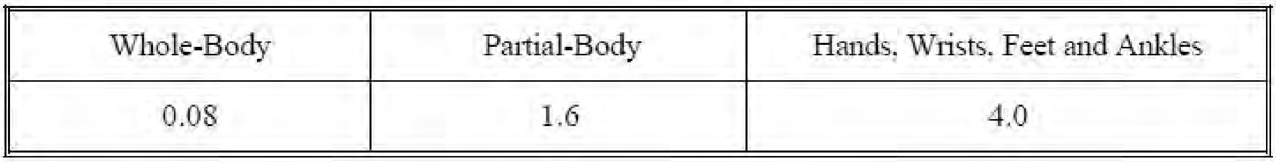
Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed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

Limits for Occupational/Controlled Exposure (W/kg)



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

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



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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

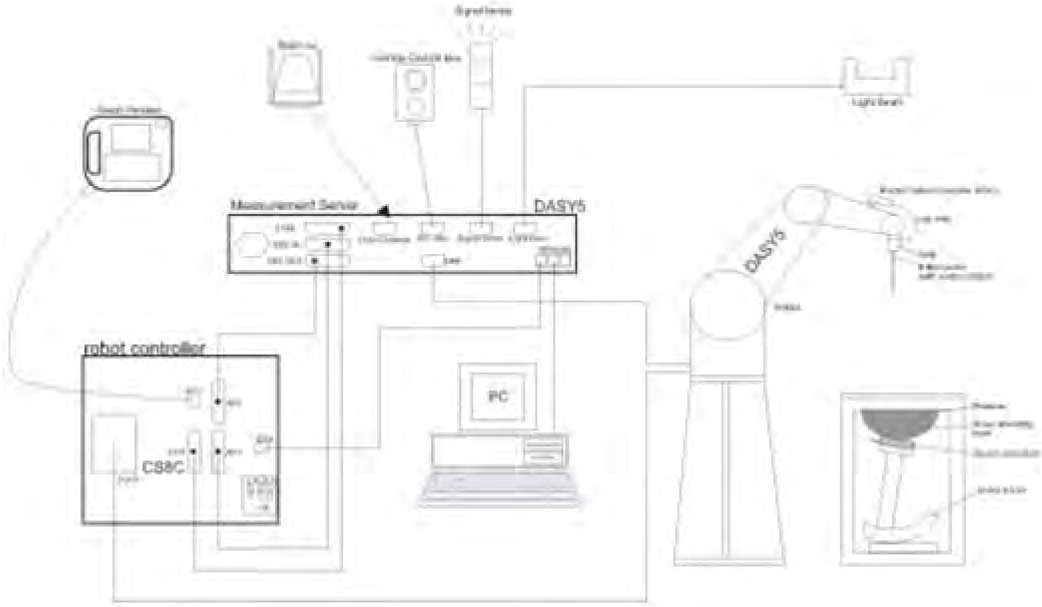
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

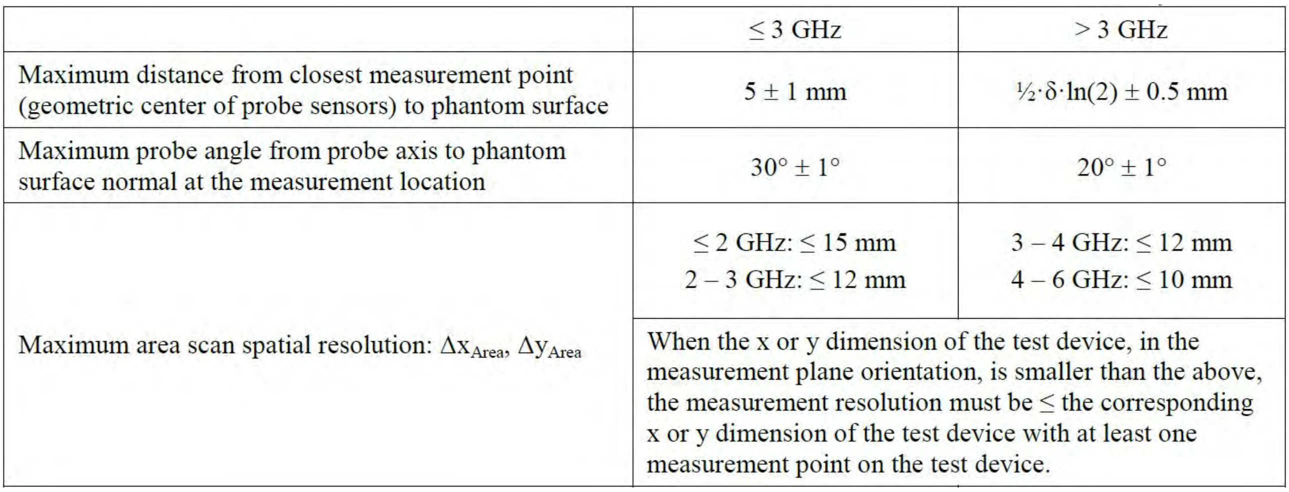
8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

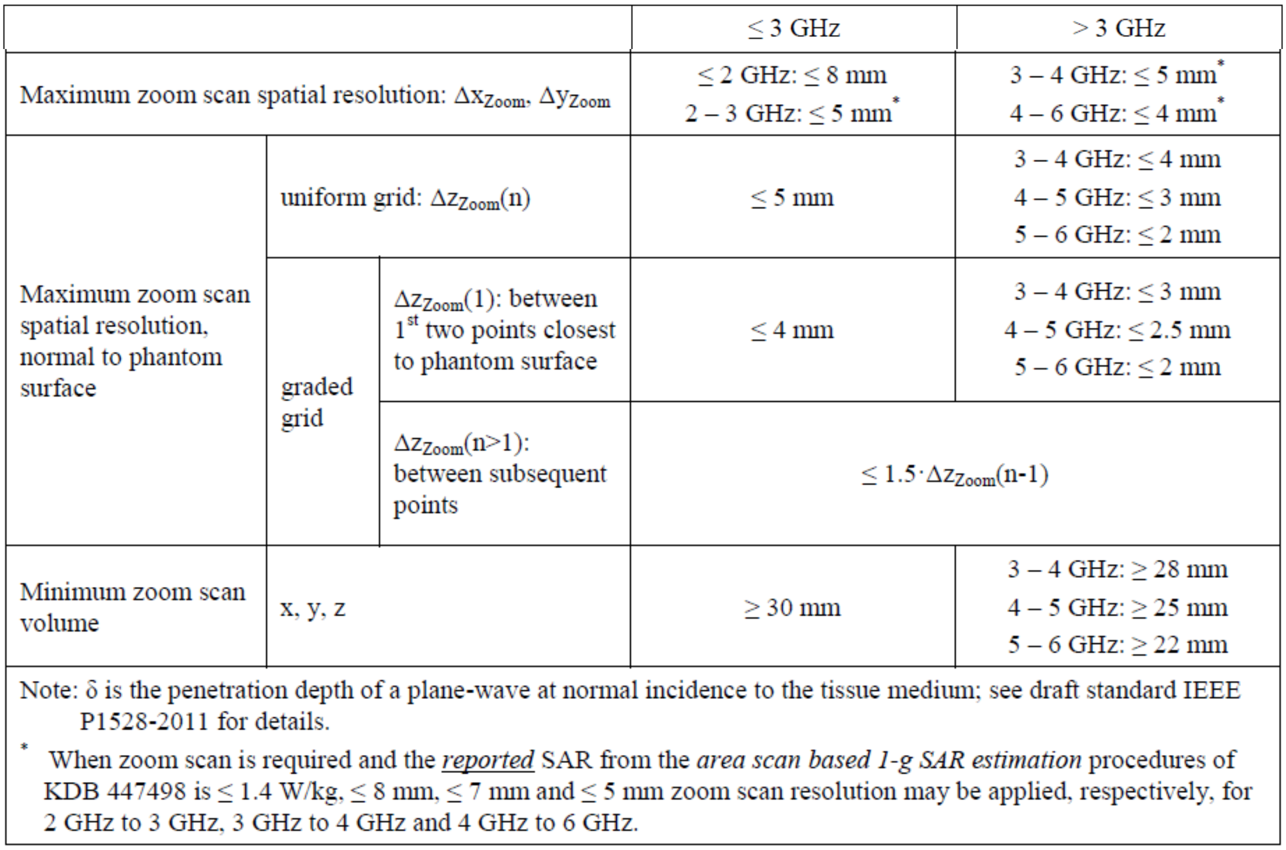


	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area},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

8.4 Zoom Scan

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

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



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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1065	Nov. 19, 2014	Nov. 18, 2015
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 21, 2014	Nov. 20, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1069	Nov. 21, 2014	Nov. 20, 2015
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 21, 2014	Nov. 20, 2015
SPEAG	2450MHz System Validation Kit	D2450V2	840	Nov. 19, 2014	Nov. 18, 2015
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	Nov. 24, 2014	Nov. 23, 2015
SPEAG	Data Acquisition Electronics	DAE4	1303	Dec. 11, 2014	Dec. 10, 2015
SPEAG	Data Acquisition Electronics	DAE4	1386	Feb. 19, 2015	Feb. 18, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	Nov. 13, 2014	Nov. 12, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	7346	Jan. 08, 2015	Jan. 07, 2016
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1671	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201432827	Jan. 15, 2015	Jan. 14, 2016
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Aug. 07, 2015	Aug. 06, 2016
R&S	Network Analyzer	ZVB8	100106	Sep. 29, 2014	Sep. 28, 2015
Speag	Dielectric Assessment KIT	DAK-3.5	1032	NCR	NCR
R&S	Signal Generator	SMBV100A	258305	Jan. 23, 2015	Jan. 22, 2016
Anritsu	Power Sensor	MA2411B	1207253	Jan. 28, 2015	Jan. 27, 2016
Anritsu	Power Meter	ML2495A	1218010	Jan. 28, 2015	Jan. 27, 2016
Anritsu	Power Senor	MA2411B	917070	Jan. 23, 2015	Jan. 22, 2016
Anritsu	Power Meter	ML2495A	1005002	Jan. 23, 2015	Jan. 22, 2016
ARRA	Power Divider	A3200-2	N/A	NA	NA
R&S	Spectrum Analyzer	FSP7	101634	Aug. 07, 2015	Aug. 06, 2016
Agilent	Dual Directional Coupler	778D	50422	Note1	
Woken	Attenuator 1	WK0602-XX	N/A	Note1	
PE	Attenuator 2	PE7005-10	N/A	Note1	
PE	Attenuator 3	PE7005- 3	N/A	Note1	
AR	Power Amplifier	5S1G4M2	0328767	Note1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	Note1	

General Note:

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

10. System Verification

10.1 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7

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	0.880	40.752	0.89	41.90	-1.12	-2.74	±5	Jul. 30, 2015
835	Head	22.7	0.916	41.029	0.90	41.50	1.78	-1.13	±5	Jul. 30, 2015
1750	Head	22.9	1.378	41.340	1.37	40.10	0.58	3.09	±5	Jul. 31, 2015
1900	Head	22.9	1.449	40.009	1.40	40.00	3.50	0.02	±5	Jul. 31, 2015
2450	Head	22.6	1.809	38.451	1.80	39.20	0.50	-1.91	±5	Aug. 15, 2015
5200	Head	22.8	4.656	36.346	4.66	36.00	-0.09	0.96	±5	Aug. 01, 2015
5600	Head	22.9	5.139	35.632	5.07	35.50	1.36	0.37	±5	Aug. 01, 2015
5800	Head	22.6	5.368	35.254	5.27	35.30	1.86	-0.13	±5	Aug. 01, 2015
750	Body	22.6	0.970	54.646	0.96	55.50	1.04	-1.54	±5	Jul. 28, 2015
835	Body	22.7	0.972	53.975	0.97	55.20	0.21	-2.22	±5	Jul. 28, 2015
1750	Body	22.7	1.522	52.519	1.49	53.40	2.15	-1.65	±5	Jul. 29, 2015
1900	Body	22.8	1.535	54.579	1.52	53.30	0.99	2.40	±5	Jul. 29, 2015
2450	Body	22.8	1.909	50.971	1.95	52.70	-2.10	-3.28	±5	Aug. 15, 2015
5200	Body	22.7	5.137	48.164	5.30	49.00	-3.08	-1.71	±5	Aug. 01, 2015
5600	Body	22.8	5.644	47.452	5.77	48.50	-2.18	-2.16	±5	Aug. 01, 2015
5800	Body	22.9	5.868	46.994	6.00	48.20	-2.20	-2.50	±5	Aug. 01, 2015

10.2 System Performance Check Results

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

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured SAR (W/kg)	Targeted SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)
Jul. 30, 2015	750	Head	250	1065	7346	1386	1.95	8.14	7.8	-4.18
Jul. 30, 2015	835	Head	250	4d091	7346	1386	2.23	9.11	8.92	-2.09
Jul. 31, 2015	1750	Head	250	1069	3819	1303	9.62	37.10	38.48	3.72
Jul. 31, 2015	1900	Head	250	5d118	3819	1303	10.50	40.10	42	4.74
Aug. 15, 2015	2450	Head	250	840	3819	1303	13.10	52.30	52.4	0.19
Aug. 01, 2015	5200	Head	100	1113	3819	1303	8.33	80.00	83.3	4.13
Aug. 01, 2015	5600	Head	100	1113	3819	1303	7.67	82.40	76.7	-6.92
Aug. 01, 2015	5800	Head	100	1113	3819	1303	7.79	78.50	77.9	-0.76
Jul. 28, 2015	750	Body	250	1065	7346	1386	2.11	8.64	8.44	-2.31
Jul. 28, 2015	835	Body	250	4d091	7346	1386	2.32	9.60	9.28	-3.33
Jul. 29, 2015	1750	Body	250	1069	7346	1386	9.07	38.10	36.28	-4.78
Jul. 29, 2015	1900	Body	250	5d118	7346	1386	9.50	40.00	38	-5.00
Aug. 15, 2015	2450	Body	250	840	3819	1303	13.70	51.00	54.8	7.45
Aug. 01, 2015	5200	Body	100	1113	3819	1303	7.44	74.90	74.4	-0.67
Aug. 01, 2015	5600	Body	100	1113	3819	1303	8.30	81.50	83	1.84
Aug. 01, 2015	5800	Body	100	1113	3819	1303	7.98	75.40	79.8	5.84

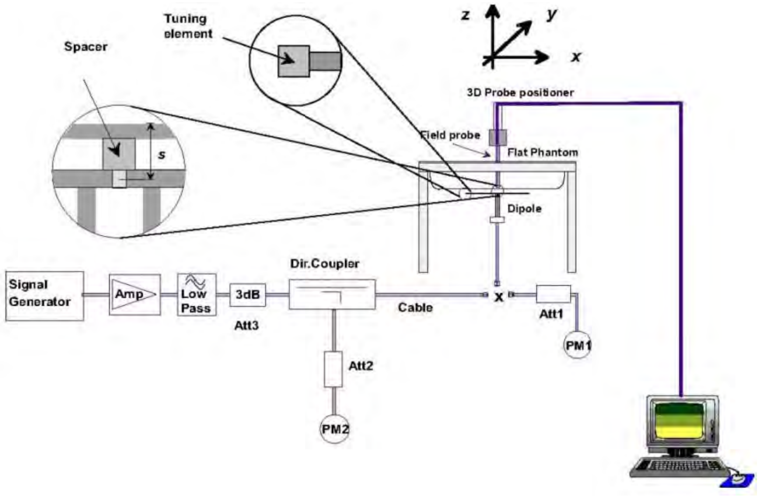


Fig 8.3.1 System Performance Check Setup

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.

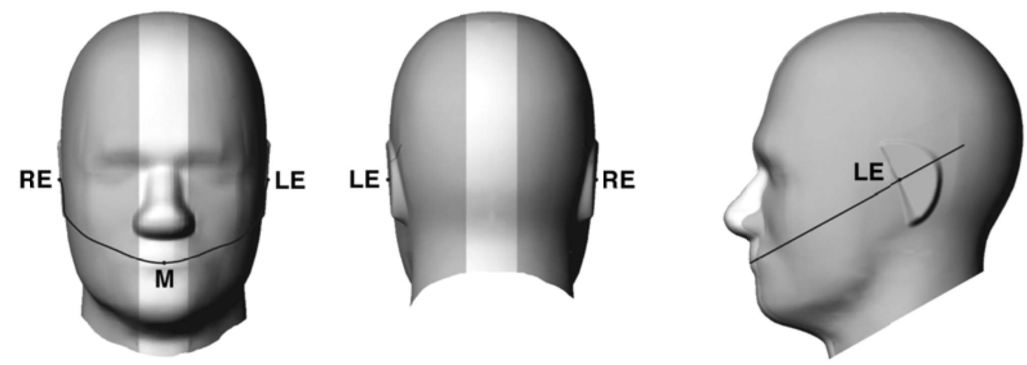


Fig 9.1.1 Front, back, and side views of SAM twin phantom

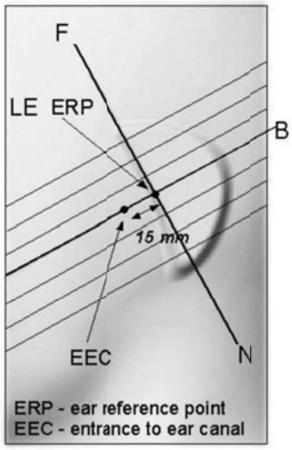


Fig 9.1.2 Close-up side view of phantom showing the ear region.

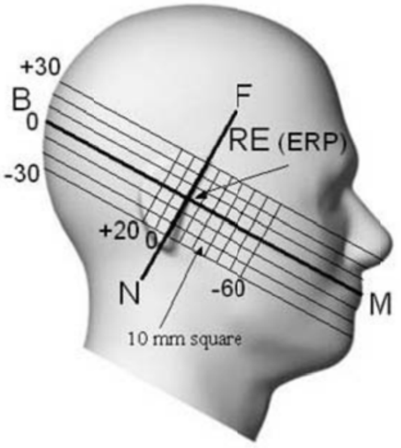


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

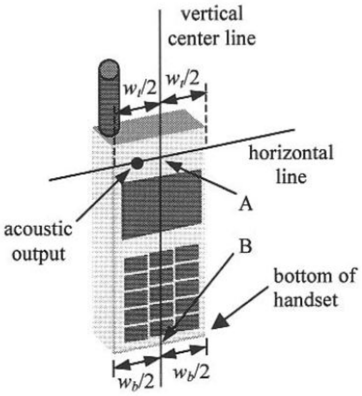


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

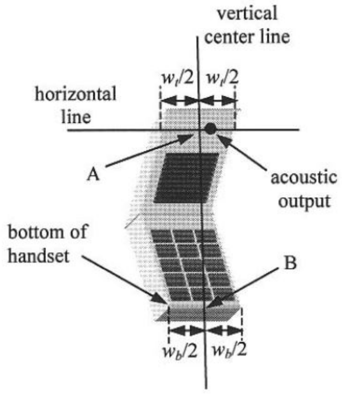


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

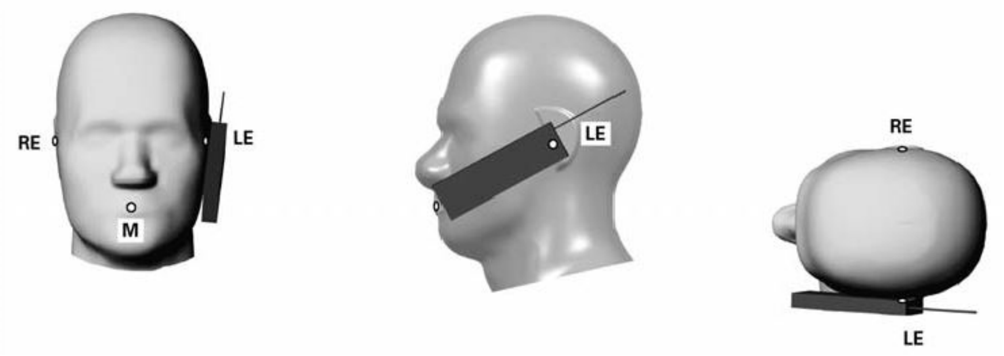


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

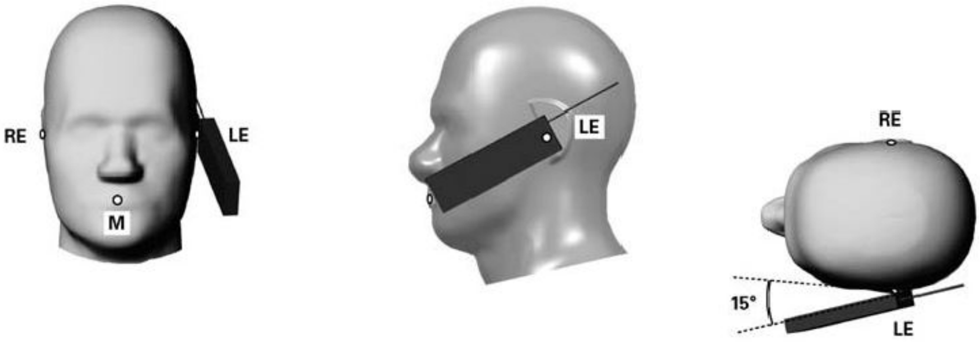


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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 KDB 648474 D04v01r02, 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 D01v05r02 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.

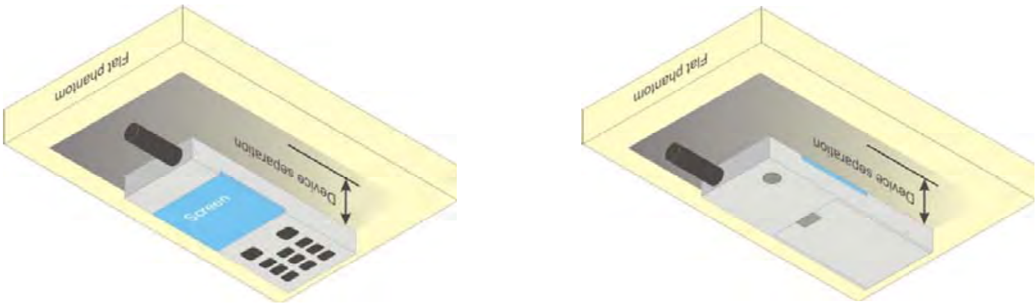


Fig 9.4 Body Worn Position

11.5 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 HDB Publication 941225 D06 v02 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.

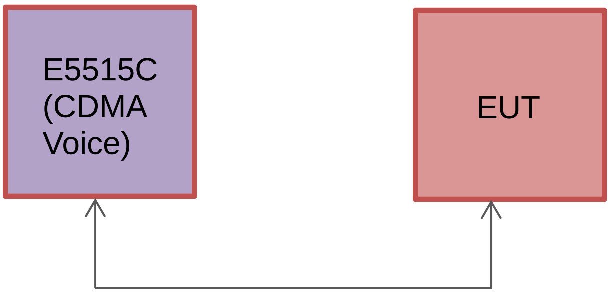
When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for 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 D01v05r02 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)

<CDMA2000 Conducted Power>

General Note:

1. Per KDB 941225 D01v03, SAR for head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03, 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 D01v03, 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.
4. Maximum output power is verified for 1x-Advanced by applying the 1x RTT power measurement procedures using SO75, with RC 8 in the uplink and RC11 in the downlink. Smart blanking must be disabled. 1x-Advanced with 1x RTT RC3 as the primary mode. When SAR measurement is required, the 1x-Advanced power measurement configurations are used. The 1x Advanced SAR procedures are applied separately to head, body-worn accessory and other exposure conditions.
5. There is no power reduction applied to the CDMA voice mode, the device with fixed power in the below table is to analyze simultaneous SAR in the SVLTE condition where LTE is operating with maximum output power in conjunction with a lower CDMA voice power.



Conducted Power Measurement Setup

Band	CDMA2000 BC0			CDMA2000 BC1		
TX Channel	1013	384	777	25	600	1175
Frequency (MHz)	824.7	836.52	848.31	1851.25	1880	1908.75
1xRTT RC1 SO55	23.98	23.76	24.06	24.24	24.12	24.13
1xRTT RC3 SO55	24.00	23.79	**24.08**	**24.30**	24.13	24.17
1xRTT RC3 SO32(+ F-SCH)	23.97	23.76	24.05	24.23	24.11	24.16
1xRTT RC3 SO32(+SCH)	23.94	23.74	24.02	24.22	24.10	24.14
1xEVDO RTAP 153.6Kbps	23.98	23.77	24.05	24.24	24.02	24.10
1xEVDO RETAP 4096Bits	23.97	23.75	24.02	24.22	24.01	24.05
1xAdvance Fwd11/Rvs8 SO75 (Loopback)	23.92	23.75	23.94	24.17	23.89	23.91

LTE Power Reduction

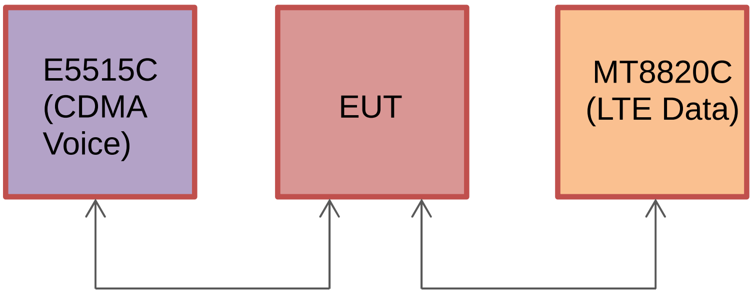
This device is capable of Simultaneous Voice and LTE (SVLTE) calls, with the voice call supported by a CDMA 1x-RTT transmitter and the data connection supported by a separate LTE transmitter. A LTE power reduction scheme is applied during a LTE connection operating simultaneously with 1x-RTT voice calls. The maximum transmit power of LTE is limited depending on the CDMA 1x voice transmit power level. When CDMA 1x Voice is operation at a certain range of high power levels, the maximum LTE transmit power is limited. When CDMA 1x Voice transmit power is below a certain threshold transmit power level, LTE can transmit at the maximum power. Target levels of power reduction and CDMA voice threshold levels are as followings table.

SVLTE Power Reduction Scheme

CDMA2000 1x voice BC0-Output power level	CDMA2000 1x voice BC1-Output power level	LTE data mode Band13	LTE data mode Band 4	Remark
P ≥ 22	P ≥ 22	20	20	LTE Power reduction triggered
P < 22	P < 22	23	24	LTE in normal full power mode

Output Power Verification

Output powers were measured in SVLTE mode to determine that the power reduction mechanism was operating reliably and consistently. The power reduction was investigated by simultaneously connecting the device to both LTE and CDMA base station simulators. LTE output powers were measured through conducted RF connections by first connecting the device in a LTE data call and subsequently a CDMA 1x-RTT call. CDMA powers were controlled by configuring the CDMA base station simulator to active bits. The LTE output power was monitored while changing the cell output power level..



SVLTE Conducted Power Measurement Setup

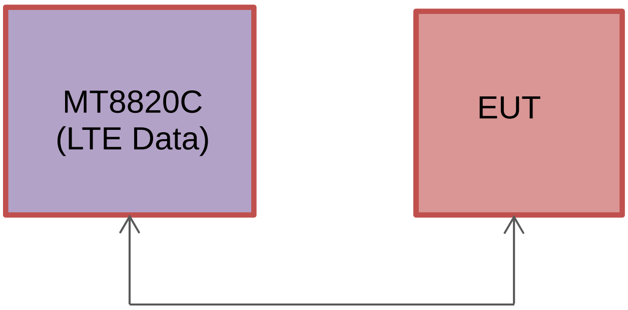
1X CDMA_BC0 RC3 SO55_Voice Channel	1X CDM_BC0 RC3 SO55 Voice Power level (dBm)	LTE Conducted Power (dBm)	
		LTE Band13 1RB,49RB offset Middle channel	LTE Band4 1RB,49RB offset Middle channel
	24	19.34	19.61
	23	19.32	19.60
	22.5	19.30	19.58
	22	22.57	22.92
	21.5	22.58	22.88
	21	22.49	22.96
	20	22.54	22.90
1X CDMA_BC1 RC3 SO55_Voice Channel	1X CDMA_BC1 RC3 SO55 Voice Power level (dBm)	LTE Conducted Power (dBm)	
		LTE Band13 1RB,49RB offset Middle channel	LTE Band4 1RB,49RB offset Middle channel
Middle channel	24	19.33	19.61
	23	19.32	19.57
	22.5	19.33	19.58
	22	22.55	22.9
	21.5	22.57	22.88
	21	22.45	22.94
	20	22.52	22.93

Table 12-2 SVLTE Power Reduction Verification Results

<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 D05v02r03, 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 D05v02r03, 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 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, 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 D05v02r03, 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 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, 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 D05v02r03, smaller bandwidth SAR testing is not required.



Conducted Power Measurement Setup

Maximum Average RF Power (Full Power)

<LTE Band 14>

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					23330		Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)					793			
10	QPSK	1	0		22.65		23.50	0
10	QPSK	1	24		22.66			
10	QPSK	1	49		**22.73**			
10	QPSK	25	0		21.64		22.50	1
10	QPSK	25	12		21.68			
10	QPSK	25	24		21.72			
10	QPSK	50	0		21.71			
10	16QAM	1	0		21.21		22.50	1
10	16QAM	1	24		21.26			
10	16QAM	1	49		21.35			
10	16QAM	25	0		20.59		21.50	2
10	16QAM	25	12		20.64			
10	16QAM	25	24		20.59			
10	16QAM	50	0		20.68			
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	22.55	22.50	22.61	23.50	0
5	QPSK	1	12	22.58	22.56	22.63		
5	QPSK	1	24	22.60	22.63	22.64		
5	QPSK	12	0	21.57	21.62	21.63	22.50	1
5	QPSK	12	6	21.59	21.63	21.67		
5	QPSK	12	11	21.67	21.72	21.69		
5	QPSK	25	0	21.63	21.63	21.65		
5	16QAM	1	0	21.28	21.30	21.36	22.50	1
5	16QAM	1	12	21.30	21.42	21.13		
5	16QAM	1	24	21.41	21.37	21.26		
5	16QAM	12	0	20.52	20.68	20.59	21.50	2
5	16QAM	12	6	20.54	20.60	20.71		
5	16QAM	12	11	20.57	20.59	20.66		
5	16QAM	25	0	20.61	20.64	20.59		

<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		Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)					782			
10	QPSK	1	0		22.58		23.00	0
10	QPSK	1	24		22.69			
10	QPSK	1	49		22.52			
10	QPSK	25	0		21.67		22.00	1
10	QPSK	25	12		21.53			
10	QPSK	25	24		21.59			
10	QPSK	50	0		21.66			
10	16QAM	1	0		21.28		22.00	1
10	16QAM	1	24		21.42			
10	16QAM	1	49		21.23			
10	16QAM	25	0		20.51		21.00	2
10	16QAM	25	12		20.60			
10	16QAM	25	24		20.65			
10	16QAM	50	0		20.51			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.64	22.65	22.54	23.00	0
5	QPSK	1	12	22.68	22.63	22.57		
5	QPSK	1	24	22.59	22.58	22.56		
5	QPSK	12	0	21.65	21.57	21.62	22.00	1
5	QPSK	12	6	21.57	21.56	21.47		
5	QPSK	12	11	21.58	21.58	21.56		
5	QPSK	25	0	21.63	21.53	21.49		
5	16QAM	1	0	21.63	21.65	21.60	22.00	1
5	16QAM	1	12	21.73	21.70	21.46		
5	16QAM	1	24	21.65	21.64	21.61		
5	16QAM	12	0	20.59	20.53	20.44	21.00	2
5	16QAM	12	6	20.28	20.51	20.48		
5	16QAM	12	11	20.22	20.56	20.56		
5	16QAM	25	0	20.24	20.56	20.56		

<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			Channel	20050	20175	20300		
Frequency (MHz)			Frequency (MHz)	1720	1732.5	1745		
20	QPSK	1	0	22.75	22.94	22.85	24.00	0
20	QPSK	1	49	22.82	**22.96**	22.86		
20	QPSK	1	99	22.72	22.79	22.77		
20	QPSK	50	0	21.81	21.91	21.84	23.00	1
20	QPSK	50	24	21.83	21.94	21.85		
20	QPSK	50	49	21.72	21.79	21.80		
20	QPSK	100	0	21.76	21.92	21.80		
20	16QAM	1	0	21.55	22.01	22.06	23.00	1
20	16QAM	1	49	21.46	21.93	22.04		
20	16QAM	1	99	21.56	21.96	21.88		
20	16QAM	50	0	20.83	20.72	20.88	22.00	2
20	16QAM	50	24	20.73	20.76	20.82		
20	16QAM	50	49	20.62	20.74	20.78		
20	16QAM	100	0	20.77	20.77	20.77		
Channel			Channel	20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1717.5	1732.5	1747.5		
15	QPSK	1	0	22.79	22.95	22.83	24.00	0
15	QPSK	1	37	22.80	22.75	22.84		
15	QPSK	1	74	22.79	22.74	22.82		
15	QPSK	36	0	21.75	21.81	21.96	23.00	1
15	QPSK	36	18	21.78	21.83	21.85		
15	QPSK	36	37	21.79	21.84	21.84		
15	QPSK	75	0	21.71	21.86	21.94		
15	16QAM	1	0	21.96	22.01	22.21	23.00	1
15	16QAM	1	37	21.78	21.87	21.70		
15	16QAM	1	74	21.82	21.81	21.88		
15	16QAM	36	0	20.80	20.81	20.81	22.00	2
15	16QAM	36	18	20.74	20.80	20.76		
15	16QAM	36	37	20.73	20.70	20.78		
15	16QAM	75	0	20.75	20.96	20.84		

Channel			Channel	20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1715	1732.5	1750		
10	QPSK	1	0	22.76	22.92	22.82	24.00	0
10	QPSK	1	24	22.80	22.81	22.77		
10	QPSK	1	49	22.75	22.71	22.81		
10	QPSK	25	0	21.73	21.85	21.78	23.00	1
10	QPSK	25	12	21.79	21.86	21.85		
10	QPSK	25	24	21.80	21.78	21.88		
10	QPSK	50	0	21.81	21.93	21.85		
10	16QAM	1	0	21.54	21.69	21.78	23.00	1
10	16QAM	1	24	21.57	21.63	21.77		
10	16QAM	1	49	21.59	21.54	21.65		
10	16QAM	25	0	20.68	20.72	20.82	22.00	2
10	16QAM	25	12	20.74	20.78	20.88		
10	16QAM	25	24	20.75	20.64	20.84		
10	16QAM	50	0	20.81	20.83	20.82		
Channel			Channel	19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1712.5	1732.5	1752.5		
5	QPSK	1	0	22.79	22.94	22.84	24.00	0
5	QPSK	1	12	22.78	22.73	22.81		
5	QPSK	1	24	22.76	22.79	22.83		
5	QPSK	12	0	22.75	21.90	21.81	23.00	1
5	QPSK	12	6	21.83	21.85	21.84		
5	QPSK	12	11	21.78	21.75	21.87		
5	QPSK	25	0	21.83	21.91	21.85		
5	16QAM	1	0	21.61	22.09	22.08	23.00	1
5	16QAM	1	12	21.57	21.85	21.95		
5	16QAM	1	24	21.47	21.99	22.13		
5	16QAM	12	0	20.78	20.92	20.88	22.00	2
5	16QAM	12	6	20.78	20.86	20.85		
5	16QAM	12	11	20.86	20.72	20.85		
5	16QAM	25	0	20.71	20.76	20.79		

Channel			Channel	19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1711.5	1732.5	1753.5		
3	QPSK	1	0	22.77	22.85	22.83	24.00	0
3	QPSK	1	7	22.70	22.68	22.82		
3	QPSK	1	14	22.78	22.77	22.81		
3	QPSK	8	0	21.76	21.92	21.85	23.00	1
3	QPSK	8	4	21.79	21.91	21.79		
3	QPSK	8	7	21.75	21.83	21.83		
3	QPSK	15	0	21.75	21.94	21.84		
3	16QAM	1	0	21.62	21.75	21.97	23.00	1
3	16QAM	1	7	21.68	21.56	22.00		
3	16QAM	1	14	21.61	21.66	22.03		
3	16QAM	8	0	20.71	20.85	20.87	22.00	2
3	16QAM	8	4	20.76	20.90	20.76		
3	16QAM	8	7	20.72	20.73	20.83		
3	16QAM	15	0	20.64	20.77	20.86		
Channel			Channel	19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.74	22.95	22.66	24.00	0
1.4	QPSK	1	2	22.80	22.93	22.80		
1.4	QPSK	1	5	22.74	22.77	22.83		
1.4	QPSK	3	0	22.75	22.86	22.80		
1.4	QPSK	3	1	22.78	22.90	22.79		
1.4	QPSK	3	2	22.79	22.92	22.79		
1.4	QPSK	6	0	21.82	21.93	21.87	23.00	1
1.4	16QAM	1	0	21.94	21.64	21.44	23.00	1
1.4	16QAM	1	2	21.93	21.62	21.43		
1.4	16QAM	1	5	22.00	21.46	21.55		
1.4	16QAM	3	0	21.75	21.89	21.90		
1.4	16QAM	3	1	21.79	21.92	21.84		
1.4	16QAM	3	2	21.81	21.92	21.84		
1.4	16QAM	6	0	20.76	20.64	20.56	22.00	2

<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	23.04	**23.12**	22.97	23.50	0
20	QPSK	1	49	22.83	22.91	22.92		
20	QPSK	1	99	22.90	22.90	22.89		
20	QPSK	50	0	21.86	22.00	21.92	22.50	1
20	QPSK	50	24	21.94	22.03	21.95		
20	QPSK	50	49	21.88	22.00	21.93		
20	QPSK	100	0	21.92	22.01	21.87		
20	16QAM	1	0	22.20	22.02	22.00	22.50	1
20	16QAM	1	49	22.03	22.13	21.94		
20	16QAM	1	99	22.18	22.20	22.09		
20	16QAM	50	0	20.84	20.91	20.95	21.50	2
20	16QAM	50	24	20.87	20.95	20.94		
20	16QAM	50	49	21.00	20.95	20.92		
20	16QAM	100	0	20.81	20.91	20.89		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.99	22.95	22.81	23.50	0
15	QPSK	1	37	22.83	22.96	22.90		
15	QPSK	1	74	22.87	22.99	22.96		
15	QPSK	36	0	21.91	21.95	21.87	22.50	1
15	QPSK	36	18	21.91	21.93	21.93		
15	QPSK	36	37	21.89	21.96	21.95		
15	QPSK	75	0	21.94	21.93	21.95		
15	16QAM	1	0	21.66	21.87	21.93	22.50	1
15	16QAM	1	37	21.90	21.85	22.04		
15	16QAM	1	74	21.66	22.04	21.69		
15	16QAM	36	0	20.82	20.82	20.85	21.50	2
15	16QAM	36	18	20.84	20.85	20.81		
15	16QAM	36	37	20.74	20.90	20.95		
15	16QAM	75	0	20.91	20.97	21.00		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.01	23.10	22.87	23.50	0
10	QPSK	1	24	22.95	22.90	22.81		
10	QPSK	1	49	22.92	22.91	22.78		
10	QPSK	25	0	21.90	21.87	21.89	22.50	1
10	QPSK	25	12	21.86	21.99	21.90		
10	QPSK	25	24	21.89	21.94	21.74		
10	QPSK	50	0	21.83	21.96	21.95		
10	16QAM	1	0	21.74	22.25	22.07	22.50	1
10	16QAM	1	24	22.06	22.16	22.05		
10	16QAM	1	49	22.14	22.15	22.02		
10	16QAM	25	0	20.79	20.79	20.88	21.50	2
10	16QAM	25	12	20.79	20.83	20.88		
10	16QAM	25	24	20.82	20.88	21.03		
10	16QAM	50	0	20.80	20.93	20.96		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.89	22.96	22.88	23.50	0
5	QPSK	1	12	22.70	22.84	22.83		
5	QPSK	1	24	22.83	22.92	22.73		
5	QPSK	12	0	21.87	21.98	21.96	22.50	1
5	QPSK	12	6	21.88	21.94	21.87		
5	QPSK	12	11	21.91	21.97	21.94		
5	QPSK	25	0	21.94	21.92	21.78		
5	16QAM	1	0	21.87	21.73	21.71	22.50	1
5	16QAM	1	12	21.66	21.89	21.67		
5	16QAM	1	24	22.01	21.81	21.67		
5	16QAM	12	0	20.78	20.90	20.99	21.50	2
5	16QAM	12	6	20.79	20.92	20.92		
5	16QAM	12	11	20.83	20.95	20.97		
5	16QAM	25	0	20.90	20.92	20.86		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.98	23.01	22.81	23.50	0
3	QPSK	1	7	22.86	22.90	22.83		
3	QPSK	1	14	22.85	22.98	22.78		
3	QPSK	8	0	21.96	21.92	21.83	22.50	1
3	QPSK	8	4	21.86	21.99	21.88		
3	QPSK	8	7	21.86	21.97	21.86		
3	QPSK	15	0	21.90	21.92	21.88		
3	16QAM	1	0	22.13	22.20	22.02	22.50	1
3	16QAM	1	7	21.97	22.26	22.13		
3	16QAM	1	14	21.94	22.12	21.88		
3	16QAM	8	0	20.84	20.96	20.90	21.50	2
3	16QAM	8	4	20.85	20.94	20.98		
3	16QAM	8	7	20.87	20.99	20.93		
3	16QAM	15	0	20.93	20.93	20.94		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.87	22.90	22.77	23.50	0
1.4	QPSK	1	2	22.90	22.98	22.91		
1.4	QPSK	1	5	22.91	22.97	22.80		
1.4	QPSK	3	0	23.02	22.99	22.92		
1.4	QPSK	3	1	22.98	22.98	22.90		
1.4	QPSK	3	2	22.96	22.99	22.84		
1.4	QPSK	6	0	22.05	22.00	21.97	22.50	1
1.4	16QAM	1	0	21.79	21.72	21.52	22.50	1
1.4	16QAM	1	2	21.78	21.72	21.57		
1.4	16QAM	1	5	21.72	21.60	21.42		
1.4	16QAM	3	0	21.78	21.79	21.88		
1.4	16QAM	3	1	21.72	21.76	21.91		
1.4	16QAM	3	2	21.81	21.76	21.81		
1.4	16QAM	6	0	20.70	20.78	20.75	21.50	2

Maximum Average RF Power (Reduced Power)

<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		Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)					782			
10	QPSK	1	0		19.29		20.00	0
10	QPSK	1	24		19.25			
10	QPSK	1	49		**19.34**			
10	QPSK	25	0		18.25		19.00	1
10	QPSK	25	12		18.00			
10	QPSK	25	24		18.21			
10	QPSK	50	0		18.30			
10	16QAM	1	0		18.49		19.00	1
10	16QAM	1	24		18.27			
10	16QAM	1	49		18.44			
10	16QAM	25	0		17.22		18.00	2
10	16QAM	25	12		17.36			
10	16QAM	25	24		17.18			
10	16QAM	50	0		17.06			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	19.31	19.16	19.11	20.00	0
5	QPSK	1	12	19.27	19.09	19.04		
5	QPSK	1	24	19.25	19.13	19.14		
5	QPSK	12	0	18.28	18.27	18.17	19.00	1
5	QPSK	12	6	18.29	18.22	18.15		
5	QPSK	12	11	18.23	18.20	18.24		
5	QPSK	25	0	18.26	18.26	18.15		
5	16QAM	1	0	18.02	18.04	17.99	19.00	1
5	16QAM	1	12	18.18	17.97	18.08		
5	16QAM	1	24	18.10	17.94	18.11		
5	16QAM	12	0	17.26	17.17	17.08	18.00	2
5	16QAM	12	6	17.20	17.25	17.13		
5	16QAM	12	11	17.22	17.20	17.14		
5	16QAM	25	0	17.26	17.36	17.16		

<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			Channel	20050	20175	20300		
Frequency (MHz)			Frequency (MHz)	1720	1732.5	1745		
20	QPSK	1	0	19.36	19.58	19.58	20.00	0
20	QPSK	1	49	19.41	19.61	19.60		
20	QPSK	1	99	19.40	19.43	19.46		
20	QPSK	50	0	18.50	18.55	18.57	19.00	1
20	QPSK	50	24	18.37	18.50	18.46		
20	QPSK	50	49	18.31	18.44	18.41		
20	QPSK	100	0	18.43	18.52	18.51		
20	16QAM	1	0	18.22	18.32	18.34	19.00	1
20	16QAM	1	49	18.08	18.28	18.35		
20	16QAM	1	99	17.99	18.57	18.25		
20	16QAM	50	0	17.38	17.40	17.46	18.00	2
20	16QAM	50	24	17.35	17.42	17.39		
20	16QAM	50	49	17.19	17.32	17.38		
20	16QAM	100	0	17.34	17.43	17.35		
Channel			Channel	20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1717.5	1732.5	1747.5		
15	QPSK	1	0	19.42	19.56	**19.62**	20.00	0
15	QPSK	1	37	19.34	19.39	19.47		
15	QPSK	1	74	19.44	19.48	19.48		
15	QPSK	36	0	18.40	18.45	18.63	19.00	1
15	QPSK	36	18	18.46	18.47	18.50		
15	QPSK	36	37	18.40	18.44	18.46		
15	QPSK	75	0	18.37	18.49	18.48		
15	16QAM	1	0	18.69	18.43	18.46	19.00	1
15	16QAM	1	37	18.27	18.33	18.38		
15	16QAM	1	74	18.64	18.35	18.37		
15	16QAM	36	0	17.38	17.36	17.50	18.00	2
15	16QAM	36	18	17.34	17.39	17.35		
15	16QAM	36	37	17.30	17.28	17.41		
15	16QAM	75	0	17.31	17.44	17.38		

Channel			Channel	20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1715	1732.5	1750		
10	QPSK	1	0	19.35	19.60	19.57	20.00	0
10	QPSK	1	24	19.39	19.33	19.52		
10	QPSK	1	49	19.31	19.49	19.55		
10	QPSK	25	0	18.36	18.57	18.48	19.00	1
10	QPSK	25	12	18.32	18.49	18.47		
10	QPSK	25	24	18.35	18.38	18.49		
10	QPSK	50	0	18.45	18.52	18.46		
10	16QAM	1	0	18.53	18.64	18.73	19.00	1
10	16QAM	1	24	18.42	18.60	18.58		
10	16QAM	1	49	18.34	18.51	18.48		
10	16QAM	25	0	17.34	17.36	17.37	18.00	2
10	16QAM	25	12	17.31	17.40	17.37		
10	16QAM	25	24	17.37	17.29	17.41		
10	16QAM	50	0	17.25	17.44	17.45		
Channel			Channel	19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1712.5	1732.5	1752.5		
5	QPSK	1	0	19.42	19.50	19.47	20.00	0
5	QPSK	1	12	19.43	19.39	19.48		
5	QPSK	1	24	19.47	19.31	19.46		
5	QPSK	12	0	18.43	18.52	18.53	19.00	1
5	QPSK	12	6	18.44	18.51	18.45		
5	QPSK	12	11	18.41	18.35	18.46		
5	QPSK	25	0	18.45	18.50	18.46		
5	16QAM	1	0	18.46	18.32	18.24	19.00	1
5	16QAM	1	12	18.59	18.47	18.00		
5	16QAM	1	24	18.49	18.61	18.23		
5	16QAM	12	0	17.37	17.49	17.53	18.00	2
5	16QAM	12	6	17.49	17.45	17.55		
5	16QAM	12	11	17.46	17.39	17.48		
5	16QAM	25	0	17.34	17.45	17.49		

Channel			Channel	19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1711.5	1732.5	1753.5		
3	QPSK	1	0	19.38	19.51	19.46	20.00	0
3	QPSK	1	7	19.38	19.33	19.42		
3	QPSK	1	14	19.47	19.37	19.51		
3	QPSK	8	0	18.39	18.56	18.47	19.00	1
3	QPSK	8	4	18.43	18.54	18.50		
3	QPSK	8	7	18.38	18.47	18.45		
3	QPSK	15	0	18.37	18.48	18.47		
3	16QAM	1	0	18.07	18.23	18.61	19.00	1
3	16QAM	1	7	18.02	17.96	18.57		
3	16QAM	1	14	18.04	18.01	18.24		
3	16QAM	8	0	17.51	17.54	17.46	18.00	2
3	16QAM	8	4	17.45	17.46	17.53		
3	16QAM	8	7	17.50	17.45	17.48		
3	16QAM	15	0	17.45	17.47	17.36		
Channel			Channel	19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)			Frequency (MHz)	1710.7	1732.5	1754.3		
1.4	QPSK	1	0	19.48	19.53	19.44	20.00	0
1.4	QPSK	1	2	19.41	19.58	19.48		
1.4	QPSK	1	5	19.44	19.44	19.52		
1.4	QPSK	3	0	19.51	19.52	19.54		
1.4	QPSK	3	1	19.40	19.61	19.48		
1.4	QPSK	3	2	19.39	19.59	19.46		
1.4	QPSK	6	0	18.42	18.55	18.51	19.00	1
1.4	16QAM	1	0	18.07	18.29	18.11	19.00	1
1.4	16QAM	1	2	18.02	18.18	18.18		
1.4	16QAM	1	5	18.07	18.16	18.28		
1.4	16QAM	3	0	18.38	18.36	18.26		
1.4	16QAM	3	1	18.21	18.30	18.30		
1.4	16QAM	3	2	18.42	18.28	18.28		
1.4	16QAM	6	0	17.18	17.30	17.31	18.00	2

<WLAN Conducted Power>

General Note:

1. Per KDB 248227 D01v02r01, 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.

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Duty Cycle %
2.4GHz WLAN	802.11b	CH 1	2412	1Mbps	11.42	97.25
		CH 6	2437		11.32	
		CH 11	2462		11.48	
	802.11g	CH 1	2412	6Mbps	10.45	87.22
		CH 6	2437		9.77	
		CH 11	2462		10.66	
	802.11n-HT20	CH 1	2412	MCS0	9.42	86.82
		CH 6	2437		9.58	
		CH 11	2462		9.54	
	802.11n-HT40	CH 3	2422	MCS0	9.59	76.37
		CH 6	2437		9.91	
		CH 9	2452		9.82	

<5GHz WLAN>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Duty Cycle %
5.2GHz WLAN	802.11a	CH 36	5180	6Mbps	8.68	87.04
		CH 40	5200		8.52	
		CH 44	5220		8.53	
		CH 48	5240		8.45	
	802.11n-HT20	CH 36	5180	MCS0	8.60	86.67
		CH 40	5200		8.32	
		CH 44	5220		8.66	
		CH 48	5240		8.44	
	802.11n-HT40	CH 38	5190	MCS0	8.60	76.09
		CH 46	5230		8.46	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Duty Cycle %
5.3GHz WLAN	802.11a	CH 52	5260	6Mbps	8.33	87.04
		CH 56	5280		7.96	
		CH 60	5300		8.09	
		CH 64	5320		7.88	
	802.11n-HT20	CH 52	5260	MCS0	8.24	86.67
		CH 56	5280		7.96	
		CH 60	5300		8.08	
		CH 64	5320		7.91	
	802.11n-HT40	CH 54	5270	MCS0	8.24	76.09
		CH 62	5310		7.95	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Duty Cycle %
5.5GHz WLAN	802.11a	CH 100	5500	6Mbps	8.35	87.04
		CH 116	5580		9.18	
		CH 132	5660		8.89	
		CH 140	5700		7.62	
	802.11n-HT20	CH 100	5500	MCS0	8.33	86.67
		CH 116	5580		9.06	
		CH 132	5660		9.03	
		CH 140	5700		7.65	
	802.11n-HT40	CH 102	5510	MCS0	8.27	76.09
		CH 110	5550		8.72	
		CH 134	5670		9.15	

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Duty Cycle %
5.8GHz WLAN	802.11a	CH 149	5745	MCS0	8.85	87.04
		CH 157	5785		9.23	
		CH 165	5825		8.90	
	802.11n-HT20	CH 149	5745	MCS0	8.57	86.67
		CH 157	5785		8.97	
		CH 165	5825		8.85	
	802.11n-HT40	CH 151	5755	MCS0	9.01	76.09
		CH 159	5795		9.15	

13. Bluetooth Exclusions Applied

Mode Band	Average power(dBm)	
	Bluetooth v2.1+EDR	Bluetooth v4.0 LE
2.4GHz Bluetooth	9.00	1.00

Note:

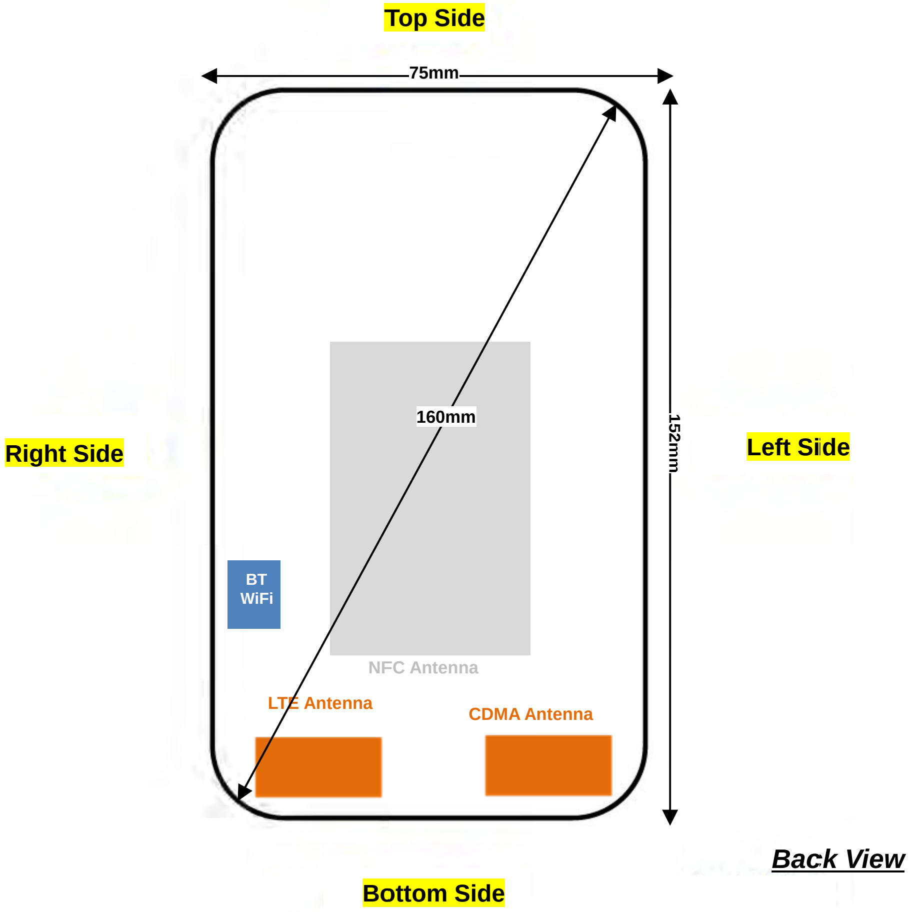
1. Per KDB 447498 D01v05r02, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g 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)	Separation Distance (mm)	Frequency (GHz)	exclusion thresholds
9.00	10	2.48	1.3

Note:

Per KDB 447498 D01v05r02, The test exclusion threshold is 1.3 which is <= 3, SAR testing is not required.

14. Antenna Location



Distance of the Antenna to the EUT surface/edge						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
CDMA Main	≤ 25mm	≤ 25mm	115mm	≤ 25mm	46mm	≤ 25mm
LTE Main	≤ 25mm	≤ 25mm	115mm	≤ 25mm	≤ 25mm	41mm
BT&WLAN	≤ 25mm	≤ 25mm	85mm	44mm	≤ 25mm	59mm

Positions for SAR tests; Hotspot mode						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
CDMA Main	Yes	Yes	No	Yes	No	Yes
LTE Main	Yes	Yes	No	Yes	Yes	No
BT&WLAN	Yes	Yes	No	No	Yes	No

General Note:

1. Referring to KDB 941225 D06 v02, 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.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, 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 D01v05r02, 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 648474 D04v01r02, 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.
4. Per KDB 941225 D01v03, SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
5. Per KDB 941225 D01v03, 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.
6. Per KDB 941225 D01v03, 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.
7. Maximum output power is verified for 1x-Advanced by applying the 1x RTT power measurement procedures using SO75, with RC 8 in the uplink and RC11 in the downlink. Smart blanking must be disabled. 1x-Advanced with 1x RTT RC3 as the primary mode. When SAR measurement is required, the 1x-Advanced power measurement configurations are used. The 1x Advanced SAR procedures are applied separately to head, body-worn accessory and other exposure conditions.
8. Per KDB 941225 D05v02r03, 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.
9. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
10. Per KDB 941225 D05v02r03, 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.
11. Per KDB 941225 D05v02r03, 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 D05v02r03, 16QAM SAR testing is not required.
12. Per KDB 941225 D05v02r03, 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 D05v02r03, smaller bandwidth SAR testing is not required.
13. Per KDB 248227 D01v02r01, 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.
14. Per KDB 248227 D01v02r01, for U-NII-1 Head and Body-worn SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
15. 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.
16. 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.
17. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

18. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.

15.1 Head SAR

<CDMA SAR>

Plot No.	Band	Mode	Test Position	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)
	CDMA2000 BC0	RC3 SO55	Right Cheek	777	848.31	24.08	24.50	1.102	-0.03	0.234	0.258
	CDMA2000 BC0	RC3 SO55	Right Tilted	777	848.31	24.08	24.50	1.102	-0.09	0.109	0.120
#01	**CDMA2000 BC0**	**RC3 SO55**	**Left Cheek**	**777**	**848.31**	**24.08**	**24.50**	**1.102**	**0.01**	**0.309**	**0.340**
	CDMA2000 BC0	RC3 SO55	Left Tilted	777	848.31	24.08	24.50	1.102	-0.03	0.143	0.158
	CDMA2000 BC1	RC3 SO55	Right Cheek	25	1851.25	24.30	24.50	1.047	0.01	0.429	0.449
	CDMA2000 BC1	RC3 SO55	Right Tilted	25	1851.25	24.30	24.50	1.047	0.02	0.195	0.204
#02	**CDMA2000 BC1**	**RC3 SO55**	**Left Cheek**	**25**	**1851.25**	**24.30**	**24.50**	**1.047**	**0.07**	**0.758**	**0.794**
	CDMA2000 BC1	RC3 SO55	Left Tilted	25	1851.25	24.30	24.50	1.047	0.06	0.161	0.169

<LTE SAR>

Plot No.	Band	BW (MHz)	Mode	RB Size	RB offest	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
#03	**LTE Band 13**	**10M**	**QPSK**	**1**	**24**	**Right Cheek**	**23230**	**782**	**22.69**	**23.00**	**1.074**	**-0.08**	**0.462**	**0.496**
	LTE Band 13	10M	QPSK	1	24	Right Tilted	23230	782	22.69	23.00	1.074	-0.03	0.268	0.288
	LTE Band 13	10M	QPSK	1	24	Left Cheek	23230	782	22.69	23.00	1.074	-0.08	0.373	0.401
	LTE Band 13	10M	QPSK	1	24	Left Tilted	23230	782	22.69	23.00	1.074	-0.07	0.252	0.271
	LTE Band 13	10M	QPSK	25	0	Right Cheek	23230	782	21.67	22.00	1.079	0.02	0.383	0.413
	LTE Band 13	10M	QPSK	25	0	Right Tilted	23230	782	21.67	22.00	1.079	-0.05	0.222	0.240
	LTE Band 13	10M	QPSK	25	0	Left Cheek	23230	782	21.67	22.00	1.079	0.03	0.315	0.340
	LTE Band 13	10M	QPSK	25	0	Left Tilted	23230	782	21.67	22.00	1.079	-0.09	0.209	0.225
#04	**LTE Band 14**	**10M**	**QPSK**	**1**	**49**	**Right Cheek**	**23330**	**793**	**22.73**	**23.50**	**1.194**	**0.07**	**0.364**	**0.435**
	LTE Band 14	10M	QPSK	1	49	Right Tilted	23330	793	22.73	23.50	1.194	-0.07	0.221	0.264
	LTE Band 14	10M	QPSK	1	49	Left Cheek	23330	793	22.73	23.50	1.194	0.05	0.288	0.344
	LTE Band 14	10M	QPSK	1	49	Left Tilted	23330	793	22.73	23.50	1.194	-0.02	0.210	0.251
	LTE Band 14	10M	QPSK	25	24	Right Cheek	23330	793	21.72	22.50	1.197	0.02	0.298	0.357
	LTE Band 14	10M	QPSK	25	24	Right Tilted	23330	793	21.72	22.50	1.197	-0.01	0.182	0.218
	LTE Band 14	10M	QPSK	25	24	Left Cheek	23330	793	21.72	22.50	1.197	0.04	0.238	0.285
	LTE Band 14	10M	QPSK	25	24	Left Tilted	23330	793	21.72	22.50	1.197	-0.03	0.168	0.201
#05	**LTE Band 4**	**20M**	**QPSK**	**1**	**49**	**Right Cheek**	**20175**	**1732.5**	**22.96**	**24.00**	**1.271**	**0.05**	**0.558**	**0.709**
	LTE Band 4	20M	QPSK	1	49	Right Tilted	20175	1732.5	22.96	24.00	1.271	0.06	0.143	0.182
	LTE Band 4	20M	QPSK	1	49	Left Cheek	20175	1732.5	22.96	24.00	1.271	0.03	0.254	0.323
	LTE Band 4	20M	QPSK	1	49	Left Tilted	20175	1732.5	22.96	24.00	1.271	-0.01	0.118	0.150
	LTE Band 4	20M	QPSK	50	24	Right Cheek	20175	1732.5	21.94	23.00	1.276	0.03	0.461	0.588
	LTE Band 4	20M	QPSK	50	24	Right Tilted	20175	1732.5	21.94	23.00	1.276	0.01	0.118	0.151
	LTE Band 4	20M	QPSK	50	24	Left Cheek	20175	1732.5	21.94	23.00	1.276	0.01	0.211	0.269
	LTE Band 4	20M	QPSK	50	24	Left Tilted	20175	1732.5	21.94	23.00	1.276	-0.09	0.100	0.128
#06	**LTE Band 2**	**20M**	**QPSK**	**1**	**0**	**Right Cheek**	**18900**	**1880**	**23.12**	**23.50**	**1.091**	**0.06**	**0.482**	**0.526**
	LTE Band 2	20M	QPSK	1	0	Right Tilted	18900	1880	23.12	23.50	1.091	0.02	0.130	0.142
	LTE Band 2	20M	QPSK	1	0	Left Cheek	18900	1880	23.12	23.50	1.091	0.16	0.284	0.310
	LTE Band 2	20M	QPSK	1	0	Left Tilted	18900	1880	23.12	23.50	1.091	-0.08	0.122	0.133
	LTE Band 2	20M	QPSK	50	24	Right Cheek	18900	1880	22.03	22.50	1.114	0.01	0.437	0.487
	LTE Band 2	20M	QPSK	50	24	Right Tilted	18900	1880	22.03	22.50	1.114	0.18	0.081	0.090
	LTE Band 2	20M	QPSK	50	24	Left Cheek	18900	1880	22.03	22.50	1.114	0.04	0.256	0.285
	LTE Band 2	20M	QPSK	50	24	Left Tilted	18900	1880	22.03	22.50	1.114	0.19	0.095	0.106

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
#07	**WLAN 2.4GHz**	**802.11b 1Mbps**	**Right Cheek**	**11**	**2462**	**11.48**	**12.00**	**1.127**	**97.25**	**1.028**	**-0.01**	**0.026**	**0.030**
	WLAN 2.4GHz	802.11b 1Mbps	Right Tilted	11	2462	11.48	12.00	1.127	97.25	1.028	0.03	0.004	0.005
	WLAN 2.4GHz	802.11b 1Mbps	Left Cheek	11	2462	11.48	12.00	1.127	97.25	1.028	-0.05	0.00112	0.001
	WLAN 2.4GHz	802.11b 1Mbps	Left Tilted	11	2462	11.48	12.00	1.127	97.25	1.028	-0.09	0.018	0.021
	WLAN 5.2GHz	802.11a 6Mbps	Right Cheek	36	5180	8.68	9.50	1.207	87.04	1.149	0	0	0.000
	WLAN 5.2GHz	802.11a 6Mbps	Right Tilted	36	5180	8.68	9.50	1.207	87.04	1.149	0	0	0.000
	WLAN 5.2GHz	802.11a 6Mbps	Left Cheek	36	5180	8.68	9.50	1.207	87.04	1.149	0.08	0.00121	0.002
#08	**WLAN 5.2GHz**	**802.11a 6Mbps**	**Left Tilted**	**36**	**5180**	**8.68**	**9.50**	**1.207**	**87.04**	**1.149**	**0.11**	**0.00251**	**0.003**
	WLAN 5.5GHz	802.11a 6Mbps	Right Cheek	116	5580	9.18	10.00	1.207	87.04	1.149	0.09	0.00135	0.002
	WLAN 5.5GHz	802.11a 6Mbps	Right Tilted	116	5580	9.18	10.00	1.207	87.04	1.149	0.08	0.01	0.014
	WLAN 5.5GHz	802.11a 6Mbps	Left Cheek	116	5580	9.18	10.00	1.207	87.04	1.149	0	0	0.000
#09	**WLAN 5.5GHz**	**802.11a 6Mbps**	**Left Tilted**	**116**	**5580**	**9.18**	**10.00**	**1.207**	**87.04**	**1.149**	**0.02**	**0.020**	**0.028**
	WLAN 5.8GHz	802.11a 6Mbps	Right Cheek	157	5785	9.23	10.00	1.193	87.04	1.149	0.08	0.00101	0.001
	WLAN 5.8GHz	802.11a 6Mbps	Right Tilted	157	5785	9.23	10.00	1.193	87.04	1.149	0.06	0.00196	0.003
	WLAN 5.8GHz	802.11a 6Mbps	Left Cheek	157	5785	9.23	10.00	1.193	87.04	1.149	0.08	0.00197	0.003
#10	**WLAN 5.8GHz**	**802.11a 6Mbps**	**Left Tilted**	**157**	**5785**	**9.23**	**10.00**	**1.193**	**87.04**	**1.149**	**0.04**	**0.00841**	**0.012**

15.2 Hotspot SAR

Distance of the Antenna to the EUT surface/edge						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
CDMA Main	≤ 25mm	≤ 25mm	115mm	≤ 25mm	46mm	≤ 25mm
LTE Main	≤ 25mm	≤ 25mm	115mm	≤ 25mm	≤ 25mm	41mm
BT&WLAN	≤ 25mm	≤ 25mm	85mm	44mm	≤ 25mm	59mm

Positions for SAR tests; Hotspot mode						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
CDMA Main	Yes	Yes	No	Yes	No	Yes
LTE Main	Yes	Yes	No	Yes	Yes	No
BT&WLAN	Yes	Yes	No	No	Yes	No

General Note:

2. Referring to KDB 941225 D06 v02, 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.

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	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)
	CDMA2000 BC0	RTAP 153.6Kbps	Front	1	777	848.31	24.05	24.50	1.109	-0.02	0.214	0.237
	CDMA2000 BC0	RTAP 153.6Kbps	Back	1	777	848.31	24.05	24.50	1.109	-0.19	0.255	0.283
#11	**CDMA2000 BC0**	**RTAP 153.6Kbps**	**Left Side**	**1**	**777**	**848.31**	**24.05**	**24.50**	**1.109**	**-0.15**	**0.384**	**0.426**
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Side	1	777	848.31	24.05	24.50	1.109	-0.03	0.184	0.204
#12	**CDMA2000 BC1**	**RTAP 153.6Kbps**	**Front**	**1**	**25**	**1851.25**	**24.24**	**24.50**	**1.062**	**0.07**	**0.619**	**0.657**
	CDMA2000 BC1	RTAP 153.6Kbps	Back	1	25	1851.25	24.24	24.50	1.062	0.04	0.547	0.581
	CDMA2000 BC1	RTAP 153.6Kbps	Left Side	1	25	1851.25	24.24	24.50	1.062	-0.04	0.432	0.459
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	1	25	1851.25	24.24	24.50	1.062	-0.17	0.097	0.103

<LTE SAR>

Plot No.	Band	BW (MHz)	Mode	RB Size	RB offset	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 13	10M	QPSK	1	24	Front	1	23230	782	22.69	23.00	1.074	0.08	0.421	0.452
#13	**LTE Band 13**	**10M**	**QPSK**	**1**	**24**	**Back**	**1**	**23230**	**782**	**22.69**	**23.00**	**1.074**	**0.05**	**0.438**	**0.470**
	LTE Band 13	10M	QPSK	1	24	Right Side	1	23230	782	22.69	23.00	1.074	0.05	0.395	0.424
	LTE Band 13	10M	QPSK	1	24	Bottom Side	1	23230	782	22.69	23.00	1.074	-0.12	0.217	0.233
	LTE Band 13	10M	QPSK	25	0	Front	1	23230	782	21.67	22.00	1.079	0.03	0.352	0.380
	LTE Band 13	10M	QPSK	25	0	Back	1	23230	782	21.67	22.00	1.079	-0.01	0.364	0.393
	LTE Band 13	10M	QPSK	25	0	Right Side	1	23230	782	21.67	22.00	1.079	-0.07	0.324	0.350
	LTE Band 13	10M	QPSK	25	0	Bottom Side	1	23230	782	21.67	22.00	1.079	-0.04	0.179	0.193
	LTE Band 14	10M	QPSK	1	49	Front	1	23330	793	22.73	23.50	1.194	-0.04	0.348	0.416
	LTE Band 14	10M	QPSK	1	49	Back	1	23330	793	22.73	23.50	1.194	-0.06	0.328	0.392
#14	**LTE Band 14**	**10M**	**QPSK**	**1**	**49**	**Right Side**	**1**	**23330**	**793**	**22.73**	**23.50**	**1.194**	**-0.05**	**0.360**	**0.430**
	LTE Band 14	10M	QPSK	1	49	Bottom Side	1	23330	793	22.73	23.50	1.194	0.09	0.205	0.245
	LTE Band 14	10M	QPSK	25	24	Front	1	23330	793	21.72	22.50	1.197	-0.04	0.289	0.346
	LTE Band 14	10M	QPSK	25	24	Back	1	23330	793	21.72	22.50	1.197	0.04	0.271	0.324
	LTE Band 14	10M	QPSK	25	24	Right Side	1	23330	793	21.72	22.50	1.197	-0.11	0.292	0.349
	LTE Band 14	10M	QPSK	25	24	Bottom Side	1	23330	793	21.72	22.50	1.197	-0.05	0.165	0.197
#15	**LTE Band 4**	**20M**	**QPSK**	**1**	**49**	**Front**	**1**	**20175**	**1732.5**	**22.96**	**24.00**	**1.271**	**-0.02**	**0.545**	**0.692**
	LTE Band 4	20M	QPSK	1	49	Back	1	20175	1732.5	22.96	24.00	1.271	-0.09	0.429	0.545
	LTE Band 4	20M	QPSK	1	49	Right Side	1	20175	1732.5	22.96	24.00	1.271	-0.09	0.265	0.337
	LTE Band 4	20M	QPSK	1	49	Bottom Side	1	20175	1732.5	22.96	24.00	1.271	-0.11	0.434	0.551
	LTE Band 4	20M	QPSK	50	24	Front	1	20175	1732.5	21.94	23.00	1.276	0.09	0.489	0.624
	LTE Band 4	20M	QPSK	50	24	Back	1	20175	1732.5	21.94	23.00	1.276	-0.07	0.353	0.451
	LTE Band 4	20M	QPSK	50	24	Right Side	1	20175	1732.5	21.94	23.00	1.276	-0.02	0.219	0.280
	LTE Band 4	20M	QPSK	50	24	Bottom Side	1	20175	1732.5	21.94	23.00	1.276	-0.07	0.359	0.458
	LTE Band 2	20M	QPSK	1	0	Front	1	18900	1880	23.12	23.50	1.091	-0.03	0.536	0.585
	LTE Band 2	20M	QPSK	1	0	Back	1	18900	1880	23.12	23.50	1.091	-0.05	0.436	0.476
	LTE Band 2	20M	QPSK	1	0	Right Side	1	18900	1880	23.12	23.50	1.091	-0.05	0.239	0.261
#16	**LTE Band 2**	**20M**	**QPSK**	**1**	**0**	**Bottom Side**	**1**	**18900**	**1880**	**23.12**	**23.50**	**1.091**	**-0.02**	**0.556**	**0.607**
	LTE Band 2	20M	QPSK	50	24	Front	1	18900	1880	22.03	22.50	1.114	-0.11	0.414	0.461
	LTE Band 2	20M	QPSK	50	24	Back	1	18900	1880	22.03	22.50	1.114	0.07	0.350	0.390
	LTE Band 2	20M	QPSK	50	24	Right Side	1	18900	1880	22.03	22.50	1.114	-0.04	0.200	0.223
	LTE Band 2	20M	QPSK	50	24	Bottom Side	1	18900	1880	22.03	22.50	1.114	-0.19	0.455	0.507

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	1	11	2462	11.48	12.00	1.127	97.25	1.028	0.13	0.00967	0.011
#17	**WLAN 2.4GHz**	**802.11b 1Mbps**	**Back**	**1**	**11**	**2462**	**11.48**	**12.00**	**1.127**	**97.25**	**1.028**	**0.09**	**0.036**	**0.042**
	WLAN 2.4GHz	802.11b 1Mbps	Right Side	1	11	2462	11.48	12.00	1.127	97.25	1.028	0.09	0.036	0.042

15.3 Body Worn Accessory SAR

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	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)
	CDMA2000 BC0	RC3 SO32	Front	1	777	848.31	24.05	24.50	1.109	-0.02	0.207	0.230
#18	**CDMA2000 BC0**	**RC3 SO32**	**Back**	**1**	**777**	**848.31**	**24.05**	**24.50**	**1.109**	**0.08**	**0.236**	**0.262**
#19	**CDMA2000 BC1**	**RC3 SO32**	**Front**	**1**	**25**	**1851.25**	**24.23**	**24.50**	**1.064**	**-0.09**	**0.644**	**0.685**
	CDMA2000 BC1	RC3 SO32	Back	1	25	1851.25	24.23	24.50	1.064	0.08	0.463	0.493

<LTE SAR>

Plot No.	Band	BW (MHz)	Mode	RB Size	RB offset	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 13	10M	QPSK	1	24	Front	1	23230	782	22.69	23.00	1.074	0.08	0.421	0.452
#13	**LTE Band 13**	**10M**	**QPSK**	**1**	**24**	**Back**	**1**	**23230**	**782**	**22.69**	**23.00**	**1.074**	**0.05**	**0.438**	**0.470**
	LTE Band 13	10M	QPSK	25	0	Front	1	23230	782	21.67	22.00	1.079	0.03	0.352	0.380
	LTE Band 13	10M	QPSK	25	0	Back	1	23230	782	21.67	22.00	1.079	-0.01	0.364	0.393
#20	**LTE Band 14**	**10M**	**QPSK**	**1**	**49**	**Front**	**1**	**23330**	**793**	**22.73**	**23.50**	**1.194**	**-0.04**	**0.348**	**0.416**
	LTE Band 14	10M	QPSK	1	49	Back	1	23330	793	22.73	23.50	1.194	-0.06	0.328	0.392
	LTE Band 14	10M	QPSK	25	24	Front	1	23330	793	21.72	22.50	1.197	-0.04	0.289	0.346
	LTE Band 14	10M	QPSK	25	24	Back	1	23330	793	21.72	22.50	1.197	0.04	0.271	0.324
#15	**LTE Band 4**	**20M**	**QPSK**	**1**	**49**	**Front**	**1**	**20175**	**1732.5**	**22.96**	**24.00**	**1.271**	**-0.02**	**0.545**	**0.692**
	LTE Band 4	20M	QPSK	1	49	Back	1	20175	1732.5	22.96	24.00	1.271	-0.09	0.429	0.545
	LTE Band 4	20M	QPSK	50	24	Front	1	20175	1732.5	21.94	23.00	1.276	0.09	0.489	0.624
	LTE Band 4	20M	QPSK	50	24	Back	1	20175	1732.5	21.94	23.00	1.276	-0.07	0.353	0.451
#21	**LTE Band 2**	**20M**	**QPSK**	**1**	**0**	**Front**	**1**	**18900**	**1880**	**23.12**	**23.50**	**1.091**	**-0.03**	**0.536**	**0.585**
	LTE Band 2	20M	QPSK	1	0	Back	1	18900	1880	23.12	23.50	1.091	-0.05	0.436	0.476
	LTE Band 2	20M	QPSK	50	24	Front	1	18900	1880	22.03	22.50	1.114	-0.11	0.414	0.461
	LTE Band 2	20M	QPSK	50	24	Back	1	18900	1880	22.03	22.50	1.114	0.07	0.350	0.390

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	1	11	2462	11.48	12.00	1.127	97.25	1.028	0.13	0.00967	0.011
#17	**WLAN 2.4GHz**	**802.11b 1Mbps**	**Back**	**1**	**11**	**2462**	**11.48**	**12.00**	**1.127**	**97.25**	**1.028**	**0.09**	**0.036**	**0.042**
	WLAN 5.2GHz	802.11a 6Mbps	Front	1	36	5180	8.68	9.50	1.207	87.04	1.149	-0.09	0.00881	0.012
#22	**WLAN 5.2GHz**	**802.11a 6Mbps**	**Back**	**1**	**36**	**5180**	**8.68**	**9.50**	**1.207**	**87.04**	**1.149**	**-0.16**	**0.113**	**0.157**
	WLAN 5.5GHz	802.11a 6Mbps	Front	1	116	5580	9.18	10.00	1.207	87.04	1.149	-0.09	0.028	0.039
#23	**WLAN 5.5GHz**	**802.11a 6Mbps**	**Back**	**1**	**116**	**5580**	**9.18**	**10.00**	**1.207**	**87.04**	**1.149**	**-0.05**	**0.223**	**0.309**
	WLAN 5.8GHz	802.11a 6Mbps	Front	1	157	5785	9.23	10.00	1.302	87.04	1.149	-0.01	0.023	0.034
#24	**WLAN 5.8GHz**	**802.11a 6Mbps**	**Back**	**1**	**157**	**5785**	**9.23**	**10.00**	**1.302**	**87.04**	**1.149**	**-0.04**	**0.188**	**0.281**

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			Note
		Head	Body-worn	Hotspot	
1.	CDMA(Voice) + WLAN2.4GHz(data)	Yes	Yes		
2.	CDMA((Voice) + Bluetooth(data)		Yes		
3.	CDMA((Voice) + WLAN5GHz(data)	Yes	Yes		
4.	LTE(Voice) + WLAN2.4GHz(data)	Yes	Yes		
5.	LTE(Voice) + Bluetooth(data)		Yes		
6.	LTE(Voice) + WLAN5GHz(data)	Yes	Yes		
7.	CDMA(Voice) + LTE(data) + WLAN2.4GHz(data) SVLTE	Yes	Yes		2.4GHz Hotspot
8.	CDMA(Voice) + LTE(data) + Bluetooth(data) SVLTE	Yes	Yes		
9.	CDMA(Voice) + LTE(data) + WLAN5GHz(data) SVLTE	Yes	Yes		WiFi Direct
10.	CDMA(Data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
11.	LTE(Data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
12.	CDMA(Data) + Bluetooth(data)		Yes		WWAN VoIP
13.	LTE(Data) + Bluetooth(data)		Yes		WWAN VoIP
14.	CDMA(data) + WLAN5 GHz(data)	Yes	Yes		WiFi Direct
15.	LTE(data) + WLAN5GHz(data)	Yes	Yes		WiFi Direct

General Note:

1. This device supported VoIP in CDMA, LTE (e.g. 3rd party VoIP).
2. This device 2.4GHz WLAN supports Hotspot operation, and 2.4GHz/ 5.2GHz / 5.8GHz WLAN supports WiFi Direct (Group Client / Group Owner), and 5.3GHz / 5.5GHz supports WiFi Direct (Group Client only).
3. WLAN 2.4GHz and Bluetooth share the same antenna, and cannot transmit simultaneously.
4. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, they will not transmit simultaneously.
5. The EUT three transmitters co-located can representative two transmitters and more conservative for transmit simultaneously analysis.
6. The Scaled SAR summation is calculated based on the same configuration and test position.
7. Per KDB 447498 D01v05r02, simultaneous transmission SAR is compliant if,
    - i) Scalar SAR summation < 1.6W/kg.
    - ii) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
    - iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
    - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
8. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05r02 based on the formula below.
    - i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
    - ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
    - iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

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

16.1 Head Exposure Conditions

<WWAN Voice + WWAN Data + WLAN 2.4GHz>

	CDMA (voice)		LTE (data)		WLAN 2.4GHz	CDMA+LTE+WLAN Summed SAR (W/kg)
Position	Band	Max. WWAN SAR (W/kg)	Band	Max. WWAN SAR (W/kg)	Max. WLAN SAR (W/kg)	
Right Cheek	CDMA2000 BC0	0.258	Band 13	0.496	0.030	0.78
	CDMA2000 BC0	0.258	Band 14	0.435	0.030	0.72
	CDMA2000 BC0	0.258	Band 4	0.709	0.030	1.00
	CDMA2000 BC0	0.258	Band 2	0.526	0.030	0.81
	CDMA2000 BC1	0.449	Band 13	0.496	0.030	0.98
	CDMA2000 BC1	0.449	Band 14	0.435	0.030	0.91
	CDMA2000 BC1	0.449	Band 4	0.709	0.030	1.19
	CDMA2000 BC1	0.449	Band 2	0.526	0.030	1.01
Right Tilted	CDMA2000 BC0	0.120	Band 13	0.288	0.005	0.41
	CDMA2000 BC0	0.120	Band 14	0.264	0.005	0.39
	CDMA2000 BC0	0.120	Band 4	0.182	0.005	0.31
	CDMA2000 BC0	0.120	Band 2	0.142	0.005	0.27
	CDMA2000 BC1	0.204	Band 13	0.288	0.005	0.50
	CDMA2000 BC1	0.204	Band 14	0.264	0.005	0.47
	CDMA2000 BC1	0.204	Band 4	0.182	0.005	0.39
	CDMA2000 BC1	0.204	Band 2	0.142	0.005	0.35
Left Cheek	CDMA2000 BC0	0.340	Band 13	0.401	0.001	0.74
	CDMA2000 BC0	0.340	Band 14	0.344	0.001	0.69
	CDMA2000 BC0	0.340	Band 4	0.323	0.001	0.66
	CDMA2000 BC0	0.340	Band 2	0.310	0.001	0.65
	CDMA2000 BC1	0.794	Band 13	0.401	0.001	1.20
	CDMA2000 BC1	0.794	Band 14	0.344	0.001	1.14
	CDMA2000 BC1	0.794	Band 4	0.323	0.001	1.12
	CDMA2000 BC1	0.794	Band 2	0.310	0.001	1.11
Left Tilted	CDMA2000 BC0	0.158	Band 13	0.271	0.021	0.45
	CDMA2000 BC0	0.158	Band 14	0.251	0.021	0.43
	CDMA2000 BC0	0.158	Band 4	0.150	0.021	0.33
	CDMA2000 BC0	0.158	Band 2	0.133	0.021	0.31
	CDMA2000 BC1	0.169	Band 13	0.271	0.021	0.46
	CDMA2000 BC1	0.169	Band 14	0.251	0.021	0.44
	CDMA2000 BC1	0.169	Band 4	0.150	0.021	0.34
	CDMA2000 BC1	0.169	Band 2	0.133	0.021	0.32

<WWAN Voice + WWAN Data + WLAN 5GHz>

	CDMA (voice)		LTE (data)		WLAN 5GHz	CDMA+LTE+WLAN Summed SAR (W/kg)
Position	Band	Max. WWAN SAR (W/kg)	Band	Max. WWAN SAR (W/kg)	Max. WLAN SAR (W/kg)	
Right Cheek	CDMA2000 BC0	0.258	Band 13	0.496	0.002	0.76
	CDMA2000 BC0	0.258	Band 14	0.435	0.002	0.70
	CDMA2000 BC0	0.258	Band 4	0.709	0.002	0.97
	CDMA2000 BC0	0.258	Band 2	0.526	0.002	0.79
	CDMA2000 BC1	0.449	Band 13	0.496	0.002	0.95
	CDMA2000 BC1	0.449	Band 14	0.435	0.002	0.89
	CDMA2000 BC1	0.449	Band 4	0.709	0.002	1.16
	CDMA2000 BC1	0.449	Band 2	0.526	0.002	0.98
Right Tilted	CDMA2000 BC0	0.120	Band 13	0.288	0.014	0.42
	CDMA2000 BC0	0.120	Band 14	0.264	0.014	0.40
	CDMA2000 BC0	0.120	Band 4	0.182	0.014	0.32
	CDMA2000 BC0	0.120	Band 2	0.142	0.014	0.28
	CDMA2000 BC1	0.204	Band 13	0.288	0.014	0.51
	CDMA2000 BC1	0.204	Band 14	0.264	0.014	0.48
	CDMA2000 BC1	0.204	Band 4	0.182	0.014	0.40
	CDMA2000 BC1	0.204	Band 2	0.142	0.014	0.36
Left Cheek	CDMA2000 BC0	0.340	Band 13	0.401	0.003	0.74
	CDMA2000 BC0	0.340	Band 14	0.344	0.003	0.69
	CDMA2000 BC0	0.340	Band 4	0.323	0.003	0.67
	CDMA2000 BC0	0.340	Band 2	0.310	0.003	0.65
	CDMA2000 BC1	0.794	Band 13	0.401	0.003	1.20
	CDMA2000 BC1	0.794	Band 14	0.344	0.003	1.14
	CDMA2000 BC1	0.794	Band 4	0.323	0.003	1.12
	CDMA2000 BC1	0.794	Band 2	0.310	0.003	1.11
Left Tilted	CDMA2000 BC0	0.158	Band 13	0.271	0.028	0.46
	CDMA2000 BC0	0.158	Band 14	0.251	0.028	0.44
	CDMA2000 BC0	0.158	Band 4	0.150	0.028	0.34
	CDMA2000 BC0	0.158	Band 2	0.133	0.028	0.32
	CDMA2000 BC1	0.169	Band 13	0.271	0.028	0.47
	CDMA2000 BC1	0.169	Band 14	0.251	0.028	0.45
	CDMA2000 BC1	0.169	Band 4	0.150	0.028	0.35
	CDMA2000 BC1	0.169	Band 2	0.133	0.028	0.33

16.2 Hotspot Exposure Conditions

<WWAN Data + WLAN 2.4GHz>

	WWAN (data)		WLAN 2.4GHz	CDMA+ WLAN Summed SAR (W/kg)
Position	**Band**	**Max. WWAN SAR (W/kg)**	**Max. WLAN SAR (W/kg)**	
Front	CDMA2000 BC0	0.237	0.011	0.25
	CDMA2000 BC1	0.657	0.011	0.67
	LTE Band 13	0.452	0.011	0.46
	LTE Band 14	0.416	0.011	0.43
	LTE Band 4	0.692	0.011	0.70
	LTE Band 2	0.585	0.011	0.60
Back	CDMA2000 BC0	0.283	0.042	0.33
	CDMA2000 BC1	0.581	0.042	0.62
	LTE Band 13	0.470	0.042	0.51
	LTE Band 14	0.392	0.042	0.43
	LTE Band 4	0.545	0.042	0.59
	LTE Band 2	0.476	0.042	0.52
Left Side	CDMA2000 BC0	0.426		0.43
	CDMA2000 BC1	0.459		0.46
Right Side	CDMA2000 BC0		0.042	0.04
	CDMA2000 BC1		0.042	0.04
	LTE Band 13	0.424	0.042	0.47
	LTE Band 14	0.430	0.042	0.47
	LTE Band 4	0.337	0.042	0.38
	LTE Band 2	0.261	0.042	0.30
Bottom Side	CDMA2000 BC0	0.204		0.20
	CDMA2000 BC1	0.103		0.10
	LTE Band 13	0.233		0.23
	LTE Band 14	0.245		0.25
	LTE Band 4	0.551		0.55
	LTE Band 2	0.607		0.61

16.3 Body-Worn Accessory Exposure Conditions

<WWAN Voice + WWAN Data + WLAN 2.4GHz>

	CDMA (voice)		LTE (data)		WLAN 2.4GHz	CDMA+LTE+WLAN Summed SAR (W/kg)
Position	Band	Max. WWAN SAR (W/kg)	Band	Max. WWAN SAR (W/kg)	Max. WLAN SAR (W/kg)	
Front	CDMA2000 BC0	0.230	Band 13	0.452	0.011	0.69
	CDMA2000 BC0	0.230	Band 14	0.416	0.011	0.66
	CDMA2000 BC0	0.230	Band 4	0.692	0.011	0.93
	CDMA2000 BC0	0.230	Band 2	0.585	0.011	0.83
	CDMA2000 BC1	0.685	Band 13	0.452	0.011	1.15
	CDMA2000 BC1	0.685	Band 14	0.416	0.011	1.11
	CDMA2000 BC1	0.685	Band 4	0.692	0.011	1.39
	CDMA2000 BC1	0.685	Band 2	0.585	0.011	1.28
Back	CDMA2000 BC0	0.262	Band 13	0.470	0.042	0.77
	CDMA2000 BC0	0.262	Band 14	0.392	0.042	0.70
	CDMA2000 BC0	0.262	Band 4	0.545	0.042	0.85
	CDMA2000 BC0	0.262	Band 2	0.476	0.042	0.78
	CDMA2000 BC1	0.493	Band 13	0.470	0.042	1.01
	CDMA2000 BC1	0.493	Band 14	0.392	0.042	0.93
	CDMA2000 BC1	0.493	Band 4	0.545	0.042	1.08
	CDMA2000 BC1	0.493	Band 2	0.476	0.042	1.01

<WWAN Voice + WWAN Data + WLAN 5GHz>

	CDMA (voice)		LTE (data)		WLAN 5GHz	CDMA+LTE+WLAN Summed SAR (W/kg)
Position	Band	Max. WWAN SAR (W/kg)	Band	Max. WWAN SAR (W/kg)	Max. WLAN SAR (W/kg)	
Front	CDMA2000 BC0	0.230	Band 13	0.452	0.039	0.72
	CDMA2000 BC0	0.230	Band 14	0.416	0.039	0.69
	CDMA2000 BC0	0.230	Band 4	0.692	0.039	0.96
	CDMA2000 BC0	0.230	Band 2	0.585	0.039	0.85
	CDMA2000 BC1	0.685	Band 13	0.452	0.039	1.18
	CDMA2000 BC1	0.685	Band 14	0.416	0.039	1.14
	CDMA2000 BC1	0.685	Band 4	0.692	0.039	**1.42**
	CDMA2000 BC1	0.685	Band 2	0.585	0.039	1.31
Back	CDMA2000 BC0	0.262	Band 13	0.470	0.309	1.04
	CDMA2000 BC0	0.262	Band 14	0.392	0.309	0.96
	CDMA2000 BC0	0.262	Band 4	0.545	0.309	1.12
	CDMA2000 BC0	0.262	Band 2	0.476	0.309	1.05
	CDMA2000 BC1	0.493	Band 13	0.470	0.309	1.27
	CDMA2000 BC1	0.493	Band 14	0.392	0.309	1.19
	CDMA2000 BC1	0.493	Band 4	0.545	0.309	1.35
	CDMA2000 BC1	0.493	Band 2	0.476	0.309	1.28

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<WWAN Voice + WWAN Data + Bluetooth>

	CDMA (voice)		LTE (data)		Bluetooth	CDMA+LTE+BT Summed SAR (W/kg)
Position	Band	Max. WWAN SAR (W/kg)	Band	Max. WWAN SAR (W/kg)	Estimated 1g SAR (W/kg)	
Front	CDMA2000 BC0	0.230	Band 13	0.452	0.168	0.85
	CDMA2000 BC0	0.230	Band 14	0.416	0.168	0.81
	CDMA2000 BC0	0.230	Band 4	0.692	0.168	1.09
	CDMA2000 BC0	0.230	Band 2	0.585	0.168	0.98
	CDMA2000 BC1	0.685	Band 13	0.452	0.168	1.31
	CDMA2000 BC1	0.685	Band 14	0.416	0.168	1.27
	CDMA2000 BC1	0.685	Band 4	0.692	0.168	1.55
	CDMA2000 BC1	0.685	Band 2	0.585	0.168	1.44
Back	CDMA2000 BC0	0.262	Band 13	0.470	0.168	0.90
	CDMA2000 BC0	0.262	Band 14	0.392	0.168	0.82
	CDMA2000 BC0	0.262	Band 4	0.545	0.168	0.98
	CDMA2000 BC0	0.262	Band 2	0.476	0.168	0.91
	CDMA2000 BC1	0.493	Band 13	0.470	0.168	1.13
	CDMA2000 BC1	0.493	Band 14	0.392	0.168	1.05
	CDMA2000 BC1	0.493	Band 4	0.545	0.168	1.21
	CDMA2000 BC1	0.493	Band 2	0.476	0.168	1.14

Test Engineer : Luke Lu

17. Uncertainty Assessment

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

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

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

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

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

(b) κ is the coverage factor

Table 17.1. Standard Uncertainty for Assumed Distribution

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

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

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

Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.55	N	1	1	1	6.6	6.6
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.5%	12.5%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.0%	24.9%

Table 17.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

18. References

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

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

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

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r01, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Jun 2015.

[6] FCC KDB 447498 D01 v05r02, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Feb 2014

[7] FCC KDB 648474 D04 v01r02, “SAR Evaluation Considerations for Wireless Handsets”, Dec 2013.

[8] FCC KDB 941225 D01 v03, “3G SAR MEAUREMENT PROCEDURES”, Oct 2014

[9] FCC KDB 941225 D05 v02r03, “SAR Evaluation Considerations for LTE Devices”, Dec 2013

[10] FCC KDB 941225 D06 v02, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2014.

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

[12] FCC KDB 865664 D02 v01r01, “RF Exposure Compliance Reporting and Documentation Considerations” May 2013.

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.07.30

System Check_Head_750MHz_150730

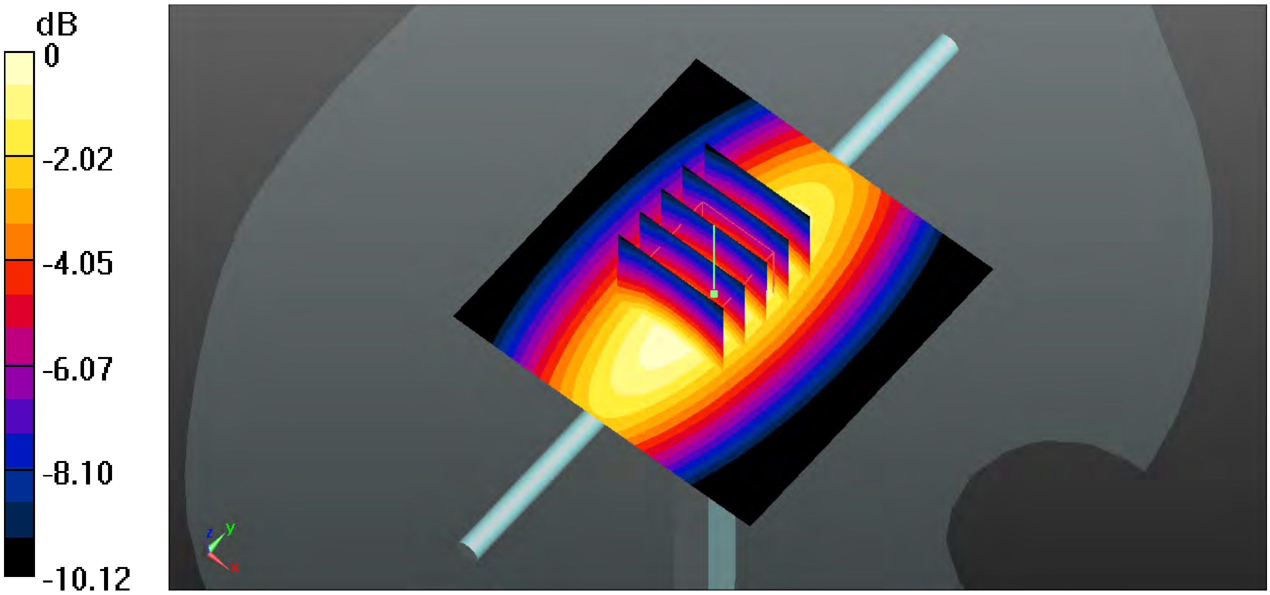
DUT: D750V3-SN:1065

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750_150730 Medium parameters used: f = 750 MHz; $\sigma = 0.88$ S/m; $\varepsilon_r = 40.752$; $\rho =$ 1000 kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(10.19, 10.19, 10.19); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.44 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.84 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.84 W/kg
SAR(1 g) = 1.95 W/kg; SAR(10 g) = 1.3 W/kg
Maximum value of SAR (measured) = 2.43 W/kg



0 dB = 2.44 W/kg

System Check_Head_835MHz_150730

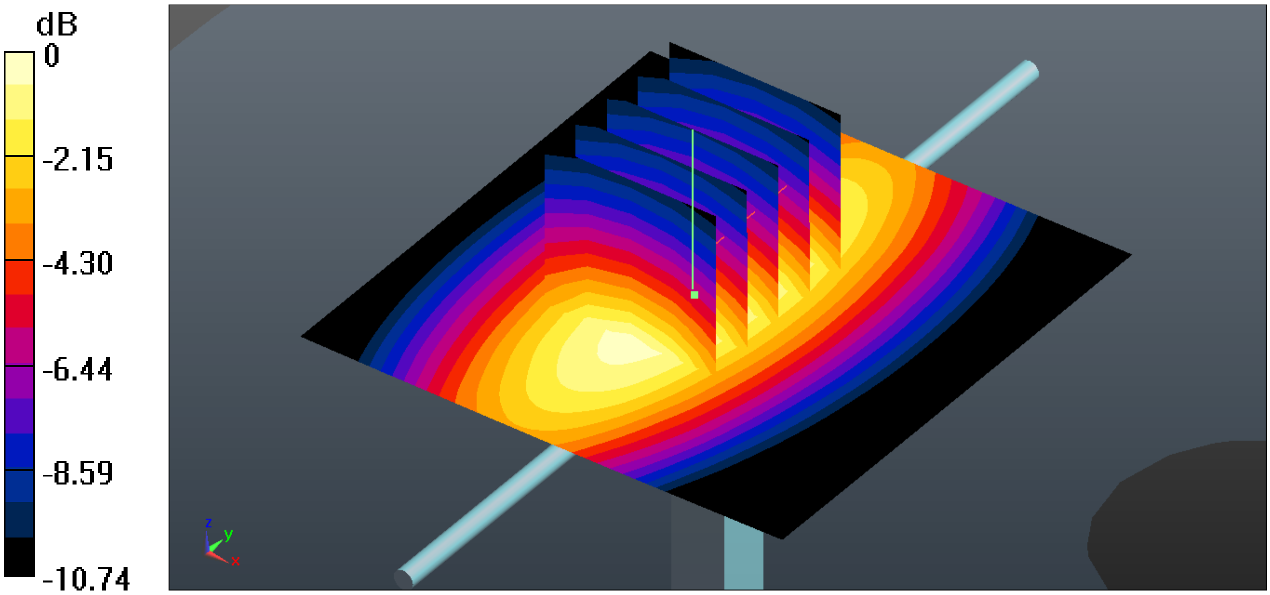
DUT: D835V2-SN:4d091

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835_150730 Medium parameters used: f = 835 MHz; σ = 0.916 S/m; ε_r = 41.029; ρ = 1000 kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.78, 9.78, 9.78); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.57 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.53 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.03 W/kg
SAR(1 g) = 2.23 W/kg; SAR(10 g) = 1.43 W/kg
Maximum value of SAR (measured) = 2.57 W/kg



0 dB = 2.57 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.07.31

System Check_Head_1750MHz_150731

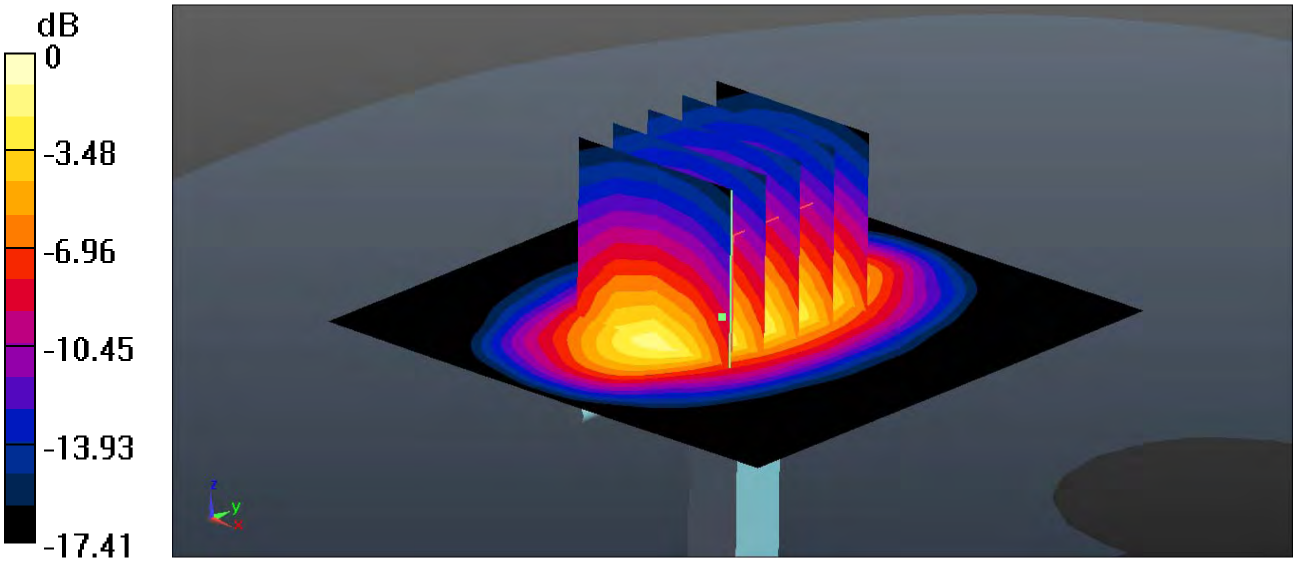
DUT: D1750V2-SN:1069

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1800_150731 Medium parameters used: f = 1750 MHz; $\sigma = 1.378$ S/m; $\varepsilon_r = 41.34$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(8.01, 8.01, 8.01); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.7 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 100.1 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 9.62 W/kg; SAR(10 g) = 5.07 W/kg
Maximum value of SAR (measured) = 13.7 W/kg



0 dB = 13.7 W/kg

System Check_Head_1900MHz_150731

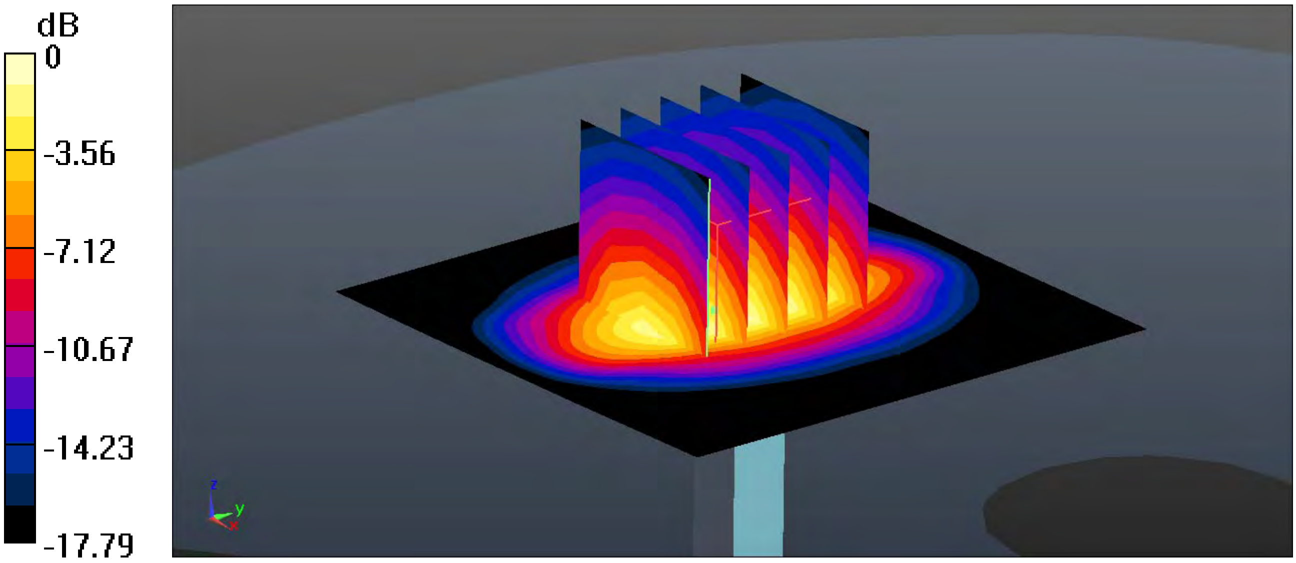
DUT: D1900V2-SN: 5d118

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900_150731 Medium parameters used: f = 1900 MHz; σ = 1.449 S/m; ε_r = 40.009; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.66, 7.66, 7.66); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 15.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 100.6 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 10.5 W/kg; SAR(10 g) = 5.5 W/kg
Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.0 W/kg

System Check_Head_2450MHz_150815

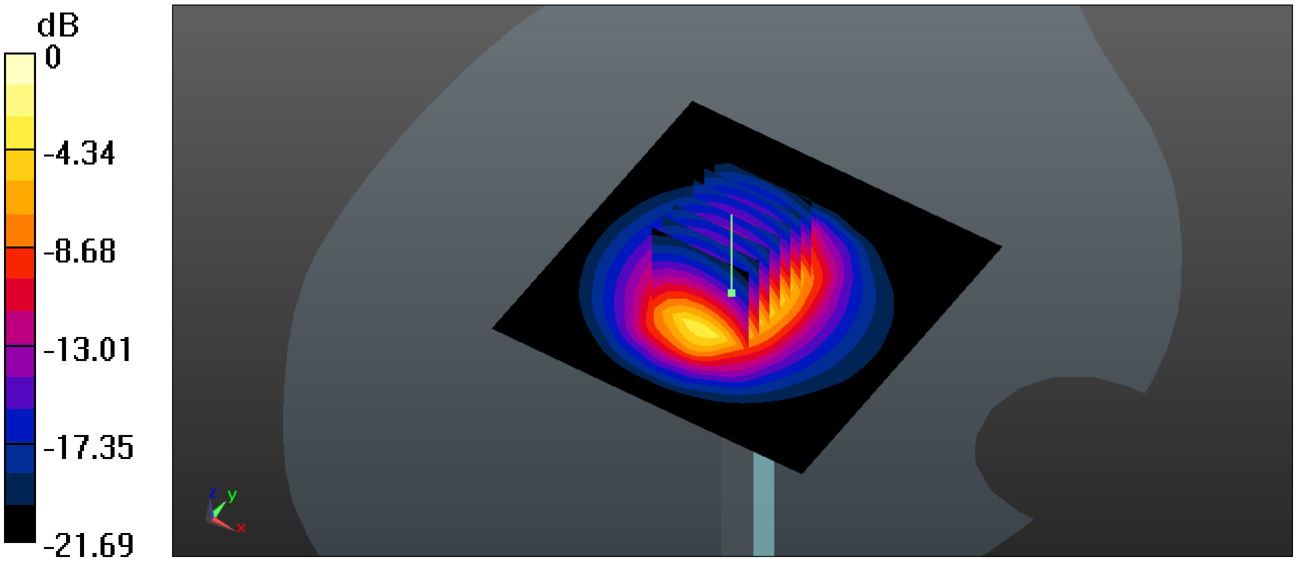
DUT: D2450V2-SN:840

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450_150815 Medium parameters used: f = 2450 MHz; σ = 1.809 S/m; ε_r = 38.451; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.01, 7.01, 7.01); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 20.5 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.99 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.05 W/kg
Maximum value of SAR (measured) = 20.3 W/kg



0 dB = 20.5 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.08.01

System Check_Head_5200MHz_150801

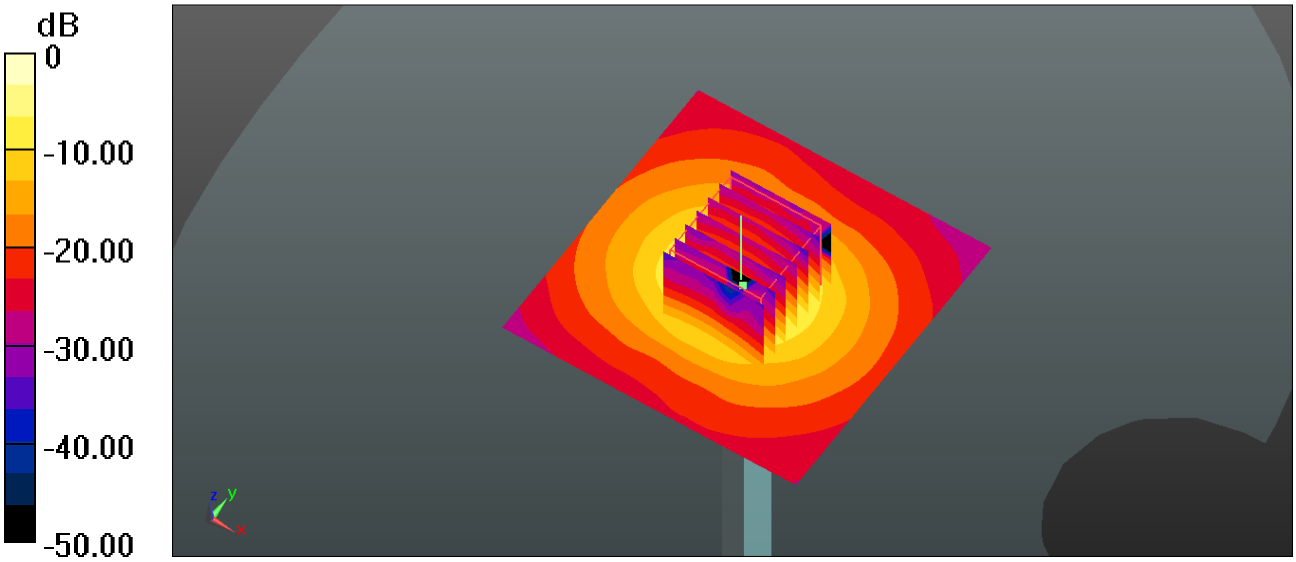
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: HSL_5200_150801 Medium parameters used: f = 5200 MHz; $\sigma = 4.656$ S/m; $\varepsilon_r = 36.346$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(5.25, 5.25, 5.25); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.0 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.32 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 34.1 W/kg
SAR(1 g) = 8.33 W/kg; SAR(10 g) = 2.29 W/kg
Maximum value of SAR (measured) = 20.6 W/kg



0 dB = 20.0 W/kg

System Check_Head_5600MHz_150801

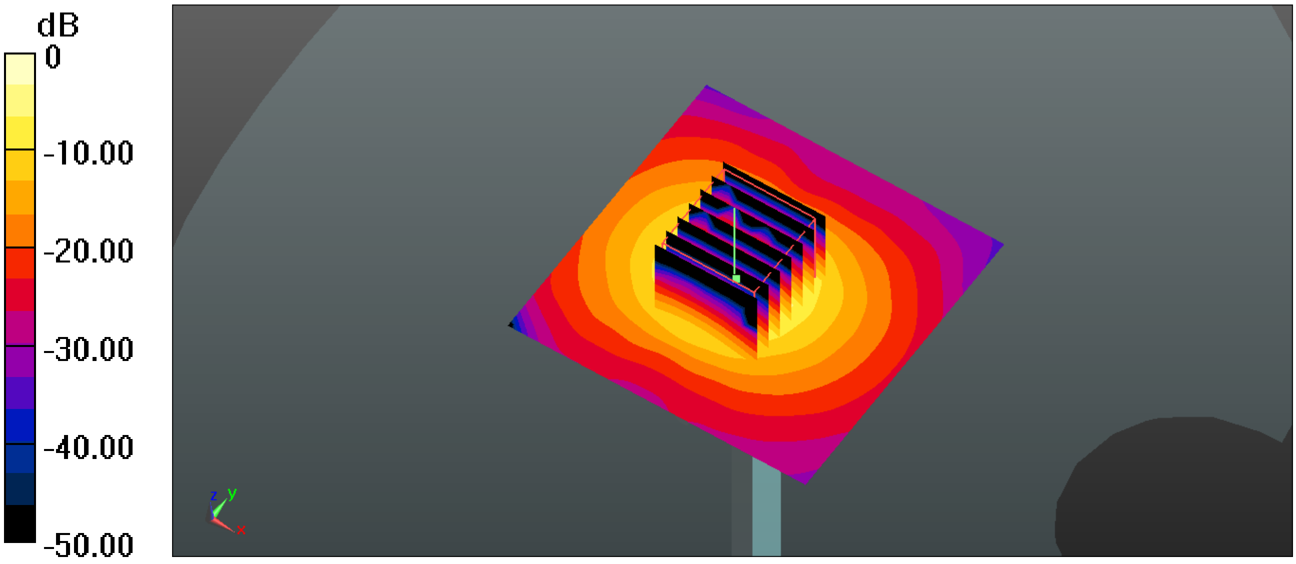
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW; Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: HSL_5600_150801 Medium parameters used: f = 5600 MHz; σ = 5.139 S/m; ε_r = 35.632; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.52, 4.52, 4.52); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.0 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.80 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 33.8 W/kg
SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.09 W/kg
Maximum value of SAR (measured) = 19.6 W/kg



0 dB = 19.0 W/kg

System Check_Head_5800MHz_150801

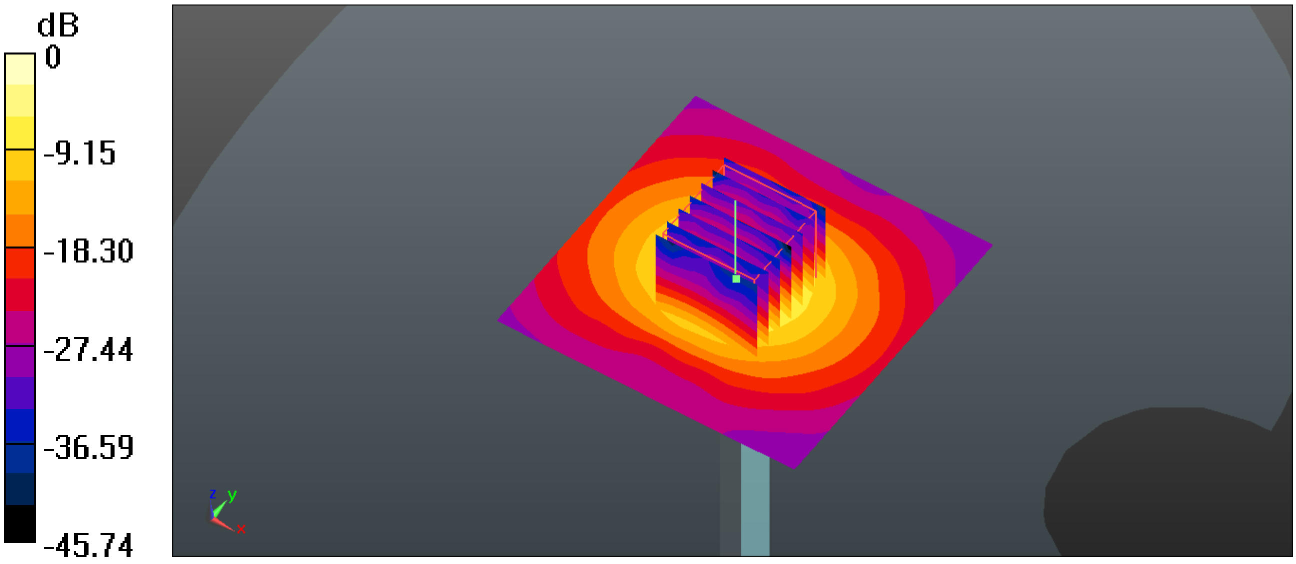
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: HSL_5800_150801 Medium parameters used: f = 5800 MHz; σ = 5.368 S/m; ε_r = 35.254; ρ = 1000 kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.5, 4.5, 4.5); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 22.3 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 55.65 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 38.8 W/kg
SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.41 W/kg
Maximum value of SAR (measured) = 22.7 W/kg



0 dB = 22.3 W/kg

System Check_Body_750MHz_150728

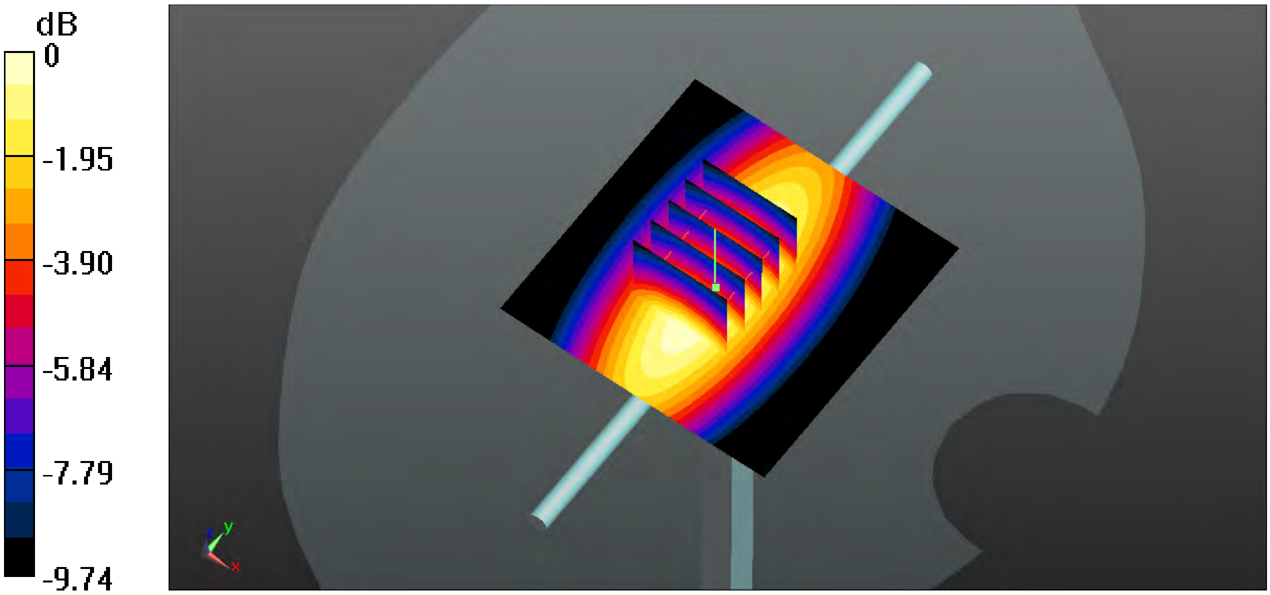
DUT: D750V3-SN:1065

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750_150728 Medium parameters used: f = 750 MHz; σ = 0.97 S/m; ε_r = 54.646; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.83, 9.83, 9.83); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.47 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.06 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.83 W/kg
SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 2.46 W/kg



0 dB = 2.47 W/kg

System Check_Body_835MHz_150728

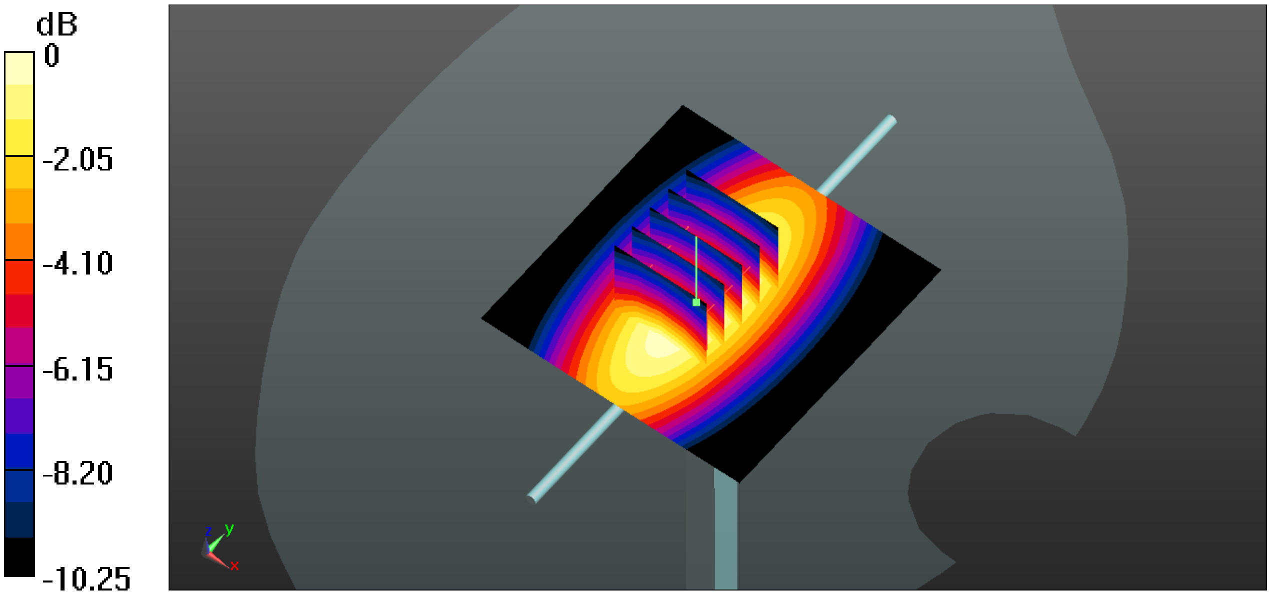
DUT: D835V2-SN:4d091

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_150728 Medium parameters used: f = 835 MHz; $\sigma = 0.972$ S/m; $\varepsilon_r = 53.975$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.8, 9.8, 9.8); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.18 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.26 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 2.32 W/kg; SAR(10 g) = 1.48 W/kg
Maximum value of SAR (measured) = 2.17 W/kg



0 dB = 2.18 W/kg

System Check_Body_1750MHz_150729

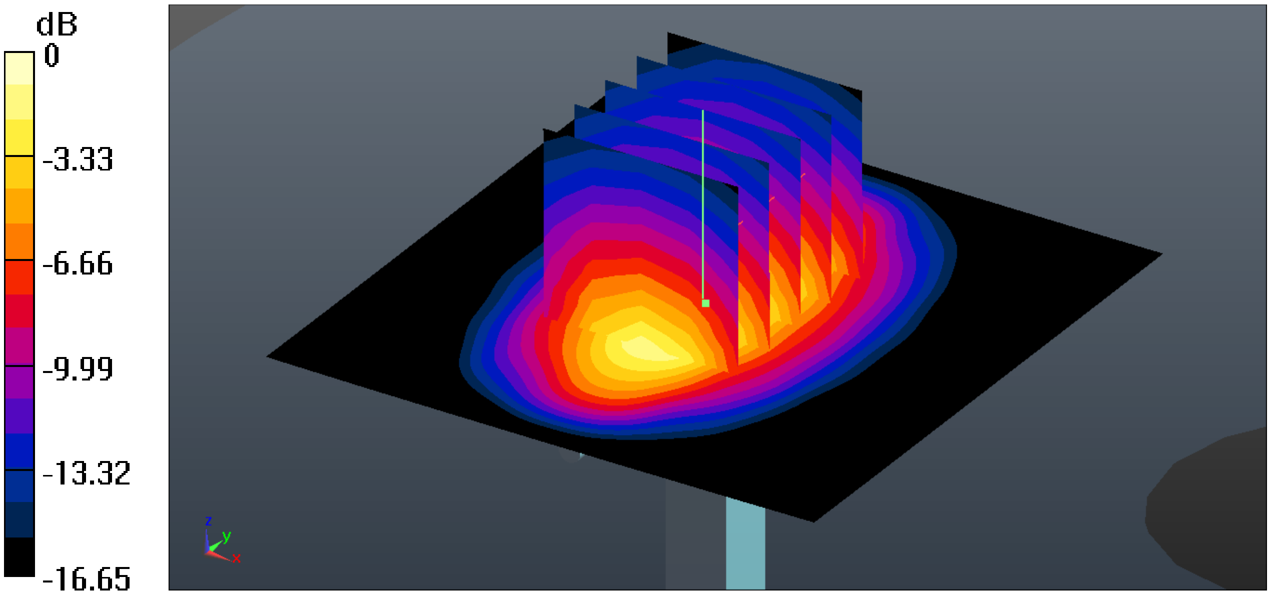
DUT: D1750V2-SN:1069

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1800_150729 Medium parameters used: f = 1750 MHz; $\sigma = 1.522$ S/m; $\varepsilon_r = 52.519$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.4 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(7.99, 7.99, 7.99); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
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 = 92.06 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 15.7 W/kg
SAR(1 g) = 9.07 W/kg; SAR(10 g) = 4.85 W/kg
Maximum value of SAR (measured) = 12.5 W/kg



0 dB = 12.5 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab   Date: 2015.07.29

System Check_Body_1900MHz_150729

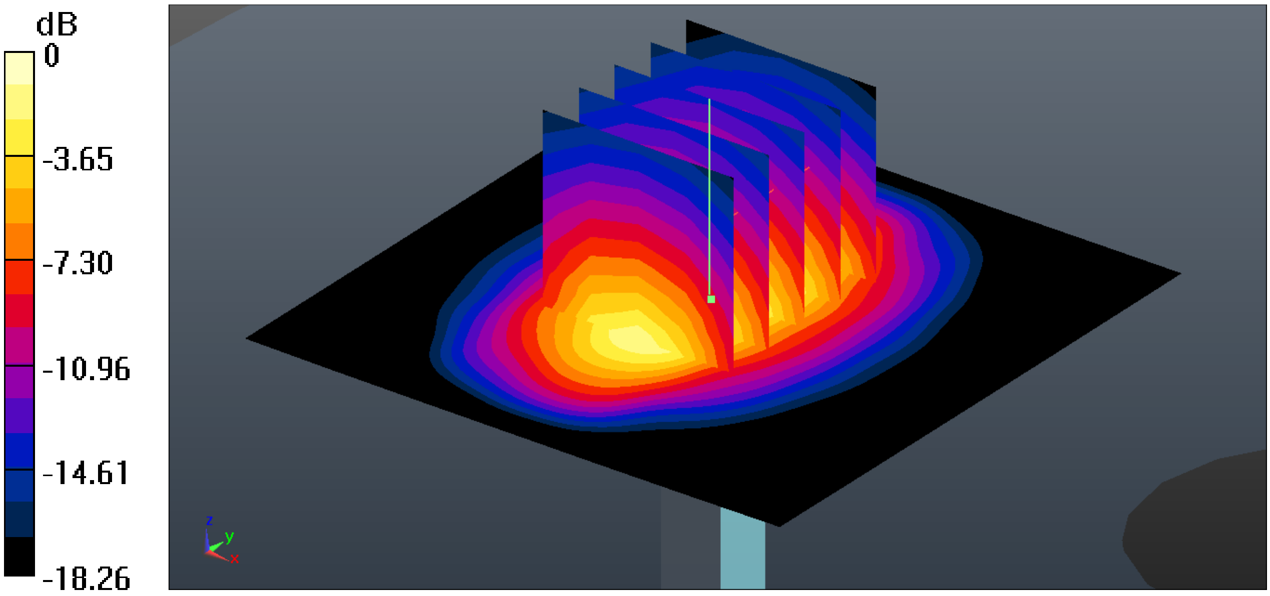
DUT: D1900V2-SN:5d118

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_150729 Medium parameters used: f = 1900 MHz; $\sigma = 1.535$ S/m; $\varepsilon_r = 54.579$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.4 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(7.57, 7.57, 7.57); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 83.24 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 17.0 W/kg
SAR(1 g) = 9.5 W/kg; SAR(10 g) = 4.93 W/kg
Maximum value of SAR (measured) = 13.5 W/kg



0 dB = 13.5 W/kg

System Check_Body_2450MHz_150815

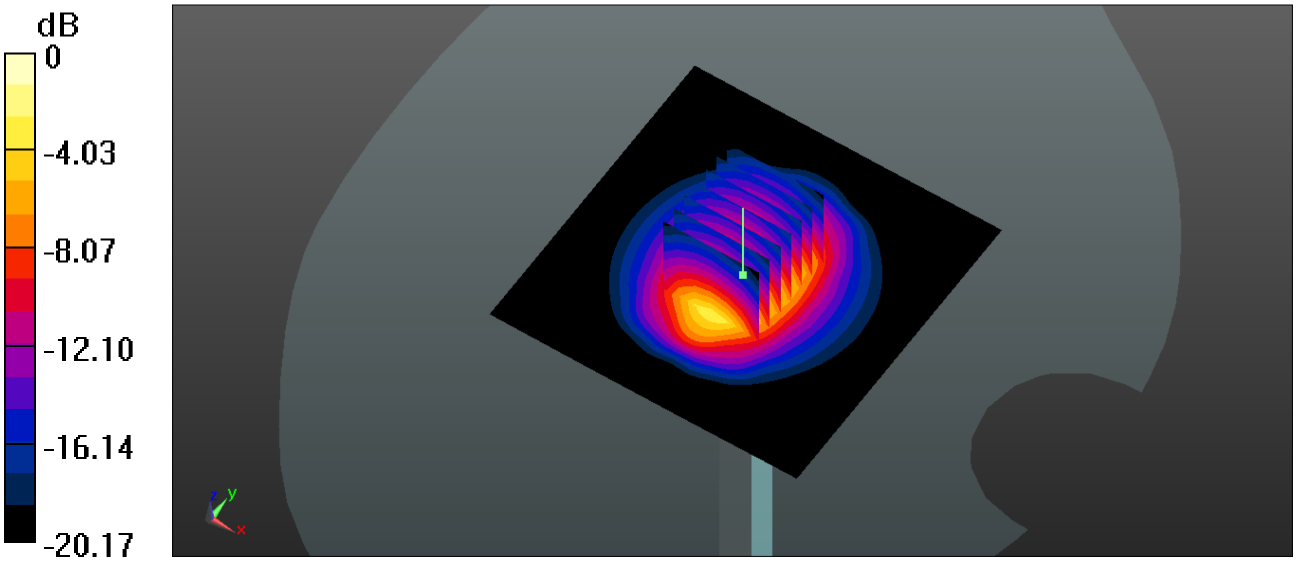
DUT: D2450V2-SN:840

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450_150815 Medium parameters used: f = 2450 MHz; σ = 1.909 S/m; ε_r = 50.971; ρ = 1000 kg/m^3
Ambient Temperature: 23.2 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(6.95, 6.95, 6.95); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 20.7 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.42 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.5 W/kg
Maximum value of SAR (measured) = 20.7 W/kg



0 dB = 20.7 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.08.01

System Check_Body_5200MHz_150801

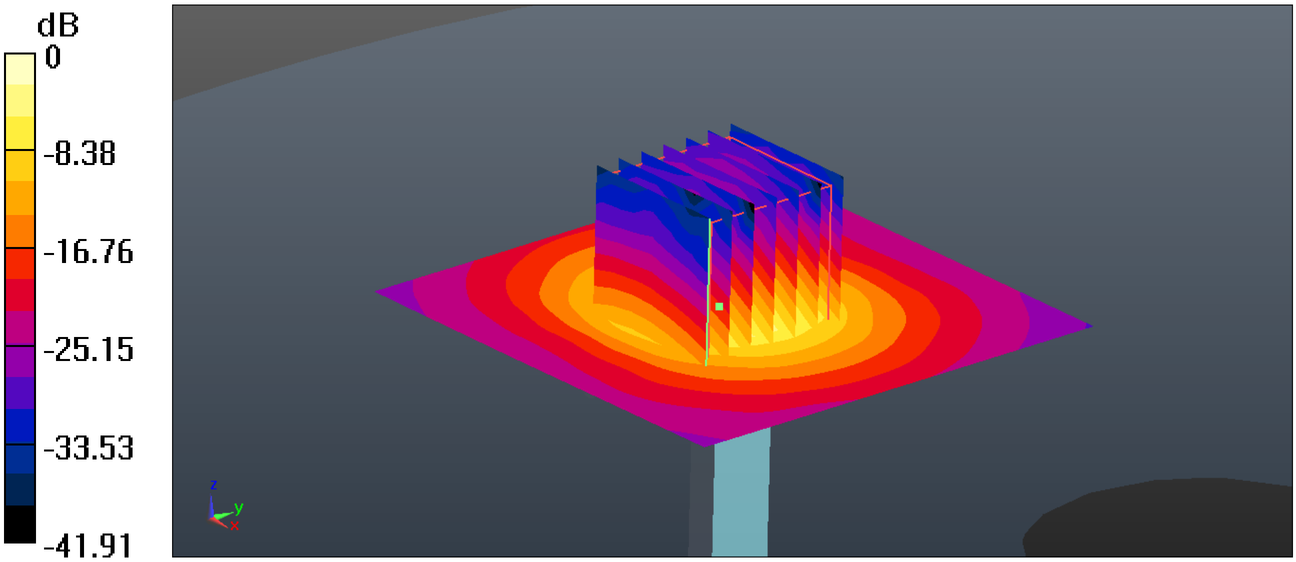
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5200_150801 Medium parameters used: f = 5200 MHz; σ = 5.137 S/m; ε_r = 48.164; ρ = 1000 kg/m^3
Ambient Temperature: 23.2 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.52, 4.52, 4.52); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.5 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 48.04 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 30.5 W/kg
SAR(1 g) = 7.44 W/kg; SAR(10 g) = 2.04 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 17.5 W/kg

System Check_Body_5600MHz_150801

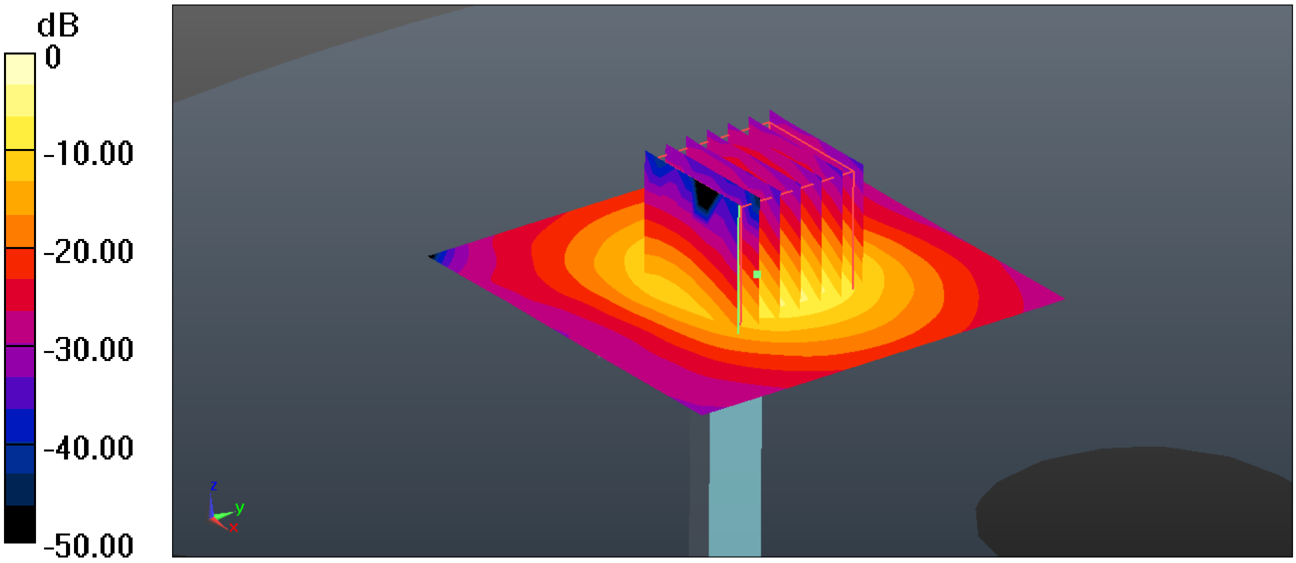
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: MSL_5600_150801 Medium parameters used: f = 5600 MHz; $\sigma = 5.644$ S/m; $\varepsilon_r = 47.452$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.2 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(3.86, 3.86, 3.86); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 25.3 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 52.89 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 44.5 W/kg
SAR(1 g) = 8.3 W/kg; SAR(10 g) = 2.85 W/kg
Maximum value of SAR (measured) = 25.1 W/kg



0 dB = 25.3 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.08.01

System Check_Body_5800MHz_150801

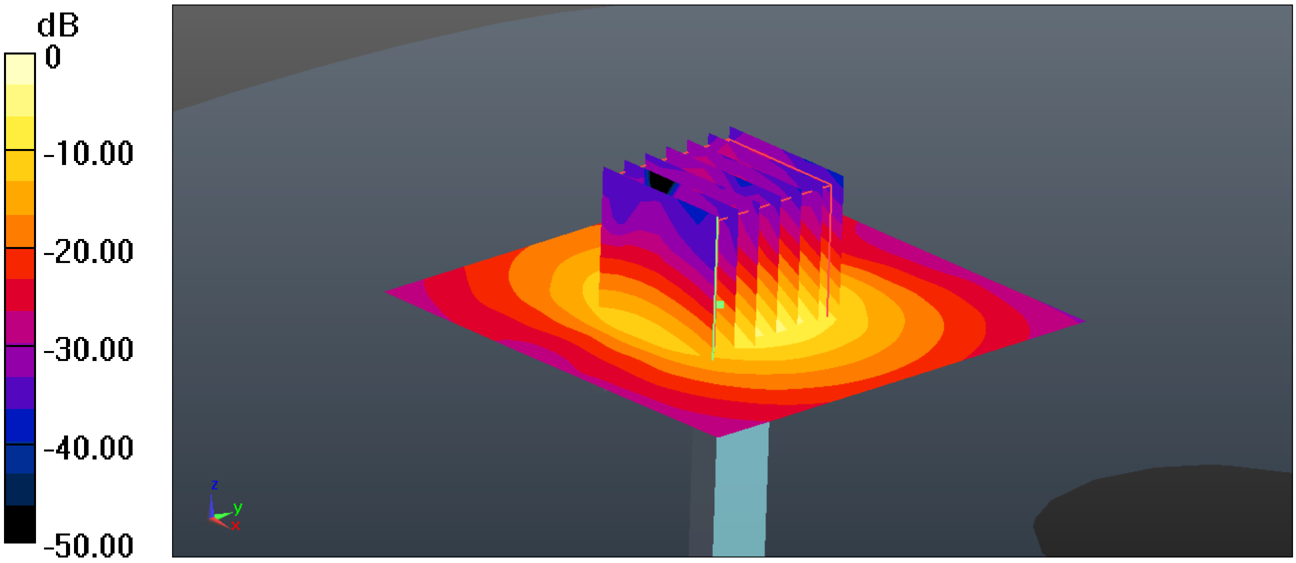
DUT: D5GHzV2-SN:1113

Communication System: UID 0, CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: MSL_5800_150801 Medium parameters used: f = 5800 MHz; $\sigma = 5.868$ S/m; $\varepsilon_r = 46.994$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.2 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.07, 4.07, 4.07); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.0 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 46.77 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 34.8 W/kg
SAR(1 g) = 7.98 W/kg; SAR(10 g) = 2.18 W/kg
Maximum value of SAR (measured) = 20.3 W/kg



0 dB = 20.0 W/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

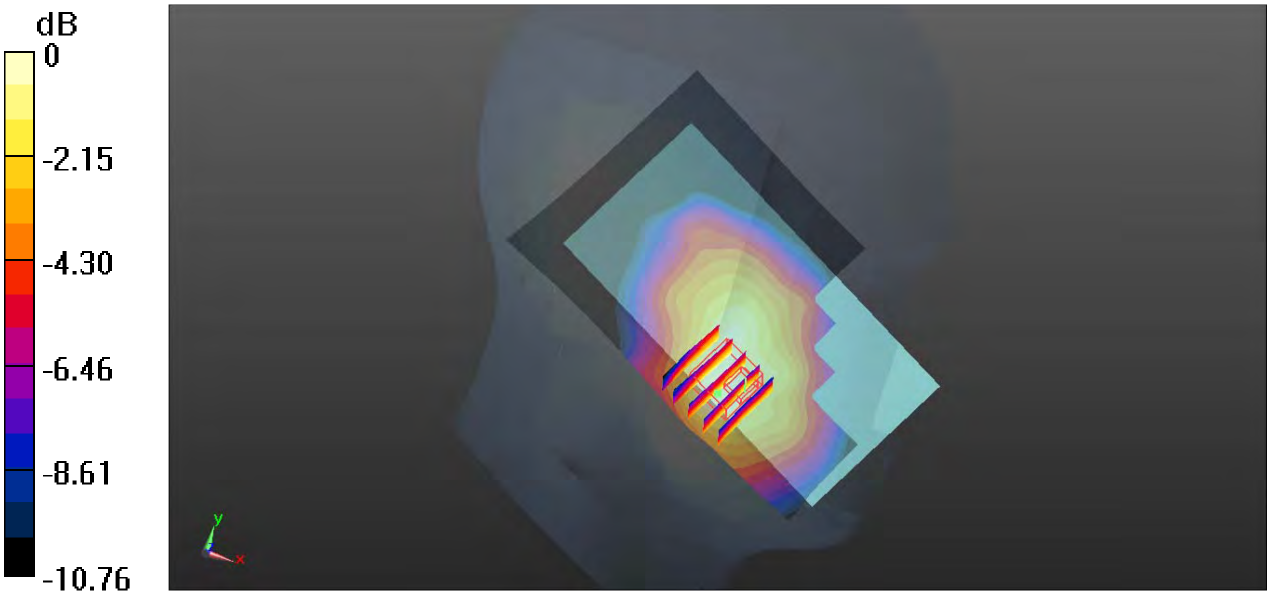
#01_CDMA2000 BC0_RC3+SO55_Left Cheek_Ch777

Communication System: UID 0, CDMA2000 (0); Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium: HSL_835_150730 Medium parameters used: f = 848.31 MHz; σ = 0.927 S/m; ε_r = 40.88; ρ = 1000 kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.78, 9.78, 9.78); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch777/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.442 W/kg

Ch777/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.218 W/kg
Maximum value of SAR (measured) = 0.394 W/kg



0 dB = 0.394 W/kg

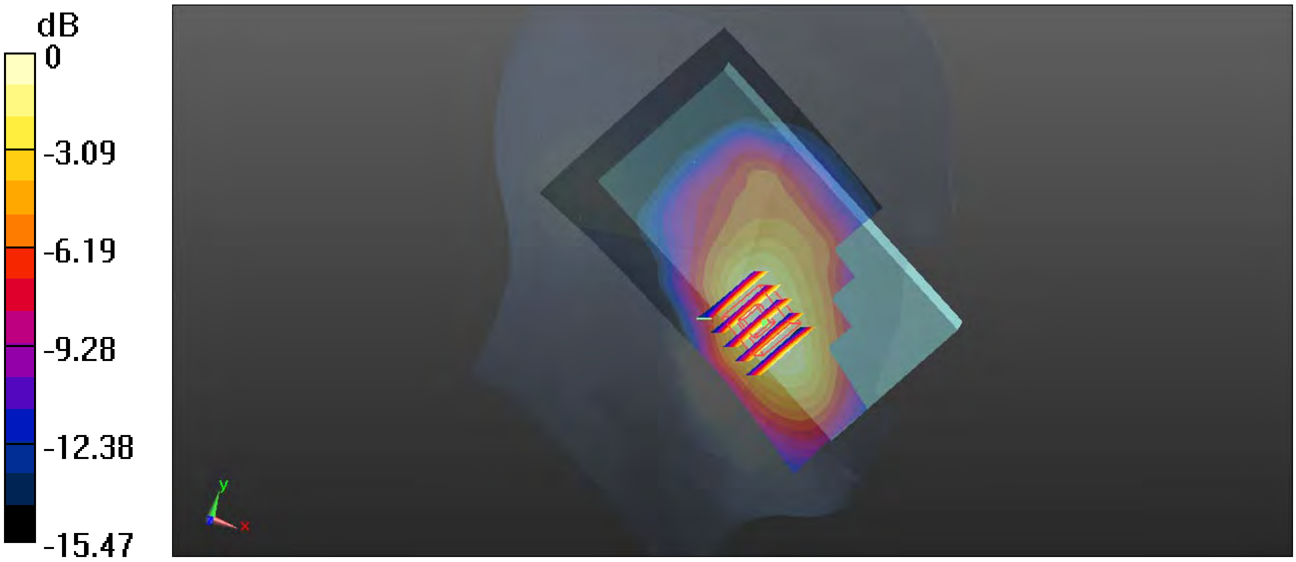
#02_CDMA2000 BC1_RC3+SO55_Left Cheek_Ch25

Communication System: UID 0, CDMA2000 (0); Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium: HSL_1900_150731 Medium parameters used: f = 1851.25 MHz; σ = 1.399 S/m; ε_r = 40.231; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.66, 7.66, 7.66); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch25/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.957 W/kg

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.228 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.758 W/kg; SAR(10 g) = 0.465 W/kg
Maximum value of SAR (measured) = 0.959 W/kg



0 dB = 0.957 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.07.30

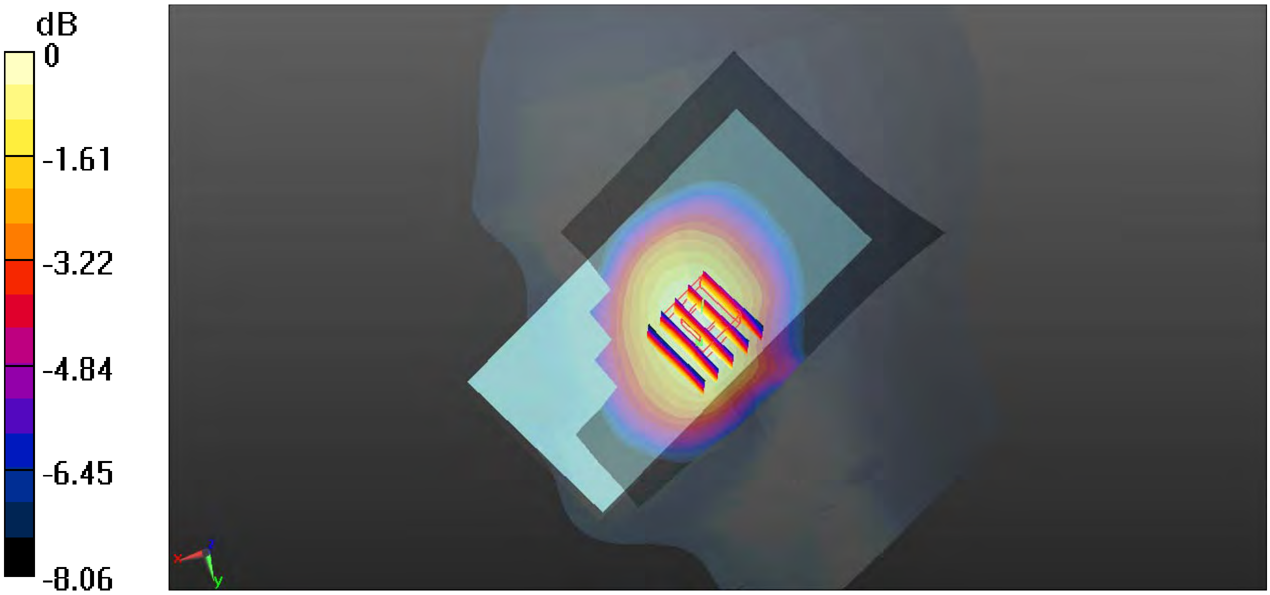
#03_LTE Band 13_10M_QPSK_1RB_24Offset_Right Cheek_Ch23230

Communication System: UID 0, LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: HSL_750_150730 Medium parameters used: f = 782 MHz; $\sigma = 0.898$ S/m; $\varepsilon_r = 40.018$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(10.19, 10.19, 10.19); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch23230/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.546 W/kg

Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.153 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.597 W/kg
SAR(1 g) = 0.462 W/kg; SAR(10 g) = 0.359 W/kg
Maximum value of SAR (measured) = 0.531 W/kg



0 dB = 0.546 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.07.30

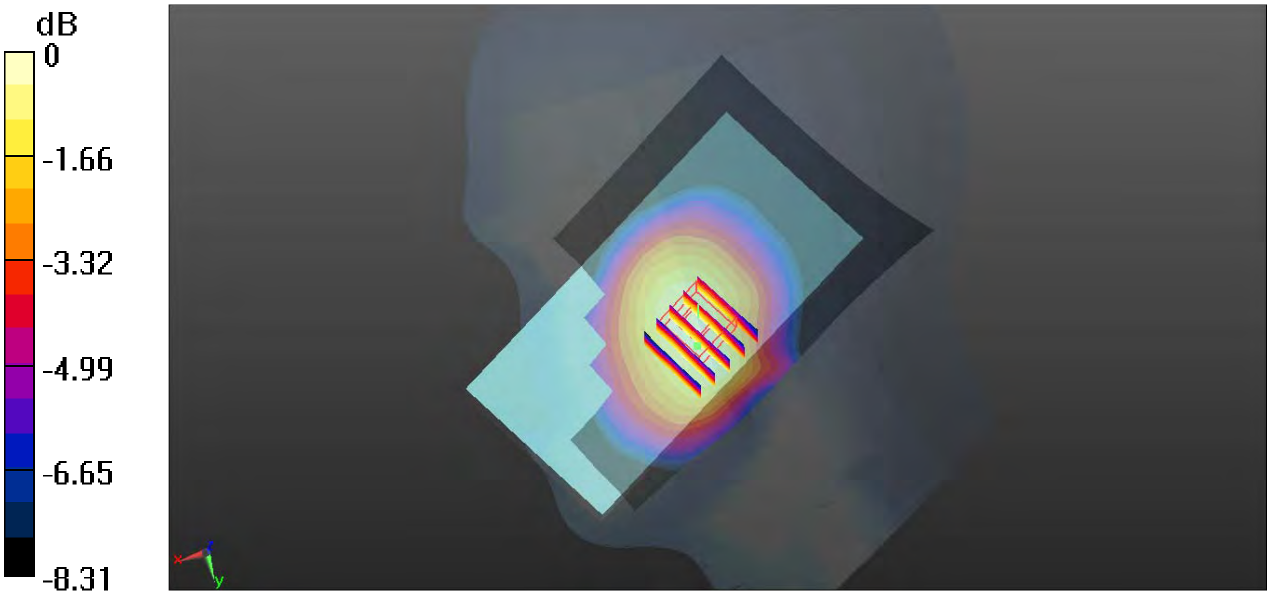
#04_LTE Band 14_10M_QPSK_1RB_49Offset_Right Cheek_Ch23330

Communication System: UID 0, LTE (0); Frequency: 793 MHz;Duty Cycle: 1:1
Medium: HSL_750_150730 Medium parameters used: f = 793 MHz; σ = 0.912 S/m; ε_r = 39.845; ρ = 1000 kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(10.19, 10.19, 10.19); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch23330/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.418 W/kg

Ch23330/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.2 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.483 W/kg
SAR(1 g) = 0.364 W/kg; SAR(10 g) = 0.281 W/kg
Maximum value of SAR (measured) = 0.437 W/kg



0 dB = 0.418 W/kg

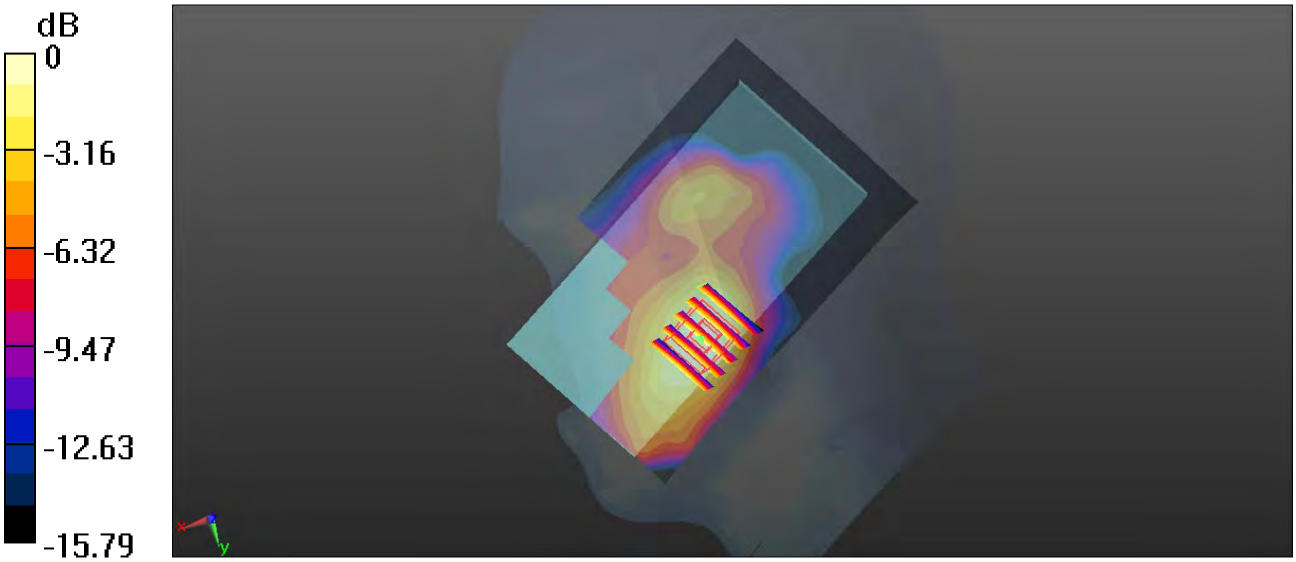
#05_LTE Band 4_20M_QPSK_1RB_49Offset_Right Cheek_Ch20175

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: HSL_1800_150731 Medium parameters used: f = 1732.5 MHz; $\sigma = 1.36$ S/m; $\varepsilon_r = 41.426$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(8.01, 8.01, 8.01); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch20175/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.716 W/kg

Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.468 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.829 W/kg
SAR(1 g) = 0.558 W/kg; SAR(10 g) = 0.351 W/kg
Maximum value of SAR (measured) = 0.704 W/kg



0 dB = 0.716 W/kg

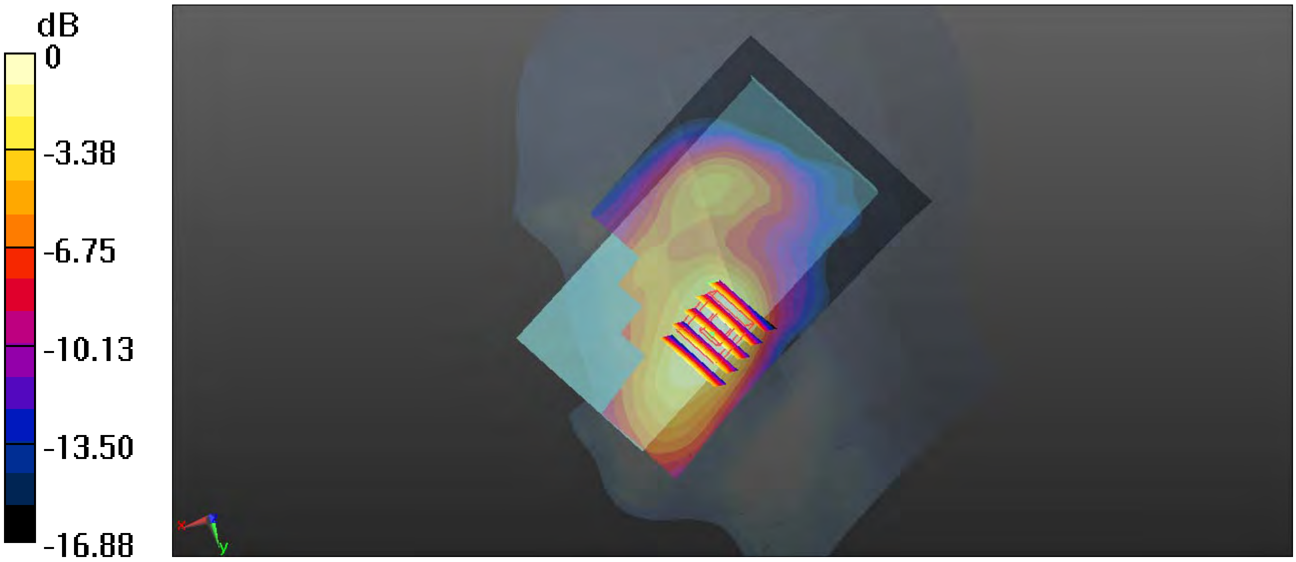
#06_LTE Band 2_20M_QPSK_1RB_0Offset_Right Cheek_Ch18900

Communication System: UID 0, LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900_150731 Medium parameters used: f = 1880 MHz; σ = 1.429 S/m; ε_r = 40.102; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.66, 7.66, 7.66); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.635 W/kg

Ch18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.869 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.746 W/kg
SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.294 W/kg
Maximum value of SAR (measured) = 0.607 W/kg



0 dB = 0.635 W/kg

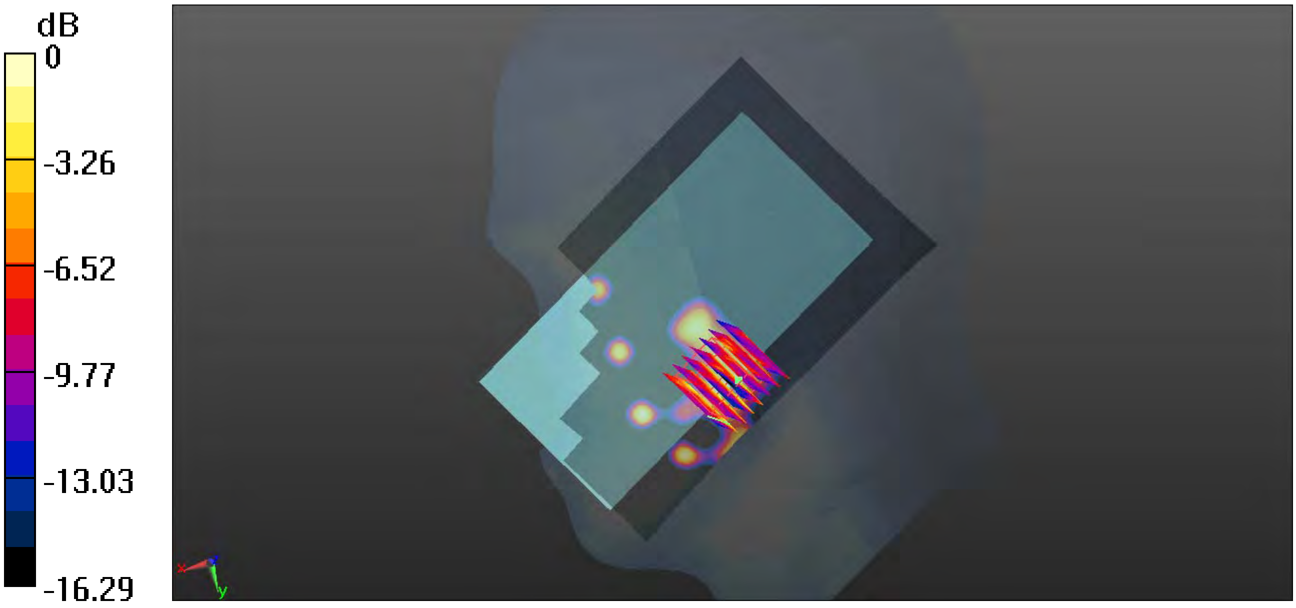
#07_WLAN2.4GHz_802.11b 1Mbps_Right Cheek_Ch11

Communication System: UID 0, WIFI (0); Frequency: 2462 MHz;Duty Cycle: 1:1.028
Medium: HSL_2450_150815 Medium parameters used: f = 2462 MHz; $\sigma = 1.824$ S/m; $\varepsilon_r = 38.384$; $\rho = 1000$ kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(7.01, 7.01, 7.01); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch11/Area Scan (91x151x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.0673 W/kg

Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.201 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.0770 W/kg
SAR(1 g) = 0.026 W/kg; SAR(10 g) = 0.013 W/kg
Maximum value of SAR (measured) = 0.0506 W/kg



0 dB = 0.0673 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.08.01

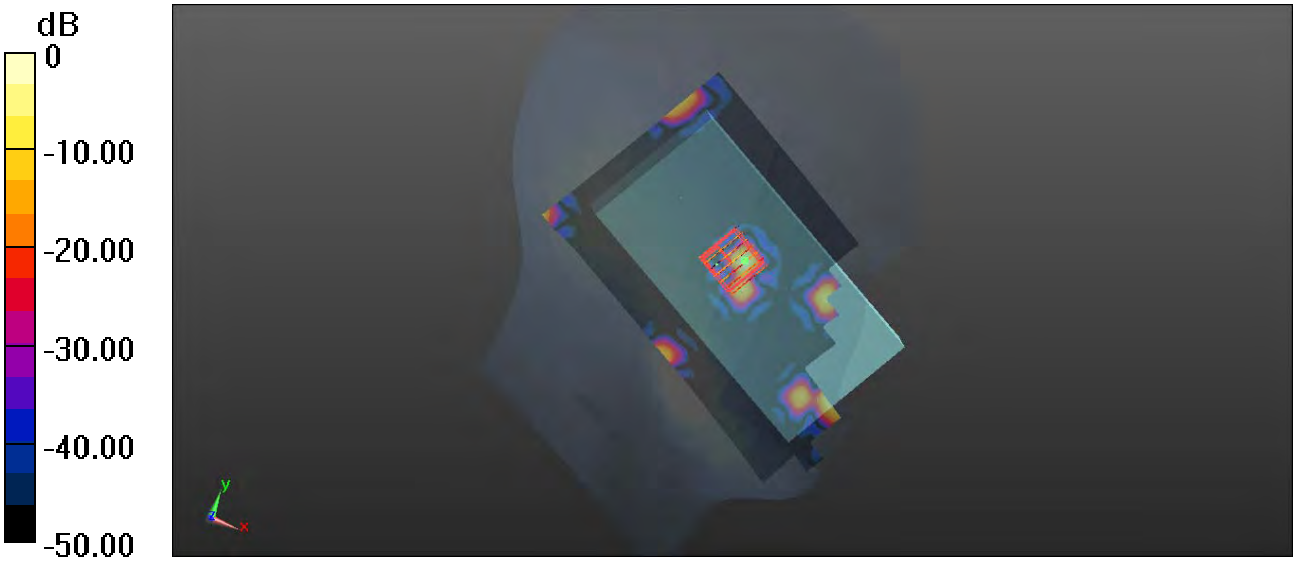
#08_WLAN 5.2GHz_802.11a 6Mbps_Left Tilted_Ch36

Communication System: UID 0, WIFI (0); Frequency: 5180 MHz;Duty Cycle: 1:1.149
Medium: HSL_5200_150801 Medium parameters used: f = 5180 MHz; σ = 4.636 S/m; ε_r = 36.38; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(5.25, 5.25, 5.25); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch36/Area Scan (111x181x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.574 W/kg

Ch36/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.278 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.00251 W/kg; SAR(10 g) = 0.00025 W/kg
Maximum value of SAR (measured) = 0.171 W/kg



0 dB = 0.574 W/kg

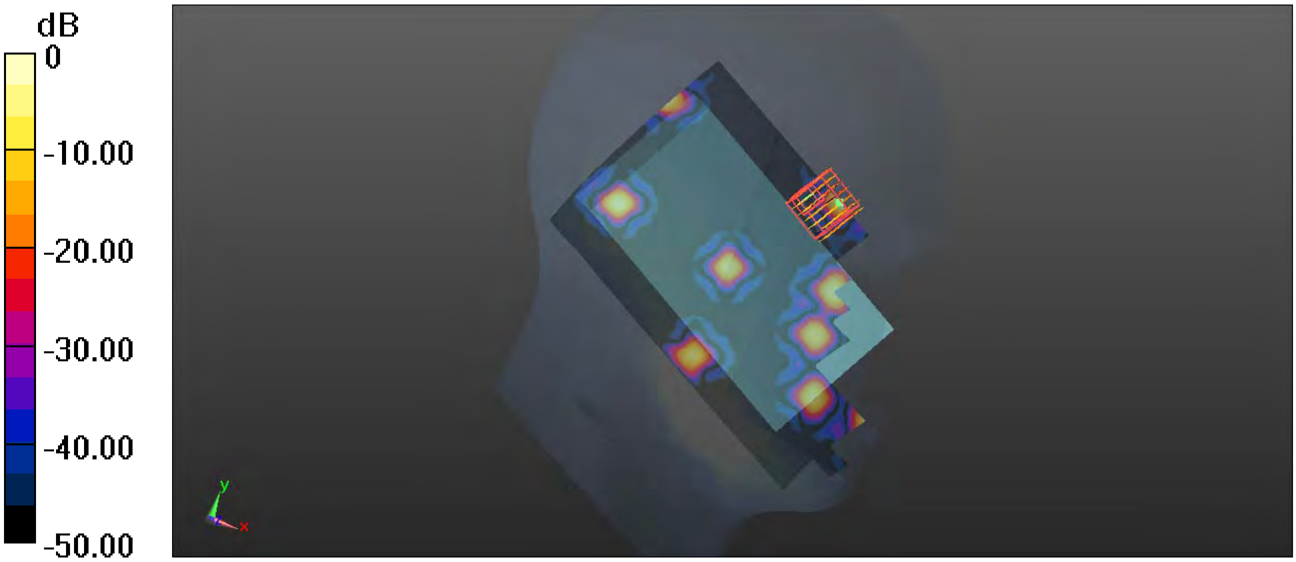
#09_WLAN 5.5GHz_802.11a 6Mbps_Left Tilted_Ch116

Communication System: UID 0, WIFI (0); Frequency: 5580 MHz;Duty Cycle: 1:1.149
Medium: HSL_5600_150801 Medium parameters used: f = 5580 MHz; σ = 5.11 S/m; ε_r = 35.673; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.52, 4.52, 4.52); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch116/Area Scan (111x181x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.245 W/kg

Ch116/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.125 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.020 W/kg; SAR(10 g) = 0.002 W/kg
Maximum value of SAR (measured) = 1.28 W/kg



0 dB = 0.245 W/kg

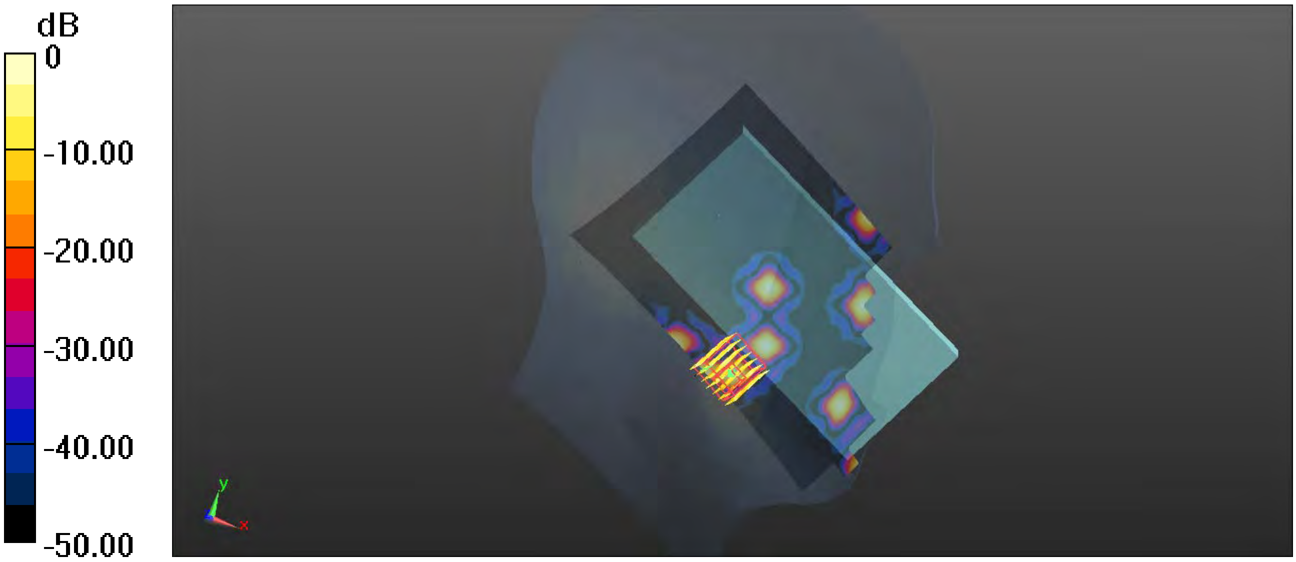
#10_WLAN 5.8GHz_802.11a MCS0_Left Tilted_Ch157

Communication System: UID 0, WIFI (0); Frequency: 5785 MHz;Duty Cycle: 1:1.149
Medium: HSL_5800_150801 Medium parameters used: f = 5785 MHz; σ = 5.347 S/m; ε_r = 35.291; ρ = 1000 kg/m^3
Ambient Temperature: 23.3 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(4.5, 4.5, 4.5); Calibrated: 2014.11.13;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch157/Area Scan (111x181x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0968 W/kg

Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0.1750 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 8.85 W/kg
SAR(1 g) = 0.00841 W/kg; SAR(10 g) = 0.00413 W/kg
Maximum value of SAR (measured) = 0.124 W/kg



0 dB = 0.0968 W/kg

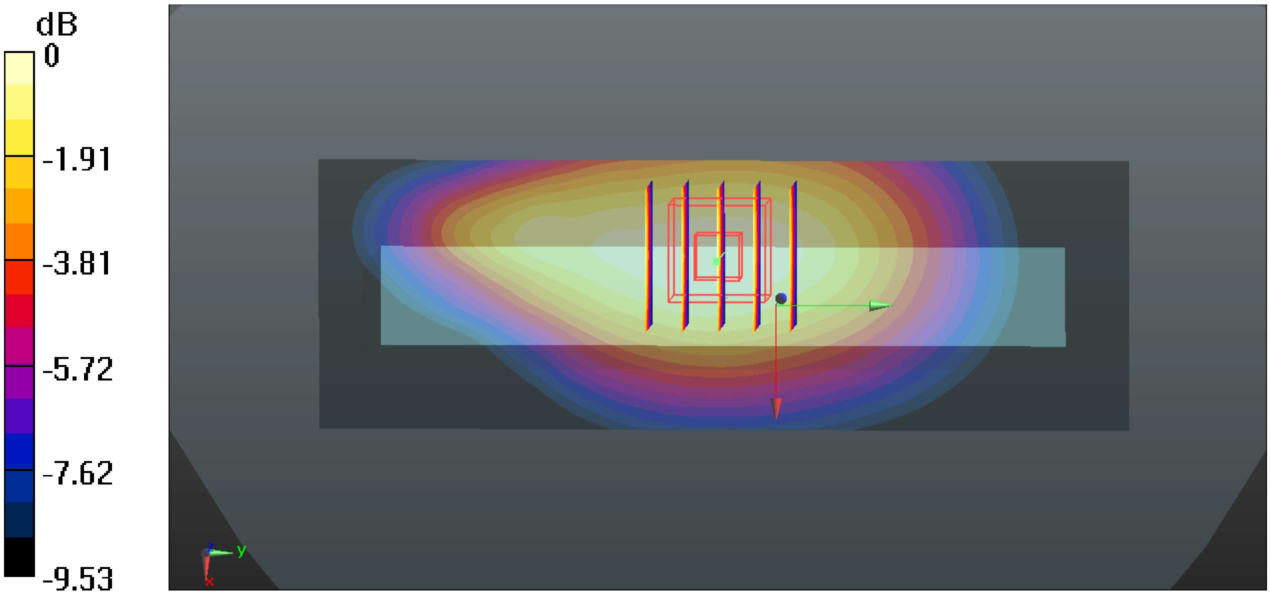
#11_CDMA2000 BC0_RTAP 153.6Kbps_Left Side_10mm_Ch777

Communication System: UID 0, CDMA2000 (0); Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium: MSL_835_150728 Medium parameters used: f = 848.31 MHz; σ = 0.987 S/m; ε_r = 53.853; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.8, 9.8, 9.8); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch777/Area Scan (41x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.463 W/kg

Ch777/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.297 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.516 W/kg
SAR(1 g) = 0.384 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.460 W/kg



0 dB = 0.463 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.07.29

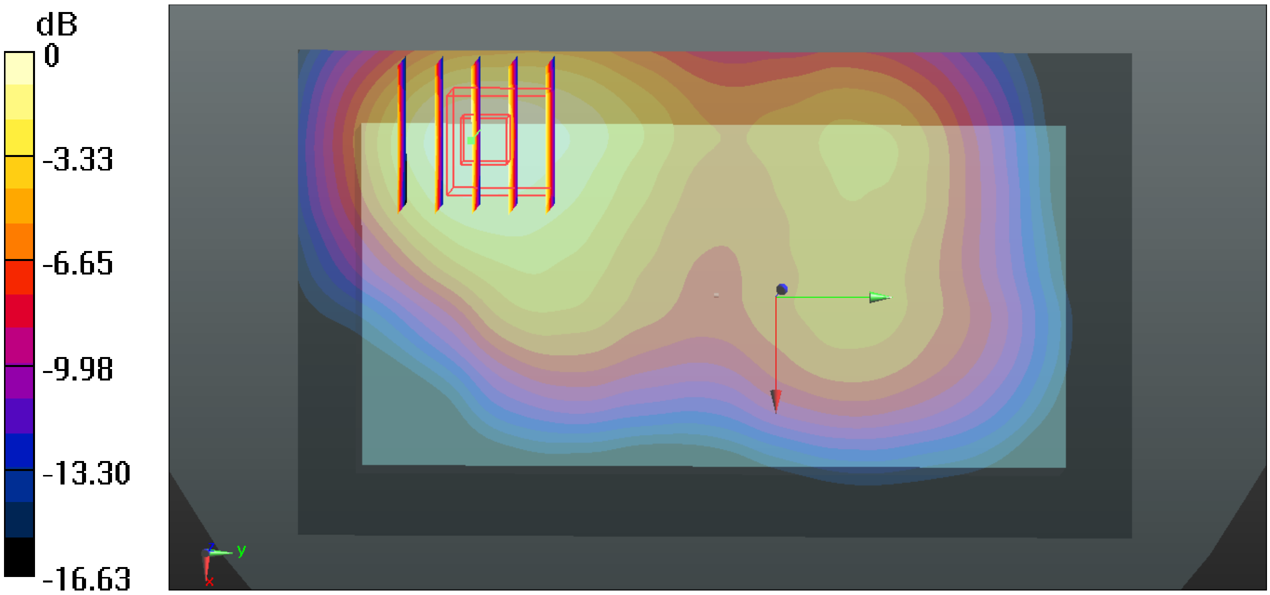
#12_CDMA2000 BC1_RTAP 153.6Kbps_Front_10mm_Ch25

Communication System: UID 0, CDMA2000 (0); Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium: MSL_1900_150729 Medium parameters used: f = 1851.25 MHz; σ = 1.474 S/m; ε_r = 54.678; ρ = 1000 kg/m^3
Ambient Temperature: 23.4 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(7.57, 7.57, 7.57); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch25/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.841 W/kg

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.886 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.962 W/kg
SAR(1 g) = 0.619 W/kg; SAR(10 g) = 0.376 W/kg
Maximum value of SAR (measured) = 0.804 W/kg



0 dB = 0.804 W/kg

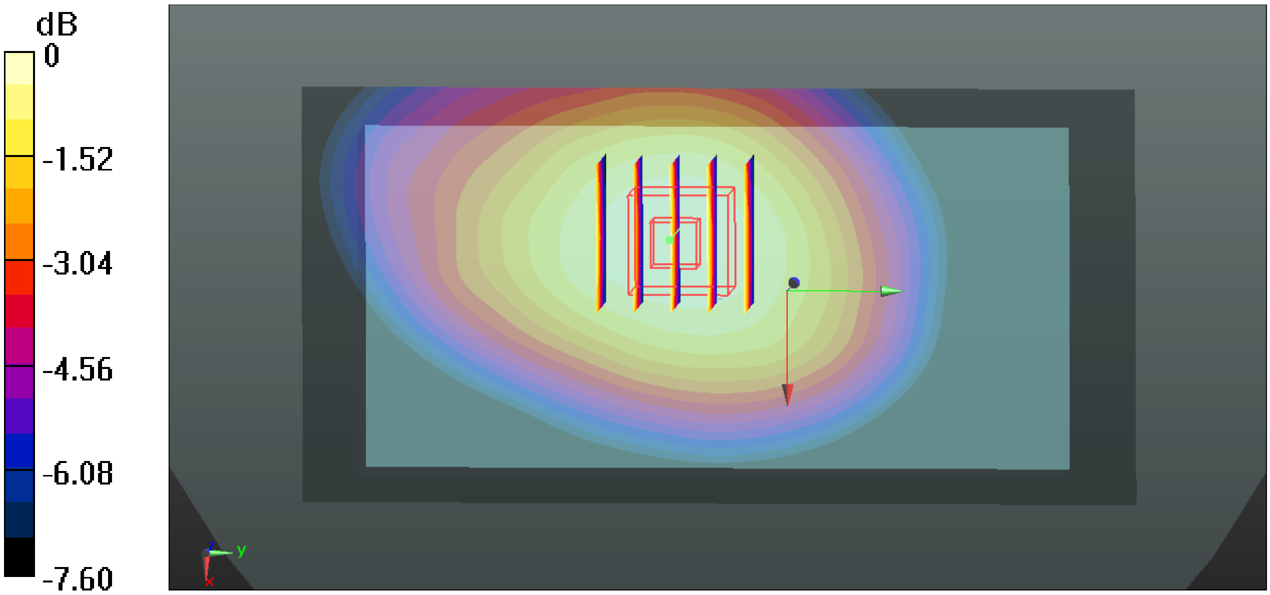
#13_LTE Band 13_10M_QPSK_1RB_24Offset_Back_10mm_Ch23230

Communication System: UID 0, LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: MSL_750_150728 Medium parameters used: f = 782 MHz; σ = 0.996 S/m; ε_r = 53.986; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.83, 9.83, 9.83); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch23230/Area Scan (61x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.501 W/kg

Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.480 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.535 W/kg
SAR(1 g) = 0.438 W/kg; SAR(10 g) = 0.335 W/kg
Maximum value of SAR (measured) = 0.497 W/kg



0 dB = 0.497 W/kg

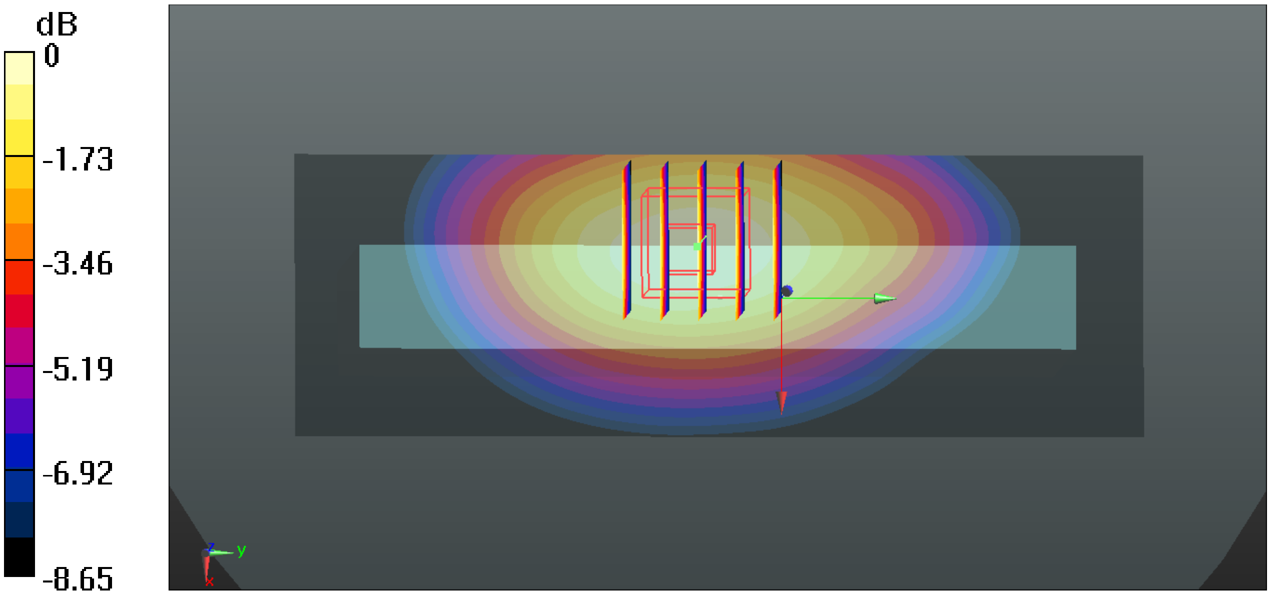
#14_LTE Band 14_10M_QPSK_1RB_49Offset_Right Side_10mm_Ch23330

Communication System: UID 0, LTE (0); Frequency: 793 MHz;Duty Cycle: 1:1
Medium: MSL_750_150728 Medium parameters used: f = 793 MHz; σ = 1.011 S/m; ε_r = 53.797; ρ = 1000 kg/m^3
Ambient Temperature: 23.5 ℃ ; **Liquid Temperature**: 22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(9.83, 9.83, 9.83); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch23330/Area Scan (41x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.429 W/kg

Ch23330/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.674 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.478 W/kg
SAR(1 g) = 0.360 W/kg; SAR(10 g) = 0.257 W/kg
Maximum value of SAR (measured) = 0.429 W/kg



0 dB = 0.429 W/kg

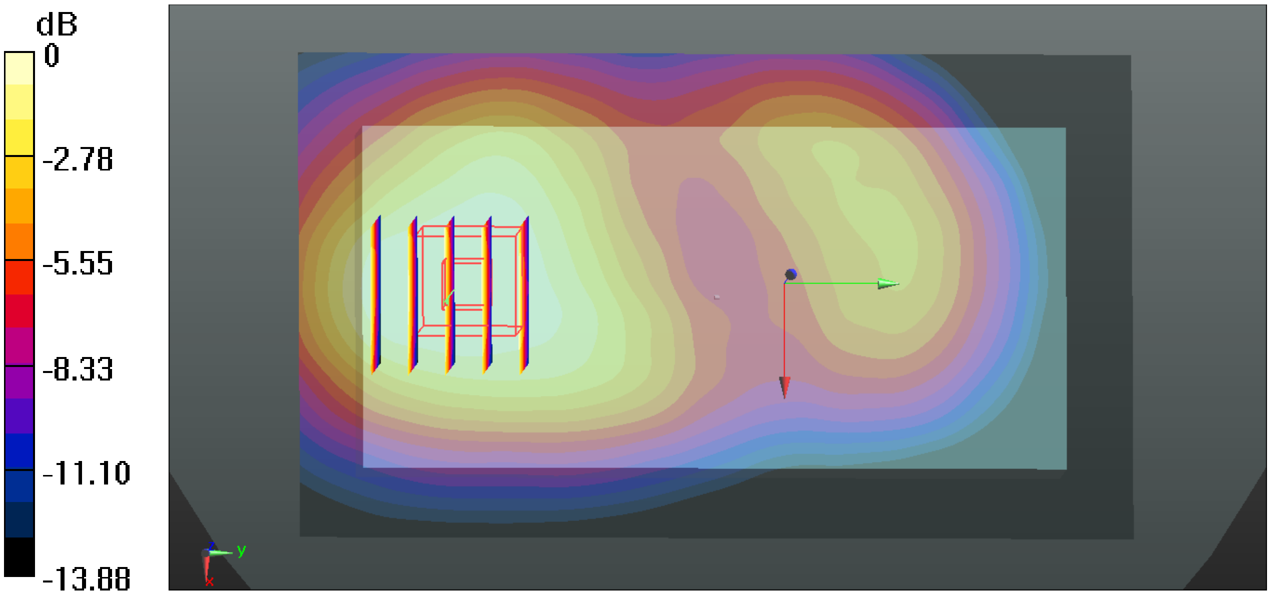
#15_LTE Band 4_20M_QPSK_1RB_49Offset_Front_10mm_Ch20175

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: MSL_1800_150729 Medium parameters used: f = 1732.5 MHz; σ = 1.502 S/m; ε_r = 52.553; ρ = 1000 kg/m^3
Ambient Temperature: 23.4 ℃ ; **Liquid Temperature**: 22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(7.99, 7.99, 7.99); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch20175/Area Scan (71x121x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.769 W/kg

Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.021 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.888 W/kg
SAR(1 g) = 0.545 W/kg; SAR(10 g) = 0.394 W/kg
Maximum value of SAR (measured) = 0.740 W/kg



0 dB = 0.740 W/kg

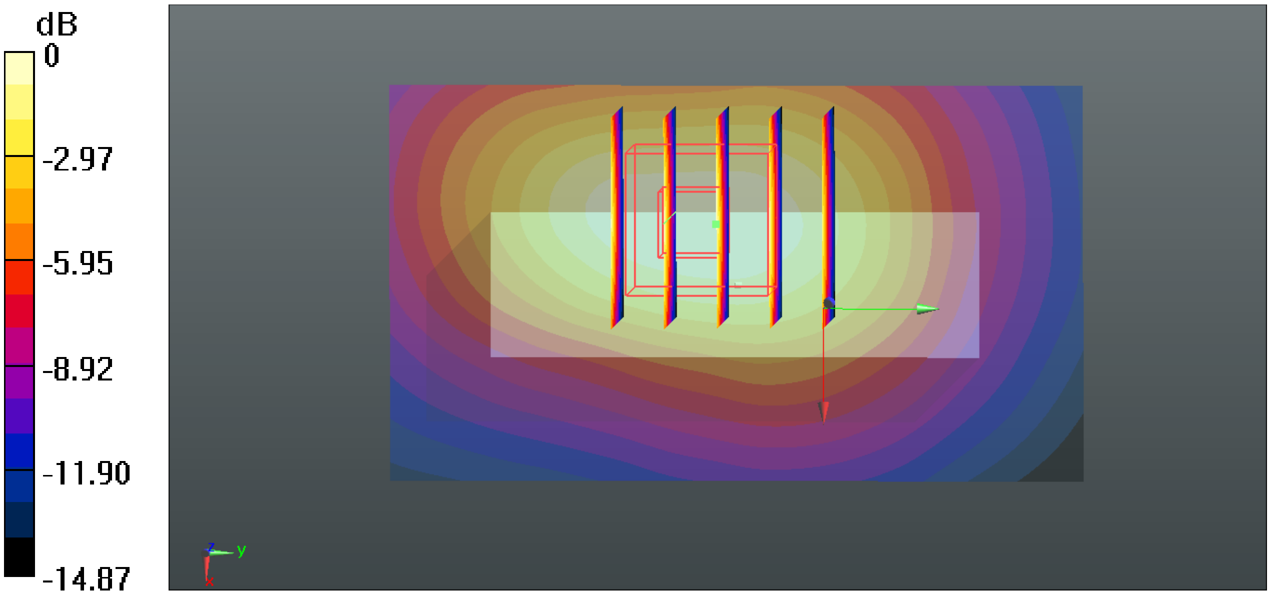
#16_LTE Band 2_20M_QPSK_1RB_0Offset_Bottom Side_10mm_Ch18900

Communication System: UID 0, LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_150729 Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 54.609; ρ = 1000 kg/m^3
Ambient Temperature: 23.4 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7346; ConvF(7.57, 7.57, 7.57); Calibrated: 2015.01.08;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1386; Calibrated: 2015.02.19
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (41x71x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.731 W/kg

Ch18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.119 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.898 W/kg
SAR(1 g) = 0.556 W/kg; SAR(10 g) = 0.326 W/kg
Maximum value of SAR (measured) = 0.743 W/kg



0 dB = 0.731 W/kg

Test Laboratory:Sporton International Inc SAR Testing Lab Date: 2015.08.15

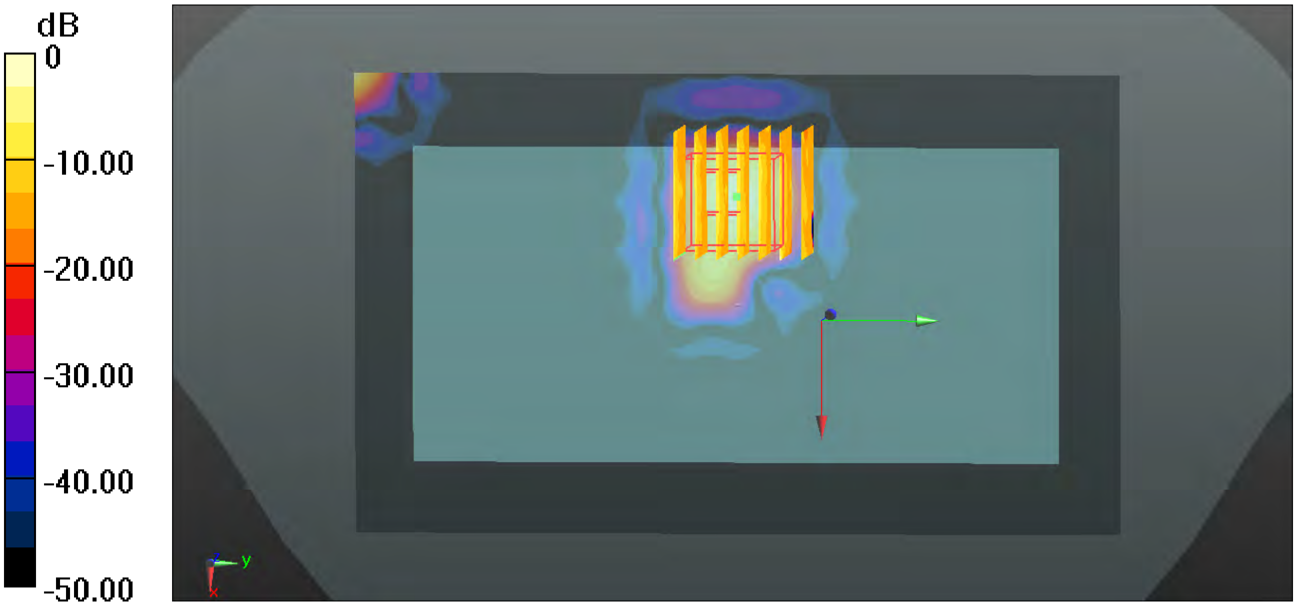
#17_WLAN2.4GHz_802.11b 1Mbps_Back_10mm_Ch11

Communication System: UID 0, WIFI (0); Frequency: 2462 MHz;Duty Cycle: 1:1.028
Medium: MSL_2450_150815 Medium parameters used: f = 2462 MHz; σ = 1.928 S/m; ε_r = 50.903; ρ = 1000 kg/m^3
Ambient Temperature: 23.2 ℃ ; **Liquid Temperature**: 22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3819; ConvF(6.95, 6.95, 6.95); Calibrated: 2014.11.13;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2014.12.11
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Ch11/Area Scan (91x151x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.213 W/kg

Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.859 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.643 W/kg
SAR(1 g) = 0.036 W/kg; SAR(10 g) = 0.020 W/kg
Maximum value of SAR (measured) = 0.207 W/kg



0 dB = 0.213 W/kg