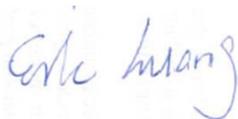


# FCC SAR Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : CDMA/LTE Dual-Mode Digital Mobile Phone  
BRAND NAME : ZTE  
MODEL NAME : ZTE N9511  
FCC ID : SRQ-ZTEN9511  
STANDARD : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2003

The product was completely tested on Jul. 11, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



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



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**1. Statement of Compliance**

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION ZTE N9511** are as follows.

**<Highest SAR Summary>**

Exposure Position	Frequency Band	Highest Reported 1g-SAR (W/kg)	Equipment Class	Highest Reported 1g-SAR (W/kg)
Head	CDMA 2000 BC0	0.63	PCE	1.41
	CDMA 2000 BC1	0.50		
	CDMA 2000 BC15	0.66		
	LTE Band 2	1.05		
	LTE Band 4	1.41		
	LTE Band 25	1.26		
	WLAN 2.4GHz Band	0.07	DTS	0.07
Hotspot (1cm Gap)	CDMA 2000 BC0	1.00	PCE	1.27
	CDMA 2000 BC1	1.23		
	CDMA 2000 BC15	1.27		
	LTE Band 2	0.64		
	LTE Band 4	0.87		
	LTE Band 25	0.73		
	WLAN 2.4GHz Band	0.11	DTS	0.11
Body-worn (1cm Gap)	CDMA 2000 BC0	1.01	PCE	1.28
	CDMA 2000 BC1	1.15		
	CDMA 2000 BC15	1.28		
	LTE Band 2	0.64		
	LTE Band 4	0.88		
	LTE Band 25	0.73		
	WLAN 2.4GHz Band	0.11	DTS	0.11



<Highest Simultaneous Transmission SAR>

Exposure Position	Frequency Band	Equipment Class	Highest Reported Simultaneous Transmission 1g-SAR (W/kg)
Head	CDMA2000 BC1	PCE	1.58
	LTE Band 2		
	WLAN 2.4GHz Band	DTS	
Head	CDMA2000 BC0	PCE	1.58
	LTE Band 25	DSS	
	WLAN 2.4GHz Band		

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 1528-2003.



## 2. Administration Data

### 2.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958

### 2.2 Applicant

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

### 2.3 Manufacturer

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

### 2.4 Application Details

Date of Start during the Test	Jul. 03, 2013
Date of End during the Test	Jul. 11, 2013



### 3. General Information

#### 3.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT	CDMA/LTE Dual-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	ZTE N9511
FCC ID	SRQ-ZTEN9511
MEID Code	99000142910335
Wireless Technology and Frequency Range	CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC15: 1711.25 MHz ~ 1753.75 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	<ul style="list-style-type: none"><li>• CDMA2000 : 1xRTT/1xEv-Do(Rel.0)/1xEv-Do(Rev.A)</li><li>• LTE: QPSK, 16QAM</li><li>• 802.11b/g/n HT20</li><li>• Bluetooth v2.1+EDR , Bluetooth v3.0 , Bluetooth v4.0</li></ul>
Antenna Type	CDMA: PIFA Antenna LTE: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna
HW Version	cyfA
SW Version	N9511V1.0.0B01
EUT Stage	Identical Prototype
<b>Remark:</b> The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	



**3.2 Maximum RF output power among production units**

Maximum Average Power for Production Unit (dBm)			
Band	CDMA2000 BC0	CDMA2000 BC1	CDMA2000 BC15
Mode			
1xRTT RC1 SO55	24.5	24.5	25
1xRTT RC3 SO55	24.5	24.5	25
1xRTT RC3 SO32 (+ F-SCH)	24.5	24.5	25
1xRTT RC3 SO32 (+SCH)	24.5	24.5	25
1xEV-DO Rev 0 (RTAP 153.6kbps)	24.5	24.5	25
1xEV-DO Rev A (RETAP 4096bits)	24.5	24.5	25

LTE Band 2					
Modulation	BW (MHz)	RB size	Target MPR	Normal Power	Reduced Power
QPSK	10	≤ 12	0	24	18
QPSK	10	> 12	1	23	17
16QAM	10	≤ 12	1	23	17
16QAM	10	> 12	2	22	16
QPSK	5	≤ 8	0	24	18
QPSK	5	> 8	1	23	17
16QAM	5	≤ 8	1	23	17
16QAM	5	> 8	2	22	16
QPSK	3	≤ 4	0	24	18
QPSK	3	> 4	1	23	17
16QAM	3	≤ 4	1	23	17
16QAM	3	> 4	2	22	16
QPSK	1.4	≤ 5	0	24	18
QPSK	1.4	> 5	1	24	18
16QAM	1.4	≤ 5	1	23	17
16QAM	1.4	> 5	2	23	17



LTE Band 4					
Modulation	BW (MHz)	RB size	Target MPR	Normal Power	Reduced Power
QPSK	10	≤ 12	0	23.5	18
QPSK	10	> 12	1	22.5	17
16QAM	10	≤ 12	1	22.5	17
16QAM	10	> 12	2	21.5	16
QPSK	5	≤ 8	0	23.5	18
QPSK	5	> 8	1	22.5	17
16QAM	5	≤ 8	1	22.5	17
16QAM	5	> 8	2	21.5	16
QPSK	3	≤ 4	0	23.5	18
QPSK	3	> 4	1	22.5	17
16QAM	3	≤ 4	1	22.5	17
16QAM	3	> 4	2	21.5	16
QPSK	1.4	≤ 5	0	23.5	18
QPSK	1.4	> 5	1	23.5	18
16QAM	1.4	≤ 5	1	22.5	17
16QAM	1.4	> 5	2	22.5	17

LTE Band 25					
Modulation	BW (MHz)	RB size	Target MPR	Normal Power	Reduced Power
QPSK	10	≤ 12	0	24	18
QPSK	10	> 12	1	23	17
16QAM	10	≤ 12	1	23	17
16QAM	10	> 12	2	22	16
QPSK	5	≤ 8	0	24	18
QPSK	5	> 8	1	23	17
16QAM	5	≤ 8	1	23	17
16QAM	5	> 8	2	22	16
QPSK	3	≤ 4	0	24	18
QPSK	3	> 4	1	23	17
16QAM	3	≤ 4	1	23	17
16QAM	3	> 4	2	22	16
QPSK	1.4	≤ 5	0	24	18
QPSK	1.4	> 5	1	24	18
16QAM	1.4	≤ 5	1	23	17
16QAM	1.4	> 5	2	23	17

Remark:

1. LTE mode power reduction is triggered when the device in SVLTE mode
2. By design, other RB configurations and higher-order modulation RF output power will never exceed maximum output power listed above; detailed information is included in "tune-up procedure" exhibit.
3. LTE MPR implementation is the same for normal mode and power reduction mode.



Maximum Target Average Power for Production Unit			
Mode / Band	IEEE 802.11		
	b	g	n-HT20
WLAN 2.4GHz Band	14.5	14	13

Mode / Band	Maximum Target Average Power for Production Unit			
	1Mbps (GFSK)	2Mbps ( $\pi/4$ -DQPSK)	3Mbps (8-DPSK)	BT4.0-LE (GFSK)
Bluetooth	1	0.5	0.5	1



The table below summarized necessary items addressed in KDB 941225 D05 v02r02.

FCC ID	SRQ-ZTEN9511																																													
EUT	CDMA/LTE Dual-Mode Digital Mobile Phone																																													
Operating Frequency Range of each LTE transmission band	LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz																																													
Channel Bandwidth	1.4MHz, 3MHz, 5MHz, 10MHz																																													
Transmission (H, M, L) channel numbers and frequencies in each LTE band																																														
LTE Band 4																																														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz																																							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)																																						
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715																																						
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5																																						
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750																																						
LTE Band 2																																														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz																																							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)																																						
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855																																						
M	18900	1880	18900	1880	18900	1880	18900	1880																																						
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905																																						
LTE Band 25																																														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz																																							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)																																						
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855																																						
M	26365	1882.5	26365	1882.5	26365	1882.5	26365	1882.5																																						
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910																																						
E category, uplink modulations used	Category 3, QPSK, and 16QAM																																													
LTE transmitter and antenna implementation (standalone or sharing hardware components / antennas )	A primary antenna is used for LTE transmitting and receiving, standalone. A 2 <sup>nd</sup> antenna is used for LTE receiving only, standalone.																																													
LTE Voice / Data requirements	Data only																																													
LTE MPR permanently built-in by design	Yes, per 3GPP TS 36.101 v11.0.0 <b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</b> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 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>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 2</td> </tr> </tbody> </table>								Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)																																							
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																								
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1																																							
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																							
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2																																							
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing.																																													
Base station simulator used for Testing	Anritsu MT8820C																																													
Power reduction applied to satisfy SAR compliance	1. Yes, LTE mode power reduction is triggered when the device in SVLTE mode																																													



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

CDMA2000 1x voice BC0/BC15/BC1 -Output power level-	LTE data mode Band 2/25	LTE data mode Band 4	Remark
$P \geq 16.5$	18	18	LTE Power reduction triggered
$P < 16.5$	24	23.5	LTE in normal full power mode

**Table 3.1: Power Reduction Implementation (Unit: dBm)**



### 3.3 Applied Standard

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC KDB 447498 D01 v05r01
- FCC KDB 648474 D04 v01r01
- FCC KDB 248227 D01 v01r02
- FCC KDB 941225 D01 v02
- FCC KDB 941225 D05 v02r02
- FCC KDB 941225 D06 v01r01
- FCC KDB 865664 D01 v01r01

### 3.4 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

### 3.5 Test Conditions

#### 3.5.1 Ambient Condition

Ambient Temperature	20 to 24 °C
Humidity	< 60 %

#### 3.5.2 Test Configuration

For WWAN SAR testing, the device was controlled by using a base station emulator. Communication between the device and the emulator was established by air link. The distance between the EUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT.

During WLAN SAR testing EUT is configured with the WLAN continuous TX tool, and the transmission duty factor was monitored on the spectrum analyzer with zero-span setting

For WLAN SAR testing, WLAN engineering testing software installed on the EUT can provide continuous transmitting RF signal.

## **4. Specific Absorption Rate (SAR)**

### **4.1 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.

### **4.2 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 ( $\rho$ ). The equation description is as below:

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

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

SAR measurement can be either related to the temperature elevation in tissue by

$$\text{SAR} = c \left( \frac{\delta T}{\delta t} \right)$$

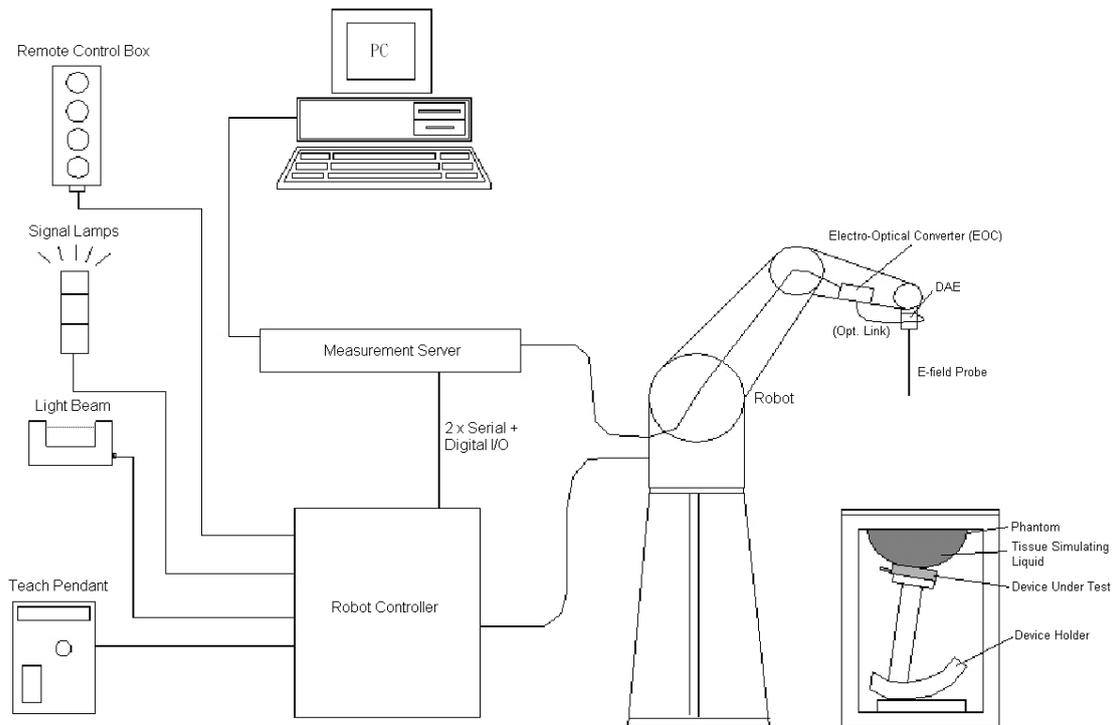
Where: C is the specific heat capacity,  $\delta T$  is the temperature rise and  $\delta t$  is the exposure duration, or related to the electrical field in the tissue by

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

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

## 5. SAR Measurement System



**Fig 5.1 SPEAG DASY System Configurations**

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Component details are described in in the following sub-sections.

**5.1 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.

**5.1.1 E-Field Probe Specification**

**<EX3DV4 Probe>**

<b>Construction</b>	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz to 6 GHz; Linearity: $\pm 0.2$ dB	
<b>Directivity</b>	$\pm 0.3$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)	
<b>Dynamic Range</b>	10 $\mu$ W/g to 100 mW/g; Linearity: $\pm 0.2$ dB (noise: typically $< 1$ $\mu$ W/g)	
<b>Dimensions</b>	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

**Fig 5.2 Photo of EX3DV4**

**5.1.2 E-Field Probe Calibration**

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than  $\pm 10\%$ . The spherical isotropy shall be evaluated and within  $\pm 0.25$ dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

**5.2 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 5.3 Photo of DAE**

### 5.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability  $\pm 0.035$  mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)



Fig 5.4 Photo of DASY5

### 5.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128 MB), RAM (DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.



Fig 5.5 Photo of Server for DASY5

### 5.5 Phantom

<SAM Twin Phantom>

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



Fig 5.6 Photo of SAM 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.

### 5.6 Device Holder

<Device Holder for SAM Twin Phantom>

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ . The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



Fig 5.7 Device Holder



## 5.7 Data Storage and Evaluation

### 5.7.1 Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

### 5.7.2 Data Evaluation

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software :

<b>Probe parameters :</b>	- Sensitivity	Norm <sub>i</sub> , a <sub>i0</sub> , a <sub>i1</sub> , a <sub>i2</sub>
	- Conversion factor	ConvF <sub>i</sub>
	- Diode compression point	dcp <sub>i</sub>
<b>Device parameters :</b>	- Frequency	f
	- Crest factor	cf
<b>Media parameters :</b>	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as :

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with  $V_i$  = compensated signal of channel i, (i = x, y, z)  
 $U_i$  = input signal of channel i, (i = x, y, z)  
 cf = crest factor of exciting field (DASY parameter)  
 dcp<sub>i</sub> = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated :

$$\text{E-field Probes : } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \cdot \text{ConvF}}}$$

$$\text{H-field Probes : } H_i = \sqrt{V_i \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}}$$

with  $V_i$  = compensated signal of channel i, (i = x, y, z)  
 $\text{Norm}_i$  = sensor sensitivity of channel i, (i = x, y, z),  $\mu\text{V}/(\text{V/m})^2$  for E-field Probes  
 ConvF = sensitivity enhancement in solution  
 $a_{ij}$  = sensor sensitivity factors for H-field probes  
 f = carrier frequency [GHz]  
 $E_i$  = electric field strength of channel i in V/m  
 $H_i$  = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude) :

$$E_{\text{tot}} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$\text{SAR} = E_{\text{tot}}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with SAR = local specific absorption rate in mW/g  
 $E_{\text{tot}}$  = total field strength in V/m  
 $\sigma$  = conductivity in [mho/m] or [Siemens/m]  
 $\rho$  = equivalent tissue density in  $\text{g}/\text{cm}^3$

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.



**5.8 Test Equipment List**

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 18, 2011	Nov. 16, 2013
SPEAG	1750MHz System Validation Kit	D1750V2	1069	Jul. 13, 2012	Jul. 12, 2013
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 21, 2011	Nov. 16, 2013
SPEAG	2450MHz System Validation Kit	D2450V2	736	Jul. 25, 2011	Jul. 24, 2013
SPEAG	Data Acquisition Electronics	DAE4	1210	Jun. 19, 2013	Jun. 18, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	Jun. 20, 2013	Jun. 19, 2014
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1477	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1479	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201074235	Nov. 29, 2012	Nov. 28, 2013
Agilent	Wireless Communication Test Set	E5515C	MY48367160	Oct. 25, 2012	Oct. 24, 2013
R&S	Universal Radio Communication Tester	CMU200	116456	Sep. 19, 2012	Sep. 18, 2013
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	Aug. 31, 2012	Aug. 30, 2013
R&S	Signal Generator	SMR40	100455	Jan. 18, 2013	Jan. 17, 2014
Agilent	Power Meter	E4416A	MY45101555	Aug. 22, 2012	Aug. 21, 2013
Agilent	Power Sensor	E9327A	MY44421198	Aug. 22, 2012	Aug. 21, 2013
Woken	Attenuator 1	WK0602-XX	N/A	Note 4	
PE	Attenuator 2	PE7005-10	N/A	Note 4	
PE	Attenuator 3	PE7005- 3	N/A	Note 4	
Agilent	Dual Directional Coupler	778D	50422	Note 4	
Agilent	Dielectric Probe Kit	85070D	US01440205	Note 5	
AR	Power Amplifier	5S1G4M2	0328767	Note 6	
R&S	Spectrum Analyzer	FSP30	101399	May 23, 2013	May 22, 2014

**Table 5.1 Test Equipment List**

**Note:**

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. Referring to KDB 865664 D01v01r01, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D835V2, SN: 4D091, D1900V2, SN: 5d118 and D2450V2, SN: 736 can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.
4. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
5. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Agilent.
6. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it
7. Attenuator 1 insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.

## 6. 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. 6.1. 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. 6.2.

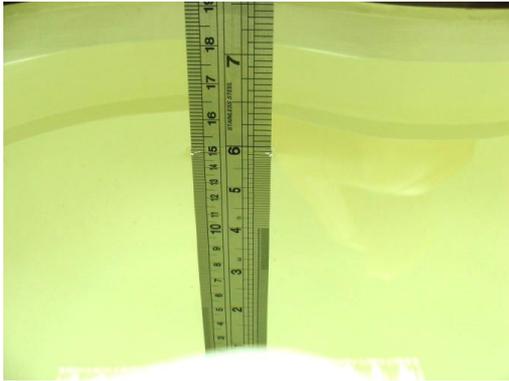


Fig 6.1 Photo of Liquid Height for Head SAR



Fig 6.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquid.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity ( $\sigma$ )	Permittivity ( $\epsilon_r$ )
<b>For Head</b>								
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
<b>For Body</b>								
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

Table 6.1 Recipes of Tissue Simulating Liquid



The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85070D Dielectric Probe Kit and an Agilent Network Analyzer.

The following table shows the measuring results for simulating liquid.

Frequency (MHz)	Liquid Type	Liquid Temp. (°C)	Conductivity ( $\sigma$ )	Permittivity ( $\epsilon_r$ )	Conductivity Target ( $\sigma$ )	Permittivity Target ( $\epsilon_r$ )	Delta ( $\sigma$ ) (%)	Delta ( $\epsilon_r$ ) (%)	Limit (%)	Date
835	Head	21.3	0.885	41.103	0.90	41.5	-1.67	-0.96	±5	Jul. 05, 2013
835	Head	21.3	0.883	41.014	0.90	41.5	-1.89	-1.17	±5	Jul. 11, 2013
1750	Head	21.5	1.393	41.004	1.37	40.1	1.68	2.25	±5	Jul. 06, 2013
1750	Head	21.1	1.388	41.364	1.37	40.1	1.31	3.15	±5	Jul. 11, 2013
1900	Head	21.1	1.426	38.855	1.40	40.0	1.86	-2.86	±5	Jul. 05, 2013
1900	Head	21.5	1.424	38.928	1.40	40.0	1.71	-2.68	±5	Jul. 11, 2013
2450	Head	21.3	1.861	39.575	1.80	39.2	3.39	0.96	±5	Jul. 08, 2013
835	Body	21.4	0.983	54.866	0.97	55.2	1.34	-0.61	±5	Jul. 06, 2013
1750	Body	21.6	1.513	55.5	1.49	53.4	1.54	3.93	±5	Jul. 04, 2013
1900	Body	21.1	1.551	53.249	1.52	53.3	2.04	-0.10	±5	Jul. 03, 2013
1900	Body	21.5	1.552	53.358	1.52	53.3	2.11	0.11	±5	Jul. 07, 2013
2450	Body	21.2	1.929	51.207	1.95	52.7	-1.08	-2.83	±5	Jul. 09, 2013

Table 6.2 Measuring Results for Simulating Liquid

## 7. System Verification Procedures

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

### 7.1 Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

### 7.2 System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:

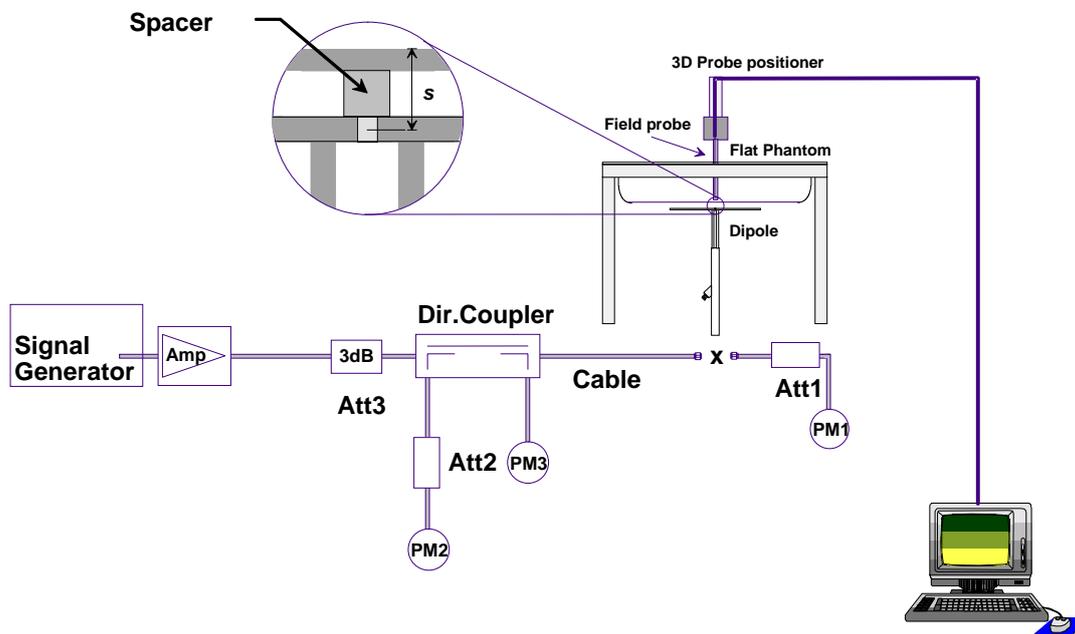


Fig 7.1 System Setup for System Evaluation

1. Signal Generator
2. Amplifier
3. Directional Coupler
4. Power Meter
5. Calibrated Dipole



**Fig 7.2 Photo of Dipole Setup**

**7.3 SAR System Verification Results**

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Table 7.1 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)	Liquid Type	Power fed onto reference dipole (mW)	Targeted SAR <sub>1g</sub> (W/kg)	Measured SAR <sub>1g</sub> (W/kg)	Normalized SAR <sub>1g</sub> (W/kg)	Deviation (%)
Jul. 05, 2013	835	Head	250	9.4	2.22	8.88	-5.53
Jul. 11, 2013	835	Head	250	9.4	2.26	9.04	-3.83
Jul. 06, 2013	1750	Head	250	36.4	8.96	35.84	-1.54
Jul. 11, 2013	1750	Head	250	36.4	8.95	35.8	-1.65
Jul. 05, 2013	1900	Head	250	40.3	10	40	-0.74
Jul. 11, 2013	1900	Head	250	40.3	9.9	39.6	-1.74
Jul. 08, 2013	2450	Head	250	54.8	13.4	53.6	-2.19
Jul. 06, 2013	835	Body	250	9.42	2.24	8.96	-4.88
Jul. 04, 2013	1750	Body	250	37.1	9.09	36.36	-1.99
Jul. 03, 2013	1900	Body	250	41.8	10.4	41.6	-0.48
Jul. 07, 2013	1900	Body	250	41.8	10.3	41.2	-1.44
Jul. 09, 2013	2450	Body	250	52.3	12.3	49.2	-5.93

**Table 7.1 Target and Measurement SAR after Normalized**

## 8. EUT Testing Position

This EUT was tested in ten different positions. They are right cheek/right tilted/left cheek/left tilted for Head, Front/Back/Right Side/Left Side/Top Side/Bottom Side of the EUT with phantom 1 cm gap, as illustrated below, please refer to Appendix D for the test setup photos.

### 8.1 Define two imaginary lines on the handset

- The vertical centerline passes through two points on the front side of the handset - the midpoint of the width  $w_t$  of the handset at the level of the acoustic output, and the midpoint of the width  $w_b$  of the bottom of the handset.
- The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
- 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, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

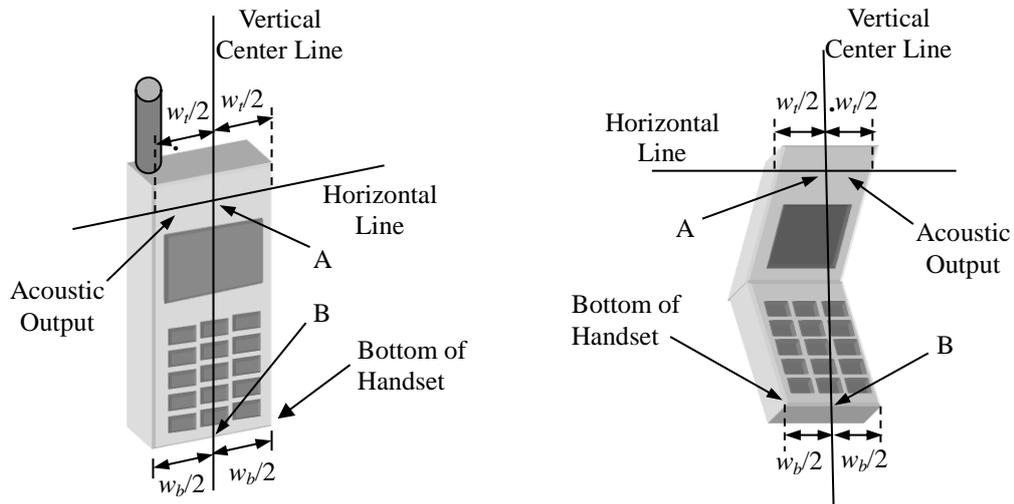


Fig 8.1 Illustration for Handset Vertical and Horizontal Reference Lines

### 8.2 Cheek Position

- (a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- (b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 8.2).

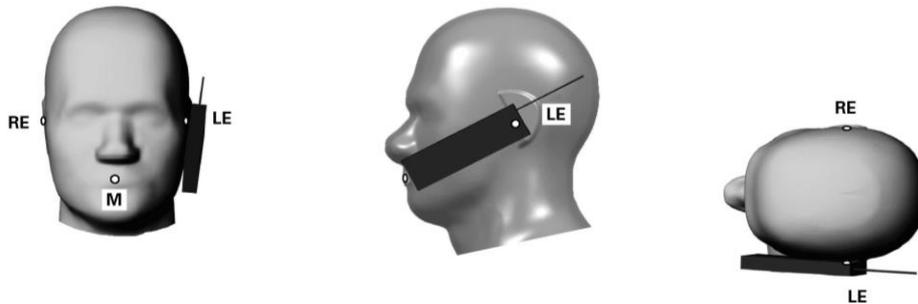


Fig 8.2 Illustration for Cheek Position

### 8.3 Tilted Position

- (a) To position the device in the “cheek” position described above.
- (b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 8.3).

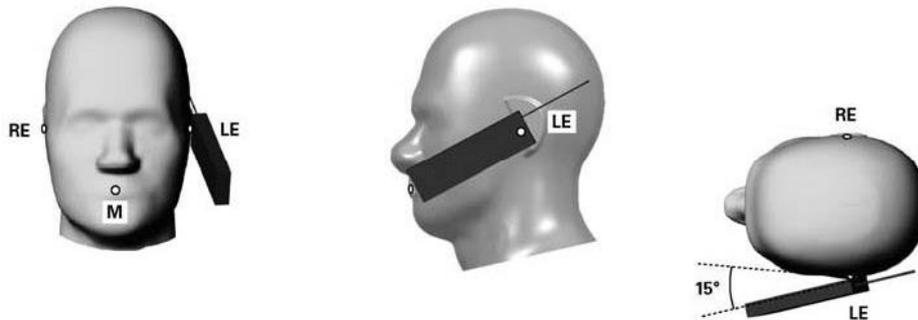


Fig 8.3 Illustration for Tilted Position

## 8.4 Body Worn Position

- To position the device parallel to the phantom surface with either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device surface and the flat phantom to 1 cm.

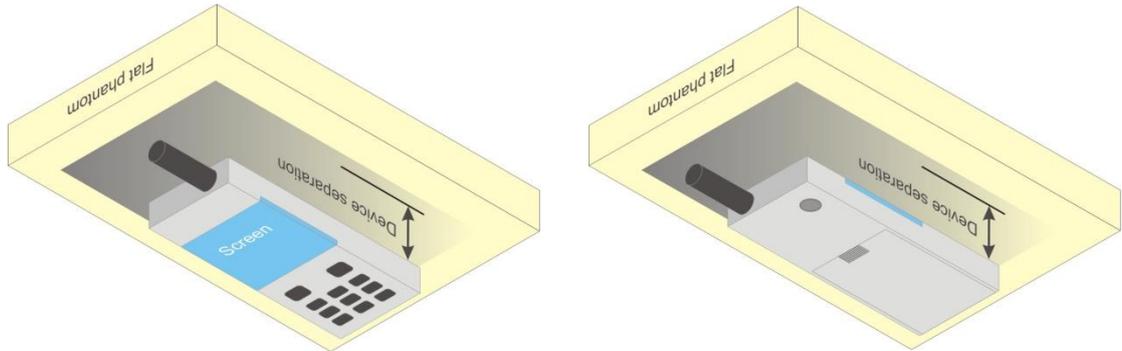


Fig 8.4 Illustration for Body Worn Position

## 8.5 Hotspot Position

- To position the device parallel to the phantom surface with all sides and either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device and the flat phantom to 1 cm.

### <EUT Setup Photos>

Please refer to Appendix D for the test setup photos.

## 9. 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

### 9.1 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 from 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

### 9.2 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.

### 9.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r01 quoted below.

When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

		$\leq 3$ GHz	$> 3$ GHz	
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		$5 \pm 1$ mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm	
Maximum probe angle from probe axis to phantom surface normal at the measurement location		$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$	
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$		$\leq 2$ GHz: $\leq 15$ mm 2 – 3 GHz: $\leq 12$ mm	3 – 4 GHz: $\leq 12$ mm 4 – 6 GHz: $\leq 10$ 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 $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.		
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$		$\leq 2$ GHz: $\leq 8$ mm 2 – 3 GHz: $\leq 5$ mm*	3 – 4 GHz: $\leq 5$ mm* 4 – 6 GHz: $\leq 4$ mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	$\leq 5$ mm	3 – 4 GHz: $\leq 4$ mm 4 – 5 GHz: $\leq 3$ mm 5 – 6 GHz: $\leq 2$ mm	
	graded grid	$\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface	$\leq 4$ mm	3 – 4 GHz: $\leq 3$ mm 4 – 5 GHz: $\leq 2.5$ mm 5 – 6 GHz: $\leq 2$ mm
		$\Delta z_{Zoom}(n>1)$ : between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	$\geq 30$ mm	3 – 4 GHz: $\geq 28$ mm 4 – 5 GHz: $\geq 25$ mm 5 – 6 GHz: $\geq 22$ mm	
<p>Note: <math>\delta</math> is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.</p> <p>* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is <math>\leq 1.4</math> W/kg, <math>\leq 8</math> mm, <math>\leq 7</math> mm and <math>\leq 5</math> 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.</p>				



## **9.4 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.

## **9.5 SAR Averaged Methods**

In DASYS, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

## **9.6 Power Drift Monitoring**

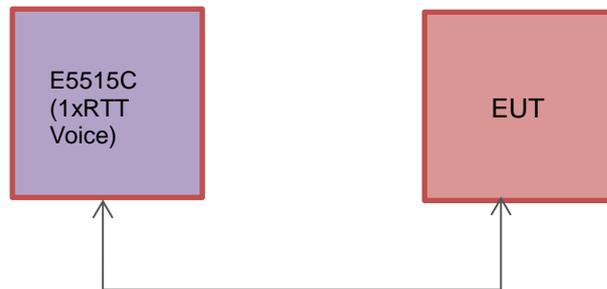
All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASYS measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field 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.

### 10. Conducted RF Output Power (Unit: dBm)

<CDMA2000 Conducted Power>

General Note:

- Referring to KDB 941225 D01v02, the data device SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps). If 1xRTT and Ev-Do Rev A (RETAP 4096 bits) power is less than 1/4dB higher than Re v0, SAR tests with those settings are not necessary.
- According to KDB 941225 D01v02, Head SAR for RC1+SO55 is not required because the maximum average output power of RC1 is less than 1/4 dB higher than RC3+SO55.
- Referring to KDB 941225 D01v02, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps). If 1xRTT and Ev-Do Rev A (RETAP 4096 bits) power is less than 1/4dB higher than Re v0, SAR tests with those settings are not necessary.
- Considering VOIP capability, 1xEv-Do Rev. A SAR was repeated on the worst position of 1xRTT head SAR and body-worn SAR testing.
- There is no power reduction applied to the CDMA voice mode, the device with fixed power in the below table is to analyze simultaneous SAR in the SVLTE condition where LTE is operating with maximum output power in conjunction with a lower CDMA voice power.



<1xRTT>

Band	CDMA2000 BC0			CDMA2000 BC1			CDMA2000 BC15		
Channel	1013	384	777	25	600	1175	25	425	875
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75	1711.25	1731.25	1753.75
1x Voice Mode	Full Power (24.5dBm)			Full Power (24.5dBm)			Full Power (25.0dBm)		
1xRTT RC1+SO55	24.11	24.12	24.03	24.15	24.07	23.82	24.55	24.60	24.43
1xRTT RC3+SO55	24.08	24.09	24.04	24.14	24.03	23.77	24.52	24.56	24.41
1xRTT RC3+SO32(+F-SCH)	24.07	24.07	24.03	24.09	23.95	23.72	24.48	24.51	24.36
1xRTT RC3+SO32(+SCH)	24.05	24.06	23.98	24.09	23.96	23.71	24.48	24.52	24.36
1x Voice Mode	Fixed Power (16.5dBm)			Fixed Power (16.5dBm)			Fixed Power (16.5dBm)		
1xRTT RC1+SO55	16.06	16.17	16.33	16.19	16.39	16.32	16.05	16.16	15.83
1xRTT RC3+SO55	16.07	16.12	16.27	16.20	16.36	16.38	15.91	16.01	15.92
1xRTT RC3+SO32(+F-SCH)	16.05	16.07	16.24	16.05	16.32	16.21	15.78	15.87	15.75
1xRTT RC3+SO32(+SCH)	16.04	16.03	16.17	15.95	16.18	16.08	15.75	15.80	15.63

<1xEVDO>

Band	CDMA2000 BC0			CDMA2000 BC1			CDMA2000 BC15		
Channel	1013	384	777	25	600	1175	25	425	875
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75	1711.25	1731.25	1753.75
EVDO data mode	Full Power (24.5dBm)			Full Power (24.5dBm)			Full Power (25.0dBm)		
1xEVDO RTAP 153.6	24.00	24.00	23.99	23.98	23.91	23.66	24.36	24.42	24.28
1xEVDO RETAP 4096	23.89	23.92	23.90	23.94	23.82	23.57	24.36	24.40	24.26

**10.1 LTE Power Reduction**

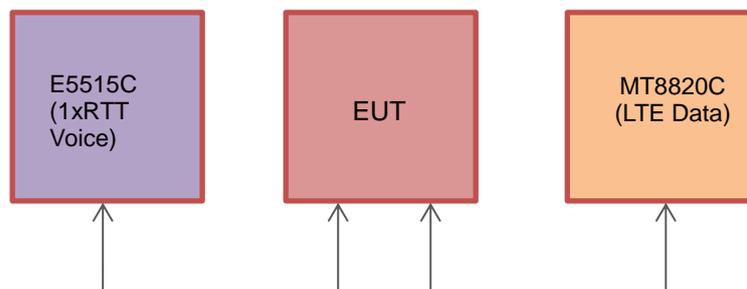
This device is capable of Simultaneous Voice and LTE (SVLTE) calls, with the voice call supported by a CDMA 1x-RTT transmitter and the data connection supported by a separate LTE transmitter. A LTE power reduction scheme is applied during a LTE connection operating simultaneously with 1xRTT voice calls. The maximum transmit power of LTE is limited depending on the CDMA 1xRTT voice transmit power level whenever the voice mode transmitting power is higher than the pre-defined threshold; when CDMA 1xRTT voice transmitting power is below the certain threshold, LTE can transmit at the maximum power. Target levels of power reduction and 1xRTT voice transmitting power threshold levels are given.

CDMA2000 1x voice BC0/BC15/BC1 -Output power level-	LTE data mode Band 2/25	LTE data mode Band 4	Remark
P ≥ 16.5	18	18	LTE Power reduction triggered
P < 16.5	24	23.5	LTE in normal full power mode

**10.2 Output Power Verification**

Output powers were measured in SVLTE mode to determine that the power reduction mechanism is implemented, according to the setup below.

1. The device RF ports connected to one base station simulator for 1xRTT voice call and another base station simulator for LTE separately, and LTE data connection setup with power control bits set to all-up
2. 1xRTT voice connection was setup with power control bits to active bits, and control 1xRTT voice mode power at different level
3. Record LTE output power level at different 1xRTT voice mode transmitting power level. The LTE output power was monitored while changing the cell output power level. The power reduction targets and threshold level described in section 10.1 were confirmed.





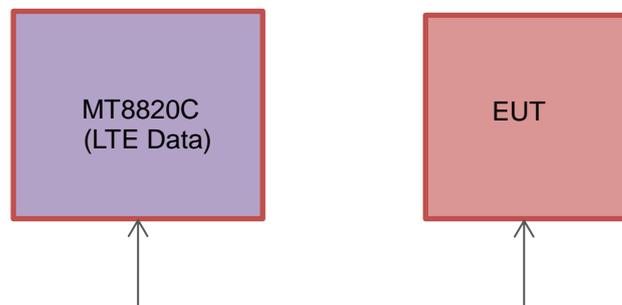
CDMA BC0 1xRTT(RC3 SO55)	1xRTT Power level (Control by BS)	LTE Conducted Power (dBm)		
		LTE Band 2 1RB,0RB offset Middle channel (18900)	LTE Band 4 1RB,0RB offset Middle channel (20175)	LTE Band 25 1RB,0RB offset Middle channel (26365)
Middle channel(384)	24	17.28	17.23	17.20
	23	17.31	17.25	17.21
	22	17.19	17.2	17.19
	21	17.17	17.22	17.17
	20	17.12	17.19	17.11
	19	17.02	17.21	17.09
	18	17.06	17.12	17.07
	17	16.99	17.09	17.06
	16.5	17.02	17.03	17.05
	16	22.82	22.80	22.87
	15.5	22.83	22.81	22.85
	15	22.81	22.83	22.88
	14	22.82	22.77	22.77
	13	22.77	22.85	22.73
CDMA BC1 1xRTT(RC3 SO55)	1xRTT Power level (Control by BS)	LTE Conducted Power (dBm)		
		LTE Band 2 1RB,0RB offset Middle channel (18900)	LTE Band 4 1RB,0RB offset Middle channel (20175)	LTE Band 25 1RB,0RB offset Middle channel (26365)
Middle channel(600)	24	17.33	17.21	17.19
	23	17.33	17.21	17.19
	22	17.22	17.27	17.29
	21	17.07	17.17	17.12
	20	17.22	17.09	17.07
	19	17.09	17.01	17.06
	18	17.03	17.22	17.01
	17	17.11	17.13	17.19
	16.5	17.08	17.07	17.02
	16	22.68	22.73	22.79
	15.5	22.71	22.69	22.89
	15	22.74	22.70	22.82
	14	22.75	22.78	22.79
	13	22.7	22.77	22.72



CDMA BC15 1xRTT(RC3 SO55)	1xRTT Power level (Control by BS)	LTE Conducted Power (dBm)		
		LTE Band 2 1RB,0RB offset Middle channel (18900)	LTE Band 4 1RB,0RB offset Middle channel (20175)	LTE Band 25 1RB,0RB offset Middle channel (26365)
Middle channel (425)	24	17.11	17.19	17.16
	23	17.11	17.19	17.16
	22	17.11	17.21	17.03
	21	17.14	17.07	17.19
	20	17.22	17.11	17.21
	19	17.17	17.21	17.19
	18	17.01	17.09	17.11
	17	17.21	17.01	17.03
	16.5	17.18	17.09	17.07
	16	22.71	22.81	22.77
	15.5	22.79	22.84	22.78
	15	22.89	22.68	22.79
	14	22.78	22.74	22.78
	13	22.77	22.72	22.76

**<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 D05v02r02, 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 D05v02r02, 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 D05v02r02, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
5. 16QAM output power for each RB allocation configuration is not  $> \frac{1}{2}$  dB higher than the same configuration in QPSK
6. Smaller bandwidth output power for each RB allocation configuration is not  $> \frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth





LTE Band 2															
BW [MHz]	Mod / RB (Size - Offset)	Full Power (24dBm)						Reduced Power (18dBm)							
		Average Power. (dBm)			3GPP MPR	MPR Result (dB)			Average Power. (dBm)			3GPP MPR	MPR Result (dB)		
		Low Ch	Mid Ch	High Ch		Low Ch	Mid Ch	High Ch	Low Ch	Mid Ch	High Ch		Low Ch	Mid Ch	High Ch
Channel	18650	18900	19150		18650	18900	19150	18650	18900	19150		18650	18900	19150	
Frequency (MHz)	1855	1880	1905		1855	1880	1905	1855	1880	1905		1855	1880	1905	
10	QPSK 1-0	23.35	23.39	23.48	0	0.12	0.17	0.06	17.69	17.64	17.73	0	0.01	0.06	0.01
10	QPSK 1-24	23.43	23.44	23.45		0.04	0.12	0.09	17.70	17.64	17.59		0.00	0.06	0.15
10	QPSK 1-49	23.47	23.56	23.54	≤ 1	0.00	0.00	0.00	17.62	17.70	17.74	≤ 1	0.08	0.00	0.00
10	QPSK 25-0	22.53	22.40	22.35		0.94	1.16	1.19	16.60	16.54	16.54		1.10	1.16	1.20
10	QPSK 25-12	22.46	22.45	22.34	≤ 1	1.01	1.11	1.20	16.53	16.47	16.47	≤ 1	1.17	1.23	1.27
10	QPSK 25-24	22.47	22.38	22.37		1.00	1.18	1.17	16.56	16.52	16.42		1.14	1.18	1.32
10	QPSK 50-0	22.27	22.36	22.20	≤ 1	1.20	1.20	1.34	16.44	16.55	16.38	≤ 1	1.26	1.15	1.36
10	16QAM 1-0	22.68	22.75	22.74		0.79	0.81	0.80	16.87	17.00	16.93		0.83	0.70	0.81
10	16QAM 1-24	22.66	22.58	22.56	≤ 1	0.81	0.98	0.98	16.85	16.70	16.53	≤ 1	0.85	1.00	1.21
10	16QAM 1-49	22.06	22.46	22.73		1.41	1.10	0.81	16.91	16.93	16.80		0.79	0.77	0.94
10	16QAM 25-0	21.48	21.35	21.45	≤ 2	1.99	2.21	2.09	15.47	15.61	15.56	≤ 2	2.23	2.09	2.18
10	16QAM 25-12	21.49	21.42	21.39		1.98	2.14	2.15	15.46	15.63	15.57		2.24	2.07	2.17
10	16QAM 25-24	21.45	21.36	21.33	≤ 2	2.02	2.20	2.21	15.52	15.50	15.49	≤ 2	2.18	2.20	2.25
10	16QAM 50-0	21.22	21.29	21.06		2.25	2.27	2.48	15.50	15.56	15.47		2.20	2.14	2.27
Channel	18625	18900	19175		18625	18900	19175	18625	18900	19175		18625	18900	19175	
Frequency (MHz)	1852.5	1880	1907.5		1852.5	1880	1907.5	1852.5	1880	1907.5		1852.5	1880	1907.5	
5	QPSK 1-0	23.52	23.57	23.56	0	0.00	0.00	0.00	17.64	17.57	17.60	0	0.09	0.20	0.05
5	QPSK 1-12	23.51	23.41	23.30		0.01	0.16	0.26	17.69	17.57	17.59		0.04	0.20	0.06
5	QPSK 1-24	23.46	23.39	23.52	≤ 1	0.06	0.18	0.04	17.73	17.77	17.65	≤ 1	0.00	0.00	0.00
5	QPSK 12-0	22.48	22.47	22.31		1.04	1.10	1.25	16.55	16.56	16.45		1.18	1.21	1.20
5	QPSK 12-6	22.58	22.51	22.44	≤ 1	0.94	1.06	1.12	16.55	16.59	16.45	≤ 1	1.18	1.18	1.20
5	QPSK 12-11	22.64	22.53	22.50		0.88	1.04	1.06	16.63	16.63	16.49		1.10	1.14	1.16
5	QPSK 25-0	22.52	22.45	22.38	≤ 1	1.00	1.12	1.18	16.51	16.58	16.40	≤ 1	1.22	1.19	1.25
5	16QAM 1-0	22.38	22.59	22.60		1.14	0.98	0.96	16.58	16.98	16.30		1.15	0.79	1.35
5	16QAM 1-12	22.34	22.44	22.21	≤ 1	1.18	1.13	1.35	16.46	17.00	16.44	≤ 1	1.27	0.77	1.21
5	16QAM 1-24	22.26	22.53	22.52		1.26	1.04	1.04	16.91	16.63	16.95		0.82	1.14	0.70
5	16QAM 12-0	21.63	21.48	21.35	≤ 2	1.89	2.09	2.21	15.75	15.59	15.51	≤ 2	1.98	2.18	2.14
5	16QAM 12-6	21.62	21.61	21.26		1.90	1.96	2.30	15.54	15.41	15.56		2.19	2.36	2.09
5	16QAM 12-11	21.59	21.54	21.38	≤ 2	1.93	2.03	2.18	15.60	15.45	15.56	≤ 2	2.13	2.32	2.09
5	16QAM 25-0	21.41	21.39	21.30		2.11	2.18	2.26	15.60	15.46	15.48		2.13	2.31	2.17
Channel	18615	18900	19185		18615	18900	19185	18615	18900	19185		18615	18900	19185	
Frequency (MHz)	1851.5	1880	1908.5		1851.5	1880	1908.5	1851.5	1880	1908.5		1851.5	1880	1908.5	
3	QPSK 1-0	23.52	23.42	23.53	0	0.00	0.00	0.00	17.61	17.60	17.50	0	0.16	0.08	0.15
3	QPSK 1-7	23.44	23.34	23.48		0.08	0.08	0.05	17.69	17.63	17.55		0.08	0.05	0.10
3	QPSK 1-14	23.45	23.40	23.49	≤ 1	0.07	0.02	0.04	17.77	17.68	17.65	≤ 1	0.00	0.00	0.00
3	QPSK 8-0	22.50	22.45	22.51		1.02	0.97	1.02	16.75	16.58	16.52		1.02	1.10	1.13
3	QPSK 8-4	22.53	22.54	22.52	≤ 1	0.99	0.88	1.01	16.89	16.54	16.53	≤ 1	0.88	1.14	1.12
3	QPSK 8-7	22.57	22.56	22.57		1.01	0.90	1.11	16.83	16.57	16.47		0.94	1.11	1.18
3	QPSK 15-0	22.51	22.52	22.42	≤ 1	1.01	0.90	1.11	16.77	16.57	16.45	≤ 1	1.00	1.11	1.20
3	16QAM 1-0	22.49	22.53	22.54		1.03	0.89	0.99	16.56	16.51	16.88		1.21	1.17	0.77
3	16QAM 1-7	22.37	22.22	22.42	≤ 1	1.15	1.20	1.11	16.64	17.00	16.49	≤ 1	1.13	0.68	1.16
3	16QAM 1-14	22.45	21.99	22.46		1.07	1.43	1.07	16.98	16.87	16.97		0.79	0.81	0.68
3	16QAM 8-0	21.39	21.44	21.38	≤ 2	2.13	1.98	2.15	15.77	15.47	15.58	≤ 2	2.00	2.21	2.07
3	16QAM 8-4	21.27	21.29	21.50		2.25	2.13	2.03	15.85	15.36	15.60		1.92	2.32	2.05
3	16QAM 8-7	21.40	21.48	21.42	≤ 2	2.12	1.94	2.11	15.75	15.37	15.61	≤ 2	2.02	2.31	2.04
3	16QAM 15-0	21.49	21.41	21.58		2.03	2.01	1.95	15.87	15.43	15.52		1.90	2.25	2.13
Channel	18607	18900	19193		18607	18900	19193	18607	18900	19193		18607	18900	19193	
Frequency (MHz)	1850.7	1880	1909.3		1850.7	1880	1909.3	1850.7	1880	1909.3		1850.7	1880	1909.3	
1.4	QPSK 1-0	23.57	23.58	23.65	0	0.00	0.00	0.00	17.74	17.66	17.69	0	0.00	0.14	0.06
1.4	QPSK 1-2	23.47	23.51	23.53		0.10	0.07	0.12	17.66	17.80	17.75		0.08	0.00	0.00
1.4	QPSK 1-5	23.53	23.45	23.51	≤ 1	0.04	0.13	0.14	17.73	17.64	17.70	≤ 1	0.01	0.16	0.05
1.4	QPSK 3-0	23.43	23.47	23.48		0.14	0.11	0.17	17.72	17.65	17.73		0.02	0.15	0.02
1.4	QPSK 3-1	23.56	23.46	23.49	≤ 1	0.01	0.12	0.16	17.66	17.65	17.75	≤ 1	0.08	0.15	0.00
1.4	QPSK 3-2	23.40	23.46	23.53		0.17	0.12	0.12	17.62	17.61	17.62		0.12	0.19	0.13
1.4	QPSK 6-0	22.51	22.53	22.58	≤ 1	1.06	1.05	1.07	16.76	16.49	16.51	≤ 1	0.98	1.31	1.24
1.4	16QAM 1-0	22.67	22.68	22.69		0.90	0.90	0.96	16.73	16.91	16.58		1.01	0.89	1.17
1.4	16QAM 1-2	22.62	22.38	22.32	≤ 1	0.95	1.20	1.33	16.91	16.54	16.87	≤ 1	0.83	1.26	0.88
1.4	16QAM 1-5	22.66	22.44	22.28		0.91	1.14	1.37	16.46	16.68	16.65		1.28	1.12	1.10
1.4	16QAM 3-0	22.32	22.11	22.54	≤ 1	1.25	1.47	1.11	16.91	16.78	16.63	≤ 1	0.83	1.02	1.12
1.4	16QAM 3-1	22.56	22.45	22.44		1.01	1.13	1.21	16.82	16.78	16.73		0.92	1.02	1.02
1.4	16QAM 3-2	22.56	22.45	22.60	≤ 2	1.01	1.13	1.05	16.86	16.78	16.64	≤ 2	0.88	1.02	1.11
1.4	16QAM 6-0	21.48	21.52	21.76		2.09	2.06	1.89	15.96	15.67	15.67		1.78	2.13	2.08



LTE Band 4															
BW [MHz]	Mod / RB (Size - Offset)	Full Power (23.5dBm)						Reduced Power (18dBm)							
		Average Power. (dBm)			3GPP MPR	MPR Result (dB)			Average Power. (dBm)			3GPP MPR	MPR Result (dB)		
		Low Ch	Mid Ch	High Ch		Low Ch	Mid Ch	High Ch	Low Ch	Mid Ch	High Ch		Low Ch	Mid Ch	High Ch
Channel	20000	20175	20350		20000	20175	20350	20000	20175	20350		20000	20175	20350	
Frequency (MHz)	1715	1732.5	1750		1715	1732.5	1750	1715	1732.5	1750		1715	1732.5	1750	
10	QPSK 1-0	23.04	23.05	22.83	0	0.00	0.00	0.00	17.58	17.57	17.70	0	0.10	0.04	0.00
10	QPSK 1-24	23.01	23.01	22.82		0.03	0.04	0.01	17.68	17.51	17.56		0.00	0.10	0.14
10	QPSK 1-49	22.92	22.91	22.79		0.12	0.14	0.04	17.58	17.61	17.45		0.10	0.00	0.25
10	QPSK 25-0	21.94	21.90	21.81	≤ 1	1.10	1.15	1.02	16.69	16.63	16.66	≤ 1	0.99	0.98	1.04
10	QPSK 25-12	21.91	21.88	21.75		1.13	1.17	1.08	16.65	16.62	16.59		1.03	0.99	1.11
10	QPSK 25-24	21.86	21.85	21.73		1.18	1.20	1.10	16.54	16.59	16.47		1.14	1.02	1.23
10	QPSK 50-0	21.79	21.70	21.67	≤ 1	1.25	1.35	1.16	16.54	16.54	16.42	≤ 1	1.14	1.07	1.28
10	16QAM 1-0	22.03	22.25	21.84		1.01	0.80	0.99	17.00	16.99	16.67		0.68	0.62	1.03
10	16QAM 1-24	22.02	22.01	21.69		1.02	1.04	1.14	16.97	16.91	16.82		0.71	0.70	0.88
10	16QAM 1-49	22.01	22.02	21.80	≤ 2	1.03	1.03	1.03	16.75	16.82	16.17	≤ 2	0.93	0.79	1.53
10	16QAM 25-0	20.84	20.97	20.85		2.20	2.08	1.98	15.67	15.70	15.59		2.01	1.91	2.11
10	16QAM 25-12	20.80	20.84	20.77		2.24	2.21	2.06	15.67	15.67	15.69		2.01	1.94	2.01
10	16QAM 25-24	20.78	20.91	20.76	≤ 2	2.26	2.14	2.07	15.68	15.57	15.50	≤ 2	2.00	2.04	2.20
10	16QAM 50-0	20.74	20.73	20.63		2.30	2.32	2.20	15.66	15.56	15.50		2.02	2.05	2.20
Channel	19975	20175	20375		19975	20175	20375	19975	20175	20375		19975	20175	20375	
Frequency (MHz)	1712.5	1732.5	1752.5		1712.5	1732.5	1752.5	1712.5	1732.5	1752.5		1712.5	1732.5	1752.5	
5	QPSK 1-0	23.00	22.95	23.01	0	0.00	0.00	0.00	17.53	17.52	17.52	0	0.12	0.13	0.00
5	QPSK 1-12	22.97	22.94	22.65		0.03	0.01	0.18	17.65	17.65	17.43		0.00	0.00	0.09
5	QPSK 1-24	22.99	22.93	22.78		0.01	0.02	0.05	17.53	17.52	17.48		0.12	0.13	0.04
5	QPSK 12-0	22.01	21.90	21.83	≤ 1	0.99	1.05	1.00	16.61	16.69	16.63	≤ 1	1.04	0.96	0.89
5	QPSK 12-6	21.96	21.94	21.76		1.04	1.01	1.07	16.65	16.64	16.52		1.00	1.01	1.00
5	QPSK 12-11	21.93	21.97	21.91		1.07	0.98	0.92	16.65	16.65	16.56		1.00	1.00	0.96
5	QPSK 25-0	21.96	21.89	21.69	≤ 1	1.04	1.06	1.14	16.69	16.59	16.57	≤ 1	0.96	1.06	0.95
5	16QAM 1-0	22.26	21.81	21.98		0.74	1.14	0.85	16.34	16.78	16.54		1.31	0.87	0.98
5	16QAM 1-12	22.25	21.67	21.96		0.75	1.28	0.87	16.52	16.87	16.71		1.13	0.78	0.81
5	16QAM 1-24	22.19	21.56	21.75	≤ 2	0.81	1.39	1.08	16.86	16.79	16.61	≤ 2	0.79	0.86	0.91
5	16QAM 12-0	21.00	20.97	20.90		2.00	1.98	1.93	15.78	15.64	15.59		1.87	2.01	1.93
5	16QAM 12-6	20.98	20.96	20.79		2.02	1.99	2.04	15.73	15.55	15.47		1.92	2.10	2.05
5	16QAM 12-11	21.04	20.86	20.97	≤ 2	1.96	2.09	1.86	15.69	15.60	15.61	≤ 2	1.96	2.05	1.91
5	16QAM 25-0	20.88	20.82	20.84		2.12	2.13	1.99	15.75	15.63	15.46		1.90	2.02	2.06
Channel	19965	20175	20385		19965	20175	20385	19965	20175	20385		19965	20175	20385	
Frequency (MHz)	1711.5	1732.5	1753.5		1711.5	1732.5	1753.5	1711.5	1732.5	1753.5		1711.5	1732.5	1753.5	
3	QPSK 1-0	23.01	22.88	23.03	0	0.00	0.00	0.00	17.64	17.56	17.48	0	0.00	0.05	0.14
3	QPSK 1-7	22.94	22.86	22.92		0.07	0.02	0.05	17.61	17.61	17.62		0.03	0.00	0.00
3	QPSK 1-14	22.98	22.81	22.83		0.03	0.07	0.14	17.57	17.55	17.60		0.07	0.06	0.02
3	QPSK 8-0	21.93	21.97	21.79	≤ 1	1.08	0.91	1.18	16.74	16.70	16.50	≤ 1	0.90	0.91	1.12
3	QPSK 8-4	22.00	21.93	21.85		1.01	0.95	1.12	16.60	16.67	16.56		1.04	0.94	1.06
3	QPSK 8-7	21.90	21.94	21.86		1.11	0.94	1.11	16.72	16.71	16.57		0.92	0.90	1.05
3	QPSK 15-0	21.99	21.94	21.89	≤ 1	1.02	0.94	1.08	16.60	16.70	16.61	≤ 1	1.04	0.91	1.01
3	16QAM 1-0	21.83	22.18	21.87		1.18	0.70	1.10	16.89	16.74	16.25		0.75	0.87	1.37
3	16QAM 1-7	21.82	22.17	21.81		1.19	0.71	1.16	16.55	16.29	16.55		1.09	1.32	1.07
3	16QAM 1-14	21.79	22.06	21.59	≤ 2	1.22	0.82	1.38	16.81	16.82	16.16	≤ 2	0.83	0.79	1.46
3	16QAM 8-0	20.92	20.92	20.61		2.09	1.96	2.36	15.46	15.70	15.35		2.18	1.91	2.27
3	16QAM 8-4	20.94	20.89	20.79		2.07	1.99	2.18	15.64	15.66	15.59		2.00	1.95	2.03
3	16QAM 8-7	20.86	20.82	20.79	≤ 2	2.15	2.06	2.18	15.61	15.59	15.60	≤ 2	2.03	2.02	2.02
3	16QAM 15-0	20.95	20.86	20.83		2.06	2.02	2.14	15.63	15.65	15.64		2.01	1.96	1.98
Channel	19957	20175	20393		19957	20175	20393	19957	20175	20393		19957	20175	20393	
Frequency (MHz)	1710.7	1732.5	1754.3		1710.7	1732.5	1754.3	1710.7	1732.5	1754.3		1710.7	1732.5	1754.3	
1.4	QPSK 1-0	23.00	23.02	22.94	0	0.00	0.00	0.00	17.58	17.53	17.51	0	0.03	0.11	0.06
1.4	QPSK 1-2	22.93	22.95	22.92		0.07	0.04	0.02	17.61	17.61	17.55		0.00	0.03	0.02
1.4	QPSK 1-5	22.93	22.90	22.78		0.07	0.09	0.16	17.51	17.64	17.41		0.10	0.00	0.16
1.4	QPSK 3-0	22.90	22.96	22.83	≤ 1	0.10	0.03	0.11	17.58	17.55	17.55	≤ 1	0.03	0.09	0.02
1.4	QPSK 3-1	22.99	22.92	22.86		0.01	0.07	0.08	17.58	17.59	17.57		0.03	0.05	0.00
1.4	QPSK 3-2	22.98	22.94	22.84		0.02	0.05	0.10	17.60	17.61	17.54		0.01	0.03	0.03
1.4	QPSK 6-0	21.94	21.91	21.81	≤ 1	1.06	1.08	1.13	16.67	16.62	16.57	≤ 1	0.94	1.02	1.00
1.4	16QAM 1-0	22.09	22.16	21.99		0.91	0.83	0.95	16.74	16.54	16.80		0.87	1.10	0.77
1.4	16QAM 1-2	21.96	22.07	21.72		1.04	0.92	1.22	16.45	16.60	16.39		1.16	1.04	1.18
1.4	16QAM 1-5	22.06	22.10	21.98	≤ 1	0.94	0.89	0.96	16.81	16.86	16.77	≤ 1	0.80	0.78	0.80
1.4	16QAM 3-0	22.05	21.89	21.94		0.95	1.10	1.00	16.75	16.70	16.71		0.86	0.94	0.86
1.4	16QAM 3-1	21.93	21.84	21.78		1.07	1.15	1.16	16.64	16.72	16.57		0.97	0.92	1.00
1.4	16QAM 3-2	22.04	21.83	21.94	≤ 2	0.96	1.16	1.00	16.78	16.66	16.70	≤ 2	0.83	0.98	0.87
1.4	16QAM 6-0	20.88	20.96	20.92		2.12	2.03	2.02	15.62	15.59	15.60		1.99	2.05	1.97



LTE Band 25																
BW [MHz]	Mod / RB (Size - Offset)	Full Power (24dBm)						Reduced Power (18dBm)								
		Average Power. (dBm)			3GPP MPR	MPR Result (dB)			Average Power. (dBm)			3GPP MPR	MPR Result (dB)			
		Low Ch	Mid Ch	High Ch		Low Ch	Mid Ch	High Ch	Low Ch	Mid Ch	High Ch		Low Ch	Mid Ch	High Ch	
Channel	26090	26365	26640		26090	26365	26640	26090	26365	26640		26090	26365	26640		
Frequency (MHz)	1855	1882.5	1910		1855	1882.5	1910	1855	1882.5	1910		1855	1882.5	1910		
10	QPSK 1-0	23.30	23.32	23.24	0	0.00	0.00	0.00	17.61	17.62	17.63	0	0.16	0.13	0.00	
10	QPSK 1-24	23.25	23.25	23.14		0.05	0.07	0.10	17.77	17.73	17.61		0.00	0.02	0.02	
10	QPSK 1-49	23.23	23.16	22.88		0.07	0.16	0.36	17.70	17.75	17.33		0.07	0.00	0.30	
10	QPSK 25-0	22.26	22.17	22.21	≤ 1	1.04	1.15	1.03	16.84	16.51	16.49	≤ 1	0.93	1.24	1.14	
10	QPSK 25-12	22.38	22.19	22.23		0.92	1.13	1.01	16.52	16.60	16.49		1.25	1.15	1.14	
10	QPSK 25-24	22.28	22.28	22.10		1.02	1.04	1.14	16.57	16.48	16.37		1.20	1.27	1.26	
10	QPSK 50-0	22.17	22.11	21.93	≤ 1	1.13	1.21	1.31	16.45	16.43	16.32	≤ 1	1.32	1.32	1.31	
10	16QAM 1-0	22.22	22.38	22.52		1.08	0.94	0.72	16.65	16.75	16.24		1.12	1.00	1.39	
10	16QAM 1-24	22.17	22.35	22.25		1.13	0.97	0.99	16.65	16.95	16.40		1.12	0.80	1.23	
10	16QAM 1-49	22.19	22.03	21.71	≤ 2	1.11	1.29	1.53	17.00	16.73	16.44	≤ 2	0.77	1.02	1.19	
10	16QAM 25-0	21.24	21.23	21.01		2.06	2.09	2.23	15.79	15.58	15.50		1.98	2.17	2.13	
10	16QAM 25-12	21.25	21.13	21.11		2.05	2.19	2.13	15.64	15.61	15.52		2.13	2.14	2.11	
10	16QAM 25-24	21.20	21.16	21.01	≤ 2	2.10	2.16	2.23	15.57	15.43	15.41	≤ 2	2.20	2.32	2.22	
10	16QAM 50-0	21.11	21.03	20.92		2.19	2.29	2.32	15.80	15.48	15.34		1.97	2.27	2.29	
Channel	26065	26365	26665		26065	26365	26665	26065	26365	26665		26065	26365	26665		
Frequency (MHz)	1852.5	1882.5	1912.5		1852.5	1882.5	1912.5	1852.5	1882.5	1912.5		1852.5	1882.5	1912.5		
5	QPSK 1-0	23.32	23.34	23.27	0	0.00	0.00	0.00	17.59	17.72	17.56	0	0.14	0.02	0.00	
5	QPSK 1-12	23.27	23.18	23.17		0.05	0.16	0.10	17.66	17.74	17.54		0.07	0.00	0.02	
5	QPSK 1-24	23.26	23.23	22.70		0.06	0.11	0.57	17.73	17.62	17.00		0.00	0.12	0.56	
5	QPSK 12-0	22.28	22.30	22.22	≤ 1	1.04	1.04	1.05	16.74	16.55	16.57	≤ 1	0.99	1.19	0.99	
5	QPSK 12-6	22.38	22.34	22.18		0.94	1.00	1.09	16.84	16.58	16.50		0.89	1.16	1.06	
5	QPSK 12-11	22.35	22.42	22.00		0.97	0.92	1.27	16.91	16.55	16.26		0.82	1.19	1.30	
5	QPSK 25-0	22.22	22.26	22.05	≤ 1	1.10	1.08	1.22	16.78	16.54	16.31	≤ 1	0.95	1.20	1.25	
5	16QAM 1-0	22.53	22.51	22.57		0.79	0.83	0.70	16.84	16.92	16.80		0.89	0.82	0.76	
5	16QAM 1-12	22.47	22.31	22.33		0.85	1.03	0.94	16.62	16.94	16.77		1.11	0.80	0.79	
5	16QAM 1-24	22.19	22.42	22.24	≤ 2	1.13	0.92	1.03	16.59	16.97	15.95	≤ 2	1.14	0.77	1.61	
5	16QAM 12-0	21.34	21.31	21.13		1.98	2.03	2.14	15.83	15.68	15.55		1.90	2.06	2.01	
5	16QAM 12-6	21.35	21.33	21.13		1.97	2.01	2.14	15.80	15.58	15.34		1.93	2.16	2.22	
5	16QAM 12-11	21.45	21.35	21.02	≤ 2	1.87	1.99	2.25	15.87	15.60	15.40	≤ 2	1.86	2.14	2.16	
5	16QAM 25-0	21.33	21.19	21.02		1.99	2.15	2.25	15.74	15.62	15.39		1.99	2.12	2.17	
Channel	26055	26365	26675		26055	26365	26675	26055	26365	26675		26055	26365	26675		
Frequency (MHz)	1851.5	1882.5	1913.5		1851.5	1882.5	1913.5	1851.5	1882.5	1913.5		1851.5	1882.5	1913.5		
3	QPSK 1-0	23.39	23.26	23.40	0	0.00	0.00	0.00	17.76	17.62	17.43	0	0.00	0.16	0.00	
3	QPSK 1-7	23.28	23.20	22.95		0.11	0.06	0.34	17.72	17.78	17.25		0.04	0.00	0.18	
3	QPSK 1-14	23.22	23.22	22.77		0.17	0.04	0.52	17.73	17.76	17.06		0.03	0.02	0.37	
3	QPSK 8-0	22.31	22.29	22.08	≤ 1	1.08	0.97	1.21	16.80	16.58	16.38	≤ 1	0.96	1.20	1.05	
3	QPSK 8-4	22.32	22.35	21.95		1.07	0.91	1.34	16.80	16.65	16.21		0.96	1.13	1.22	
3	QPSK 8-7	22.36	22.42	21.82		1.03	0.84	1.47	16.85	16.61	16.12		0.91	1.17	1.31	
3	QPSK 15-0	22.29	22.34	21.94	≤ 1	1.10	0.92	1.35	16.79	16.54	16.25	≤ 1	0.97	1.24	1.18	
3	16QAM 1-0	22.23	22.18	22.29		1.16	1.08	1.00	16.56	16.92	16.45		1.20	0.86	0.98	
3	16QAM 1-7	21.98	22.03	21.93		1.41	1.23	1.36	16.95	16.94	16.50		0.81	0.84	0.93	
3	16QAM 1-14	22.12	22.17	21.83	≤ 2	1.27	1.09	1.46	16.82	16.40	15.99	≤ 2	0.94	1.38	1.44	
3	16QAM 8-0	21.18	21.16	21.14		2.21	2.10	2.15	15.65	15.46	15.38		2.11	2.32	2.05	
3	16QAM 8-4	21.20	21.33	20.86		2.19	1.93	2.43	15.85	15.50	15.22		1.91	2.28	2.21	
3	16QAM 8-7	21.26	21.23	20.80	≤ 2	2.13	2.03	2.49	15.70	15.65	15.18	≤ 2	2.06	2.13	2.25	
3	16QAM 15-0	21.24	21.30	20.87		2.15	1.96	2.42	15.75	15.63	15.43		2.01	2.15	2.00	
Channel	26047	26365	26683		26047	26365	26683	26047	26365	26683		26047	26365	26683		
Frequency (MHz)	1850.7	1882.5	1914.3		1850.7	1882.5	1914.3	1850.7	1882.5	1914.3		1850.7	1882.5	1914.3		
1.4	QPSK 1-0	23.33	23.36	22.91	0	0.00	0.00	0.00	17.78	17.67	17.21	0	0.08	0.22	0.04	
1.4	QPSK 1-2	23.25	23.29	22.83		0.08	0.07	0.08	17.86	17.85	17.25		0.00	0.04	0.00	
1.4	QPSK 1-5	23.23	23.33	22.65		0.10	0.03	0.26	17.77	17.89	17.06		0.09	0.00	0.19	
1.4	QPSK 3-0	23.25	23.20	22.84	≤ 1	0.08	0.16	0.07	17.86	17.84	17.24	≤ 1	0.00	0.05	0.01	
1.4	QPSK 3-1	23.22	23.24	22.87		0.11	0.12	0.04	17.70	17.78	17.25		0.16	0.11	0.00	
1.4	QPSK 3-2	23.24	23.29	22.81		0.09	0.07	0.10	17.68	17.77	17.19		0.18	0.12	0.06	
1.4	QPSK 6-0	22.29	22.30	21.81	≤ 1	1.04	1.06	1.10	16.72	16.60	16.00	≤ 1	1.14	1.29	1.25	
1.4	16QAM 1-0	22.41	22.63	21.87		0.92	0.73	1.04	16.62	16.64	16.62		1.24	1.25	0.63	
1.4	16QAM 1-2	22.17	22.15	21.72		1.16	1.21	1.19	16.90	16.97	16.48		0.96	0.92	0.77	
1.4	16QAM 1-5	22.36	22.54	21.86	≤ 1	0.97	0.82	1.05	16.71	16.99	16.34	≤ 1	1.15	0.90	0.91	
1.4	16QAM 3-0	22.11	22.27	21.84		1.22	1.09	1.07	16.60	16.60	16.23		1.26	1.29	1.02	
1.4	16QAM 3-1	22.26	22.35	21.79		1.07	1.01	1.12	16.74	16.77	16.28		1.12	1.12	0.97	
1.4	16QAM 3-2	22.27	22.36	21.69	≤ 2	1.06	1.00	1.22	16.94	16.64	16.15	≤ 2	0.92	1.25	1.10	
1.4	16QAM 6-0	21.18	21.45	20.80		2.15	1.91	2.11	15.77	15.62	15.24		2.09	2.27	2.01	



<WLAN 2.4GHz Conducted Power>

General Note:

1. Per KDB 248227 D01 v01r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
2. Per KDB 248227 D01 v01r02, 11g and 11n-HT20 output power is less than 1/4dB higher than 11b mode, thus the SAR can be excluded.
3. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 1/4dB higher than those measured at the lowest data rate. 2.4GHz WLAN SAR was tested on 802.11b 1Mbps.

WLAN 2.4GHz 802.11b Average Power (dBm)					
Channel	Frequency (MHz)	Data Rate (bps)			
		1M bps	2M bps	5.5M bps	11M bps
CH 01	2412	14.09	13.98	14.00	14.04
CH 06	2437	13.65	13.82	13.81	13.96
CH 11	2462	13.33	13.33	13.48	13.54

WLAN 2.4GHz 802.11g Average Power (dBm)									
Channel	Frequency (MHz)	Data Rate (bps)							
		6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
CH 01	2412	13.34	13.34	13.32	13.31	13.23	13.32	13.32	13.31
CH 06	2437	13.18	13.28	13.26	13.27	13.11	13.23	13.26	13.33
CH 11	2462	12.92	12.83	12.88	13.00	12.96	12.90	13.02	12.97

WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)									
Channel	Frequency (MHz)	MCS Index							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	12.62	12.60	12.61	12.58	12.61	12.56	12.47	12.58
CH 06	2437	12.34	12.40	12.37	12.43	12.44	12.47	12.35	12.60
CH 11	2462	12.05	12.17	12.17	12.10	12.18	12.24	12.17	12.27

<Bluetooth Conducted Power>

Bluetooth Average Power (dBm)										
Channel	Frequency (MHz)	Data Rate								
		DH1	DH3	DH5	2DH1	2DH3	2DH5	3DH1	3DH3	3DH5
CH 00	2402	-0.66	-0.61	-0.62	-1.80	-1.96	-1.99	-1.75	-1.97	-1.99
CH 39	2441	0.45	0.42	0.45	-0.62	-0.82	-0.81	-0.57	-0.75	-0.79
CH 78	2480	-0.47	-0.52	-0.45	-1.62	-1.80	-1.82	-1.59	-1.77	-1.79

Channel	Frequency (MHz)	Average power (dBm)
		Mode
		BT v4.0 LE, GFSK
CH 00	2402	0.72
CH 19	2440	0.64
CH 39	2480	0.71

Note:

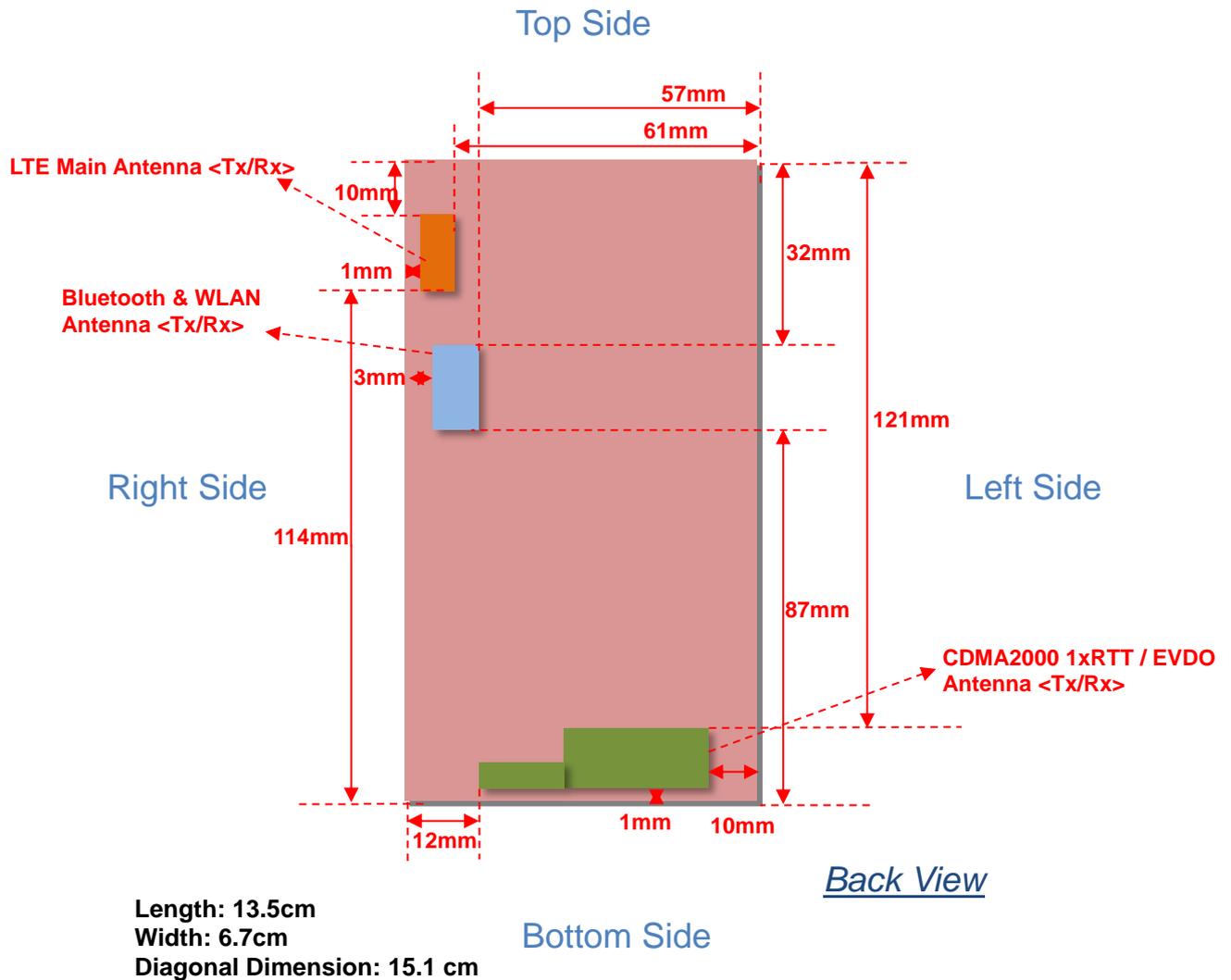
1. Per KDB 447498 D01v05r01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:  

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$
 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
  - If the test separation distance (antenna-user) is < 5mm, 5mm is used for excluded SAR calculation

Bluetooth Max Power (dBm)	mW	Test Distance (mm)	Frequency (GHz)	Exclusion Thresholds
1	1.26	0	2.48	0.40

2. Per KDB 447498 D01v05r01 exclusion thresholds is 0.40 < 3, RF exposure evaluation is not required.

### 11. EUT Antenna Location



Antennas	Wireless Interface
LTE Main Antenna <Tx / Rx>	LTE: band 2/4/25
CDMA2000 1xRTT / EVDO <Tx / Rx>	CDMA2000 1xRTT and EV-DO BC 0/1/15
WLAN & Bluetooth Antenna <Tx / Rx>	WLAN 2.4GHz, Bluetooth

Note:

4. This product has three antenna paths, one for LTE, one for 1xRTT and EVDO, and one for BT/WiFi. Each antenna path can transmit simultaneously.
5. The 1xRTT and EVDO share the same antenna path and cannot transmit simultaneously.
6. The Bluetooth and WiFi share the same antenna path and cannot transmit simultaneously.



Distance of the Antenna to the EUT surface/edge Test distance: 10 mm						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
CDMA 1xRTT / EVDO	≤ 25mm	≤ 25mm	121mm	≤ 25mm	≤ 25mm	≤ 25mm
LTE	≤ 25mm	≤ 25mm	≤ 25mm	114mm	≤ 25mm	61mm
Bluetooth & WLAN	≤ 25mm	≤ 25mm	32mm	87mm	≤ 25mm	57mm

Positions for SAR tests; Hotspot mode Test distance: 10 mm						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
CDMA 1xRTT / EVDO	Yes	Yes	NO	Yes	Yes	Yes
LTE	Yes	Yes	Yes	NO	Yes	NO
Bluetooth & WLAN	Yes	Yes	NO	NO	Yes	NO

**Note:**

1. Head/Body-worn/Hotspot mode SAR assessments are required.
2. Referring to KDB 941225 D06 v01r01, 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
3. Per KDB 447498 D01v05r01, for handsets the *test separation distance* is determined by the smallest distance between the outer surface of the device and the user; which is 0mm for head SAR, 10mm for hotspot SAR, 10mm for body-worn SAR.



## 12. SAR Test Results

### 12.1 SVLTE SAR Testing Procedures

#### General Note:

SAR testing was additionally performed as the reduced CDMA and LTE power levels with respect to the simultaneous transmission scenarios. QXDM NV parameters was used to configure the device maximum power limit during standalone SAR testing in reduced power mode. While the power reduction mechanism is activated, simultaneous SAR summations of maximum power LTE were evaluated at this reduced fixed CDMA voice power level. SAR was additionally evaluated at reduced power LTE levels to perform simultaneous SAR analysis when CDMA voice is at maximum power.

1. Per KDB 447498 D01v05r01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.  
*Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.*  
*Reported SAR(W/kg)= Measured SAR(W/kg)\* Scaling Factor*
2. Per KDB 447498 D01v05r01, for each exposure position, if the highest output channel reported SAR  $\leq 0.8W/kg$ , other channels SAR testing is not necessary.
3. For Hotspot SAR testing, per KDB 941225 D06v01r01, for EUT dimension  $\geq 9cm*5cm$ , the test distance is 1cm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
4. Considering the possibility of VOIP operation, per KDB 941225 D01v02 1xEv-Do RevA (4096 bits) SAR for the head exposure positions and body-worn positions are performed.



12.2 Test Records for Head SAR Test

<CDMA2000 SAR>

Plot No.	Antenna	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#01	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Right Cheek	384	836.52	24.09	24.5	1.099	-0.06	0.551	0.606	0
#02	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Right Tilted	384	836.52	24.09	24.5	1.099	-0.12	0.398	0.437	0
#187	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Right Tilted	384	836.52	16.12	16.5	1.091	0.12	0.065	0.071	8
#03	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Left Cheek	384	836.52	24.09	24.5	1.099	0.12	0.517	0.568	0
#188	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Left Cheek	384	836.52	16.12	16.5	1.091	0.1	0.086	0.094	8
#04	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Left Tilted	384	836.52	24.09	24.5	1.099	0.05	0.404	0.444	0
#189	1xRTT/EVDO	CDMA2000 BC0	RC3 SO55	Left Tilted	384	836.52	16.12	16.5	1.091	0.06	0.061	0.067	8
#05	1xRTT/EVDO	CDMA2000 BC0	RETAP 4096	Right Cheek	384	836.52	23.92	24.5	1.143	-0.03	0.548	0.626	0
#06	1xRTT/EVDO	CDMA2000 BC1	RC3 SO55	Right Cheek	25	1851.25	24.14	24.5	1.086	-0.03	0.454	0.493	0
#07	1xRTT/EVDO	CDMA2000 BC1	RC3 SO55	Right Tilted	25	1851.25	24.14	24.5	1.086	-0.15	0.164	0.178	0
#08	1xRTT/EVDO	CDMA2000 BC1	RC3 SO55	Left Cheek	25	1851.25	24.14	24.5	1.086	0.18	0.428	0.465	0
#190	1xRTT/EVDO	CDMA2000 BC1	RC3 SO55	Left Cheek	25	1851.25	16.20	16.5	1.072	-0.1	0.074	0.079	8
#09	1xRTT/EVDO	CDMA2000 BC1	RC3 SO55	Left Tilted	25	1851.25	24.14	24.5	1.086	0.08	0.15	0.163	0
#10	1xRTT/EVDO	CDMA2000 BC1	RETAP 4096	Right Cheek	25	1851.25	23.94	24.5	1.138	-0.02	0.443	0.504	0
#11	1xRTT/EVDO	CDMA2000 BC15	RC3 SO55	Right Cheek	425	1731.25	24.56	25	1.107	0.02	0.568	0.629	0
#12	1xRTT/EVDO	CDMA2000 BC15	RC3 SO55	Right Tilted	425	1731.25	24.56	25	1.107	-0.02	0.104	0.115	0
#13	1xRTT/EVDO	CDMA2000 BC15	RC3 SO55	Left Cheek	425	1731.25	24.56	25	1.107	-0.14	0.483	0.534	0
#191	1xRTT/EVDO	CDMA2000 BC15	RC3 SO55	Left Cheek	425	1731.25	16.01	16.5	1.119	0.01	0.079	0.088	8.5
#14	1xRTT/EVDO	CDMA2000 BC15	RC3 SO55	Left Tilted	425	1731.25	24.56	25	1.107	0.02	0.177	0.196	0
#15	1xRTT/EVDO	CDMA2000 BC15	RETAP 4096	Right Cheek	425	1731.25	24.40	25	1.148	-0.16	0.571	0.656	0



<LTE SAR>

Plot No.	Antenna	Band	Mode	BW (MHz)	RB Size	RB Offset	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#16	LTE	LTE Band 2	QPSK	10	1	49	Right Cheek	18900	1880	23.56	24	1.107	-0.08	0.724	0.801	0
#17	LTE	LTE Band 2	QPSK	10	1	49	Right Cheek	18650	1855	23.47	24	1.130	-0.1	0.720	0.813	0
#18	LTE	LTE Band 2	QPSK	10	1	49	Right Cheek	19150	1905	23.54	24	1.112	-0.08	0.682	0.758	0
#19	LTE	LTE Band 2	QPSK	10	1	49	Right Tilted	18900	1880	23.56	24	1.107	-0.04	0.772	0.854	0
#20	LTE	LTE Band 2	QPSK	10	1	49	Right Tilted	18650	1855	23.47	24	1.130	0.04	0.777	0.878	0
#21	LTE	LTE Band 2	QPSK	10	1	49	Right Tilted	19150	1905	23.54	24	1.112	-0.0079	0.760	0.845	0
#22	LTE	LTE Band 2	QPSK	10	1	49	Left Cheek	18900	1880	23.56	24	1.107	0.09	0.920	1.018	0
#23	LTE	LTE Band 2	QPSK	10	1	49	Left Cheek	18650	1855	23.47	24	1.130	0.11	0.925	1.045	0
#24	LTE	LTE Band 2	QPSK	10	1	49	Left Cheek	19150	1905	23.54	24	1.112	0.08	0.900	1.001	0
#25	LTE	LTE Band 2	QPSK	10	1	49	Right Tilted	18900	1880	23.56	24	1.107	0.08	0.785	0.869	0
#26	LTE	LTE Band 2	QPSK	10	1	49	Left Tilted	18650	1855	23.47	24	1.130	0.03	0.799	0.903	0
#27	LTE	LTE Band 2	QPSK	10	1	49	Left Tilted	19150	1905	23.54	24	1.112	0.12	0.822	0.914	0
#28	LTE	LTE Band 2	QPSK	10	25	0	Right Cheek	18650	1855	22.53	23	1.114	-0.01	0.589	0.656	0
#29	LTE	LTE Band 2	QPSK	10	25	0	Right Tilted	18650	1855	22.53	23	1.114	-0.05	0.597	0.665	0
#30	LTE	LTE Band 2	QPSK	10	25	0	Left Cheek	18650	1855	22.53	23	1.114	0.05	0.741	0.826	0
#31	LTE	LTE Band 2	QPSK	10	25	0	Left Cheek	18900	1880	22.4	23	1.148	0.03	0.837	0.961	0
#32	LTE	LTE Band 2	QPSK	10	25	0	Left Cheek	19150	1905	22.35	23	1.161	0.04	0.868	1.008	0
#33	LTE	LTE Band 2	QPSK	10	25	0	Left Tilted	18650	1855	22.53	23	1.114	-0.01	0.637	0.710	0
#34	LTE	LTE Band 2	QPSK	10	50	0	Right Cheek	18900	1880	22.36	23	1.159	-0.07	0.613	0.710	0
#35	LTE	LTE Band 2	QPSK	10	50	0	Right Tilted	18900	1880	22.36	23	1.159	-0.04	0.627	0.727	0
#36	LTE	LTE Band 2	QPSK	10	50	0	Left Cheek	18900	1880	22.36	23	1.159	-0.0098	0.783	0.907	0
#37	LTE	LTE Band 2	QPSK	10	50	0	Left Tilted	18900	1880	22.36	23	1.159	0.08	0.657	0.761	0
#38	LTE	LTE Band 4	QPSK	10	1	0	Right Cheek	20175	1732.5	23.05	23.5	1.109	-0.06	0.918	1.018	0
#39	LTE	LTE Band 4	QPSK	10	1	0	Right Cheek	20000	1715	23.04	23.5	1.112	-0.00093	0.874	0.972	0
#40	LTE	LTE Band 4	QPSK	10	1	0	Right Cheek	20350	1750	22.83	23.5	1.167	-0.07	0.926	1.080	0
#41	LTE	LTE Band 4	QPSK	10	1	0	Right Cheek	20175	1732.5	23.05	23.5	1.109	-0.03	0.98	1.087	0
#42	LTE	LTE Band 4	QPSK	10	1	0	Right Tilted	20000	1715	23.04	23.5	1.112	0.03	0.883	0.982	0
#43	LTE	LTE Band 4	QPSK	10	1	0	Right Tilted	20350	1750	22.83	23.5	1.167	-0.08	0.971	1.133	0
#192	LTE	LTE Band 4	QPSK	10	1	0	Right Tilted	20350	1750	17.7	18	1.072	0.03	0.269	0.288	5.5
#44	LTE	LTE Band 4	QPSK	10	1	0	Left Cheek	20175	1732.5	23.05	23.5	1.109	0.08	1.160	1.287	0
#45	LTE	LTE Band 4	QPSK	10	1	0	Left Cheek	20000	1715	23.04	23.5	1.112	0.008	1.100	1.223	0
#46	LTE	LTE Band 4	QPSK	10	1	0	Left Cheek	20350	1750	22.83	23.5	1.167	0.04	1.210	1.412	0
#193	LTE	LTE Band 4	QPSK	10	1	0	Left Cheek	20350	1750	17.7	18	1.072	0.01	0.305	0.327	5.5
#48	LTE	LTE Band 4	QPSK	10	1	0	Left Tilted	20175	1732.5	23.05	23.5	1.109	0.02	1.010	1.120	0
#49	LTE	LTE Band 4	QPSK	10	1	0	Left Tilted	20000	1715	23.04	23.5	1.112	-0.02	0.93	1.034	0
#50	LTE	LTE Band 4	QPSK	10	1	0	Left Tilted	20350	1750	22.83	23.5	1.167	0.03	1.03	1.202	0
#194	LTE	LTE Band 4	QPSK	10	1	0	Left Tilted	20350	1750	17.7	18	1.072	-0.13	0.232	0.249	5.5
#51	LTE	LTE Band 4	QPSK	10	25	0	Right Cheek	20000	1715	21.94	22.5	1.138	-0.02	0.693	0.788	0
#52	LTE	LTE Band 4	QPSK	10	25	0	Right Tilted	20000	1715	21.94	22.5	1.138	0.01	0.694	0.790	0
#53	LTE	LTE Band 4	QPSK	10	25	0	Left Cheek	20000	1715	21.94	22.5	1.138	0.04	0.869	0.989	0
#54	LTE	LTE Band 4	QPSK	10	25	0	Left Cheek	20175	1732.5	21.9	22.5	1.148	-0.01	0.919	1.055	0
#55	LTE	LTE Band 4	QPSK	10	25	0	Left Cheek	20350	1750	21.81	22.5	1.172	-0.0087	0.929	1.089	0
#56	LTE	LTE Band 4	QPSK	10	25	0	Left Tilted	20000	1715	21.94	22.5	1.138	0.04	0.752	0.855	0
#57	LTE	LTE Band 4	QPSK	10	25	0	Left Tilted	20175	1732.5	21.9	22.5	1.148	0.13	0.801	0.920	0
#58	LTE	LTE Band 4	QPSK	10	25	0	Left Tilted	20350	1750	21.81	22.5	1.172	0.0062	0.768	0.900	0
#59	LTE	LTE Band 4	QPSK	10	50	0	Right Cheek	20000	1715	21.79	22.5	1.178	0.01	0.676	0.796	0
#60	LTE	LTE Band 4	QPSK	10	50	0	Right Tilted	20000	1715	21.79	22.5	1.178	0.0016	0.66	0.777	0
#61	LTE	LTE Band 4	QPSK	10	50	0	Left Cheek	20000	1715	21.79	22.5	1.178	0.02	0.854	1.006	0
#62	LTE	LTE Band 4	QPSK	10	50	0	Left Tilted	20000	1715	21.79	22.5	1.178	-0.03	0.709	0.835	0



#63	LTE	LTE Band 25	QPSK	10	1	0	Right Cheek	26365	1882.5	23.32	24	1.169	-0.037	0.822	0.961	0
#64	LTE	LTE Band 25	QPSK	10	1	0	Right Cheek	26090	1855	23.3	24	1.175	-0.03	0.730	0.858	0
#65	LTE	LTE Band 25	QPSK	10	1	0	Right Cheek	26640	1910	23.24	24	1.191	-0.035	0.777	0.926	0
#66	LTE	LTE Band 25	QPSK	10	1	0	Right Tilted	26365	1882.5	23.32	24	1.169	0.04	0.853	0.998	0
#67	LTE	LTE Band 25	QPSK	10	1	0	Right Tilted	26090	1855	23.3	24	1.175	-0.04	0.745	0.875	0
#68	LTE	LTE Band 25	QPSK	10	1	0	Right Tilted	26640	1910	23.24	24	1.191	0.03	0.823	0.980	0
#69	LTE	LTE Band 25	QPSK	10	1	0	Left Cheek	26365	1882.5	23.32	24	1.169	0.15	1.050	1.228	0
#70	LTE	LTE Band 25	QPSK	10	1	0	Left Cheek	26090	1855	23.3	24	1.175	0.12	0.955	1.122	0
#71	LTE	LTE Band 25	QPSK	10	1	0	Left Cheek	26640	1910	23.24	24	1.191	0.11	1.060	1.263	0
#72	LTE	LTE Band 25	QPSK	10	1	0	Left Tilted	26365	1882.5	23.32	24	1.169	-0.03	0.928	1.085	0
#73	LTE	LTE Band 25	QPSK	10	1	0	Left Tilted	26090	1855	23.3	24	1.175	-0.05	0.823	0.967	0
#74	LTE	LTE Band 25	QPSK	10	1	0	Left Tilted	26640	1910	23.24	24	1.191	0.06	0.908	1.082	0
#75	LTE	LTE Band 25	QPSK	10	25	12	Right Cheek	26090	1855	22.38	23	1.153	-0.06	0.538	0.621	0
#76	LTE	LTE Band 25	QPSK	10	25	12	Right Tilted	26090	1855	22.38	23	1.153	-0.08	0.573	0.661	0
#77	LTE	LTE Band 25	QPSK	10	25	12	Left Cheek	26090	1855	22.38	23	1.153	0.05	0.686	0.791	0
#78	LTE	LTE Band 25	QPSK	10	25	12	Left Tilted	26090	1855	22.38	23	1.153	0.03	0.59	0.681	0
#79	LTE	LTE Band 25	QPSK	10	50	0	Right Cheek	26090	1855	22.17	23	1.211	0.05	0.521	0.631	0
#80	LTE	LTE Band 25	QPSK	10	50	0	Right Tilted	26090	1855	22.17	23	1.211	-0.08	0.55	0.666	0
#81	LTE	LTE Band 25	QPSK	10	50	0	Left Cheek	26090	1855	22.17	23	1.211	0.04	0.656	0.794	0
#82	LTE	LTE Band 25	QPSK	10	50	0	Left Tilted	26090	1855	22.17	23	1.211	0.06	0.568	0.688	0

**Note:**

1. Per KDB 941225 D05v02r02, when reported SAR of 1RB and 50%RB allocation for QPSK >0.8W/kg for any exposure position, SAR testing of 100%RB allocation for QPSK is performed at the highest power channel.
2. 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 D05v02r02, 16QAM SAR testing is not required.
3. 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 D05v02r02, smaller bandwidth SAR testing is not required.

**<WLAN 2.4GHz SAR>**

Plot No.	Antenna	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#83	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Right Cheek	1	2412	14.09	14.5	1.099	0.041	0.035	0.038	0
#84	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Right Tilted	1	2412	14.09	14.5	1.099	0.07	0.029	0.032	0
#85	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Left Cheek	1	2412	14.09	14.5	1.099	0.07	0.064	0.070	0
#86	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Left Tilted	1	2412	14.09	14.5	1.099	0.08	0.02	0.022	0



12.3 Test Records for Hotspot SAR Test

<CDMA SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1q</sub> (W/kg)	Reported SAR <sub>1q</sub> (W/kg)	Reduced Power (dB)
#87	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Front	1	384	836.52	24	24.5	1.122	-0.03	0.693	0.778	0
#88	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Back	1	384	836.52	24	24.5	1.122	0.09	0.852	0.956	0
#89	1xRTT/EVDO	<b>CDMA2000 BC0</b>	<b>RTAP 153.6</b>	<b>Back</b>	<b>1</b>	<b>1013</b>	<b>824.7</b>	<b>24</b>	<b>24.5</b>	<b>1.122</b>	<b>0.01</b>	<b>0.888</b>	<b>0.996</b>	<b>0</b>
#91	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Back	1	777	848.31	23.99	24.5	1.125	0.01	0.812	0.913	0
#92	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Left Side	1	384	836.52	24	24.5	1.122	0.07	0.769	0.863	0
#93	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Left Side	1	1013	824.7	24	24.5	1.122	-0.0016	0.732	0.821	0
#94	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Left Side	1	777	848.31	23.99	24.5	1.125	0.15	0.729	0.820	0
#95	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Right Side	1	384	836.52	24	24.5	1.122	0.11	0.818	0.918	0
#96	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Right Side	1	1013	824.7	24	24.5	1.122	-0.05	0.773	0.867	0
#97	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Right Side	1	777	848.31	23.99	24.5	1.125	0.07	0.77	0.866	0
#98	1xRTT/EVDO	CDMA2000 BC0	RTAP 153.6	Bottom Side	1	384	836.52	24	24.5	1.122	-0.1	0.113	0.127	0
#106	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Front	1	25	1851.25	23.98	24.5	1.127	0.06	0.719	0.810	0
#107	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Front	1	600	1880	23.91	24.5	1.146	0.01	0.709	0.812	0
#108	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Front	1	1175	1908.75	23.66	24.5	1.213	0.02	0.611	0.741	0
#109	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Back	1	25	1851.25	23.98	24.5	1.127	-0.09	1.080	1.217	0
#111	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Back	1	600	1880	23.91	24.5	1.146	-0.07	1.050	1.203	0
#112	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Back	1	1175	1908.75	23.66	24.5	1.213	-0.19	0.930	1.128	0
#113	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Left Side	1	25	1851.25	23.98	24.5	1.127	0.13	0.274	0.309	0
#114	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Right Side	1	25	1851.25	23.98	24.5	1.127	0.12	0.160	0.180	0
#115	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Bottom Side	1	25	1851.25	23.98	24.5	1.127	0.04	0.875	0.986	0
#116	1xRTT/EVDO	CDMA2000 BC1	RTAP 153.6	Bottom Side	1	600	1880	23.91	24.5	1.146	0.05	1.050	1.203	0
#117	1xRTT/EVDO	<b>CDMA2000 BC1</b>	<b>RTAP 153.6</b>	<b>Bottom Side</b>	<b>1</b>	<b>1175</b>	<b>1908.75</b>	<b>23.66</b>	<b>24.5</b>	<b>1.213</b>	<b>-0.069</b>	<b>1.010</b>	<b>1.226</b>	<b>0</b>
#125	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Front	1	425	1731.25	24.42	25	1.143	0.04	0.777	0.888	0
#126	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Front	1	25	1711.25	24.36	25	1.159	0.0046	0.705	0.817	0
#127	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Front	1	875	1753.75	24.28	25	1.180	-0.06	0.722	0.852	0
#128	1xRTT/EVDO	<b>CDMA2000 BC15</b>	<b>RTAP 153.6</b>	<b>Back</b>	<b>1</b>	<b>425</b>	<b>1731.25</b>	<b>24.42</b>	<b>25</b>	<b>1.143</b>	<b>-0.18</b>	<b>1.110</b>	<b>1.269</b>	<b>0</b>
#129	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Back	1	25	1711.25	24.36	25	1.159	-0.07	0.990	1.147	0
#130	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Back	1	875	1753.75	24.28	25	1.180	0.061	1.000	1.180	0
#131	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Left Side	1	425	1731.25	24.42	25	1.143	0.04	0.263	0.301	0
#132	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Right Side	1	425	1731.25	24.42	25	1.143	0.05	0.176	0.201	0
#133	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Bottom Side	1	425	1731.25	24.42	25	1.143	0.11	0.919	1.050	0
#134	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Bottom Side	1	25	1711.25	24.36	25	1.159	0.07	0.877	1.016	0
#135	1xRTT/EVDO	CDMA2000 BC15	RTAP 153.6	Bottom Side	1	875	1753.75	24.28	25	1.180	0.15	0.895	1.056	0



<LTE SAR>

Plot No.	Antenna	Band	Mode	BW (MHz)	RB Size	RB Offset	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#148	LTE	LTE Band 2	QPSK	10	1	49	Front	1	18900	1880	23.56	24	1.107	0.0012	0.310	0.343	0
#149	LTE	LTE Band 2	QPSK	10	1	49	Back	1	18900	1880	23.56	24	1.107	0.0067	0.574	0.635	0
#150	LTE	LTE Band 2	QPSK	10	1	49	Right Side	1	18900	1880	23.56	24	1.107	-0.05	0.371	0.411	0
#151	LTE	LTE Band 2	QPSK	10	1	49	Top Side	1	18900	1880	23.56	24	1.107	-0.04	0.236	0.261	0
#152	LTE	LTE Band 2	QPSK	10	25	0	Front	1	18650	1855	22.53	23	1.114	0.14	0.248	0.276	0
#153	LTE	LTE Band 2	QPSK	10	25	0	Back	1	18650	1855	22.53	23	1.114	0.11	0.456	0.508	0
#154	LTE	LTE Band 2	QPSK	10	25	0	Right Side	1	18650	1855	22.53	23	1.114	0.08	0.321	0.358	0
#155	LTE	LTE Band 2	QPSK	10	25	0	Top Side	1	18650	1855	22.53	23	1.114	-0.04	0.200	0.223	0
#156	LTE	LTE Band 4	QPSK	10	1	0	Front	1	20175	1732.5	23.05	23.5	1.109	-0.01	0.478	0.530	0
#157	LTE	LTE Band 4	QPSK	10	1	0	Back	1	20175	1732.5	23.05	23.5	1.109	0.12	0.763	0.846	0
#158	LTE	LTE Band 4	QPSK	10	1	0	Back	1	20000	1715	23.04	23.5	1.112	0.06	0.745	0.828	0
#159	LTE	LTE Band 4	QPSK	10	1	0	Back	1	20350	1750	22.83	23.5	1.167	0.16	0.742	0.866	0
#160	LTE	LTE Band 4	QPSK	10	1	0	Right Side	1	20175	1732.5	23.05	23.5	1.109	-0.04	0.471	0.522	0
#161	LTE	LTE Band 4	QPSK	10	1	0	Top Side	1	20175	1732.5	23.05	23.5	1.109	-0.06	0.238	0.264	0
#162	LTE	LTE Band 4	QPSK	10	25	0	Front	1	20000	1715	21.94	22.5	1.138	-0.0077	0.357	0.406	0
#163	LTE	LTE Band 4	QPSK	10	25	0	Back	1	20000	1715	21.94	22.5	1.138	0.05	0.574	0.653	0
#164	LTE	LTE Band 4	QPSK	10	25	0	Right Side	1	20000	1715	21.94	22.5	1.138	0.0012	0.334	0.380	0
#165	LTE	LTE Band 4	QPSK	10	25	0	Top Side	1	20000	1715	21.94	22.5	1.138	0.02	0.173	0.197	0
#166	LTE	LTE Band 4	QPSK	10	50	0	Front	1	20000	1715	21.79	22.5	1.178	0.04	0.334	0.393	0
#167	LTE	LTE Band 4	QPSK	10	50	0	Back	1	20000	1715	21.79	22.5	1.178	0.11	0.559	0.658	0
#168	LTE	LTE Band 4	QPSK	10	50	0	Right Side	1	20000	1715	21.79	22.5	1.178	-0.07	0.321	0.378	0
#169	LTE	LTE Band 4	QPSK	10	50	0	Top Side	1	20000	1715	21.79	22.5	1.178	-0.06	0.168	0.198	0
#170	LTE	LTE Band 25	QPSK	10	1	0	Front	1	26365	1882.5	23.32	24	1.169	0.024	0.345	0.403	0
#171	LTE	LTE Band 25	QPSK	10	1	0	Back	1	26365	1882.5	23.32	24	1.169	0.13	0.621	0.726	0
#172	LTE	LTE Band 25	QPSK	10	1	0	Right Side	1	26365	1882.5	23.32	24	1.169	0.07	0.399	0.467	0
#173	LTE	LTE Band 25	QPSK	10	1	0	Top Side	1	26365	1882.5	23.32	24	1.169	-0.09	0.264	0.309	0
#174	LTE	LTE Band 25	QPSK	10	25	12	Front	1	26090	1855	22.38	23	1.153	0.07	0.227	0.262	0
#175	LTE	LTE Band 25	QPSK	10	25	12	Back	1	26090	1855	22.38	23	1.153	0.05	0.429	0.495	0
#176	LTE	LTE Band 25	QPSK	10	25	12	Right Side	1	26090	1855	22.38	23	1.153	-0.09	0.3	0.346	0
#177	LTE	LTE Band 25	QPSK	10	25	12	Top Side	1	26090	1855	22.38	23	1.153	-0.14	0.184	0.212	0

Note:

- Per KDB 941225 D05v02r02, when reported SAR of 1RB and 50%RB allocation for QPSK >0.8W/kg for any exposure position, SAR testing of 100%RB allocation for QPSK is performed at the highest power channel.
- 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 D05v0r02, 16QAM SAR testing is not required.
- 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 D05v02r02, smaller bandwidth SAR testing is not required.

<WLAN2.4GHz SAR>

Plot No.	Antenna	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#178	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Front	1	1	2412	14.09	14.5	1.099	0.06	0.016	0.018	0
#179	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Back	1	1	2412	14.09	14.5	1.099	0.064	0.098	0.108	0
#180	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Right Side	1	1	2412	14.09	14.5	1.099	0.022	0.086	0.095	0



**12.4 Test Records for Body Worn SAR Test**

**General Note:**

1. Body-worn SAR testing was performed at 10mm separation, and this distance is determined by the handset manufacturer that there will be body-worn accessories that users may acquire at the time of equipment certification, to enable users to purchase aftermarket body-worn accessories with the required minimum separation.
2. Per KDB 941225 D06 v01r01, when the same wireless mode and device transmission configurations are required for testing body-worn accessories and hotspot mode, it is not necessary to test body-worn accessory SAR for the same device orientation if the test separation distance for hotspot mode is more conservative than that used for body-worn accessories.
3. Body-worn exposure conditions are intended to voice call operations, therefore CDMA voice call is selected to be tested.
4. Though per KDB 648474 D04v01r01, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is  $\leq 1.2$  W/kg, the SAR testing with a headset connected to the handset is not required, but considered the simultaneous SAR for body-worn, we still perform the LTE SAR and WLAN SAR with headset mode.

**<CDMA SAR>**

Plot No.	Antenna	Band	Mode	Test Position	Gap (cm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#99	1xRTT/EVDO	CDMA2000 BC0	RC3 SO32	Front	1	-	384	836.52	24.07	24.5	1.104	-0.03	0.697	0.770	0
#100	1xRTT/EVDO	CDMA2000 BC0	RC3 SO32	Back	1	-	384	836.52	24.07	24.5	1.104	-0.0095	0.854	0.943	0
#101	1xRTT/EVDO	CDMA2000 BC0	RC3 SO32	Back	1	-	1013	824.7	24.07	24.5	1.104	0.07	0.876	0.967	0
#102	1xRTT/EVDO	CDMA2000 BC0	RC3 SO32	Back	1	-	777	848.31	24.03	24.5	1.114	0.0008	0.805	0.897	0
#103	1xRTT/EVDO	CDMA2000 BC0	RETAP 4096	Back	1	-	384	836.52	23.92	24.5	1.143	0.11	0.846	0.967	0
#104	1xRTT/EVDO	<b>CDMA2000 BC0</b>	<b>RETAP 4096</b>	<b>Back</b>	<b>1</b>	<b>-</b>	<b>1013</b>	<b>824.7</b>	<b>23.89</b>	<b>24.5</b>	<b>1.151</b>	<b>0.0051</b>	<b>0.877</b>	<b>1.009</b>	<b>0</b>
#105	1xRTT/EVDO	CDMA2000 BC0	RETAP 4096	Back	1	-	777	848.31	23.9	24.5	1.148	0.05	0.833	0.956	0
#118	1xRTT/EVDO	CDMA2000 BC1	RC3 SO32	Front	1	-	25	1851.25	24.09	24.5	1.099	-0.037	0.652	0.717	0
#119	1xRTT/EVDO	CDMA2000 BC1	RC3 SO32	Back	1	-	25	1851.25	24.09	24.5	1.099	-0.034	0.997	1.096	0
#120	1xRTT/EVDO	CDMA2000 BC1	RC3 SO32	Back	1	-	600	1880	23.95	24.5	1.135	-0.03	0.993	1.127	0
#121	1xRTT/EVDO	CDMA2000 BC1	RC3 SO32	Back	1	-	1175	1908.75	23.72	24.5	1.197	-0.057	0.826	0.989	0
#122	1xRTT/EVDO	CDMA2000 BC1	RETAP 4096	Back	1	-	25	1851.25	23.94	24.5	1.138	-0.01	0.963	1.096	0
#123	1xRTT/EVDO	<b>CDMA2000 BC1</b>	<b>RETAP 4096</b>	<b>Back</b>	<b>1</b>	<b>-</b>	<b>600</b>	<b>1880</b>	<b>23.82</b>	<b>24.5</b>	<b>1.169</b>	<b>-0.029</b>	<b>0.982</b>	<b>1.148</b>	<b>0</b>
#124	1xRTT/EVDO	CDMA2000 BC1	RETAP 4096	Back	1	-	1175	1908.75	23.57	24.5	1.239	-0.062	0.901	1.116	0
#136	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Front	1	-	425	1731.25	24.51	25	1.119	-0.03	0.776	0.869	0
#137	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Front	1	-	25	1711.25	24.48	25	1.127	-0.02	0.720	0.812	0
#138	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Front	1	-	875	1753.75	24.36	25	1.159	-0.05	0.739	0.856	0
#139	1xRTT/EVDO	<b>CDMA2000 BC15</b>	<b>RC3 SO32</b>	<b>Back</b>	<b>1</b>	<b>-</b>	<b>425</b>	<b>1731.25</b>	<b>24.51</b>	<b>25</b>	<b>1.119</b>	<b>-0.07</b>	<b>1.140</b>	<b>1.276</b>	<b>0</b>
#140	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Back	1	-	25	1711.25	24.48	25	1.127	-0.1	1.020	1.150	0
#141	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Back	1	-	875	1753.75	24.36	25	1.159	-0.13	1.070	1.240	0
#142	1xRTT/EVDO	CDMA2000 BC15	RETAP 4096	Back	1	-	425	1731.25	24.4	25	1.148	-0.054	1.050	1.206	0
#143	1xRTT/EVDO	CDMA2000 BC15	RETAP 4096	Back	1	-	25	1711.25	24.36	25	1.159	-0.08	0.935	1.083	0
#144	1xRTT/EVDO	CDMA2000 BC15	RETAP 4096	Back	1	-	875	1753.75	24.26	25	1.186	-0.04	0.987	1.170	0
#145	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Back	1	Headset	425	1731.25	24.51	25	1.119	-0.0055	1.070	1.198	0
#146	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Back	1	Headset	25	1711.25	24.48	25	1.127	-0.0085	0.942	1.062	0
#147	1xRTT/EVDO	CDMA2000 BC15	RC3 SO32	Back	1	Headset	875	1753.75	24.36	25	1.159	-0.11	1.000	1.159	0



<LTE SAR>

Plot No.	Antenna	Band	Mode	BW (MHz)	RB Size	RB Offset	Test Position	Gap (cm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#148	LTE	LTE Band 2	QPSK	10	1	49	Front	1	-	18900	1880	23.56	24	1.107	0.0012	0.31	0.343	0
#149	LTE	LTE Band 2	QPSK	10	1	49	Back	1	-	18900	1880	23.56	24	1.107	0.0067	0.574	0.635	0
#181	LTE	LTE Band 2	QPSK	10	1	49	Back	1	Headset	18900	1880	23.56	24	1.107	-0.008	0.505	0.559	0
#152	LTE	LTE Band 2	QPSK	10	25	0	Front	1	-	18650	1855	22.53	23	1.114	0.14	0.248	0.276	0
#153	LTE	LTE Band 2	QPSK	10	25	0	Back	1	-	18650	1855	22.53	23	1.114	0.11	0.456	0.508	0
#156	LTE	LTE Band 4	QPSK	10	1	0	Front	1	-	20175	1732.5	23.05	23.5	1.109	-0.01	0.478	0.530	0
#157	LTE	LTE Band 4	QPSK	10	1	0	Back	1	-	20175	1732.5	23.05	23.5	1.109	0.12	0.763	0.846	0
#158	LTE	LTE Band 4	QPSK	10	1	0	Back	1	-	20000	1715	23.04	23.5	1.112	0.06	0.745	0.828	0
#159	LTE	LTE Band 4	QPSK	10	1	0	Back	1	-	20350	1750	22.83	23.5	1.167	0.16	0.742	0.866	0
#182	LTE	LTE Band 4	QPSK	10	1	0	Back	1	Headset	20350	1750	22.83	23.5	1.167	0.024	0.728	0.849	0
#183	LTE	LTE Band 4	QPSK	10	1	0	Back	1	Headset	20000	1715	23.04	23.5	1.112	0.17	0.765	0.850	0
#184	LTE	LTE Band 4	QPSK	10	1	0	Back	1	Headset	20175	1732.5	23.05	23.5	1.109	0.02	0.792	0.878	0
#162	LTE	LTE Band 4	QPSK	10	25	0	Front	1	-	20000	1715	21.94	22.5	1.138	-0.0077	0.357	0.406	0
#163	LTE	LTE Band 4	QPSK	10	25	0	Back	1	-	20000	1715	21.94	22.5	1.138	0.05	0.574	0.653	0
#166	LTE	LTE Band 4	QPSK	10	50	0	Front	1	-	20000	1715	21.79	22.5	1.178	0.04	0.334	0.393	0
#167	LTE	LTE Band 4	QPSK	10	50	0	Back	1	-	20000	1715	21.79	22.5	1.178	0.11	0.559	0.658	0
#170	LTE	LTE Band 25	QPSK	10	1	0	Front	1	-	26365	1882.5	23.32	24	1.169	0.024	0.345	0.403	0
#171	LTE	LTE Band 25	QPSK	10	1	0	Back	1	-	26365	1882.5	23.32	24	1.169	0.13	0.621	0.726	0
#185	LTE	LTE Band 25	QPSK	10	1	0	Back	1	Headset	26365	1882.5	23.32	24	1.169	0.1	0.56	0.655	0
#174	LTE	LTE Band 25	QPSK	10	25	12	Front	1	-	26090	1855	22.38	23	1.153	0.07	0.227	0.262	0
#175	LTE	LTE Band 25	QPSK	10	25	12	Back	1	-	26090	1855	22.38	23	1.153	0.05	0.429	0.495	0

<WLAN 2.4GHz SAR >

Plot No.	Antenna	Band	Mode	Test Position	Gap (cm)	Headset	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Reported SAR <sub>1g</sub> (W/kg)	Reduced Power (dB)
#178	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Front	1	-	1	2412	14.09	14.5	1.099	0.06	0.016	0.018	0
#179	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Back	1	-	1	2412	14.09	14.5	1.099	0.064	0.098	0.108	0
#186	WLAN/BT	WLAN 2.4GHz	802.11b, 1Mbps	Back	1	Headset	1	2412	14.09	14.5	1.099	0.08	0.097	0.107	0



**12.5 Repeated SAR Measurement**

Plot No.	Antenna	Band	Mode	BW (MHz)	RB Size	RB Offset	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR <sub>1g</sub> (W/kg)	Ratio	Reported SAR <sub>1g</sub> (W/kg)
#89	1xRTT/EV DO	CDMA2000 BC0	RTAP 153.6	-	-	-	Back	1	1013	824.7	24	24.5	1.122	0.01	0.888	1	0.996
#90	1xRTT/EV DO	CDMA2000 BC0	RTAP 153.6	-	-	-	Back	1	1013	824.7	24	24.5	1.122	0.03	0.881	1.008	0.988
#109	1xRTT/EV DO	CDMA2000 BC1	RTAP 153.6	-	-	-	Back	1	25	1851.25	23.98	24.5	1.127	-0.09	1.080	1	1.217
#110	1xRTT/EV DO	CDMA2000 BC1	RTAP 153.6	-	-	-	Back	1	25	1851.25	23.98	24.5	1.127	-0.01	1.050	1.029	1.184
#46	LTE	LTE Band 4	QPSK	10	1	0	Left Cheek	-	20350	1750	22.83	23.5	1.167	0.04	1.210	1	1.412
#47	LTE	LTE Band 4	QPSK	10	1	0	Left Cheek	-	20350	1750	22.83	23.5	1.167	0.08	1.200	1.008	1.400

**Note:**

1. Per KDB 865664 D01v01r01, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8W/kg$
2. Per KDB 865664 D01v01r01, if the ratio among the repeated measurement is  $\leq 1.2$  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.

**12.6 Highest SAR Plot**

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

Date: 2013-7-6

**#104 CDMA2000 BC0\_RETAP 4096\_Back 1cm\_Ch1013**

**DUT: 360504**

Communication System: CDMA2000; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_130706 Medium parameters used:  $f = 825$  MHz;  $\sigma = 0.973$  mho/m;  $\epsilon_r = 54.956$ ;

$\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.1 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.48, 9.48, 9.48); Calibrated: 2013-6-20

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19

- Phantom: SAM2; Type: SAM; Serial: TP-1477

- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch1013/Area Scan (71x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.016 mW/g

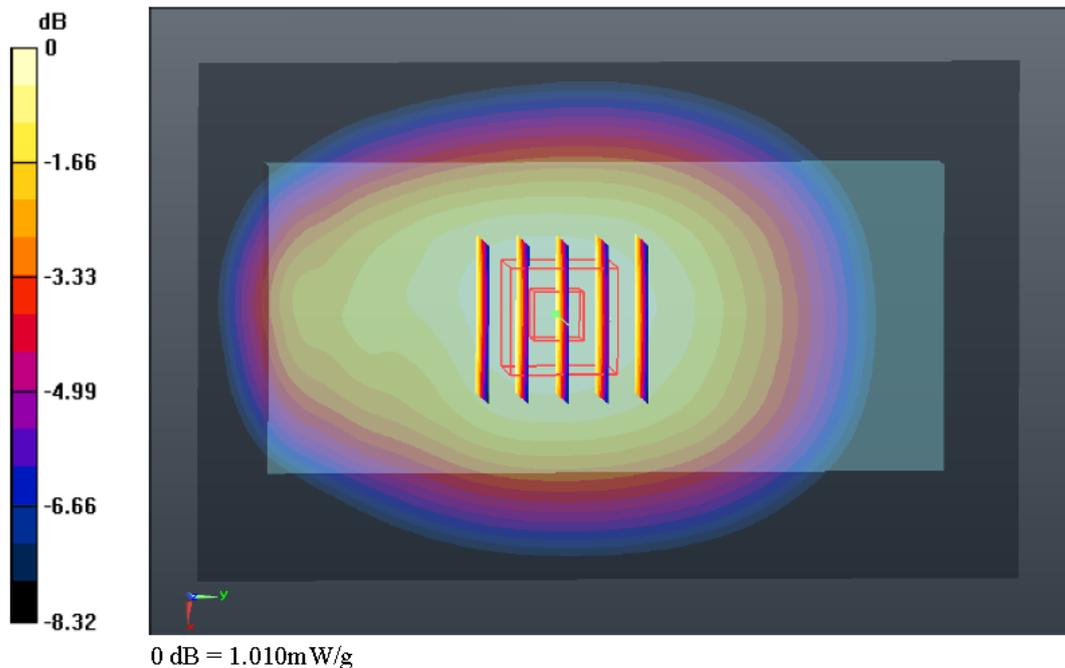
**Ch1013/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.046 V/m; Power Drift = 0.0051 dB

Peak SAR (extrapolated) = 1.110 W/kg

**SAR(1 g) = 0.877 mW/g; SAR(10 g) = 0.670 mW/g**

Maximum value of SAR (measured) = 1.008 mW/g



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

Date: 2013-7-3

**#117\_CDMA2000 BC1\_RTAP 153.6\_Bottom Side\_1cm\_Ch1175**

**DUT: 360504**

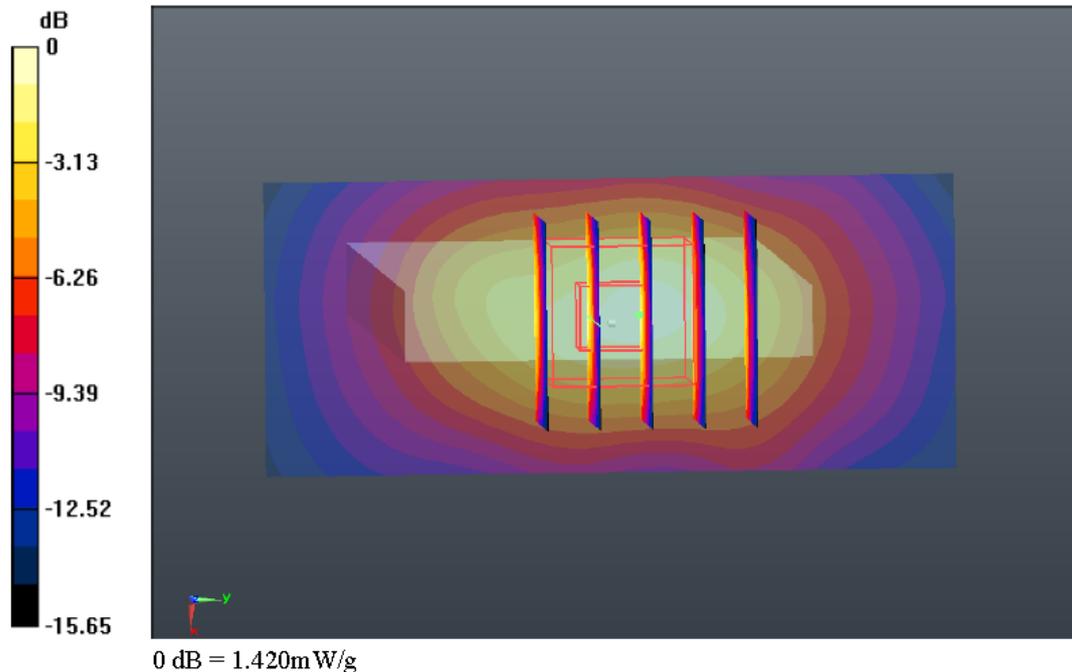
Communication System: CDMA2000; Frequency: 1908.75 MHz; Duty Cycle: 1:1  
 Medium: MSL\_1900\_130703 Medium parameters used:  $f = 1909$  MHz;  $\sigma = 1.561$  mho/m;  $\epsilon_r = 53.225$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.2 °C ; Liquid Temperature : 21.1 °C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3857; ConvF(7.52, 7.52, 7.52); Calibrated: 2013-6-20
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch1175/Area Scan (31x71x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.263 mW/g

**Ch1175/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 23.529 V/m; Power Drift = -0.069 dB  
 Peak SAR (extrapolated) = 1.715 W/kg  
**SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.547 mW/g**  
 Maximum value of SAR (measured) = 1.420 mW/g



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

Date: 2013-7-4

**#139\_CDMA2000 BC15\_RC3 SO32\_Back\_1cm\_Ch425**

**DUT: 360504**

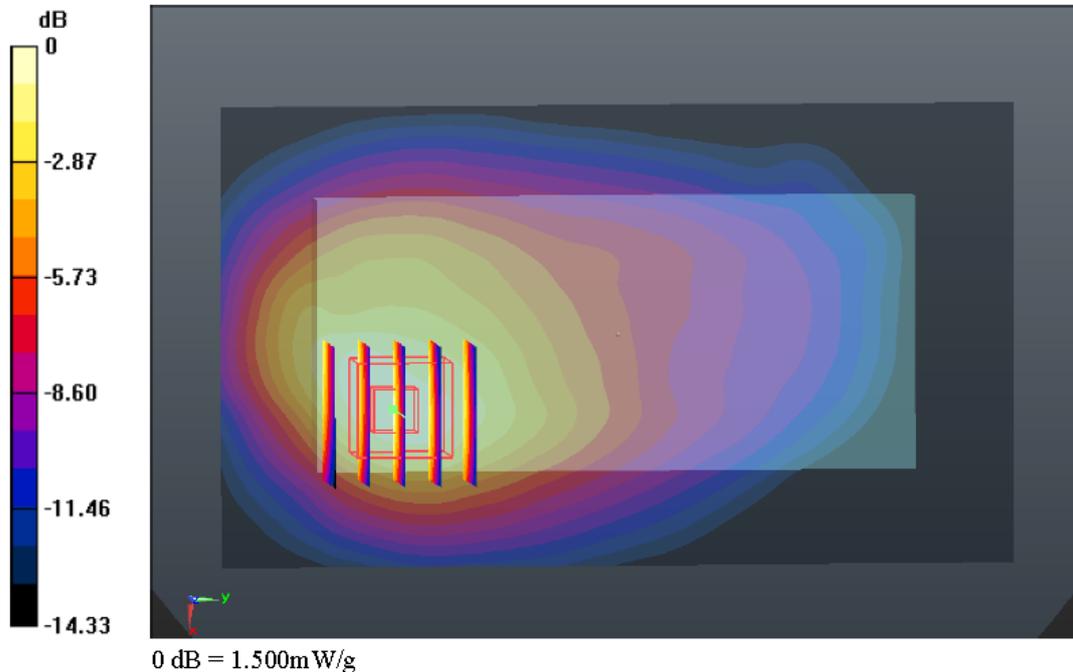
Communication System: CDMA2000; Frequency: 1731.25 MHz; Duty Cycle: 1:1  
 Medium: MSL\_1750\_130704 Medium parameters used:  $f = 1731.25$  MHz;  $\sigma = 1.493$  mho/m;  $\epsilon_r = 55.529$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.2 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.86, 7.86, 7.86); Calibrated: 2013-6-20
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch425/Area Scan (71x121x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.536 mW/g

**Ch425/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 14.066 V/m; Power Drift = -0.07 dB  
 Peak SAR (extrapolated) = 1.765 W/kg  
**SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.701 mW/g**  
 Maximum value of SAR (measured) = 1.495 mW/g



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

Date: 2013-7-5

**#23 LTE Band 2\_10M\_QPSK(1,49)\_Left Cheek\_Ch18650**

**DUT: 360504**

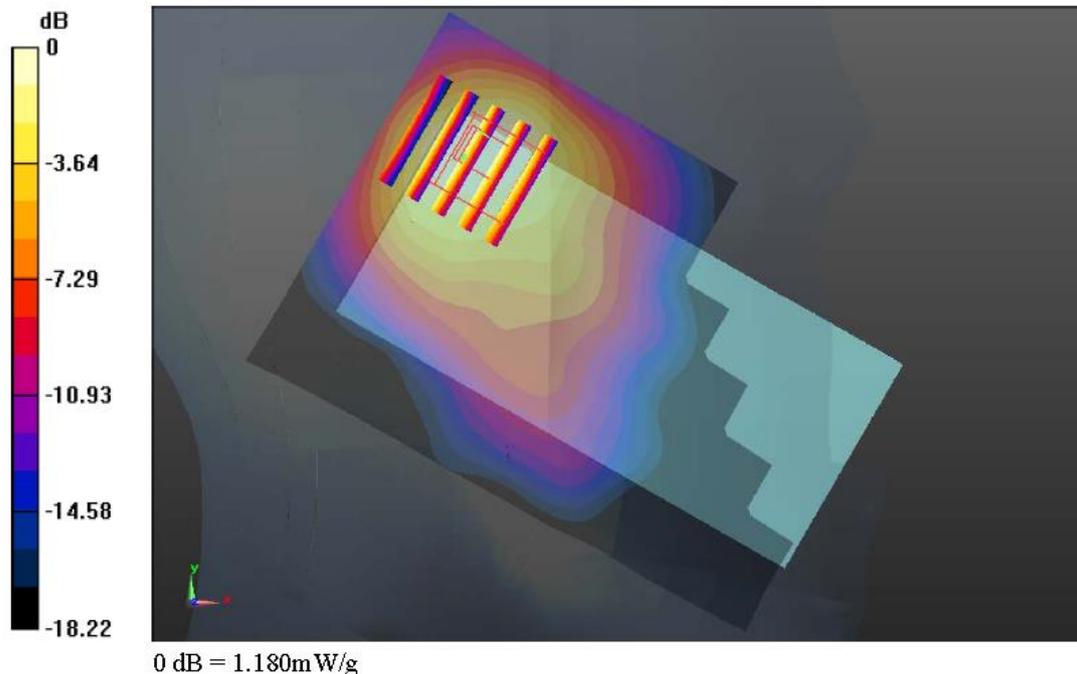
Communication System: LTE; Frequency: 1855 MHz; Duty Cycle: 1:1  
 Medium: HSL\_1900\_130705 Medium parameters used:  $f = 1855 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 39.021$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.1 °C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3857; ConvF(8.04, 8.04, 8.04); Calibrated: 2013-6-20
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch18650/Area Scan (71x111x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.131 mW/g

**Ch18650/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 18.368 V/m; Power Drift = 0.11 dB  
 Peak SAR (extrapolated) = 1.505 W/kg  
**SAR(1 g) = 0.925 mW/g; SAR(10 g) = 0.544 mW/g**  
 Maximum value of SAR (measured) = 1.182 mW/g



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

Date: 2013-7-6

**#46 LTE Band 4\_10M\_QPSK(1,0)\_Left Cheek\_Ch20350**

**DUT: 360504**

Communication System: LTE; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: HSL\_1750\_130706 Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.393$  mho/m;  $\epsilon_r =$

41.004;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.2 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.41, 8.41, 8.41); Calibrated: 2013-6-20
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch20350/Area Scan (61x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.637 mW/g

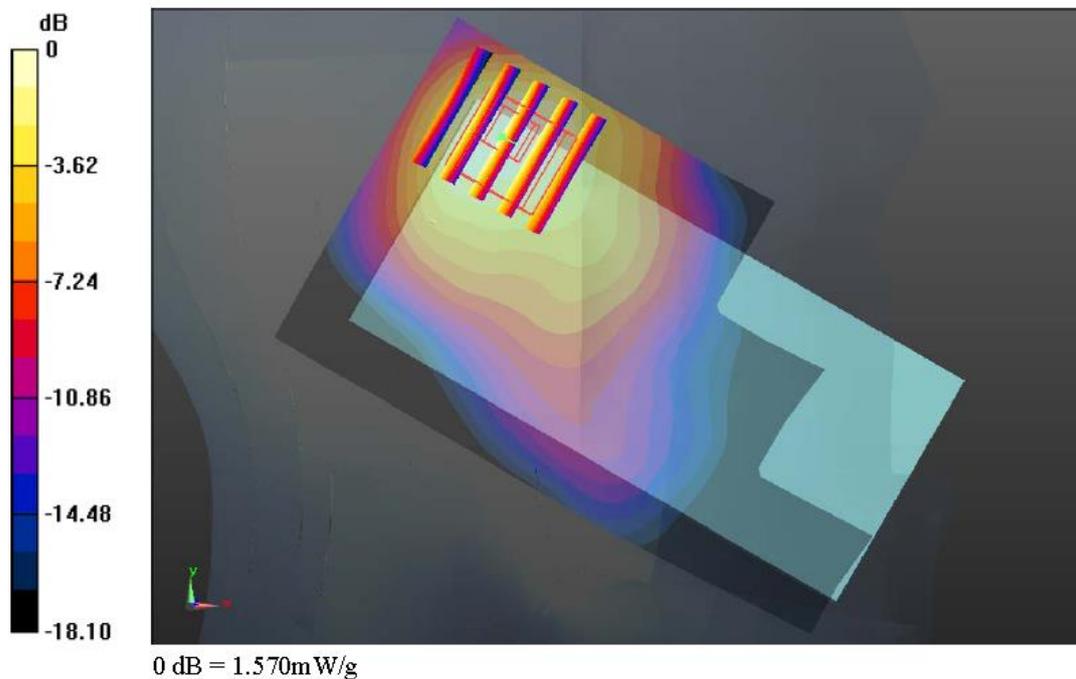
**Ch20350/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.340 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 2.039 W/kg

**SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.704 mW/g**

Maximum value of SAR (measured) = 1.569 mW/g



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

Date: 2013-7-5

**#71 LTE Band 25\_10M\_QPSK(1,0)\_Left Cheek\_Ch26640**

**DUT: 360504**

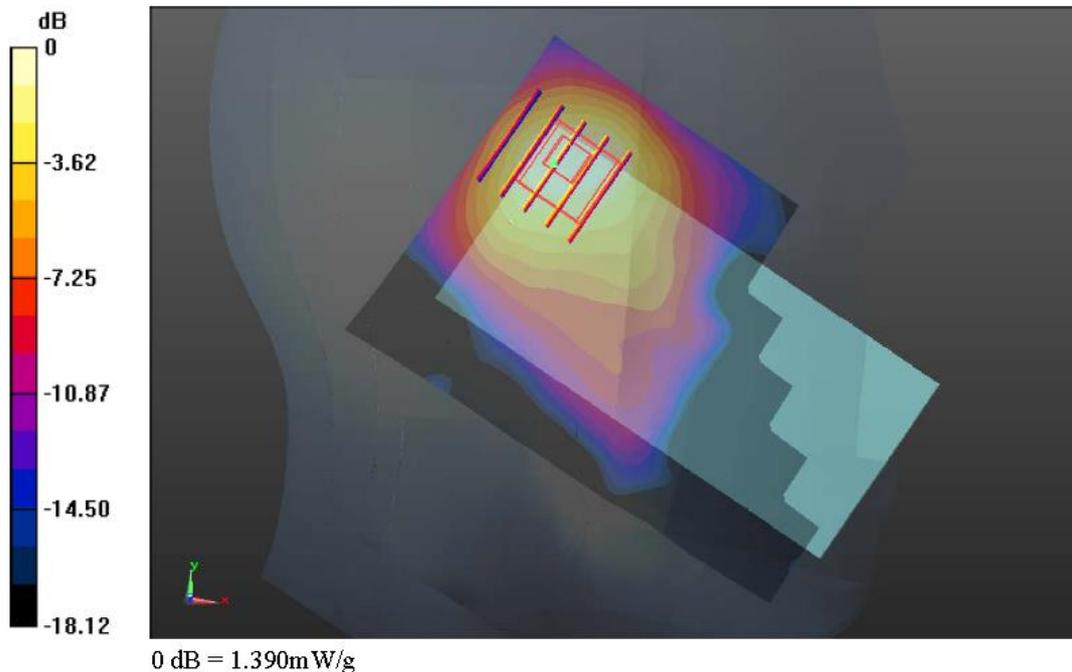
Communication System: LTE; Frequency: 1910 MHz; Duty Cycle: 1:1  
 Medium: HSL\_1900\_130705 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.436$  mho/m;  $\epsilon_r = 38.809$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.1 °C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3857; ConvF(8.04, 8.04, 8.04); Calibrated: 2013-6-20
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch26640/Area Scan (71x111x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.366 mW/g

**Ch26640/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 19.088 V/m; Power Drift = 0.11 dB  
 Peak SAR (extrapolated) = 1.785 W/kg  
**SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.612 mW/g**  
 Maximum value of SAR (measured) = 1.390 mW/g



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

Date: 2013-7-9

#179 WLAN 2.4GHz\_802.11b\_1M\_Back\_1cm\_Ch1

**DUT: 360504**

Communication System: WIFI, Frequency: 2412 MHz, Duty Cycle: 1:1

Medium: MSL\_2450\_130709 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.876$  mho/m;  $\epsilon_r =$ 51.38;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7, 7, 7); Calibrated: 2013-6-20

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn1210; Calibrated: 2013-6-19

- Phantom: SAM2; Type: SAM; Serial: TP-1477

- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.4.5 (3634)

**Ch1/Area Scan (81x141x1):** Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.160 mW/g

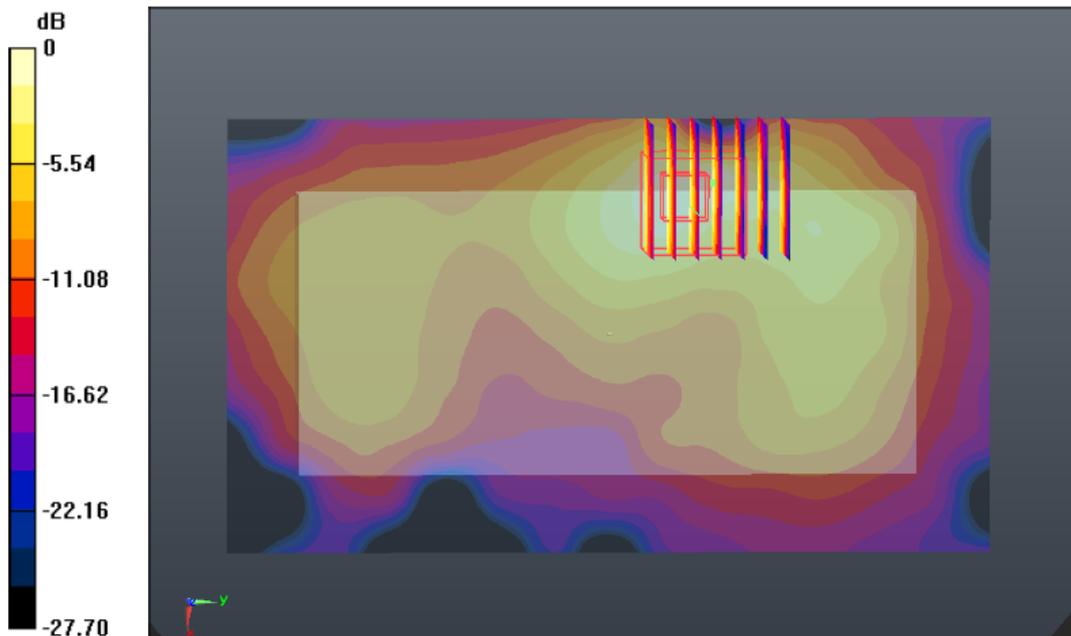
**Ch1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.868 V/m; Power Drift = 0.064 dB

Peak SAR (extrapolated) = 0.207 W/kg

**SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.045 mW/g**

Maximum value of SAR (measured) = 0.148 mW/g



### 13. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset Exposure positions			Note
		Head	Body-worn	Hotspot	
1.	CDMA(voice) + LTE(data) + WLAN2.4GHz(data)	Yes	Yes	No <sup>(1)</sup>	SVLTE + 2.4GHz Hotspot
2.	CDMA(voice) + LTE(data) + Bluetooth(data)	Yes	Yes	No <sup>(1)</sup>	SVLTE + Bluetooth
3.	CDMA(voice) + LTE(data)	Yes	Yes	NO	SVLTE
4.	CDMA(voice) + WLAN2.4GHz(data)	Yes	Yes	NO	-
5.	CDMA(voice) + Bluetooth(data)	Yes	Yes	NO	-
6.	CDMA(data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
7.	CDMA(data) + Bluetooth(data)	Yes	Yes	Yes	-
8.	LTE(data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
9.	LTE(data) + Bluetooth(data)	Yes	Yes	Yes	-

**Note:**

1. SAR testing in hotspot mode exposure positions is for wireless router functions of data connection. According to KDB 941225 D06 v01r01, SAR compliance of simultaneous voice and hotspot mode data configurations was evaluated in head and body-worn accessory use conditions.
2. WLAN 2.4GHz and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. The reported SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v05r01, simultaneous transmission SAR is compliant if,
  - i) Scalar SAR summation < 1.6W/kg.
  - ii)  $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$ , where  $(x_1, y_1, z_1)$  and  $(x_2, y_2, z_2)$  are the coordinates of the extrapolated peak SAR locations in the zoom scan  
If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary
  - iii) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg
5. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05r01 based on the formula below.
  - i)  $(max. \text{ power of channel, including tune-up tolerance, mW}) / (min. \text{ test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x] \text{ W/kg}$  for test separation distances  $\leq 50 \text{ mm}$ ; where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.
  - ii) 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.
  - iii) If the test separation distance (antenna-user) is < 5mm, 5mm is used to determine SAR exclusion threshold

Maximum Power	Exposure Position	Head	Hotspot	Body-worn
	Test separation	0 mm	10 mm	10 mm
1 dBm	Estimated SAR (W/kg)	0.053W/kg	0.026W/kg	0.026W/kg

**The implemented power combinations (Unit: dBm)**

SVLTE Mode		
Voice Mode	Data Mode	
1xRTT BC0/BC1/ BC15	LTE Band 2/25 BW=1.4/3/5/10MHz QPSK 1RB	LTE Band 4 BW=1.4/3/5/10MHz QPSK 1RB
≤16.5 dBm	24 dBm	23.5 dBm
>16.5 dBm	18 dBm	18 dBm

**Alternative combinations (Unit: dBm) – For analysis purpose only**

Power combination	CDMA2000 1x voice	LTE data mode
#1	CDMA BC0/BC1:24.5dBm CDMA BC15: 25 dBm	<b>Full Power</b> LTE Band 2/25: 24 dBm LTE Band 4: 23.5 dBm
#2	CDMA BC0/BC1/BC15: 16.5 dBm	<b>Full Power</b> LTE Band 2/25: 24 dBm LTE Band 4: 23.5 dBm
#3	CDMA BC0/BC1:24.5dBm CDMA BC15: 25 dBm	<b>Reduced Power</b> LTE Band 2/4/25: 18 dBm

**Note:**

- For SVLTE mode which means LTE (data) and CDMA 1xRTT (voice) transmitting simultaneously, power reduction is implemented.
- When EUT 1xRTT output power is > 16.5dBm, LTE maximum output power is limited to 18dBm regardless of the power control command from the base station.

**Analysis Procedure:**

**Step1**

- Per KDB 941225 D05 v02r02, maximum power standalone SAR of 1xRTT/EVDO/LTE is used for simultaneous transmission analysis.
- Start analysis from full power combination (Alternative Power combination #1).
- If 1g-SAR scalar summation < 1.6W/kg, simultaneous SAR measurement and further evaluations are not necessary.
- If 1g-SAR summation >1.6W/kg, SPLSR calculation is necessary.
- If SPLSR ≤ 0.04, further evaluation is not required.
- If SPLSR > 0.04, step2 analysis is required.

**Step2**

- For the cases from step1, power combinations #2/#3 are used in further step2 analysis.
- If 1g-SAR scalar summation < 1.6W/kg, simultaneous SAR measurement and further evaluations are not necessary.
- If SPLSR ≤ 0.04, further evaluation is not required.
- If SPLSR > 0.04, volume scan measurement is required.



13.1 Head Exposure Conditions

Table 13.1-A1: Head SAR analysis <Step1>

NO.	Simultaneous Transmission Configurations	Head	Note
1.	CDMA(voice) + LTE(data) + WLAN2.4GHz(data)	Yes	SVLTE + 2.4GHz Hotspot
2.	CDMA(voice) + LTE(data) + Bluetooth(data)	Yes	SVLTE + Bluetooth
3.	CDMA(voice) + LTE(data)	Yes	SVLTE

Position	WWAN (voice)				WWAN (data)				WLAN 2.4GHz			Summed SAR (W/kg)	SPLSR	SPLSR Case No	Remark
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Plot No	Average Power (dBm)	Max. WLAN SAR (W/kg)				
Right Cheek	CDMA2000 BC0	#05	23.92	0.626	LTE Band 2	#17	23.47	0.813	#83	14.09	0.038	1.48	-	-	-
	CDMA2000 BC0	#05	23.92	0.626	LTE Band 4	#40	22.83	1.080	#83	14.09	0.038	1.74	0.04	#A1-1	-
	CDMA2000 BC0	#05	23.92	0.626	LTE Band 25	#63	23.32	0.961	#83	14.09	0.038	1.63	0.03	#A1-2	-
	CDMA2000 BC1	#10	23.94	0.504	LTE Band 2	#17	23.47	0.813	#83	14.09	0.038	1.36	-	-	-
	CDMA2000 BC1	#10	23.94	0.504	LTE Band 4	#40	22.83	1.080	#83	14.09	0.038	1.62	0.03	#A1-3	-
	CDMA2000 BC1	#10	23.94	0.504	LTE Band 25	#63	23.32	0.961	#83	14.09	0.038	1.50	-	-	-
	CDMA2000 BC15	#15	24.40	0.656	LTE Band 2	#17	23.47	0.813	#83	14.09	0.038	1.51	-	-	-
	CDMA2000 BC15	#15	24.40	0.656	LTE Band 4	#40	22.83	1.080	#83	14.09	0.038	1.77	0.03	#A1-4	-
Right Tilted	CDMA2000 BC15	#15	24.40	0.656	LTE Band 25	#63	23.32	0.961	#83	14.09	0.038	1.66	0.03	#A1-5	-
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 2	#20	23.47	0.878	#84	14.09	0.032	1.35	-	-	-
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 4	#43	22.83	1.133	#84	14.09	0.032	1.60	0.22	#A1-6	go to step2
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 25	#66	23.32	0.998	#84	14.09	0.032	1.47	-	-	-
	CDMA2000 BC1	#07	24.14	0.178	LTE Band 2	#20	23.47	0.878	#84	14.09	0.032	1.09	-	-	-
	CDMA2000 BC1	#07	24.14	0.178	LTE Band 4	#43	22.83	1.133	#84	14.09	0.032	1.34	-	-	-
	CDMA2000 BC1	#07	24.14	0.178	LTE Band 25	#66	23.32	0.998	#84	14.09	0.032	1.21	-	-	-
	CDMA2000 BC15	#12	24.56	0.115	LTE Band 2	#20	23.47	0.878	#84	14.09	0.032	1.03	-	-	-
Left Cheek	CDMA2000 BC15	#12	24.56	0.115	LTE Band 4	#43	22.83	1.133	#84	14.09	0.032	1.28	-	-	-
	CDMA2000 BC15	#12	24.56	0.115	LTE Band 25	#66	23.32	0.998	#84	14.09	0.032	1.15	-	-	-
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 2	#23	23.47	1.045	#85	14.09	0.070	1.68	0.03	#A1-7	-
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	2.05	0.05	#A1-8	go to step2
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 25	#71	23.24	1.263	#85	14.09	0.070	1.90	0.04	#A1-9	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 2	#23	23.47	1.045	#85	14.09	0.070	1.58	-	-	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	1.95	0.05	#A1-10	go to step2
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 25	#71	23.24	1.263	#85	14.09	0.070	1.80	0.04	#A1-11	-
Left Tilted	CDMA2000 BC15	#13	24.56	0.534	LTE Band 2	#23	23.47	1.045	#85	14.09	0.070	1.65	0.03	#A1-12	-
	CDMA2000 BC15	#13	24.56	0.534	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	2.02	0.05	#A1-13	go to step2
	CDMA2000 BC15	#13	24.56	0.534	LTE Band 25	#71	23.24	1.263	#85	14.09	0.070	1.87	0.04	#A1-14	-
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 2	#27	23.54	0.914	#86	14.09	0.022	1.38	-	-	-
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 4	#50	22.83	1.202	#86	14.09	0.022	1.67	0.06	#A1-15	go to step2
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 25	#72	23.32	1.085	#86	14.09	0.022	1.55	-	-	-
	CDMA2000 BC1	#09	24.14	0.163	LTE Band 2	#27	23.54	0.914	#86	14.09	0.022	1.10	-	-	-
	CDMA2000 BC1	#09	24.14	0.163	LTE Band 4	#50	22.83	1.202	#86	14.09	0.022	1.39	-	-	-
Left Tilted	CDMA2000 BC1	#09	24.14	0.163	LTE Band 25	#72	23.32	1.085	#86	14.09	0.022	1.27	-	-	-
	CDMA2000 BC15	#14	24.56	0.196	LTE Band 2	#27	23.54	0.914	#86	14.09	0.022	1.13	-	-	-
	CDMA2000 BC15	#14	24.56	0.196	LTE Band 4	#50	22.83	1.202	#86	14.09	0.022	1.42	-	-	-
	CDMA2000 BC15	#14	24.56	0.196	LTE Band 25	#72	23.32	1.085	#86	14.09	0.022	1.30	-	-	-

Remark:

1. If SPLSR > 0.04, step2 analysis is required.
2. The SAR summation represents the simultaneous transmission of, a WWAN voice call and WWAN data transmission and WLAN as hotspot router; 3 transmitters operating at the same time.
3. The analysis above will represent the compliance of the simultaneous transmission of a WWAN voice call and WWAN data transmission, since the possible WWAN output power configuration in SVLTE mode( 2 transmitters) is exactly the same as the configuration in SVLTE+WLAN (3 transmitters).



Position	WWAN (voice)				WWAN (data)				Bluetooth		Summed SAR (W/kg)	SPLSR	SPLSR Case No	Remark
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Average Power (dBm)	Estimated Bluetooth SAR (W/kg)				
Right Cheek	CDMA2000 BC0	#05	23.92	0.626	LTE Band 2	#17	23.47	0.813	0.72	0.053	1.49	-	-	-
	CDMA2000 BC0	#05	23.92	0.626	LTE Band 4	#40	22.83	1.080	0.72	0.053	1.76	0.04	#A1-16	-
	CDMA2000 BC0	#05	23.92	0.626	LTE Band 25	#63	23.32	0.961	0.72	0.053	1.64	0.03	#A1-17	-
	CDMA2000 BC1	#10	23.94	0.504	LTE Band 2	#17	23.47	0.813	0.72	0.053	1.37	-	-	-
	CDMA2000 BC1	#10	23.94	0.504	LTE Band 4	#40	22.83	1.080	0.72	0.053	1.64	0.03	#A1-18	-
	CDMA2000 BC1	#10	23.94	0.504	LTE Band 25	#63	23.32	0.961	0.72	0.053	1.52	-	-	-
	CDMA2000 BC15	#15	24.40	0.656	LTE Band 2	#17	23.47	0.813	0.72	0.053	1.52	-	-	-
	CDMA2000 BC15	#15	24.40	0.656	LTE Band 4	#40	22.83	1.080	0.72	0.053	1.79	0.03	#A1-19	-
Right Tilted	CDMA2000 BC15	#15	24.40	0.656	LTE Band 25	#63	23.32	0.961	0.72	0.053	1.67	0.03	#A1-20	-
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 2	#20	23.47	0.878	0.72	0.053	1.37	-	-	-
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 4	#43	22.83	1.133	0.72	0.053	1.62	0.23	#A1-21	go to step2
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 25	#66	23.32	0.998	0.72	0.053	1.49	-	-	-
	CDMA2000 BC1	#07	24.14	0.178	LTE Band 2	#20	23.47	0.878	0.72	0.053	1.11	-	-	-
	CDMA2000 BC1	#07	24.14	0.178	LTE Band 4	#43	22.83	1.133	0.72	0.053	1.36	-	-	-
	CDMA2000 BC1	#07	24.14	0.178	LTE Band 25	#66	23.32	0.998	0.72	0.053	1.23	-	-	-
	CDMA2000 BC15	#12	24.56	0.115	LTE Band 2	#20	23.47	0.878	0.72	0.053	1.05	-	-	-
Left Cheek	CDMA2000 BC15	#12	24.56	0.115	LTE Band 4	#43	22.83	1.133	0.72	0.053	1.30	-	-	-
	CDMA2000 BC15	#12	24.56	0.115	LTE Band 25	#66	23.32	0.998	0.72	0.053	1.17	-	-	-
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 2	#23	23.47	1.045	0.72	0.053	1.67	0.03	#A1-22	-
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 4	#46	22.83	1.412	0.72	0.053	2.03	0.05	#A1-23	go to step2
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 25	#71	23.24	1.263	0.72	0.053	1.88	0.04	#A1-24	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 2	#23	23.47	1.045	0.72	0.053	1.56	-	-	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 4	#46	22.83	1.412	0.72	0.053	1.93	0.05	#A1-25	go to step2
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 25	#71	23.24	1.263	0.72	0.053	1.78	0.04	#A1-26	-
Left Tilted	CDMA2000 BC15	#13	24.56	0.534	LTE Band 2	#23	23.47	1.045	0.72	0.053	1.63	0.03	#A1-27	-
	CDMA2000 BC15	#13	24.56	0.534	LTE Band 4	#46	22.83	1.412	0.72	0.053	2.00	0.05	#A1-28	go to step2
	CDMA2000 BC15	#13	24.56	0.534	LTE Band 25	#71	23.24	1.263	0.72	0.053	1.85	0.04	#A1-29	-
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 2	#27	23.54	0.914	0.72	0.053	1.41	-	-	-
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 4	#50	22.83	1.202	0.72	0.053	1.70	0.06	#A1-30	go to step2
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 25	#72	23.32	1.085	0.72	0.053	1.58	-	-	-
	CDMA2000 BC1	#09	24.14	0.163	LTE Band 2	#27	23.54	0.914	0.72	0.053	1.13	-	-	-
	CDMA2000 BC1	#09	24.14	0.163	LTE Band 4	#50	22.83	1.202	0.72	0.053	1.42	-	-	-
Left Tilted	CDMA2000 BC1	#09	24.14	0.163	LTE Band 25	#72	23.32	1.085	0.72	0.053	1.30	-	-	-
	CDMA2000 BC15	#14	24.56	0.196	LTE Band 2	#27	23.54	0.914	0.72	0.053	1.16	-	-	-
	CDMA2000 BC15	#14	24.56	0.196	LTE Band 4	#50	22.83	1.202	0.72	0.053	1.45	-	-	-
	CDMA2000 BC15	#14	24.56	0.196	LTE Band 25	#72	23.32	1.085	0.72	0.053	1.33	-	-	-

Remark:

1. If SPLSR > 0.04, step2 analysis is required.
2. The SAR summation represents the simultaneous transmission of, a WWAN voice call and WWAN data transmission and WLAN as hotspot router; 3 transmitters operating at the same time.
3. The analysis above will represent the compliance of the simultaneous transmission of a WWAN voice call and WWAN data transmission, since the possible WWAN output power configuration in SVLTE mode( 2 transmitters) is exactly the same as the configuration in SVLTE+WLAN (3 transmitters).



NO.	Simultaneous Transmission Configurations	Head	Note
4.	CDMA(voice) + WLAN2.4GHz(data)	Yes	-
5.	CDMA(voice) + Bluetooth(data)	Yes	-
6.	CDMA(data) + WLAN2.4GHz(data)	Yes	VOIP 2.4GHz Hotspot
7.	CDMA(data) + Bluetooth(data)	Yes	-
8.	LTE(data) + WLAN2.4GHz(data)	Yes	VOIP 2.4GHz Hotspot
9.	LTE(data) + Bluetooth(data)	Yes	-

Position	WWAN (voice)				WLAN 2.4GHz			Bluetooth		WWAN + WLAN (W/kg)	WWAN + Bluetooth (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Plot No	Average Power (dBm)	Max. WLAN SAR (W/kg)	Average Power (dBm)	Estimated Bluetooth SAR (W/kg)				
Right Cheek	CDMA2000 BC0	#05	23.92	0.626	#83	14.09	0.038	0.72	0.053	0.66	0.68	-	-
	CDMA2000 BC0	#10	23.94	0.504	#83	14.09	0.038	0.72	0.053	0.54	0.56	-	-
	CDMA2000 BC15	#15	24.40	0.656	#83	14.09	0.038	0.72	0.053	0.69	0.71	-	-
	LTE Band 2	#17	23.47	0.813	#83	14.09	0.038	0.72	0.053	0.85	0.87	-	-
	LTE Band 4	#40	22.83	1.080	#83	14.09	0.038	0.72	0.053	1.12	1.13	-	-
	LTE Band 25	#63	23.32	0.961	#83	14.09	0.038	0.72	0.053	1.00	1.01	-	-
Right Tilted	CDMA2000 BC0	#02	24.09	0.437	#84	14.09	0.032	0.72	0.053	0.47	0.49	-	-
	CDMA2000 BC1	#07	24.14	0.178	#84	14.09	0.032	0.72	0.053	0.21	0.23	-	-
	CDMA2000 BC15	#12	24.56	0.115	#84	14.09	0.032	0.72	0.053	0.15	0.17	-	-
	LTE Band 2	#20	23.47	0.878	#84	14.09	0.032	0.72	0.053	0.91	0.93	-	-
	LTE Band 4	#43	22.83	1.133	#84	14.09	0.032	0.72	0.053	1.17	1.19	-	-
	LTE Band 25	#66	23.32	0.998	#84	14.09	0.032	0.72	0.053	1.03	1.05	-	-
Left Cheek	CDMA2000 BC0	#03	24.09	0.568	#85	14.09	0.070	0.72	0.053	0.64	0.62	-	-
	CDMA2000 BC1	#08	24.14	0.465	#85	14.09	0.070	0.72	0.053	0.54	0.52	-	-
	CDMA2000 BC15	#13	24.56	0.534	#85	14.09	0.070	0.72	0.053	0.60	0.59	-	-
	LTE Band 2	#23	23.47	1.045	#85	14.09	0.070	0.72	0.053	1.12	1.10	-	-
	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	0.72	0.053	1.48	1.47	-	-
	LTE Band 25	#71	23.24	1.263	#85	14.09	0.070	0.72	0.053	1.33	1.32	-	-
Left Tilted	CDMA2000 BC0	#04	24.09	0.444	#86	14.09	0.022	0.72	0.053	0.47	0.50	-	-
	CDMA2000 BC1	#09	24.14	0.163	#86	14.09	0.022	0.72	0.053	0.19	0.22	-	-
	CDMA2000 BC15	#14	24.56	0.196	#86	14.09	0.022	0.72	0.053	0.22	0.25	-	-
	LTE Band 2	#27	23.54	0.914	#86	14.09	0.022	0.72	0.053	0.94	0.97	-	-
	LTE Band 4	#50	22.83	1.202	#86	14.09	0.022	0.72	0.053	1.22	1.26	-	-
	LTE Band 25	#72	23.32	1.085	#86	14.09	0.022	0.72	0.053	1.11	1.14	-	-

Table 13.1-A2: Head SAR analysis <Step2>

Position	WWAN (voice)				WWAN (data)				WLAN 2.4GHz			Summed SAR (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Plot No	Average Power (dBm)	Max. WLAN SAR (W/kg)			
Right Tilted	CDMA2000 BC0	#02	24.09	0.437	LTE Band 4	#43	22.83	1.133	#84	14.09	0.032	1.60	0.22	#A1-6
	CDMA2000 BC0	#187	16.12	0.071	LTE Band 4	#43	22.83	1.133	#84	14.09	0.032	1.24	-	-
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 4	#192	17.70	0.288	#84	14.09	0.032	0.76	-	-
Left Cheek	CDMA2000 BC0	#03	24.09	0.568	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	2.05	0.05	#A1-8
	CDMA2000 BC0	#188	16.12	0.094	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	1.56	-	-
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 4	#193	17.70	0.327	#85	14.09	0.070	0.97	-	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	1.95	0.05	#A1-10
	CDMA2000 BC1	#190	16.20	0.079	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	1.56	-	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 4	#193	17.70	0.327	#85	14.09	0.070	0.86	-	-
	CDMA2000 BC15	#13	24.56	0.534	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	2.02	0.05	#A1-13
	CDMA2000 BC15	#191	16.01	0.088	LTE Band 4	#46	22.83	1.412	#85	14.09	0.070	1.57	-	-
Left Tilted	CDMA2000 BC0	#04	24.09	0.444	LTE Band 4	#50	22.83	1.202	#86	14.09	0.022	1.67	0.06	#A1-15
	CDMA2000 BC0	#189	16.12	0.067	LTE Band 4	#50	22.83	1.202	#86	14.09	0.022	1.29	-	-
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 4	#194	17.70	0.249	#86	14.09	0.022	0.72	-	-

Position	WWAN (voice)				WWAN (data)				Bluetooth		Summed SAR (W/kg)	SPLSR	Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Average Power (dBm)	Estimated Bluetooth SAR (W/kg)			
Right Tilted	CDMA2000 BC0	#02	24.09	0.437	LTE Band 4	#43	22.83	1.133	0.72	0.053	1.62	0.23	#A1-21
	CDMA2000 BC0	#187	16.12	0.071	LTE Band 4	#43	22.83	1.133	0.72	0.053	1.26	-	-
	CDMA2000 BC0	#02	24.09	0.437	LTE Band 4	#192	17.70	0.288	0.72	0.053	0.78	-	-
Left Cheek	CDMA2000 BC0	#03	24.09	0.568	LTE Band 4	#46	22.83	1.412	0.72	0.053	2.03	0.05	#A1-23
	CDMA2000 BC0	#188	16.12	0.094	LTE Band 4	#46	22.83	1.412	0.72	0.053	1.56	-	-
	CDMA2000 BC0	#03	24.09	0.568	LTE Band 4	#193	17.70	0.327	0.72	0.053	0.95	-	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 4	#46	22.83	1.412	0.72	0.053	1.93	0.05	#A1-25
	CDMA2000 BC1	#190	16.20	0.079	LTE Band 4	#46	22.83	1.412	0.72	0.053	1.54	-	-
	CDMA2000 BC1	#08	24.14	0.465	LTE Band 4	#193	17.70	0.327	0.72	0.053	0.85	-	-
	CDMA2000 BC15	#13	24.56	0.534	LTE Band 4	#46	22.83	1.412	0.72	0.053	2.00	0.05	#A1-28
	CDMA2000 BC15	#191	16.01	0.088	LTE Band 4	#46	22.83	1.412	0.72	0.053	1.55	-	-
Left Tilted	CDMA2000 BC0	#04	24.09	0.444	LTE Band 4	#50	22.83	1.202	0.72	0.053	1.70	0.06	#A1-30
	CDMA2000 BC0	#189	16.12	0.067	LTE Band 4	#50	22.83	1.202	0.72	0.053	1.32	-	-
	CDMA2000 BC0	#04	24.09	0.444	LTE Band 4	#194	17.70	0.249	0.72	0.053	0.75	-	-

Note:

1. If SPLSR > 0.04, step2 analysis is required.
2. If 1g-SAR scalar summation < 1.6W/kg, simultaneous SAR measurement and further evaluations are not necessary.



13.2 Hotspot Exposure Conditions

Table 13.2-B1: Hotspot mode SAR analysis  
Refer to Exposure Positions Consideration in section 11

NO.	Simultaneous Transmission Configurations	Hotspot	Note
1.	CDMA(data) + WLAN2.4GHz(data)	Yes	2.4GHz Hotspot
2.	CDMA(data) + Bluetooth(data)	Yes	-
3.	LTE(data) + WLAN2.4GHz(data)	Yes	2.4GHz Hotspot
4.	LTE(data) + Bluetooth(data)	Yes	-

Position	WWAN (data)				WLAN 2.4GHz			Summed SAR (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Plot No	Average Power (dBm)	Max. WLAN SAR (W/kg)			
Front	CDMA2000 BC0	#87	24.00	0.778	#178	14.09	0.018	0.80	-	-
	CDMA2000 BC1	#107	23.91	0.812	#178	14.09	0.018	0.83	-	-
	CDMA2000 BC15	#125	24.42	0.888	#178	14.09	0.018	0.91	-	-
	LTE Band 2	#148	23.56	0.343	#178	14.09	0.018	0.36	-	-
	LTE Band 4	#156	23.05	0.530	#178	14.09	0.018	0.55	-	-
	LTE Band 25	#170	23.32	0.403	#178	14.09	0.018	0.42	-	-
Back	CDMA2000 BC0	#89	24.00	0.996	#179	14.09	0.108	1.10	-	-
	CDMA2000 BC1	#109	23.98	1.217	#179	14.09	0.108	1.33	-	-
	CDMA2000 BC15	#128	24.42	1.269	#179	14.09	0.108	1.38	-	-
	LTE Band 2	#149	23.56	0.635	#179	14.09	0.108	0.74	-	-
	LTE Band 4	#159	22.83	0.866	#179	14.09	0.108	0.97	-	-
	LTE Band 25	#171	23.32	0.726	#179	14.09	0.108	0.83	-	-
Left Side	CDMA2000 BC0	#92	24.00	0.863	-	-	-	0.86	-	-
	CDMA2000 BC1	#113	23.98	0.309	-	-	-	0.31	-	-
	CDMA2000 BC15	#131	24.42	0.301	-	-	-	0.30	-	-
	LTE Band 2	-	-	-	-	-	-	-	-	-
	LTE Band 4	-	-	-	-	-	-	-	-	-
	LTE Band 25	-	-	-	-	-	-	-	-	-
Right Side	CDMA2000 BC0	#95	24.00	0.918	#180	14.09	0.095	1.01	-	-
	CDMA2000 BC1	#114	23.98	0.180	#180	14.09	0.095	0.28	-	-
	CDMA2000 BC15	#132	24.42	0.201	#180	14.09	0.095	0.30	-	-
	LTE Band 2	#150	23.56	0.411	#180	14.09	0.095	0.51	-	-
	LTE Band 4	#160	23.05	0.522	#180	14.09	0.095	0.62	-	-
	LTE Band 25	#172	23.32	0.467	#180	14.09	0.095	0.56	-	-
Top Side	CDMA2000 BC0	-	-	-	-	-	-	-	-	-
	CDMA2000 BC1	-	-	-	-	-	-	-	-	-
	CDMA2000 BC15	-	-	-	-	-	-	-	-	-
	LTE Band 2	#151	23.56	0.261	-	-	-	0.26	-	-
	LTE Band 4	#161	23.05	0.264	-	-	-	0.26	-	-
	LTE Band 25	#173	23.32	0.309	-	-	-	0.31	-	-
Bottom Side	CDMA2000 BC0	#98	24.00	0.127	-	-	-	0.13	-	-
	CDMA2000 BC1	#117	23.66	1.226	-	-	-	1.23	-	-
	CDMA2000 BC15	#135	24.28	1.056	-	-	-	1.06	-	-
	LTE Band 2	-	-	-	-	-	-	-	-	-
	LTE Band 4	-	-	-	-	-	-	-	-	-
	LTE Band 25	-	-	-	-	-	-	-	-	-



Position	WWAN (data)				Bluetooth		Summed SAR (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Average Power (dBm)	Estimated Bluetooth SAR (W/kg)			
Front	CDMA2000 BC0	#87	24.00	0.778	0.72	0.026	0.80	-	-
	CDMA2000 BC1	#107	23.91	0.812	0.72	0.026	0.84	-	-
	CDMA2000 BC15	#125	24.42	0.888	0.72	0.026	0.91	-	-
	LTE Band 2	#148	23.56	0.343	0.72	0.026	0.37	-	-
	LTE Band 4	#156	23.05	0.530	0.72	0.026	0.56	-	-
	LTE Band 25	#170	23.32	0.403	0.72	0.026	0.43	-	-
Back	CDMA2000 BC0	#89	24.00	0.996	0.72	0.026	1.02	-	-
	CDMA2000 BC1	#109	23.98	1.217	0.72	0.026	1.24	-	-
	CDMA2000 BC15	#128	24.42	1.269	0.72	0.026	1.30	-	-
	LTE Band 2	#149	23.56	0.635	0.72	0.026	0.66	-	-
	LTE Band 4	#159	22.83	0.866	0.72	0.026	0.89	-	-
	LTE Band 25	#171	23.32	0.726	0.72	0.026	0.75	-	-
Left Side	CDMA2000 BC0	#92	24.00	0.863	-	-	0.86	-	-
	CDMA2000 BC1	#113	23.98	0.309	-	-	0.31	-	-
	CDMA2000 BC15	#131	24.42	0.301	-	-	0.30	-	-
	LTE Band 2	-	-	-	-	-	-	-	-
	LTE Band 4	-	-	-	-	-	-	-	-
	LTE Band 25	-	-	-	-	-	-	-	-
Right Side	CDMA2000 BC0	#95	24.00	0.918	0.72	0.026	0.94	-	-
	CDMA2000 BC1	#114	23.98	0.180	0.72	0.026	0.21	-	-
	CDMA2000 BC15	#132	24.42	0.201	0.72	0.026	0.23	-	-
	LTE Band 2	#150	23.56	0.411	0.72	0.026	0.44	-	-
	LTE Band 4	#160	23.05	0.522	0.72	0.026	0.55	-	-
	LTE Band 25	#172	23.32	0.467	0.72	0.026	0.49	-	-
Top Side	CDMA2000 BC0	-	-	-	-	-	-	-	-
	CDMA2000 BC1	-	-	-	-	-	-	-	-
	CDMA2000 BC15	-	-	-	-	-	-	-	-
	LTE Band 2	#151	23.56	0.261	-	-	0.26	-	-
	LTE Band 4	#161	23.05	0.264	-	-	0.26	-	-
	LTE Band 25	#173	23.32	0.309	-	-	0.31	-	-
Bottom Side	CDMA2000 BC0	#98	24.00	0.127	-	-	0.13	-	-
	CDMA2000 BC1	#117	23.66	1.226	-	-	1.23	-	-
	CDMA2000 BC15	#135	24.28	1.056	-	-	1.06	-	-
	LTE Band 2	-	-	-	-	-	-	-	-
	LTE Band 4	-	-	-	-	-	-	-	-
	LTE Band 25	-	-	-	-	-	-	-	-



13.3 Body-Worn Exposure Conditions

Table 13.3-C1: Body-worn mode SAR analysis <Step1>

NO.	Simultaneous Transmission Configurations	Body-worn	Note
1.	CDMA(voice) + LTE(data) + WLAN2.4GHz(data)	Yes	SVLTE + 2.4GHz Hotspot
2.	CDMA(voice) + LTE(data) + Bluetooth(data)	Yes	SVLTE + Bluetooth
3.	CDMA(voice) + LTE(data)	Yes	SVLTE

Position	WWAN (voice)				WWAN (data)				WLAN 2.4GHz			Summed SAR (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Plot No	Average Power (dBm)	Max. WLAN SAR (W/kg)			
Front	CDMA2000 BC0	#99	24.07	0.770	LTE Band 2	#148	23.56	0.343	#178	14.09	0.018	1.13	-	-
	CDMA2000 BC0	#99	24.07	0.770	LTE Band 4	#156	23.05	0.530	#178	14.09	0.018	1.32	-	-
	CDMA2000 BC0	#99	24.07	0.770	LTE Band 25	#170	23.32	0.403	#178	14.09	0.018	1.19	-	-
	CDMA2000 BC1	#118	24.09	0.717	LTE Band 2	#148	23.56	0.343	#178	14.09	0.018	1.08	-	-
	CDMA2000 BC1	#118	24.09	0.717	LTE Band 4	#156	23.05	0.530	#178	14.09	0.018	1.27	-	-
	CDMA2000 BC1	#118	24.09	0.717	LTE Band 25	#170	23.32	0.403	#178	14.09	0.018	1.14	-	-
	CDMA2000 BC15	#136	24.51	0.869	LTE Band 2	#148	23.56	0.343	#178	14.09	0.018	1.23	-	-
	CDMA2000 BC15	#136	24.51	0.869	LTE Band 4	#156	23.05	0.530	#178	14.09	0.018	1.42	-	-
Back	CDMA2000 BC0	#104	23.89	1.009	LTE Band 2	#149	23.56	0.635	#179	14.09	0.108	1.75	0.02	#C1-1
	CDMA2000 BC0	#104	23.89	1.009	LTE Band 4	#159	22.83	0.866	#179	14.09	0.108	1.98	0.04	#C1-2
	CDMA2000 BC0	#104	23.89	1.009	LTE Band 25	#171	23.32	0.726	#179	14.09	0.108	1.84	0.02	#C1-3
	CDMA2000 BC1	#123	23.82	1.148	LTE Band 2	#149	23.56	0.635	#179	14.09	0.108	1.89	0.02	#C1-4
	CDMA2000 BC1	#123	23.82	1.148	LTE Band 4	#159	22.83	0.866	#179	14.09	0.108	2.12	0.04	#C1-5
	CDMA2000 BC1	#123	23.82	1.148	LTE Band 25	#171	23.32	0.726	#179	14.09	0.108	1.98	0.02	#C1-6
	CDMA2000 BC15	#139	24.51	1.276	LTE Band 2	#149	23.56	0.635	#179	14.09	0.108	2.02	0.03	#C1-7
	CDMA2000 BC15	#139	24.51	1.276	LTE Band 4	#159	22.83	0.866	#179	14.09	0.108	2.25	0.04	#C1-8
Back (with / headset)	CDMA2000 BC15	#139	24.51	1.276	LTE Band 25	#171	23.32	0.726	#179	14.09	0.108	2.11	0.03	#C1-9
	CDMA2000 BC15	#145	24.51	1.198	LTE Band 2	#181	23.56	0.559	#186	14.09	0.107	1.86	0.02	#C1-10
	CDMA2000 BC15	#145	24.51	1.198	LTE Band 4	#184	23.05	0.878	#186	14.09	0.107	2.18	0.04	#C1-11
	CDMA2000 BC15	#145	24.51	1.198	LTE Band 25	#185	23.32	0.655	#186	14.09	0.107	1.96	0.03	#C1-12

Remark:

1. If  $SPLSR \leq 0.04$ , step2 analysis is not required.
2. The SAR summation represents the simultaneous transmission of, a WWAN voice call and WWAN data transmission and WLAN as hotspot router; 3 transmitters operating at the same time.
3. The analysis above will represent the compliance of the simultaneous transmission of a WWAN voice call and WWAN data transmission, since the possible WWAN output power configuration in SVLTE mode( 2 transmitters) is exactly the same as the configuration in SVLTE+WLAN (3 transmitters).



Position	WWAN (voice)				WWAN (data)				Bluetooth		Summed SAR (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Average Power (dBm)	Estimated Bluetooth SAR (W/kg)			
Front	CDMA2000 BC0	#99	24.07	0.770	LTE Band 2	#148	23.56	0.343	0.72	0.026	1.14	-	-
	CDMA2000 BC0	#99	24.07	0.770	LTE Band 4	#156	23.05	0.530	0.72	0.026	1.33	-	-
	CDMA2000 BC0	#99	24.07	0.770	LTE Band 25	#170	23.32	0.403	0.72	0.026	1.20	-	-
	CDMA2000 BC1	#118	24.09	0.717	LTE Band 2	#148	23.56	0.343	0.72	0.026	1.09	-	-
	CDMA2000 BC1	#118	24.09	0.717	LTE Band 4	#156	23.05	0.530	0.72	0.026	1.27	-	-
	CDMA2000 BC1	#118	24.09	0.717	LTE Band 25	#170	23.32	0.403	0.72	0.026	1.15	-	-
	CDMA2000 BC15	#136	24.51	0.869	LTE Band 2	#148	23.56	0.343	0.72	0.026	1.24	-	-
	CDMA2000 BC15	#136	24.51	0.869	LTE Band 4	#156	23.05	0.530	0.72	0.026	1.43	-	-
	CDMA2000 BC15	#136	24.51	0.869	LTE Band 25	#170	23.32	0.403	0.72	0.026	1.30	-	-
Back	CDMA2000 BC0	#104	23.89	1.009	LTE Band 2	#149	23.56	0.635	0.72	0.026	<b>1.67</b>	0.01	#C1-13
	CDMA2000 BC0	#104	23.89	1.009	LTE Band 4	#159	22.83	0.866	0.72	0.026	<b>1.90</b>	0.03	#C1-14
	CDMA2000 BC0	#104	23.89	1.009	LTE Band 25	#171	23.32	0.726	0.72	0.026	<b>1.76</b>	0.02	#C1-15
	CDMA2000 BC1	#123	23.82	1.148	LTE Band 2	#149	23.56	0.635	0.72	0.026	<b>1.81</b>	0.02	#C1-16
	CDMA2000 BC1	#123	23.82	1.148	LTE Band 4	#159	22.83	0.866	0.72	0.026	<b>2.04</b>	0.03	#C1-17
	CDMA2000 BC1	#123	23.82	1.148	LTE Band 25	#171	23.32	0.726	0.72	0.026	<b>1.90</b>	0.02	#C1-18
	CDMA2000 BC15	#139	24.51	1.276	LTE Band 2	#149	23.56	0.635	0.72	0.026	<b>1.94</b>	0.03	#C1-19
	CDMA2000 BC15	#139	24.51	1.276	LTE Band 4	#159	22.83	0.866	0.72	0.026	<b>2.17</b>	0.03	#C1-20
Back (with/headset)	CDMA2000 BC15	#139	24.51	1.276	LTE Band 25	#171	23.32	0.726	0.72	0.026	<b>2.03</b>	0.03	#C1-21
	CDMA2000 BC15	#145	24.51	1.198	LTE Band 2	#181	23.56	0.559	0.72	0.026	<b>1.78</b>	0.02	#C1-22
	CDMA2000 BC15	#145	24.51	1.198	LTE Band 4	#184	23.05	0.878	0.72	0.026	<b>2.10</b>	0.03	#C1-23
	CDMA2000 BC15	#145	24.51	1.198	LTE Band 25	#185	23.32	0.655	0.72	0.026	<b>1.88</b>	0.03	#C1-24

**Remark:**

1. If SPLSR ≤ 0.04, step2 analysis is not required.
2. The SAR summation represents the simultaneous transmission of, a WWAN voice call and WWAN data transmission and WLAN as hotspot router; 3 transmitters operating at the same time.
3. The analysis above will represent the compliance of the simultaneous transmission of a WWAN voice call and WWAN data transmission, since the possible WWAN output power configuration in SVLTE mode( 2 transmitters) is exactly the same as the configuration in SVLTE+WLAN (3 transmitters).

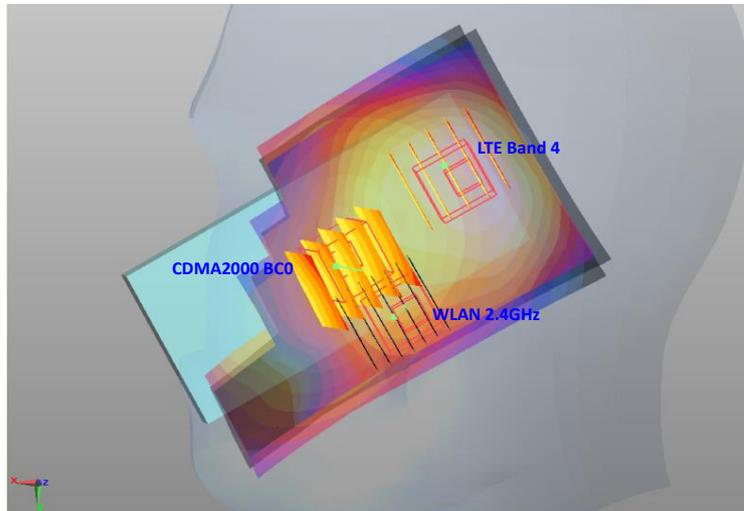


NO.	Simultaneous Transmission Configurations	Body-worn	Note
4.	CDMA(voice) + WLAN2.4GHz(data)	Yes	-
5.	CDMA(voice) + Bluetooth(data)	Yes	-
6.	CDMA(data) + WLAN2.4GHz(data)	Yes	VOIP 2.4GHz Hotspot
7.	CDMA(data) + Bluetooth(data)	Yes	-
8.	LTE(data) + WLAN2.4GHz(data)	Yes	VOIP 2.4GHz Hotspot
9.	LTE(data) + Bluetooth(data)	Yes	-

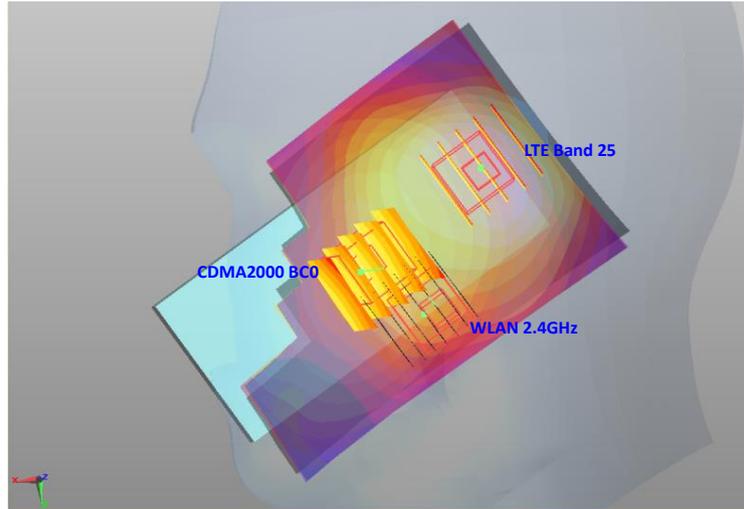
Position	WWAN (voice)				WLAN 2.4GHz			Bluetooth		WWAN + WLAN (W/kg)	WWAN + Bluetooth (W/kg)	SPLSR	SPLSR Case No
	WWAN Band	Plot No	Average Power (dBm)	Max. WWAN SAR (W/kg)	Plot No	Average Power (dBm)	Max. WLAN SAR (W/kg)	Average Power (dBm)	Estimated Bluetooth SAR (W/kg)				
Front	CDMA2000 BC0	#99	24.07	0.770	#178	14.09	0.018	0.72	0.026	0.79	0.80	-	-
	CDMA2000 BC1	#118	24.09	0.717	#178	14.09	0.018	0.72	0.026	0.74	0.74	-	-
	CDMA2000 BC15	#136	24.51	0.869	#178	14.09	0.018	0.72	0.026	0.89	0.90	-	-
	LTE Band 2	#148	23.56	0.343	#178	14.09	0.018	0.72	0.026	0.36	0.37	-	-
	LTE Band 4	#156	23.05	0.530	#178	14.09	0.018	0.72	0.026	0.55	0.56	-	-
Back	LTE Band 25	#170	23.32	0.403	#178	14.09	0.018	0.72	0.026	0.42	0.43	-	-
	CDMA2000 BC0	#104	23.89	1.009	#179	14.09	0.108	0.72	0.026	1.12	1.04	-	-
	CDMA2000 BC1	#123	23.82	1.148	#179	14.09	0.108	0.72	0.026	1.26	1.17	-	-
	CDMA2000 BC15	#139	24.51	1.276	#179	14.09	0.108	0.72	0.026	1.38	1.30	-	-
	LTE Band 2	#149	23.56	0.635	#179	14.09	0.108	0.72	0.026	0.74	0.66	-	-
Back (with / headset)	LTE Band 4	#159	22.83	0.866	#179	14.09	0.108	0.72	0.026	0.97	0.89	-	-
	LTE Band 25	#171	23.32	0.726	#179	14.09	0.108	0.72	0.026	0.83	0.75	-	-
	CDMA2000 BC15	#145	24.51	1.198	#186	14.09	0.107	0.72	0.026	1.31	1.22	-	-
	LTE Band 2	#181	23.56	0.559	#186	14.09	0.107	0.72	0.026	0.67	0.59	-	-
	LTE Band 4	#184	23.05	0.878	#186	14.09	0.107	0.72	0.026	0.99	0.90	-	-
	LTE Band 25	#185	23.32	0.655	#186	14.09	0.107	0.72	0.026	0.76	0.68	-	-

**13.4 SPSLR Evaluation and Analysis**

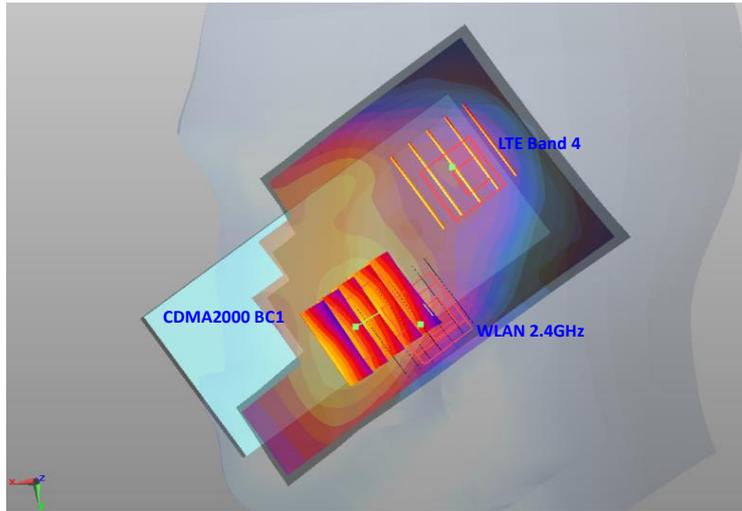
Case No #A1-1 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#05	Right Cheek	CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	60.7	1.71	0.04	Not required
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172				
#05		CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	30.9	0.66	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172	55.4	1.12	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				



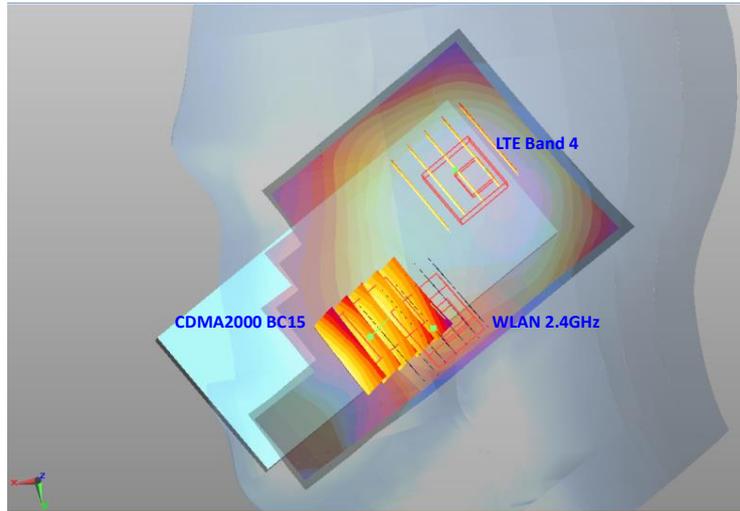
Case No #A1-2	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#05	Right Cheek	CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	59.1	1.59	0.03	Not required
#63		LTE Band 25	0.961	-	0.0185	-0.309	-0.172				
#05		CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	30.9	0.66	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				
#63		LTE Band 5	0.961	-	0.0185	-0.309	-0.172	54.6	1.00	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				



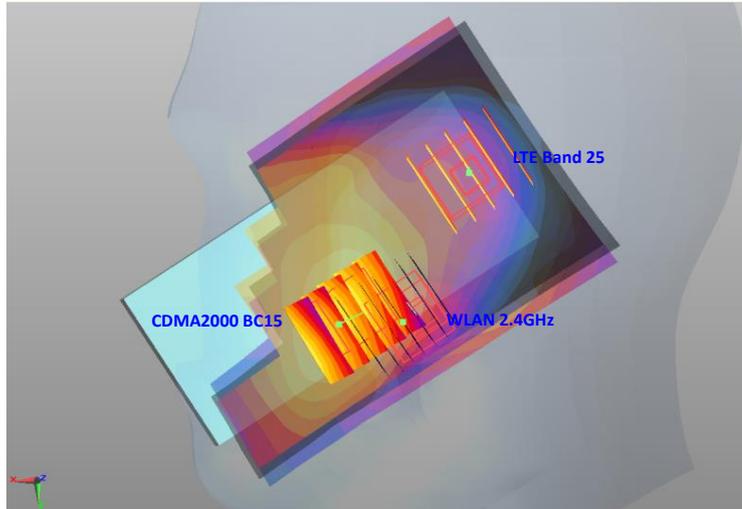
Case No #A1-3	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#10	Right Cheek	CDMA2000 BC1	0.504	-	0.0686	-0.259	-0.171	72.2	1.58	0.03	Not required
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172				
#10		CDMA2000 BC1	0.504	-	0.0686	-0.259	-0.171	28.3	0.54	0.01	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172	55.4	1.12	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				



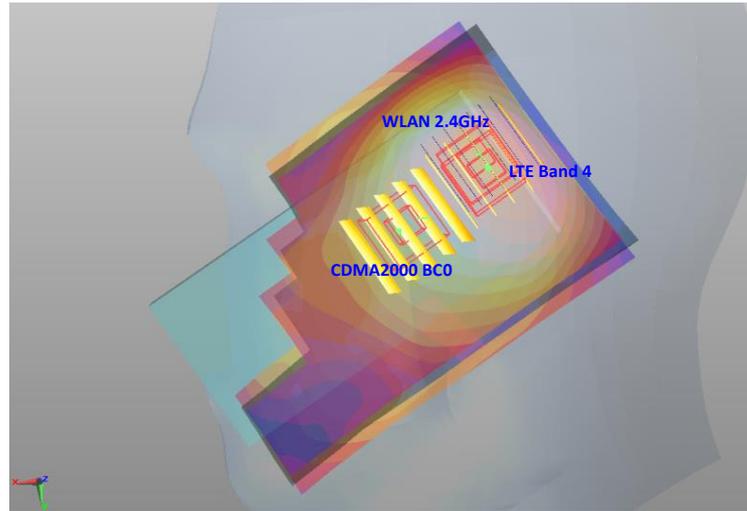
Case No #A1-4	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#15	Right Cheek	CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	71.0	1.74	0.03	Not required
#40		LTE Band 4	1.080	-	0.0185	-0.309	-0.172				
#15		CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	27.6	0.69	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				
#40		LTE Band 4	1.080	-	0.0185	-0.309	-0.172	54.6	1.12	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				



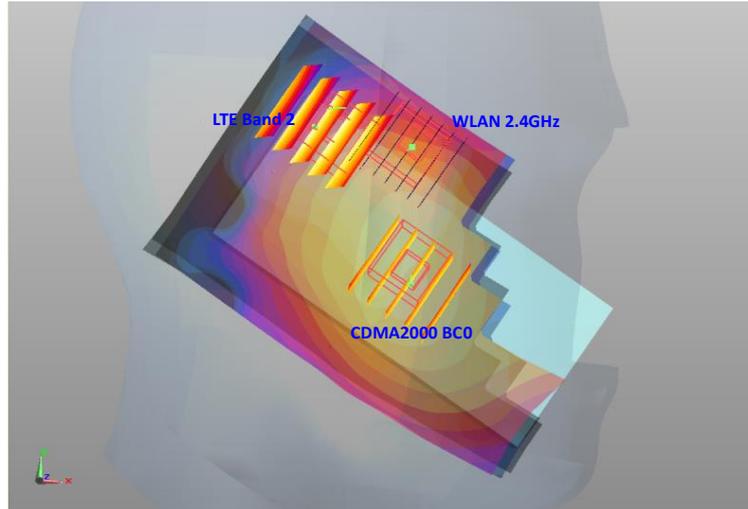
Case No #A1-5	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#15	Right Cheek	CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	71.0	1.62	0.03	Not required
#63		LTE Band 25	0.961	-	0.0185	-0.309	-0.172				
#15		CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	27.6	0.69	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				
#63		LTE Band 25	0.961	-	0.0185	-0.309	-0.172	54.6	1.00	0.02	Not required
#83		WLAN 2.4GHz	0.038	-	0.0404	-0.259	-0.173				



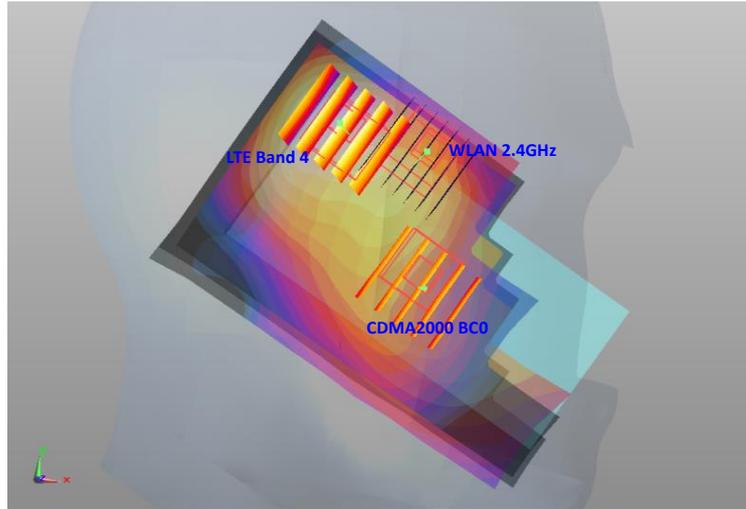
Case No #A1-6	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#02	Right Tilted	CDMA2000 BC0	0.437	-	0.0448	-0.295	-0.175	31.4	1.57	0.06	Step 2
#43		LTE Band 4	1.133	-	0.0179	-0.311	-0.172				
#02		CDMA2000 BC0	0.437	-	0.0448	-0.295	-0.175	32.2	0.47	0.01	Not required
#84		WLAN 2.4GHz	0.032	-	0.0205	-0.316	-0.173				
#43		LTE Band 4	1.133	-	0.0179	-0.311	-0.172	5.7	1.17	0.22	Step 2
#84		WLAN 2.4GHz	0.032	-	0.0205	-0.316	-0.173				



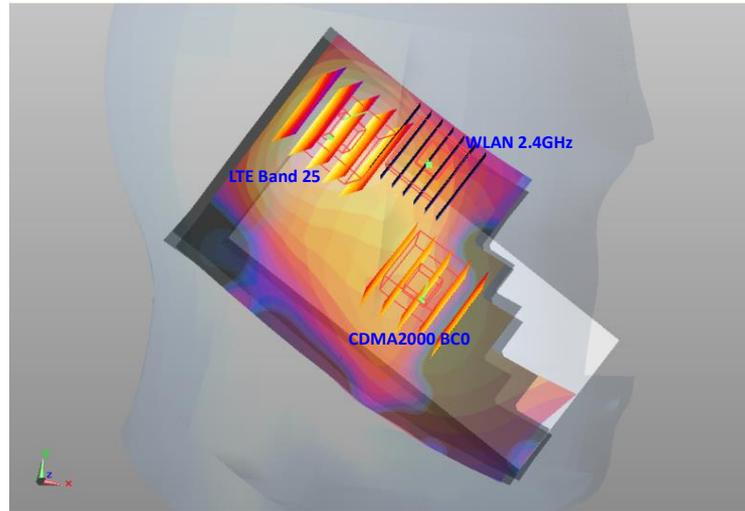
Case No #A1-7	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#03	Left Cheek	CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	70.6	1.61	0.03	Not required
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173				
#03		CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	50.2	0.64	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173	33.7	1.12	0.03	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



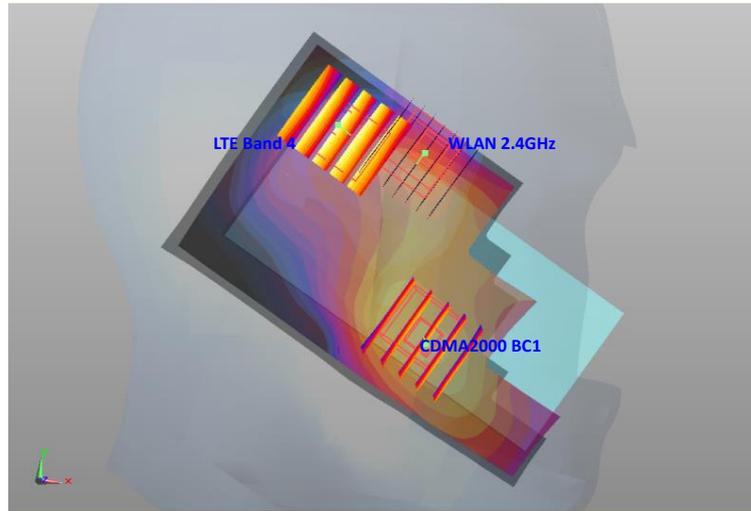
Case No #A1-8	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#03	Left Cheek	CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	67.5	1.98	0.04	Not required
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173				
#03		CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	50.2	0.64	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173	33.1	1.48	0.05	<b>Step 2</b>
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



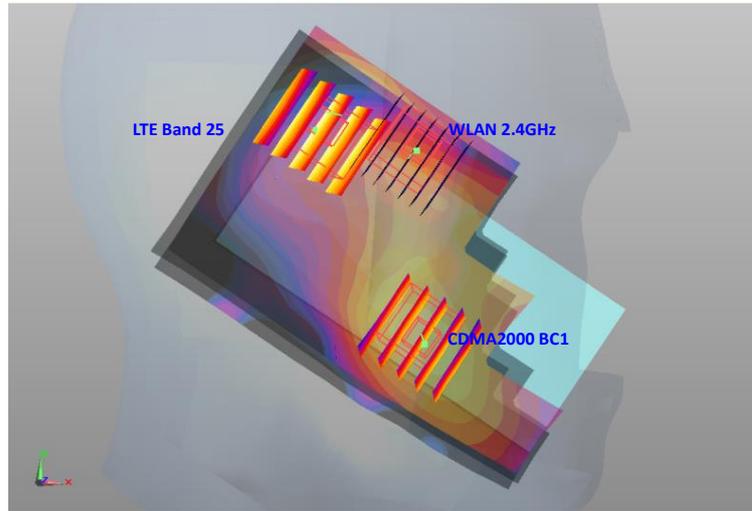
Case No #A1-9 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#03	Left Cheek	CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	72.2	1.83	0.03	Not required
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173				
#03		CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	50.2	0.64	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173	35.4	1.33	0.04	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



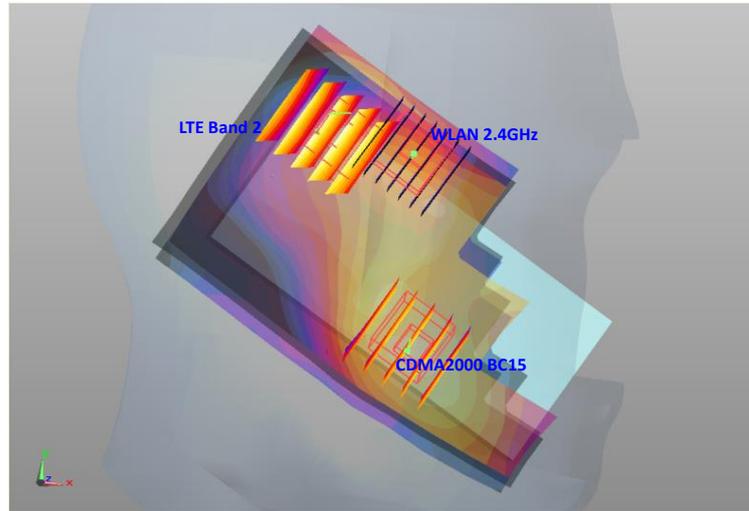
Case No #A1-10	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#08	Left Cheek	CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	85.8	1.88	0.03	Not required
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173				
#08		CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	69.4	0.54	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173	33.1	1.48	0.05	<b>Step 2</b>
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



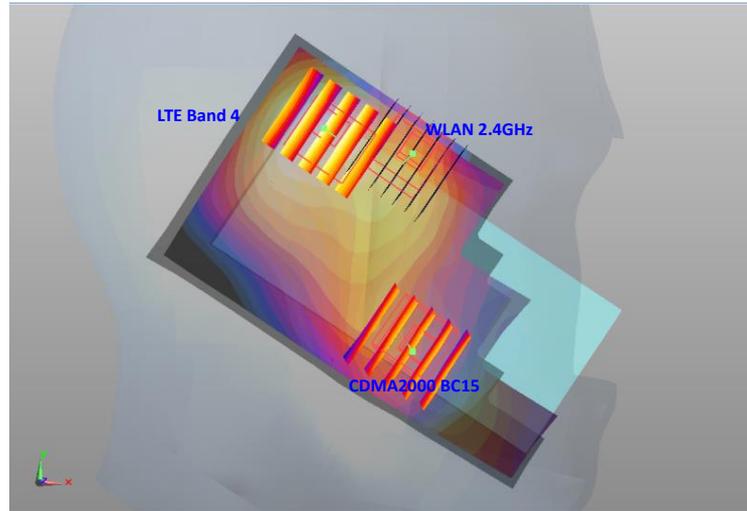
Case No #A1-11	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#08	Left Cheek	CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	90.7	1.73	0.03	Not required
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173				
#08		CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	69.4	0.54	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173	35.4	1.33	0.04	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



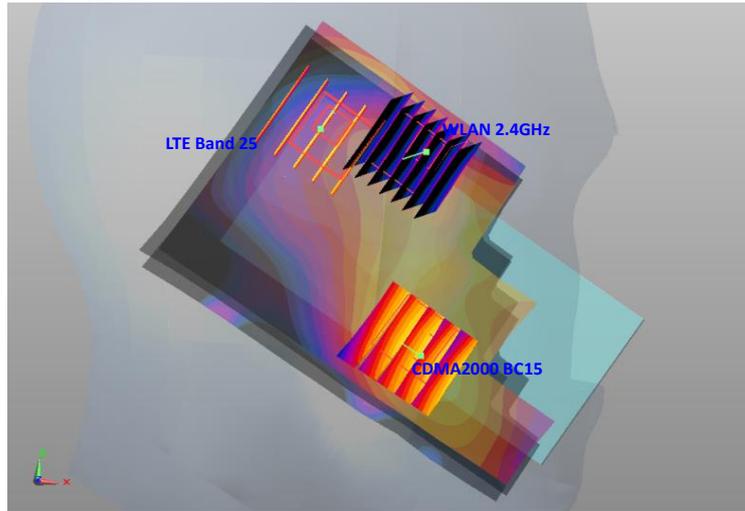
Case No #A1-12	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#13	Left Cheek	CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	89.8	1.58	0.02	Not required
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173				
#13		CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	71.2	0.60	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173	33.7	1.12	0.03	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



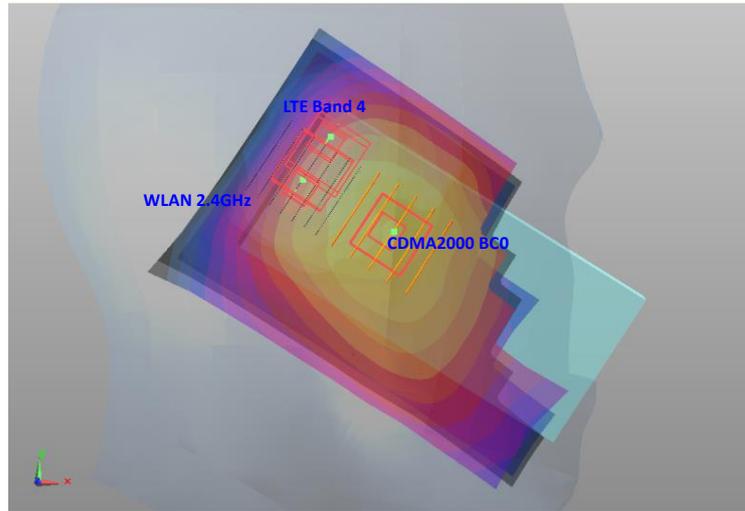
Case No #A1-13 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#13	Left Cheek	CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	86.3	1.95	0.03	Not required
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173				
#13		CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	71.2	0.60	0.01	Not required
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173	33.1	1.48	0.05	<b>Step 2</b>
#85		WLAN 2.4GHz	0.070	-	0.0627	0.322	-0.171				



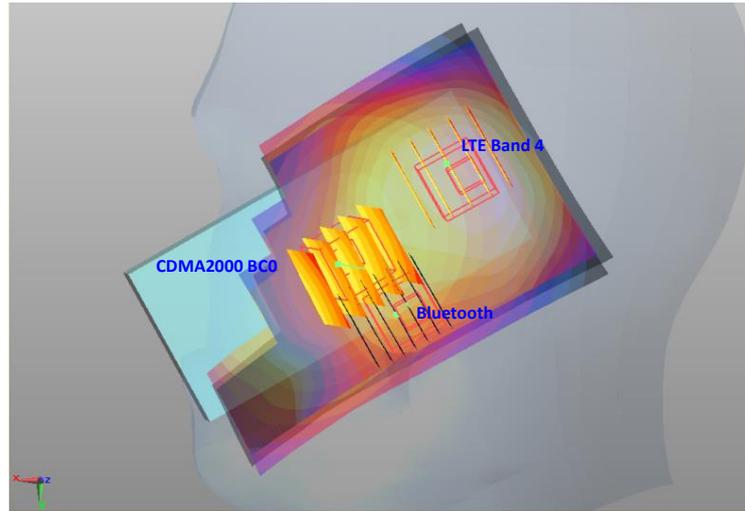
Case No #A1-14	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#13	Left Cheek	CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	91.3	1.80	0.03	Not required
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173				
#13		CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	71.2	0.60	0.01	Not required
#85		WLAN 2.4GHz	0.07	-	0.0627	0.322	-0.171				
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173	35.4	1.33	0.04	Not required
#85		WLAN 2.4GHz	0.07	-	0.0627	0.322	-0.171				



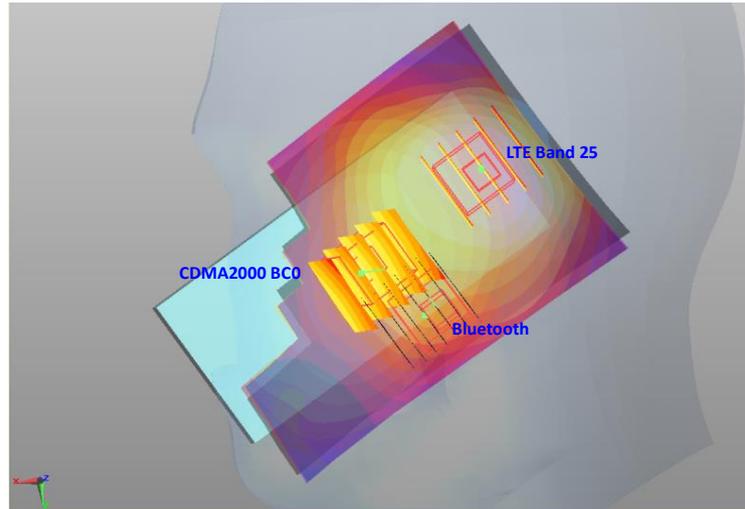
Case No #A1-15	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#04	Left Tilted	CDMA2000 BC0	0.444	-	0.0501	0.294	-0.176	41.3	1.65	0.05	Step 2
#50		LTE Band 4	1.202	-	0.0255	0.327	-0.173				
#04		CDMA2000 BC0	0.444	-	0.0501	0.294	-0.176	38.6	0.47	0.01	Not required
#86		WLAN 2.4GHz	0.022	-	0.014	0.307	-0.172				
#50		LTE Band 4	1.202	-	0.0255	0.327	-0.173	23.1	1.22	0.06	Step 2
#86		WLAN 2.4GHz	0.022	-	0.014	0.307	-0.172				



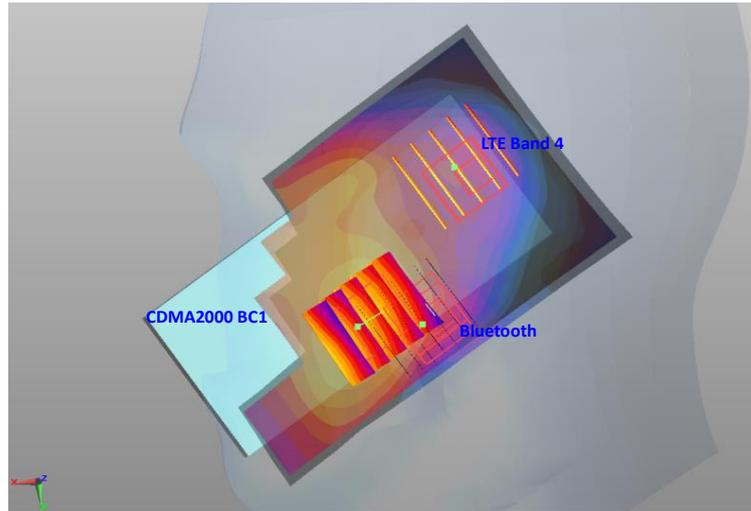
Case No #A1-16 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#05	Right Cheek	CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	60.7	1.71	0.04	Not required
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172				
#05		CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	30.9	0.68	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172	55.4	1.13	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				



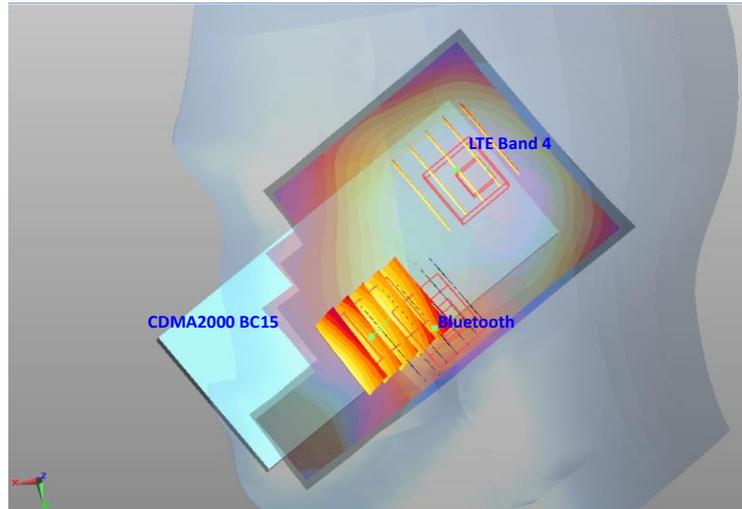
Case No #A1-17	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#05	Right Cheek	CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	59.1	1.59	0.03	Not required
#63		LTE Band 25	0.961	-	0.0185	-0.309	-0.172				
#05		CDMA2000 BC0	0.626	-	0.0668	-0.275	-0.173	30.9	0.68	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				
#63		LTE Band 5	0.961	-	0.0185	-0.309	-0.172	54.6	1.01	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				



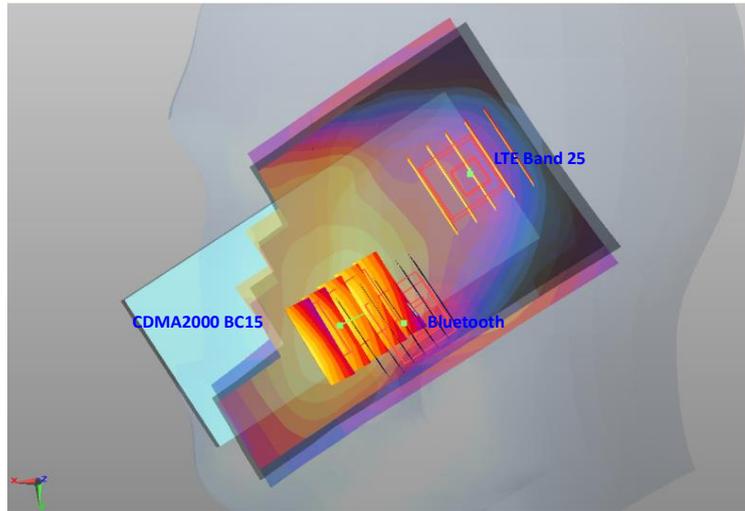
Case No #A1-18	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#10	Right Cheek	CDMA2000 BC1	0.504	-	0.0686	-0.259	-0.171	72.2	1.58	0.03	Not required
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172				
#10		CDMA2000 BC1	0.504	-	0.0686	-0.259	-0.171	28.3	0.56	0.01	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				
#40		LTE Band 4	1.080	-	0.0165	-0.309	-0.172	55.4	1.13	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				



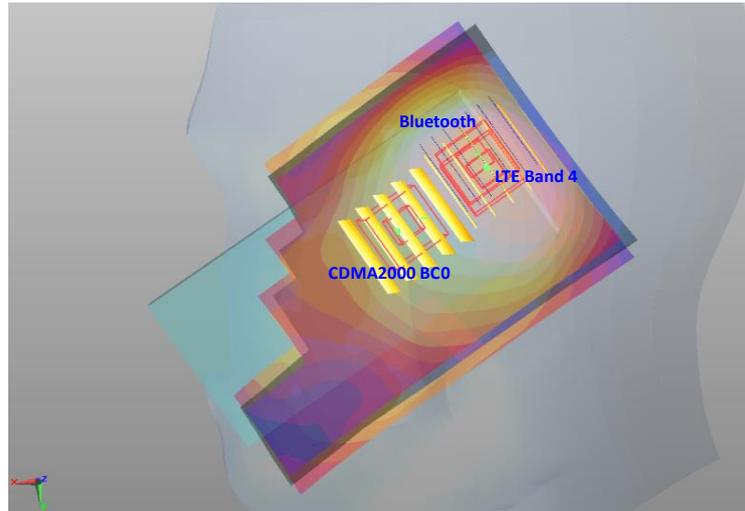
Case No #A1-19 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#15	Right Cheek	CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	71.0	1.74	0.03	Not required
#40		LTE Band 4	1.080	-	0.0185	-0.309	-0.172				
#15		CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	27.6	0.71	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				
#40		LTE Band 4	1.080	-	0.0185	-0.309	-0.172	54.6	1.13	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				



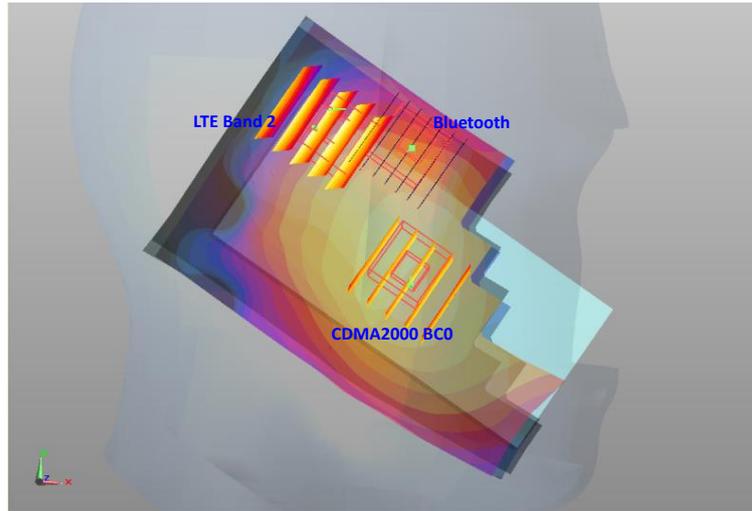
Case No #A1-20 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#15	Right Cheek	CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	71.0	1.62	0.03	Not required
#63		LTE Band 25	0.961	-	0.0185	-0.309	-0.172				
#15		CDMA2000 BC15	0.656	-	0.0679	-0.258	-0.171	27.6	0.71	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				
#63		LTE Band 25	0.961	-	0.0185	-0.309	-0.172	54.6	1.01	0.02	Not required
-		Bluetooth	0.053	-	0.0404	-0.259	-0.173				



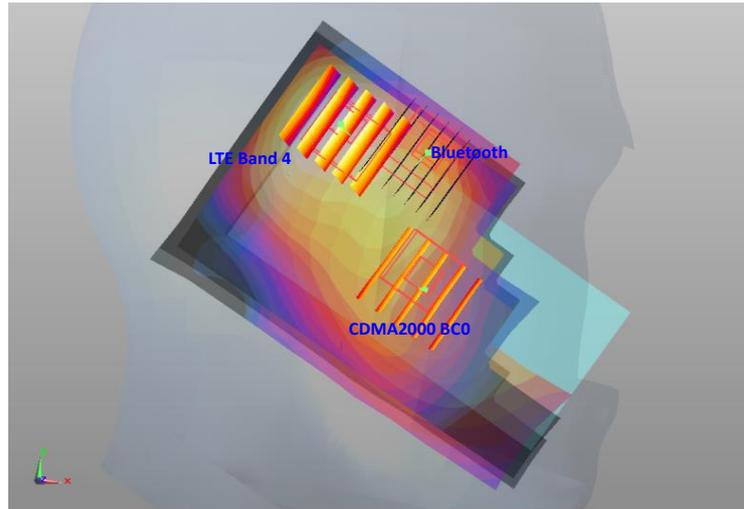
Case No #A1-21	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#02	Right Tilted	CDMA2000 BC0	0.437	-	0.0448	-0.295	-0.175	31.4	1.57	0.06	Step 2
#43		LTE Band 4	1.133	-	0.0179	-0.311	-0.172				
#02		CDMA2000 BC0	0.437	-	0.0448	-0.295	-0.175	32.2	0.49	0.01	Not required
-		Bluetooth	0.053	-	0.0205	-0.316	-0.173				
#43		LTE Band 4	1.133	-	0.0179	-0.311	-0.172	5.7	1.19	0.23	Step 2
-		Bluetooth	0.053	-	0.0205	-0.316	-0.173				



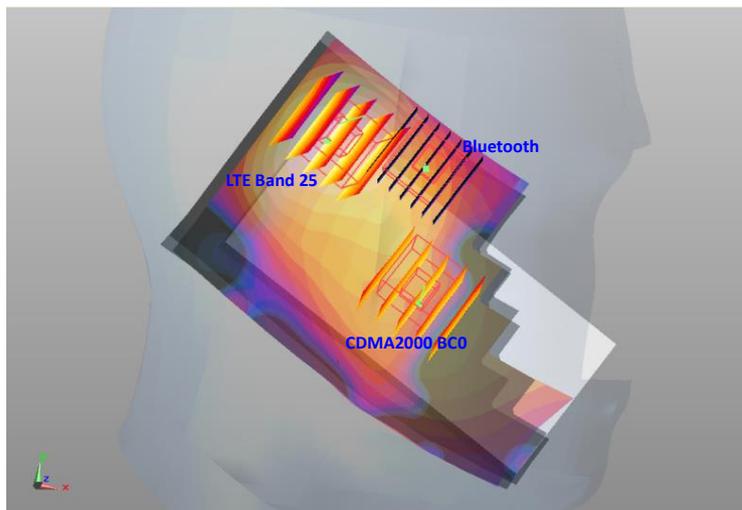
Case No #A1-22	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#03	Left Cheek	CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	70.6	1.61	0.03	Not required
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173				
#03		CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	50.2	0.62	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173	33.7	1.10	0.03	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



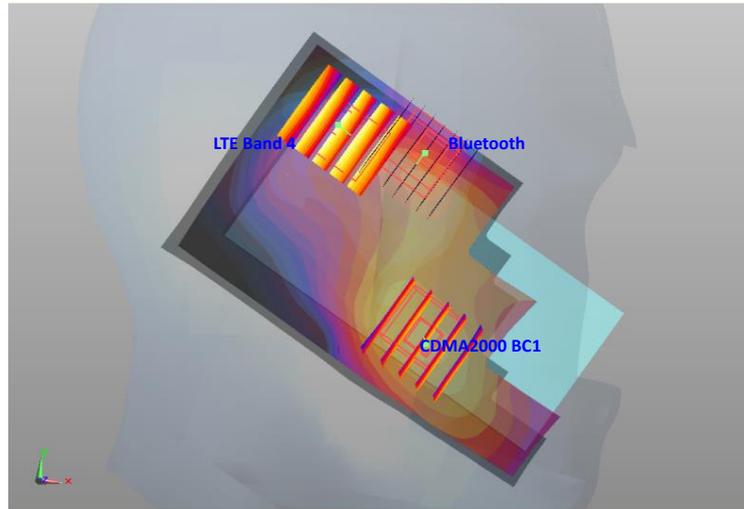
Case No #A1-23 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#03	Left Cheek	CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	67.5	1.98	0.04	Not required
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173				
#03		CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	50.2	0.62	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173	33.1	1.47	0.05	<b>Step 2</b>
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



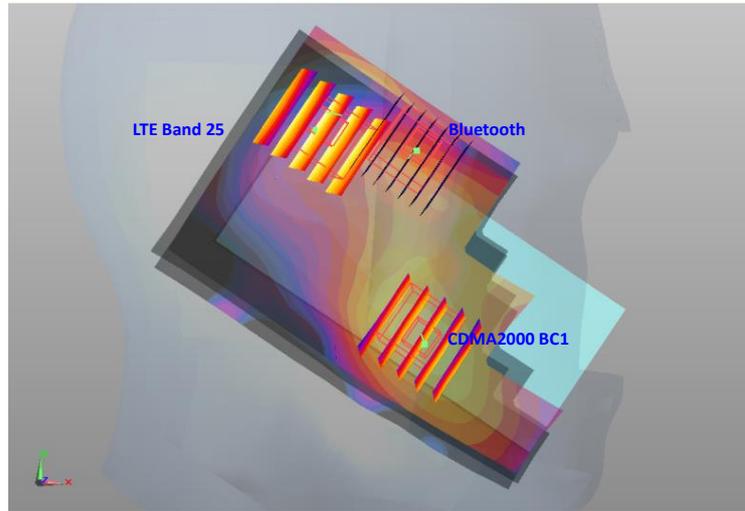
Case No #A1-24 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#03	Left Cheek	CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	72.2	1.83	0.03	Not required
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173				
#03		CDMA2000 BC0	0.568	-	0.0665	0.272	-0.173	50.2	0.62	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173	35.4	1.32	0.04	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



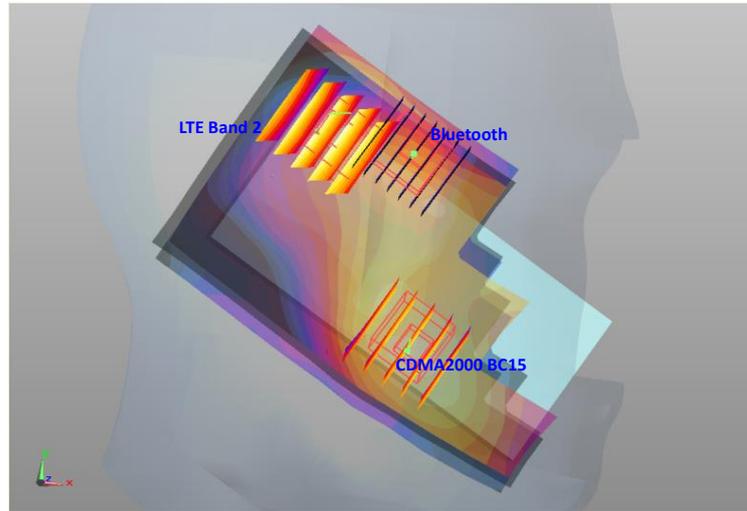
Case No #A1-25 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#08	Left Cheek	CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	85.8	1.88	0.03	Not required
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173				
#08		CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	69.4	0.52	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173	33.1	1.47	0.05	<b>Step 2</b>
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



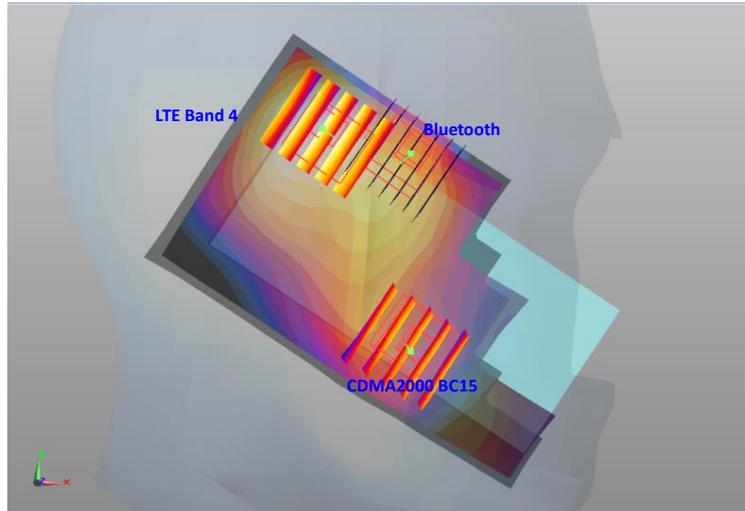
Case No #A1-26 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#08	Left Cheek	CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	90.7	1.73	0.03	Not required
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173				
#08		CDMA2000 BC1	0.465	-	0.0702	0.253	-0.17	69.4	0.52	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173	35.4	1.32	0.04	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



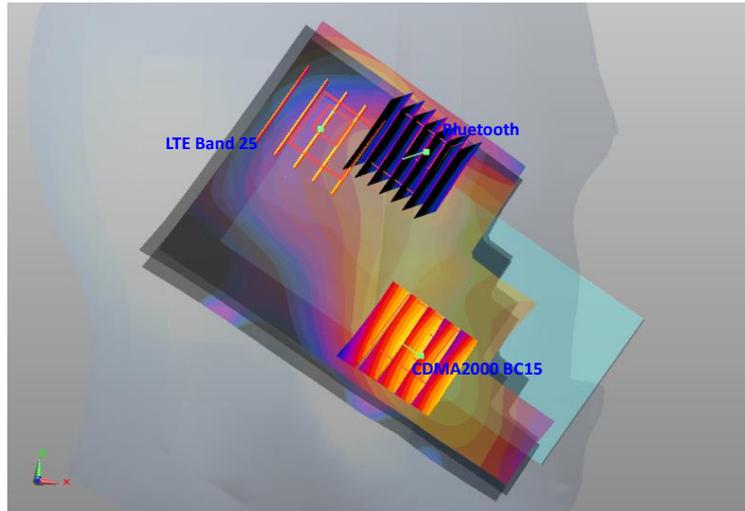
Case No #A1-27 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#13	Left Cheek	CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	89.8	1.58	0.02	Not required
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173				
#13		CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	71.2	0.59	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#23		LTE Band 2	1.045	-	0.0309	0.333	-0.173	33.7	1.10	0.03	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



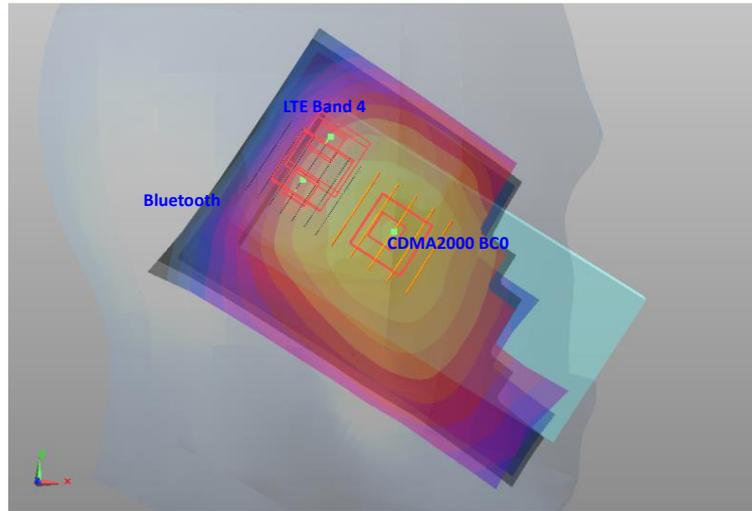
Case No #A1-28 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#13	Left Cheek	CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	86.3	1.95	0.03	Not required
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173				
#13		CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	71.2	0.59	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#46		LTE Band 4	1.412	-	0.0304	0.329	-0.173	33.1	1.47	0.05	<b>Step 2</b>
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



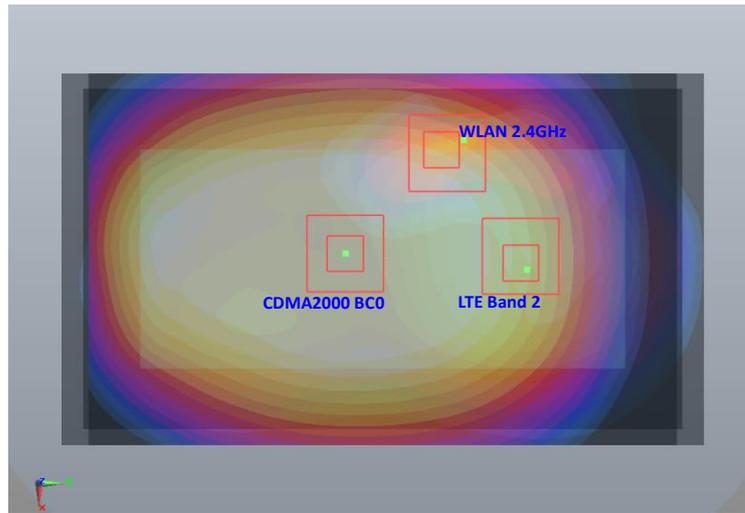
Case No #A1-29 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#13	Left Cheek	CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	91.3	1.80	0.03	Not required
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173				
#13		CDMA2000 BC15	0.534	-	0.0673	0.251	-0.17	71.2	0.59	0.01	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				
#71		LTE Band 25	1.263	-	0.0295	0.334	-0.173	35.4	1.32	0.04	Not required
-		Bluetooth	0.053	-	0.0627	0.322	-0.171				



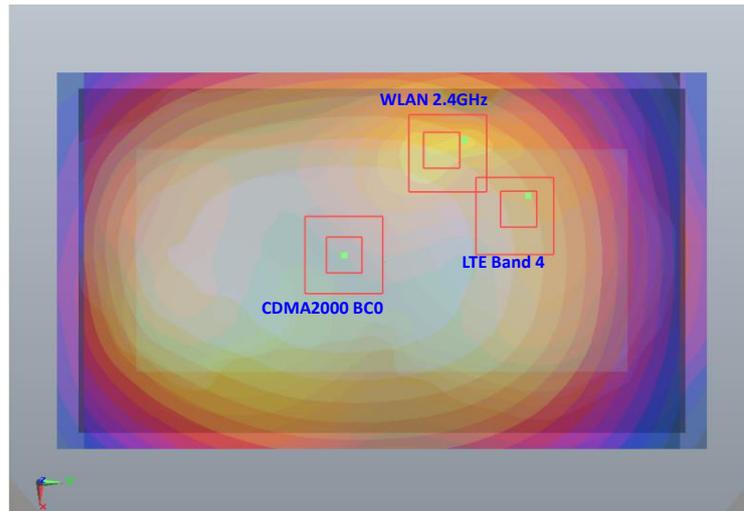
Case No #A1-30 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#04	Left Tilted	CDMA2000 BC0	0.444	-	0.0501	0.294	-0.176	41.3	1.65	0.05	Step 2
#50		LTE Band 4	1.202	-	0.0255	0.327	-0.173				
#04		CDMA2000 BC0	0.444	-	0.0501	0.294	-0.176	38.6	0.50	0.01	Not required
-		Bluetooth	0.053	-	0.014	0.307	-0.172				
#50		LTE Band 4	1.202	-	0.0255	0.327	-0.173	23.1	1.26	0.06	Step 2
-		Bluetooth	0.053	-	0.014	0.307	-0.172				



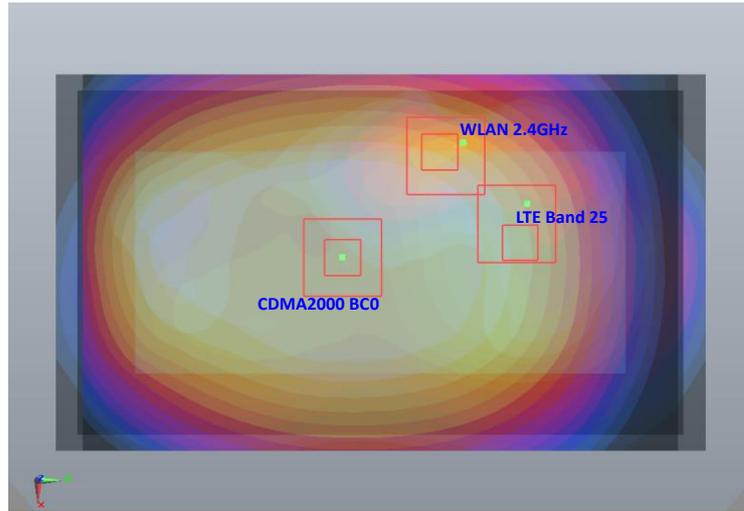
Case No #C1-1 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#104	Back	CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	306.0	1.64	0.01	Not required
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204				
#104		CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	291.5	1.12	0.00	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204	38.9	0.74	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



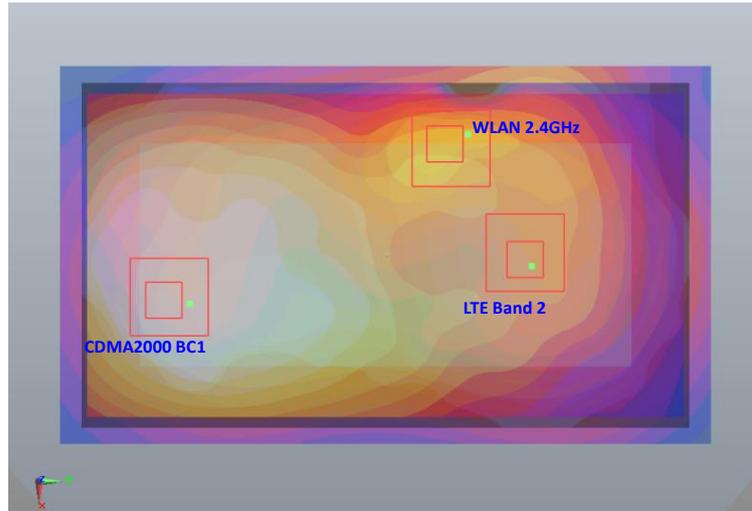
Case No #C1-2 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#104	Back	CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	310.4	1.88	0.01	Not required
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204				
#104		CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	291.5	1.12	0.00	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204	25.1	0.97	0.04	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



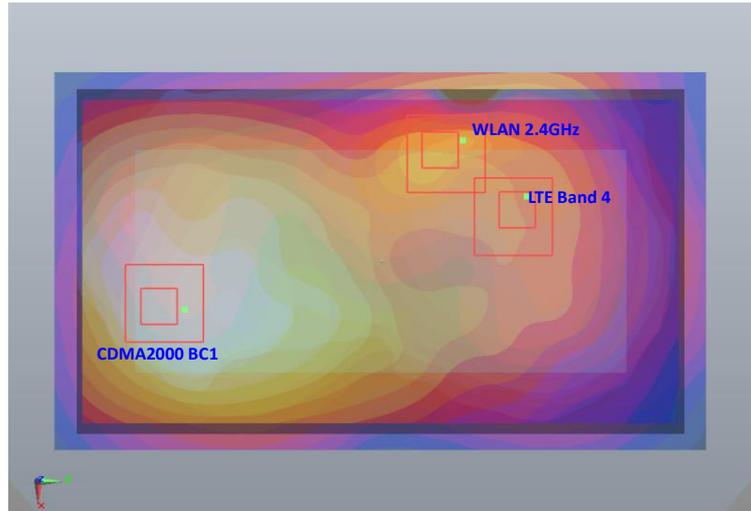
Case No #C1-3 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#104	Back	CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	306.6	1.74	0.01	Not required
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204				
#104		CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	291.5	1.12	0.00	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204	36.1	0.83	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



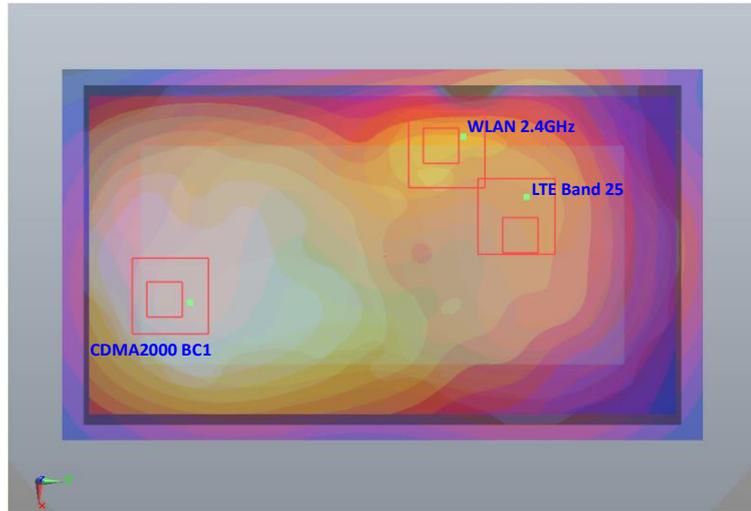
Case No #C1-4 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#123	Back	CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	103.0	1.78	0.02	Not required
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204				
#123		CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	90.2	1.26	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204	38.9	0.74	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



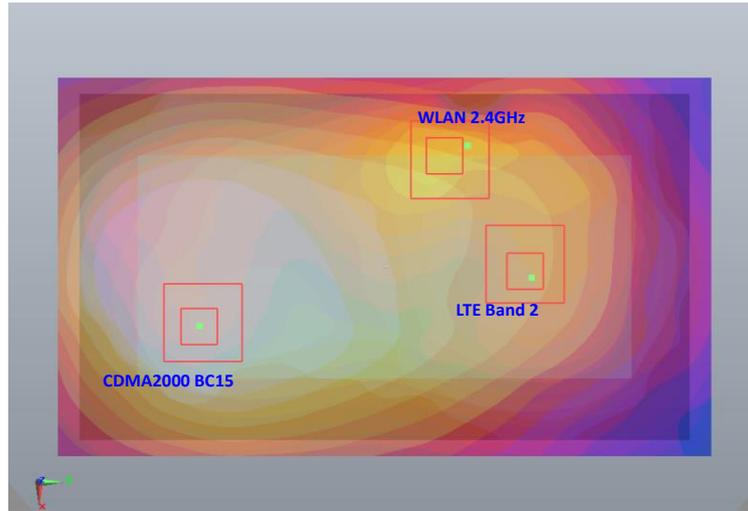
Case No #C1-5 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#123	Back	CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	107.2	2.01	0.03	Not required
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204				
#123		CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	90.2	1.26	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204	25.1	0.97	0.04	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



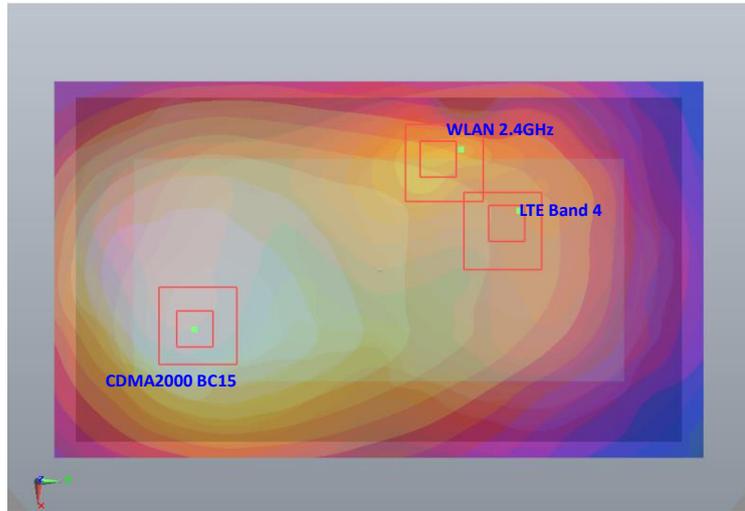
Case No #C1-6 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#123	Back	CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	103.5	1.87	0.02	Not required
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204				
#123		CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	90.2	1.26	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204	36.1	0.83	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



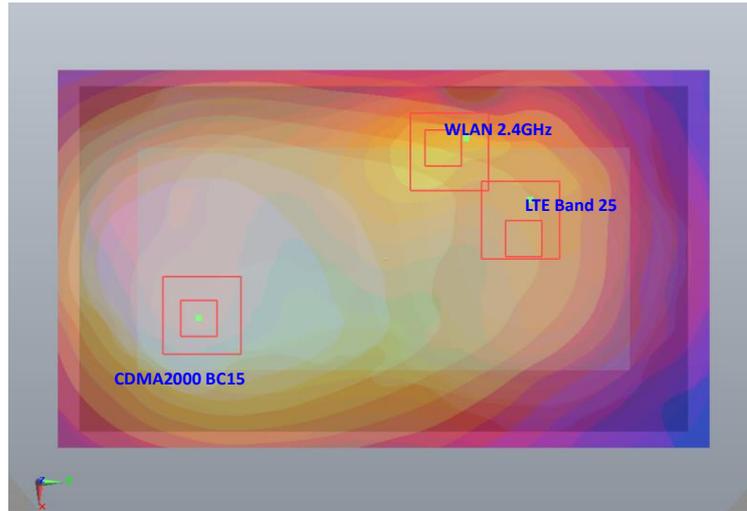
Case No #C1-7	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#139	Back	CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	92.5	1.91	0.03	Not required
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204				
#139		CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	82.3	1.38	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204	38.9	0.74	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



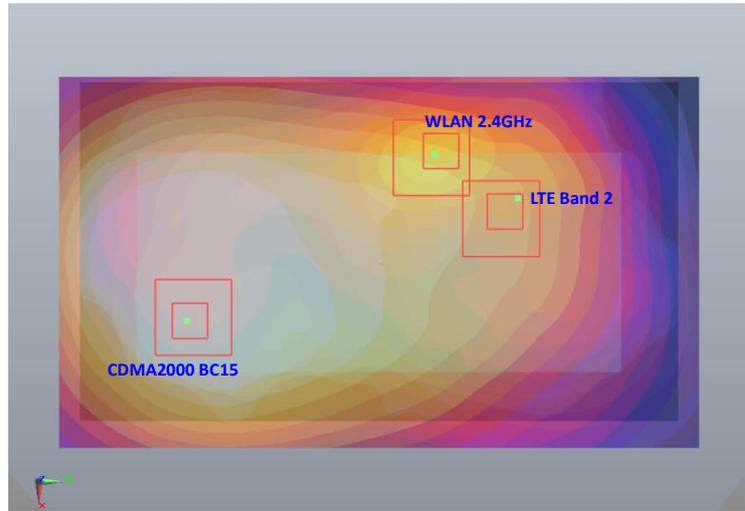
Case No #C1-8	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#139	Back	CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	97.8	2.14	0.03	Not required
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204				
#139		CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	82.3	1.38	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204	25.1	0.97	0.04	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



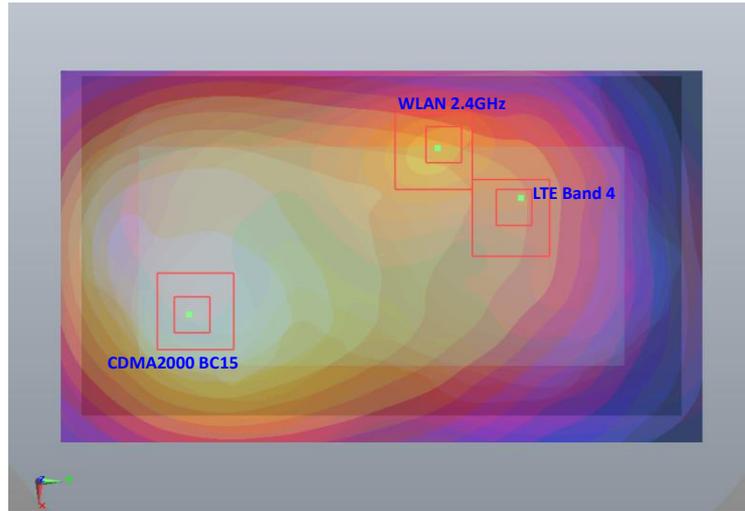
Case No #C1-9	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#139	Back	CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	93.1	2.00	0.03	Not required
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204				
#139		CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	82.3	1.38	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204	36.1	0.83	0.02	Not required
#179		WLAN 2.4GHz	0.108	1	-0.0456	0.0178	-0.204				



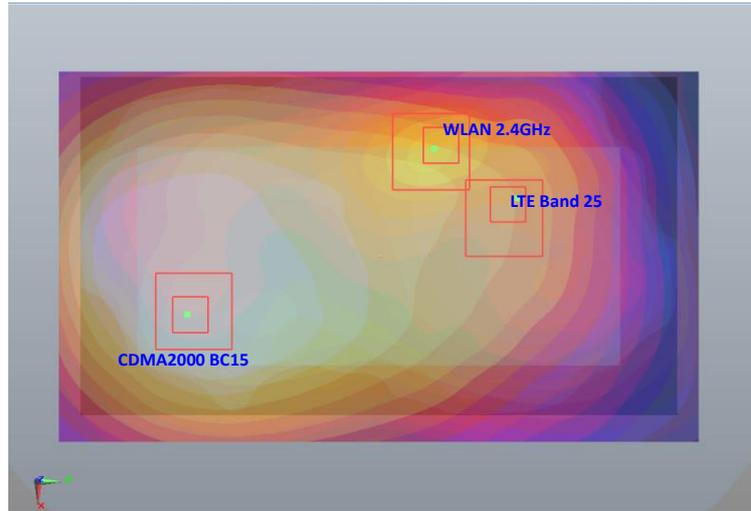
Case No #C1-10 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#145	Back (with / headset)	CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	99.2	1.76	0.02	Not required
#181		LTE Band 2	0.559	1	-0.035	0.039	-0.204				
#145		CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	84.0	1.31	0.02	Not required
#186		WLAN 2.4GHz	0.107	1	-0.0476	0.0156	-0.204				
#181		LTE Band 2	0.559	1	-0.035	0.039	-0.204	26.6	0.67	0.02	Not required
#186		WLAN 2.4GHz	0.107	1	-0.0476	0.0156	-0.204				



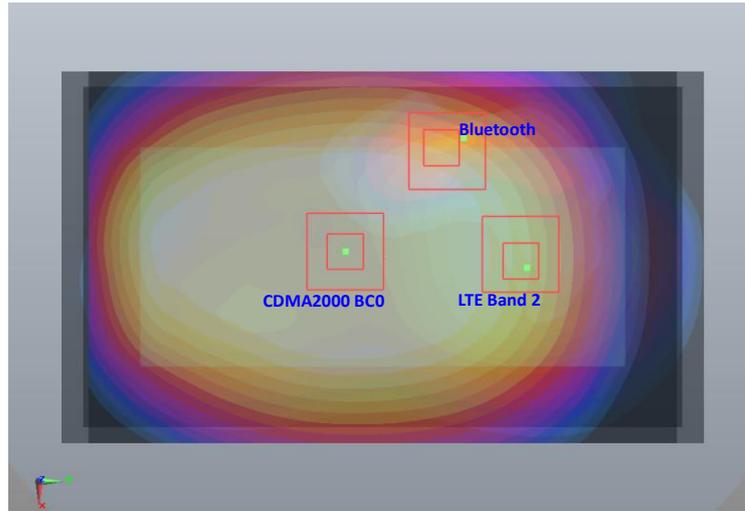
Case No #C1-11 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#145	Back (with / headset)	CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	98.7	2.08	0.03	Not required
#184		LTE Band 4	0.878	1	-0.0335	0.039	-0.204				
#145		CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	84.0	1.31	0.02	Not required
#186		WLAN 2.4GHz	0.107	1	-0.0476	0.0156	-0.204				
#184		LTE Band 4	0.878	1	-0.0335	0.039	-0.204	27.3	0.99	0.04	Not required
#186		WLAN 2.4GHz	0.107	1	-0.0476	0.0156	-0.204				



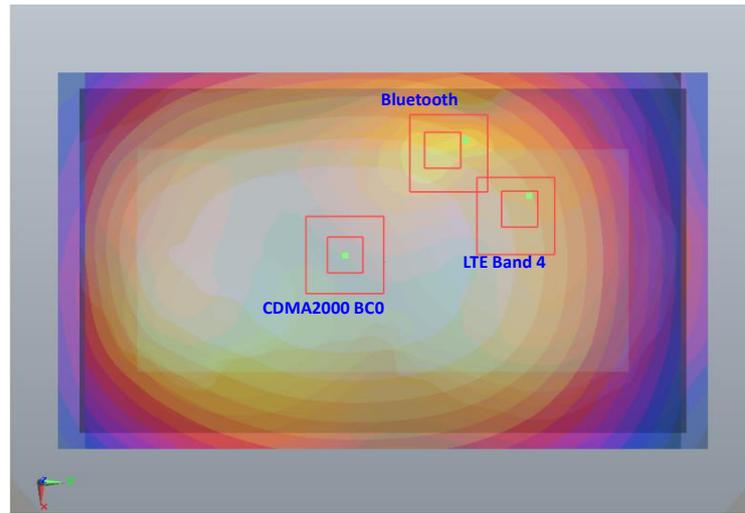
Case No #C1-12 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#145	Back (with / headset)	CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	98.7	1.85	0.03	Not required
#185		LTE Band 25	0.655	1	-0.0335	0.039	-0.204				
#145		CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	84.0	1.31	0.02	Not required
#186		WLAN 2.4GHz	0.107	1	-0.0476	0.0156	-0.204				
#185		LTE Band 25	0.655	1	-0.0335	0.039	-0.204	27.3	0.76	0.02	Not required
#186		WLAN 2.4GHz	0.107	1	-0.0476	0.0156	-0.204				



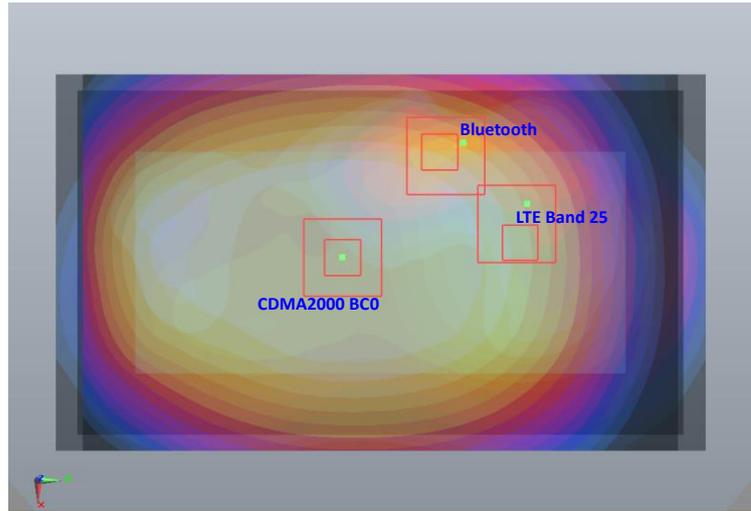
Case No #C1-13 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#104	Back	CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	306.0	1.64	0.01	Not required
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204				
#104		CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	291.5	1.04	0.00	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204	38.9	0.66	0.01	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



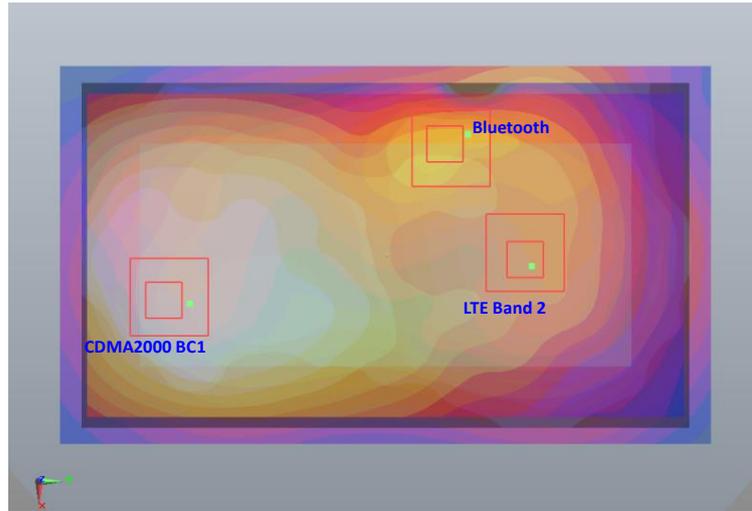
Case No #C1-14 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#104	Back	CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	310.4	1.88	0.01	Not required
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204				
#104		CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	291.5	1.04	0.00	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204	25.1	0.89	0.03	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



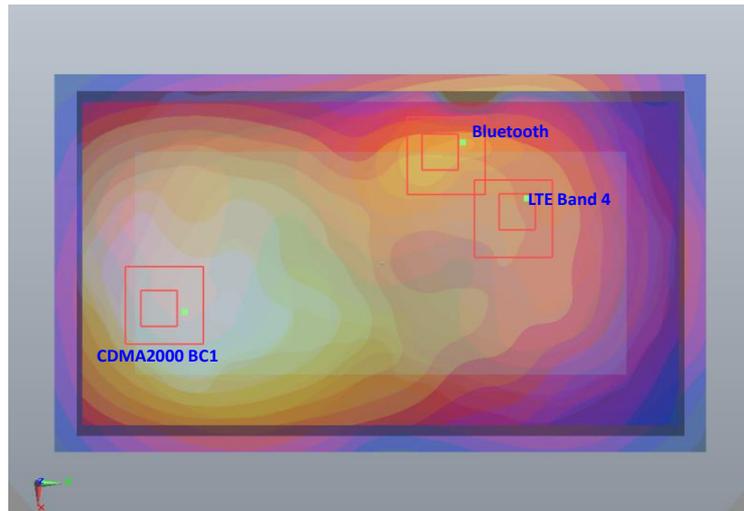
Case No #C1-15 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#104	Back	CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	306.6	1.74	0.01	Not required
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204				
#104		CDMA2000 BC0	1.009	1	0.0404	-0.259	-0.173	291.5	1.04	0.00	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204	36.1	0.75	0.02	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



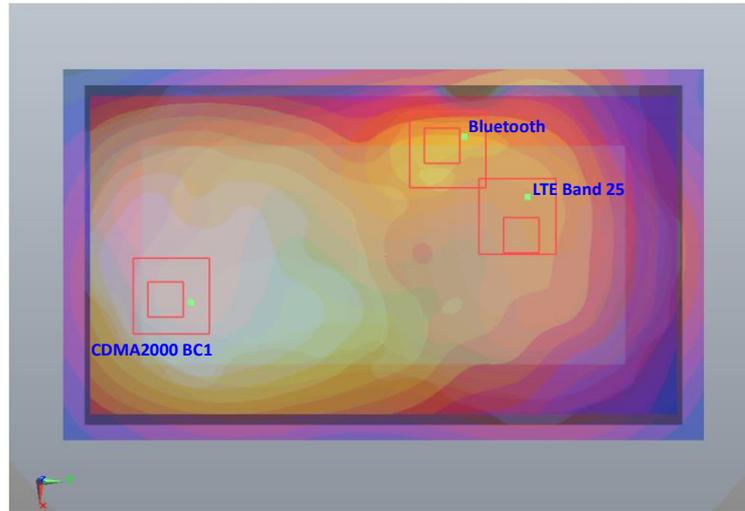
Case No #C1-16 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#123	Back	CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	103.0	1.78	0.02	Not required
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204				
#123		CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	90.2	1.17	0.01	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204	38.9	0.66	0.01	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



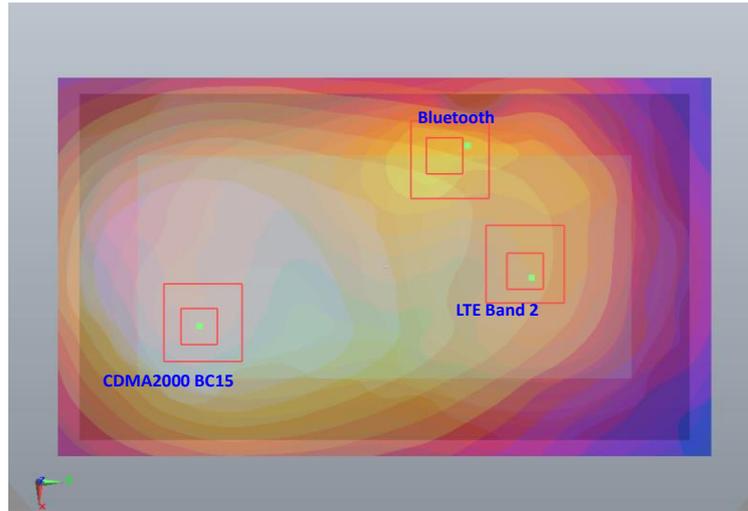
Case No #C1-17 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#123	Back	CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	107.2	2.01	0.03	Not required
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204				
#123		CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	90.2	1.17	0.01	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204	25.1	0.89	0.03	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



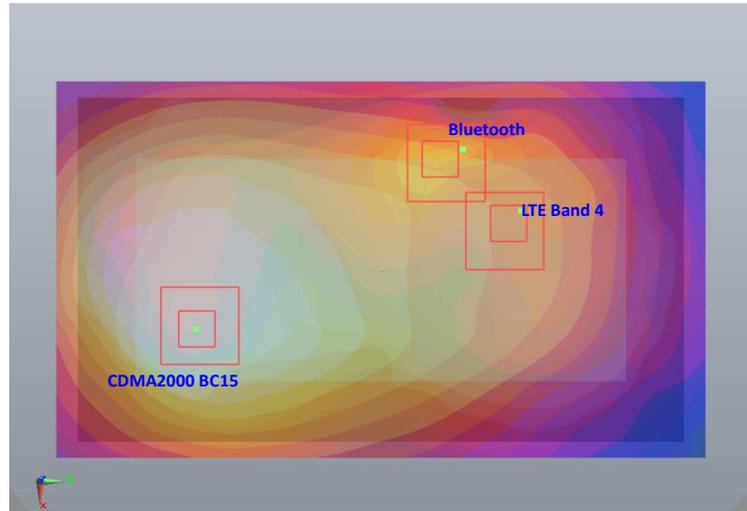
Case No #C1-18 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#123	Back	CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	103.5	1.87	0.02	Not required
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204				
#123		CDMA2000 BC1	1.148	1	-0.0035	-0.062	-0.204	90.2	1.17	0.01	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204	36.1	0.75	0.02	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



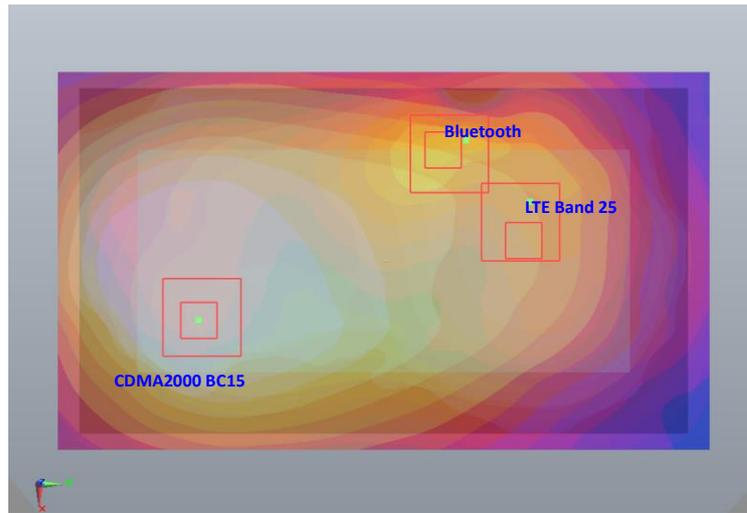
Case No #C1-19	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#139	Back	CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	92.5	1.91	0.03	Not required
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204				
#139		CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	82.3	1.30	0.02	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#149		LTE Band 2	0.635	1	-0.014	0.0405	-0.204	38.9	0.66	0.01	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



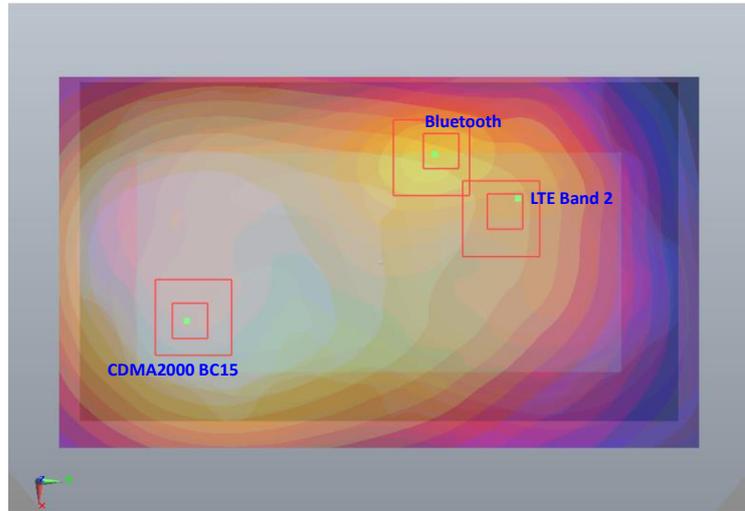
Case No #C1-20 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#139	Back	CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	97.8	2.14	0.03	Not required
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204				
#139		CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	82.3	1.30	0.02	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#159		LTE Band 4	0.866	1	-0.035	0.0405	-0.204	25.1	0.89	0.03	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



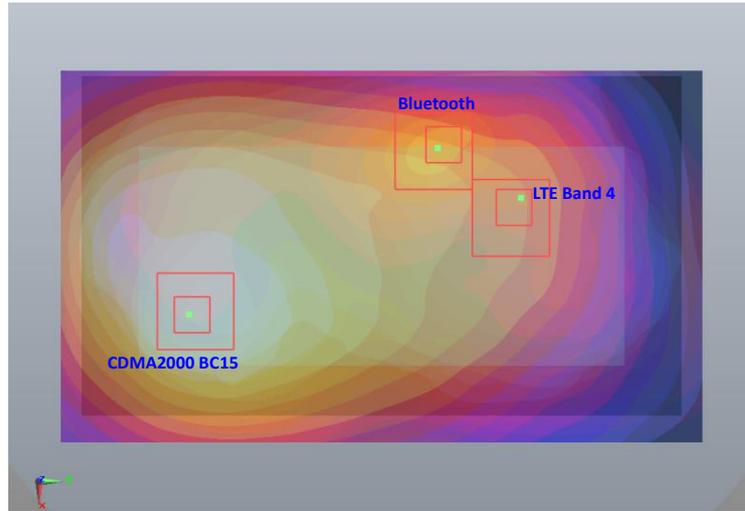
Case No #C1-21	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#139	Back	CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	93.1	2.00	0.03	Not required
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204				
#139		CDMA2000 BC15	1.276	1	-0.0005	-0.051	-0.204	82.3	1.30	0.02	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				
#171		LTE Band 25	0.726	1	-0.0175	0.0405	-0.204	36.1	0.75	0.02	Not required
-		Bluetooth	0.026	1	-0.0456	0.0178	-0.204				



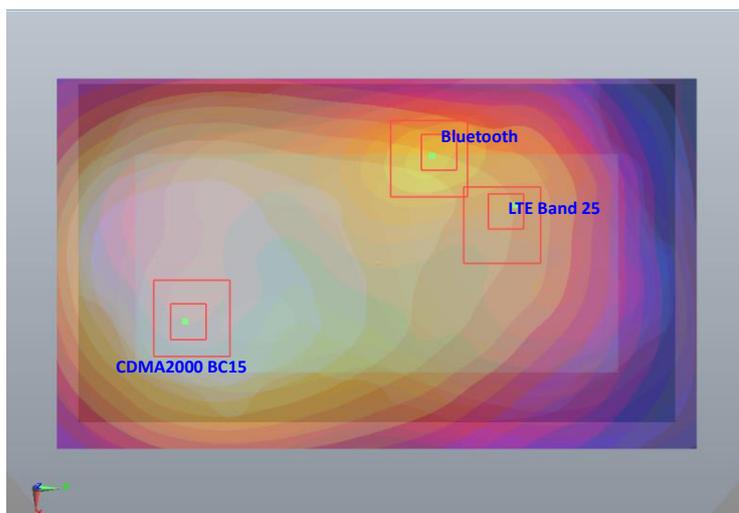
Case No #C1-22 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#145	Back (with / headset)	CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	99.2	1.76	0.02	Not required
#181		LTE Band 2	0.559	1	-0.035	0.039	-0.204				
#145		CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	84.0	1.22	0.02	Not required
-		Bluetooth	0.026	1	-0.0476	0.0156	-0.204				
#181		LTE Band 2	0.559	1	-0.035	0.039	-0.204	26.6	0.59	0.02	Not required
-		Bluetooth	0.026	1	-0.0476	0.0156	-0.204				



Case No #C1-23 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#145	Back (with / headset)	CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	98.7	2.08	0.03	Not required
#184		LTE Band 4	0.878	1	-0.0335	0.039	-0.204				
#145		CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	84.0	1.22	0.02	Not required
-		Bluetooth	0.026	1	-0.0476	0.0156	-0.204				
#184		LTE Band 4	0.878	1	-0.0335	0.039	-0.204	27.3	0.90	0.03	Not required
-		Bluetooth	0.026	1	-0.0476	0.0156	-0.204				



Case No #C1-24 Plot No	Position	Band	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Pair SAR sum (W/kg)	SPLSR	Simultaneous SAR
					X	Y	Z				
#145	Back (with / headset)	CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	98.7	1.85	0.03	Not required
#185		LTE Band 25	0.655	1	-0.0335	0.039	-0.204				
#145		CDMA2000 BC15	1.198	1	-0.0005	-0.054	-0.204	84.0	1.22	0.02	Not required
-		Bluetooth	0.026	1	-0.0476	0.0156	-0.204				
#185		LTE Band 25	0.655	1	-0.0335	0.039	-0.204	27.3	0.68	0.02	Not required
-		Bluetooth	0.026	1	-0.0476	0.0156	-0.204				



**Remark:**

1. Per KDB 447498 D01v05r01, SAR test exclusion is determined by the SAR to peak location separation ratio, SPLSR.
2. For SPLSR calculation Bluetooth SAR peak position is estimated using WLAN 2.4GHz peak location, due to the WLAN and Bluetooth shares the same RF trace to the same antenna, and the operational frequency range is the same.

**Test Engineer :** Fulu Hu and Jimmy Cheng

## **14. Uncertainty Assessment**

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

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

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture’s specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in Table 12.1

<b>Uncertainty Distributions</b>	<b>Normal</b>	<b>Rectangular</b>	<b>Triangular</b>	<b>U-Shape</b>
Multi-plying Factor <sup>(a)</sup>	1/k <sup>(b)</sup>	1/√3	1/√6	1/√2

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

(b)  $\kappa$  is the coverage factor

**Table 14.1 Standard Uncertainty for Assumed Distribution**

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

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



Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
<b>Measurement System</b>							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
<b>Test Sample Related</b>							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
<b>Phantom and Setup</b>							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
<b>Combined Standard Uncertainty</b>						± 11.0 %	± 10.8 %
<b>Coverage Factor for 95 %</b>						K=2	
<b>Expanded Uncertainty</b>						± 22.0 %	± 21.5 %

Table 14.2 Uncertainty Budget for frequency range 300 MHz to 3 GHz



## **15. 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. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007
- [6] FCC KDB 447498 D01 v05r01, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, May 2013
- [7] FCC KDB 648474 D04 v01r01, “SAR Evaluation Considerations for Wireless Handsets”, May 2013
- [8] FCC KDB 941225 D05 v02r02, “SAR Evaluation Considerations for LTE Devices”, May 2013
- [9] FCC KDB 941225 D01 v02, “SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA”, October 2007
- [10] FCC KDB 941225 D06 v01r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", May 2013
- [11] FCC KDB 865664 D01 v01r01, “SAR Measurement Requirements for 100MHz to 6Ghz”, May 2013



## ***Appendix A. Plots of System Performance Check***

The plots are shown as follows.



## ***Appendix B. Plots of SAR Measurement***

The plots are shown as follows.



## **Appendix C. DASYS Calibration Certificate**

The DASYS calibration certificates are shown as follows.