FCC SAR Test Report

APPLICANT	:	ZTE CORPORATION
EQUIPMENT	:	CDMA/LTE Multi-Mode Digital Mobile Phone
BRAND NAME	:	ZTE
MODEL NAME	:	Z3001S
FCC ID	:	SRQ-Z3001S
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

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

Mark Qu

Approved by: Mark Qu / Manager

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TESTING
NVLAP LAB CODE 600154-0

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Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA7N1618	Rev. 01	Initial issue of report	Dec. 27, 2017

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION, CDMA/LTE Multi-Mode Digital Mobile Phone, Z3001S**, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary			Highest Simultaneous Transmission 1g SAR (W/kg)
			Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	
			1g SAR (W/kg)			
Licensed	CDMA	CDMA2000 BC10	1.19	1.10	1.04	1.57
		CDMA2000 BC0	1.18	1.07	**1.15**	
		CDMA2000 BC1	1.12	0.94	0.79	
	LTE	LTE Band 13	0.73	**1.12**	0.88	
		LTE Band 26	1.15	0.98	1.08	
		LTE Band 25	0.98	0.77	0.57	
		LTE Band 41	**1.19**	0.53	0.31	
DTS	WLAN	2.4GHz WLAN	1.06	0.28	0.14	1.57
DSS	Bluetooth	Bluetooth				1.26
Date of Testing:			2017/11/22 ~ 2017/11/27			

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 (Xi'an) Inc.
Test Site Location	1F, Bldg. A3, No.39, Chuangye Ave. New Industrial Park, High-Tech District Xi'an Shaanxi Province 710119 China TEL: +86-29-8860-8767 FAX: +86-29-8860-8791

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

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

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	CDMA/LTE Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z3001S
FCC ID	SRQ-Z3001S
MEID Code	99000898000205
Wireless Technology and Frequency Range	CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz CDMA 2000 BC10: 817.9 MHz ~ 823.1 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM WLAN 2.4GHz : 802.11b/g/n HT20/HT40 Bluetooth v3.0+EDR, Bluetooth v4.0 LE, Bluetooth v4.1 LE
HW Version	Z3001SHW1.0
SW Version	Z3001SV1.0.0B02
EUT Stage	Identical Prototype
Remark: 1. This device WLAN 2.4GHz supports hotspot operation. 2. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of CDMA2000 BC0/BC1/BC10 and LTE Band 25/26. 3. This device has two WWAN antennas. WWAN antenna 1 is located at the right side of bottom edge of the device and WWAN antenna 2 is located at the left side of bottom edge of the device which can refer to antenna location chapter. WWAN antenna 1 frequency bands include CDMA2000 BC0/BC1/BC10 and LTE B13 / B15 / B26 and WWAN antenna 2 frequency bands only include LTE B41. And they can't transmit simultaneously.	

4.2 General LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r05</th></tr>
<tr><td>FCC ID</td><td>SRQ-Z3001S</td></tr>
<tr><td>Equipment Name</td><td>CDMA/LTE Multi-Mode Digital Mobile Phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 25: 1850.7 MHz ~ 1914.3 MHz
LTE Band 26: 814.7 MHz ~ 848.3 MHz
LTE Band 41: 2498.5 MHz ~ 2687.5 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 13: 5MHz, 10MHz
LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz
LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Data only</td></tr>
<tr><td>LTE Release Version</td><td>R10, Cat4</td></tr>
<tr><td>CA Support</td><td>Not Supported</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table>
</td></tr>
<tr><td>LTE A-MPR</td><td>In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</td></tr>
<tr><td>Power reduction applied to satisfy SAR compliance</td><td>Yes, when hotspot mode is enabled, power reduction will be activated to limit the maximum power of LTE Band 25/26.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
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 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5		
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5		
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5		
LTE Band 41												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506				
L M	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5				
M	40620	2593	40620	2593	40620	2593	40620	2593				
H M	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5				
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680				

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

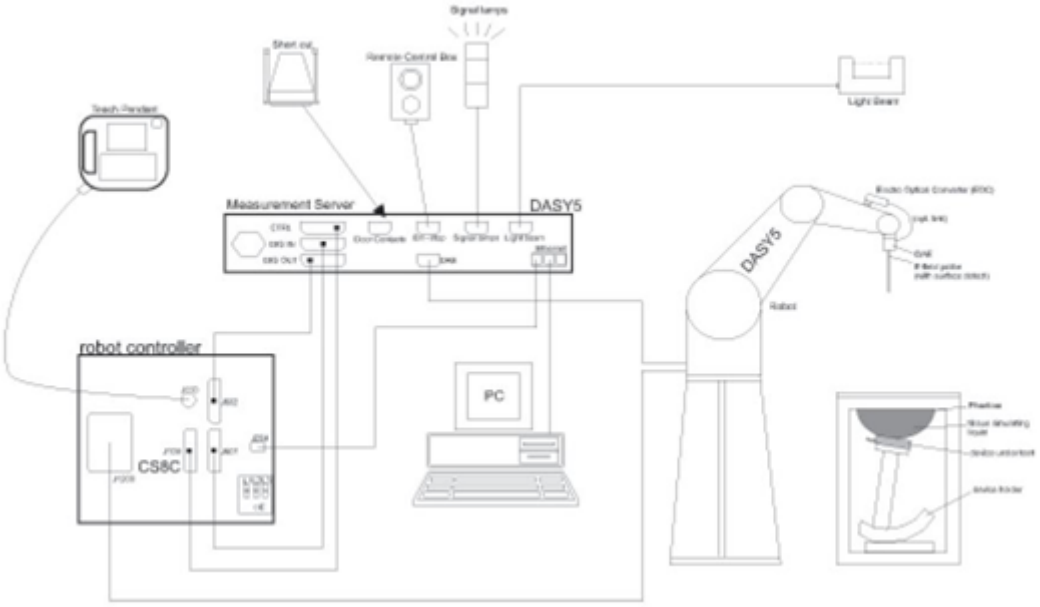
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

7.1 E-Field Probe

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

<EX3DV4 Probe>

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

7.2 Data Acquisition Electronics (DAE)

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

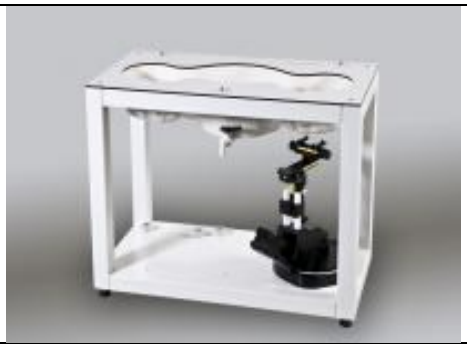
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.3 Phantom

<SAM Twin Phantom>

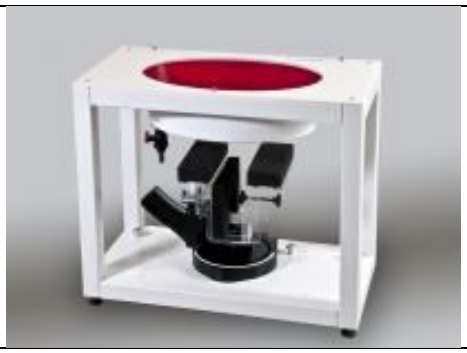
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



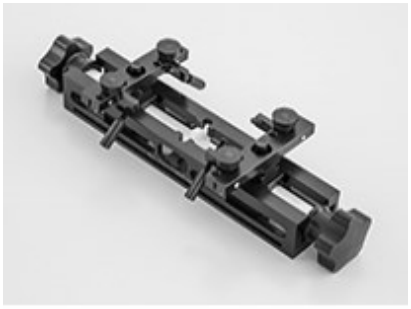
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

7.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

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

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

8.4 Zoom Scan

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

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

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

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2017/3/20	2018/3/19
SPEAG	835MHz System Validation Kit	D835V2	4d151	2017/3/20	2018/3/19
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2017/3/22	2018/3/21
SPEAG	2450MHz System Validation Kit	D2450V2	908	2017/3/21	2018/3/20
SPEAG	2600MHz System Validation Kit	D2600V2	1112	2017/9/18	2018/9/17
SPEAG	Data Acquisition Electronics	DAE4	1358	2017/10/24	2018/10/23
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	2016/11/28	2017/11/27
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1753	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1754	NCR	NCR
Agilent	Wireless Communication Test Set	E5515C	MY52102600	2016/12/5	2017/12/4
Anritsu	Radio communication analyzer	MT8820C	6201074235	2016/12/5	2017/12/4
Agilent	ENA Series Network Analyzer	E5071C	MY46317418	2016/12/5	2017/12/4
Agilent	Dielectric Probe Kit	85070E	MY44300751	NCR	NCR
Anritsu	Power Senor	MA2411B	1644003	2016/12/23	2017/12/22
Anritsu	Power Meter	ML2495A	1531197	2016/12/23	2017/12/22
Anritsu	Power Senor	MA2411B	1644004	2016/12/23	2017/12/22
Anritsu	Power Meter	ML2495A	1531198	2016/12/23	2017/12/22
R&S	Signal Generator	N5181A	MY50145381	2017/1/3	2018/1/2
TES	Liquid thermometer	TES 1310	141004807	2017/4/21	2018/4/20
VICTOR	Temperature and humidity meter	VC230	H-3	2017/4/18	2018/4/17
R&S	Spectrum Analyzer	FSV 7	101632	2016/12/5	2017/12/4
ARRA	Power Divider	A3200-2	NA	Note	
Agilent	Dual Directional Coupler	778D	50422	Note	
PASTERNACK	Dual Directional Coupler	PE2214-10	N/A	Note	
Woken	Attenuation1	WK0602-XX	N/A	Note	
PE	Attenuation2	PE7005-10	N/A	Note	
PE	Attenuation3	PE7005-3	N/A	Note	
AR	Amplifier	5S1G4	342137	Note	

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

10. System Verification

10.1 Tissue Simulating Liquids

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

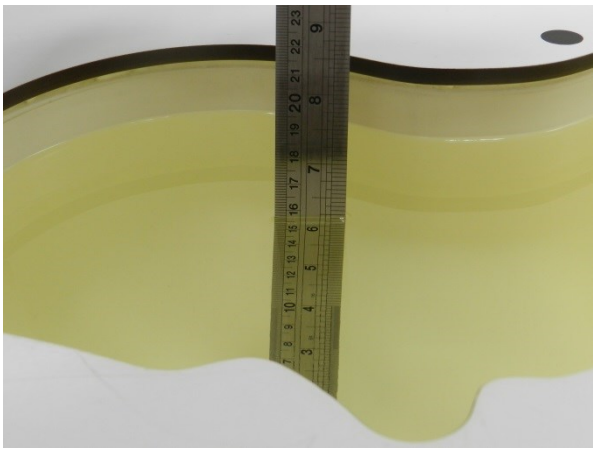


Fig 10.1Photo of Liquid Height for Head SAR

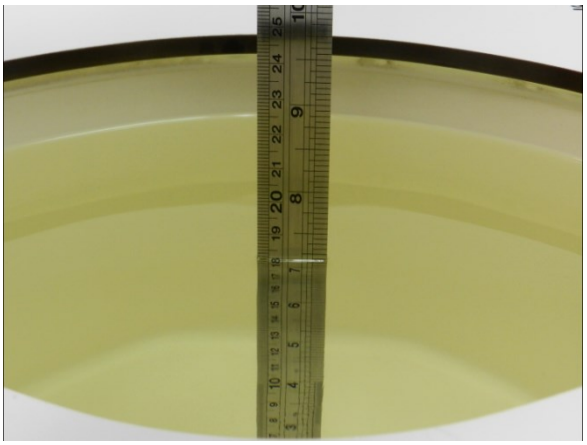


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

<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	22.3	0.904	43.437	0.89	41.90	1.57	3.67	±5	2017/11/24
835	Head	22.1	0.924	42.919	0.90	41.50	2.67	3.42	±5	2017/11/24
1900	Head	22.2	1.442	38.789	1.40	40.00	3.00	-3.03	±5	2017/11/25
2450	Head	22.8	1.861	39.653	1.80	39.20	3.39	1.16	±5	2017/11/27
2600	Head	22.7	2.052	39.298	1.96	39.00	4.69	0.76	±5	2017/11/25
750	Body	22.7	0.971	57.377	0.96	55.50	1.15	3.38	±5	2017/11/24
835	Body	22.5	0.984	55.080	0.97	55.20	1.44	-0.22	±5	2017/11/22
1900	Body	22.4	1.576	51.153	1.52	53.30	3.68	-4.03	±5	2017/11/24
2450	Body	22.5	1.988	54.096	1.95	52.70	1.95	2.65	±5	2017/11/27
2600	Body	22.2	2.148	53.076	2.16	52.50	-0.56	1.10	±5	2017/11/23

10.3 System Performance Check Results

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

Date	Frequency (MHz)2	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2017/11/24	750	Head	250	1087	3935	1358	2.12	8.37	8.48	1.31
2017/11/24	835	Head	250	4d151	3935	1358	2.46	9.73	9.84	1.13
2017/11/25	1900	Head	250	5d170	3935	1358	10.20	40.00	40.80	2.00
2017/11/27	2450	Head	250	908	3935	1358	13.50	53.20	54.00	1.50
2017/11/25	2600	Head	250	1112	3935	1358	15.00	56.40	60.00	6.38
2017/11/24	750	Body	250	1087	3935	1358	2.27	8.73	9.08	4.01
2017/11/22	835	Body	250	4d151	3935	1358	2.50	9.72	10.00	2.88
2017/11/24	1900	Body	250	5d170	3935	1358	10.50	40.70	42.00	3.19
2017/11/27	2450	Body	250	908	3935	1358	13.50	50.90	54.00	6.09
2017/11/23	2600	Body	250	1112	3935	1358	13.80	55.00	55.20	0.36

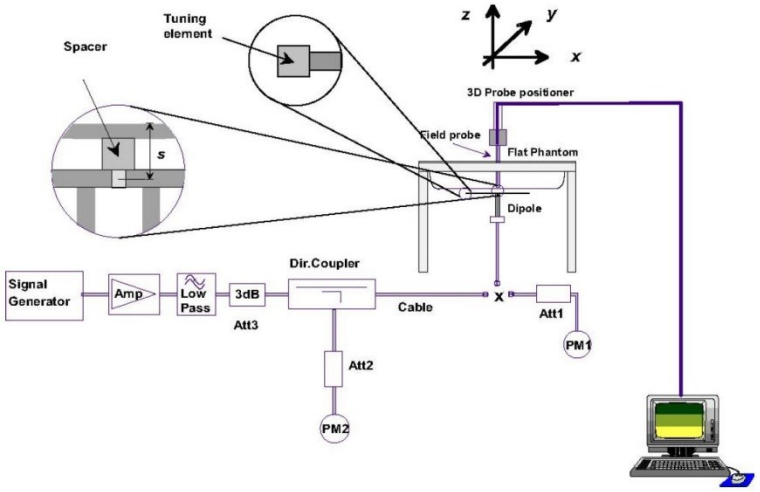


Fig 8.3.1 System Performance Check Setup

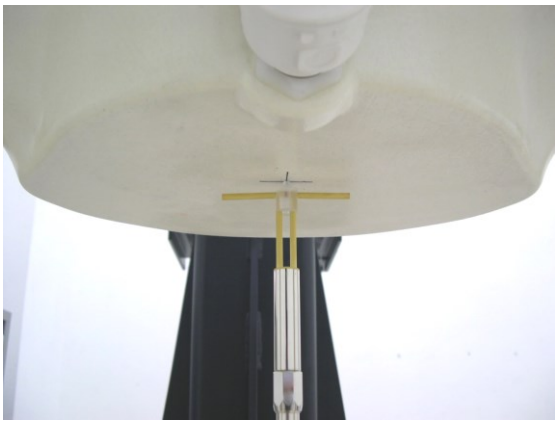


Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

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

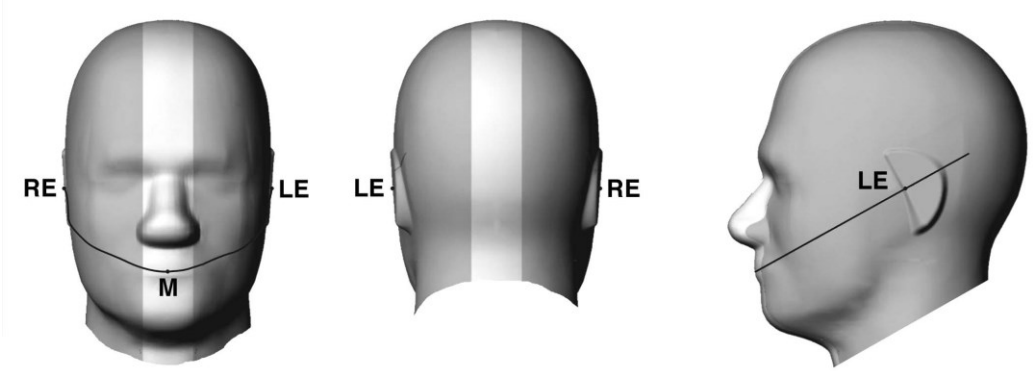


Fig 9.1.1 Front, back, and side views of SAM twin phantom

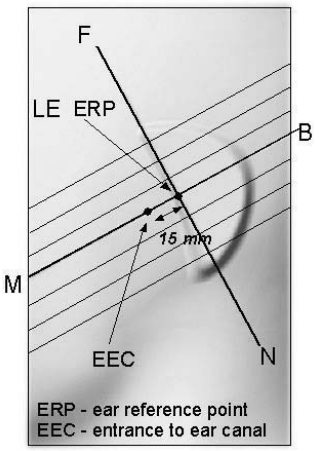


Fig 9.1.2 Close-up side view of phantom showing the ear region.

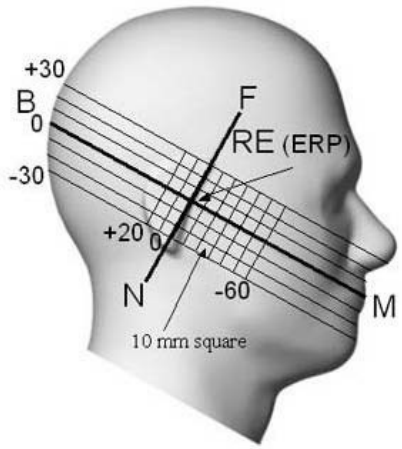


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

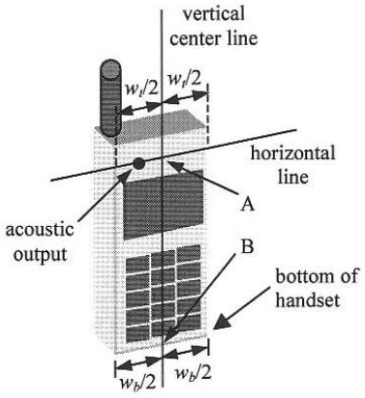


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

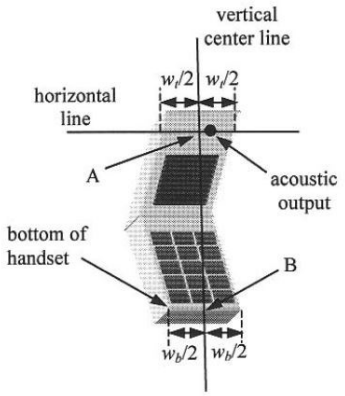


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

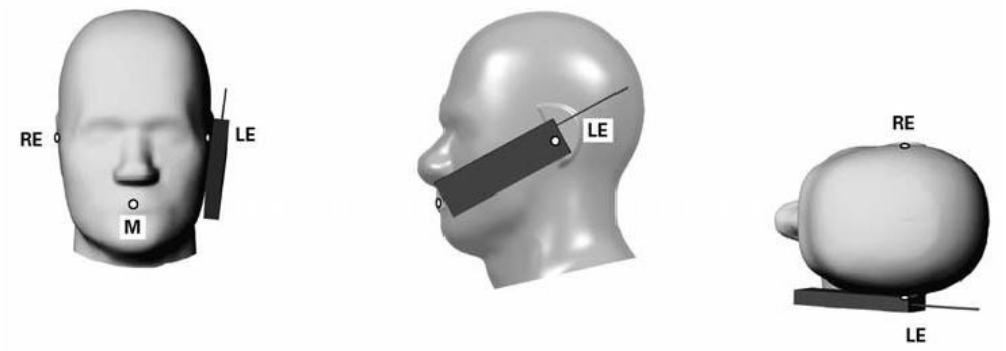


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

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

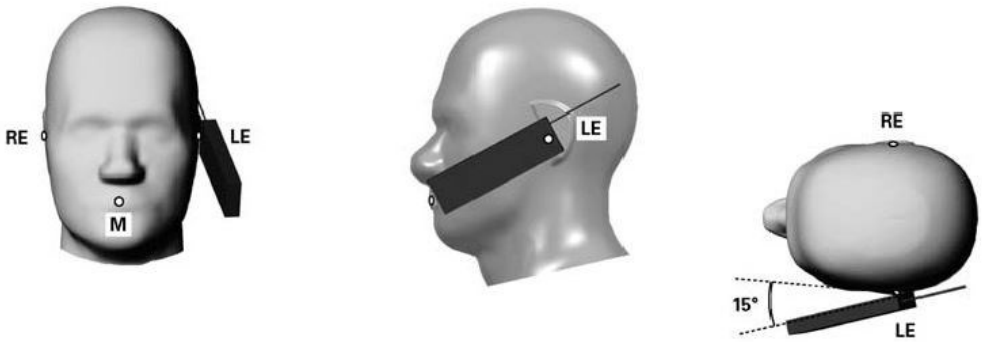


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

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

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

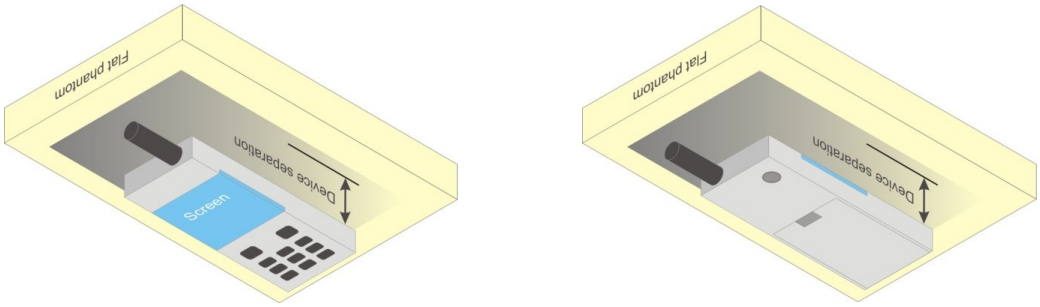


Fig 9.4 Body Worn Position

11.5 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

<CDMA2000 Conducted Power>

General Note:

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

<Full Power Mode>

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)	CDMA2000 BC10			Tune-up Limit (dBm)
Tx Channel	1013	384	777		25	600	1175		476	580	684	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75		817.9	820.5	823.1	
RC1 SO55	23.39	23.75	23.85	24.00	24.26	24.25	24.23	24.50	23.55	23.58	23.60	24.00
RC3 SO55	23.40	23.88	23.87	24.00	24.25	24.27	24.28	24.50	23.58	23.62	23.63	24.00
RC3 SO32 (F+SCH)	23.39	23.86	23.85	24.00	24.24	24.23	24.25	24.50	23.60	23.61	23.62	24.00
RC3 SO32 (+SCH)	23.38	23.85	23.84	24.00	24.23	24.24	24.20	24.50	23.52	23.55	23.58	24.00
RTAP 153.6Kbps	23.35	23.81	23.80	24.00	23.98	23.96	24.00	24.50	23.58	23.60	23.61	24.00
RETAP 4096Bits	23.36	23.80	23.75	24.00	23.99	23.95	23.95	24.50	23.57	23.55	23.60	24.00

<Reduced Power Mode for Hotspot On>

Band	CDMA2000 BC0			Tune-up Limit (dBm)	CDMA2000 BC1			Tune-up Limit (dBm)	CDMA2000 BC10			Tune-up Limit (dBm)
Tx Channel	1013	384	777		25	600	1175		476	580	684	
Frequency (MHz)	824.7	836.52	848.31		1851.25	1880	1908.75		817.9	820.5	823.1	
RC1 SO55	22.42	22.65	22.68	23.00	21.97	21.98	21.99	23.00	22.54	22.57	22.55	23.00
RC3 SO55	22.43	22.71	22.70	23.00	21.98	21.99	22.00	23.00	22.55	22.58	22.60	23.00
RC3 SO32 (F+SCH)	22.42	22.70	22.69	23.00	21.95	21.97	21.98	23.00	22.56	22.57	22.59	23.00
RC3 SO32 (+SCH)	22.40	22.68	22.68	23.00	21.92	21.95	21.97	23.00	22.52	22.56	22.50	23.00
RTAP 153.6Kbps	22.42	22.69	22.67	23.00	21.97	21.98	21.99	23.00	22.54	22.55	22.58	23.00
RETAP 4096Bits	22.40	22.60	22.65	23.00	21.95	21.97	21.95	23.00	22.52	22.50	22.45	23.00

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

<Full Power Mode>

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		23.34		24	0
10	QPSK	1	25		23.71			
10	QPSK	1	49		23.28			
10	QPSK	25	0		22.57		23	1
10	QPSK	25	12		22.55			
10	QPSK	25	25		22.56			
10	QPSK	50	0		22.58			
10	16QAM	1	0		22.83		23	1
10	16QAM	1	25		22.91			
10	16QAM	1	49		22.21			
10	16QAM	25	0		21.48		22	2
10	16QAM	25	12		21.65			
10	16QAM	25	25		21.48			
10	16QAM	50	0		21.67			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.44	23.37	23.57	24	0
5	QPSK	1	12	23.59	23.83	23.81		
5	QPSK	1	24	23.31	23.39	23.71		
5	QPSK	12	0	22.75	22.67	22.57	23	1
5	QPSK	12	7	22.63	22.59	22.75		
5	QPSK	12	13	22.59	22.61	22.66		
5	QPSK	25	0	22.63	22.66	22.68		
5	16QAM	1	0	22.56	21.89	22.22	23	1
5	16QAM	1	12	22.13	22.21	22.65		
5	16QAM	1	24	21.95	21.94	22.60		
5	16QAM	12	0	21.52	21.56	21.65	22	2
5	16QAM	12	7	21.42	21.59	21.79		
5	16QAM	12	13	21.38	21.54	21.75		
5	16QAM	25	0	21.51	21.66	21.66		

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	22.70	22.49	22.81	24	0
20	QPSK	1	49	22.96	22.92	22.95		
20	QPSK	1	99	22.44	22.77	22.88		
20	QPSK	50	0	22.10	21.99	22.04	23	1
20	QPSK	50	24	21.93	22.06	22.09		
20	QPSK	50	50	21.92	21.99	22.13		
20	QPSK	100	0	22.01	22.00	21.98		
20	16QAM	1	0	21.71	21.65	21.84	23	1
20	16QAM	1	49	22.17	21.58	22.20		
20	16QAM	1	99	21.62	21.69	21.66		
20	16QAM	50	0	21.12	20.87	20.98	22	2
20	16QAM	50	24	21.00	20.93	21.06		
20	16QAM	50	50	21.00	21.16	21.22		
20	16QAM	100	0	20.95	21.20	21.05		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	22.79	22.69	22.84	24	0
15	QPSK	1	37	23.37	22.96	23.13		
15	QPSK	1	74	22.87	22.85	23.01		
15	QPSK	36	0	22.07	22.07	21.90	23	1
15	QPSK	36	20	22.06	22.09	22.14		
15	QPSK	36	39	22.03	22.00	22.12		
15	QPSK	75	0	22.10	22.09	22.00		
15	16QAM	1	0	21.57	21.75	21.56	23	1
15	16QAM	1	37	21.81	22.00	22.07		
15	16QAM	1	74	22.11	21.46	21.68		
15	16QAM	36	0	21.12	21.04	20.97	22	2
15	16QAM	36	20	21.23	21.07	21.20		
15	16QAM	36	39	21.01	20.99	21.26		
15	16QAM	75	0	21.16	21.16	21.18		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	22.80	22.55	22.68	24	0
10	QPSK	1	25	23.13	22.97	23.22		
10	QPSK	1	49	22.74	22.83	23.15		
10	QPSK	25	0	22.11	22.08	22.18	23	1
10	QPSK	25	12	22.09	22.07	22.11		
10	QPSK	25	25	22.09	22.03	21.99		
10	QPSK	50	0	22.13	22.02	22.17		
10	16QAM	1	0	21.28	21.51	21.36	23	1
10	16QAM	1	25	21.90	21.85	21.78		
10	16QAM	1	49	21.34	21.52	21.65		
10	16QAM	25	0	21.08	21.01	21.36	22	2
10	16QAM	25	12	21.16	21.02	21.24		
10	16QAM	25	25	21.13	21.11	21.15		
10	16QAM	50	0	21.07	21.15	21.13		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	22.72	22.85	22.75	24	0
5	QPSK	1	12	23.02	22.87	23.12		
5	QPSK	1	24	22.81	22.68	22.78		
5	QPSK	12	0	21.97	22.04	22.12	23	1
5	QPSK	12	7	22.09	21.97	21.95		
5	QPSK	12	13	21.99	21.96	22.06		
5	QPSK	25	0	22.04	22.02	21.99		
5	16QAM	1	0	21.44	21.27	21.54	23	1
5	16QAM	1	12	21.62	21.61	21.69		
5	16QAM	1	24	21.72	21.18	21.51		
5	16QAM	12	0	20.93	21.02	21.26	22	2
5	16QAM	12	7	20.95	21.16	20.84		
5	16QAM	12	13	20.96	20.95	20.90		
5	16QAM	25	0	21.11	21.01	20.90		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	22.66	22.84	22.85	24	0
3	QPSK	1	8	22.69	22.80	22.66		
3	QPSK	1	14	22.69	22.77	22.90		
3	QPSK	8	0	21.99	22.11	22.19	23	1
3	QPSK	8	4	22.03	21.97	21.95		
3	QPSK	8	7	21.98	22.04	21.93		
3	QPSK	15	0	21.99	22.04	22.00		
3	16QAM	1	0	21.51	21.98	21.43	23	1
3	16QAM	1	8	21.50	22.06	21.33		
3	16QAM	1	14	21.52	21.80	21.51		
3	16QAM	8	0	21.01	20.82	21.09	22	2
3	16QAM	8	4	21.24	20.80	20.88		
3	16QAM	8	7	21.19	20.78	21.13		
3	16QAM	15	0	21.01	20.84	21.16		

Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	22.94	23.04	22.84	24	0
1.4	QPSK	1	3	23.07	22.89	22.80		
1.4	QPSK	1	5	22.97	22.83	22.84		
1.4	QPSK	3	0	22.90	22.76	22.84		
1.4	QPSK	3	1	22.96	22.80	23.10		
1.4	QPSK	3	3	22.98	22.86	22.81		
1.4	QPSK	6	0	21.93	21.89	21.90	23	1
1.4	16QAM	1	0	21.53	21.22	21.81	23	1
1.4	16QAM	1	3	21.82	21.47	21.71		
1.4	16QAM	1	5	21.88	21.25	21.76		
1.4	16QAM	3	0	21.54	21.58	22.10		
1.4	16QAM	3	1	21.86	21.92	21.91		
1.4	16QAM	3	3	21.86	21.83	21.86		
1.4	16QAM	6	0	20.74	20.75	20.96	22	2

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.78	22.75	22.69	24	0
15	QPSK	1	37	23.01	22.96	23.18		
15	QPSK	1	74	22.81	22.90	22.88		
15	QPSK	36	0	21.96	21.92	21.82	23	1
15	QPSK	36	20	21.85	21.95	21.94		
15	QPSK	36	39	21.89	21.95	21.90		
15	QPSK	75	0	21.95	22.01	21.96		
15	16QAM	1	0	21.55	22.01	21.62	23	1
15	16QAM	1	37	21.67	22.07	22.16		
15	16QAM	1	74	21.52	22.00	22.11		
15	16QAM	36	0	20.94	21.00	20.95	22	2
15	16QAM	36	20	20.90	20.94	20.98		
15	16QAM	36	39	20.74	20.95	21.01		
15	16QAM	75	0	21.00	20.89	21.09		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.69	22.56	22.63	24	0
10	QPSK	1	25	23.01	22.82	22.98		
10	QPSK	1	49	22.55	22.79	22.78		
10	QPSK	25	0	21.94	22.01	22.05	23	1
10	QPSK	25	12	21.95	21.98	22.08		
10	QPSK	25	25	21.92	22.03	22.07		
10	QPSK	50	0	22.01	21.98	21.94		
10	16QAM	1	0	21.43	21.45	21.42	23	1
10	16QAM	1	25	21.87	22.20	21.60		
10	16QAM	1	49	21.38	22.17	21.55		
10	16QAM	25	0	20.83	21.06	21.19	22	2
10	16QAM	25	12	20.79	21.05	21.15		
10	16QAM	25	25	20.84	21.19	21.23		
10	16QAM	50	0	20.88	21.05	21.09		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.72	22.67	22.86	24	0
5	QPSK	1	12	22.60	22.93	23.07		
5	QPSK	1	24	22.49	22.82	22.65		
5	QPSK	12	0	21.93	21.84	22.00	23	1
5	QPSK	12	7	21.90	21.92	21.95		
5	QPSK	12	13	21.83	21.93	21.93		
5	QPSK	25	0	21.87	21.89	22.04		
5	16QAM	1	0	21.53	21.52	21.62	23	1
5	16QAM	1	12	21.71	21.96	22.07		
5	16QAM	1	24	21.30	21.33	21.55		
5	16QAM	12	0	20.85	20.73	21.05	22	2
5	16QAM	12	7	20.97	20.82	21.11		
5	16QAM	12	13	20.87	20.90	21.03		
5	16QAM	25	0	20.94	21.05	20.83		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.80	22.75	22.91	24	0
3	QPSK	1	8	22.71	22.76	22.83		
3	QPSK	1	14	22.46	22.70	22.67		
3	QPSK	8	0	21.79	21.82	22.21	23	1
3	QPSK	8	4	21.89	21.80	21.94		
3	QPSK	8	7	21.88	21.89	21.91		
3	QPSK	15	0	21.88	21.77	21.98		
3	16QAM	1	0	21.43	21.80	21.49	23	1
3	16QAM	1	8	21.52	21.60	21.45		
3	16QAM	1	14	21.71	21.71	21.38		
3	16QAM	8	0	20.97	20.93	21.08	22	2
3	16QAM	8	4	20.91	20.83	21.17		
3	16QAM	8	7	20.88	20.92	21.23		
3	16QAM	15	0	20.79	20.86	21.13		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.89	22.67	22.84	24	0
1.4	QPSK	1	3	22.80	22.79	22.78		
1.4	QPSK	1	5	22.76	22.76	22.68		
1.4	QPSK	3	0	23.02	22.79	23.02		
1.4	QPSK	3	1	23.17	22.91	22.98		
1.4	QPSK	3	3	23.01	22.71	22.85		
1.4	QPSK	6	0	22.00	21.83	22.01	23	1
1.4	16QAM	1	0	22.00	21.67	21.71	23	1
1.4	16QAM	1	3	21.96	21.58	21.82		
1.4	16QAM	1	5	21.95	21.29	21.96		
1.4	16QAM	3	0	21.87	21.77	22.05		
1.4	16QAM	3	1	22.03	21.87	22.17		
1.4	16QAM	3	3	21.94	21.85	22.03		
1.4	16QAM	6	0	20.84	20.69	20.79	22	2

<Reduced Power Mode for Hotspot On>

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	21.71	21.49	21.96	23	0
20	QPSK	1	49	22.22	22.21	22.01		
20	QPSK	1	99	21.53	22.11	21.80		
20	QPSK	50	0	22.14	22.09	22.01	23	0
20	QPSK	50	24	22.02	22.06	22.04		
20	QPSK	50	50	21.90	21.96	22.12		
20	QPSK	100	0	22.00	21.99	21.91		
20	16QAM	1	0	21.50	21.46	21.80	23	0
20	16QAM	1	49	21.84	22.20	22.19		
20	16QAM	1	99	21.48	22.20	21.70		
20	16QAM	50	0	21.12	20.98	20.95	22	1
20	16QAM	50	24	21.00	21.04	21.01		
20	16QAM	50	50	20.93	21.05	21.05		
20	16QAM	100	0	20.97	21.00	21.09		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	21.79	21.89	21.88	23	0
15	QPSK	1	37	22.36	22.31	22.22		
15	QPSK	1	74	21.94	22.04	22.12		
15	QPSK	36	0	22.15	22.01	22.03	23	0
15	QPSK	36	20	22.13	22.11	22.17		
15	QPSK	36	39	22.02	22.03	22.12		
15	QPSK	75	0	22.07	22.10	22.03		
15	16QAM	1	0	21.70	21.71	21.53	23	0
15	16QAM	1	37	22.29	22.21	21.84		
15	16QAM	1	74	22.06	22.13	21.61		
15	16QAM	36	0	21.19	21.13	21.16	22	1
15	16QAM	36	20	20.99	21.08	21.17		
15	16QAM	36	39	21.08	20.97	21.07		
15	16QAM	75	0	21.21	21.07	21.12		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	21.82	21.77	21.78	23	0
10	QPSK	1	25	22.31	22.18	22.15		
10	QPSK	1	49	21.92	21.78	21.87		
10	QPSK	25	0	22.15	22.08	22.18	23	0
10	QPSK	25	12	22.14	22.04	22.13		
10	QPSK	25	25	22.14	22.01	21.96		
10	QPSK	50	0	22.16	22.10	22.18		
10	16QAM	1	0	21.53	21.48	21.66	23	0
10	16QAM	1	25	21.64	21.80	22.14		
10	16QAM	1	49	21.56	21.40	21.64		
10	16QAM	25	0	21.32	21.04	21.17	22	1
10	16QAM	25	12	21.31	21.11	21.08		
10	16QAM	25	25	21.21	21.08	20.84		
10	16QAM	50	0	21.22	21.09	21.20		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	21.76	21.91	21.94	23	0
5	QPSK	1	12	21.84	21.84	21.87		
5	QPSK	1	24	21.84	21.77	21.88		
5	QPSK	12	0	21.99	22.02	22.05	23	0
5	QPSK	12	7	22.02	21.94	21.96		
5	QPSK	12	13	22.13	22.02	22.12		
5	QPSK	25	0	22.05	21.98	22.01		
5	16QAM	1	0	21.59	21.52	21.60	23	0
5	16QAM	1	12	21.66	21.56	21.59		
5	16QAM	1	24	21.47	21.22	21.60		
5	16QAM	12	0	20.96	20.91	21.17	22	1
5	16QAM	12	7	21.19	20.82	21.01		
5	16QAM	12	13	21.09	20.89	20.90		
5	16QAM	25	0	21.22	21.07	21.04		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	22.12	21.90	21.93	23	0
3	QPSK	1	8	22.12	22.02	21.80		
3	QPSK	1	14	22.18	22.00	21.85		
3	QPSK	8	0	22.16	22.14	22.17	23	0
3	QPSK	8	4	22.01	22.05	22.08		
3	QPSK	8	7	22.15	22.03	22.18		
3	QPSK	15	0	22.06	22.03	22.09		
3	16QAM	1	0	21.94	21.51	21.42	23	0
3	16QAM	1	8	21.95	21.57	21.37		
3	16QAM	1	14	21.88	21.22	21.33		
3	16QAM	8	0	21.18	21.06	21.17	22	1
3	16QAM	8	4	21.22	21.11	21.16		
3	16QAM	8	7	21.27	21.17	21.19		
3	16QAM	15	0	20.86	21.14	20.97		

Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	21.99	22.05	22.01	23	0
1.4	QPSK	1	3	22.12	22.11	22.09		
1.4	QPSK	1	5	22.02	21.93	22.00		
1.4	QPSK	3	0	22.05	22.07	21.97		
1.4	QPSK	3	1	22.10	22.22	21.99		
1.4	QPSK	3	3	22.13	22.20	22.07		
1.4	QPSK	6	0	21.99	22.09	22.03	23	0
1.4	16QAM	1	0	21.43	22.14	21.39	23	0
1.4	16QAM	1	3	21.48	21.92	21.66		
1.4	16QAM	1	5	21.45	22.07	21.38		
1.4	16QAM	3	0	21.66	22.09	21.84		
1.4	16QAM	3	1	21.91	22.10	21.95		
1.4	16QAM	3	3	21.91	22.07	21.88		
1.4	16QAM	6	0	20.82	20.93	20.98	22	1

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	22.21	22.35	22.42	23	0
15	QPSK	1	37	22.59	22.50	22.47		
15	QPSK	1	74	22.22	22.42	22.17		
15	QPSK	36	0	22.06	21.97	22.07	22.5	0.5
15	QPSK	36	20	22.08	21.88	21.91		
15	QPSK	36	39	21.89	22.05	22.06		
15	QPSK	75	0	21.94	21.94	21.99		
15	16QAM	1	0	22.20	21.87	21.72	22.5	0.5
15	16QAM	1	37	22.09	21.70	22.38		
15	16QAM	1	74	21.60	22.14	21.92		
15	16QAM	36	0	20.95	20.96	20.94	22	1
15	16QAM	36	20	21.07	21.04	20.98		
15	16QAM	36	39	20.87	21.09	21.09		
15	16QAM	75	0	21.08	20.99	20.96		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	22.23	22.29	22.30	23	0
10	QPSK	1	25	22.47	22.39	22.46		
10	QPSK	1	49	22.13	22.23	22.41		
10	QPSK	25	0	21.95	22.00	21.97	22.5	0.5
10	QPSK	25	12	21.98	22.01	22.07		
10	QPSK	25	25	22.07	22.08	21.93		
10	QPSK	50	0	21.99	22.00	21.98		
10	16QAM	1	0	22.09	22.04	21.86	22.5	0.5
10	16QAM	1	25	22.20	22.27	21.85		
10	16QAM	1	49	21.75	21.76	21.58		
10	16QAM	25	0	21.09	21.07	21.12	22	1
10	16QAM	25	12	21.12	21.09	21.14		
10	16QAM	25	25	21.13	21.06	21.09		
10	16QAM	50	0	21.04	21.01	21.06		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	22.23	22.30	22.38	23	0
5	QPSK	1	12	22.52	22.60	22.63		
5	QPSK	1	24	22.22	22.49	22.21		
5	QPSK	12	0	21.89	21.97	22.04	22.5	0.5
5	QPSK	12	7	21.91	21.99	22.02		
5	QPSK	12	13	21.87	22.10	21.92		
5	QPSK	25	0	21.95	21.95	22.00		
5	16QAM	1	0	21.70	21.48	21.75	22.5	0.5
5	16QAM	1	12	21.68	22.09	22.03		
5	16QAM	1	24	21.44	21.59	21.43		
5	16QAM	12	0	20.85	20.88	21.12	22	1
5	16QAM	12	7	21.01	20.80	21.04		
5	16QAM	12	13	20.83	21.08	20.94		
5	16QAM	25	0	21.04	21.06	21.08		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	22.40	22.38	22.56	23	0
3	QPSK	1	8	22.30	22.48	22.50		
3	QPSK	1	14	22.29	22.54	22.46		
3	QPSK	8	0	21.92	22.04	22.08	22.5	0.5
3	QPSK	8	4	21.96	22.05	21.93		
3	QPSK	8	7	21.97	22.05	21.88		
3	QPSK	15	0	21.94	22.00	21.97		
3	16QAM	1	0	21.93	21.87	21.63	22.5	0.5
3	16QAM	1	8	21.46	22.04	21.57		
3	16QAM	1	14	21.28	21.90	21.51		
3	16QAM	8	0	20.99	21.08	21.05	22	1
3	16QAM	8	4	20.97	20.91	21.16		
3	16QAM	8	7	20.97	21.08	20.94		
3	16QAM	15	0	21.00	21.08	21.09		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	22.42	22.41	22.50	23	0
1.4	QPSK	1	3	22.30	22.53	22.45		
1.4	QPSK	1	5	22.32	22.55	22.25		
1.4	QPSK	3	0	22.50	22.51	22.63		
1.4	QPSK	3	1	22.57	22.48	22.59		
1.4	QPSK	3	3	22.60	22.60	22.54		
1.4	QPSK	6	0	21.88	21.88	22.02	22.5	0.5
1.4	16QAM	1	0	21.40	21.44	21.56	22.5	0.5
1.4	16QAM	1	3	21.59	21.69	21.72		
1.4	16QAM	1	5	21.40	21.54	21.42		
1.4	16QAM	3	0	21.85	21.83	21.88		
1.4	16QAM	3	1	21.95	22.17	21.89		
1.4	16QAM	3	3	21.95	22.14	21.81		
1.4	16QAM	6	0	21.01	21.02	21.02	22	1

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations

b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS

c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

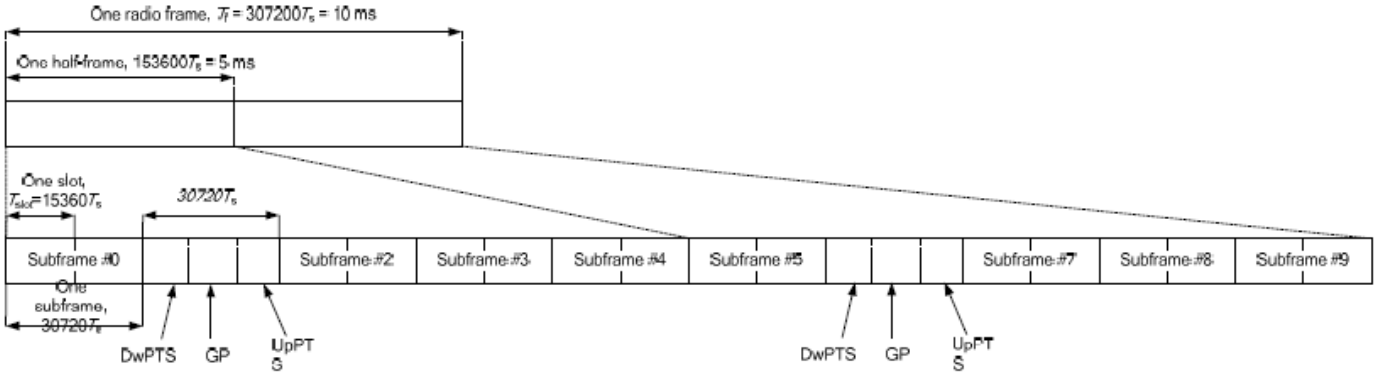


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<Full Power Mode>

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	22.45	22.44	22.29	22.44	22.81	23	0
20	QPSK	1	49	22.99	22.52	22.71	22.79	22.98		
20	QPSK	1	99	22.69	22.33	22.34	22.47	22.58		
20	QPSK	50	0	21.78	21.56	21.49	21.78	21.97	22	1
20	QPSK	50	24	21.91	21.73	21.72	21.71	21.98		
20	QPSK	50	50	21.80	21.52	21.65	21.70	21.77		
20	QPSK	100	0	21.88	21.52	21.39	21.72	21.89		
20	16QAM	1	0	21.31	21.23	21.02	21.14	21.71	22	1
20	16QAM	1	49	21.66	21.33	21.36	21.25	21.55		
20	16QAM	1	99	21.45	21.00	21.09	21.10	21.20		
20	16QAM	50	0	20.86	20.65	20.46	20.67	20.96	21	2
20	16QAM	50	24	20.92	20.67	20.73	20.64	20.93		
20	16QAM	50	50	20.91	20.55	20.67	20.62	20.84		
20	16QAM	100	0	20.97	20.55	20.69	20.70	20.98		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	22.43	22.53	22.18	22.42	22.51	23	0
15	QPSK	1	37	22.95	22.77	22.72	22.75	22.93		
15	QPSK	1	74	22.71	22.45	22.35	22.33	22.32		
15	QPSK	36	0	21.91	21.70	21.50	21.80	21.96	22	1
15	QPSK	36	20	21.92	21.70	21.64	21.82	21.85		
15	QPSK	36	39	21.85	21.39	21.37	21.68	21.45		
15	QPSK	75	0	21.74	21.55	21.48	21.75	21.85		
15	16QAM	1	0	21.24	21.32	21.03	21.17	21.43	22	1
15	16QAM	1	37	21.68	21.48	21.43	21.78	21.84		
15	16QAM	1	74	21.39	21.24	21.05	21.18	21.26		
15	16QAM	36	0	20.74	20.52	20.33	20.73	20.78	21	2
15	16QAM	36	20	21.00	20.61	20.66	20.67	20.87		
15	16QAM	36	39	20.84	20.41	20.67	20.63	20.65		
15	16QAM	75	0	20.75	20.69	20.73	20.74	20.92		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	22.62	22.47	22.36	22.49	22.63	23	0
10	QPSK	1	25	22.90	22.60	22.70	22.51	22.52		
10	QPSK	1	49	22.75	22.25	22.40	22.51	22.26		
10	QPSK	25	0	21.82	21.46	21.52	21.73	21.86	22	1
10	QPSK	25	12	21.95	21.49	21.75	21.68	21.88		
10	QPSK	25	25	21.76	21.34	21.40	21.66	21.63		
10	QPSK	50	0	21.73	21.40	21.49	21.56	21.77		
10	16QAM	1	0	21.18	21.16	21.14	21.11	21.22	22	1
10	16QAM	1	25	21.40	21.03	21.22	21.13	21.31		
10	16QAM	1	49	21.34	21.12	20.96	21.09	21.11		
10	16QAM	25	0	20.94	20.68	20.67	20.64	20.93	21	2
10	16QAM	25	12	20.92	20.72	20.64	20.84	20.84		
10	16QAM	25	25	20.96	20.62	20.74	20.63	20.60		
10	16QAM	50	0	20.91	20.55	20.47	20.51	20.67		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	22.55	22.30	22.05	22.42	22.34	23	0
5	QPSK	1	12	22.82	22.35	22.41	22.70	22.52		
5	QPSK	1	24	22.62	22.18	22.13	22.39	22.29		
5	QPSK	12	0	21.75	21.32	21.31	21.67	21.76	22	1
5	QPSK	12	7	21.90	21.36	21.43	21.66	21.79		
5	QPSK	12	13	21.64	21.23	21.26	21.67	21.74		
5	QPSK	25	0	21.63	21.29	21.51	21.35	21.81		
5	16QAM	1	0	21.35	20.85	21.05	21.01	21.19	22	1
5	16QAM	1	12	21.70	21.41	21.26	20.87	21.37		
5	16QAM	1	24	21.44	21.18	21.05	21.13	21.08		
5	16QAM	12	0	20.71	20.42	20.33	20.35	20.62	21	2
5	16QAM	12	7	20.84	20.46	20.51	20.62	20.65		
5	16QAM	12	13	20.75	20.33	20.37	20.60	20.50		
5	16QAM	25	0	20.96	20.44	20.57	20.66	20.71		

<WLAN Conducted Power>

General Note:

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

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	15.74	16.50	97.20
		6	2437	15.86	16.50	
		11	2462	**16.19**	16.50	
	802.11g 6Mbps	1	2412	11.69	12.00	87.42
		6	2437	13.92	14.00	
		11	2462	14.15	14.50	
	802.11n-HT20 MCS0	1	2412	10.20	10.50	86.70
		6	2437	11.91	12.00	
		11	2462	12.25	12.50	
	802.11n-HT40 MCS0	3	2422	8.74	9.00	86.29
		6	2437	11.72	12.00	
		9	2452	11.92	12.00	

13. Bluetooth Exclusions Applied

Mode Band	Max Average power(dBm)	
	Bluetooth v3.0+EDR	Bluetooth v4.0/4.1 LE
2.4GHz Bluetooth	9.0	0.5

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

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

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

Bluetooth Max Power (dBm)	Separation Distance (mm)	Frequency (GHz)	Exclusion Thresholds
9.0	15	2.48	0.8

Note:
Per KDB 447498 D01v06, a distance of 15 mm is applied to determine SAR test exclusion. The test exclusion threshold is 0.8 which is <= 3, SAR testing is not required.

14. Antenna Dimensions and Separation Distances

Please refer to the separate filing document.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of CDMA2000 BC0/BC1/BC10 and LTE Band 25/26.
6. This device has two WWAN antennas. WWAN antenna 1 is located at the right side of bottom edge of the device and WWAN antenna 2 is located at the left side of bottom edge of the device which can refer to antenna location chapter. WWAN antenna 1 frequency bands include CDMA2000 BC0/BC1/BC10 and LTE B13 / B15 / B26 and WWAN antenna 2 frequency bands only include LTE B41. And they can't transmit simultaneously.
7. Referring to KDB 941225 D06 v02r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
   a) For WWAN transmitter antenna 1, front/back/bottom side/right side/left side located within 25mm from that surface or edge, therefore these surfaces hotspot SAR is necessary.
   b) For WWAN transmitter antenna 2, front/back/bottom side/left side located within 25mm from that surface or edge, therefore these surfaces hotspot SAR is necessary.
   c) For WLAN transmitter antenna, front/back/top side/right side located within 25mm from that surface or edge, therefore these surfaces hotspot SAR is necessary.

CDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN Note:

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

15.1 Head SAR

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	684	823.1	23.63	24.00	1.089	0.13	1.000	1.089
	CDMA2000 BC10	RC3 SO55	Right Tilted	Full	684	823.1	23.63	24.00	1.089	0.02	0.712	0.775
	CDMA2000 BC10	RC3 SO55	Left Cheek	Full	684	823.1	23.63	24.00	1.089	0.08	0.810	0.882
	CDMA2000 BC10	RC3 SO55	Left Tilted	Full	684	823.1	23.63	24.00	1.089	-0.03	0.729	0.794
	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	476	817.9	23.58	24.00	1.102	0.07	1.060	1.168
01	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	580	820.5	23.62	24.00	1.091	0.09	1.090	**1.190**
	CDMA2000 BC10	RC3 SO55	Left Cheek	Full	476	817.9	23.58	24.00	1.102	0.1	0.796	0.877
	CDMA2000 BC10	RC3 SO55	Left Cheek	Full	580	820.5	23.62	24.00	1.091	0.01	0.809	0.883
02	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	384	836.52	23.88	24.00	1.028	0.11	1.150	**1.182**
	CDMA2000 BC0	RC3 SO55	Right Tilted	Full	384	836.52	23.88	24.00	1.028	-0.04	0.652	0.670
	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	384	836.52	23.88	24.00	1.028	0.03	0.864	0.888
	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	384	836.52	23.88	24.00	1.028	-0.05	0.793	0.815
	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	1013	824.7	23.40	24.00	1.148	0.03	0.894	1.026
	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	777	848.31	23.87	24.00	1.030	0.02	1.070	1.103
	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	1013	824.7	23.40	24.00	1.148	0.11	0.774	0.889
	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	777	848.31	23.87	24.00	1.030	0.03	0.917	0.945
	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	1013	824.7	23.40	24.00	1.148	-0.01	0.701	0.805
	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	777	848.31	23.87	24.00	1.030	0.04	0.841	0.867
	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	1175	1908.75	24.28	24.50	1.052	0.07	1.020	1.073
	CDMA2000 BC1	RC3 SO55	Right Tilted	Full	1175	1908.75	24.28	24.50	1.052	0.04	0.219	0.230
	CDMA2000 BC1	RC3 SO55	Left Cheek	Full	1175	1908.75	24.28	24.50	1.052	0.06	0.773	0.813
	CDMA2000 BC1	RC3 SO55	Left Tilted	Full	1175	1908.75	24.28	24.50	1.052	0.1	0.340	0.358
	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	25	1851.25	24.25	24.50	1.059	0.07	1.020	1.080
03	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	600	1880	24.27	24.50	1.054	0.01	1.060	**1.118**
	CDMA2000 BC1	RC3 SO55	Left Cheek	Full	25	1851.25	24.25	24.50	1.059	0.11	0.782	0.828
	CDMA2000 BC1	RC3 SO55	Left Cheek	Full	600	1880	24.27	24.50	1.054	0.16	0.793	0.836

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
04	LTE Band 13	10MHz	QPSK	1	25	Right Cheek	Full	23230	782	23.71	24.00	1.069	0.07	0.678	**0.725**
	LTE Band 13	10MHz	QPSK	1	25	Right Tilted	Full	23230	782	23.71	24.00	1.069	0.05	0.407	0.435
	LTE Band 13	10MHz	QPSK	1	25	Left Cheek	Full	23230	782	23.71	24.00	1.069	0.14	0.512	0.547
	LTE Band 13	10MHz	QPSK	1	25	Left Tilted	Full	23230	782	23.71	24.00	1.069	-0.08	0.407	0.435
	LTE Band 13	10MHz	QPSK	25	0	Right Cheek	Full	23230	782	22.57	23.00	1.104	0.16	0.508	0.561
	LTE Band 13	10MHz	QPSK	25	0	Right Tilted	Full	23230	782	22.57	23.00	1.104	0.01	0.288	0.318
	LTE Band 13	10MHz	QPSK	25	0	Left Cheek	Full	23230	782	22.57	23.00	1.104	0.16	0.400	0.442
	LTE Band 13	10MHz	QPSK	25	0	Left Tilted	Full	23230	782	22.57	23.00	1.104	-0.1	0.309	0.341
05	LTE Band 26	15MHz	QPSK	1	37	Right Cheek	Full	26865	831.5	22.96	24.00	1.271	0.18	0.906	**1.151**
	LTE Band 26	15MHz	QPSK	1	37	Right Tilted	Full	26865	831.5	22.96	24.00	1.271	0.04	0.641	0.814
	LTE Band 26	15MHz	QPSK	1	37	Left Cheek	Full	26865	831.5	22.96	24.00	1.271	-0.01	0.775	0.985
	LTE Band 26	15MHz	QPSK	1	37	Left Tilted	Full	26865	831.5	22.96	24.00	1.271	0.11	0.606	0.770
	LTE Band 26	15MHz	QPSK	36	0	Right Cheek	Full	26865	831.5	21.92	23.00	1.282	0.16	0.722	0.926
	LTE Band 26	15MHz	QPSK	36	0	Right Tilted	Full	26865	831.5	21.92	23.00	1.282	-0.18	0.572	0.733
	LTE Band 26	15MHz	QPSK	36	0	Left Cheek	Full	26865	831.5	21.92	23.00	1.282	0.11	0.569	0.730
	LTE Band 26	15MHz	QPSK	36	0	Left Tilted	Full	26865	831.5	21.92	23.00	1.282	0.15	0.519	0.666
	LTE Band 26	15MHz	QPSK	75	0	Right Cheek	Full	26865	831.5	22.01	23.00	1.256	0.02	0.726	0.912
	LTE Band 26	15MHz	QPSK	75	0	Right Tilted	Full	26865	831.5	22.01	23.00	1.256	-0.19	0.548	0.688
	LTE Band 26	15MHz	QPSK	75	0	Left Cheek	Full	26865	831.5	22.01	23.00	1.256	0.14	0.564	0.708
	LTE Band 25	20MHz	QPSK	1	49	Right Cheek	Full	26140	1860	22.96	24.00	1.271	0.04	0.744	0.945
	LTE Band 25	20MHz	QPSK	1	49	Right Tilted	Full	26140	1860	22.96	24.00	1.271	-0.01	0.129	0.164
	LTE Band 25	20MHz	QPSK	1	49	Left Cheek	Full	26140	1860	22.96	24.00	1.271	0.02	0.570	0.724
	LTE Band 25	20MHz	QPSK	1	49	Left Tilted	Full	26140	1860	22.96	24.00	1.271	0.07	0.300	0.381
06	LTE Band 25	20MHz	QPSK	1	49	Right Cheek	Full	26340	1880	22.92	24.00	1.282	-0.03	0.767	**0.984**
	LTE Band 25	20MHz	QPSK	1	49	Right Cheek	Full	26590	1905	22.95	24.00	1.274	0.06	0.751	0.956
	LTE Band 25	20MHz	QPSK	50	50	Right Cheek	Full	26590	1905	22.13	23.00	1.222	0.09	0.601	0.734
	LTE Band 25	20MHz	QPSK	50	50	Right Tilted	Full	26590	1905	22.13	23.00	1.222	-0.03	0.124	0.152
	LTE Band 25	20MHz	QPSK	50	50	Left Cheek	Full	26590	1905	22.13	23.00	1.222	0.02	0.462	0.564
	LTE Band 25	20MHz	QPSK	50	50	Left Tilted	Full	26590	1905	22.13	23.00	1.222	0.09	0.188	0.230
	LTE Band 25	20MHz	QPSK	100	0	Right Cheek	Full	26140	1860	22.01	23.00	1.256	0.04	0.623	0.783

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20MHz	QPSK	1	49	Right Cheek	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.05	0.433	0.437
	LTE Band 41	20MHz	QPSK	1	49	Right Tilted	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.08	0.221	0.223
	LTE Band 41	20MHz	QPSK	1	49	Left Cheek	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.07	0.819	0.826
	LTE Band 41	20MHz	QPSK	1	49	Left Tilted	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	-0.09	0.199	0.201
	LTE Band 41	20MHz	QPSK	1	49	Left Cheek	Full	40185	2549.5	22.52	23.00	1.117	62.9	1.006	0.01	0.771	0.866
	LTE Band 41	20MHz	QPSK	1	49	Left Cheek	Full	40620	2593	22.71	23.00	1.069	62.9	1.006	0.03	0.932	1.002
	LTE Band 41	20MHz	QPSK	1	49	Left Cheek	Full	41055	2636.5	22.79	23.00	1.050	62.9	1.006	0.04	1.060	1.119
07	LTE Band 41	20MHz	QPSK	1	49	Left Cheek	Full	41490	2680	22.98	23.00	1.005	62.9	1.006	0.18	1.180	**1.193**
	LTE Band 41	20MHz	QPSK	50	24	Right Cheek	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.01	0.545	0.551
	LTE Band 41	20MHz	QPSK	50	24	Right Tilted	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.02	0.284	0.287
	LTE Band 41	20MHz	QPSK	50	24	Left Cheek	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.02	0.907	0.917
	LTE Band 41	20MHz	QPSK	50	24	Left Tilted	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.01	0.302	0.305
	LTE Band 41	20MHz	QPSK	50	24	Left Cheek	Full	39750	2506	21.91	22.00	1.021	62.9	1.006	0.05	0.665	0.683
	LTE Band 41	20MHz	QPSK	50	24	Left Cheek	Full	40185	2549.5	21.73	22.00	1.064	62.9	1.006	0.03	0.622	0.666
	LTE Band 41	20MHz	QPSK	50	24	Left Cheek	Full	40620	2593	21.72	22.00	1.067	62.9	1.006	0.02	0.745	0.799
	LTE Band 41	20MHz	QPSK	50	24	Left Cheek	Full	41055	2636.5	21.71	22.00	1.069	62.9	1.006	0.04	0.855	0.920
	LTE Band 41	20MHz	QPSK	100	0	Left Cheek	Full	41490	2680	21.89	22.00	1.026	62.9	1.006	0.03	0.947	0.977

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	11	2462	16.19	16.50	1.074	97.2	1.029	0.02	0.432	0.477
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	11	2462	16.19	16.50	1.074	97.2	1.029	-0.05	0.392	0.433
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	11	2462	16.19	16.50	1.074	97.2	1.029	0.04	0.768	0.849
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	11	2462	16.19	16.50	1.074	97.2	1.029	0.01	0.637	0.704
08	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	6	2437	15.86	16.50	1.159	97.2	1.029	-0.11	0.890	**1.061**

15.2 Hotspot SAR

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC10	RTAP 153.6Kbps	Front	10	Reduced	684	823.1	22.58	23.00	1.102	-0.03	0.854	0.941
	CDMA2000 BC10	RTAP 153.6Kbps	Back	10	Reduced	684	823.1	22.58	23.00	1.102	0.08	0.948	1.044
	CDMA2000 BC10	RTAP 153.6Kbps	Left side	10	Reduced	684	823.1	22.58	23.00	1.102	0.11	0.808	0.890
	CDMA2000 BC10	RTAP 153.6Kbps	Right side	10	Reduced	684	823.1	22.58	23.00	1.102	-0.13	0.844	0.930
	CDMA2000 BC10	RTAP 153.6Kbps	Bottom side	10	Reduced	684	823.1	22.58	23.00	1.102	0.06	0.159	0.175
	CDMA2000 BC10	RTAP 153.6Kbps	Front	10	Reduced	476	817.9	22.54	23.00	1.112	-0.04	0.792	0.880
	CDMA2000 BC10	RTAP 153.6Kbps	Front	10	Reduced	580	820.5	22.55	23.00	1.109	0.03	0.815	0.904
09	CDMA2000 BC10	RTAP 153.6Kbps	Back	10	Reduced	476	817.9	22.54	23.00	1.112	0.01	0.990	**1.101**
	CDMA2000 BC10	RTAP 153.6Kbps	Back	10	Reduced	580	820.5	22.55	23.00	1.109	-0.09	0.975	1.081
	CDMA2000 BC10	RTAP 153.6Kbps	Left side	10	Reduced	476	817.9	22.54	23.00	1.112	0.02	0.833	0.926
	CDMA2000 BC10	RTAP 153.6Kbps	Left side	10	Reduced	580	820.5	22.55	23.00	1.109	0.09	0.834	0.925
	CDMA2000 BC10	RTAP 153.6Kbps	Right side	10	Reduced	476	817.9	22.54	23.00	1.112	-0.03	0.863	0.959
	CDMA2000 BC10	RTAP 153.6Kbps	Right side	10	Reduced	580	820.5	22.55	23.00	1.109	0.02	0.866	0.961
	CDMA2000 BC0	RTAP 153.6Kbps	Front	10	Reduced	384	836.52	22.69	23.00	1.074	0.17	0.903	0.970
10	CDMA2000 BC0	RTAP 153.6Kbps	Back	10	Reduced	384	836.52	22.69	23.00	1.074	0.06	0.992	**1.065**
	CDMA2000 BC0	RTAP 153.6Kbps	Left side	10	Reduced	384	836.52	22.69	23.00	1.074	0.12	0.840	0.902
	CDMA2000 BC0	RTAP 153.6Kbps	Right side	10	Reduced	384	836.52	22.69	23.00	1.074	-0.03	0.821	0.882
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom side	10	Reduced	384	836.52	22.69	23.00	1.074	0.04	0.185	0.199
	CDMA2000 BC0	RTAP 153.6Kbps	Front	10	Reduced	1013	824.7	22.42	23.00	1.143	0.03	0.863	0.986
	CDMA2000 BC0	RTAP 153.6Kbps	Front	10	Reduced	777	848.31	22.67	23.00	1.079	0.06	0.939	1.013
	CDMA2000 BC0	RTAP 153.6Kbps	Back	10	Reduced	1013	824.7	22.42	23.00	1.143	-0.09	0.930	1.063
	CDMA2000 BC0	RTAP 153.6Kbps	Back	10	Reduced	777	848.31	22.67	23.00	1.079	0.15	0.828	0.893
	CDMA2000 BC0	RTAP 153.6Kbps	Left side	10	Reduced	1013	824.7	22.42	23.00	1.143	0.19	0.783	0.895
	CDMA2000 BC0	RTAP 153.6Kbps	Left side	10	Reduced	777	848.31	22.67	23.00	1.079	-0.05	0.789	0.851
	CDMA2000 BC0	RTAP 153.6Kbps	Right side	10	Reduced	1013	824.7	22.42	23.00	1.143	-0.07	0.817	0.934
	CDMA2000 BC0	RTAP 153.6Kbps	Right side	10	Reduced	777	848.31	22.67	23.00	1.079	-0.06	0.795	0.858
	CDMA2000 BC1	RTAP 153.6Kbps	Front	10	Reduced	1175	1908.75	21.99	23.00	1.262	-0.05	0.413	0.521
11	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	1175	1908.75	21.99	23.00	1.262	0.02	0.745	**0.940**
	CDMA2000 BC1	RTAP 153.6Kbps	Left side	10	Reduced	1175	1908.75	21.99	23.00	1.262	-0.14	0.107	0.135
	CDMA2000 BC1	RTAP 153.6Kbps	Right side	10	Reduced	1175	1908.75	21.99	23.00	1.262	0.19	0.323	0.408
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom side	10	Reduced	1175	1908.75	21.99	23.00	1.262	0.04	0.675	0.852
	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	25	1851.25	21.97	23.00	1.268	0.06	0.631	0.800
	CDMA2000 BC1	RTAP 153.6Kbps	Back	10	Reduced	600	1880	21.98	23.00	1.265	0.05	0.701	0.887
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom side	10	Reduced	25	1851.25	21.97	23.00	1.268	0.11	0.650	0.824
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom side	10	Reduced	600	1880	21.98	23.00	1.265	-0.04	0.722	0.913

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 13	10MHz	QPSK	1	25	Front	10	Full	23230	782	23.71	24.00	1.069	0.01	0.815	0.871
12	LTE Band 13	10MHz	QPSK	1	25	Back	10	Full	23230	782	23.71	24.00	1.069	-0.06	1.050	**1.123**
	LTE Band 13	10MHz	QPSK	1	25	Left side	10	Full	23230	782	23.71	24.00	1.069	-0.11	0.746	0.798
	LTE Band 13	10MHz	QPSK	1	25	Right side	10	Full	23230	782	23.71	24.00	1.069	-0.06	0.715	0.764
	LTE Band 13	10MHz	QPSK	1	25	Bottom side	10	Full	23230	782	23.71	24.00	1.069	0.18	0.141	0.151
	LTE Band 13	10MHz	QPSK	25	0	Front	10	Full	23230	782	22.57	23.00	1.104	-0.01	0.643	0.710
	LTE Band 13	10MHz	QPSK	25	0	Back	10	Full	23230	782	22.57	23.00	1.104	-0.12	0.752	0.830
	LTE Band 13	10MHz	QPSK	25	0	Left side	10	Full	23230	782	22.57	23.00	1.104	-0.01	0.583	0.644
	LTE Band 13	10MHz	QPSK	25	0	Right side	10	Full	23230	782	22.57	23.00	1.104	-0.1	0.606	0.669
	LTE Band 13	10MHz	QPSK	25	0	Bottom side	10	Full	23230	782	22.57	23.00	1.104	0.07	0.110	0.121
	LTE Band 13	10MHz	QPSK	50	0	Front	10	Full	23230	782	22.58	23.00	1.102	-0.16	0.676	0.745
	LTE Band 13	10MHz	QPSK	50	0	Back	10	Full	23230	782	22.58	23.00	1.102	0.05	0.803	0.885
	LTE Band 26	15MHz	QPSK	1	37	Front	10	Reduced	26865	831.5	22.50	23.00	1.122	0.18	0.747	0.838
13	LTE Band 26	15MHz	QPSK	1	37	Back	10	Reduced	26865	831.5	22.50	23.00	1.122	0.05	0.871	**0.977**
	LTE Band 26	15MHz	QPSK	1	37	Left side	10	Reduced	26865	831.5	22.50	23.00	1.122	0.04	0.689	0.773
	LTE Band 26	15MHz	QPSK	1	37	Right side	10	Reduced	26865	831.5	22.50	23.00	1.122	-0.01	0.805	0.903
	LTE Band 26	15MHz	QPSK	1	37	Bottom side	10	Reduced	26865	831.5	22.50	23.00	1.122	0.03	0.160	0.180
	LTE Band 26	15MHz	QPSK	36	20	Front	10	Reduced	26865	831.5	21.88	22.50	1.153	-0.17	0.674	0.777
	LTE Band 26	15MHz	QPSK	36	20	Back	10	Reduced	26865	831.5	21.88	22.50	1.153	0.03	0.742	0.856
	LTE Band 26	15MHz	QPSK	36	20	Left side	10	Reduced	26865	831.5	21.88	22.50	1.153	-0.1	0.501	0.578
	LTE Band 26	15MHz	QPSK	36	20	Right side	10	Reduced	26865	831.5	21.88	22.50	1.153	0.01	0.685	0.790
	LTE Band 26	15MHz	QPSK	36	20	Bottom side	10	Reduced	26865	831.5	21.88	22.50	1.153	0.04	0.143	0.165
	LTE Band 26	15MHz	QPSK	75	0	Front	10	Reduced	26865	831.5	21.94	22.50	1.138	0.09	0.695	0.791
	LTE Band 26	15MHz	QPSK	75	0	Back	10	Reduced	26865	831.5	21.94	22.50	1.138	0.01	0.709	0.807
	LTE Band 26	15MHz	QPSK	75	0	Right side	10	Reduced	26865	831.5	21.94	22.50	1.138	0.14	0.684	0.778
	LTE Band 25	20MHz	QPSK	1	49	Front	10	Reduced	26140	1860	22.22	23.00	1.197	-0.08	0.460	0.551
	LTE Band 25	20MHz	QPSK	1	49	Back	10	Reduced	26140	1860	22.22	23.00	1.197	0.13	0.631	0.755
	LTE Band 25	20MHz	QPSK	1	49	Left side	10	Reduced	26140	1860	22.22	23.00	1.197	-0.01	0.114	0.136
	LTE Band 25	20MHz	QPSK	1	49	Right side	10	Reduced	26140	1860	22.22	23.00	1.197	0.17	0.286	0.342
	LTE Band 25	20MHz	QPSK	1	49	Bottom side	10	Reduced	26140	1860	22.22	23.00	1.197	0.07	0.619	0.741
	LTE Band 25	20MHz	QPSK	50	0	Front	10	Reduced	26140	1860	22.14	23.00	1.219	-0.04	0.456	0.556
14	LTE Band 25	20MHz	QPSK	50	0	Back	10	Reduced	26140	1860	22.14	23.00	1.219	-0.11	0.634	**0.773**
	LTE Band 25	20MHz	QPSK	50	0	Left side	10	Reduced	26140	1860	22.14	23.00	1.219	-0.13	0.109	0.133
	LTE Band 25	20MHz	QPSK	50	0	Right side	10	Reduced	26140	1860	22.14	23.00	1.219	0.08	0.302	0.368
	LTE Band 25	20MHz	QPSK	50	0	Bottom side	10	Reduced	26140	1860	22.14	23.00	1.219	0.05	0.628	0.766

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20MHz	QPSK	1	49	Front	10	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.09	0.350	0.353
15	LTE Band 41	20MHz	QPSK	1	49	Back	10	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.10	0.525	**0.529**
	LTE Band 41	20MHz	QPSK	1	49	Left side	10	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.02	0.338	0.341
	LTE Band 41	20MHz	QPSK	1	49	Bottom side	10	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.08	0.374	0.377
	LTE Band 41	20MHz	QPSK	50	24	Front	10	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.03	0.379	0.383
	LTE Band 41	20MHz	QPSK	50	24	Back	10	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.06	0.437	0.442
	LTE Band 41	20MHz	QPSK	50	24	Left side	10	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.03	0.353	0.357
	LTE Band 41	20MHz	QPSK	50	24	Bottom side	10	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	0.09	0.234	0.236

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	10	11	2462	16.19	16.50	1.074	97.2	1.029	0.08	0.143	0.158
16	WLAN2.4GHz	802.11b 1Mbps	Back	10	11	2462	16.19	16.50	1.074	97.2	1.029	-0.04	0.255	**0.282**
	WLAN2.4GHz	802.11b 1Mbps	Right side	10	11	2462	16.19	16.50	1.074	97.2	1.029	-0.02	0.168	0.186
	WLAN2.4GHz	802.11b 1Mbps	Top side	10	11	2462	16.19	16.50	1.074	97.2	1.029	0.02	0.203	0.224

15.3 Body Worn Accessory SAR

<CDMA2000 SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	15	Full	684	823.1	23.62	24.00	1.091	-0.02	0.891	0.972
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	15	Full	684	823.1	23.62	24.00	1.091	-0.02	0.922	1.006
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	15	Full	476	817.9	23.60	24.00	1.096	-0.11	0.907	0.995
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	15	Full	580	820.5	23.61	24.00	1.094	-0.01	0.916	1.002
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	15	Full	476	817.9	23.60	24.00	1.096	-0.03	0.930	1.020
17	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	15	Full	580	820.5	23.61	24.00	1.094	0.17	0.946	**1.035**
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	15	Full	384	836.52	23.86	24.00	1.033	-0.05	0.981	1.013
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	15	Full	384	836.52	23.86	24.00	1.033	0.06	1.030	1.064
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	15	Full	1013	824.7	23.39	24.00	1.151	0.03	0.928	1.068
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	15	Full	777	848.31	23.85	24.00	1.035	0.01	0.880	0.911
18	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	15	Full	1013	824.7	23.39	24.00	1.151	0.03	0.998	**1.148**
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	15	Full	777	848.31	23.85	24.00	1.035	0.16	1.030	1.066
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	15	Full	1175	1908.75	24.25	24.50	1.059	0.03	0.437	0.463
19	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	15	Full	1175	1908.75	24.25	24.50	1.059	0.09	0.742	**0.786**
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	15	Full	25	1851.25	24.24	24.50	1.062	0.08	0.602	0.639
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	15	Full	600	1880	24.23	24.50	1.064	0.02	0.695	0.740

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 13	10MHz	QPSK	1	25	Front	15	Full	23230	782	23.71	24.00	1.069	-0.09	0.596	0.637
20	LTE Band 13	11MHz	QPSK	1	25	Back	15	Full	23230	782	23.71	24.00	1.069	0.09	0.820	**0.877**
	LTE Band 13	11MHz	QPSK	25	0	Front	15	Full	23230	782	22.57	23.00	1.104	0.01	0.435	0.480
	LTE Band 13	10MHz	QPSK	25	0	Back	15	Full	23230	782	22.57	23.00	1.104	-0.04	0.646	0.713
	LTE Band 13	10MHz	QPSK	50	0	Back	15	Full	23230	782	22.58	23.00	1.102	0.07	0.636	0.701
	LTE Band 26	15MHz	QPSK	1	37	Front	15	Full	26865	831.5	22.96	24.00	1.271	0.07	0.702	0.892
21	LTE Band 26	15MHz	QPSK	1	37	Back	15	Full	26865	831.5	22.96	24.00	1.271	-0.09	0.847	**1.076**
	LTE Band 26	15MHz	QPSK	36	0	Front	15	Full	26865	831.5	21.92	23.00	1.282	-0.05	0.580	0.744
	LTE Band 26	15MHz	QPSK	36	0	Back	15	Full	26865	831.5	21.92	23.00	1.282	-0.16	0.653	0.837
	LTE Band 26	15MHz	QPSK	75	0	Front	15	Full	26865	831.5	22.01	23.00	1.256	-0.04	0.579	0.727
	LTE Band 26	15MHz	QPSK	75	0	Back	15	Full	26865	831.5	22.01	23.00	1.256	0.05	0.649	0.815
	LTE Band 25	20MHz	QPSK	1	49	Front	15	Full	26140	1860	22.96	24.00	1.271	0.06	0.323	0.410
22	LTE Band 25	20MHz	QPSK	1	49	Back	15	Full	26140	1860	22.96	24.00	1.271	-0.04	0.452	**0.574**
	LTE Band 25	20MHz	QPSK	50	50	Front	15	Full	26590	1905	22.13	23.00	1.222	0.01	0.231	0.282
	LTE Band 25	20MHz	QPSK	50	50	Back	15	Full	26590	1905	22.13	23.00	1.222	-0.13	0.426	0.520

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20MHz	QPSK	1	49	Front	15	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.17	0.230	0.232
23	LTE Band 41	20MHz	QPSK	1	49	Back	15	Full	39750	2506	22.99	23.00	1.002	62.9	1.006	0.03	0.308	**0.311**
	LTE Band 41	20MHz	QPSK	50	24	Front	15	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	-0.02	0.264	0.267
	LTE Band 41	20MHz	QPSK	50	24	Back	15	Full	41490	2680	21.98	22.00	1.005	62.9	1.006	-0.04	0.230	0.232

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	15	11	2462	16.19	16.50	1.074	97.2	1.029	0.09	0.074	0.082
24	WLAN2.4GHz	802.11b 1Mbps	Back	15	11	2462	16.19	16.50	1.074	97.2	1.029	-0.01	0.125	**0.138**

15.4 Repeated SAR Measurement

No.	Band	Mode	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Power Mode	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	CDMA2000 BC0	RC3 SO55	-	-	-	-	Right Cheek	-	Full	384	836.52	23.88	24.00	1.028	-	-	0.11	1.150	1	1.182
2nd	CDMA2000 BC0	RC3 SO55	-	-	-	-	Right Cheek	-	Full	384	836.52	23.88	24.00	1.028	-	-	0.02	1.130	1.018	1.162
1st	CDMA2000 BC1	RC3 SO55	-	-	-	-	Right Cheek	-	Full	600	1880	24.27	24.50	1.054	-	-	0.01	1.060	1	1.118
2nd	CDMA2000 BC1	RC3 SO55	-	-	-	-	Right Cheek	-	Full	600	1880	24.27	24.50	1.054	-	-	0.15	1.050	1.010	1.107
1st	LTE Band 41	-	20MHz	QPSK	1RB	49offset	Left Cheek	-	Full	41490	2680	22.98	23.00	1.005	62.9	1.006	0.18	1.180	1	1.193
2nd	LTE Band 41	-	20MHz	QPSK	1RB	49offset	Left Cheek	-	Full	41490	2680	22.98	23.00	1.005	62.9	1.006	0.09	1.100	1.073	1.112
1st	WLAN2.4GHz	802.11b 1Mbps	-	-	-	-	Left Cheek	-	-	6	2437	15.86	16.50	1.159	97.2	1.029	-0.11	0.890	1	1.061
2nd	WLAN2.4GHz	802.11b 1Mbps	-	-	-	-	Left Cheek	-	-	6	2437	15.86	16.50	1.159	97.2	1.029	-0.08	0.887	1.003	1.058
1st	LTE Band 13		10MHz	QPSK	1RB	25offset	Back	10	Full	23230	782	23.71	24.00	1.069	-	-	-0.06	1.050	1	1.123
2nd	LTE Band 13		10MHz	QPSK	1RB	25offset	Back	10	Full	23230	782	23.71	24.00	1.069	-	-	0.09	1.040	1.010	1.112

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset		
		Head	Hotspot	Body-worn
1.	CDMA + WLAN2.4GHz	Yes	Yes	Yes
2.	LTE + WLAN2.4GHz	Yes	Yes	Yes
3.	CDMA + Bluetooth			Yes
4.	LTE + Bluetooth			Yes

General Note:

1. This device WLAN 2.4GHz supports hotspot operation.
2. EUT will choose either CDMA or LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. Bluetooth and WLAN share the same antenna so can't transmit simultaneously.
4. This device has two WWAN antennas. WWAN antenna 1 is located at the right side of bottom edge of the device and WWAN antenna 2 is located at the left side of bottom edge of the device which can refer to antenna location chapter. WWAN antenna 1 frequency bands include CDMA2000 BC0/BC1/BC10 and LTE B13 / B15 / B26 and WWAN antenna 2 frequency bands only include LTE B41. And they can't transmit simultaneously.
5. The reported SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
7. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) When the minimum separation distance is < 5mm, the distance is used 5mm to determine SAR test exclusion.
   iii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

Bluetooth Max Power (dBm)	Exposure Position	Body worn
	Test separation	15 mm
9.0	Estimated 1g SAR (W/kg)	0.111

16.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	SPLSR	Case No
CDMA2000	BC10	Right Cheek	1.190	0.477	**1.67**	**0.03**	**#1**
		Right Tilted	0.775	0.433	1.21		
		Left Cheek	0.883	1.061	**1.94**	**0.04**	**#2**
		Left Tilted	0.794	0.704	1.50		
	BC0	Right Cheek	1.182	0.477	**1.66**	**0.03**	**#3**
		Right Tilted	0.670	0.433	1.10		
		Left Cheek	0.945	1.061	**2.01**	**0.04**	**#4**
		Left Tilted	0.867	0.704	**1.57**		
	BC1	Right Cheek	1.118	0.477	**1.60**	**0.03**	**#5**
		Right Tilted	0.230	0.433	0.66		
		Left Cheek	0.836	1.061	**1.90**	**0.04**	**#6**
		Left Tilted	0.358	0.704	1.06		
LTE	Band 13	Right Cheek	0.725	0.477	1.20		
		Right Tilted	0.435	0.433	0.87		
		Left Cheek	0.547	1.061	**1.61**	**0.03**	**#7**
		Left Tilted	0.435	0.704	1.14		
	Band 26	Right Cheek	1.151	0.477	**1.63**	**0.03**	**#8**
		Right Tilted	0.814	0.433	1.25		
		Left Cheek	0.985	1.061	**2.05**	**0.04**	**#9**
		Left Tilted	0.770	0.704	1.47		
	Band 25	Right Cheek	0.984	0.477	1.46		
		Right Tilted	0.164	0.433	0.60		
		Left Cheek	0.724	1.061	**1.79**	**0.04**	**#10**
		Left Tilted	0.381	0.704	1.09		
	Band 41	Right Cheek	0.551	0.477	1.03		
		Right Tilted	0.287	0.433	0.72		
		Left Cheek	1.193	1.061	**2.25**	**0.04**	**#11**
		Left Tilted	0.305	0.704	1.01		

16.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	SPLSR	Case No
CDMA2000	BC10	Front	0.941	0.158	1.10		
		Back	1.101	0.282	1.38		
		Left side	0.926		0.93		
		Right side	0.961	0.186	1.15		
		Top side		0.224	0.22		
		Bottom side	0.175		0.18		
	BC0	Front	1.013	0.158	1.17		
		Back	1.065	0.282	1.35		
		Left side	0.902		0.90		
		Right side	0.934	0.186	1.12		
		Top side		0.224	0.22		
		Bottom side	0.199		0.20		
	BC1	Front	0.521	0.158	0.68		
		Back	0.940	0.282	1.22		
		Left side	0.135		0.14		
		Right side	0.408	0.186	0.59		
		Top side		0.224	0.22		
		Bottom side	0.913		0.91		
LTE	Band 13	Front	0.871	0.158	1.03		
		Back	1.123	0.282	1.41		
		Left side	0.798		0.80		
		Right side	0.764	0.186	0.95		
		Top side		0.224	0.22		
		Bottom side	0.151		0.15		
	Band 26	Front	0.838	0.158	1.00		
		Back	0.977	0.282	1.26		
		Left side	0.773		0.77		
		Right side	0.903	0.186	1.09		
		Top side		0.224	0.22		
		Bottom side	0.180		0.18		
	Band 25	Front	0.556	0.158	0.71		
		Back	0.773	0.282	1.06		
		Left side	0.136		0.14		
		Right side	0.368	0.186	0.55		
		Top side		0.224	0.22		
		Bottom side	0.766		0.77		
LTE	Band 41	Front	0.383	0.158	0.54		
		Back	0.529	0.282	0.81		
		Left side	0.357		0.36		
		Right side		0.186	0.19		
		Top side		0.224	0.22		
		Bottom side	0.377		0.38		

16.3 Body-Worn Accessory Exposure Conditions

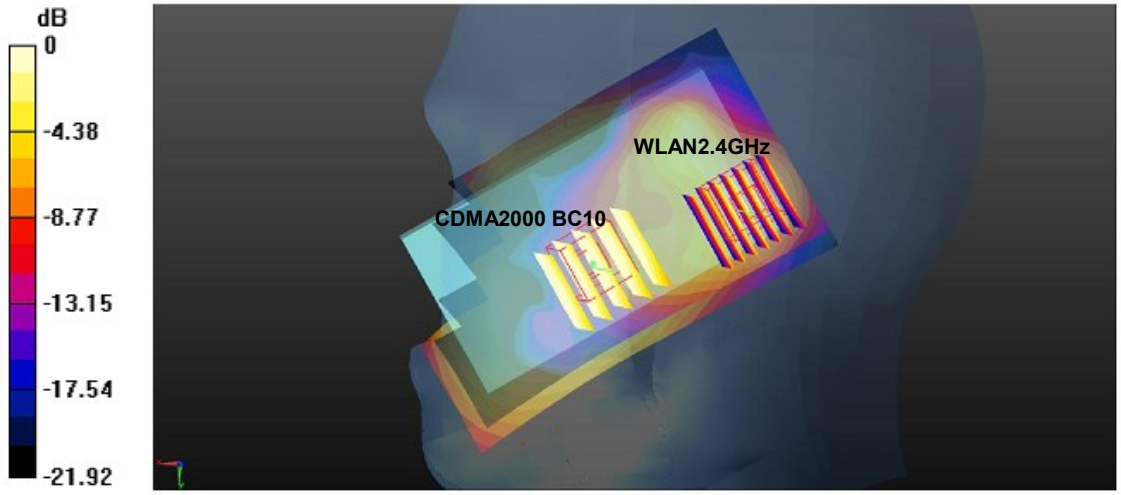
WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 Bluetooth Estimated 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	SPLSR	Case No
CDMA2000	BC10	Front	1.002	0.082	0.111	1.08	1.11		
		Back	1.035	0.138	0.111	1.17	1.15		
	BC0	Front	1.068	0.082	0.111	1.15	1.18		
		Back	1.148	0.138	0.111	1.29	**1.26**		
	BC1	Front	0.463	0.082	0.111	0.55	0.57		
		Back	0.786	0.138	0.111	0.92	0.90		
LTE	Band 13	Front	0.637	0.082	0.111	0.72	0.75		
		Back	0.877	0.138	0.111	1.02	0.99		
	Band 26	Front	0.892	0.082	0.111	0.97	1.00		
		Back	1.076	0.138	0.111	1.21	1.19		
	Band 25	Front	0.410	0.082	0.111	0.49	0.52		
		Back	0.574	0.138	0.111	0.71	0.69		
	Band 41	Front	0.267	0.082	0.111	0.35	0.38		
		Back	0.311	0.138	0.111	0.45	0.42		

16.4 SPLSR Evaluation and Analysis

General Note:

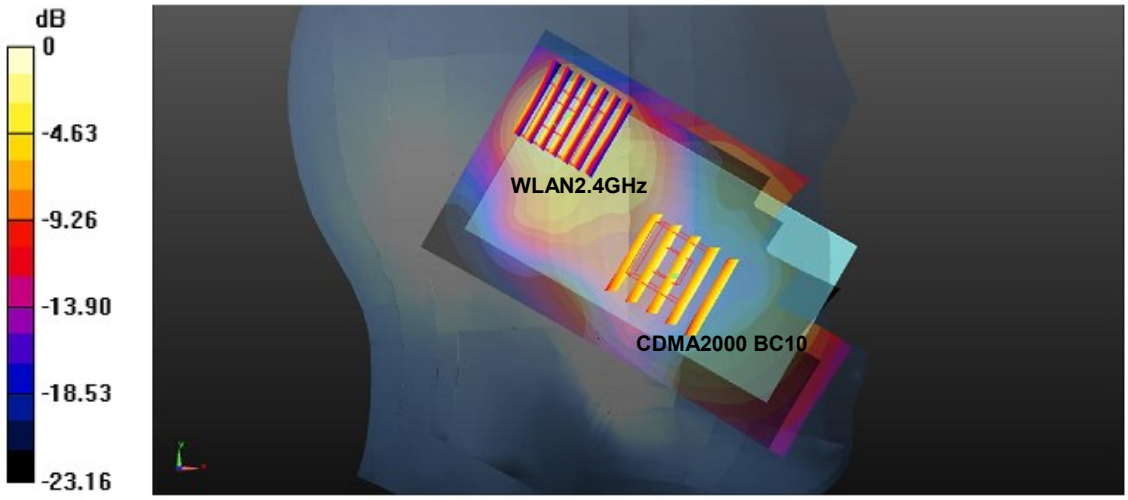
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
#1	CDMA2000 BC10	Right Cheek	1.190	0	4.78	4.47	-0.38	64.9	1.67	0.03	Not required
	WLAN2.4GHz		0.477	0	-1.02	1.64	0.26				



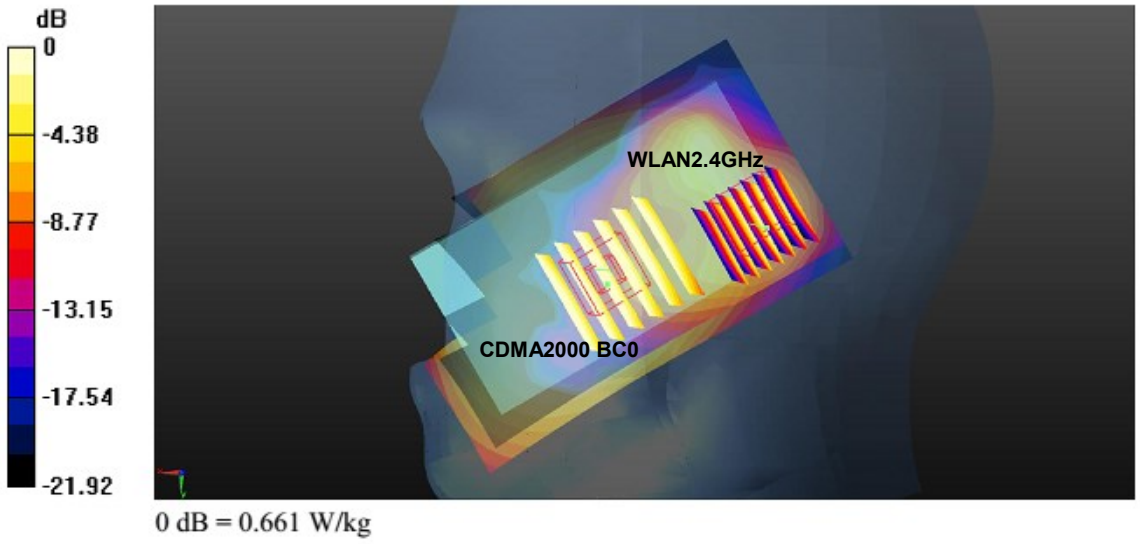
0 dB = 0.661 W/kg

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
#2	CDMA2000 BC10	Left Cheek	0.883	0	5.25	-3.95	-0.37	72.7	1.94	0.04	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



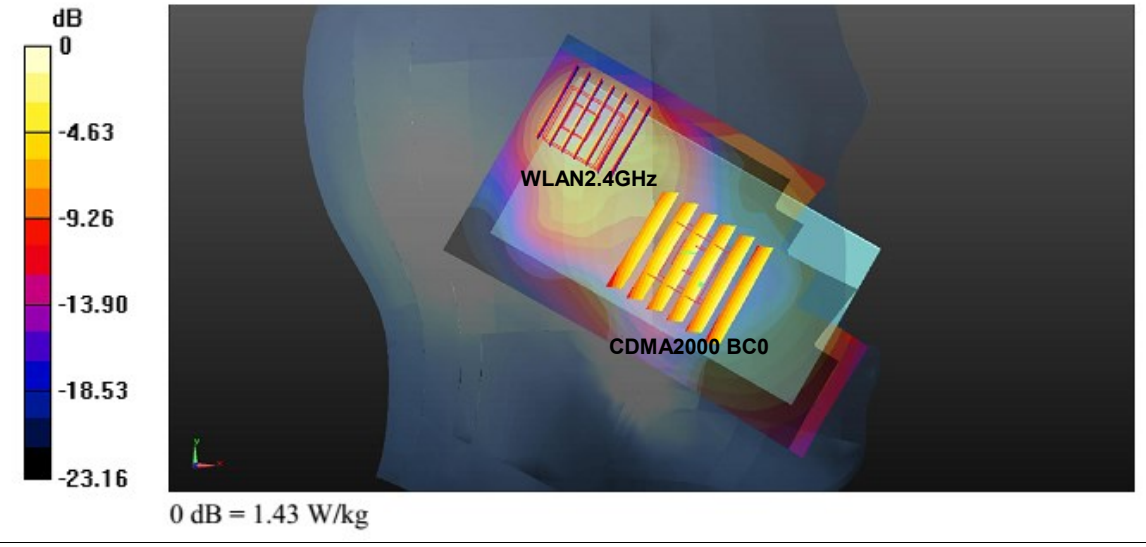
0 dB = 1.43 W/kg

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
#3	CDMA2000 BC0	Right Cheek	1.182	0	4.71	4.6	-0.38	64.8	1.66	0.03	Not required
	WLAN2.4GHz		0.477	0	-1.02	1.64	0.26				



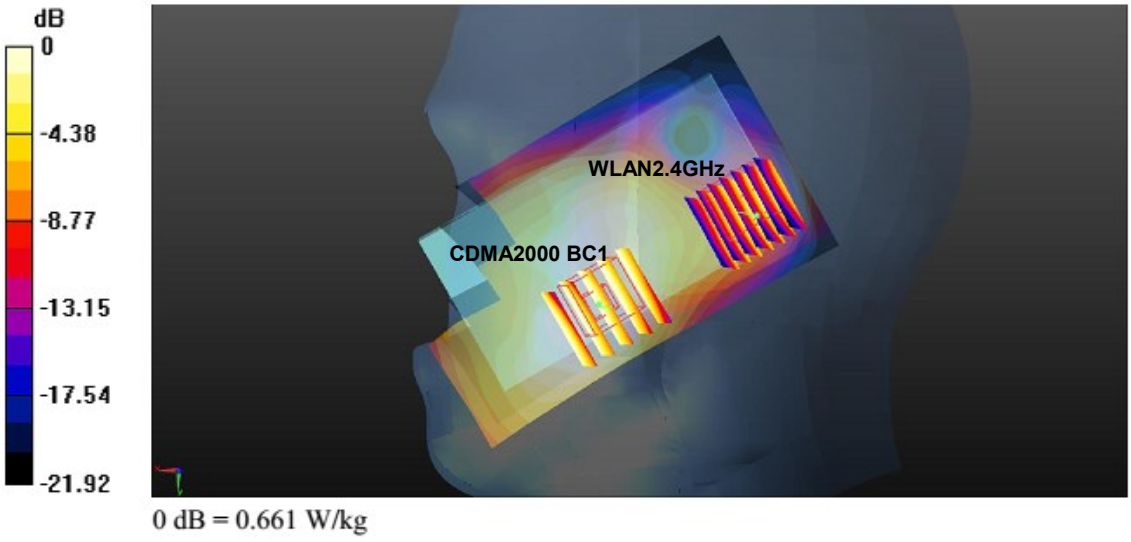
0 dB = 0.661 W/kg

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
#4	CDMA2000 BC0	Left Cheek	0.945	0	5.15	-3.13	-0.42	65.6	2.01	0.04	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



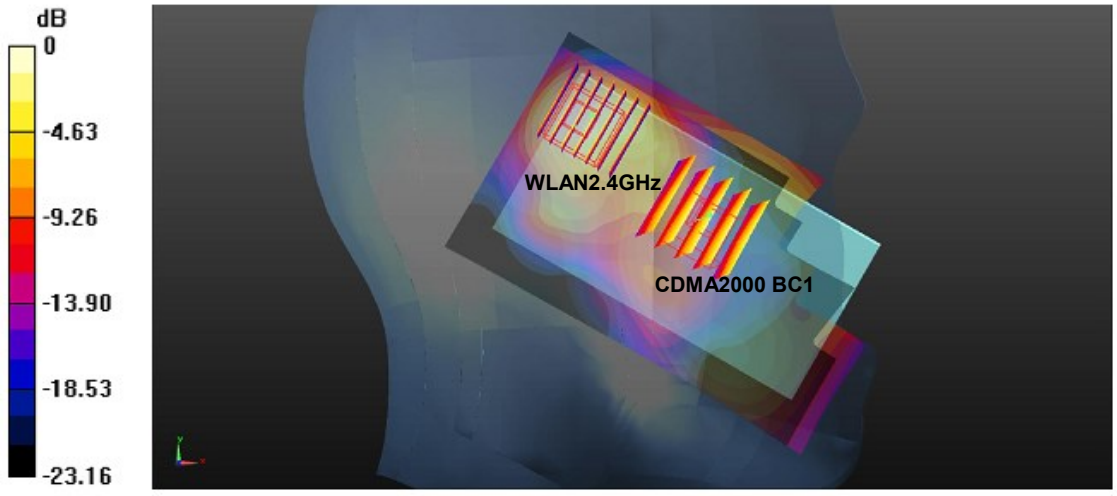
0 dB = 1.43 W/kg

Case #5	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA2000 BC1	Right Cheek	1.118	0	5.07	5.47	-0.23	72.1	1.60	0.03	Not required
	WLAN2.4GHz		0.477	0	-1.02	1.64	0.26				



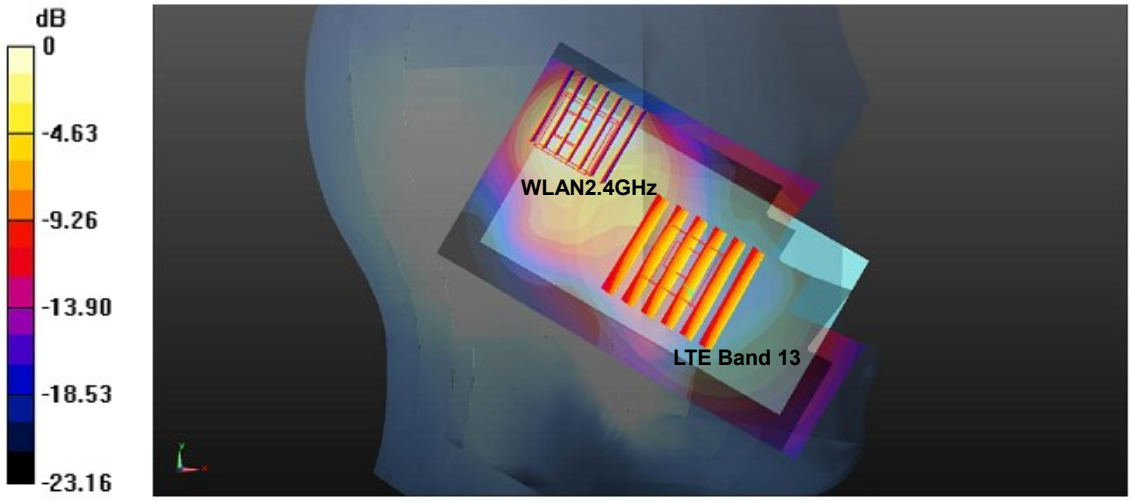
0 dB = 0.661 W/kg

Case #6	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	CDMA2000 BC1	Left Cheek	0.836	0	5.77	-1.82	-0.21	61.0	1.90	0.04	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



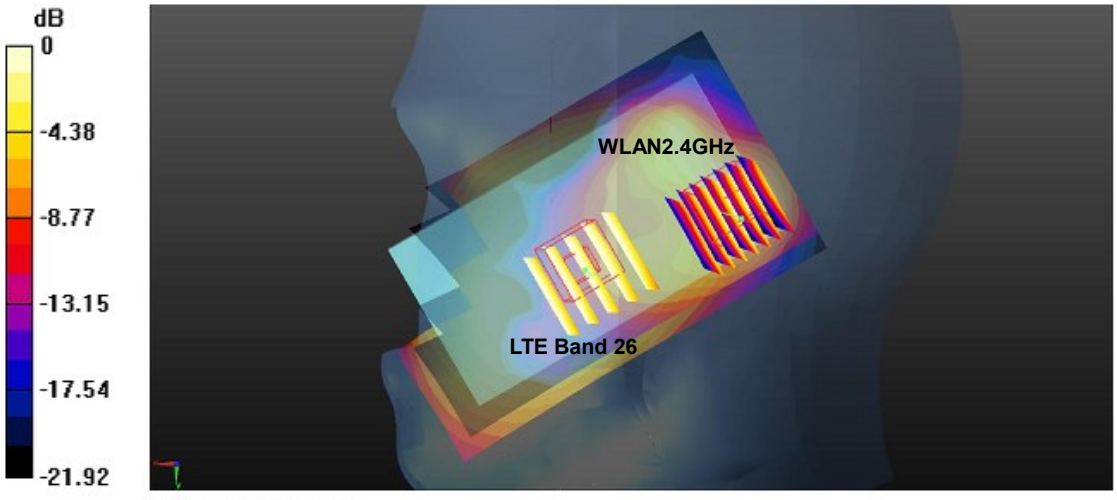
0 dB = 1.43 W/kg

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
#7	LTE Band 13	Left Cheek	0.547	0	4.80	-2.76	-0.43	60.5	1.61	0.03	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



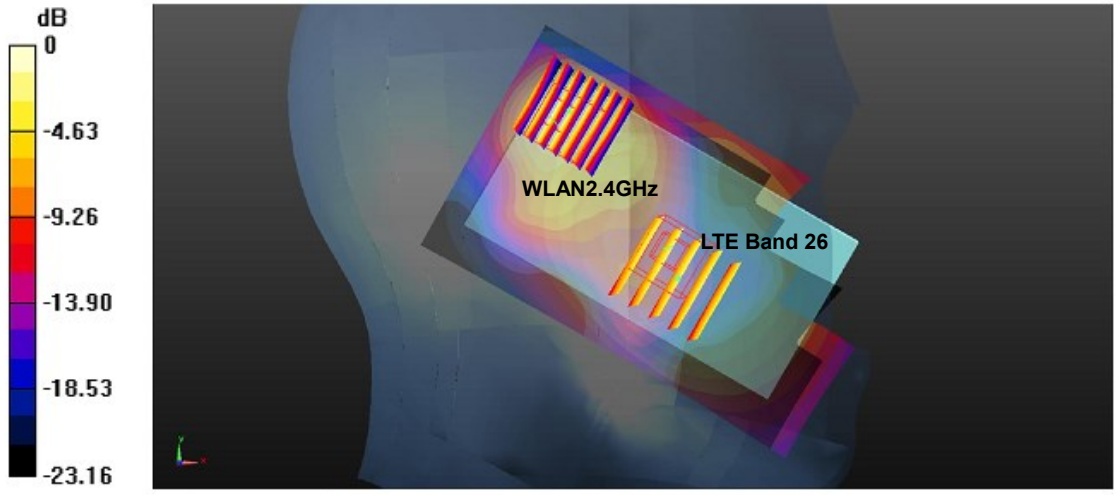
0 dB = 1.43 W/kg

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
#8	LTE Band 26	Right Cheek	1.151	0	4.79	4.48	-0.37	65.0	1.63	0.03	Not required
	WLAN2.4GHz		0.477	0	-1.02	1.64	0.26				



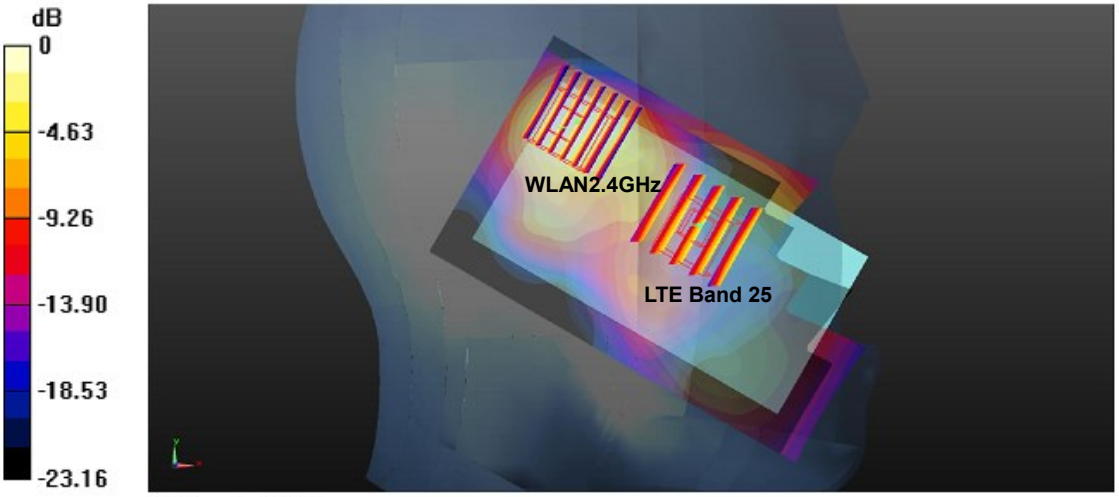
0 dB = 0.661 W/kg

Case #9	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 26	Left Cheek	0.985	0	5.07	-3.28	-0.41	66.3	2.05	0.04	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



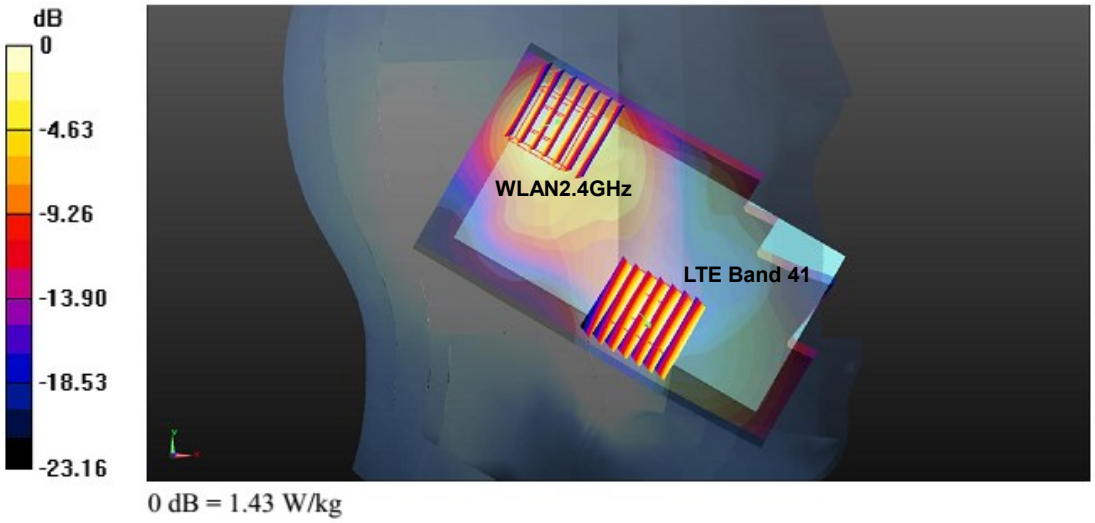
0 dB = 1.43 W/kg

Case #10	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 25	Left Cheek	0.724	0	5.90	-1.90	-0.18	62.5	1.79	0.04	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



0 dB = 1.43 W/kg

Case #11	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 41	Left Cheek	1.193	0	4.45	-5.26	-0.36	79.8	2.25	0.04	Not required
	WLAN2.4GHz		1.061	0	0.94	1.90	-0.22				



Test Engineer: Kat Yin

17. Uncertainty Assessment

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

18. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

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

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

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

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

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

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

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

System Check_Head_750MHz_20171124

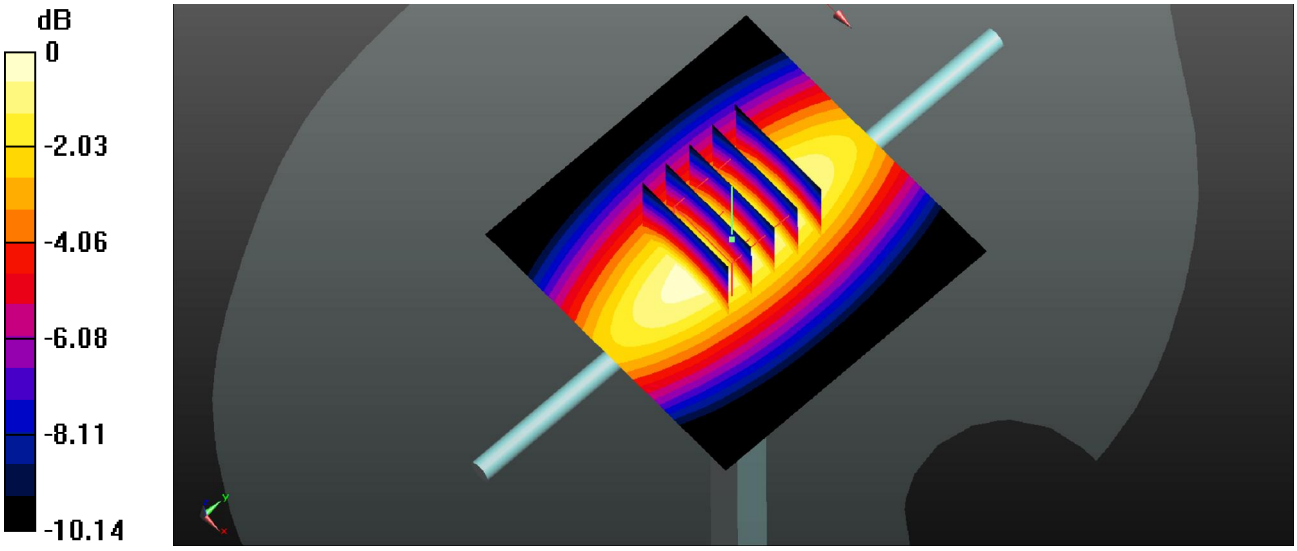
DUT: D750V3-SN:1087

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750_Medium parameters used: f = 750 MHz; σ = 0.904 S/m; ε_r = 43.437; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature ：22.3 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.92, 10.92, 10.92); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

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

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.71 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.07 W/kg
SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (measured) = 2.76 W/kg



0 dB = 2.76 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

System Check_Head_835MHz_20171124

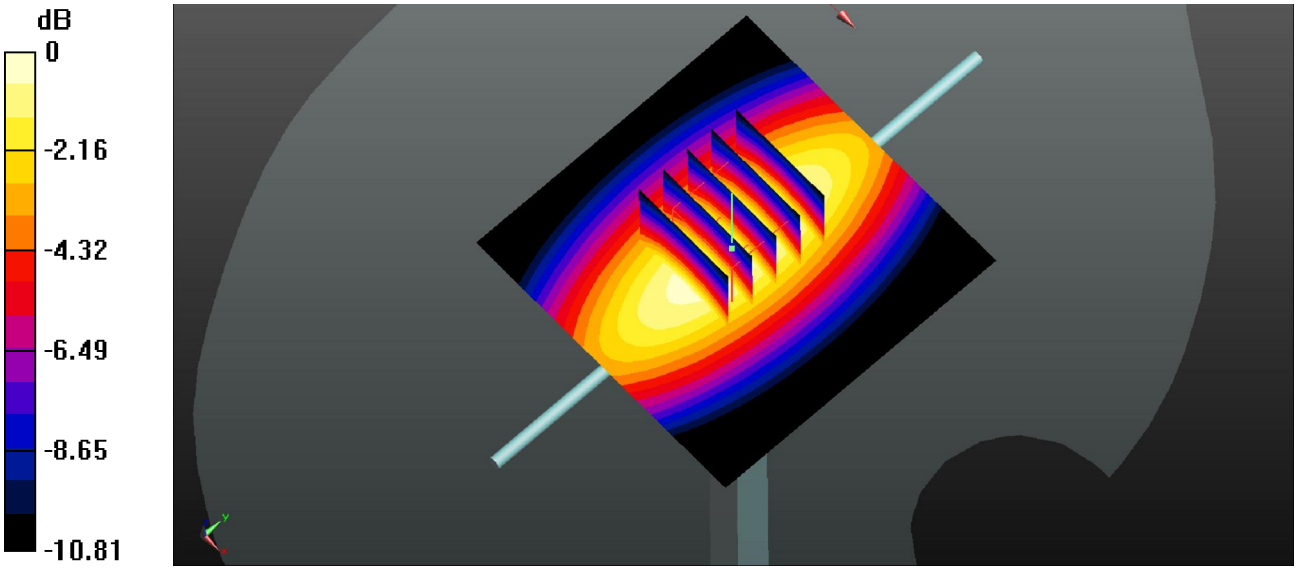
DUT: D835V2-SN:4d151

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835_Medium parameters used: f = 835 MHz; σ = 0.924 S/m; ε_r = 42.919; ρ = 1000 kg/m^3
Ambient Temperature：23.9 ℃; Liquid Temperature ：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.61, 10.61, 10.61); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.33 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.84 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.73 W/kg
SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.61 W/kg
Maximum value of SAR (measured) = 3.29 W/kg



0 dB = 3.29 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/25

System Check_Head_1900MHz_20171125

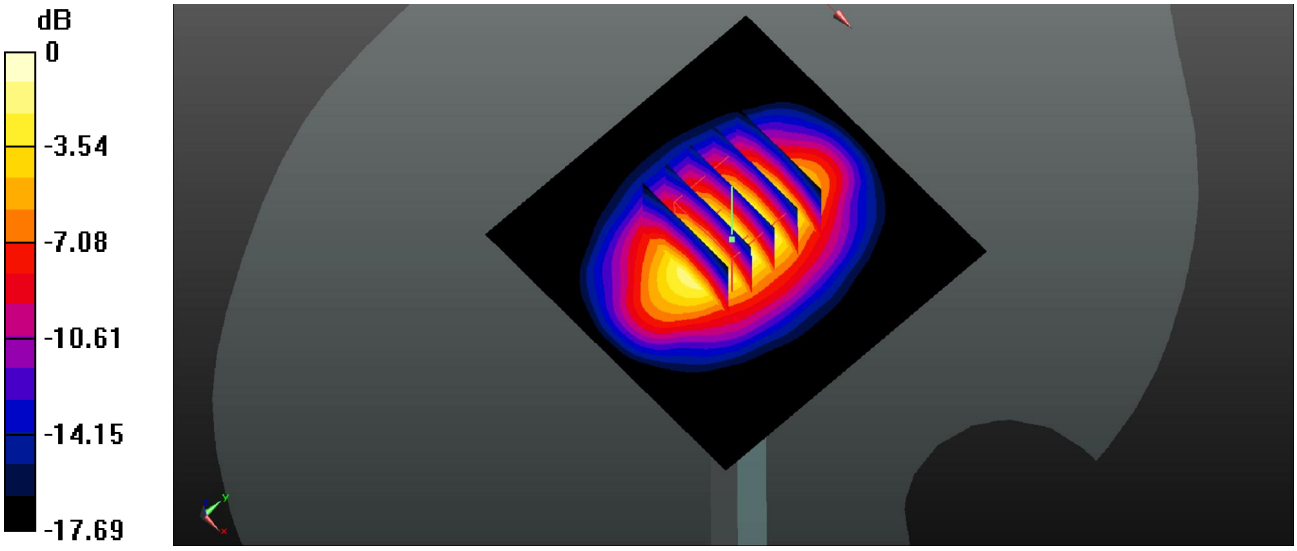
DUT: D1900V2-SN:5d170

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900_Medium parameters used: f = 1900 MHz; σ = 1.442 S/m; ε_r = 38.789; ρ = 1000 kg/m^3
Ambient Temperature：23.8 ℃; Liquid Temperature ：22.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.64, 8.64, 8.64); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 16.0 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 = 0.01 dB
Peak SAR (extrapolated) = 19.0 W/kg
SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.32 W/kg
Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/27

System Check_Head_2450MHz_20171127

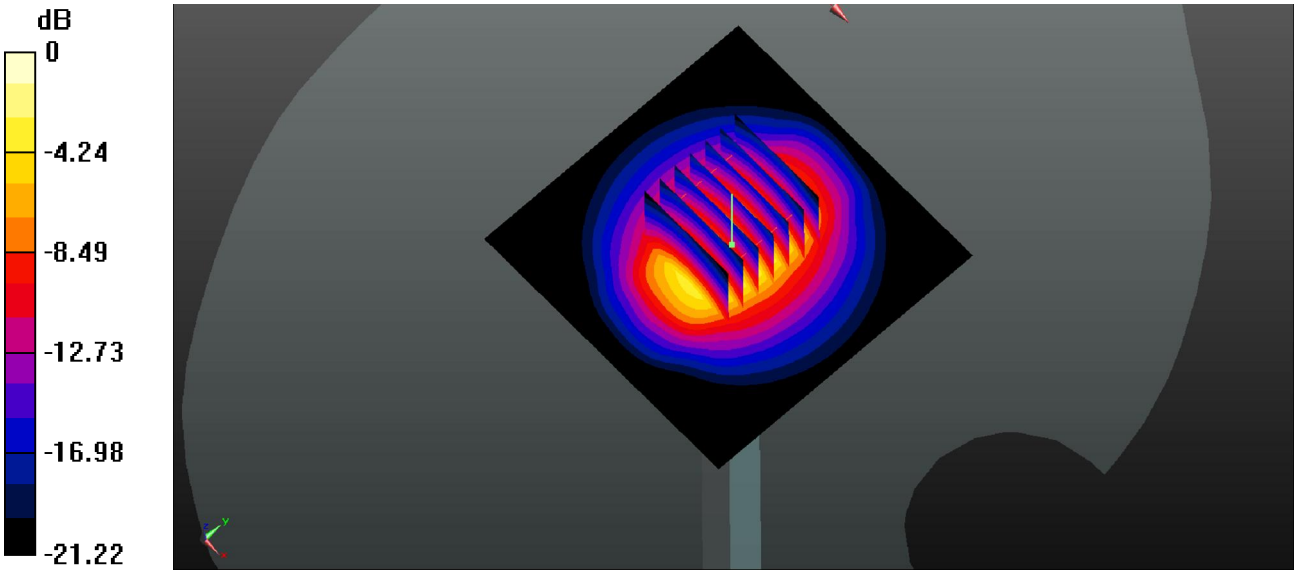
DUT: D2450V2-SN:908

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450_Medium parameters used: f = 2450 MHz; σ = 1.861 S/m; ε_r = 39.653; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature ：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.81, 7.81, 7.81); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.8 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.61 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 28.0 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.23 W/kg
Maximum value of SAR (measured) = 22.7 W/kg



0 dB = 22.7 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/25

System Check_Head_2600MHz_20171125

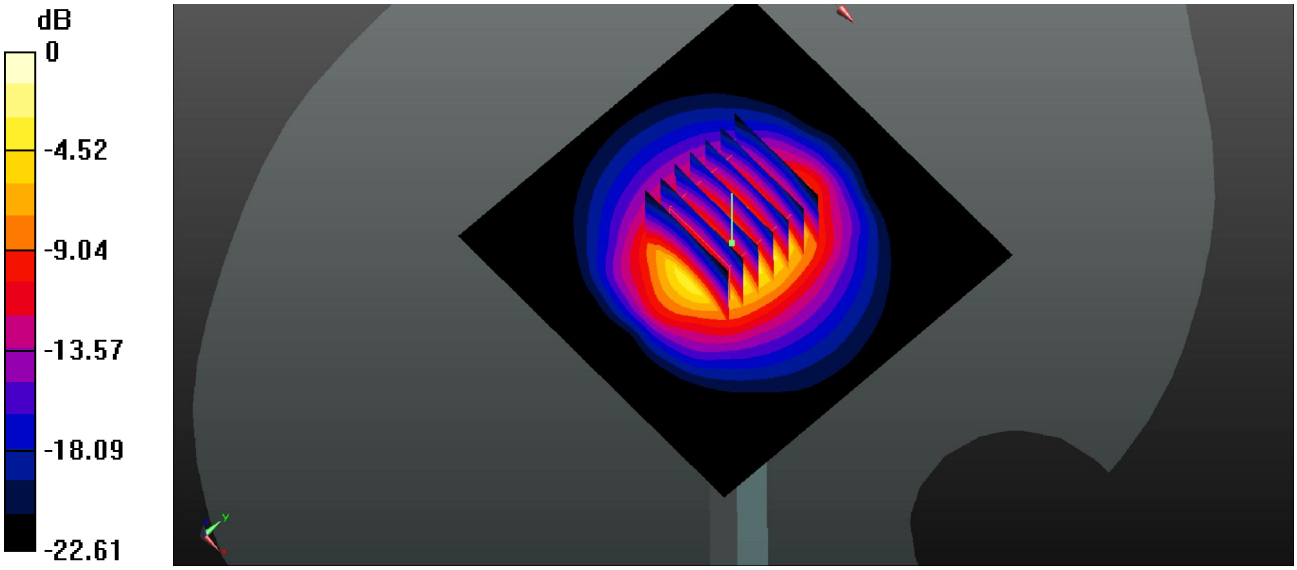
DUT: D2600V2-SN:1112

Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600_Medium parameters used: f = 2600 MHz; σ = 2.052 S/m; ε_r = 39.298; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature ：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.60, 7.60, 7.60); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.7 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.05 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 32.3 W/kg
SAR(1 g) = 15 W/kg; SAR(10 g) = 6.64 W/kg
Maximum value of SAR (measured) = 23.6 W/kg



0 dB = 23.6 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

System Check_Body_750MHz_20171124

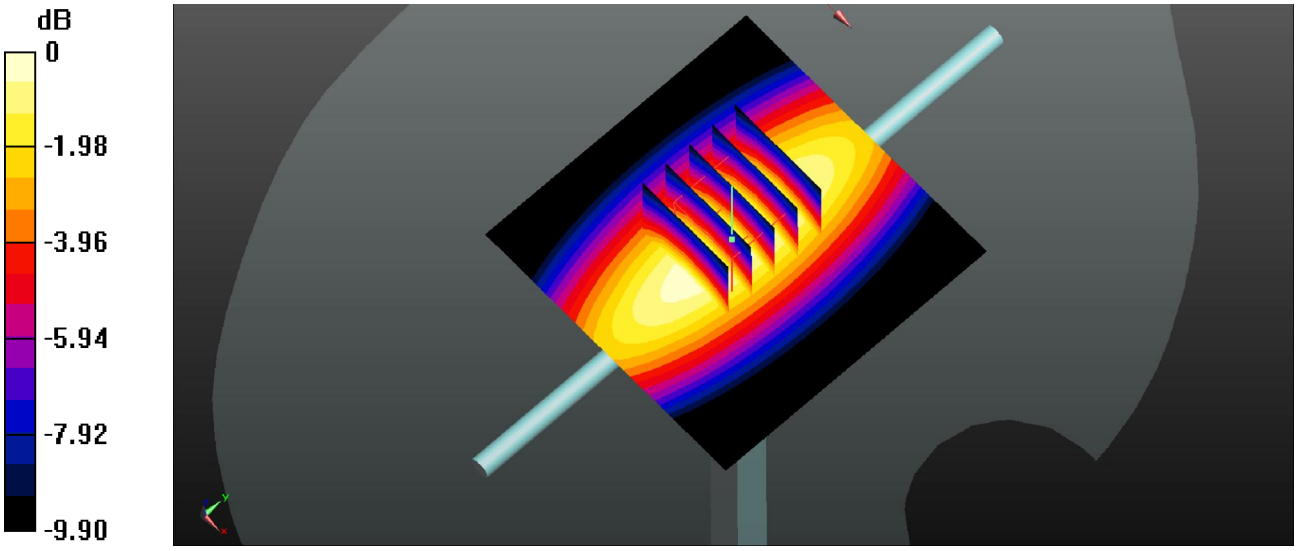
DUT: D750V3-SN:1087

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750_Medium parameters used: f = 750 MHz; σ = 0.971 S/m; ε_r = 57.377; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.68, 10.68, 10.68); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.00 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.96 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.31 W/kg
SAR(1 g) = 2.27 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 2.96 W/kg



0 dB = 2.96 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/22

System Check_Body_835MHz_20171122

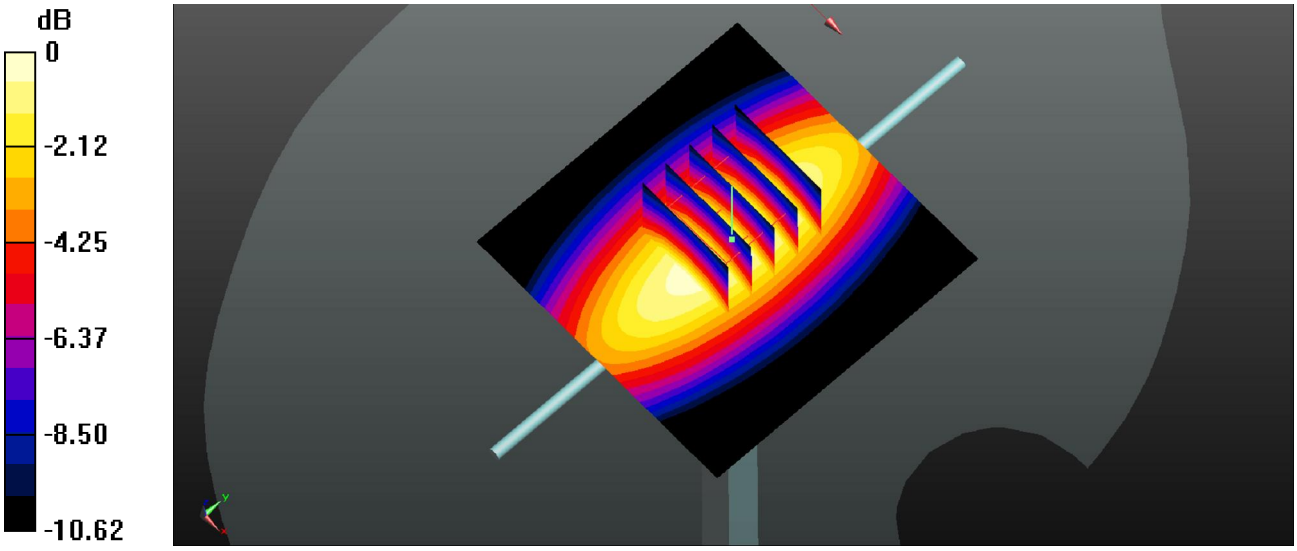
DUT: D835V2-SN:4d151

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_Medium parameters used: f = 835 MHz; σ = 0.984 S/m; ε_r = 55.080; ρ = 1000kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.37 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.84 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.83 W/kg
SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.64 W/kg
Maximum value of SAR (measured) = 3.36 W/kg



0 dB = 3.36 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

System Check_Body_1900MHz_20171124

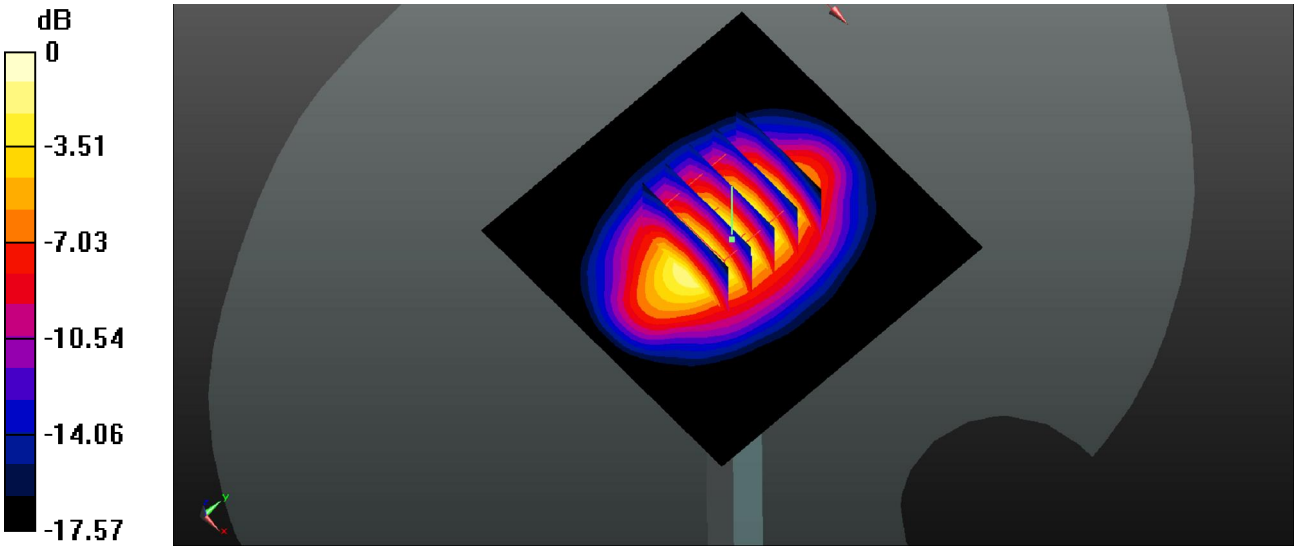
DUT: D1900V2-SN:5d170

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_Medium parameters used: f = 1900 MHz; σ = 1.576 S/m; ε_r = 51.153; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature ：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.18, 8.18, 8.18); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 16.1 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 86.56 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(1 g) = 10.5 W/kg; SAR(10 g) = 5.46 W/kg
Maximum value of SAR (measured) = 16.1 W/kg



0 dB = 16.1 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/27

System Check_Body_2450MHz_20171127

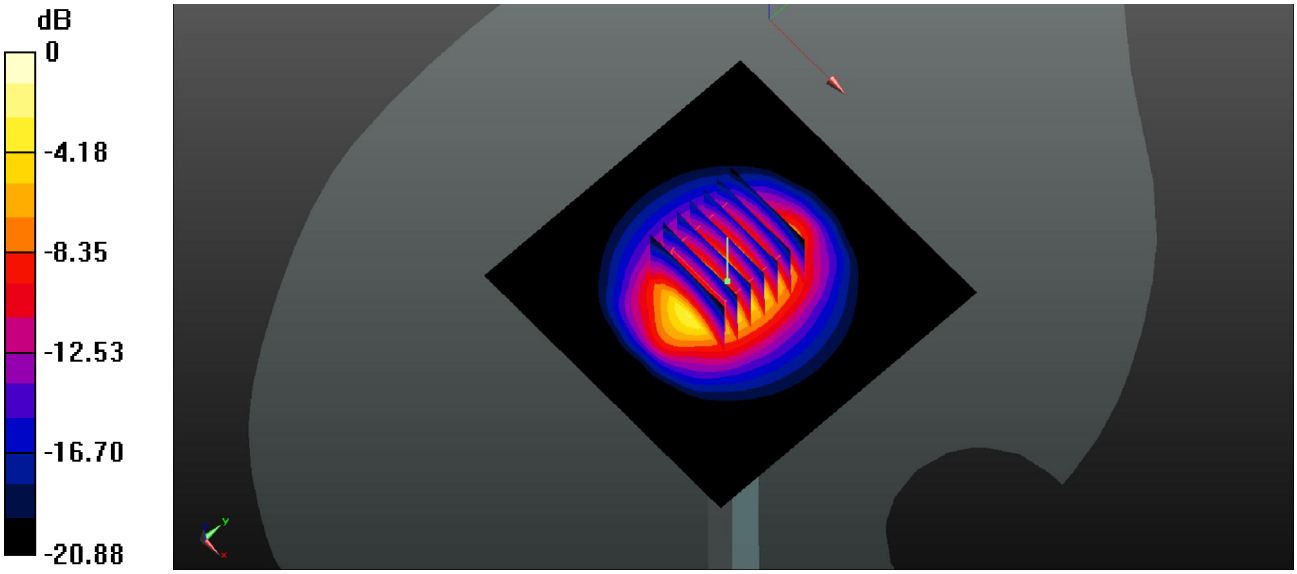
DUT: D2450V2-SN:908

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450_Medium parameters used: f = 2450 MHz; σ = 1.988 S/m; ε_r = 54.096; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.89, 7.89, 7.89); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.4 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.08 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.29 W/kg
Maximum value of SAR (measured) = 22.3 W/kg



0 dB = 22.3 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/23

System Check_Body_2600MHz_20171123

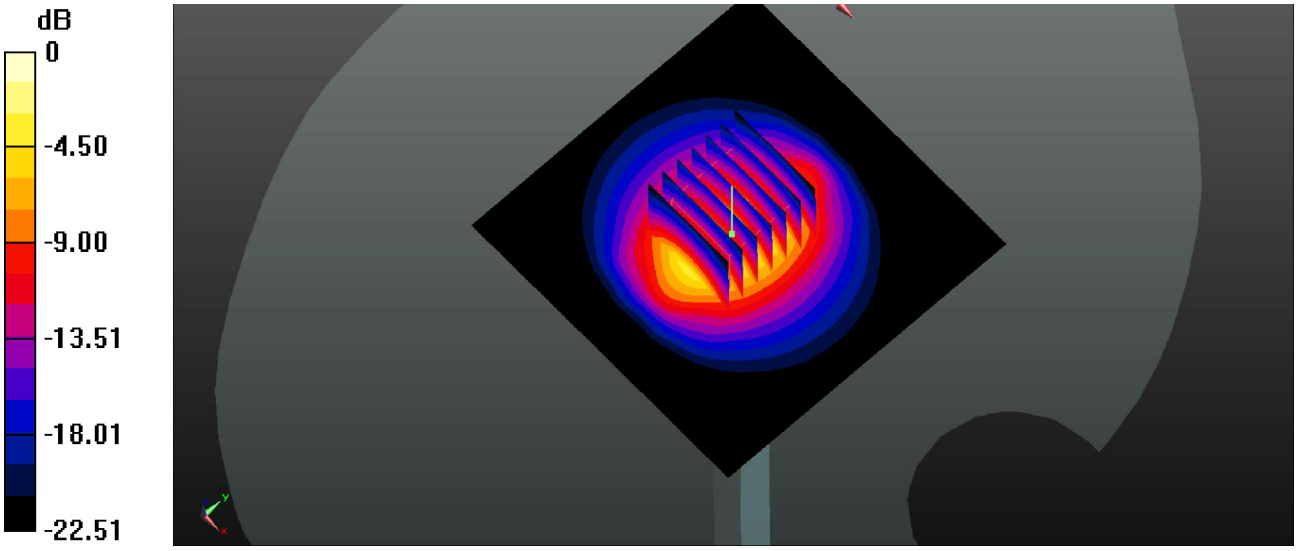
DUT: D2600V2-SN:1112

Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: MSL_2600_Medium parameters used: f = 2600 MHz; σ = 2.148 S/m; ε_r = 53.076; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature ：22.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.67, 7.67, 7.67); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.7 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.38 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 29.8 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.14 W/kg
Maximum value of SAR (measured) = 23.8 W/kg



0 dB = 23.8 W/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

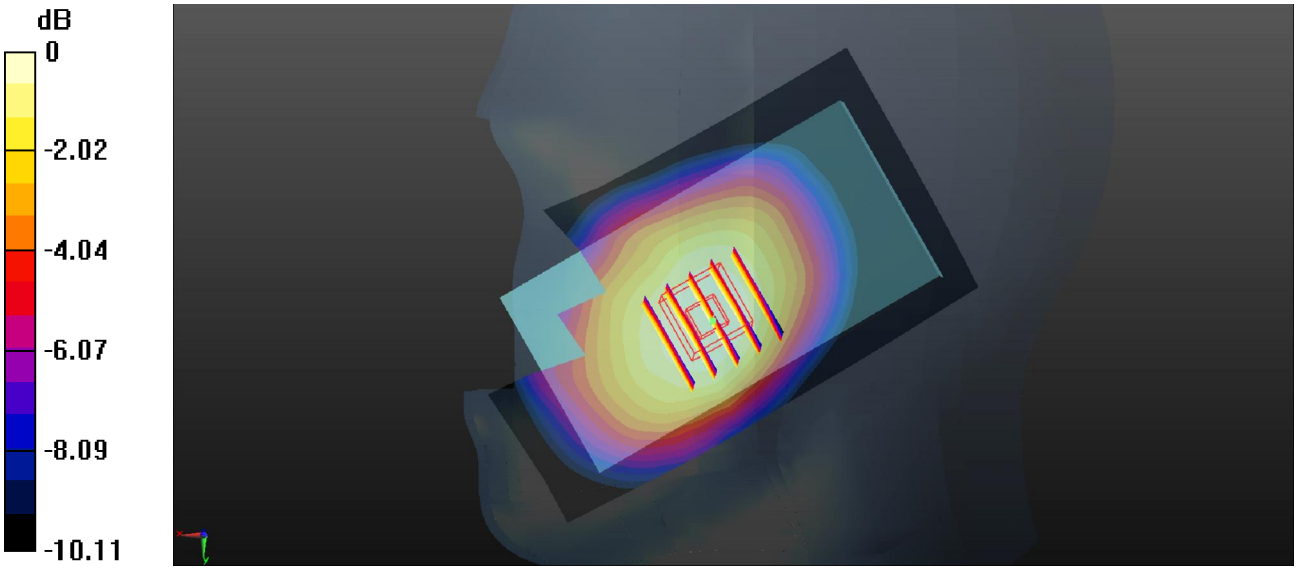
01_CDMA2000 BC10_RC3 SO55_Right Cheek_0mm_Ch580

Communication System: UID 0, CDMA2000 (0); Frequency: 820.5 MHz;Duty Cycle: 1:1
Medium: HSL_835_Medium parameters used: f = 820.5 MHz; σ = 0.911 S/m; ε_r = 43.08; ρ = 1000 kg/m^3
Ambient Temperature：23.9 ℃; Liquid Temperature ：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.61, 10.61, 10.61); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch580/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.32 W/kg

Ch580/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.138 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 1.090 W/kg; SAR(10 g) = 0.824 W/kg
Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.27 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

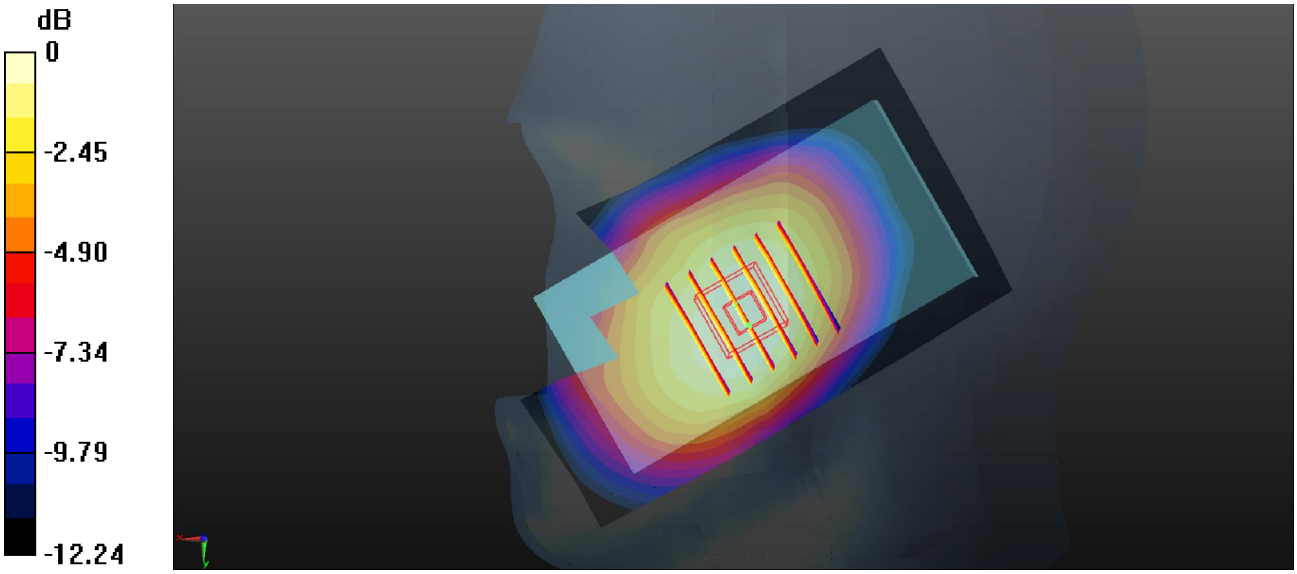
02_CDMA2000 BC0_RC3 SO55_Right Cheek_0mm_Ch384

Communication System: UID 0, CDMA2000 (0); Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: HSL_835_Medium parameters used: f = 836.52 MHz; σ = 0.925 S/m; ε_r = 42.895; ρ = 1000kg/m^3
Ambient Temperature：23.9 ℃; Liquid Temperature ：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.61, 10.61, 10.61); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch384/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.39 W/kg

Ch384/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.650 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 1.150 W/kg; SAR(10 g) = 0.861 W/kg
Maximum value of SAR (measured) = 1.33 W/kg



0 dB = 1.33 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/25

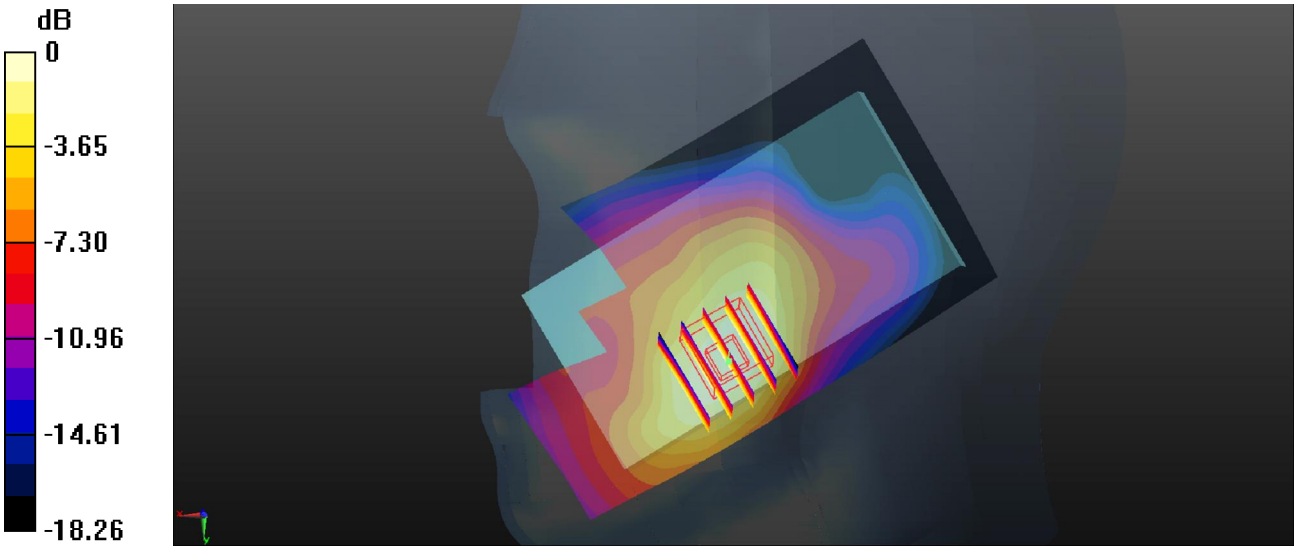
03_CDMA2000 BC1_RC3 SO55_Right Cheek_0mm_Ch600

Communication System: UID 0, CDMA2000 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900_Medium parameters used: f = 1880 MHz; σ = 1.421 S/m; ε_r = 38.882; ρ = 1000 kg/m^3
Ambient Temperature：23.8 ℃; Liquid Temperature ：22.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.64, 8.64, 8.64); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch600/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.42 W/kg

Ch600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.957 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 1.060 W/kg; SAR(10 g) = 0.645 W/kg
Maximum value of SAR (measured) = 1.48 W/kg



0 dB = 1.48 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

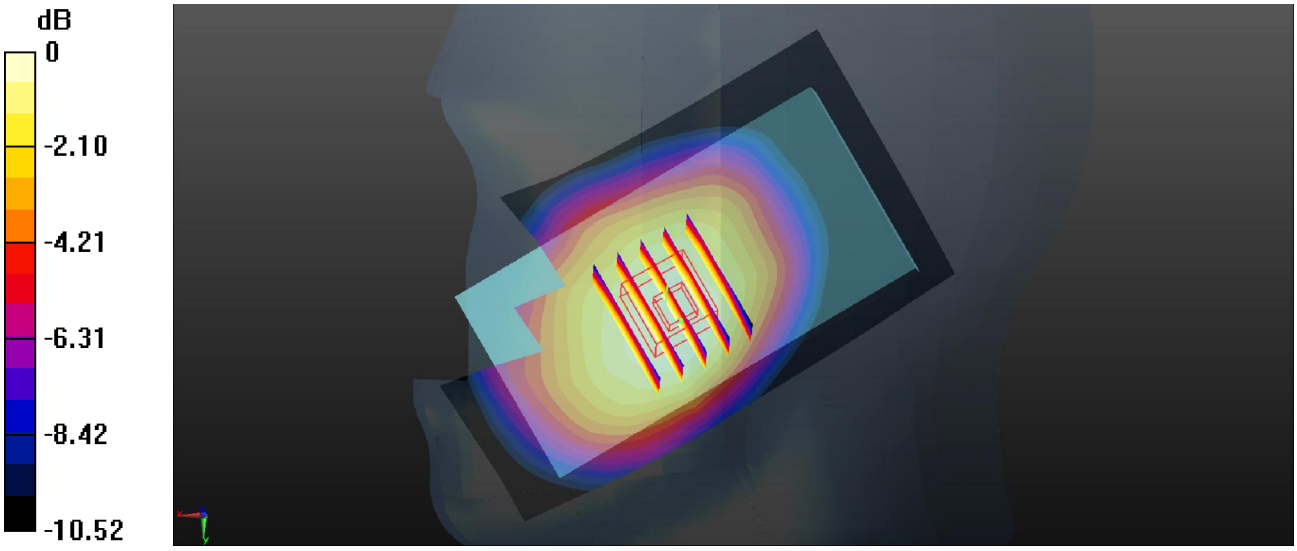
04_LTE Band 13_10M_QPSK_1RB_25offset_Right Cheek_0mm_Ch23230

Communication System: UID 0, FDD-LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: HSL_750_Medium parameters used: f = 782 MHz; σ = 0.935 S/m; ε_r = 43.017; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature ：22.3 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.92, 10.92, 10.92); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch23230/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.812 W/kg

Ch23230/Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.816 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.840 W/kg
SAR(1 g) = 0.678 W/kg; SAR(10 g) = 0.514 W/kg
Maximum value of SAR (measured) = 0.775 W/kg



0 dB = 0.775 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/24

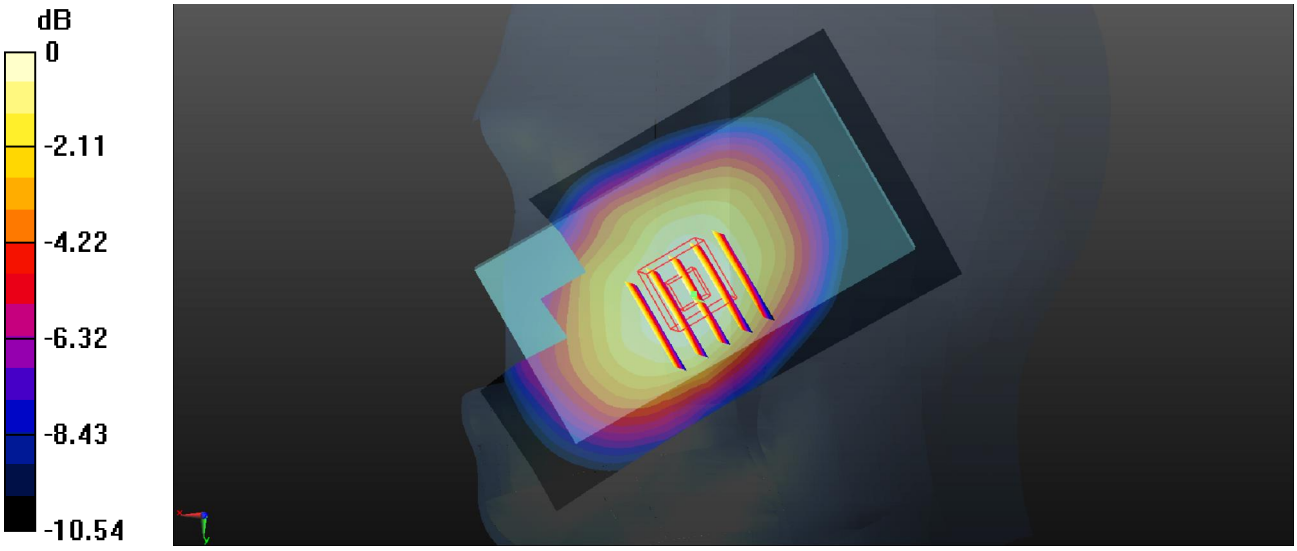
05_LTE Band 26_15M_QPSK_1RB_37offset_Right Cheek_0mm_Ch26865

Communication System: UID 0, FDD-LTE (0); Frequency: 831.5 MHz;Duty Cycle: 1:1
Medium: HSL_835_Medium parameters used: f = 831.5 MHz; σ = 0.921 S/m; ε_r = 42.959; ρ = 1000 kg/m^3
Ambient Temperature：23.9 ℃; Liquid Temperature ：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.61, 10.61, 10.61); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch26865/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.15 W/kg

Ch26865/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.982 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.906 W/kg; SAR(10 g) = 0.682 W/kg
Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 1.07 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/25

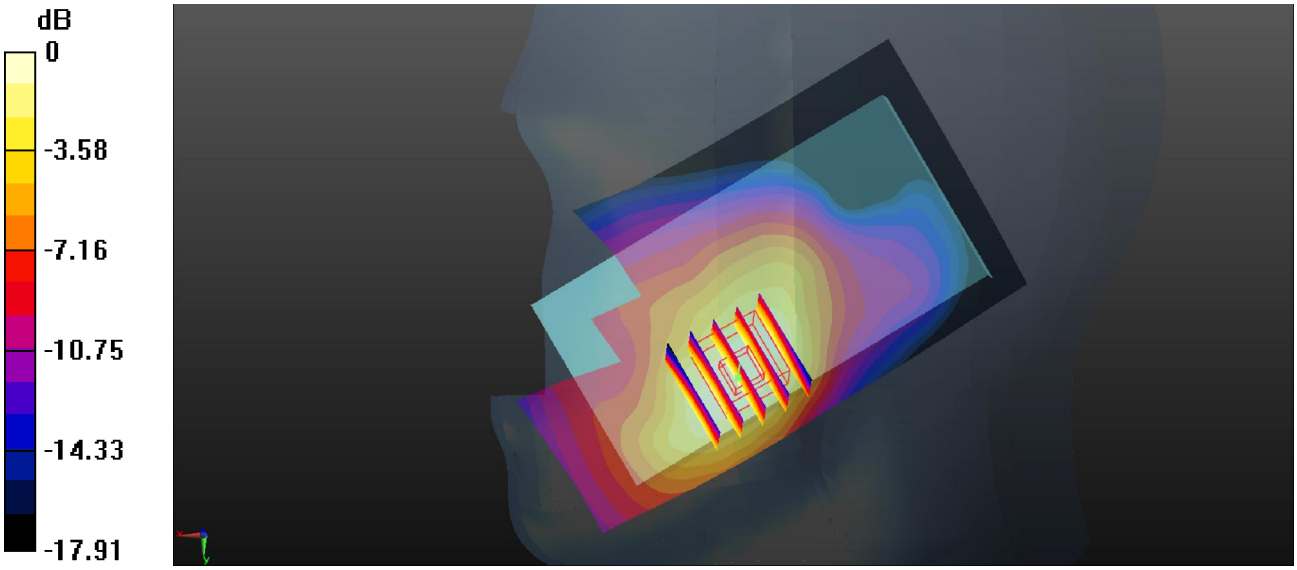
06_1_LTE Band 25_20M_QPSK_1RB_49offset_Right Cheek_0mm_Ch26340

Communication System: UID 0, FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900_Medium parameters used: f = 1880 MHz; σ = 1.421 S/m; ε_r = 38.882; ρ = 1000 kg/m^3
Ambient Temperature：23.8 ℃; Liquid Temperature ：22.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(8.64, 8.64, 8.64); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch26340/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

Ch26340/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.871 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.767 W/kg; SAR(10 g) = 0.467 W/kg
Maximum value of SAR (measured) = 1.05 W/kg



0 dB = 1.05 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/25

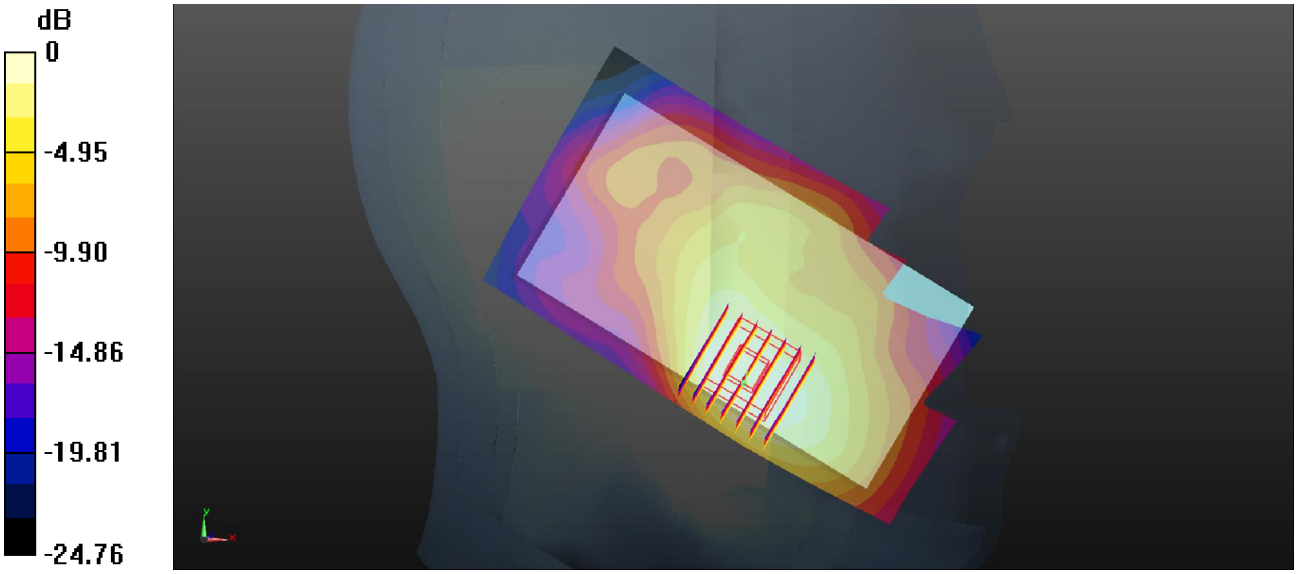
07_LTE Band 41_20M_QPSK_1RB_49offset_Left Cheek_0mm_Ch41490

Communication System: UID 0, TDD-LTE (0); Frequency: 2680 MHz;Duty Cycle: 1:1.59
Medium: HSL_2600_Medium parameters used: f = 2680 MHz; σ = 2.148 S/m; ε_r = 38.961; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature ：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.60, 7.60, 7.60); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch41490/Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.87 W/kg

Ch41490/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.298 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 1.180W/kg; SAR(10 g) = 0.630 W/kg
Maximum value of SAR (measured) = 1.75 W/kg



0 dB = 1.75 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/27

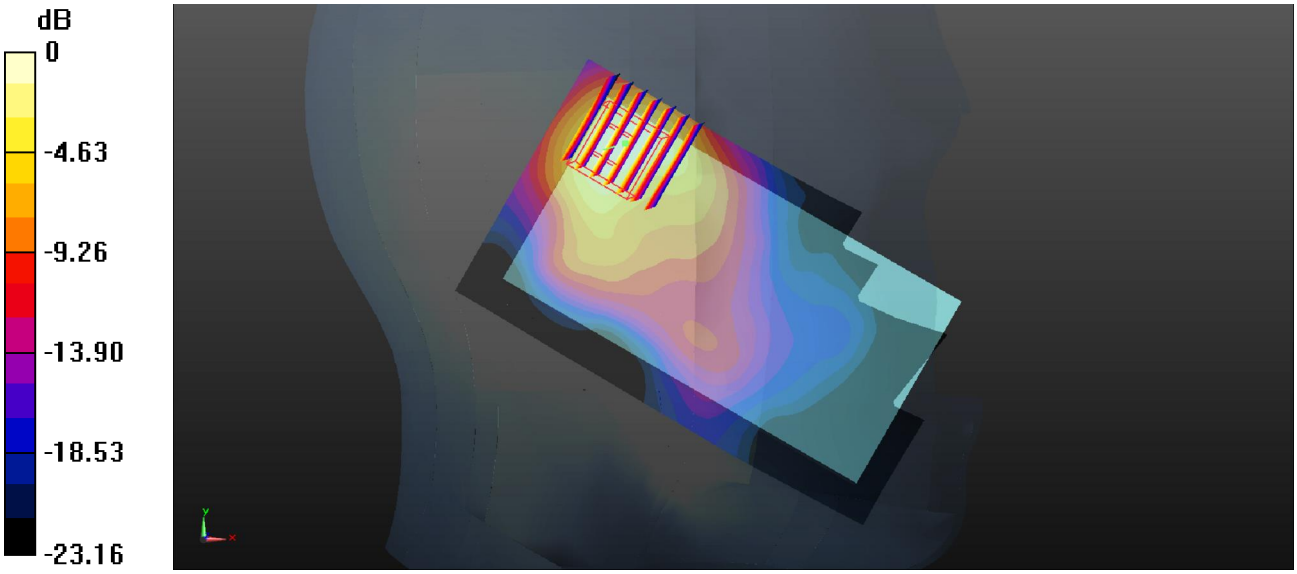
08_WLAN2.4GHz_802.11b 1Mbps_Left Cheek_0mm_Ch6

Communication System: UID 0, 802.11b (0); Frequency: 2437 MHz;Duty Cycle: 1:1.029
Medium: HSL_2450_Medium parameters used: f = 2437 MHz; σ = 1.845 S/m; ε_r = 39.709; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature ：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(7.81, 7.81, 7.81); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch6/Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.38 W/kg

Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.41 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 1.79 W/kg
SAR(1 g) = 0.890 W/kg; SAR(10 g) = 0.416 W/kg
Maximum value of SAR (measured) = 1.43 W/kg



0 dB = 1.43 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2017/11/22

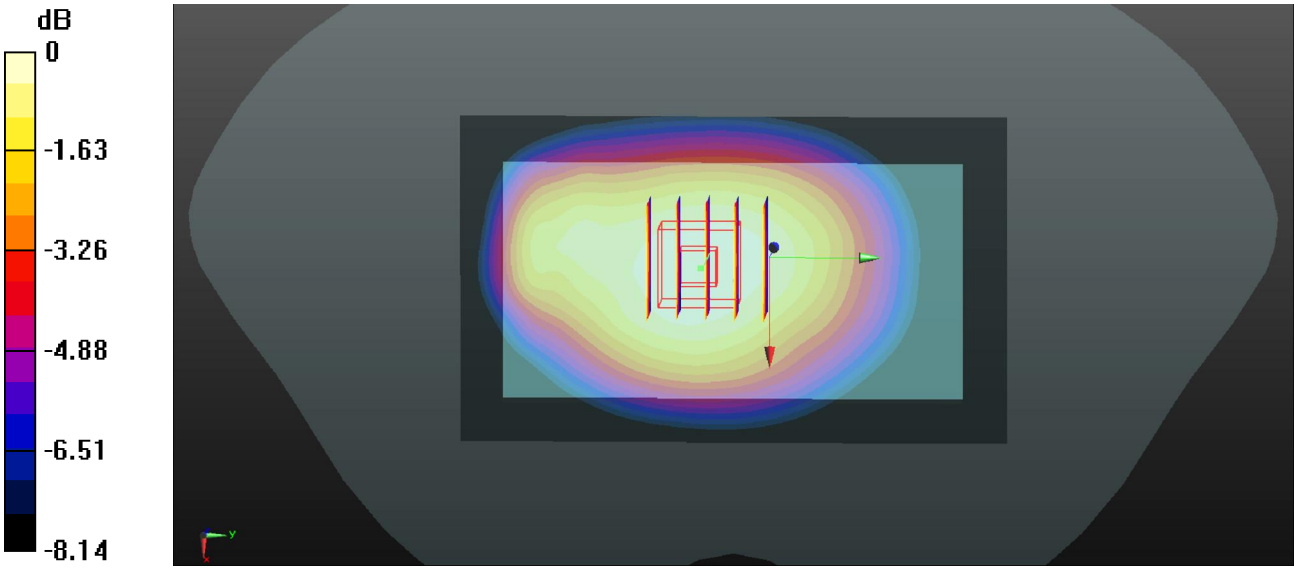
09_CDMA2000 BC10_RTAP 153.6Kbps_Back_10mm_Ch476

Communication System: UID 0, CDMA2000 (0); Frequency: 817.9 MHz;Duty Cycle: 1:1
Medium: MSL_835_Medium parameters used: f = 817.9 MHz; σ = 0.967 S/m; ε_r = 55.257; ρ = 1000kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2016/11/28;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2017/10/24
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

Ch476/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

Ch476/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.47 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.990 W/kg; SAR(10 g) = 0.756 W/kg
Maximum value of SAR (measured) = 1.17 W/kg



0 dB = 1.17 W/kg