**FCC OET BULLETIN 65 SUPPLEMENT C 01-01**
**IEEE Std 1528-2003 and IEEE Std 1528a-2005**

**(Class II Permissive Change)**

# SAR EVALUATION REPORT

*For*
**Cellular/AWS/PCS CDMA & AWS/PCS LTE Phone with Bluetooth and WLAN**

**Model: MS770, LG-MS770, LGMS770, LW770, LG-LW770, LGLW770**
**FCC ID: ZNFMS770**

**Report Number: 12U14456-7A**
**Issue Date: 7/27/2012**

*Prepared for*
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NVLAP LAB CODE 200065-0

## Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| -- | 7/18/2012 | Initial Issue | -- |
| A | 7/27/2012 | Made the following revisions in response to reviewer's comments:<br>Removed Section 9.6, 9.7 and 9.8 | Sunny Shih |

## Table of Contents

# 1. Attestation of Test Results

| | | | |
|---|---|---|---|
| Applicant | LG ELECTRONICS MOBILECOMM U.S.A., INC. | | |
| DUT description | Cellular/AWS/PCS CDMA & AWS/PCS LTE Phone with Bluetooth and WLAN | | |
| Model | MS770, LG-MS770, LGMS770, LW770, LG-LW770, LGLW770 | | |
| Test device is | An identical prototype | | |
| Device category | Portable | | |
| Exposure category | General Population/Uncontrolled Exposure | | |
| Date tested | 5/29/2012 – 6/15/2012 | | |
| FCC Rule Parts | Freq. Range | Highest 1-g SAR | Limit |
| 22 | 824-849MHz | Head: 0.525 W/kg (Right Touch) (1xRTT)<br>Body & Hotspot: 0.975 W/kg (Rear w/ 10mm distance) (1xRTT) | 1.6 W/kg |
| 24 | 1850-1910MHz | Head: 0.979 W/kg (Left Touch) (1xEV-DO)<br>Body & Hotspot: 1.120 W/kg (Rear w/ 10 mm distance) (1xRTT) | |
| 24<br>(LTE Band 2) | 1850-1910MHz | Head: 0.948 W/kg (Left Touch)<br>Body & Hotspot: 0.761 W/kg (Rear w/ 10 mm distance) | |
| 27<br>(CDMA BC15) | 1711.25-1753.75MHz | Head: 0.668 W/kg (Left Touch) (1xEV-DO)<br>Body & Hotspot: 0.689 W/kg (Rear w/ 10mm distance) (1xRTT) | |
| 27<br>(LTE Band 4) | 1710-1755MHz | Head: 0.693 W/kg (Left Touch)<br>Body & Hotspot: 0.728 W/kg (Rear w/ 10 mm distance) | |
| 15.247 | 2412-2462MHz | Head: 0.142 W/kg (Right Tilt)<br>Body & Hotspot: 0.181 W/kg (Rear w/ 10 mm distance) | |
| Simultaneous Transmission Condition | | 1.57 W/kg (refer to Section 13.1)<br>(Left touch: BC15 1xRTT + BC15 EV-DO + WiFi) | |

| Applicable Standards | Test Results |
|---|---|
| FCC OET Bulletin 65 Supplement C 01-01, IEEE Std 1528-2003 and IEEE Std 1528a-2005 | Pass |

UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.

Approved & Released For UL CCS By:

Sunny Shih
Engineering Leader
UL CCS

Tested By:

Kent Huang
SAR Engineer
UL CCS

# 2. Test Methodology

The tests documented in this report were performed in accordance with FCC OET Bulletin 65 Supplement C Edition 01-01, IEEE STD 1528-2003, 1528a-2005, and the following KDB Procedures:

- 648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05
- 248227 D01 SAR meas for 802 11abg v01r02
- 941225 D01 SAR test for 3G devices v02
- 941225 D05 SAR for LTE Devices v01
- 941225 D06 Hot Spot SAR v01

**KDB Inquiry #: 760669**

Test Reduction for 1x Advanced

# 3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

# 4. Calibration and Uncertainty

## 4.1. Measuring Instrument Calibration

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

| Name of Equipment | Manufacturer | Type/Model | Serial No. | Cal. Due date | | |
|---|---|---|---|---|---|---|
| | | | | MM | DD | Year |
| Dielectronic Probe kit | HP | 85070C | N/A | N/A | | |
| Base Station Simulator | R & S | CMU200 | 106291 | 6 | 24 | 2012 |
| Base Station Simulator | R & S | CMW500 | 10-300233773 | 12 | 14 | 2012 |
| Base Station Simulator | Agilent | 8960 | GB47050526 | 9 | 27 | 2012 |
| Base Station Simulator | Anritsu | MT8820C | 6200985430 | 6 | 17 | 2012 |
| ESA Series Network Analyzer | Agilent | E5071B | MY42100131 | 2 | 11 | 2013 |
| Synthesized Signal Generator | HP | 83732B | US34490599 | 7 | 14 | 2012 |
| E-Field Probe | SPEAG | EX3DV4 | 3773 | 3 | 14 | 2013 |
| E-Field Probe | SPEAG | EX3DV4 | 3686 | 2 | 16 | 2013 |
| E-Field Probe | SPEAG | EX3DV4 | 3772 | 2 | 16 | 2013 |
| Thermometer | ERTCO | 639-1S | 1718 | 7 | 19 | 2012 |
| Data Acquisition Electronics | SPEAG | DAE4 | 1259 | 2 | 13 | 2013 |
| Data Acquisition Electronics | SPEAG | DAE4 | 1257 | 10 | 25 | 2012 |
| Data Acquisition Electronics | SPEAG | DAE3 | 500 | 7 | 14 | 2012 |
| Data Acquisition Electronics | SPEAG | DAE4 | 1258 | 3 | 8 | 2013 |
| System Validation Dipole | SPEAG | D1750V2 | 1050 | 4 | 19 | 2013 |
| System Validation Dipole | SPEAG | D835V2 | 4d002 | 3 | 6 | 2013 |
| System Validation Dipole | SPEAG | D1900V2 | 5d043 | 11 | 10 | 2012 |
| System Validation Dipole | SPEAG | D2450V2 | 748 | 2 | 7 | 2013 |
| Power Meter | HP | 8481A | 2720A66876 | 8 | 1 | 2013 |
| Power Sensor | HP | 438A | 2822A05684 | 10 | 7 | 2013 |
| Power Meter | HP | 8481A | 2237A31744 | 8 | 17 | 2013 |
| Power Sensor | HP | 438A | 3513U04320 | 9 | 17 | 2012 |
| Amplifier | MITEQ | 4D00400600-50-30P | 1620606 | N/A | | |
| Directional coupler | Werlatone | C8060-102 | 2141 | N/A | | |

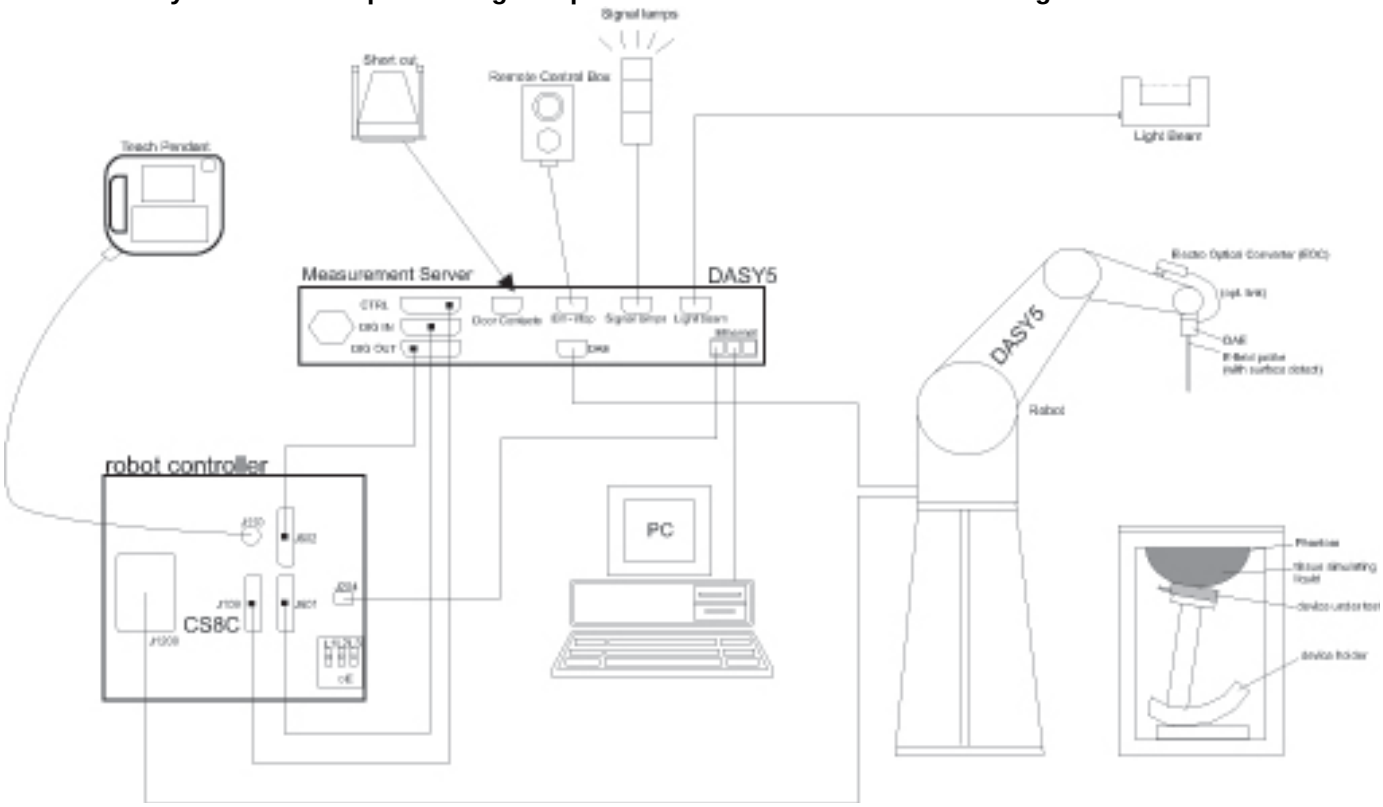
## 4.2. Measurement Uncertainty

Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram

| Component | Error, % | Distribution | Divisor | Sensitivity | U (Xi), % |
|---|---|---|---|---|---|
| **Measurement System** | | | | | |
| Probe Calibration (k=1) | **6.00** | Normal | 1 | 1 | 6.00 |
| Axial Isotropy | 1.15 | Rectangular | 1.732 | 0.7071 | 0.47 |
| Hemispherical Isotropy | 2.30 | Rectangular | 1.732 | 0.7071 | 0.94 |
| Boundary Effect | 0.90 | Rectangular | 1.732 | 1 | 0.52 |
| Probe Linearity | 3.45 | Rectangular | 1.732 | 1 | 1.99 |
| System Detection Limits | 1.00 | Rectangular | 1.732 | 1 | 0.58 |
| Readout Electronics | 0.30 | Normal | 1 | 1 | 0.30 |
| Response Time | 0.80 | Rectangular | 1.732 | 1 | 0.46 |
| Integration Time | 2.60 | Rectangular | 1.732 | 1 | 1.50 |
| RF Ambient Conditions - Noise | 3.00 | Rectangular | 1.732 | 1 | 1.73 |
| RF Ambient Conditions - Reflections | 3.00 | Rectangular | 1.732 | 1 | 1.73 |
| Probe Positioner Mechanical Tolerance | 0.40 | Rectangular | 1.732 | 1 | 0.23 |
| Probe Positioning with respect to Phantom | 2.90 | Rectangular | 1.732 | 1 | 1.67 |
| Extrapolation, Interpolation and Integration | 1.00 | Rectangular | 1.732 | 1 | 0.58 |
| **Test Sample Related** | | | | | |
| Test Sample Positioning | 2.90 | Normal | 1 | 1 | 2.90 |
| Device Holder Uncertainty | 3.60 | Normal | 1 | 1 | 3.60 |
| Output Power Variation - SAR Drift | 5.00 | Rectangular | 1.732 | 1 | 2.89 |
| **Phantom and Tissue Parameters** | | | | | |
| Phantom Uncertainty (shape and thickness) | 4.00 | Rectangular | 1.732 | 1 | 2.31 |
| Liquid Conductivity - deviation from target | 5.00 | Rectangular | 1.732 | 0.64 | 1.85 |
| Liquid Conductivity - measurement | **-4.30** | Normal | 1 | 0.64 | -2.75 |
| Liquid Permittivity - deviation from target | 5.00 | Rectangular | 1.732 | 0.6 | 1.73 |
| Liquid Permittivity - measurement uncertainty | **-3.95** | Normal | 1 | 0.6 | -2.37 |
| | | | | Combined Standard Uncertainty Uc(y) = | 10.40 |
| | | | | Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 20.79 % | |
| | | | | Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence = 1.64 dB | |

# 5. Measurement System Description and Setup

**The DASY5 system used for performing compliance tests consists of the following items:**




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

# 6. SAR Measurement Procedure

## 6.1. Normal SAR Measurement Procedure

**Step 1: 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. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

**Step 2: Area Scan**
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

**Step 3: Zoom Scan**
Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures ≥ 7x7x9 (above 4.5 GHz) or 5x5x7 (below 3 GHz) points within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

**Step 4: Power drift measurement**
The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

**Step 5: Z-Scan (FCC only)**
The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

## 6.2. Volume Scan Procedures

**Step 1: 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. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

**Step 2: Area Scan**
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

**Step 3: Zoom Scan**
Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures ≥ 7x7x9 (above 4.5 GHz) or 5x5x7 (below 3 GHz) points within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

**Step 4: Volume Scan**
Volume Scans are used to assess peak SAR and averaged SAR measurements in largely extended 3-dimensional volumes within any phantom. This measurement does not need any previous area scan. The grid can be anchored to a user specific point or to the current probe location.

**Step 5: Power drift measurement**
The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

# 7. Device Under Test

| | |
|---|---|
| Cellular/AWS/PCS CDMA & AWS/PCS LTE Phone with Bluetooth and WLAN<br>Base Model: MS770, LG-MS770, LGMS770, LW770, LG-LW770, LGLW770 | |
| Normal operation | - Held to head,<br>- Body (Rear and Front sides) with 10 mm separation distance.<br>- Hotspot (wireless router) with 10 mm separation distance to all sides and edges. |
| Accessory | 1. Headset<br>2. Battery Cover<br>o Standard Battery Cover |

## 7.1. Band and Air Interfaces

| | |
|---|---|
| Tx Frequency Bands | - CDMA BC 0: 824 - 849 MHz<br>- CDMA BC 1: 1850 - 1910 MHz<br>- CDMA BC 15: 1711.25-1753.75 MHz<br>- LTE Band 2: 1850 – 1910 MHz<br>- LTE Band 4: 1710 - 1755 MHz<br>- 802.11b/g/n: 2412 - 2462 MHz, b / g / HT20<br>- Bluetooth: 2402 - 2480 MHz |

## 7.2. Hotspot (Wireless router) Exposure Condition

The device is capable of personal hotspot mode. The hotspot mode can be enabled by the user.

## 7.3. Simultaneous Transmission

### *MS770 All User Scenarios

| No. | Capable TX Configration | Head SAR | Body SAR | Hotspot SAR | Power Reduction (CDMA EVDO) | Power Reduction (LTE) | Note |
|---|---|---|---|---|---|---|---|
| 1 | CDMA BC0 Voice | O | O | X | X | X | Stand alone CDMA BC0 Voice |
| 2 | CDMA BC1 Voice | O | O | X | X | X | Stand alone CDMA BC1 Voice |
| 3 | CDMA BC15 Voice | O | O | X | X | X | Stand alone CDMA BC15 Voice |
| 4 | CDMA BC1 EVDO | O | O | X | X | X | Stand alone CDMA BC1 EVDO |
| 5 | CDMA BC15 EVDO | O | O | X | X | X | Stand alone CDMA BC15 EVDO |
| 6 | LTE B2 | O | O | X | X | X | Stand alone LTE B2 |
| 7 | LTE B4 | O | O | X | X | X | Stand alone LTE B4 |
| 8 | WiFi | O | O | X | X | X | Stand alone WiFi |
| 9 | CDMA BC0 Voice + WiFi data | O | O | X | X | X | - |
| 10 | CDMA BC1 Voice + WiFi data | O | O | X | X | X | - |
| 11 | CDMA BC15 Voice + WiFi data | O | O | X | X | X | - |
| 12 | CDMA BC0 1x Data + WiFi data | X | X | O | X | X | CDMA Hotspot |
| 13 | CDMA BC1 1x Data/EVDO + WiFi data | X | X | O | X | X | CDMA Hotspot |
| 14 | CDMA BC15 1xData/EVDO + WiFi data | X | X | O | X | X | CDMA Hotspot |
| 15 | LTE B2 + WiFi data | X | X | O | X | X | LTE Hotspot |
| 16 | LTE B4 + WiFi data | X | X | O | X | X | LTE Hotspot |
| 17 | CDMA BC0 Voice + CDMA BC1 EVDO | O | O | X | O | X | SVDO |
| 18 | CDMA BC0 Voice + CDMA BC15 EVDO | O | O | X | O | X | SVDO |
| 19 | CDMA BC0 Voice + LTE B2 | O | O | X | X | O | SVLTE |
| 20 | CDMA BC0 Voice + LTE B4 | O | O | X | X | O | SVLTE |
| 21 | CDMA BC1 Voice + CDMA BC1 EVDO | O | O | X | O | X | SVDO |
| 22 | CDMA BC1 Voice + CDMA BC15 EVDO | O | O | X | O | X | SVDO |
| 23 | CDMA BC1 Voice + LTE B2 | O | O | X | X | O | SVLTE |
| 24 | CDMA BC1 Voice + LTE B4 | O | O | X | X | O | SVLTE |
| 25 | CDMA BC15 Voice + CDMA BC1 EVDO | O | O | X | O | X | SVDO |
| 26 | CDMA BC15 Voice + CDMA BC15 EVDO | O | O | X | O | X | SVDO |
| 27 | CDMA BC15 Voice + LTE B2 | O | O | X | X | O | SVLTE |
| 28 | CDMA BC15 Voice + LTE B4 | O | O | X | X | O | SVLTE |
| 29 | CDMA BC0 Voice + CDMA BC1 EVDO + WiFi | O | X | O | O | X | WiFi Hotspot (SVDO) |
| 30 | CDMA BC0 Voice + CDMA BC15 EVDO + WiFi | O | X | O | O | X | WiFi Hotspot (SVDO) |
| 31 | CDMA BC0 Voice + LTE B2 + WiFi | O | X | O | X | O | WiFi Hotspot (SVLTE) |
| 32 | CDMA BC0 Voice + LTE B4+ WiFi | O | X | O | X | O | WiFi Hotspot (SVLTE) |
| 33 | CDMA BC1 Voice + CDMA BC1 EVDO+ WiFi | O | X | O | O | X | WiFi Hotspot (SVDO) |
| 34 | CDMA BC1 Voice + CDMA BC15 EVDO+ WiFi | O | X | O | O | X | WiFi Hotspot (SVDO) |
| 35 | CDMA BC1 Voice + LTE B2+ WiFi | O | X | O | X | O | WiFi Hotspot (SVLTE) |
| 36 | CDMA BC1 Voice + LTE B4 + WiFi | O | X | O | X | O | WiFi Hotspot (SVLTE) |
| 37 | CDMA BC15 Voice + CDMA BC1 EVDO+ WiFi | O | X | O | O | X | WiFi Hotspot (SVDO) |
| 38 | CDMA BC15 Voice + CDMA BC15 EVDO+ WiFi | O | X | O | O | X | WiFi Hotspot (SVDO) |
| 39 | CDMA BC15 Voice + LTE B2 + WiFi | O | X | O | X | O | WiFi Hotspot (SVLTE) |
| 40 | CDMA BC15 Voice + LTE B4 + WiFi | O | X | O | X | O | WiFi Hotspot (SVLTE) |

* The simultaneous transmission between BT and WiFi is not supported.
* The simultaneous transmission between CDMA EVDO and LTE data is not supported.
* CDMA BC0 EVDO is not supported.
* SVDO & SVLTE are supported
* Power reduction for SVDO & SVLTE modes is applied.
* 1x Advanced capability for CDMA BC0/BC1/BC15 is supported.
* During WLAN 'Google Talk' usage, WWAN data cannot transmit simultaneously with WLAN.

## 7.4. KDB 941225 D05 SAR for LTE Devices v01

| # | Description | Information |
|---|---|---|
| 1 | Identify the operating frequency range of each LTE transmission band used by the device | Band 2: 1850.7 – 1909.3 MHz<br>Band 4: 1710.7 - 1750 MHz |
| 2 | Identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc | Band 2: 1.4, 3, 5, 10 MHz<br>Band 4: 1.4, 3, 5, 10 MHz |
| 3 | Identify the high, middle and low (H, M, L) channel numbers and frequencies in each LTE frequency band | **LTE Band 2**<br>- Bandwidth: 1.4MHz Ch No.: 18607 Frequency: 1850.7 MHz<br>18900 Frequency: 1880 MHz<br>19193 Frequency: 1909.3 MHz<br>- Bandwidth: 3MHz Ch No.: 18615 Frequency: 1851.5 MHz<br>18900 Frequency: 1880 MHz<br>19185 Frequency: 1908.5 MHz<br>- Bandwidth: 5MHz Ch No.: 18625 Frequency: 1852.5 MHz<br>18900 Frequency: 1880 MHz<br>19175 Frequency: 1907.5 MHz<br>- Bandwidth: 10MHz Ch No.: 18650 Frequency: 1855 MHz<br>18900 Frequency: 1880 MHz<br>19150 Frequency: 1905 MHz<br>**LTE Band 4**<br>- Bandwidth: 1.4MHz Ch No.: 19957 Frequency: 1710.7 MHz<br>20175 Frequency: 1732.5 MHz<br>20393 Frequency: 1754.3 MHz<br>- Bandwidth: 3MHz Ch No.: 19965 Frequency: 1711.5 MHz<br>20175 Frequency: 1732.5 MHz<br>20385 Frequency: 1753.5 MHz<br>- Bandwidth: 5MHz Ch No.: 19975 Frequency: 1712.5 MHz<br>20175 Frequency: 1732.5 MHz<br>20375 Frequency: 1752.5 MHz<br>- Bandwidth: 10MHz Ch No.: 20000 Frequency: 1715 MHz<br>20175 Frequency: 1732.5 MHz<br>20350 Frequency: 1750 MHz |
| 4 | Specify the UE category and uplink modulations used | The UE Category is 3<br>Uplink modulations: QPSK, 16QAM |
| 5 | Descriptions of the LTE transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or antenna(s) with other transmitters etc. | The LTE and EVDO BC1 and BC15 share the same hardware. For details, please refer to the antenna distance document. |
| 6 | Identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions, etc. | Exposure conditions<br>1) Body SAR is required.<br>2) Hotspot SAR: Front/Back/Edge 1/Edge 2 is required because LTE hotspot is supported. |

KDB 941225 D05 SAR for LTE Devices v01 (continued)

<table>
<tr><td>7</td><td>Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design: a) only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards b) A-MPR (additional MPR) must be disabled.</td><td>As per 3GPP TS 36.101:<br>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth/Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>>5</td><td>>4</td><td>>8</td><td>>12</td><td>>16</td><td>>18</td><td>≤1</td></tr>
<tr><td>16 QAM</td><td>≤5</td><td>≤4</td><td>≤8</td><td>≤12</td><td>≤16</td><td>≤18</td><td>≤1</td></tr>
<tr><td>16 QAM</td><td>>5</td><td>>4</td><td>>8</td><td>>12</td><td>>16</td><td>>18</td><td>≤2</td></tr>
</table>
MPR is permanently built-in by design.<br>A-MPR was disabled.</td></tr>
<tr><td>8</td><td>Include the maximum average conducted output power measured on the required test channels for each channel bandwidth and UL modulation used in each frequency band:<br>a) with 1 RB allocated at the upper edge of a channel<br>b) with 1 RB allocated at the lower edge of a channel<br>c) using 50% RB allocation centered within a channel<br>d) using 100% RB allocation</td><td>Refer to the RF Output Power Table</td></tr>
<tr><td>9</td><td>Identify all other U.S. wireless operating modes (3G, Wi-Fi, WiMax, Bluetooth etc), device/exposure configurations (head and body, antenna and handset flip-cover or slide positions, antenna diversity conditions etc.) and frequency bands used for these modes</td><td>* Supported band & Exposure conditions<br>1) Bluetooth 2.4GHz<br>- Exposure Conditions: BT SAR is not required due to its low power and antenna separation distance.<br>2) WiFi 2.4GHz<br>- Exposure Conditions: Head/Body SAR required<br>* WiFi Hotspot is supported.<br>3) Supported WWAN bands: CDMA BC0/BC1/BC15<br>-Exposure Conditions: Head and Body SAR required; Hotspot SAR required on select modes.</td></tr>
<tr><td>10</td><td>Include the maximum average conducted output power measured for the other wireless mode and frequency bands</td><td>See the section of RF output power measurements</td></tr>
<tr><td>11</td><td>Identify the simultaneous transmission conditions for the voice and data configurations supported by all wireless modes, device configurations and frequency bands, for the head and body exposure conditions and device operating configurations (handset flip or cover positions, antenna diversity conditions etc.)</td><td>Refer to the table titled “MS770 All Usage Scenarios” under Section 8.3.</td></tr>
</table>

KDB 941225 D05 SAR for LTE Devices v01 (continued)

<table>
<tr><td>12</td><td>When power reduction is applied to certain wireless modes to satisfy SAR compliance for simultaneous transmission conditions, other equipment certification or operating requirements, include the maximum average conducted output power measured in each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands; and also include details of the power reduction implementation and measurement setup</td><td>
<table>
<tr><th colspan="3">Power Reduction Operation Table for SVDO Mode</th></tr>
<tr><th>Mode</th><th>CDMA Current Voice Power for BC0, BC1, BC15</th><th>CDMA EVDO Max. Power for BC1 & BC15</th></tr>
<tr><td rowspan="2">SVDO</td><td>P < 15.5 dBm</td><td>23.5dBm (Limited)</td></tr>
<tr><td>P ≥ 15.5 dBm</td><td>18.5dBm (Limited)</td></tr>
</table>
<table>
<tr><th colspan="3">Power Reduction Operation Table for SVLTE Mode</th></tr>
<tr><th>Mode</th><th>CDMA Current Voice Power for BC0, BC1, BC15</th><th>LTE Max. Power for B2 & B4</th></tr>
<tr><td rowspan="2">SVLTE</td><td>P < 18.5 dBm</td><td>22.8dBm (Limited)</td></tr>
<tr><td>P ≥ 18.5 dBm</td><td>18.8dBm (Limited)</td></tr>
</table>
</td></tr>
<tr><td>13</td><td>Include descriptions of the test equipment, test software, built-in test firmware etc. required to support testing the device when power reduction is applied to one or more transmitters/antennas for simultaneous voice/data transmission</td><td>Not Applicable</td></tr>
<tr><td>14</td><td>When appropriate, include a SAR test plan<br>proposal with respect to the above</td><td>Not Applicable</td></tr>
<tr><td>15</td><td>If applicable, include preliminary SAR test data and/or supporting information in laboratory testing inquiries to address specific issues and concerns or for requesting further test reduction considerations appropriate for the<br>device; for example, simultaneous transmission configurations</td><td>Not Applicable</td></tr>
</table>

# 8. Summary of Test Configurations

Refer to Section 19 “Antenna Location and Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

## 8.1. Head Exposure Conditions for WWAN and WiFi

| Test Configurations | SAR Required | Note |
|---|---|---|
| Left Touch | Yes | |
| Left Tilt (15°) | Yes | |
| Right Touch | Yes | |
| Right Tilt (15°) | Yes | |

## 8.2. Body-worn Test Configurations for CDMA BC0/BC1/BC15, 1xRTT Mode

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note |
|---|---|---|---|
| Rear | < 25 mm | Yes | |
| Front | < 25 mm | Yes | |

## 8.3. Hotspot Test Configurations for CDMA BC0/BC1/BC15, 1xRTT Mode

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note |
|---|---|---|---|
| Rear | < 25 mm | Yes | |
| Front | < 25 mm | Yes | |
| Edge 1 | 93.1 mm | No | SAR is not required because the distance from the antenna to this edge is > 2.5 cm as per KDB 941225 D06 Hot Spot SAR v01 |
| Edge 2 | 2 mm | Yes | |
| Edge 3 | 2 mm | Yes | |
| Edge 4 | 15.1 mm | Yes | |

## 8.4. Body-worn Test Configurations for CDMA BC1/BC15, 1xEVDO and LTE Band 2 & 4

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note |
|---|---|---|---|
| Rear | < 25 mm | Yes | |
| Front | < 25 mm | Yes | |

## 8.5. Hotspot Test Configurations for CDMA BC1/BC15, 1xEVDO and LTE Band 2 & 4

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note |
|---|---|---|---|
| Rear | < 25 mm | Yes | |
| Front | < 25 mm | Yes | |
| Edge 1 | 6.3 mm | Yes | |
| Edge 2 | 3.1 mm | Yes | |
| Edge 3 | 64.5 mm | No | SAR is not required because the distance from the antenna to this edge is > 2.5 cm as per KDB 941225 D06 Hot Spot SAR v01 |
| Edge 4 | 50.8 mm | No | SAR is not required because the distance from the antenna to this edge is > 2.5 cm as per KDB 941225 D06 Hot Spot SAR v01 |

## 8.6. Body-worn Test Configurations for Wi-Fi 2.4

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note |
|---|---|---|---|
| Rear | < 25 mm | Yes | |
| Front | < 25 mm | Yes | |

## 8.7. Hotspot Test Configurations for Wi-Fi 2.4

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note |
|---|---|---|---|
| Rear | < 25 mm | Yes | |
| Front | < 25 mm | Yes | |
| Edge 1 | 6.3 mm | Yes | |
| Edge 2 | 46.2 mm | No | SAR is not required because the distance from the antenna to this edge is > 2.5 cm as per KDB 941225 D06 Hot Spot SAR v01 |
| Edge 3 | 86.1 mm | No | SAR is not required because the distance from the antenna to this edge is > 2.5 cm as per KDB 941225 D06 Hot Spot SAR v01 |
| Edge 4 | 3.1 mm | Yes | |

# 9. RF Output Power Measurement

## 9.1. CDMA BC0

**1xRTT**

Target Power: 24.5 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| CDMA | | | Avg Pwr (dBm) | | |
|---|---|---|---|---|---|
| | | | RC1 - SO55 | RC3 - SO55 | RC3 - SO32 |
| Band | Ch | Freq. (MHz) | (Loopback) | (Loopback) | (+F-SCH) |
| BC 0 | 1013 | 824.7 | 25.0 | 24.9 | 24.9 |
| | 384 | 836.52 | 25.0 | 24.9 | 25.0 |
| | 777 | 848.31 | 24.9 | 24.8 | 24.8 |

**1x Advanced**

Target Power: 24.5 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| CDMA | | | Avg Pwr (dBm) |
|---|---|---|---|
| | | | RC Fwd11, Rvs8 - SO75 |
| Band | Ch | Freq. (MHz) | (Loopback) |
| BC 0 | 1013 | 824.7 | 24.9 |
| | 384 | 836.52 | 25.0 |
| | 777 | 848.31 | 24.9 |

## 9.2. CDMA BC1

**1xRTT**

Target Power: 23.8 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| CDMA | | | Avg Pwr (dBm) | | |
|---|---|---|---|---|---|
| | | | RC1 - SO55 | RC3 - SO55 | RC3 - SO32 |
| Band | Ch | Freq. (MHz) | (Loopback) | (Loopback) | (+F-SCH) |
| BC 1 | 25 | 1851.25 | 24.2 | 24.2 | 24.2 |
| | 600 | 1880 | 24.3 | 24.3 | 24.3 |
| | 1175 | 1908.75 | 24.1 | 24.1 | 24.1 |

**1x Advanced**

Target Power: 23.8 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| CDMA | | | Avg Pwr (dBm) |
|---|---|---|---|
| | | | RC Fwd11, Rvs8 - SO75 |
| Band | Ch | Freq. (MHz) | (Loopback) |
| BC 1 | 25 | 1851.25 | 24.3 |
| | 600 | 1880 | 24.3 |
| | 1175 | 1908.75 | 24.1 |

**1xEv-Do Rel. 0**

Target Power: 23.5 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| Band | FTAP Rate | RTAP Rate | Channel | f (MHz) | Avg Pwr (dBm) |
|---|---|---|---|---|---|
| BC1 | 307.2 kbps (2 slot, QPSK) | 153.6 kbps | 25 | 1851.25 | 24.0 |
| | | | 600 | 1880 | 24.0 |
| | | | 1175 | 1908.75 | 23.9 |

**1xEv-Do Rev. A**

Target Power: 23.5 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| Band | FETAP Traffic Format | RETAP Data Payload Size | Channel | f (MHz) | Avg Pwr (dBm) |
|---|---|---|---|---|---|
| BC1 | 307.2k, QPSK/ ACK channel is transmitted at all the slots | 4096 | 25 | 1851.25 | 24.0 |
| | | | 600 | 1880 | 24.0 |
| | | | 1175 | 1908.75 | 24.0 |

## 9.3. CDMA BC15

**1xRTT**

Target Power: 23.8 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| CDMA | | | Avg Pwr (dBm) | | |
|---|---|---|---|---|---|
| | | | RC1 - SO55 | RC3 - SO55 | RC3 - SO32 |
| Band | Ch | Freq. (MHz) | (Loopback) | (Loopback) | (+F-SCH) |
| BC 15 | 25 | 1711.25 | 24.2 | 24.2 | 24.2 |
| | 450 | 1732.5 | 24.2 | 24.3 | 24.2 |
| | 875 | 1754.75 | 24.2 | 24.2 | 24.2 |

**1x Advanced**

Target Power: 23.8 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| CDMA | | | Avg Pwr (dBm) |
|---|---|---|---|
| | | | RC Fwd11, Rvs8 - SO75 |
| Band | Ch | Freq. (MHz) | (Loopback) |
| BC 15 | 25 | 1711.25 | 24.2 |
| | 450 | 1732.5 | 24.3 |
| | 875 | 754.75 | 24.3 |

**1xEv-Do Rel. 0**

Target Power: 23.5 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| Band | FTAP Rate | RTAP Rate | Channel | f (MHz) | Avg Pwr (dBm) |
|---|---|---|---|---|---|
| BC15 | 307.2 kbps (2 slot, QPSK) | 153.6 kbps | 25 | 1711.25 | 24.0 |
| | | | 450 | 1732.5 | 24.0 |
| | | | 875 | 1754.75 | 24.0 |

**1xEv-Do Rev. A**

Target Power: 23.5 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

| Band | FETAP Traffic Format | RETAP Data Payload Size | Channel | f (MHz) | Avg Pwr (dBm) |
|---|---|---|---|---|---|
| BC15 | 307.2k, QPSK/ ACK channel is transmitted at all the slots | 4096 | 25 | 1711.25 | 24.0 |
| | | | 450 | 1732.5 | 24.0 |
| | | | 875 | 1754.75 | 24.0 |

## 9.4. LTE Band 2

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

| 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 |

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

**Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)**

| Network Signalling value | Requirements (sub-clause) | E-UTRA Band | Channel bandwidth (MHz) | Resources Blocks ($N_{RB}$) | A-MPR (dB) |
|---|---|---|---|---|---|
| NS_01 | 6.6.2.1.1 | Table 5.5-1 | 1.4, 3, 5, 10, 15, 20 | Table 5.6-1 | NA |
| NS_03 | 6.6.2.2.1 | 2, 4,10, 23, 25, 35, 36 | 3 | >5 | ≤ 1 |
| | | | 5 | >6 | ≤ 1 |
| | | | 10 | >6 | ≤ 1 |
| | | | 15 | >8 | ≤ 1 |
| | | | 20 | >10 | ≤ 1 |
| NS_04 | 6.6.2.2.2 | 41 | 5 | >6 | ≤ 1 |
| | | | 10, 15, 20 | See Table 6.2.4-4 | |
| NS_05 | 6.6.3.3.1 | 1 | 10,15,20 | ≥ 50 | ≤ 1 |
| NS_06 | 6.6.2.2.3 | 12, 13, 14, 17 | 1.4, 3, 5, 10 | Table 5.6-1 | n/a |
| NS_07 | 6.6.2.2.3<br>6.6.3.3.2 | 13 | 10 | Table 6.2.4-2 | Table 6.2.4-2 |
| NS_08 | 6.6.3.3.3 | 19 | 10, 15 | > 44 | ≤ 3 |
| NS_09 | 6.6.3.3.4 | 21 | 10, 15 | > 40 | ≤ 1 |
| | | | | > 55 | ≤ 2 |
| NS_10 | | 20 | 15, 20 | Table 6.2.4-3 | Table 6.2.4-3 |
| NS_11 | 6.6.2.2.1 | 23[1] | 1.4, 3, 5, 10 | Table 6.2.4-5 | Table 6.2.4-5 |
| .. | | | | | |
| NS_32 | - | - | - | - | - |
| Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region. | | | | | |

Target Power: 22.8 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

**Conducted Output Power for LTE Band 2**

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 1.4 | 18607 | 1850.7 | QPSK | 1 | 0 | 0.0 | 0.06 | 23.40 |
| | | | | 1 | 5 | 0.0 | 0.05 | 23.41 |
| | | | | 3 | 2 | 0.0 | 0.00 | 23.46 |
| | | | | 6 | 0 | 1.0 | 1.15 | 22.31 |
| | | | 16QAM | 1 | 0 | 1.0 | 1.10 | 22.36 |
| | | | | 1 | 5 | 1.0 | 0.98 | 22.48 |
| | | | | 3 | 2 | 1.0 | 0.87 | 22.59 |
| | | | | 6 | 0 | 1.5 | 1.54 | 21.92 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0.0 | 0.01 | 23.48 |
| | | | | 1 | 5 | 0.0 | 0.03 | 23.46 |
| | | | | 3 | 2 | 0.0 | 0.00 | 23.49 |
| | | | | 6 | 0 | 1.0 | 1.08 | 22.41 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.97 | 22.52 |
| | | | | 1 | 5 | 1.0 | 1.02 | 22.47 |
| | | | | 3 | 2 | 1.0 | 0.98 | 22.51 |
| | | | | 6 | 0 | 1.5 | 1.59 | 21.90 |
| | 19193 | 1909.3 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.44 |
| | | | | 1 | 5 | 0.0 | 0.05 | 23.39 |
| | | | | 3 | 2 | 0.0 | 0.01 | 23.43 |
| | | | | 6 | 0 | 1.0 | 0.88 | 22.56 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.80 | 22.64 |
| | | | | 1 | 5 | 1.0 | 0.75 | 22.69 |
| | | | | 3 | 2 | 1.0 | 0.79 | 22.65 |
| | | | | 6 | 0 | 1.5 | 1.26 | 22.18 |

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 3 | 18615 | 1851.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.40 |
| | | | | 1 | 14 | 0.0 | 0.05 | 23.35 |
| | | | | 8 | 4 | 1.0 | 1.00 | 22.40 |
| | | | | 15 | 0 | 1.0 | 0.83 | 22.57 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.76 | 22.64 |
| | | | | 1 | 14 | 1.0 | 0.79 | 22.61 |
| | | | | 8 | 4 | 1.5 | 1.30 | 22.10 |
| | | | | 15 | 0 | 1.5 | 1.25 | 22.15 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.41 |
| | | | | 1 | 14 | 0.0 | 0.02 | 23.39 |
| | | | | 8 | 4 | 1.0 | 1.01 | 22.40 |
| | | | | 15 | 0 | 1.0 | 0.93 | 22.48 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.78 | 22.63 |
| | | | | 1 | 14 | 1.0 | 0.83 | 22.58 |
| | | | | 8 | 4 | 1.5 | 1.42 | 21.99 |
| | | | | 15 | 0 | 1.5 | 1.44 | 21.97 |
| | 19185 | 1908.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.42 |
| | | | | 1 | 14 | 0.0 | 0.04 | 23.38 |
| | | | | 8 | 4 | 1.0 | 0.99 | 22.43 |
| | | | | 15 | 0 | 1.0 | 1.10 | 22.32 |
| | | | 16QAM | 1 | 0 | 1.0 | 1.00 | 22.42 |
| | | | | 1 | 14 | 1.0 | 0.86 | 22.56 |
| | | | | 8 | 4 | 1.5 | 1.32 | 22.10 |
| | | | | 15 | 0 | 1.5 | 1.52 | 21.90 |

**Conducted Output Power for LTE Band 2 continued**

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 5 | 18625 | 1852.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.44 |
| | | | | 1 | 24 | 0.0 | 0.06 | 23.38 |
| | | | | 12 | 6 | 0.5 | 0.53 | 22.91 |
| | | | | 25 | 0 | 0.5 | 0.52 | 22.92 |
| | | | 16QAM | 1 | 0 | 0.5 | 0.54 | 22.90 |
| | | | | 1 | 24 | 0.5 | 0.62 | 22.82 |
| | | | | 12 | 6 | 1.5 | 1.27 | 22.17 |
| | | | | 25 | 0 | 1.0 | 1.13 | 22.31 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.48 |
| | | | | 1 | 24 | 0.0 | 0.09 | 23.39 |
| | | | | 12 | 6 | 0.5 | 0.55 | 22.93 |
| | | | | 25 | 0 | 0.5 | 0.68 | 22.80 |
| | | | 16QAM | 1 | 0 | 0.5 | 0.59 | 22.89 |
| | | | | 1 | 24 | 0.5 | 0.70 | 22.78 |
| | | | | 12 | 6 | 1.5 | 1.28 | 22.20 |
| | | | | 25 | 0 | 1.0 | 1.25 | 22.23 |
| | 19175 | 1907.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.44 |
| | | | | 1 | 24 | 0.0 | 0.02 | 23.42 |
| | | | | 12 | 6 | 0.5 | 0.64 | 22.80 |
| | | | | 25 | 0 | 0.5 | 0.58 | 22.86 |
| | | | 16QAM | 1 | 0 | 0.5 | 0.51 | 22.93 |
| | | | | 1 | 24 | 0.5 | 0.57 | 22.87 |
| | | | | 12 | 6 | 1.5 | 1.26 | 22.18 |
| | | | | 25 | 0 | 1.0 | 1.11 | 22.33 |

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 10 | 18650 | 1855.0 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.47 |
| | | | | 1 | 49 | 0.0 | 0.14 | 23.33 |
| | | | | 25 | 12 | 1.0 | 1.09 | 22.38 |
| | | | | 50 | 0 | 1.0 | 1.13 | 22.34 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.92 | 22.55 |
| | | | | 1 | 49 | 1.0 | 1.09 | 22.38 |
| | | | | 25 | 12 | 1.5 | 1.27 | 22.20 |
| | | | | 50 | 0 | 1.5 | 1.51 | 21.96 |
| | 18900 | 1880.0 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.41 |
| | | | | 1 | 49 | 0.0 | 0.11 | 23.30 |
| | | | | 25 | 12 | 1.0 | 0.95 | 22.46 |
| | | | | 50 | 0 | 1.0 | 0.93 | 22.48 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.90 | 22.51 |
| | | | | 1 | 49 | 1.0 | 0.97 | 22.44 |
| | | | | 25 | 12 | 1.5 | 1.52 | 21.89 |
| | | | | 50 | 0 | 1.5 | 1.49 | 21.92 |
| | 19150 | 1905.0 | QPSK | 1 | 0 | 0.0 | 0.01 | 23.42 |
| | | | | 1 | 49 | 0.0 | 0.00 | 23.43 |
| | | | | 25 | 12 | 1.0 | 1.02 | 22.41 |
| | | | | 50 | 0 | 1.0 | 1.00 | 22.43 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.82 | 22.61 |
| | | | | 1 | 49 | 1.0 | 0.85 | 22.58 |
| | | | | 25 | 12 | 1.5 | 1.28 | 22.15 |
| | | | | 50 | 0 | 1.5 | 1.49 | 21.94 |

## 9.5. LTE Band 4

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

| 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 |

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

**Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)**

| Network Signalling value | Requirements (sub-clause) | E-UTRA Band | Channel bandwidth (MHz) | Resources Blocks ($N_{RB}$) | A-MPR (dB) |
|---|---|---|---|---|---|
| NS_01 | 6.6.2.1.1 | Table 5.5-1 | 1.4, 3, 5, 10, 15, 20 | Table 5.6-1 | NA |
| NS_03 | 6.6.2.2.1 | 2, 4,10, 23, 25, 35, 36 | 3 | >5 | ≤ 1 |
| | | | 5 | >6 | ≤ 1 |
| | | | 10 | >6 | ≤ 1 |
| | | | 15 | >8 | ≤ 1 |
| | | | 20 | >10 | ≤ 1 |
| NS_04 | 6.6.2.2.2 | 41 | 5 | >6 | ≤ 1 |
| | | | 10, 15, 20 | See Table 6.2.4-4 | |
| NS_05 | 6.6.3.3.1 | 1 | 10,15,20 | ≥ 50 | ≤ 1 |
| NS_06 | 6.6.2.2.3 | 12, 13, 14, 17 | 1.4, 3, 5, 10 | Table 5.6-1 | n/a |
| NS_07 | 6.6.2.2.3<br>6.6.3.3.2 | 13 | 10 | Table 6.2.4-2 | Table 6.2.4-2 |
| NS_08 | 6.6.3.3.3 | 19 | 10, 15 | > 44 | ≤ 3 |
| NS_09 | 6.6.3.3.4 | 21 | 10, 15 | > 40 | ≤ 1 |
| | | | | > 55 | ≤ 2 |
| NS_10 | | 20 | 15, 20 | Table 6.2.4-3 | Table 6.2.4-3 |
| NS_11 | 6.6.2.2.1 | 23[1] | 1.4, 3, 5, 10 | Table 6.2.4-5 | Table 6.2.4-5 |
| .. | | | | | |
| NS_32 | - | - | - | - | - |
| Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region. | | | | | |

Target Power: 22.8 dBm
Tune-up Tolerance: -1.5 dB / +0.7 dB

**Conducted Output Power for LTE Band 4**

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 1.4 | 19957 | 1710.7 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.44 |
| | | | | 1 | 5 | 0.0 | 0.01 | 23.43 |
| | | | | 3 | 2 | 0.0 | 0.04 | 23.40 |
| | | | | 6 | 0 | 1.0 | 1.08 | 22.36 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.78 | 22.66 |
| | | | | 1 | 5 | 1.0 | 0.79 | 22.65 |
| | | | | 3 | 2 | 1.0 | 0.90 | 22.54 |
| | | | | 6 | 0 | 1.5 | 1.55 | 21.89 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0.0 | 0.07 | 23.41 |
| | | | | 1 | 5 | 0.0 | 0.05 | 23.43 |
| | | | | 3 | 2 | 0.0 | 0.00 | 23.48 |
| | | | | 6 | 0 | 1.0 | 1.10 | 22.38 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.77 | 22.71 |
| | | | | 1 | 5 | 1.0 | 0.79 | 22.69 |
| | | | | 3 | 2 | 1.0 | 1.06 | 22.42 |
| | | | | 6 | 0 | 1.5 | 1.47 | 22.01 |
| | 20393 | 1754.3 | QPSK | 1 | 0 | 0.0 | 0.07 | 23.42 |
| | | | | 1 | 5 | 0.0 | 0.00 | 23.49 |
| | | | | 3 | 2 | 0.0 | 0.01 | 23.48 |
| | | | | 6 | 0 | 1.0 | 0.98 | 22.51 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.85 | 22.64 |
| | | | | 1 | 5 | 1.0 | 0.98 | 22.51 |
| | | | | 3 | 2 | 1.0 | 1.14 | 22.35 |
| | | | | 6 | 0 | 1.5 | 1.39 | 22.10 |

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 3 | 19965 | 1711.5 | QPSK | 1 | 0 | 0.0 | 0.03 | 23.31 |
| | | | | 1 | 14 | 0.0 | 0.00 | 23.34 |
| | | | | 8 | 4 | 1.0 | 1.24 | 22.10 |
| | | | | 15 | 0 | 1.0 | 0.96 | 22.38 |
| | | | 16QAM | 1 | 0 | 1.0 | 1.20 | 22.14 |
| | | | | 1 | 14 | 1.0 | 0.96 | 22.38 |
| | | | | 8 | 4 | 1.5 | 1.45 | 21.89 |
| | | | | 15 | 0 | 1.5 | 1.59 | 21.75 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0.0 | 0.04 | 23.38 |
| | | | | 1 | 14 | 0.0 | 0.00 | 23.42 |
| | | | | 8 | 4 | 1.0 | 0.98 | 22.44 |
| | | | | 15 | 0 | 1.0 | 0.78 | 22.64 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.85 | 22.57 |
| | | | | 1 | 14 | 1.0 | 0.79 | 22.63 |
| | | | | 8 | 4 | 1.5 | 1.37 | 22.05 |
| | | | | 15 | 0 | 1.5 | 1.39 | 22.03 |
| | 20385 | 1753.5 | QPSK | 1 | 0 | 0.0 | 0.04 | 23.37 |
| | | | | 1 | 14 | 0.0 | 0.00 | 23.41 |
| | | | | 8 | 4 | 1.0 | 1.11 | 22.30 |
| | | | | 15 | 0 | 1.0 | 1.14 | 22.27 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.92 | 22.49 |
| | | | | 1 | 14 | 1.0 | 0.87 | 22.54 |
| | | | | 8 | 4 | 1.5 | 1.56 | 21.85 |
| | | | | 15 | 0 | 1.5 | 1.66 | 21.75 |

**Conducted Output Power for LTE Band 4 continued**

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 5 | 19975 | 1712.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.41 |
| | | | | 1 | 24 | 0.0 | 0.03 | 23.38 |
| | | | | 12 | 6 | 0.5 | 0.43 | 22.98 |
| | | | | 25 | 0 | 0.5 | 0.59 | 22.82 |
| | | | 16QAM | 1 | 0 | 0.5 | 0.54 | 22.87 |
| | | | | 1 | 24 | 0.5 | 0.56 | 22.85 |
| | | | | 12 | 6 | 1.5 | 1.31 | 22.10 |
| | | | | 25 | 0 | 1.0 | 1.23 | 22.18 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.41 |
| | | | | 1 | 24 | 0.0 | 0.03 | 23.38 |
| | | | | 12 | 6 | 0.5 | 0.52 | 22.89 |
| | | | | 25 | 0 | 0.5 | 0.50 | 22.91 |
| | | | 16QAM | 1 | 0 | 0.5 | 0.60 | 22.81 |
| | | | | 1 | 24 | 0.5 | 0.50 | 22.91 |
| | | | | 12 | 6 | 1.5 | 1.27 | 22.14 |
| | | | | 25 | 0 | 1.0 | 1.23 | 22.18 |
| | 20375 | 1752.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.42 |
| | | | | 1 | 24 | 0.0 | 0.04 | 23.38 |
| | | | | 12 | 6 | 0.5 | 0.50 | 22.92 |
| | | | | 25 | 0 | 0.5 | 0.50 | 22.92 |
| | | | 16QAM | 1 | 0 | 0.5 | 0.58 | 22.84 |
| | | | | 1 | 24 | 0.5 | 0.53 | 22.89 |
| | | | | 12 | 6 | 1.5 | 1.31 | 22.11 |
| | | | | 25 | 0 | 1.0 | 1.11 | 22.31 |

| BW | Ch | Freq. (MHz) | Mode | UL RB Allocation | UL RB Start | Target MPR | Meas. MPR | Avg Pwr (dBm) |
|---|---|---|---|---|---|---|---|---|
| 10 | 20000 | 1715.0 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.41 |
| | | | | 1 | 49 | 0.0 | 0.03 | 23.38 |
| | | | | 25 | 12 | 1.0 | 0.80 | 22.61 |
| | | | | 50 | 0 | 1.0 | 0.97 | 22.44 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.77 | 22.64 |
| | | | | 1 | 49 | 1.0 | 0.83 | 22.58 |
| | | | | 25 | 12 | 1.5 | 1.43 | 21.98 |
| | | | | 50 | 0 | 1.5 | 1.55 | 21.86 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 0.0 | 0.00 | 23.45 |
| | | | | 1 | 49 | 0.0 | 0.08 | 23.37 |
| | | | | 25 | 12 | 1.0 | 1.17 | 22.28 |
| | | | | 50 | 0 | 1.0 | 1.13 | 22.32 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.81 | 22.64 |
| | | | | 1 | 49 | 1.0 | 1.11 | 22.34 |
| | | | | 25 | 12 | 1.5 | 1.66 | 21.79 |
| | | | | 50 | 0 | 1.5 | 1.67 | 21.78 |
| | 20350 | 1750.0 | QPSK | 1 | 0 | 0.0 | 0.01 | 23.40 |
| | | | | 1 | 49 | 0.0 | 0.00 | 23.41 |
| | | | | 25 | 12 | 1.0 | 0.85 | 22.56 |
| | | | | 50 | 0 | 1.0 | 0.77 | 22.64 |
| | | | 16QAM | 1 | 0 | 1.0 | 0.93 | 22.48 |
| | | | | 1 | 49 | 1.0 | 0.85 | 22.56 |
| | | | | 25 | 12 | 1.5 | 1.52 | 21.89 |
| | | | | 50 | 0 | 1.5 | 1.54 | 21.87 |

## 9.6. Power Reduction for SV-DO

| Power Reduction Operation Table for SVDO Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **CDMA EVDO Max. Power for BC1 & BC15** |
| **SVDO** | P < 15.5 dBm | **23.5dBm (Limited)** |
| | P ≥ 15.5 dBm | **18.5dBm (Limited)** |

**CDMA 1xRTT (BC0) to 1xEVDO (BC1 & BC15)**

| Agilent 8960 | | Agilent 8960 | | | | | |
|---|---|---|---|---|---|---|---|
| CDMA BC0 1xRTT | | BC1 1xEVDO | | | BC15 1xEVDO | | |
| | | Output Power [dBm] | | | Output Power [dBm] | | |
| Ch# | Output Power [dBm] | 25 | 600 | 1175 | 25 | 450 | 875 |
| 1013 | 15 | 24.12 | 24.05 | 24.03 | 24.14 | 23.89 | 23.94 |
| | 16 | 19.00 | 18.96 | 18.91 | 19.04 | 18.84 | 18.87 |
| 384 | 15 | 24.16 | 24.11 | 23.94 | 24.14 | 24.02 | 24.08 |
| | 16 | 19.15 | 18.97 | 19.05 | 19.00 | 18.86 | 18.94 |
| 777 | 15 | 24.19 | 24.07 | 24.12 | 24.01 | 23.99 | 24.06 |
| | 16 | 19.17 | 19.08 | 19.01 | 18.92 | 19.01 | 19.01 |

**CDMA 1xRTT (BC1) to 1xEVDO (BC1 & BC15)**

| Agilent 8960 | | Agilent 8960 | | | | | |
|---|---|---|---|---|---|---|---|
| CDMA BC1 1xRTT | | BC1 1xEVDO | | | BC15 1xEVDO | | |
| | | Output Power [dBm] | | | Output Power [dBm] | | |
| Ch. # | Output Power [dBm] | 25 | 600 | 1175 | 25 | 450 | 875 |
| 25 | 15 | 24.12 | 24.19 | 24.15 | 24.15 | 24.02 | 24.18 |
| | 16 | 18.94 | 19.15 | 19.07 | 18.88 | 18.94 | 19.14 |
| 600 | 15 | 24.19 | 24.15 | 24.13 | 24.17 | 24.16 | 24.15 |
| | 16 | 19.05 | 19.18 | 19.11 | 19.17 | 19.14 | 19.11 |
| 1175 | 15 | 24.16 | 24.14 | 24.09 | 24.17 | 24.18 | 24.08 |
| | 16 | 19.18 | 19.19 | 19.03 | 19.07 | 19.05 | 18.97 |

**CDMA 1xRTT (BC15) to 1xEVDO (BC1 & BC15)**

| Agilent 8960 | | Agilent 8960 | | | | | |
|---|---|---|---|---|---|---|---|
| CDMA BC15 1xRTT | | BC1 1xEVDO | | | BC15 1xEVDO | | |
| | | Output Power [dBm] | | | Output Power [dBm] | | |
| Ch. # | Output Power [dBm] | 25 | 600 | 1175 | 25 | 450 | 875 |
| 25 | 15 | 24.20 | 24.11 | 23.93 | 24.15 | 24.18 | 24.11 |
| | 16 | 19.03 | 19.11 | 18.94 | 19.11 | 19.12 | 19.18 |
| 450 | 15 | 24.12 | 24.13 | 23.88 | 24.06 | 24.08 | 24.05 |
| | 16 | 19.01 | 19.18 | 18.88 | 19.14 | 19.05 | 18.96 |
| 875 | 15 | 24.19 | 24.08 | 24.07 | 24.07 | 24.01 | 24.14 |
| | 16 | 19.13 | 19.15 | 19.01 | 19.05 | 18.97 | 19.13 |

## 9.7. Power Reduction for SV-LTE Band 2

| Power Reduction Operation Table for SVLTE Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **LTE Max. Power for B2 & B4** |
| **SVLTE** | P < 18.5 dBm | **22.8dBm (Limited)** |
| | P ≥ 18.5 dBm | **18.8dBm (Limited)** |

**CDMA 1xRTT (BC0) to SV-LTE Band 2 (QPSK, 16QAM)**

| LTE Band 2, 10 Mhz BW, **CH 18900** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agilent 8960 | | Anritsu MT8820C | | | | | | | |
| CDMA BC0 1xRTT | | QPSK | | | | 16QAM | | | |
| | | Output Power [dBm] | | | | Output Power [dBm] | | | |
| Ch. # | Output Power [dBm] | 1RB 0 offset | 1RB 49 offset | 25RB 12 offset | 50RB 0 offset | 1RB 0 offset | 1RB 49 offset | 25RB 12 offset | 50RB 0 offset |
| 1013 | 18 | 23.3 | 23.3 | 22.3 | 22.1 | 22.3 | 22.3 | 21.9 | 22.1 |
| | 19 | 19.2 | 19.3 | 19.2 | 19.1 | 19.1 | 19.2 | 19.1 | 19.2 |
| 384 | 18 | 23.4 | 23.2 | 22.1 | 22.1 | 22.2 | 22.2 | 22.1 | 22.0 |
| | 19 | 19.3 | 19.2 | 19.3 | 19.2 | 19.2 | 19.2 | 19.1 | 19.3 |
| 777 | 18 | 23.4 | 23.1 | 22.3 | 22.0 | 22.2 | 22.2 | 21.9 | 21.9 |
| | 19 | 19.3 | 19.1 | 19.3 | 19.1 | 19.2 | 19.2 | 19.3 | 19.1 |

**CDMA 1xRTT (BC1) to SV-LTE Band 2 (QPSK, 16QAM)**

| LTE Band 2, 10 Mhz BW, **CH 18900** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agilent 8960 | | Anritsu MT8820C | | | | | | | |
| CDMA BC1 1xRTT | | QPSK | | | | 16QAM | | | |
| | | Output Power [dBm] | | | | Output Power [dBm] | | | |
| Ch. # | Output Power [dBm] | 1RB 0 offset | 1RB 49 | 25RB 12 | 50RB 0 offset | 1RB 0 offset | 1RB 49 | 25RB 12 | 50RB 0 offset |
| 25 | 18 | 23.4 | 23.3 | 22.4 | 22.3 | 22.3 | 22.2 | 22.0 | 22.0 |
| | 19 | 19.4 | 19.3 | 19.2 | 19.3 | 19.3 | 19.1 | 19.1 | 19.1 |
| 600 | 18 | 23.4 | 23.2 | 22.2 | 22.3 | 22.2 | 22.3 | 22.0 | 22.1 |
| | 19 | 19.2 | 19.3 | 19.2 | 19.3 | 19.2 | 19.2 | 19.2 | 19.1 |
| 1175 | 18 | 23.4 | 23.3 | 22.4 | 22.3 | 22.2 | 22.1 | 22.0 | 21.9 |
| | 19 | 19.3 | 19.2 | 19.1 | 19.2 | 19.3 | 19.1 | 19.0 | 19.0 |

**CDMA 1xRTT (BC15) to SV-LTE Band 2 (QPSK, 16QAM)**

| LTE Band 2, 10 Mhz BW, **CH 18900** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agilent 8960 | | Anritsu MT8820C | | | | | | | |
| CDMA BC15 1xRTT | | QPSK | | | | 16QAM | | | |
| | | Output Power [dBm] | | | | Output Power [dBm] | | | |
| Ch. # | Output Power [dBm] | 1RB 0 offset | 1RB 49 offset | 25RB 12 offset | 50RB 0 offset | 1RB 0 offset | 1RB 49 offset | 25RB 12 offset | 50RB 0 offset |
| 25 | 18 | 23.3 | 23.0 | 22.3 | 22.3 | 22.4 | 22.4 | 21.9 | 22.1 |
| | 19 | 19.2 | 19.3 | 19.2 | 19.3 | 19.2 | 19.3 | 19.1 | 19.3 |
| 450 | 18 | 23.2 | 23.1 | 22.4 | 22.3 | 22.4 | 22.4 | 21.8 | 21.9 |
| | 19 | 19.0 | 19.2 | 19.3 | 19.2 | 19.1 | 19.3 | 19.1 | 19.3 |
| 875 | 18 | 23.1 | 23.2 | 22.3 | 22.2 | 22.4 | 22.4 | 21.8 | 21.9 |
| | 19 | 19.2 | 19.1 | 19.3 | 19.3 | 19.2 | 19.2 | 19.4 | 19.3 |

## 9.8. Power Reduction for SV-LTE Band 4

| Power Reduction Operation Table for SVLTE Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **LTE Max. Power for B2 & B4** |
| **SVLTE** | P < 18.5 dBm | **22.8dBm (Limited)** |
| | P ≥ 18.5 dBm | **18.8dBm (Limited)** |

**CDMA 1xRTT (BC0) to SV-LTE Band 4 (QPSK, 16QAM)**

| LTE Band 4, 10 Mhz BW, **CH 20175** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agilent 8960 | | Anritsu MT8820C | | | | | | | |
| CDMA BC0 1xRTT | | QPSK | | | | 16QAM | | | |
| | | Output Power [dBm] | | | | Output Power [dBm] | | | |
| Ch. # | Output Power [dBm] | 1RB 0 offset | 1RB 49 | 25RB 12 | 50RB 0 offset | 1RB 0 offset | 1RB 49 | 25RB 12 | 50RB 0 offset |
| 1013 | 18 | 23.3 | 23.3 | 22.6 | 22.4 | 22.6 | 22.6 | 22.0 | 21.9 |
| | 19 | 19.3 | 19.2 | 19.2 | 19.1 | 19.3 | 19.2 | 19.1 | 19.0 |
| 384 | 18 | 23.2 | 23.1 | 22.4 | 22.1 | 22.5 | 22.4 | 21.9 | 21.9 |
| | 19 | 19.1 | 19.2 | 19.2 | 19.2 | 19.1 | 19.3 | 19.0 | 19.2 |
| 777 | 18 | 23.4 | 23.1 | 22.3 | 22.3 | 22.3 | 22.4 | 22.0 | 21.9 |
| | 19 | 19.2 | 19.2 | 19.3 | 19.1 | 19.2 | 19.1 | 19.3 | 19.4 |

**CDMA 1xRTT (BC1) to SV-LTE Band 4 (QPSK, 16QAM)**

| LTE Band 4, 10 Mhz BW, **CH 20175** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agilent 8960 | | Anritsu MT8820C | | | | | | | |
| CDMA BC1 1xRTT | | QPSK | | | | 16QAM | | | |
| | | Output Power [dBm] | | | | Output Power [dBm] | | | |
| Ch. # | Output Power [dBm] | 1RB 0 offset | 1RB 49 offset | 25RB 12 offset | 50RB 0 offset | 1RB 0 offset | 1RB 49 offset | 25RB 12 offset | 50RB 0 offset |
| 25 | 18 | 23.2 | 23.2 | 22.5 | 22.3 | 22.5 | 22.4 | 22.1 | 22.0 |
| | 19 | 19.3 | 19.2 | 19.3 | 19.2 | 19.2 | 19.1 | 19.2 | 19.1 |
| 600 | 18 | 23.2 | 23.2 | 22.4 | 22.1 | 22.4 | 22.3 | 22.0 | 22.1 |
| | 19 | 19.2 | 19.1 | 19.2 | 19.3 | 19.2 | 19.3 | 19.0 | 19.3 |
| 1175 | 18 | 23.3 | 23.0 | 22.2 | 22.3 | 22.3 | 22.3 | 22.1 | 22.0 |
| | 19 | 19.1 | 19.2 | 19.2 | 19.0 | 19.1 | 19.2 | 19.2 | 19.1 |

**CDMA 1xRTT (BC15) to SV-LTE Band 4 (QPSK, 16QAM)**

| LTE Band 4, 10 Mhz BW, **CH 20175** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Agilent 8960 | | Anritsu MT8820C | | | | | | | |
| CDMA BC5 1xRTT | | QPSK | | | | 16QAM | | | |
| | | Output Power [dBm] | | | | Output Power [dBm] | | | |
| Ch. # | Output Power [dBm] | 1RB 0 offset | 1RB 49 | 25RB 12 | 50RB 0 offset | 1RB 0 offset | 1RB 49 | 25RB 12 | 50RB 0 offset |
| 25 | 18 | 23.3 | 23.3 | 22.3 | 22.2 | 22.4 | 22.3 | 21.8 | 21.9 |
| | 19 | 19.3 | 19.2 | 19.3 | 19.2 | 19.0 | 19.3 | 19.2 | 19.2 |
| 450 | 18 | 23.3 | 23.3 | 22.3 | 22.3 | 22.3 | 22.4 | 21.9 | 22.0 |
| | 19 | 19.3 | 19.3 | 19.3 | 19.2 | 19.1 | 19.2 | 19.1 | 19.3 |
| 875 | 18 | 23.4 | 23.1 | 22.3 | 22.2 | 22.4 | 22.4 | 21.9 | 22.0 |
| | 19 | 19.3 | 19.1 | 19.1 | 19.1 | 19.2 | 19.2 | 19.1 | 19.2 |

## 9.9. Wi-Fi (11bgn)

### Required Test Channels per KDB 248227 D01

| Mode | Band | GHz | Channel | "Default Test Channels" | |
|---|---|---|---|---|---|
| | | | | 802.11b | 802.11g |
| 802.11b/g | 2.4 GHz | **2.412** | 1# | √ | ∇ |
| | | **2.437** | 6 | √ | ∇ |
| | | **2.462** | 11# | √ | ∇ |

**Notes:**
√ = "default test channels"
∇ = possible 802.11g channels with maximum average output ¼ dB ≥ the "default test channels"
# = when output power is reduced for channel 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels should be tested.

**Output power table**

| Band (MHz) | Mode | Ch # | Freq. (MHz) | Target Power | Measured Avg Pwr(dBm) |
|---|---|---|---|---|---|
| 2.4 | 802.11b | 1 | 2412 | 16 | 15.6 |
| | | 6 | 2437 | | 15.5 |
| | | 11 | 2462 | | 15.4 |
| | 802.11g | 1 | 2412 | 13 | 11.5 |
| | | 6 | 2437 | | 11.5 |
| | | 11 | 2462 | | 11.5 |
| | 802.11n (HT20) | 1 | 2412 | 11 | 9.1 |
| | | 6 | 2437 | | 9.3 |
| | | 11 | 2462 | | 9.2 |

**Note(s):**
1. SAR is not required for 802.11g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11a/b channels. As per KDB 248227

## 9.10. Bluetooth

| Mode | Channel # | Freq. (MHz) | Conducted Avg Power | |
|---|---|---|---|---|
| | | | (dBm) | (mW) |
| V2.1 + EDR, GFSK | 0 | 2402 | 7.70 | 5.89 |
| | 39 | 2441 | 8.20 | 6.61 |
| | 78 | 2480 | 8.70 | 7.41 |
| V2.1 + EDR, 8-DPSK | 0 | 2402 | 6.80 | 4.79 |
| | 39 | 2441 | 7.30 | 5.37 |
| | 78 | 2480 | 7.70 | 5.89 |
| V4.0 LE, GFSK | 0 | 2402 | 6.02 | 4.00 |
| | 39 | 2441 | 6.27 | 4.24 |
| | 78 | 2480 | 6.71 | 4.69 |

**Note(s):**
According to KDB 648474, Table 2, Unlicensed Transmitters
When there is simultaneous transmission, Stand-alone SAR not required due to
☐ Output ≤ 2 · $P_{Ref}$ (13.8dBm / 24 mW) and antenna is ≥ 5.0 cm from other antennas
☒ Output ≤ $P_{Ref}$ (10.79dBm / 12 mW) and antenna is ≥ 2.5 cm from other antennas
☐ Output ≤ $P_{Ref}$ (10.79dBm / 12 mW) and antenna is < 2.5 cm from other antennas

# 10. Tissue Dielectric Properties

### IEEE Std 1528-2003 Table 2

| Target Frequency (MHz) | Head | |
|---|---|---|
| | $\varepsilon_r$ | $\sigma$ (S/m) |
| 300 | 45.3 | 0.87 |
| 450 | 43.5 | 0.87 |
| 835 | 41.5 | 0.90 |
| 900 | 41.5 | 0.97 |
| 1450 | 40.5 | 1.20 |
| 1800 – 2000 | 40.0 | 1.40 |
| 2450 | 39.2 | 1.80 |
| 2600 | 39.0 | 1.96 |
| 3000 | 38.5 | 2.40 |

### FCC OET Bulletin 65 Supplement C 01-01

| Target Frequency (MHz) | Head | | Body | |
|---|---|---|---|---|
| | $\varepsilon_r$ | $\sigma$ (S/m) | $\varepsilon_r$ | $\sigma$ (S/m) |
| 150 | 52.3 | 0.76 | 61.9 | 0.80 |
| 300 | 45.3 | 0.87 | 58.2 | 0.92 |
| 450 | 43.5 | 0.87 | 56.7 | 0.94 |
| 835 | 41.5 | 0.90 | 55.2 | 0.97 |
| 900 | 41.5 | 0.97 | 55.0 | 1.05 |
| 915 | 41.5 | 0.98 | 55.0 | 1.06 |
| 1450 | 40.5 | 1.20 | 54.0 | 1.30 |
| 1610 | 40.3 | 1.29 | 53.8 | 1.40 |
| 1800 – 2000 | 40.0 | 1.40 | 53.3 | 1.52 |
| 2450 | 39.2 | 1.80 | 52.7 | 1.95 |
| 3000 | 38.5 | 2.40 | 52.0 | 2.73 |
| 5000 | 36.2 | 4.45 | 49.3 | 5.07 |
| 5100 | 36.1 | 4.55 | 49.1 | 5.18 |
| 5200 | 36.0 | 4.66 | 49.0 | 5.30 |
| 5300 | 35.9 | 4.76 | 48.9 | 5.42 |
| 5400 | 35.8 | 4.86 | 48.7 | 5.53 |
| 5500 | 35.6 | 4.96 | 48.6 | 5.65 |
| 5600 | 35.5 | 5.07 | 48.5 | 5.77 |
| 5700 | 35.4 | 5.17 | 48.3 | 5.88 |
| 5800 | 35.3 | 5.27 | 48.2 | 6.00 |

## 10.1. Composition of Ingredients for the Tissue Material Used in the SAR Tests

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

| Ingredients (% by weight) | Frequency (MHz) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 450 | | 835 | | 915 | | 1900 | | 2450 | |
| Tissue Type | Head | Body | Head | Body | Head | Body | Head | Body | Head | Body |
| Water | 38.56 | 51.16 | 41.45 | 52.4 | 41.05 | 56.0 | 54.9 | 40.4 | 62.7 | 73.2 |
| Salt (NaCl) | 3.95 | 1.49 | 1.45 | 1.4 | 1.35 | 0.76 | 0.18 | 0.5 | 0.5 | 0.04 |
| Sugar | 56.32 | 46.78 | 56.0 | 45.0 | 56.5 | 41.76 | 0.0 | 58.0 | 0.0 | 0.0 |
| HEC | 0.98 | 0.52 | 1.0 | 1.0 | 1.0 | 1.21 | 0.0 | 1.0 | 0.0 | 0.0 |
| Bactericide | 0.19 | 0.05 | 0.1 | 0.1 | 0.1 | 0.27 | 0.0 | 0.1 | 0.0 | 0.0 |
| Triton X-100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 36.8 | 0.0 |
| DGBE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 44.92 | 0.0 | 0.0 | 26.7 |
| Dielectric Constant | 43.42 | 58.0 | 42.54 | 56.1 | 42.0 | 56.8 | 39.9 | 54.0 | 39.8 | 52.5 |
| Conductivity (S/m) | 0.85 | 0.83 | 0.91 | 0.95 | 1.0 | 1.07 | 1.42 | 1.45 | 1.88 | 1.78 |

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16 MΩ+ resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

**MSL/HSL750 (Body and Head liquids for 700 – 800 MHz)**

| Item | Head Tissue Simulation Liquids HSL750<br>Muscle (body) Tissue Simulation Liquids MSL750 |
|---|---|
| Type No | SL AAH 075 |
| Manufacturer | SPEAG |
| The item is composed of the following ingredients: | |
| $H^2O$ | Water, 35 – 58% |
| Sucrese | Sugar, white, refined, 40-60% |
| NaCl | Sodium Chloride, 0-6% |
| Hydroxyethel-cellulsoe | Medium Viscosity (CAS# 9004-62-0), <0.3% |
| Preventol-D7 | Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone, 0.1-0.7% |

**Simulating Liquids for 5 GHz, Manufactured by SPEAG**

| Ingredients | (% by weight) |
|---|---|
| Water | 78 |
| Mineral oil | 11 |
| Emulsifiers | 9 |
| Additives and Salt | 2 |

## 10.2. Tissue Dielectric Parameter Check Results

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

**Tissue Dielectric Parameter Check Results**

| Date | Freq. (MHz) | Liquid Parameters | | | Measured | Target | Delta (%) | Limit ±(%) |
|---|---|---|---|---|---|---|---|---|
| 5/29/2012 | Body 1900 | e' | 51.4597 | Relative Permittivity (εr): | 51.46 | 53.30 | -3.45 | 5 |
| | | e'' | 14.5249 | Conductivity (σ): | 1.53 | 1.52 | 0.95 | 5 |
| | Body 1850 | e' | 51.6736 | Relative Permittivity (εr): | 51.67 | 53.30 | -3.05 | 5 |
| | | e'' | 14.3479 | Conductivity (σ): | 1.48 | 1.52 | -2.90 | 5 |
| | Body 1880 | e' | 51.5297 | Relative Permittivity (εr): | 51.53 | 53.30 | -3.32 | 5 |
| | | e'' | 14.4459 | Conductivity (σ): | 1.51 | 1.52 | -0.65 | 5 |
| | Body 1910 | e' | 51.4347 | Relative Permittivity (εr): | 51.43 | 53.30 | -3.50 | 5 |
| | | e'' | 14.5630 | Conductivity (σ): | 1.55 | 1.52 | 1.75 | 5 |
| 5/30/2012 | Body 835 | e' | 54.5670 | Relative Permittivity (εr): | 54.57 | 55.20 | -1.15 | 5 |
| | | e'' | 21.3359 | Conductivity (σ): | 0.99 | 0.97 | 2.12 | 5 |
| | Body 820 | e' | 54.7599 | Relative Permittivity (εr): | 54.76 | 55.28 | -0.94 | 5 |
| | | e'' | 21.3877 | Conductivity (σ): | 0.98 | 0.97 | 0.69 | 5 |
| | Body 850 | e' | 54.3805 | Relative Permittivity (εr): | 54.38 | 55.16 | -1.41 | 5 |
| | | e'' | 21.2825 | Conductivity (σ): | 1.01 | 0.99 | 1.90 | 5 |
| 5/31/2012 | Head 835 | e' | 42.2645 | Relative Permittivity (εr): | 42.26 | 41.50 | 1.84 | 5 |
| | | e'' | 19.1896 | Conductivity (σ): | 0.89 | 0.90 | -1.01 | 5 |
| | Head 820 | e' | 42.4661 | Relative Permittivity (εr): | 42.47 | 41.60 | 2.08 | 5 |
| | | e'' | 19.2390 | Conductivity (σ): | 0.88 | 0.90 | -2.37 | 5 |
| | Head 850 | e' | 42.0801 | Relative Permittivity (εr): | 42.08 | 41.50 | 1.40 | 5 |
| | | e'' | 19.1516 | Conductivity (σ): | 0.91 | 0.92 | -1.08 | 5 |
| 5/31/2012 | Head 1900 | e' | 38.5408 | Relative Permittivity (εr): | 38.54 | 40.00 | -3.65 | 5 |
| | | e'' | 13.3377 | Conductivity (σ): | 1.41 | 1.40 | 0.65 | 5 |
| | Head 1850 | e' | 38.7506 | Relative Permittivity (εr): | 38.75 | 40.00 | -3.12 | 5 |
| | | e'' | 13.1763 | Conductivity (σ): | 1.36 | 1.40 | -3.19 | 5 |
| | Head 1880 | e' | 38.6035 | Relative Permittivity (εr): | 38.60 | 40.00 | -3.49 | 5 |
| | | e'' | 13.2755 | Conductivity (σ): | 1.39 | 1.40 | -0.88 | 5 |
| | Head 1910 | e' | 38.5044 | Relative Permittivity (εr): | 38.50 | 40.00 | -3.74 | 5 |
| | | e'' | 13.3679 | Conductivity (σ): | 1.42 | 1.40 | 1.41 | 5 |
| 6/5/2012 | Body 1900 | e' | 51.2204 | Relative Permittivity (εr): | 51.22 | 53.30 | -3.90 | 5 |
| | | e'' | 14.6666 | Conductivity (σ): | 1.55 | 1.52 | 1.94 | 5 |
| | Body 1850 | e' | 51.4092 | Relative Permittivity (εr): | 51.41 | 53.30 | -3.55 | 5 |
| | | e'' | 14.5290 | Conductivity (σ): | 1.49 | 1.52 | -1.68 | 5 |
| | Body 1880 | e' | 51.2892 | Relative Permittivity (εr): | 51.29 | 53.30 | -3.77 | 5 |
| | | e'' | 14.6095 | Conductivity (σ): | 1.53 | 1.52 | 0.47 | 5 |
| | Body 1910 | e' | 51.1921 | Relative Permittivity (εr): | 51.19 | 53.30 | -3.95 | 5 |
| | | e'' | 14.6955 | Conductivity (σ): | 1.56 | 1.52 | 2.68 | 5 |

**Tissue Dielectric Parameter Check Results (continued)**

| Date | Freq. (MHz) | Liquid Parameters | | | Measured | Target | Delta (%) | Limit ±(%) |
|---|---|---|---|---|---|---|---|---|
| 6/5/2012 | Head 1750 | e' | 39.8512 | Relative Permittivity (εr): | 39.85 | 40.08 | -0.58 | 5 |
| | | e'' | 13.9701 | Conductivity (σ): | 1.36 | 1.37 | -0.70 | 5 |
| | Head 1720 | e' | 39.9730 | Relative Permittivity (εr): | 39.97 | 40.13 | -0.39 | 5 |
| | | e'' | 13.8854 | Conductivity (σ): | 1.33 | 1.35 | -1.78 | 5 |
| | Head 1735 | e' | 39.9138 | Relative Permittivity (εr): | 39.91 | 40.11 | -0.48 | 5 |
| | | e'' | 13.9285 | Conductivity (σ): | 1.34 | 1.36 | -1.24 | 5 |
| 6/6/2012 | Body 1720 | e' | 52.9884 | Relative Permittivity (εr): | 52.99 | 53.52 | -0.99 | 5 |
| | | e'' | 14.6863 | Conductivity (σ): | 1.40 | 1.47 | -4.30 | 5 |
| | Body 1735 | e' | 52.9347 | Relative Permittivity (εr): | 52.93 | 53.48 | -1.02 | 5 |
| | | e'' | 14.7271 | Conductivity (σ): | 1.42 | 1.48 | -3.80 | 5 |
| | Body 1750 | e' | 52.8811 | Relative Permittivity (εr): | 52.88 | 53.44 | -1.05 | 5 |
| | | e'' | 14.7613 | Conductivity (σ): | 1.44 | 1.49 | -3.35 | 5 |
| 6/7/2012 | Head 1750 | e' | 39.2915 | Relative Permittivity (εr): | 39.29 | 40.08 | -1.98 | 5 |
| | | e'' | 13.8788 | Conductivity (σ): | 1.35 | 1.37 | -1.35 | 5 |
| | Head 1720 | e' | 39.4088 | Relative Permittivity (εr): | 39.41 | 40.13 | -1.80 | 5 |
| | | e'' | 13.8265 | Conductivity (σ): | 1.32 | 1.35 | -2.20 | 5 |
| | Head 1735 | e' | 39.3483 | Relative Permittivity (εr): | 39.35 | 40.11 | -1.89 | 5 |
| | | e'' | 13.8529 | Conductivity (σ): | 1.34 | 1.36 | -1.77 | 5 |
| 6/7/2012 | Body 1720 | e' | 53.3661 | Relative Permittivity ($\varepsilon_r$): | 53.37 | 53.52 | -0.28 | 5 |
| | | e'' | 15.0693 | Conductivity (σ): | 1.44 | 1.47 | -1.81 | 5 |
| | Body 1735 | e' | 53.3180 | Relative Permittivity ($\varepsilon_r$): | 53.32 | 53.48 | -0.30 | 5 |
| | | e'' | 15.0914 | Conductivity (σ): | 1.46 | 1.48 | -1.42 | 5 |
| | Body 1750 | e' | 53.2592 | Relative Permittivity ($\varepsilon_r$): | 53.26 | 53.44 | -0.34 | 5 |
| | | e'' | 15.1162 | Conductivity (σ): | 1.47 | 1.49 | -1.03 | 5 |
| 6/8/2012 | Head 2450 | e' | 40.6587 | Relative Permittivity ($\varepsilon_r$): | 40.66 | 39.20 | 3.72 | 5 |
| | | e'' | 13.2293 | Conductivity (σ): | 1.80 | 1.80 | 0.12 | 5 |
| | Head 2410 | e' | 40.7673 | Relative Permittivity ($\varepsilon_r$): | 40.77 | 39.28 | 3.79 | 5 |
| | | e'' | 13.0768 | Conductivity (σ): | 1.75 | 1.76 | -0.46 | 5 |
| | Head 2435 | e' | 40.7065 | Relative Permittivity ($\varepsilon_r$): | 40.71 | 39.24 | 3.75 | 5 |
| | | e'' | 13.1766 | Conductivity (σ): | 1.78 | 1.78 | 0.09 | 5 |
| | Head 2460 | e' | 40.6315 | Relative Permittivity ($\varepsilon_r$): | 40.63 | 39.19 | 3.69 | 5 |
| | | e'' | 13.2658 | Conductivity (σ): | 1.81 | 1.81 | 0.21 | 5 |
| 6/8/2012 | Body 2450 | e' | 53.9207 | Relative Permittivity ($\varepsilon_r$): | 53.92 | 52.70 | 2.32 | 5 |
| | | e'' | 14.6269 | Conductivity (σ): | 1.99 | 1.95 | 2.18 | 5 |
| | Body 2410 | e' | 53.9939 | Relative Permittivity ($\varepsilon_r$): | 53.99 | 52.76 | 2.34 | 5 |
| | | e'' | 14.4348 | Conductivity (σ): | 1.93 | 1.91 | 1.41 | 5 |
| | Body 2435 | e' | 53.9610 | Relative Permittivity ($\varepsilon_r$): | 53.96 | 52.73 | 2.34 | 5 |
| | | e'' | 14.5630 | Conductivity (σ): | 1.97 | 1.93 | 2.10 | 5 |
| | Body 2475 | e' | 53.8508 | Relative Permittivity ($\varepsilon_r$): | 53.85 | 52.67 | 2.24 | 5 |
| | | e'' | 14.7399 | Conductivity (σ): | 2.03 | 1.99 | 2.18 | 5 |

**Tissue Dielectric Parameter Check Results (continued)**

| Date | Freq. (MHz) | Liquid Parameters | | | Measured | Target | Delta (%) | Limit ±(%) |
|---|---|---|---|---|---|---|---|---|
| 06/08/2012 | Body 835 | e' | 54.8580 | Relative Permittivity (εr): | 54.86 | 55.20 | -0.62 | 5 |
| | | e'' | 21.1483 | Conductivity (σ): | 0.98 | 0.97 | 1.23 | 5 |
| | Body 820 | e' | 55.0321 | Relative Permittivity (εr): | 55.03 | 55.28 | -0.44 | 5 |
| | | e'' | 21.1926 | Conductivity (σ): | 0.97 | 0.97 | -0.23 | 5 |
| | Body 850 | e' | 54.6979 | Relative Permittivity (εr): | 54.70 | 55.16 | -0.83 | 5 |
| | | e'' | 21.1000 | Conductivity (σ): | 1.00 | 0.99 | 1.02 | 5 |
| 06/08/2012 | Body 1900 | e' | 51.5255 | Relative Permittivity ($\epsilon_r$): | 51.53 | 53.30 | -3.33 | 5 |
| | | e'' | 14.5513 | Conductivity (σ): | 1.54 | 1.52 | 1.14 | 5 |
| | Body 1850 | e' | 51.7185 | Relative Permittivity ($\epsilon_r$): | 51.72 | 53.30 | -2.97 | 5 |
| | | e'' | 14.3927 | Conductivity (σ): | 1.48 | 1.52 | -2.60 | 5 |
| | Body 1880 | e' | 51.5976 | Relative Permittivity ($\epsilon_r$): | 51.60 | 53.30 | -3.19 | 5 |
| | | e'' | 14.4912 | Conductivity (σ): | 1.51 | 1.52 | -0.34 | 5 |
| | Body 1910 | e' | 51.4937 | Relative Permittivity ($\epsilon_r$): | 51.49 | 53.30 | -3.39 | 5 |
| | | e'' | 14.5760 | Conductivity (σ): | 1.55 | 1.52 | 1.84 | 5 |
| 06/09/2012 | Head 835 | e' | 42.0259 | Relative Permittivity (εr): | 42.03 | 41.50 | 1.27 | 5 |
| | | e'' | 18.9506 | Conductivity (σ): | 0.88 | 0.90 | -2.24 | 5 |
| | Head 820 | e' | 42.1666 | Relative Permittivity (εr): | 42.17 | 41.58 | 1.42 | 5 |
| | | e'' | 18.9815 | Conductivity (σ): | 0.87 | 0.90 | -3.13 | 5 |
| | Head 850 | e' | 41.8467 | Relative Permittivity (εr): | 41.85 | 41.50 | 0.84 | 5 |
| | | e'' | 18.9141 | Conductivity (σ): | 0.89 | 0.92 | -2.30 | 5 |
| 06/09/2012 | Head 1900 | e' | 40.5445 | Relative Permittivity (εr): | 40.54 | 40.00 | 1.36 | 5 |
| | | e'' | 13.3880 | Conductivity (σ): | 1.41 | 1.40 | 1.03 | 5 |
| | Head 1850 | e' | 40.7829 | Relative Permittivity (εr): | 40.78 | 40.00 | 1.96 | 5 |
| | | e'' | 13.2368 | Conductivity (σ): | 1.36 | 1.40 | -2.74 | 5 |
| | Head 1880 | e' | 40.6378 | Relative Permittivity (εr): | 40.64 | 40.00 | 1.59 | 5 |
| | | e'' | 13.3308 | Conductivity (σ): | 1.39 | 1.40 | -0.46 | 5 |
| | Head 1910 | e' | 40.5045 | Relative Permittivity (εr): | 40.50 | 40.00 | 1.26 | 5 |
| | | e'' | 13.4089 | Conductivity (σ): | 1.42 | 1.40 | 1.72 | 5 |
| 06/15/2012 | Body 1900 | e' | 51.3574 | Relative Permittivity ($\epsilon_r$): | 51.36 | 53.30 | -3.64 | 5 |
| | | e'' | 14.8258 | Conductivity (σ): | 1.57 | 1.52 | 3.05 | 5 |
| | Body 1850 | e' | 51.5387 | Relative Permittivity ($\epsilon_r$): | 51.54 | 53.30 | -3.30 | 5 |
| | | e'' | 14.6677 | Conductivity (σ): | 1.51 | 1.52 | -0.74 | 5 |
| | Body 1880 | e' | 51.4229 | Relative Permittivity ($\epsilon_r$): | 51.42 | 53.30 | -3.52 | 5 |
| | | e'' | 14.7587 | Conductivity (σ): | 1.54 | 1.52 | 1.50 | 5 |
| | Body 1910 | e' | 51.3295 | Relative Permittivity ($\epsilon_r$): | 51.33 | 53.30 | -3.70 | 5 |
| | | e'' | 14.8567 | Conductivity (σ): | 1.58 | 1.52 | 3.80 | 5 |

# 11. System Performance Check

The system performance check is performed prior to any usage of the system in order to verify SAR system measurement accuracy. The system performance check verifies that the system operates within its specifications of ±10%.

## 11.1. System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

## 11.2. Reference SAR Values for System Performance Check

The reference SAR values can be obtained from the calibration certificate of system validation dipoles

| System Dipole | Serial No. | Cal. Date | Freq. (MHz) | Target SAR Ref. Values (mW/g) | | |
|---|---|---|---|---|---|---|
| | | | | 1g/10g | Head | Body |
| D835V2 | 4d002 | 3/6/12 | 835 | 1g | 9.36 | 10.2 |
| | | | | 10g | 6.12 | 6.68 |
| D1900V2 | 5d043 | 11/10/11 | 1900 | 1g | 40.8 | 42.0 |
| | | | | 10g | 21.2 | 22.0 |
| D2450V2 | 748 | 2/7/12 | 2450 | 1g | 53.6 | 50.8 |
| | | | | 10g | 24.8 | 23.6 |
| D1750V2 | 1050 | 4/19/12 | 1750 | 1g | 35.44 | 36.68 |
| | | | | 10g | 18.96 | 19.80 |

## 11.3. System Performance Check Results

| Date Tested | System Dipole | | T.S. Liquid | SAR Measured (Normalized to 1 W) | | Target (Ref. Value) | Delta (%) | Tolerance (%) |
|---|---|---|---|---|---|---|---|---|
| | Type | Serial No. | | | | | | |
| 5/29/2012 | D1900V2 | 5d043 | Body | 1g | 41.6 | 42 | -0.95 | ±10 |
| | | | | 10g | 21.7 | 22 | -1.36 | |
| 5/30/2012 | D835V2 | 4d002 | Body | 1g | 10.2 | 10.2 | 0.00 | ±10 |
| | | | | 10g | 6.69 | 6.68 | 0.15 | |
| 5/31/2012 | D835V2 | 4d002 | Head | 1g | 9.34 | 9.36 | -0.21 | ±10 |
| | | | | 10g | 6.11 | 6.12 | -0.16 | |
| 5/31/2012 | D1900V2 | 5d043 | Head | 1g | 40.1 | 40.8 | -1.72 | ±10 |
| | | | | 10g | 20.9 | 21.2 | -1.42 | |
| 6/5/2012 | D1900V2 | 5d043 | Body | 1g | 38.6 | 42 | -8.10 | ±10 |
| | | | | 10g | 20.1 | 22 | -8.64 | |
| 6/5/2012 | D1750V2 | 1050 | Head | 1g | 35.9 | 35.44 | 1.30 | ±10 |
| | | | | 10g | 19.0 | 18.96 | 0.21 | |
| 6/6/2012 | D1750V2 | 1050 | Body | 1g | 37.5 | 36.88 | 1.68 | ±10 |
| | | | | 10g | 20.1 | 19.8 | 1.52 | |
| 6/7/2012 | D1750V2 | 1050 | Head | 1g | 34.9 | 35.44 | -1.52 | ±10 |
| | | | | 10g | 18.5 | 18.96 | -2.43 | |
| 6/8/2012 | D1750V2 | 1050 | Body | 1g | 34.6 | 36.88 | -6.18 | ±10 |
| | | | | 10g | 18.6 | 19.8 | -6.06 | |
| 6/8/2012 | D2450V2 | 748 | Head | 1g | 50.1 | 53.6 | -6.53 | ±10 |
| | | | | 10g | 22.9 | 24.8 | -7.66 | |
| 6/8/2012 | D2450V2 | 748 | Body | 1g | 50.7 | 50.8 | -0.20 | ±10 |
| | | | | 10g | 23.5 | 23.6 | -0.42 | |
| 6/8/2012 | D835V2 | 4d002 | Body | 1g | 9.74 | 10.2 | -4.51 | ±10 |
| | | | | 10g | 6.42 | 6.68 | -3.89 | |
| 6/8/2012 | D1900V2 | 5d043 | Body | 1g | 40.3 | 42 | -4.05 | ±10 |
| | | | | 10g | 21.1 | 22 | -4.09 | |
| 6/9/2012 | D835V2 | 4d002 | Head | 1g | 9.59 | 9.36 | 2.46 | ±10 |
| | | | | 10g | 6.27 | 6.12 | 2.45 | |
| 6/9/2012 | D1900V2 | 5d043 | Head | 1g | 40.1 | 40.8 | -1.72 | ±10 |
| | | | | 10g | 20.8 | 21.2 | -1.89 | |
| 6/15/2012 | D1900V2 | 5d043 | Body | 1g | 42.0 | 42 | 0.00 | ±10 |
| | | | | 10g | 22.0 | 22 | 0.00 | |

# 12. SAR Test Results with all Transmitter at Maximum Power

## 12.1. CDMA BC0

**Test Reduction Consideration for 1x Advanced per KDB Inquiry 760669**
Even though this device supports1x Advanced, SAR is not required for it because its maximum output power is no more than 0.25 dB higher than the maximum output power measured for 1xRTT and the measured SAR under all exposure conditions in 1xRTT voice mode were below 1.2 W/kg. Furthermore, Body and Hotspot SAR are not required for 1x Advanced because it is strictly a voice-only mode and therefore does not support Body and Hotspot usage.

### 12.1.1. Head SAR

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 1013 | 824.7 | 24.9 | | | 1 |
| | | 384 | 836.5 | 24.9 | 0.467 | 0.348 | |
| | | 777 | 848.3 | 24.8 | | | 1 |
| Left Tilt (15°) | 1xRTT (RC3 SO55) | 1013 | 824.7 | 24.9 | | | 1 |
| | | 384 | 836.5 | 24.9 | 0.280 | 0.215 | |
| | | 777 | 848.3 | 24.8 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 1013 | 824.7 | 24.9 | | | 1 |
| | | 384 | 836.5 | 24.9 | **0.525** | 0.374 | |
| | | 777 | 848.3 | 24.8 | | | 1 |
| Right Tilt (15°) | 1xRTT (RC3 SO55) | 1013 | 824.7 | 24.9 | | | 1 |
| | | 384 | 836.5 | 24.9 | 0.305 | 0.234 | |
| | | 777 | 848.3 | 24.8 | | | 1 |

- **EVDO is not supported in BC0**

**Note(s):**
1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

### 12.1.2. Body & Hotspot SAR

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 24.9 | **0.975** | 0.657 | |
| | | | 384 | 836.5 | 24.9 | 0.787 | 0.531 | |
| | | | 777 | 848.3 | 24.8 | 0.692 | 0.472 | |
| | | | 1013 | 824.7 | 24.9 | 0.914 | 0.604 | 2 |
| Front | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 24.9 | | | 1 |
| | | | 384 | 836.5 | 24.9 | 0.554 | 0.395 | |
| | | | 777 | 848.3 | 24.8 | | | 1 |
| Edge 1 | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 24.9 | | | 3 |
| | | | 384 | 836.5 | 24.9 | | | 3 |
| | | | 777 | 848.3 | 24.8 | | | 3 |
| Edge 2 | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 24.9 | | | 1 |
| | | | 384 | 836.5 | 24.9 | 0.464 | 0.318 | |
| | | | 777 | 848.3 | 24.8 | | | 1 |
| Edge 3 | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 24.9 | | | 1 |
| | | | 384 | 836.5 | 24.9 | 0.174 | 0.099 | |
| | | | 777 | 848.3 | 24.8 | | | 1 |
| Edge 4 | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 24.9 | | | 1 |
| | | | 384 | 836.5 | 24.9 | 0.245 | 0.170 | |
| | | | 777 | 848.3 | 24.8 | | | 1 |

- **EVDO is not supported in BC0**

**Note(s):**

1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.
2. With headset attached.
3. SAR is not required because the distance from the tested antenna to this edge is greater than 2.5 cm.

## 12.2. CDMA BC1

**Test Reduction Consideration for 1x Advanced per KDB Inquiry 760669**
Even though this device supports1x Advanced, SAR is not required for it because its maximum output power is no more than 0.25 dB higher than the maximum output power measured for 1xRTT and the measured SAR under all exposure conditions in 1xRTT voice mode were below 1.2 W/kg. Furthermore, Body and Hotspot SAR are not required for 1x Advanced because it is strictly a voice-only mode and therefore does not support Body and Hotspot usage.

### 12.2.1. Head SAR

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 25 | 1851.25 | 24.2 | | | 1 |
| | | 600 | 1880.00 | 24.3 | 0.642 | 0.396 | |
| | | 1175 | 1908.75 | 24.1 | | | 1 |
| Left Tilt (15°) | 1xRTT (RC3 SO55) | 25 | 1851.25 | 24.2 | | | 1 |
| | | 600 | 1880.00 | 24.3 | 0.286 | 0.168 | |
| | | 1175 | 1908.75 | 24.1 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 25 | 1851.25 | 24.2 | | | 1 |
| | | 600 | 1880.00 | 24.3 | **0.727** | 0.430 | |
| | | 1175 | 1908.75 | 24.1 | | | 1 |
| Right Tilt (15°) | 1xRTT (RC3 SO55) | 25 | 1851.25 | 24.2 | | | 1 |
| | | 600 | 1880.00 | 24.3 | 0.306 | 0.189 | |
| | | 1175 | 1908.75 | 24.1 | | | 1 |
| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
| | | | | | 1-g | 10-g | |
| Left Touch | 1xEVDO (Rel. 0) | 25 | 1851.25 | 24.0 | 0.885 | 0.507 | |
| | | 600 | 1880.00 | 24.0 | **0.979** | 0.559 | |
| | | 1175 | 1908.75 | 23.9 | 0.945 | 0.540 | |
| Left Tilt (15°) | 1xEVDO (Rel. 0) | 25 | 1851.25 | 24.0 | | | 1 |
| | | 600 | 1880.00 | 24.0 | 0.637 | 0.379 | |
| | | 1175 | 1908.75 | 23.9 | | | 1 |
| Right Touch | 1xEVDO (Rel. 0) | 25 | 1851.25 | 24.0 | | | 1 |
| | | 600 | 1880.00 | 24.0 | 0.652 | 0.390 | |
| | | 1175 | 1908.75 | 23.9 | | | 1 |
| Right Tilt (15°) | 1xEVDO (Rel. 0) | 25 | 1851.25 | 24.0 | | | 1 |
| | | 600 | 1880.00 | 24.0 | 0.639 | 0.376 | |
| | | 1175 | 1908.75 | 23.9 | | | 1 |

**Note(s):**
1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

## 12.2.2. Body & Hotspot SAR

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 24.2 | 0.959 | 0.567 | |
| | | | 600 | 1880.00 | 24.3 | 0.910 | 0.533 | |
| | | | 1175 | 1908.75 | 24.1 | **1.120** | 0.653 | |
| | | | 1175 | 1908.75 | 24.1 | 0.952 | 0.575 | 2 |
| Front | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 24.2 | | | 1 |
| | | | 600 | 1880.00 | 24.3 | 0.608 | 0.353 | |
| | | | 1175 | 1908.75 | 24.1 | | | 1 |
| Edge 1 | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 24.2 | | | 3 |
| | | | 600 | 1880.00 | 24.3 | | | 3 |
| | | | 1175 | 1908.75 | 24.1 | | | 3 |
| Edge 2 | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 24.2 | | | 1 |
| | | | 600 | 1880.00 | 24.3 | 0.242 | 0.139 | |
| | | | 1175 | 1908.75 | 24.1 | | | 1 |
| Edge 3 | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 24.2 | 1.05 | 0.567 | |
| | | | 600 | 1880.00 | 24.3 | 1.02 | 0.539 | |
| | | | 1175 | 1908.75 | 24.1 | 1.06 | 0.548 | |
| Edge 4 | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 24.2 | | | 1 |
| | | | 600 | 1880.00 | 24.3 | 0.144 | 0.087 | |
| | | | 1175 | 1908.75 | 24.1 | | | 1 |
| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
| | | | | | | 1-g | 10-g | |
| Rear | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 24.0 | 0.838 | 0.487 | |
| | | | 600 | 1880.00 | 24.0 | **1.03** | 0.606 | |
| | | | 1175 | 1908.75 | 23.9 | 0.931 | 0.567 | |
| | | | 600 | 1880.00 | 24.0 | 0.884 | 0.532 | 2 |
| Front | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 24.0 | | | 1 |
| | | | 600 | 1880.00 | 24.0 | 0.448 | 0.273 | |
| | | | 1175 | 1908.75 | 23.9 | | | 1 |
| Edge 1 | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 24.0 | | | 1 |
| | | | 600 | 1880.00 | 24.0 | 0.307 | 0.184 | |
| | | | 1175 | 1908.75 | 23.9 | | | 1 |
| Edge 2 | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 24.0 | | | 1 |
| | | | 600 | 1880.00 | 24.0 | 0.444 | 0.237 | |
| | | | 1175 | 1908.75 | 23.9 | | | 1 |
| Edge 3 | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 24.0 | | | 3 |
| | | | 600 | 1880.00 | 24.0 | | | 3 |
| | | | 1175 | 1908.75 | 23.9 | | | 3 |
| Edge 4 | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 24.0 | | | 3 |
| | | | 600 | 1880.00 | 24.0 | | | 3 |
| | | | 1175 | 1908.75 | 23.9 | | | 3 |

**Note(s):**

1. According to FCC "Public Notice DA 02-1438" by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.
2. With headset attached.
3. SAR is not required because the distance from the tested antenna to this edge is greater than 2.5 cm.

## 12.3. CDMA BC15

**Test Reduction Consideration for 1x Advanced per KDB Inquiry 760669**
Even though this device supports1x Advanced, SAR is not required for it because its maximum output power is no more than 0.25 dB higher than the maximum output power measured for 1xRTT and the measured SAR under all exposure conditions in 1xRTT voice mode were below 1.2 W/kg. Furthermore, Body and Hotspot SAR are not required for 1x Advanced because it is strictly a voice-only mode and therefore does not support Body and Hotspot usage.

### 12.3.1. Head SAR

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 25 | 1711.25 | 24.2 | | | 1 |
| | | 450 | 1732.50 | 24.3 | 0.492 | 0.324 | |
| | | 875 | 1753.75 | 24.2 | | | 1 |
| Left Tilt (15°) | 1xRTT (RC3 SO55) | 25 | 1711.25 | 24.2 | | | 1 |
| | | 450 | 1732.50 | 24.3 | 0.172 | 0.112 | |
| | | 875 | 1753.75 | 24.2 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 25 | 1711.25 | 24.2 | | | 1 |
| | | 450 | 1732.50 | 24.3 | **0.575** | **0.340** | |
| | | 875 | 1753.75 | 24.2 | | | 1 |
| Right Tilt (15°) | 1xRTT (RC3 SO55) | 25 | 1711.25 | 24.2 | | | 1 |
| | | 450 | 1732.50 | 24.3 | 0.226 | 0.145 | |
| | | 875 | 1753.75 | 24.2 | | | 1 |
| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
| | | | | | 1-g | 10-g | |
| Left Touch | 1xEVDO (Rel. 0) | 25 | 1711.25 | 24.0 | | | 1 |
| | | 450 | 1732.50 | 24.0 | **0.668** | **0.383** | |
| | | 875 | 1753.75 | 24.0 | | | 1 |
| Left Tilt (15°) | 1xEVDO (Rel. 0) | 25 | 1711.25 | 24.0 | | | 1 |
| | | 450 | 1732.50 | 24.0 | 0.571 | 0.337 | |
| | | 875 | 1753.75 | 24.0 | | | 1 |
| Right Touch | 1xEVDO (Rel. 0) | 25 | 1711.25 | 24.0 | | | 1 |
| | | 450 | 1732.50 | 24.0 | 0.469 | 0.289 | |
| | | 875 | 1753.75 | 24.0 | | | 1 |
| Right Tilt (15°) | 1xEVDO (Rel. 0) | 25 | 1711.25 | 24.0 | | | 1 |
| | | 450 | 1732.50 | 24.0 | 0.534 | 0.322 | |
| | | 875 | 1753.75 | 24.0 | | | 1 |

**Note(s):**
1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

### 12.3.2. Body & Hotspot SAR

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 24.2 | | | 1 |
| | | | 450 | 1732.50 | 24.3 | **0.689** | **0.419** | |
| | | | 875 | 1753.75 | 24.2 | | | 1 |
| | | | 450 | 1732.50 | 24.3 | 0.644 | 0.415 | 2 |
| Front | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 24.2 | | | 1 |
| | | | 450 | 1732.50 | 24.3 | 0.490 | 0.284 | |
| | | | 875 | 1753.75 | 24.2 | | | 1 |
| Edge 1 | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 24.2 | | | 3 |
| | | | 450 | 1732.50 | 24.3 | | | 3 |
| | | | 875 | 1753.75 | 24.2 | | | 3 |
| Edge 2 | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 24.2 | | | 1 |
| | | | 450 | 1732.50 | 24.3 | 0.186 | 0.107 | |
| | | | 875 | 1753.75 | 24.2 | | | 1 |
| Edge 3 | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 24.2 | | | 1 |
| | | | 450 | 1732.50 | 24.3 | 0.397 | 0.221 | |
| | | | 875 | 1753.75 | 24.2 | | | 1 |
| Edge 4 | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 24.2 | | | 1 |
| | | | 450 | 1732.50 | 24.3 | 0.130 | 0.080 | |
| | | | 875 | 1753.75 | 24.2 | | | 1 |
| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
| | | | | | | 1-g | 10-g | |
| Rear | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 24.0 | | | 1 |
| | | | 450 | 1732.50 | 24.0 | **0.670** | **0.379** | |
| | | | 875 | 1753.75 | 24.0 | | | 1 |
| | | | 450 | 1732.50 | 24.0 | 0.525 | 0.298 | 2 |
| Front | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 24.0 | | | 1 |
| | | | 450 | 1732.50 | 24.0 | 0.307 | 0.190 | |
| | | | 875 | 1753.75 | 24.0 | | | 1 |
| Edge 1 | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 24.0 | | | 1 |
| | | | 450 | 1732.50 | 24.0 | 0.127 | 0.077 | |
| | | | 875 | 1753.75 | 24.0 | | | 1 |
| Edge 2 | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 24.0 | | | 1 |
| | | | 450 | 1732.50 | 24.0 | 0.228 | 0.123 | |
| | | | 875 | 1753.75 | 24.0 | | | 1 |
| Edge 3 | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 24.0 | | | 3 |
| | | | 450 | 1732.50 | 24.0 | | | 3 |
| | | | 875 | 1753.75 | 24.0 | | | 3 |
| Edge 4 | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 23.8 | | | 3 |
| | | | 450 | 1732.50 | 23.8 | | | 3 |
| | | | 875 | 1753.75 | 23.9 | | | 3 |

**Note(s):**
1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.
2. With headset attached.
3. SAR is not required because the distance from the tested antenna to this edge is greater than 2.5 cm.

## 12.4. LTE Band 4

### 12.4.1. Head SAR

**10 MHz Bandwidth**

| Test Position | Mode | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | MPR | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1-g | 10-g | |
| Left Touch | QPSK | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.528 | 0.301 | |
| | | | | 1 | 49 | 0 | **23.4** | **0.693** | 0.394 | |
| | | | | 25 | 12 | 1 | 22.3 | 0.550 | 0.312 | |
| | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.464 | 0.263 | |
| | | | | 1 | 49 | 1 | 22.3 | 0.623 | 0.354 | |
| | | | | 25 | 12 | 1.5 | 21.8 | 0.436 | 0.247 | |
| | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |
| Left Tilt (15°) | QPSK | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.415 | 0.245 | |
| | | | | 1 | 49 | 0 | **23.4** | 0.560 | 0.310 | |
| | | | | 25 | 12 | 1 | 22.3 | 0.438 | 0.256 | |
| | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.358 | 0.197 | |
| | | | | 1 | 49 | 1 | 22.3 | 0.502 | 0.292 | |
| | | | | 25 | 12 | 1.5 | 21.8 | 0.330 | 0.194 | |
| | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |
| Right Touch | QPSK | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.420 | 0.259 | |
| | | | | 1 | 49 | 0 | **23.4** | 0.550 | 0.339 | |
| | | | | 25 | 12 | 1 | 22.3 | 0.432 | 0.267 | |
| | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.369 | 0.228 | |
| | | | | 1 | 49 | 1 | 22.3 | 0.499 | 0.306 | |
| | | | | 25 | 12 | 1.5 | 21.8 | 0.351 | 0.216 | |
| | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |
| Right Tilt (15°) | QPSK | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.411 | 0.245 | |
| | | | | 1 | 49 | 0 | **23.4** | 0.553 | 0.329 | |
| | | | | 25 | 12 | 1 | 22.3 | 0.436 | 0.259 | |
| | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.361 | 0.216 | |
| | | | | 1 | 49 | 1 | 22.3 | 0.496 | 0.295 | |
| | | | | 25 | 12 | 1.5 | 21.8 | 0.344 | 0.206 | |
| | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |

**Note(s):**

1. Testing for 100% RB allocation is not required because the SAR value for 50% RB allocation is ≤ 1.45W/Kg, as per KDB 941225 D05 SAR for LTE Devices v01

## 12.4.2. Body & Hotspot SAR

**10 MHz Bandwidth**

| Test Position | Mode | Dist. (mm) | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | MPR | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1-g | 10-g | |
| Rear | QPSK | 10 | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.530 | 0.304 | |
| | | | | | 1 | 49 | 0 | **23.4** | **0.728** | **0.416** | |
| | | | | | 1 | 49 | 0 | **23.4** | 0.631 | 0.377 | 2 |
| | | | | | 25 | 12 | 1 | 22.3 | 0.536 | 0.308 | |
| | | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 10 | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.414 | 0.238 | |
| | | | | | 1 | 49 | 1 | 22.3 | 0.564 | 0.324 | |
| | | | | | 25 | 12 | 1.5 | 21.8 | 0.437 | 0.251 | |
| | | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |
| Front | QPSK | 10 | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.297 | 0.187 | |
| | | | | | 1 | 49 | 0 | **23.4** | 0.370 | 0.232 | |
| | | | | | 25 | 12 | 1 | 22.3 | 0.289 | 0.182 | |
| | | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 10 | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.226 | 0.143 | |
| | | | | | 1 | 49 | 1 | 22.3 | 0.284 | 0.179 | |
| | | | | | 25 | 12 | 1.5 | 21.8 | 0.230 | 0.145 | |
| | | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |
| Edge 1 | QPSK | 10 | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.101 | 0.061 | |
| | | | | | 1 | 49 | 0 | **23.4** | 0.141 | 0.085 | |
| | | | | | 25 | 12 | 1 | 22.3 | 0.103 | 0.062 | |
| | | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 10 | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.077 | 0.046 | |
| | | | | | 1 | 49 | 1 | 22.3 | 0.110 | 0.067 | |
| | | | | | 25 | 12 | 1.5 | 21.8 | 0.082 | 0.050 | |
| | | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |
| Edge 2 | QPSK | 10 | 20175 | 1732.5 | 1 | 0 | 0 | **23.5** | 0.169 | 0.093 | |
| | | | | | 1 | 49 | 0 | **23.4** | 0.247 | 0.136 | |
| | | | | | 25 | 12 | 1 | 22.3 | 0.175 | 0.096 | |
| | | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | 16QAM | 10 | 20175 | 1732.5 | 1 | 0 | 1 | 22.6 | 0.130 | 0.071 | |
| | | | | | 1 | 49 | 1 | 22.3 | 0.196 | 0.108 | |
| | | | | | 25 | 12 | 1.5 | 21.8 | 0.142 | 0.078 | |
| | | | | | 50 | 0 | 1.5 | 21.8 | | | 1 |

**Note(s):**

1. Testing for 100% RB allocation is not required because the SAR value for 50% RB allocation is ≤ 1.45W/Kg, as per KDB 941225 D05 SAR for LTE Devices v01
2. With headset attached.

## 12.5. LTE Band 2

### 12.5.1. Head SAR

**10 MHz Bandwidth**

| Test Position | Mode | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | MPR | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1-g | 10-g | |
| Left Touch | QPSK | 18650 | 1855 | 1 | 0 | 0 | 23.5 | 0.814 | 0.477 | |
| | | | | 1 | 49 | 0 | 23.3 | 0.852 | 0.498 | |
| | | | | 25 | 12 | 1 | 22.4 | 0.750 | 0.434 | |
| | | | | 50 | 0 | 1 | 22.3 | | | 1 |
| | QPSK | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.770 | 0.450 | |
| | | | | 1 | 49 | 0 | 23.3 | **0.948** | 0.551 | |
| | | | | 25 | 12 | 1 | 22.5 | 0.708 | 0.411 | |
| | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.604 | 0.350 | |
| | | | | 1 | 49 | 1 | 22.4 | 0.744 | 0.432 | |
| | | | | 25 | 12 | 1.5 | 21.9 | 0.530 | 0.306 | |
| | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |
| | QPSK | 19150 | 1905 | 1 | 0 | 0 | 23.4 | 0.776 | 0.449 | |
| | | | | 1 | 49 | 0 | 23.4 | 0.786 | 0.455 | |
| | | | | 25 | 12 | 1 | 22.4 | 0.751 | 0.435 | |
| | | | | 50 | 0 | 1 | 22.4 | | | 1 |
| Left Tilt (15°) | QPSK | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.532 | 0.315 | |
| | | | | 1 | 49 | 0 | 23.3 | 0.655 | 0.389 | |
| | | | | 25 | 12 | 1 | 22.5 | 0.518 | 0.307 | |
| | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.438 | 0.262 | |
| | | | | 1 | 49 | 1 | 22.4 | 0.569 | 0.338 | |
| | | | | 25 | 12 | 1.5 | 21.9 | 0.412 | 0.244 | |
| | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |
| Right Touch | QPSK | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.507 | 0.310 | |
| | | | | 1 | 49 | 0 | 23.3 | 0.618 | 0.377 | |
| | | | | 25 | 12 | 1 | 22.5 | 0.488 | 0.297 | |
| | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.438 | 0.268 | |
| | | | | 1 | 49 | 1 | 22.4 | 0.522 | 0.317 | |
| | | | | 25 | 12 | 1.5 | 21.9 | 0.369 | 0.225 | |
| | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |
| Right Tilt (15°) | QPSK | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.416 | 0.247 | |
| | | | | 1 | 49 | 0 | 23.3 | 0.534 | 0.315 | |
| | | | | 25 | 12 | 1 | 22.5 | 0.401 | 0.237 | |
| | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.345 | 0.204 | |
| | | | | 1 | 49 | 1 | 22.4 | 0.526 | 0.313 | |
| | | | | 25 | 12 | 1.5 | 21.9 | 0.364 | 0.216 | |
| | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |

**Note(s):**

1. Testing for 100% RB allocation is not required because the SAR value for 50% RB allocation is ≤ 1.45W/Kg, as per KDB 941225 D05 SAR for LTE Devices v01

## 12.5.2. Body & Hotspot SAR

**10 MHz Bandwidth**

| Test Position | Mode | Dist. (mm) | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | MPR | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1-g | 10-g | |
| Rear | QPSK | 10 | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.674 | 0.393 | |
| | | | | | 1 | 49 | 0 | 23.3 | **0.761** | **0.447** | |
| | | | | | 1 | 49 | 0 | 23.3 | 0.599 | 0.358 | 2 |
| | | | | | 25 | 12 | 1 | 22.5 | 0.581 | 0.341 | |
| | | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 10 | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.631 | 0.380 | |
| | | | | | 1 | 49 | 1 | 22.4 | 0.739 | 0.449 | |
| | | | | | 25 | 12 | 1.5 | 21.9 | 0.522 | 0.316 | |
| | | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |
| Front | QPSK | 10 | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.495 | 0.302 | |
| | | | | | 1 | 49 | 0 | 23.3 | **0.579** | **0.356** | |
| | | | | | 25 | 12 | 1 | 22.5 | 0.459 | 0.281 | |
| | | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 10 | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.412 | 0.253 | |
| | | | | | 1 | 49 | 1 | 22.4 | 0.504 | 0.309 | |
| | | | | | 25 | 12 | 1.5 | 21.9 | 0.355 | 0.216 | |
| | | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |
| Edge 1 | QPSK | 10 | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.177 | 0.106 | |
| | | | | | 1 | 49 | 0 | 23.3 | 0.208 | 0.124 | |
| | | | | | 25 | 12 | 1 | 22.5 | 0.161 | 0.096 | |
| | | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 10 | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.146 | 0.088 | |
| | | | | | 1 | 49 | 1 | 22.4 | 0.171 | 0.102 | |
| | | | | | 25 | 12 | 1.5 | 21.9 | 0.120 | 0.072 | |
| | | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |
| Edge 2 | QPSK | 10 | 18900 | 1880 | 1 | 0 | 0 | 23.4 | 0.387 | 0.207 | |
| | | | | | 1 | 49 | 0 | 23.3 | 0.472 | 0.251 | |
| | | | | | 25 | 12 | 1 | 22.5 | 0.354 | 0.188 | |
| | | | | | 50 | 0 | 1 | 22.5 | | | 1 |
| | 16QAM | 10 | 18900 | 1880 | 1 | 0 | 1 | 22.5 | 0.329 | 0.176 | |
| | | | | | 1 | 49 | 1 | 22.4 | 0.397 | 0.211 | |
| | | | | | 25 | 12 | 1.5 | 21.9 | 0.327 | 0.157 | |
| | | | | | 50 | 0 | 1.5 | 21.9 | | | 1 |

**Note(s):**

1. Testing for 100% RB allocation is not required because the SAR value for 50% RB allocation is ≤ 1.45W/Kg, as per KDB 941225 D05 SAR for LTE Devices v01

## 12.6. Wi-Fi (2.4 GHz Band)

### 12.6.1. Head SAR

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 802.11b | 1 | 2412 | 15.6 | 0.099 | 0.043 | |
| | | 6 | 2437 | 15.5 | | | 1 |
| | | 11 | 2462 | 15.4 | | | 1 |
| Left Tilt (15°) | 802.11b | 1 | 2412 | 15.6 | 0.118 | 0.053 | |
| | | 6 | 2437 | 15.5 | | | 1 |
| | | 11 | 2462 | 15.4 | | | 1 |
| Right Touch | 802.11b | 1 | 2412 | 15.6 | 0.136 | 0.066 | |
| | | 6 | 2437 | 15.5 | | | 1 |
| | | 11 | 2462 | 15.4 | | | 1 |
| Right Tilt (15°) | 802.11b | 1 | 2412 | 15.6 | **0.142** | **0.065** | |
| | | 6 | 2437 | 15.5 | | | 1 |
| | | 11 | 2462 | 15.4 | | | 1 |

### 12.6.2. Body & Hotspot SAR

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 802.11b | 10 | 1 | 2412 | 15.6 | **0.181** | **0.078** | |
| | | | 6 | 2437 | 15.5 | | | 1 |
| | | | 11 | 2462 | 15.4 | | | 1 |
| | | | 1 | 2412 | 15.6 | 0.178 | 0.077 | 2 |
| Front | 802.11b | 10 | 1 | 2412 | 15.6 | 0.033 | 0.016 | |
| | | | 6 | 2437 | 15.5 | | | 1 |
| | | | 11 | 2462 | 15.4 | | | 1 |
| Edge 1 | 802.11b | 10 | 1 | 2412 | 15.6 | 0.071 | 0.037 | |
| | | | 6 | 2437 | 15.5 | | | 1 |
| | | | 11 | 2462 | 15.4 | | | 1 |
| Edge 2 | 802.11b | 10 | 1 | 2412 | 15.6 | | | 3 |
| | | | 6 | 2437 | 15.5 | | | 3 |
| | | | 11 | 2462 | 15.4 | | | 3 |
| Edge 3 | 802.11b | 10 | 1 | 2412 | 15.6 | | | 3 |
| | | | 6 | 2437 | 15.5 | | | 3 |
| | | | 11 | 2462 | 15.4 | | | 3 |
| Edge 4 | 802.11b | 10 | 1 | 2412 | 15.6 | 0.085 | 0.040 | |
| | | | 6 | 2437 | 15.5 | | | 1 |
| | | | 11 | 2462 | 15.4 | | | 1 |

**Note(s):**

1. For frequency bands with an operating range of < 100 MHz, when the SAR measured for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. Per KDB 447498 1) e) i)
2. With headset attached.
3. SAR is not required because the distance from the tested antenna to this edge is greater than 2.5 cm.

# 13. Sum of the 1g SAR for Voice and Data Mode

The following sum of the 1g SAR calculations with all transmitters operating at maximum power are used to determine the worst-case test configurations in SV-DO and SV-LTE, for which additional SAR will be performed with power reduction.

## 13.1. Head Exposure Conditions

Sum of the 1g SAR for Voice (1xRTT), 1xEVDO and WiFi

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Left Touch | 0.467 | | | 0.979 | | 0.099 | 1.545 |
| | 0.467 | | | | 0.668 | 0.099 | 1.234 |
| | | 0.642 | | 0.979 | | 0.099 | 1.720 |
| | | 0.642 | | | 0.668 | 0.099 | 1.409 |
| | | | 0.492 | 0.979 | | 0.099 | 1.570 |
| | | | 0.492 | | 0.668 | 0.099 | 1.259 |
| Left Tilt | 0.280 | | | 0.637 | | 0.118 | 1.035 |
| | 0.280 | | | | 0.571 | 0.118 | 0.969 |
| | | 0.286 | | 0.637 | | 0.118 | 1.041 |
| | | 0.286 | | | 0.571 | 0.118 | 0.975 |
| | | | 0.172 | 0.637 | | 0.118 | 0.927 |
| | | | 0.172 | | 0.571 | 0.118 | 0.861 |
| Right Touch | 0.525 | | | 0.652 | | 0.136 | 1.313 |
| | 0.525 | | | | 0.469 | 0.136 | 1.130 |
| | | 0.727 | | 0.652 | | 0.136 | 1.515 |
| | | 0.727 | | | 0.469 | 0.136 | 1.332 |
| | | | 0.575 | 0.652 | | 0.136 | 1.363 |
| | | | 0.575 | | 0.469 | 0.136 | 1.180 |
| Right Tilt | 0.305 | | | 0.639 | | 0.142 | 1.086 |
| | 0.305 | | | | 0.534 | 0.142 | 0.981 |
| | | 0.306 | | 0.639 | | 0.142 | 1.087 |
| | | 0.306 | | | 0.534 | 0.142 | 0.982 |
| | | | 0.226 | 0.639 | | 0.142 | 1.007 |
| | | | 0.226 | | 0.534 | 0.142 | 0.902 |

Sum of the 1g SAR for Voice (1xRTT), LTE and WiFi

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Left Touch | 0.467 | | | 0.948 | | 0.099 | 1.514 |
| | 0.467 | | | | 0.693 | 0.099 | 1.259 |
| | | 0.642 | | 0.948 | | 0.099 | 1.689 |
| | | 0.642 | | | 0.693 | 0.099 | 1.434 |
| | | | 0.492 | 0.948 | | 0.099 | 1.539 |
| | | | 0.492 | | 0.693 | 0.099 | 1.284 |
| Left Tilt | 0.28 | | | 0.655 | | 0.118 | 1.053 |
| | 0.28 | | | | 0.560 | 0.118 | 0.958 |
| | | 0.286 | | 0.655 | | 0.118 | 1.059 |
| | | 0.286 | | | 0.560 | 0.118 | 0.964 |
| | | | 0.172 | 0.655 | | 0.118 | 0.945 |
| | | | 0.172 | | 0.560 | 0.118 | 0.850 |
| Right Touch | 0.525 | | | 0.618 | | 0.136 | 1.279 |
| | 0.525 | | | | 0.550 | 0.136 | 1.211 |
| | | 0.727 | | 0.618 | | 0.136 | 1.481 |
| | | 0.727 | | | 0.550 | 0.136 | 1.413 |
| | | | 0.575 | 0.618 | | 0.136 | 1.329 |
| | | | 0.575 | | 0.550 | 0.136 | 1.261 |
| Right Tilt | 0.305 | | | 0.534 | | 0.142 | 0.981 |
| | 0.305 | | | | 0.553 | 0.142 | 1.000 |
| | | 0.306 | | 0.534 | | 0.142 | 0.982 |
| | | 0.306 | | | 0.553 | 0.142 | 1.001 |
| | | | 0.226 | 0.534 | | 0.142 | 0.902 |
| | | | 0.226 | | 0.553 | 0.142 | 0.921 |

## 13.2. Body Exposure Conditions

Sum of the 1g SAR for Voice (1xRTT), 1xEVDO and WiFi

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Rear | 0.975 | | | 1.03 | | 0.181 | 2.186 |
| | 0.975 | | | | 0.670 | 0.181 | 1.826 |
| | | 1.120 | | 1.03 | | 0.181 | 2.331 |
| | | 1.120 | | | 0.670 | 0.181 | 1.971 |
| | | | 0.689 | 1.03 | | 0.181 | 1.900 |
| | | | 0.689 | | 0.670 | 0.181 | 1.540 |
| Front | 0.554 | | | 0.448 | | 0.033 | 1.035 |
| | 0.554 | | | | 0.307 | 0.033 | 0.894 |
| | | 0.608 | | 0.448 | | 0.033 | 1.089 |
| | | 0.608 | | | 0.307 | 0.033 | 0.948 |
| | | | 0.490 | 0.448 | | 0.033 | 0.971 |
| | | | 0.490 | | 0.307 | 0.033 | 0.830 |
| Edge 1 | | | | 0.307 | | 0.071 | 0.378 |
| | | | | | 0.127 | 0.071 | 0.198 |
| | | | | 0.307 | | 0.071 | 0.378 |
| | | | | | 0.127 | 0.071 | 0.198 |
| | | | | 0.307 | | 0.071 | 0.378 |
| | | | | | 0.127 | 0.071 | 0.198 |
| Edge 2 | 0.464 | | | 0.444 | | | 0.908 |
| | 0.464 | | | | 0.228 | | 0.692 |
| | | 0.242 | | 0.444 | | | 0.686 |
| | | 0.242 | | | 0.228 | | 0.470 |
| | | | 0.186 | 0.444 | | | 0.630 |
| | | | 0.186 | | 0.228 | | 0.414 |
| Edge 3 | 0.174 | | | | | | 0.174 |
| | 0.174 | | | | | | 0.174 |
| | | 1.06 | | | | | 1.060 |
| | | 1.06 | | | | | 1.060 |
| | | | 0.397 | | | | 0.397 |
| | | | 0.397 | | | | 0.397 |
| Edge 4 | 0.245 | | | | | 0.040 | 0.285 |
| | 0.245 | | | | | 0.040 | 0.285 |
| | | 0.144 | | | | 0.040 | 0.184 |
| | | 0.144 | | | | 0.040 | 0.184 |
| | | | 0.130 | | | 0.040 | 0.170 |
| | | | 0.130 | | | 0.040 | 0.170 |

**Body Exposure Conditions (continued)**

Sum of the 1g SAR for Voice (1xRTT), LTE and WiFi

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Rear | 0.975 | | | 0.761 | | 0.181 | 1.917 |
| | 0.975 | | | | 0.728 | 0.181 | 1.884 |
| | | 1.12 | | 0.761 | | 0.181 | 2.062 |
| | | 1.12 | | | 0.728 | 0.181 | 2.029 |
| | | | 0.689 | 0.761 | | 0.181 | 1.631 |
| | | | 0.689 | | 0.728 | 0.181 | 1.598 |
| Front | 0.554 | | | 0.579 | | 0.033 | 1.166 |
| | 0.554 | | | | 0.370 | 0.033 | 0.957 |
| | | 0.608 | | 0.579 | | 0.033 | 1.220 |
| | | 0.608 | | | 0.370 | 0.033 | 1.011 |
| | | | 0.49 | 0.579 | | 0.033 | 1.102 |
| | | | 0.49 | | 0.370 | 0.033 | 0.893 |
| Edge 1 | | | | 0.208 | | 0.071 | 0.279 |
| | | | | | 0.141 | 0.071 | 0.212 |
| | | | | 0.208 | | 0.071 | 0.279 |
| | | | | | 0.141 | 0.071 | 0.212 |
| | | | | 0.208 | | 0.071 | 0.279 |
| | | | | | 0.141 | 0.071 | 0.212 |
| Edge 2 | 0.464 | | | 0.472 | | | 0.936 |
| | 0.464 | | | | 0.196 | | 0.660 |
| | | 0.242 | | 0.472 | | | 0.714 |
| | | 0.242 | | | 0.196 | | 0.438 |
| | | | 0.186 | 0.472 | | | 0.658 |
| | | | 0.186 | | 0.196 | | 0.382 |
| Edge 3 | 0.174 | | | | | | 0.174 |
| | 0.174 | | | | | | 0.174 |
| | | 1.06 | | | | | 1.060 |
| | | 1.06 | | | | | 1.060 |
| | | | 0.397 | | | | 0.397 |
| | | | 0.397 | | | | 0.397 |
| Edge 4 | 0.25 | | | | | 0.040 | 0.285 |
| | 0.25 | | | | | 0.040 | 0.285 |
| | | 0.14 | | | | 0.040 | 0.184 |
| | | 0.14 | | | | 0.040 | 0.184 |
| | | | 0.13 | | | 0.040 | 0.170 |
| | | | 0.13 | | | 0.040 | 0.170 |

# 14. SAR Test Results with Power Reduction for SV-DO & SV-LTE

Based on the calculations found in Section 13, the test configurations with sum of the 1g SAR > 1.6 W/kg were chosen for additional SAR testing with power reduction:

- Head Exposure Condition – Left Touch and Right Touch
- Body Exposure Condition – Rear

## 14.1. CDMA BC0

### 14.1.1. Head SAR with Voice Power Reduction for SV-DO

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 1013 | 824.7 | 16.1 | | | 1 |
| | | 384 | 836.5 | 16.1 | 0.094 | 0.072 | |
| | | 777 | 848.3 | 16.1 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 1013 | 824.7 | 16.1 | | | 1 |
| | | 384 | 836.5 | 16.1 | 0.109 | 0.080 | |
| | | 777 | 848.3 | 16.1 | | | 1 |

### 14.1.2. Body & Hotspot SAR with Voice Power Reduction for SV-DO

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 16.1 | | | 1 |
| | | | 384 | 836.5 | 16.1 | 0.140 | 0.100 | |
| | | | 777 | 848.3 | 16.0 | | | 1 |

### 14.1.3. Head SAR with Voice Power Reduction for SV-LTE

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 1013 | 824.7 | 19.2 | | | 1 |
| | | 384 | 836.5 | 19.1 | 0.195 | 0.147 | |
| | | 777 | 848.3 | 19.1 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 1013 | 824.7 | 19.2 | | | 1 |
| | | 384 | 836.5 | 19.1 | 0.213 | 0.142 | |
| | | 777 | 848.3 | 19.1 | | | 1 |

### 14.1.4. Body & Hotspot SAR with Voice Power Reduction for SV-LTE

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 1013 | 824.7 | 19.2 | | | 1 |
| | | | 384 | 836.5 | 19.1 | 0.249 | 0.175 | |
| | | | 777 | 848.3 | 19.1 | | | 1 |

**Note(s):**

1. According to FCC "Public Notice DA 02-1438" by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

## 14.2. CDMA BC1

### 14.2.1. Head SAR with Voice Power Reduction for SV-DO

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 25 | 1851.25 | 15.8 | | | 1 |
| | | 600 | 1880.00 | 15.8 | 0.086 | 0.053 | |
| | | 1175 | 1908.75 | 15.9 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 25 | 1851.25 | 15.8 | | | 1 |
| | | 600 | 1880.00 | 15.8 | 0.106 | 0.062 | |
| | | 1175 | 1908.75 | 15.9 | | | 1 |

### 14.2.2. Body & Hotspot SAR with Voice Power Reduction for SV-DO

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 15.9 | | | 1 |
| | | | 600 | 1880.00 | 15.9 | 0.141 | 0.079 | |
| | | | 1175 | 1908.75 | 16.0 | | | 1 |

### 14.2.3. Head SAR with Voice Power Reduction for SV-LTE

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 25 | 1851.25 | 19.0 | | | 1 |
| | | 600 | 1880.00 | 19.1 | 0.165 | 0.102 | |
| | | 1175 | 1908.75 | 19.2 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 25 | 1851.25 | 19.0 | | | 1 |
| | | 600 | 1880.00 | 19.1 | 0.189 | 0.111 | |
| | | 1175 | 1908.75 | 19.2 | | | 1 |

### 14.2.4. Body & Hotspot SAR with Voice Power Reduction for SV-LTE

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 25 | 1851.25 | 18.9 | | | 1 |
| | | | 600 | 1880.00 | 19.1 | 0.291 | 0.171 | |
| | | | 1175 | 1908.75 | 19.2 | | | 1 |

**Note(s):**

1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

### 14.2.5. Head SAR with Data Power Reduction for SV-DO

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xEVDO (Rel. 0) | 25 | 1851.25 | 18.90 | | | 1 |
| | | 600 | 1880.00 | 19.00 | 0.284 | 0.165 | |
| | | 1175 | 1908.75 | 19.00 | | | 1 |
| Right Touch | 1xEVDO (Rel. 0) | 25 | 1851.25 | 18.90 | | | 1 |
| | | 600 | 1880.00 | 19.00 | 0.207 | 0.126 | |
| | | 1175 | 1908.75 | 19.00 | | | 1 |

### 14.2.6. Body & Hotspot SAR with Data Power Reduction for SV-DO

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xEVDO (Rel. 0) | 10 | 25 | 1851.25 | 18.90 | | | 1 |
| | | | 600 | 1880.00 | 19.00 | 0.279 | 0.159 | |
| | | | 1175 | 1908.75 | 19.00 | | | 1 |

**Note(s):**

1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

## 14.3. CDMA BC15

### 14.3.1. Head SAR with Voice Power Reduction for SV-DO

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 25 | 1711.25 | 16.0 | | | 1 |
| | | 450 | 1732.50 | 16.2 | 0.108 | 0.070 | |
| | | 875 | 1753.75 | 16.1 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 25 | 1711.25 | 16.0 | | | 1 |
| | | 450 | 1732.50 | 16.2 | 0.124 | 0.073 | |
| | | 875 | 1753.75 | 16.1 | | | 1 |

### 14.3.2. Body & Hotspot SAR with Voice Power Reduction for SV-DO

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 16.0 | | | 1 |
| | | | 450 | 1732.50 | 16.2 | 0.134 | 0.081 | |
| | | | 875 | 1753.75 | 16.2 | | | 1 |

### 14.3.3. Head SAR with Voice Power Reduction for SV-LTE

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xRTT (RC3 SO55) | 25 | 1711.25 | 19.0 | | | 1 |
| | | 450 | 1732.50 | 18.9 | 0.136 | 0.089 | |
| | | 875 | 1753.75 | 18.9 | | | 1 |
| Right Touch | 1xRTT (RC3 SO55) | 25 | 1711.25 | 19.0 | | | 1 |
| | | 450 | 1732.50 | 18.9 | 0.158 | 0.094 | |
| | | 875 | 1753.75 | 18.9 | | | 1 |

### 14.3.4. Body & Hotspot SAR with Voice Power Reduction for SV-LTE

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xRTT (RC3 SO32) | 10 | 25 | 1711.25 | 19.0 | | | 1 |
| | | | 450 | 1732.50 | 18.9 | 0.224 | 0.138 | |
| | | | 875 | 1753.75 | 19.0 | | | 1 |

**Note(s):**

1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

### 14.3.5. Head SAR with Data Power Reduction for SV-DO

| Test Position | Mode | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|
| | | | | | 1-g | 10-g | |
| Left Touch | 1xEVDO (Rel. 0) | 25 | 1711.25 | 19.0 | | | 1 |
| | | 450 | 1732.50 | 18.9 | 0.190 | 0.110 | |
| | | 875 | 1753.75 | 18.9 | | | 1 |
| Right Touch | 1xEVDO (Rel. 0) | 25 | 1711.25 | 19.0 | | | 1 |
| | | 450 | 1732.50 | 18.9 | 0.142 | 0.087 | |
| | | 875 | 1753.75 | 18.9 | | | 1 |

### 14.3.6. Body & Hotspot SAR with Data Power Reduction for SV-DO

| Test Position | Mode | Dist. (mm) | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1-g | 10-g | |
| Rear | 1xEVDO (Rel. 0) | 10 | 25 | 1711.25 | 19.0 | | | 1 |
| | | | 450 | 1732.50 | 18.9 | 0.223 | 0.126 | |
| | | | 875 | 1753.75 | 18.9 | | | 1 |

**Note(s):**

1. According to FCC “Public Notice DA 02-1438” by the SCC-34/SC-2, when the SAR measured for the middle channel is < 50% of the SAR limit, testing for the low and high channel is optional.

## 14.4. LTE Band 4

### 14.4.1. Head SAR with Power Reduction for SV-LTE

**10 MHz Bandwidth**

| Test Position | Mode | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1-g | 10-g | |
| Left Touch | QPSK | 20175 | 1732.5 | 1 | 0 | 19.1 | **0.206** | 0.115 | |
| | | | | 1 | 49 | 19.1 | 0.121 | 0.069 | |
| | | | | 25 | 12 | 19.0 | 0.140 | 0.065 | |
| | | | | 50 | 0 | 19.0 | | | 1 |
| | 16QAM | 20175 | 1732.5 | 1 | 0 | 19.0 | **0.185** | 0.100 | |
| | | | | 1 | 49 | 19.3 | 0.107 | 0.055 | |
| | | | | 25 | 12 | 19.2 | 0.111 | 0.054 | |
| | | | | 50 | 0 | 19.1 | | | 1 |
| Right Touch | QPSK | 20175 | 1732.5 | 1 | 0 | 19.1 | **0.165** | 0.102 | |
| | | | | 1 | 49 | 19.1 | 0.090 | 0.051 | |
| | | | | 25 | 12 | 19.0 | 0.103 | 0.064 | |
| | | | | 50 | 0 | 19.0 | | | 1 |
| | 16QAM | 20175 | 1732.5 | 1 | 0 | 19.0 | **0.139** | 0.086 | |
| | | | | 1 | 49 | 19.3 | 0.079 | 0.047 | |
| | | | | 25 | 12 | 19.2 | 0.084 | 0.050 | |
| | | | | 50 | 0 | 19.1 | | | 1 |

### 14.4.2. Body & Hotspot SAR with Power Reduction for SV-LTE

**10 MHz Bandwidth**

| Test Position | Mode | Dist. (mm) | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1-g | 10-g | |
| Rear | QPSK | 10 | 20175 | 1732.5 | 1 | 0 | 19.1 | **0.239** | **0.136** | |
| | | | | | 1 | 49 | 19.1 | 0.138 | 0.079 | |
| | | | | | 25 | 12 | 19.0 | 0.151 | 0.086 | |
| | | | | | 50 | 0 | 19.0 | | | 1 |
| | 16QAM | 10 | 20175 | 1732.5 | 1 | 0 | 19.0 | 0.198 | 0.112 | |
| | | | | | 1 | 49 | 19.3 | 0.116 | 0.067 | |
| | | | | | 25 | 12 | 19.2 | 0.118 | 0.064 | |
| | | | | | 50 | 0 | 19.1 | | | 1 |

**Note(s):**

1. Testing for 100% RB allocation is not required because the SAR value for 50% RB allocation is ≤ 1.45W/Kg, as per KDB 941225 D05 SAR for LTE Devices v01

## 14.5. LTE Band 2

### 14.5.1. Head SAR with Power Reduction for SV-LTE

**10 MHz Bandwidth**

| Test Position | Mode | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1-g | 10-g | |
| Left Touch | QPSK | 18900 | 1880 | 1 | 0 | 19.2 | 0.294 | 0.166 | |
| | | | | 1 | 49 | 19.1 | 0.371 | 0.214 | |
| | | | | 25 | 12 | 19.2 | 0.273 | 0.158 | |
| | | | | 50 | 0 | 19.1 | | | 1 |
| | 16QAM | 18900 | 1880 | 1 | 0 | 19.1 | 0.215 | 0.123 | |
| | | | | 1 | 49 | 19.2 | 0.139 | 0.069 | |
| | | | | 25 | 12 | 19.1 | 0.149 | 0.087 | |
| | | | | 50 | 0 | 19.2 | | | 1 |
| Right Touch | QPSK | 18900 | 1880 | 1 | 0 | 19.2 | 0.231 | 0.138 | |
| | | | | 1 | 49 | 19.1 | 0.290 | 0.172 | |
| | | | | 25 | 12 | 19.2 | 0.215 | 0.127 | |
| | | | | 50 | 0 | 19.1 | | | 1 |
| | 16QAM | 18900 | 1880 | 1 | 0 | 19.1 | 0.197 | 0.118 | |
| | | | | 1 | 49 | 19.2 | 0.113 | 0.068 | |
| | | | | 25 | 12 | 19.1 | 0.136 | 0.062 | |
| | | | | 50 | 0 | 19.2 | | | 1 |

### 14.5.2. Body & Hotspot SAR with Power Reduction for SV-LTE

**10 MHz Bandwidth**

| Test Position | Mode | Dist. (mm) | UL Ch #. | Freq. (MHz) | UL RB Allocatio | UL RB Start | Avg Pwr (dBm) | SAR (mW/g) | | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1-g | 10-g | |
| Rear | QPSK | 10 | 18900 | 1880 | 1 | 0 | 19.2 | 0.332 | 0.192 | |
| | | | | | 1 | 49 | 19.1 | **0.414** | **0.241** | |
| | | | | | 25 | 12 | 19.2 | 0.328 | 0.188 | |
| | | | | | 50 | 0 | 19.1 | | | 1 |
| | 16QAM | 10 | 18900 | 1880 | 1 | 0 | 19.1 | 0.247 | 0.142 | |
| | | | | | 1 | 49 | 19.2 | 0.196 | 0.113 | |
| | | | | | 25 | 12 | 19.1 | 0.166 | 0.095 | |
| | | | | | 50 | 0 | 19.2 | | | 1 |

**Note(s):**

1. Testing for 100% RB allocation is not required because the SAR value for 50% RB allocation is ≤ 1.45W/Kg, as per KDB 941225 D05 SAR for LTE Devices v01

# 15. Summary of Highest SAR Values

Results for highest SAR values for each frequency band and mode

| Technology/Band | Test configuration | | Mode | Highest 1g SAR (W/kg) |
|---|---|---|---|---|
| CDMA BC0 | Head | Right Touch | 1xRTT (RC3, SO55) | 0.525 |
| | Body & Hotspot | Rear | 1xRTT (RC3, SO32) | 0.975 |
| CDMA BC1 | Head | Right Touch | 1xRTT (RC3, SO55) | 0.727 |
| | Head | Left Touch | 1xEVDO (Rel. 0) | 0.979 |
| | Body & Hotspot | Rear | 1xRTT (RC3 SO32) | 1.120 |
| CDMA BC15 | Head | Right Touch | 1xRTT (RC3, SO55) | 0.575 |
| | Head | Left touch | 1xEVDO (Rel. 0) | 0.668 |
| | Body & Hotspot | Rear | 1xRTT (RC3, SO32) | 0.689 |
| | Body & Hotspot | Rear | 1xEVDO (Rel. 0) | 0.670 |
| LTE Band 4 | Head | Left Touch | 10 MHz (QPSK) RB 1/49 | 0.693 |
| | Body & Hotspot | Rear | 10 MHz (QPSK) RB 1/49 | 0.728 |
| LTE Band 2 | Head | Left Touch | 10 MHz (QPSK) RB 1/49 | 0.948 |
| | Body & Hotspot | Rear | 10 MHz (QPSK) RB 1/49 | 0.761 |
| WiFi 2.4 GHz | Head | Right Tilt | 802.11b 1Mbps | 0.142 |
| | Body & Hotspot | Rear | 802.11b 1Mbps | 0.181 |

## 15.1. Scaled SAR Values to the Maximum tune-up Tolerances

The following measured results were scaled to the maximum tune-up tolerance, according to the output power of the channel tested for the highest measured results in each frequency band.

| Test Configuration | | Mode | Ch #. | Freq. (MHz) | Power (dBm) | | SAR (W/kg) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Max. tune-up limit | Measured | Measured | Scaled |
| Head | Right Touch | 1xRTT (RC3 SO55) | 384 | 836.52 | 25.2 | 24.90 | 0.525 | 0.563 |
| Body&Hotspot | Rear | 1xRTT (RC3 SO32) | 1013 | 824.70 | 25.2 | 24.90 | 0.975 | 1.045 |
| Head | Right Touch | 1xRTT (RC3 SO55) | 600 | 1880.00 | 24.5 | 24.30 | 0.727 | 0.761 |
| Head | Left Touch | 1xEVDO (Rel. 0) | 600 | 1880.00 | 24.2 | 24.00 | 0.979 | 1.025 |
| Body&Hotspot | Rear | 1xEVDO (Rel. 0) | 1175 | 1908.75 | 24.2 | 24.10 | 1.120 | 1.146 |
| Head | Right Touch | 1xRTT (RC3 SO55) | 450 | 1732.50 | 24.5 | 24.30 | 0.575 | 0.602 |
| Head | Left Touch | 1xEVDO (Rel. 0) | 450 | 1732.50 | 24.2 | 24.00 | 0.668 | 0.699 |
| Body&Hotspot | Rear | 1xRTT (RC3 SO32) | 450 | 1732.50 | 24.5 | 24.30 | 0.689 | 0.721 |
| Body&Hotspot | Rear | 1xEVDO (Rel. 0) | 450 | 1732.50 | 24.2 | 24.00 | 0.670 | 0.702 |
| Head | Left Touch | 10M (QPSK) RB1/49 | 20175 | 1732.50 | 23.5 | 23.40 | 0.693 | 0.709 |
| Body&Hotspot | Rear | 10M (QPSK) RB1/49 | 20175 | 1732.50 | 23.5 | 23.40 | 0.728 | 0.745 |
| Head | Left Touch | 10M (QPSK) RB1/0 | 18650 | 1855.00 | 23.5 | 23.30 | 0.948 | 0.993 |
| Body&Hotspot | Rear | 10M (QPSK) RB1/49 | 18900 | 1880.00 | 23.5 | 23.30 | 0.761 | 0.797 |
| Head | Right Tilt | 802.11b | 1 | 2412.00 | 16.0 | 15.60 | 0.142 | 0.156 |
| Body&Hotspot | Rear | 802.11b | 1 | 2412.00 | 16.0 | 15.60 | 0.181 | 0.198 |

## 15.2. SAR Plots (from Summary of Highest SAR Values)

Test Laboratory: UL CCS SAR Lab C
Date: 5/31/2012

### CDMA2000-BC0

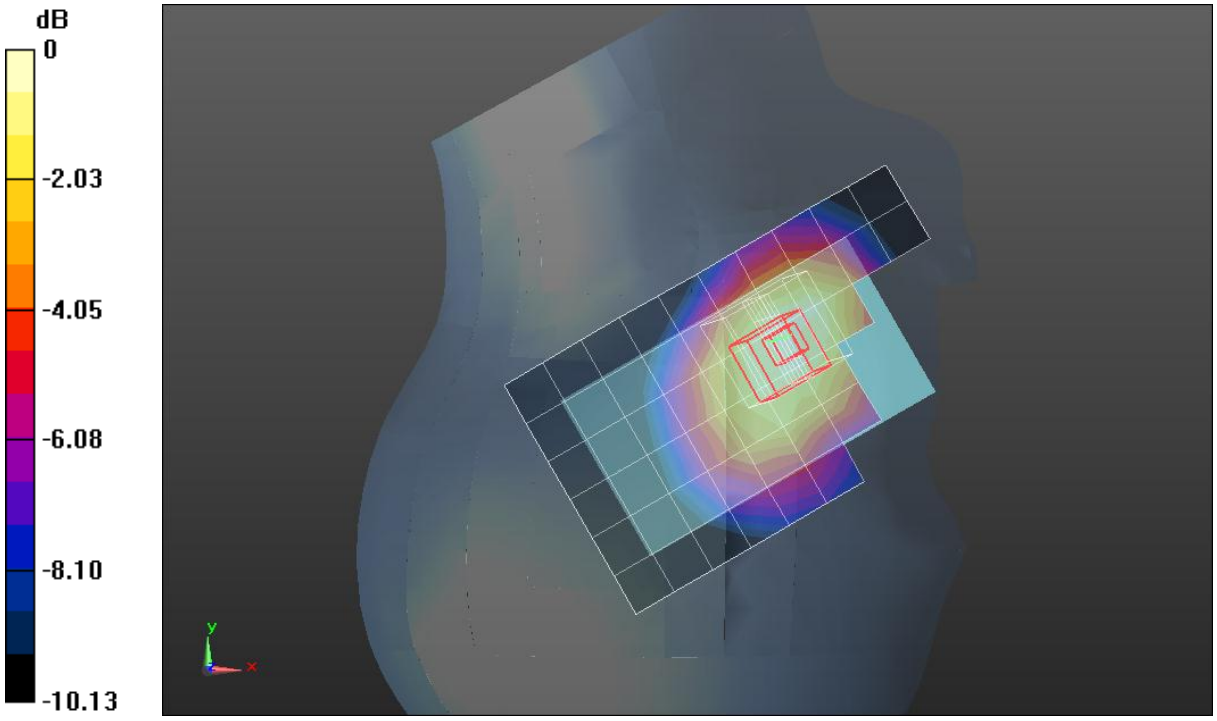
Frequency: 836.52 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 836.52 MHz; $\sigma$ = 0.893 mho/m; $\varepsilon_r$ = 42.246; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE3 Sn500; Calibrated: 7/14/2011
- Probe: EX3DV4 - SN3773; ConvF(8.79, 8.79, 8.79); Calibrated: 3/14/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1632

**Right Touch/1xRTT_RC3 SO55/Ch 384/Area Scan (7x11x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.591 mW/g

**Right Touch/1xRTT_RC3 SO55/Ch 384/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.110 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.7250
**SAR(1 g) = 0.525 mW/g; SAR(10 g) = 0.374 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.611 mW/g




0 dB = 0.610mW/g = -4.29 dB mW/g

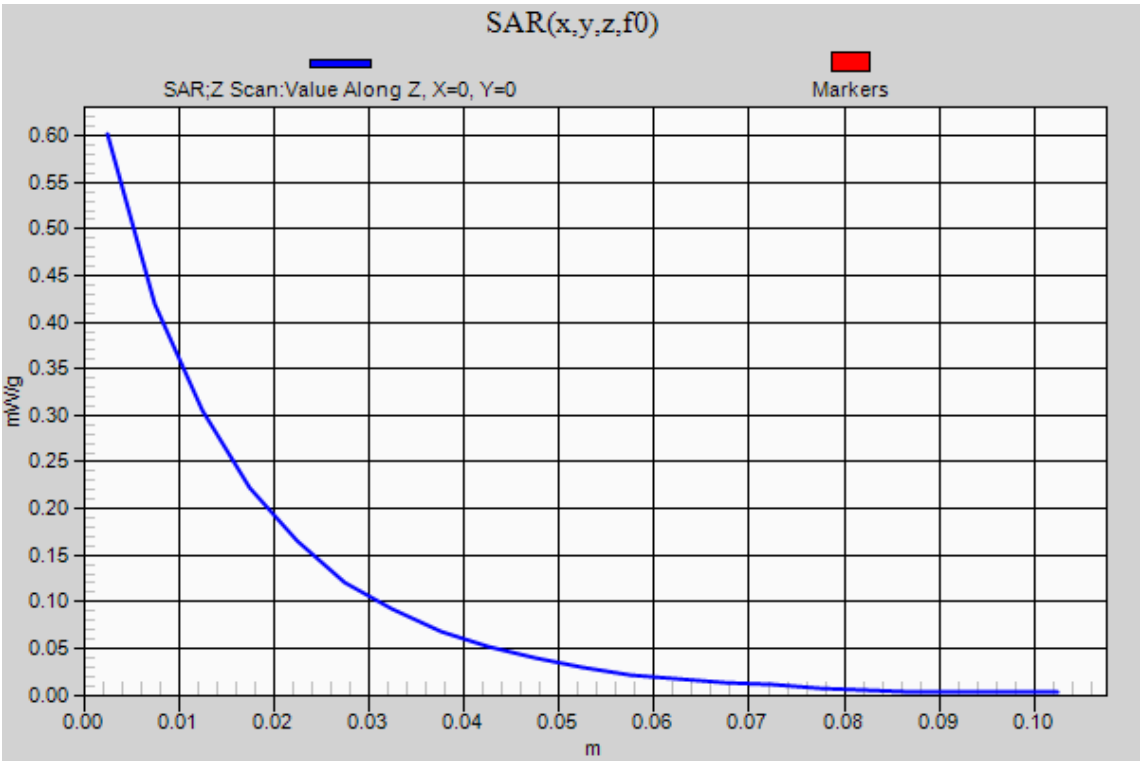
Test Laboratory: UL CCS SAR Lab C
Date: 5/31/2012

## CDMA2000-BC0

Frequency: 836.52 MHz; Duty Cycle: 1:1

### Right Touch/1xRTT_RC3 SO55/Ch 384/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.602 mW/g



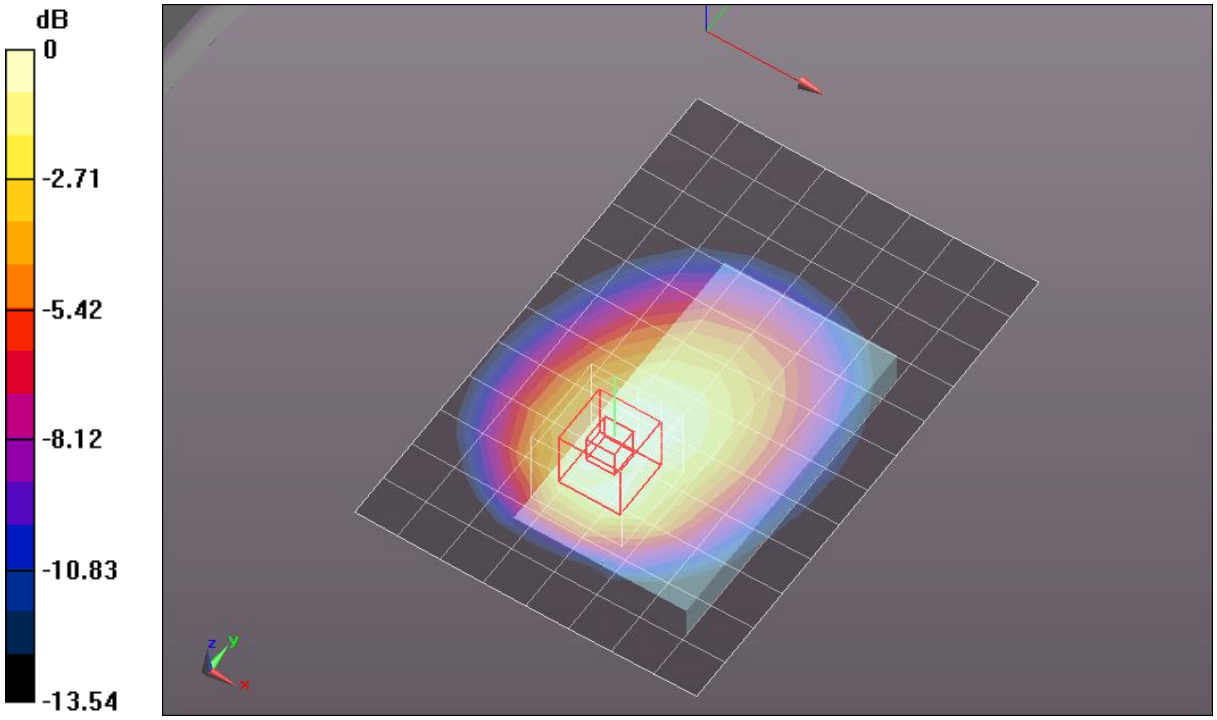
Test Laboratory: UL CCS SAR Lab C Date: 5/30/2012

## CDMA2000-BC0

Frequency: 824.7 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 825 MHz; $\sigma$ = 0.981 mho/m; $\varepsilon_r$ = 54.705; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE3 Sn500; Calibrated: 7/14/2011
- Probe: EX3DV4 - SN3773; ConvF(8.74, 8.74, 8.74); Calibrated: 3/14/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118

**Rear/1xRTT_RC3 SO32/Ch 1013/Area Scan (9x13x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.168 mW/g

**Rear/1xRTT_RC3 SO32/Ch 1013/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.389 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.4980
**SAR(1 g) = 0.975 mW/g; SAR(10 g) = 0.657 mW/g**
Maximum value of SAR (measured) = 1.254 mW/g



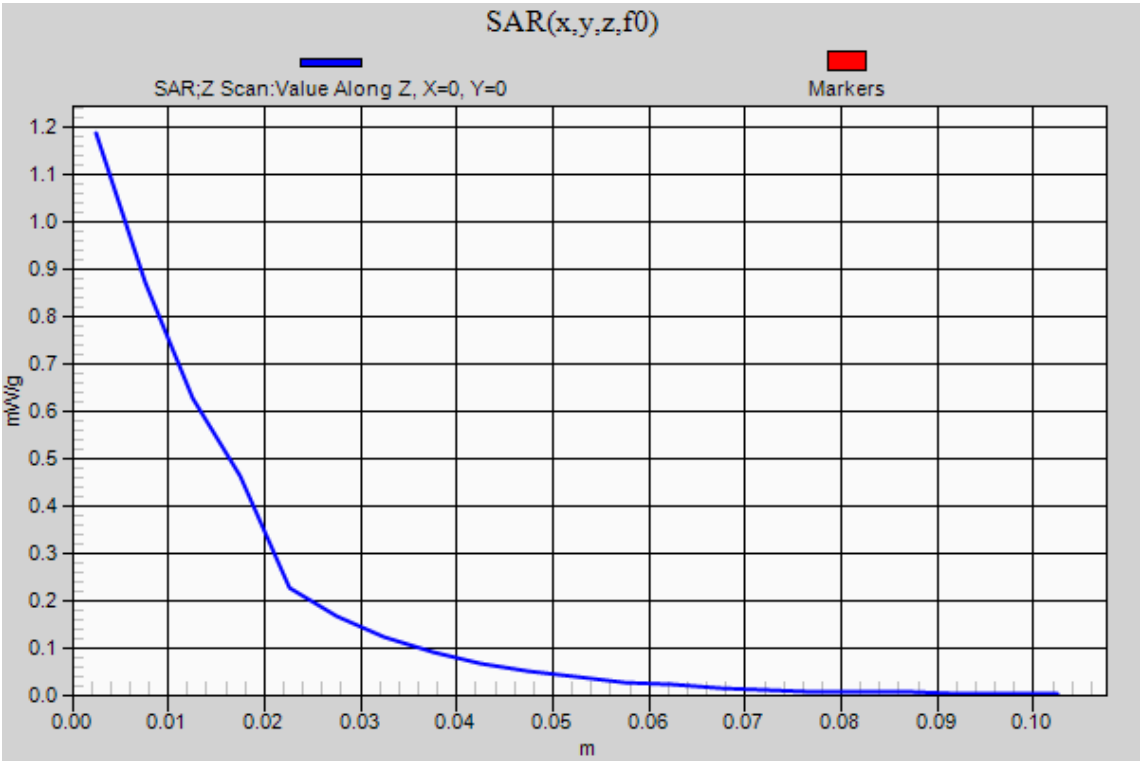

0 dB = 1.250mW/g = 1.94 dB mW/g

Test Laboratory: UL CCS SAR Lab C
Date: 5/30/2012

## CDMA2000-BC0

Frequency: 824.7 MHz; Duty Cycle: 1:1

**Rear/1xRTT_RC3 SO32/Ch 1013/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 1.187 mW/g



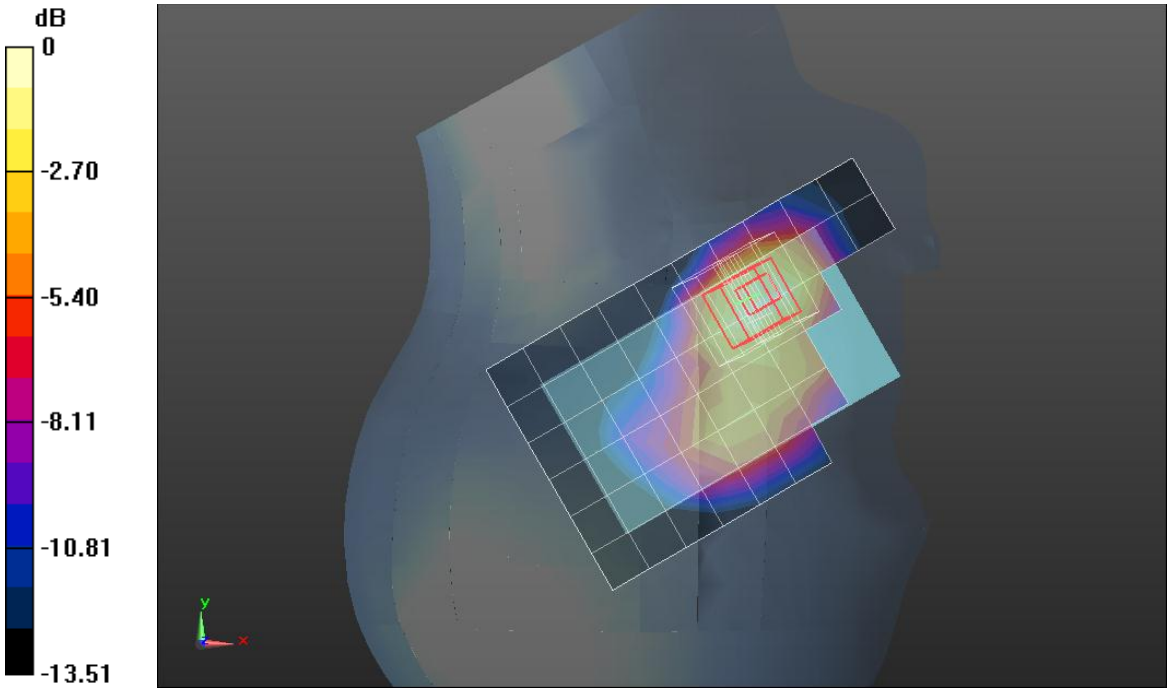
Test Laboratory: UL CCS SAR Lab C Date: 5/31/2012

## CDMA 2000 - BC1

Frequency: 1880 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.388 mho/m; $\varepsilon_r$ = 38.603; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1257; Calibrated: 10/25/2011
- Probe: EX3DV4 - SN3773; ConvF(7.51, 7.51, 7.51); Calibrated: 3/14/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1629

**Right Touch/1xRTT_RC3 SO55/Ch 600/Area Scan (7x11x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.784 mW/g

**Right Touch/1xRTT_RC3 SO55/Ch 600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.208 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.0950
**SAR(1 g) = 0.727 mW/g; SAR(10 g) = 0.430 mW/g**
Maximum value of SAR (measured) = 0.900 mW/g



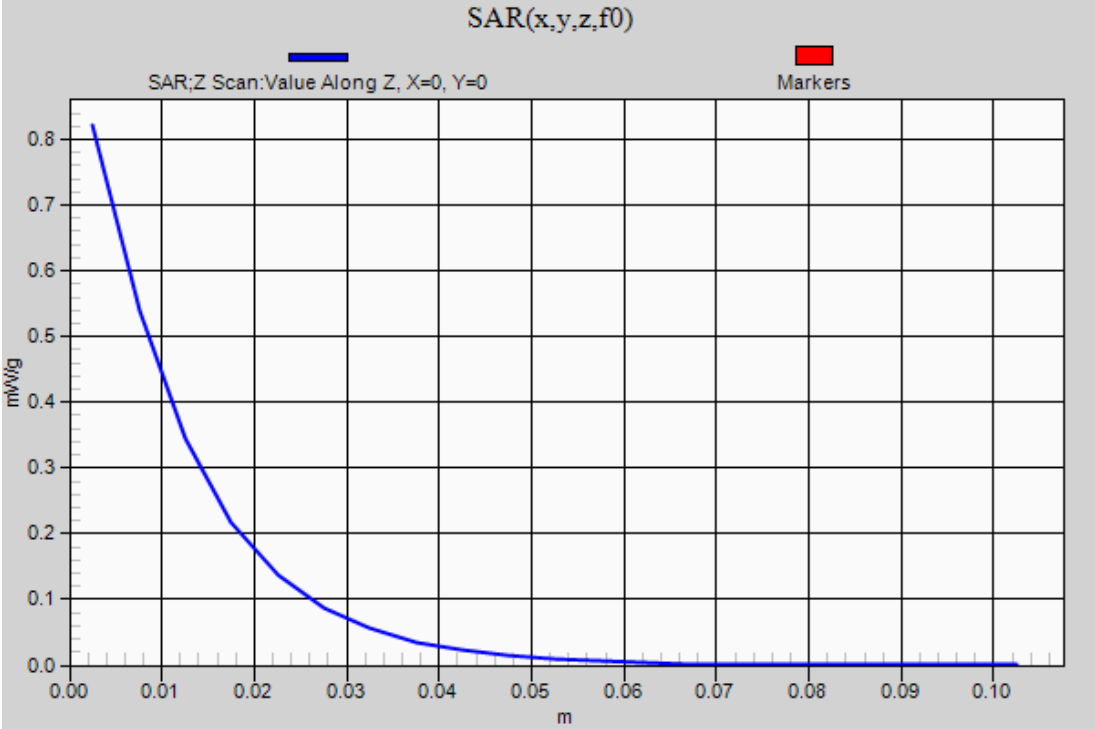

0 dB = 0.900mW/g = -0.92 dB mW/g

Test Laboratory: UL CCS SAR Lab C
Date: 5/31/2012

## CDMA 2000 - BC1

Frequency: 1880 MHz; Duty Cycle: 1:1

**Right Touch/1xRTT_RC3 SO55/Ch 600/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.821 mW/g



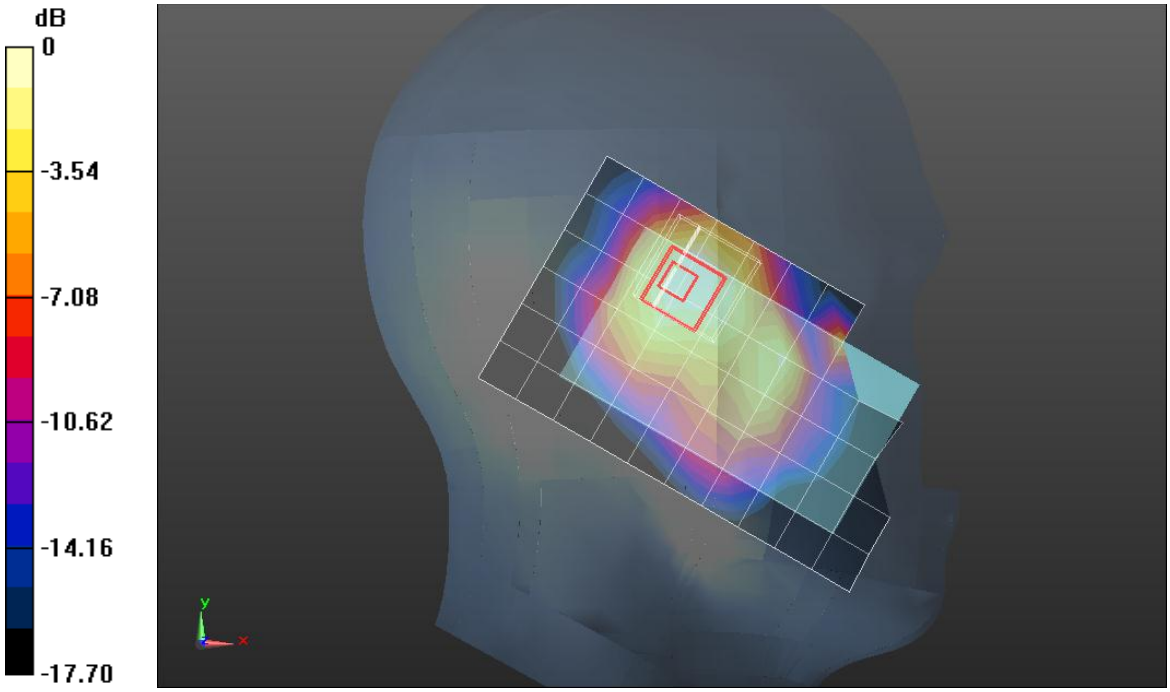
Test Laboratory: UL CCS SAR Lab C
Date: 5/31/2012

## CDMA 2000 - BC1

Frequency: 1880 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.388 mho/m; $\varepsilon_r$ = 38.603; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1257; Calibrated: 10/25/2011
- Probe: EX3DV4 - SN3773; ConvF(7.51, 7.51, 7.51); Calibrated: 3/14/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1629

**Left Touch/1xEVDO Rel.0/Ch 600/Area Scan (7x11x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.217 mW/g

**Left Touch/1xEVDO Rel.0/Ch 600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.670 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 1.8390
**SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.559 mW/g**
Maximum value of SAR (measured) = 1.252 mW/g



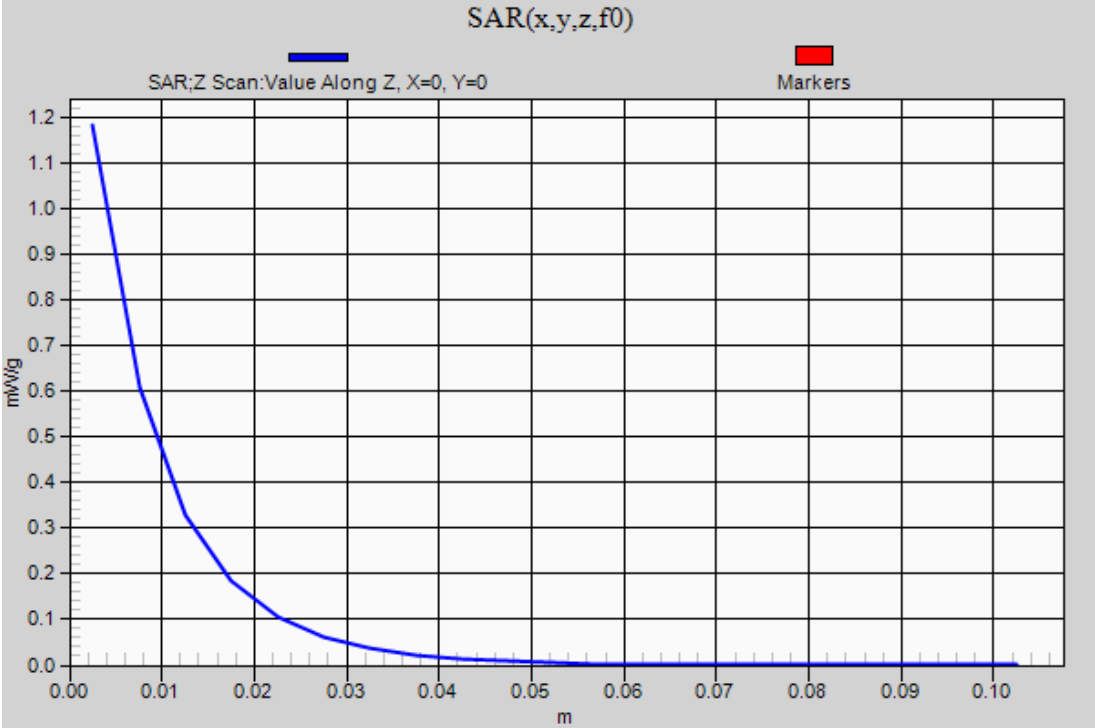

0 dB = 1.250mW/g = 1.94 dB mW/g

Test Laboratory: UL CCS SAR Lab C
Date: 5/31/2012

## CDMA 2000 - BC1

Frequency: 1880 MHz; Duty Cycle: 1:1

**Left Touch/1xEVDO Rel.0/Ch 600/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 1.182 mW/g



Test Laboratory: UL CCS SAR Lab C
Date: 5/29/2012

## CDMA2000-BC1

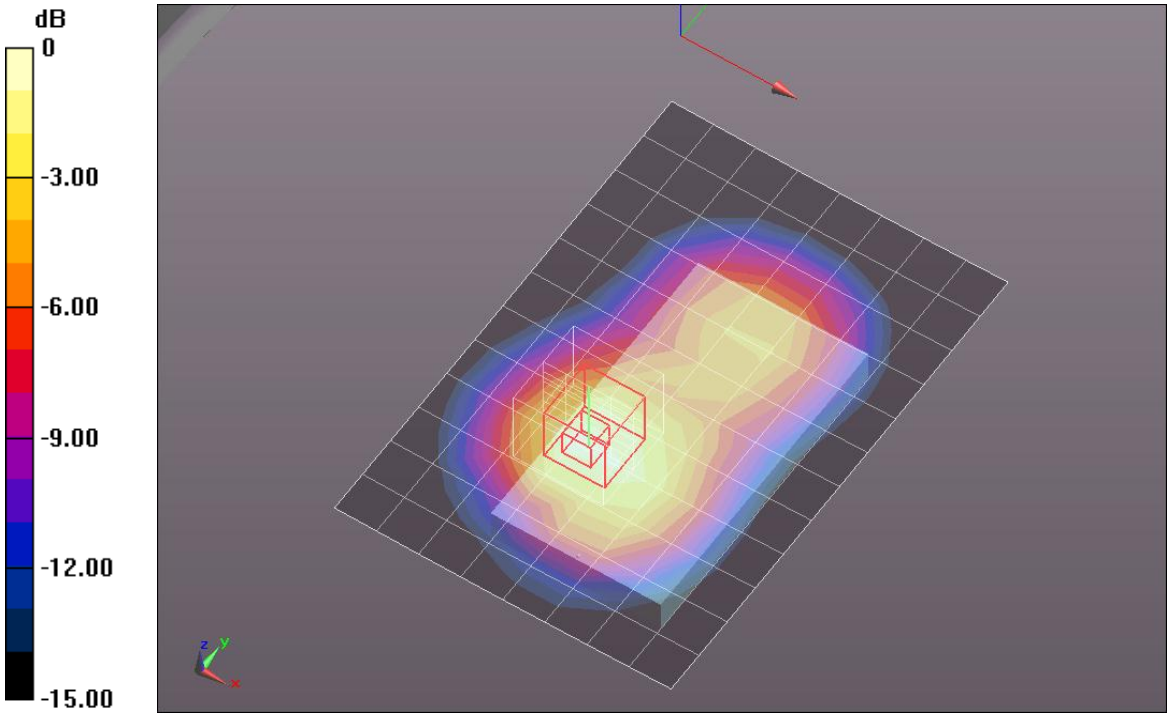
Frequency: 1908.75 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1908.75 MHz; $\sigma$ = 1.546 mho/m; $\varepsilon_r$ = 51.437; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE3 Sn500; Calibrated: 7/14/2011
- Probe: EX3DV4 - SN3773; ConvF(7.11, 7.11, 7.11); Calibrated: 3/14/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (A); Type: QDOVA001BB; Serial: 1120

### Rear/1xRTT_RC3 SO32_Ch 1175/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.361 mW/g

### Rear/1xRTT_RC3 SO32_Ch 1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.028 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.8560
**SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.653 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.423 mW/g



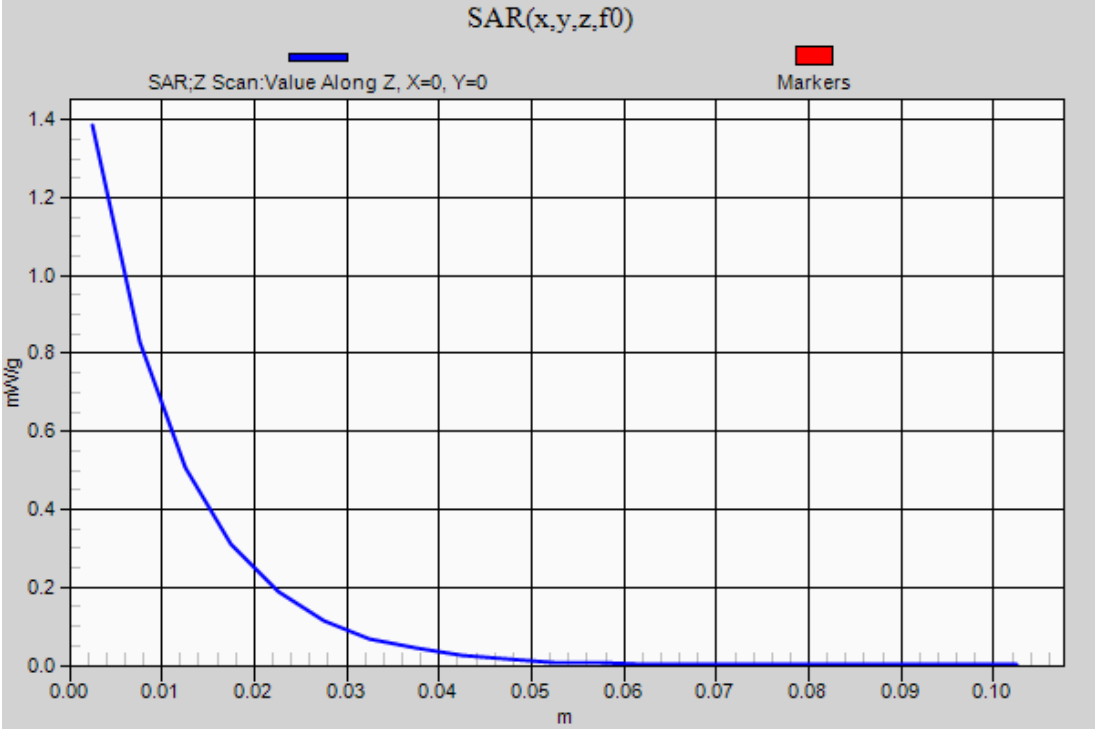

0 dB = 1.420mW/g = 3.05 dB mW/g

Test Laboratory: UL CCS SAR Lab C
Date: 5/29/2012

## CDMA2000-BC1

Frequency: 1908.75 MHz; Duty Cycle: 1:1

**Rear/1xRTT_RC3 SO32_Ch 1175/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.385 mW/g



Test Laboratory: UL CCS SAR Lab B Date: 6/7/2012

## CDMA 2000 - BC15

Frequency: 1732.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1732.5 MHz; $\sigma$ = 1.335 mho/m; $\varepsilon_r$ = 39.359; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.65, 7.65, 7.65); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1629

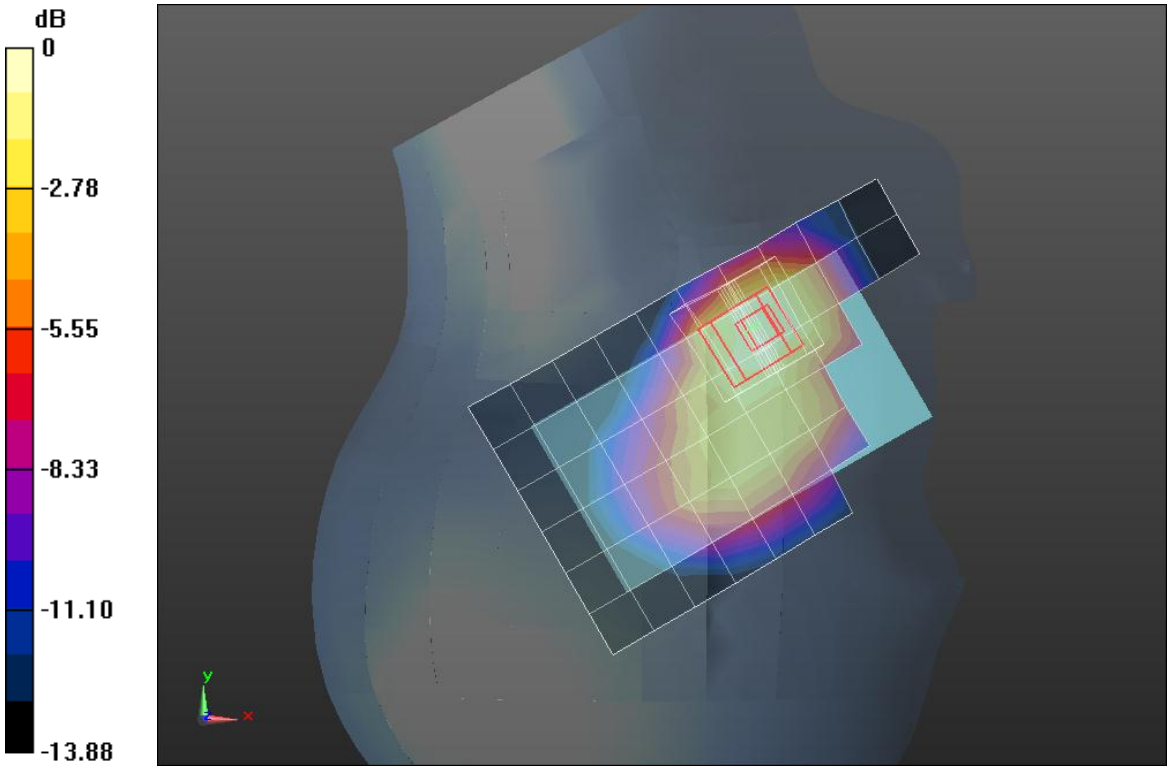
### Right Touch/1xRTT_RC3 SO55/Ch 450/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.605 mW/g

### Right Touch/1xRTT_RC3 SO55/Ch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.985 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.8980
**SAR(1 g) = 0.575 mW/g; SAR(10 g) = 0.340 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.717 mW/g




0 dB = 0.720mW/g = -2.85 dB mW/g

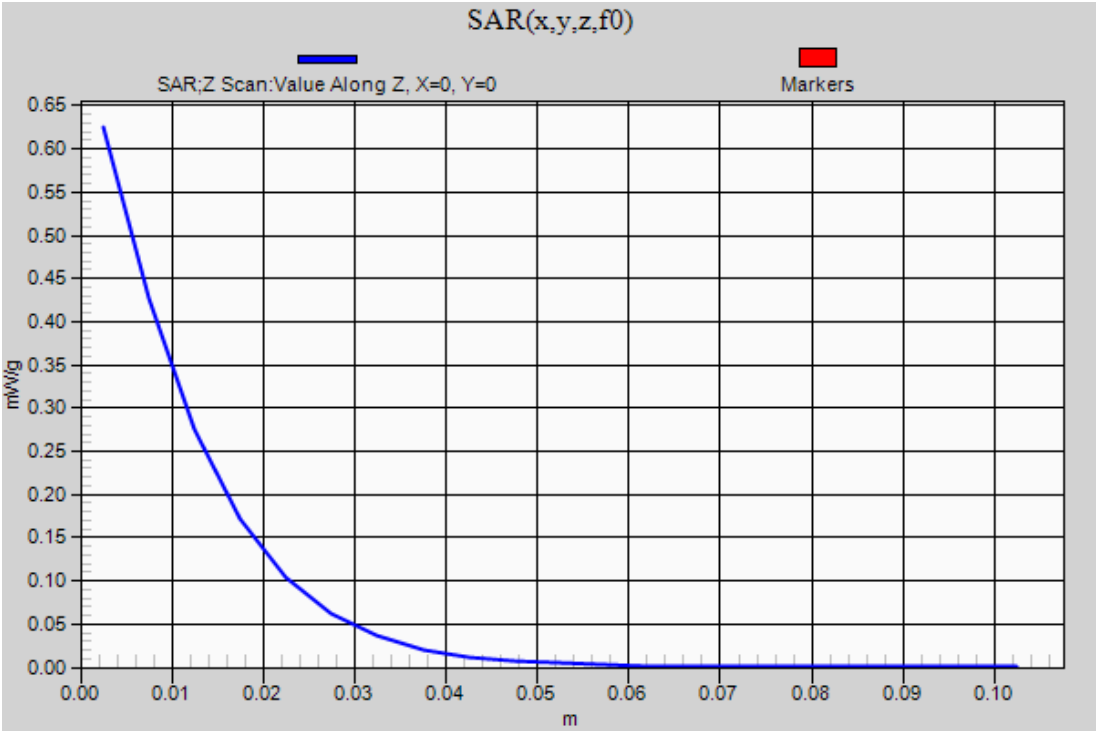
Test Laboratory: UL CCS SAR Lab B Date: 6/7/2012

## CDMA 2000 - BC15

Frequency: 1732.5 MHz; Duty Cycle: 1:1

**Right Touch/1xRTT_RC3 SO55/Ch 450/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.625 mW/g



Test Laboratory: UL CCS SAR Lab B Date: 6/7/2012

## CDMA 2000 - BC15

Frequency: 1732.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1732.5 MHz; $\sigma$ = 1.335 mho/m; $\varepsilon_r$ = 39.359; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.65, 7.65, 7.65); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1629

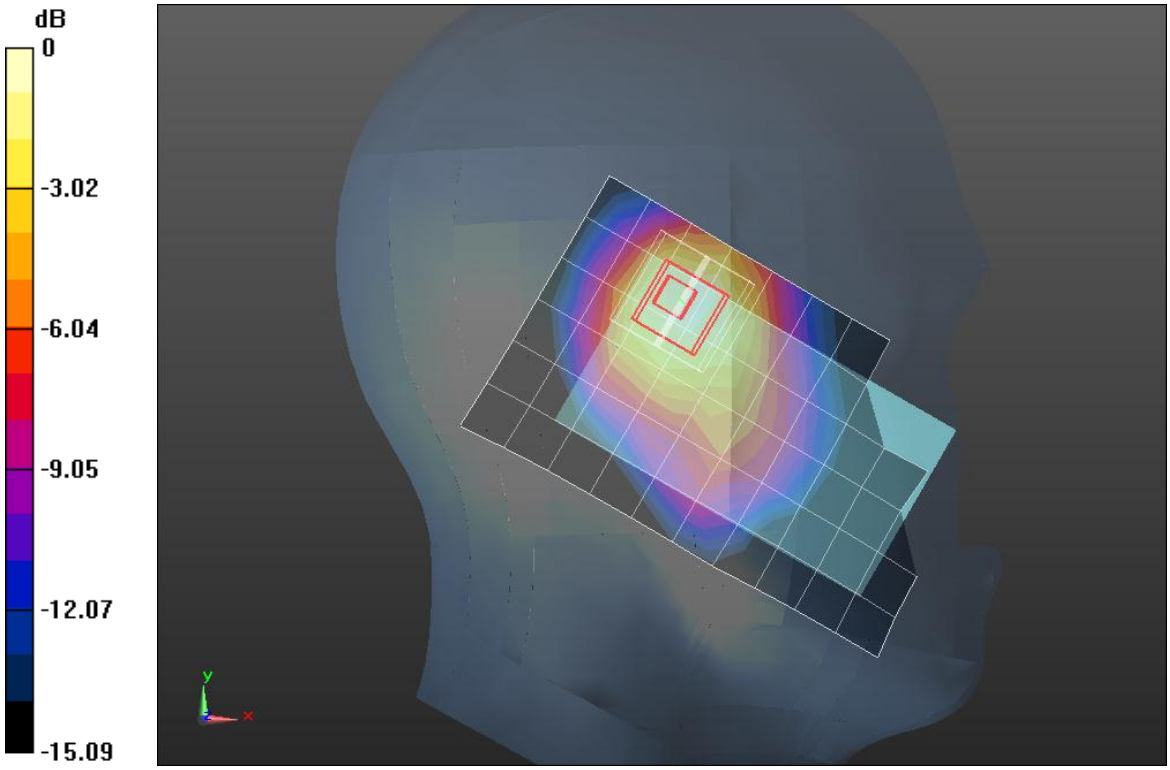
### Left Touch/1xEVDO_Rel.0/Ch 450/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.752 mW/g

### Left Touch/1xEVDO_Rel.0/Ch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.952 V/m; Power Drift = 0.00053 dB
Peak SAR (extrapolated) = 1.2400
**SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.383 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.863 mW/g




0 dB = 0.860mW/g = -1.31 dB mW/g

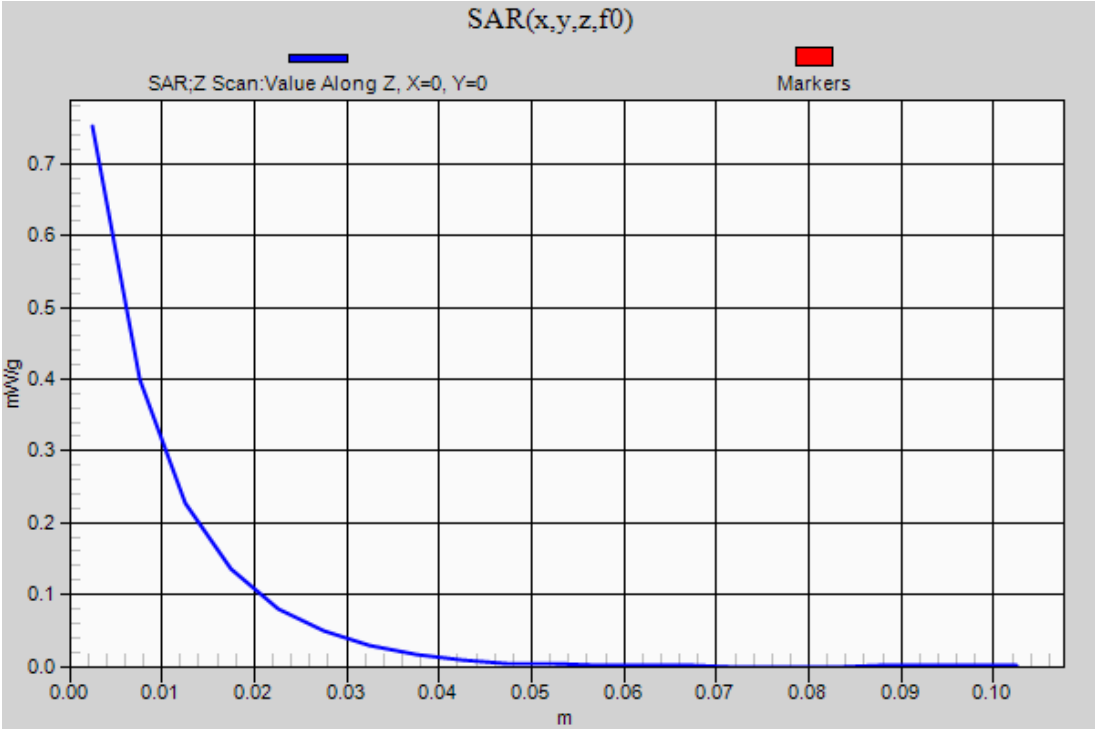
Test Laboratory: UL CCS SAR Lab B Date: 6/7/2012

## CDMA 2000 - BC15

Frequency: 1732.5 MHz; Duty Cycle: 1:1

### Left Touch/1xEVDO_Rel.0/Ch 450/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.752 mW/g



Test Laboratory: UL CCS SAR Lab B Date: 6/6/2012

## CDMA2000-BC15

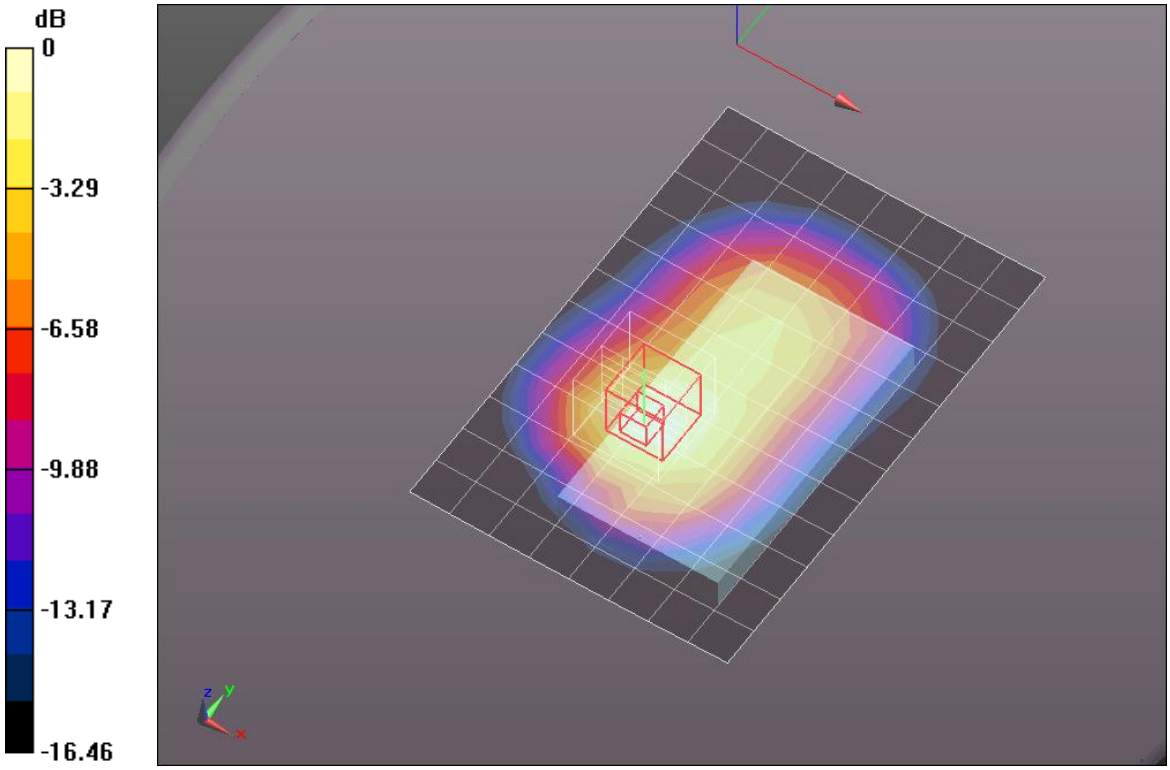
Frequency: 1732.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1732.5 MHz; $\sigma$ = 1.419 mho/m; $\varepsilon_r$ = 52.944; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.44, 7.44, 7.44); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118

### Rear/1xRTT_SO32_Ch 450/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.848 mW/g

### Rear/1xRTT_SO32_Ch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.921 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.0710
**SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.419 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.854 mW/g



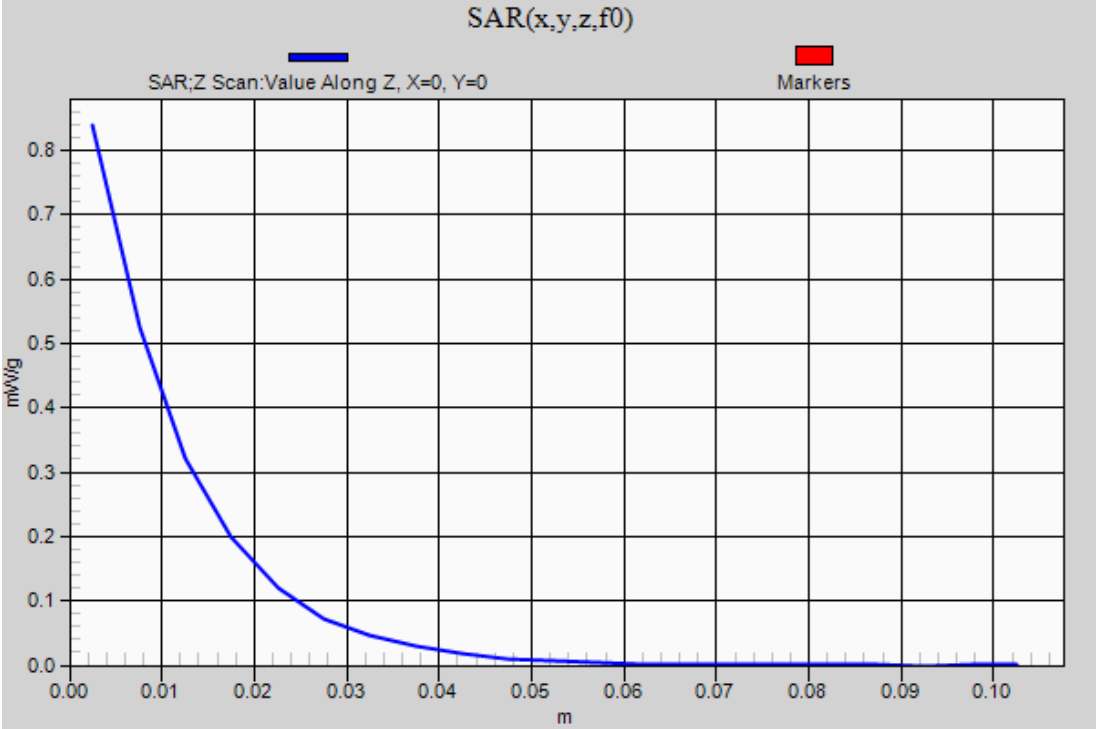

0 dB = 0.850mW/g = -1.41 dB mW/g

Test Laboratory: UL CCS SAR Lab B Date: 6/6/2012

## CDMA2000-BC15

Frequency: 1732.5 MHz; Duty Cycle: 1:1

**Rear/1xRTT_SO32_Ch 450/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.839 mW/g



Test Laboratory: UL CCS SAR Lab B Date: 6/7/2012

## CDMA2000-BC15

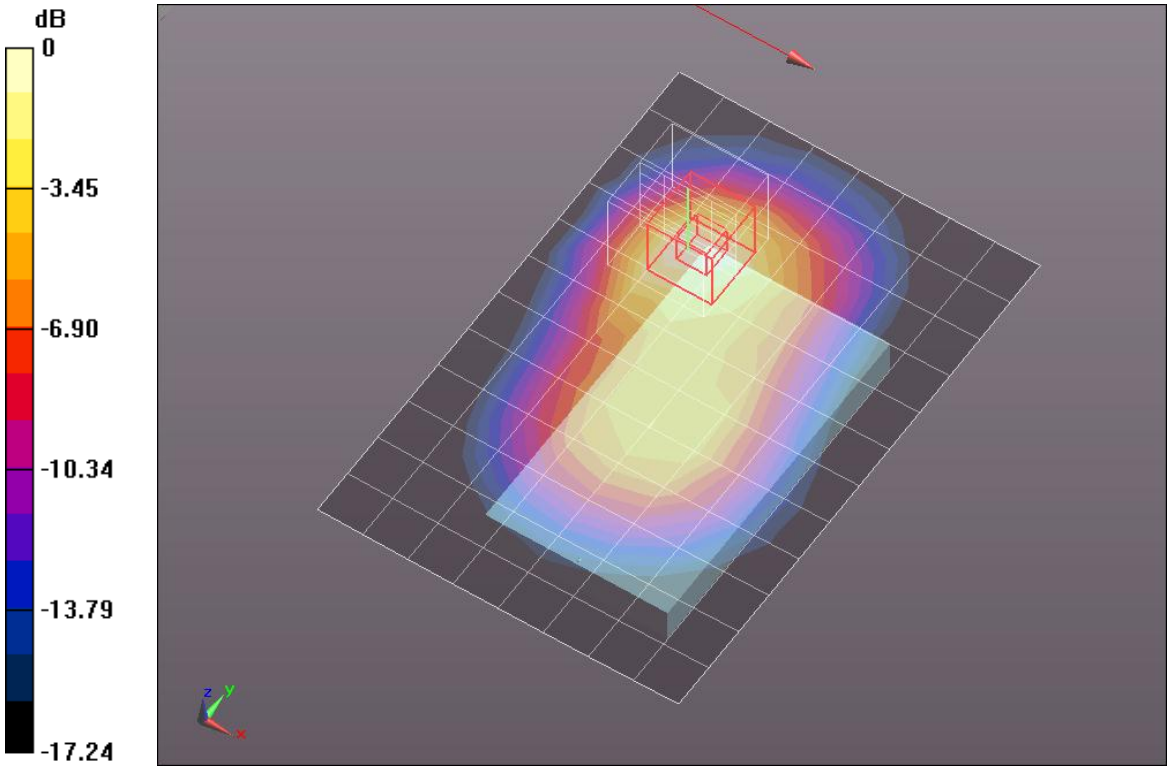
Frequency: 1732.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1732.5 MHz; $\sigma$ = 1.419 mho/m; $\varepsilon_r$ = 52.944; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.44, 7.44, 7.44); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118

### Rear/1xEVDO_Rel.0_Ch 450/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.793 mW/g

### Rear/1xEVDO_Rel.0_Ch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.087 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.1340
**SAR(1 g) = 0.670 mW/g; SAR(10 g) = 0.379 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.853 mW/g



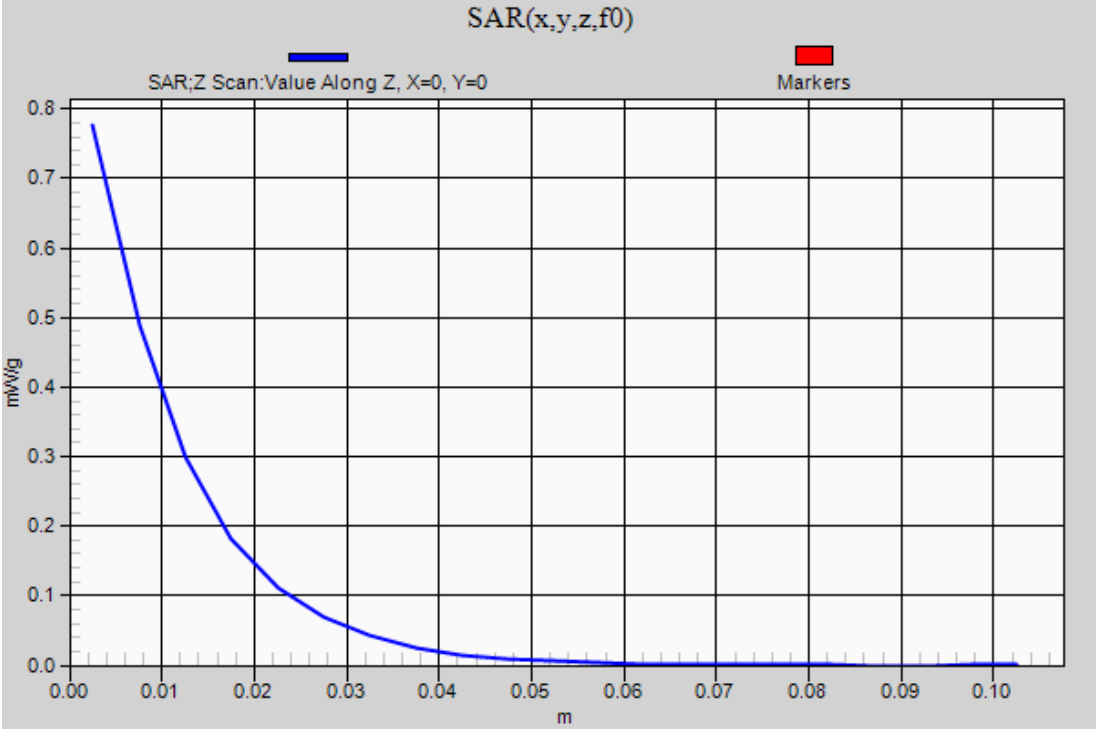

0 dB = 0.850mW/g = -1.41 dB mW/g

Test Laboratory: UL CCS SAR Lab B Date: 6/7/2012

## CDMA2000-BC15

Frequency: 1732.5 MHz; Duty Cycle: 1:1

**Rear/1xEVDO_Rel.0_Ch 450/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.776 mW/g



Test Laboratory: UL CCS SAR Lab B Date: 6/5/2012

## LTE Band4

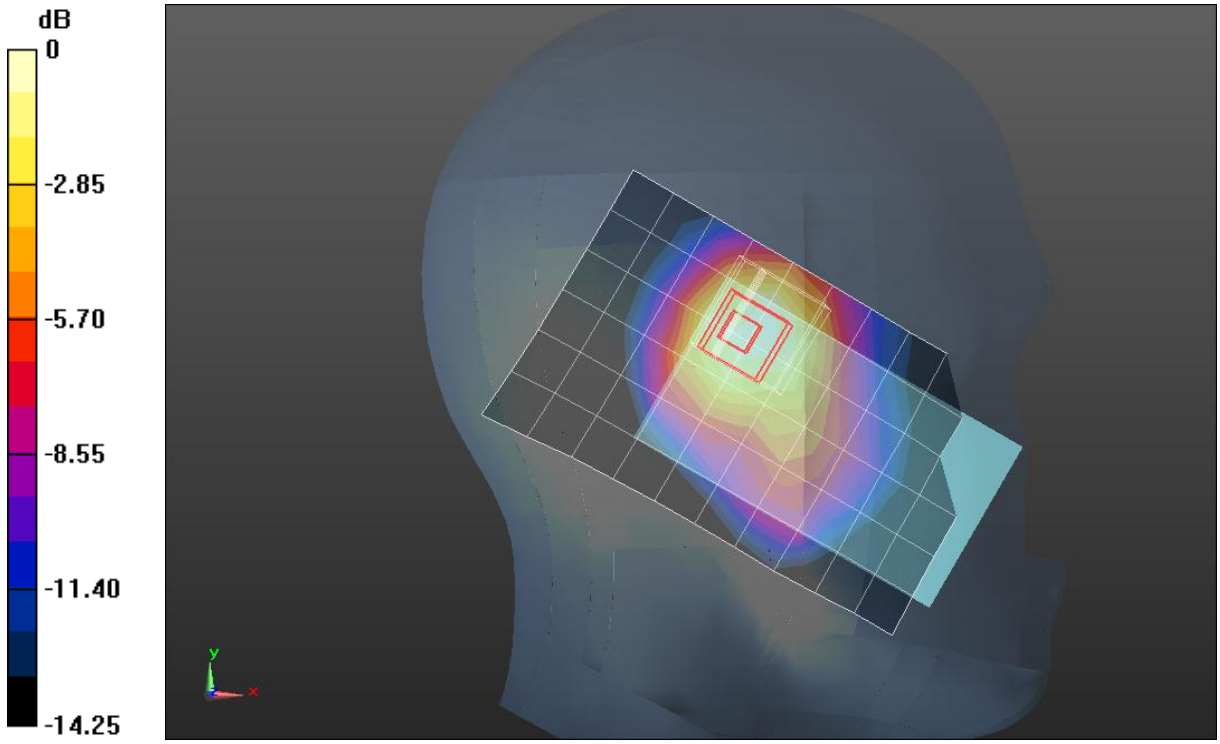
Frequency: 1732.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1732.5 MHz; $\sigma$ = 1.342 mho/m; $\varepsilon_r$ = 39.923; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.65, 7.65, 7.65); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1629

### Left Touch/QPSK_RB 1_49/Ch 20175/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.857 mW/g

### Left Touch/QPSK_RB 1_49/Ch 20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.500 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.2910
**SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.394 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.858 mW/g



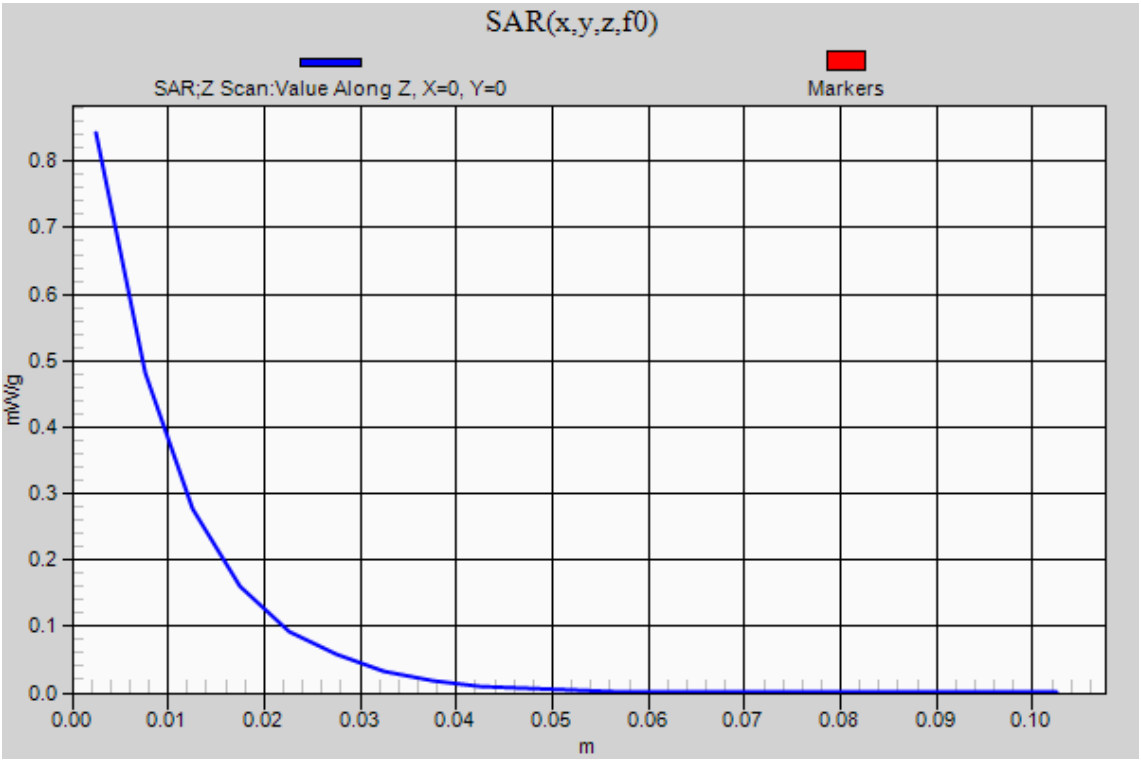

0 dB = 0.860mW/g = -1.31 dB mW/g

Test Laboratory: UL CCS SAR Lab B Date: 6/5/2012

## LTE Band4

Frequency: 1732.5 MHz; Duty Cycle: 1:1

**Left Touch/QPSK_RB 1_49/Ch 20175/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.843 mW/g



Test Laboratory: UL CCS SAR Lab B Date: 6/8/2012

## LTE Band4

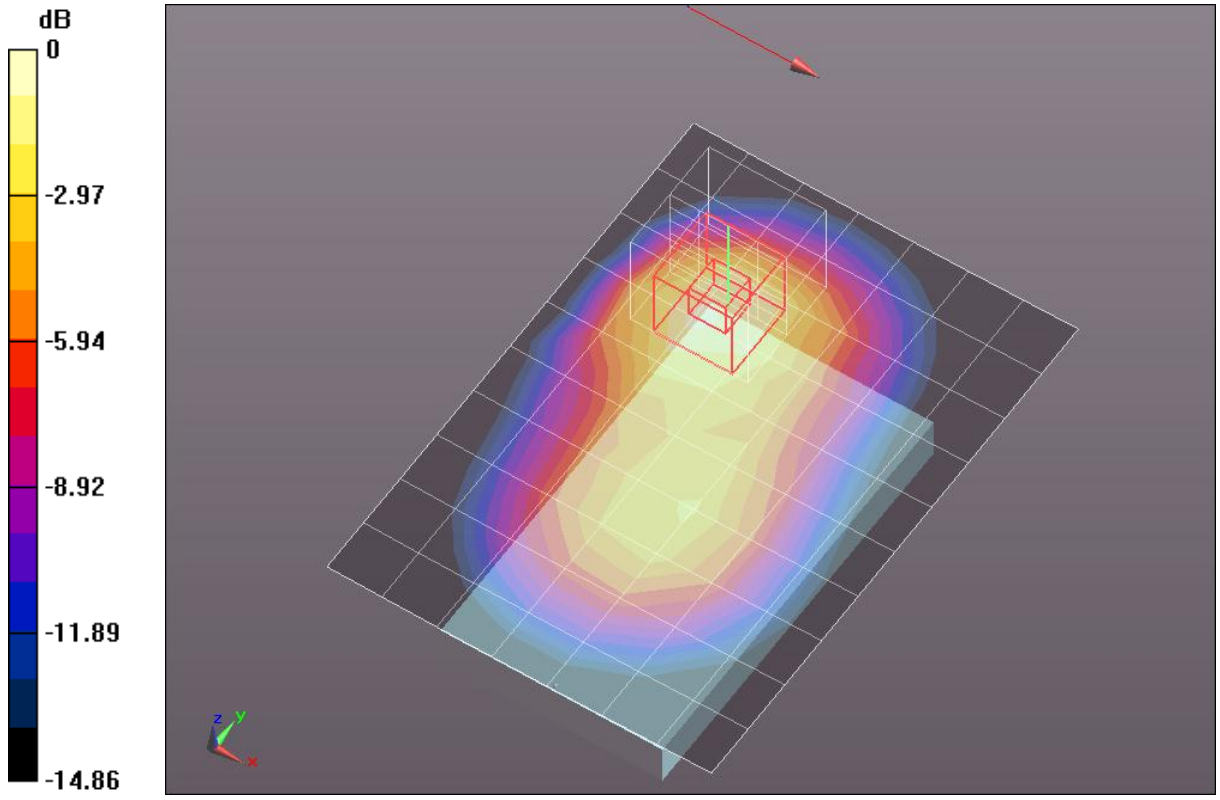
Frequency: 1732.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1732.5 MHz; $\sigma$ = 1.454 mho/m; $\varepsilon_r$ = 53.328; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.44, 7.44, 7.44); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118

### Rear/QPSK RB 1_49/Ch 20175/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.826 mW/g

### Rear/QPSK RB 1_49/Ch 20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.275 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.2160
**SAR(1 g) = 0.728 mW/g; SAR(10 g) = 0.416 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.940 mW/g




0 dB = 0.940mW/g = -0.54 dB mW/g

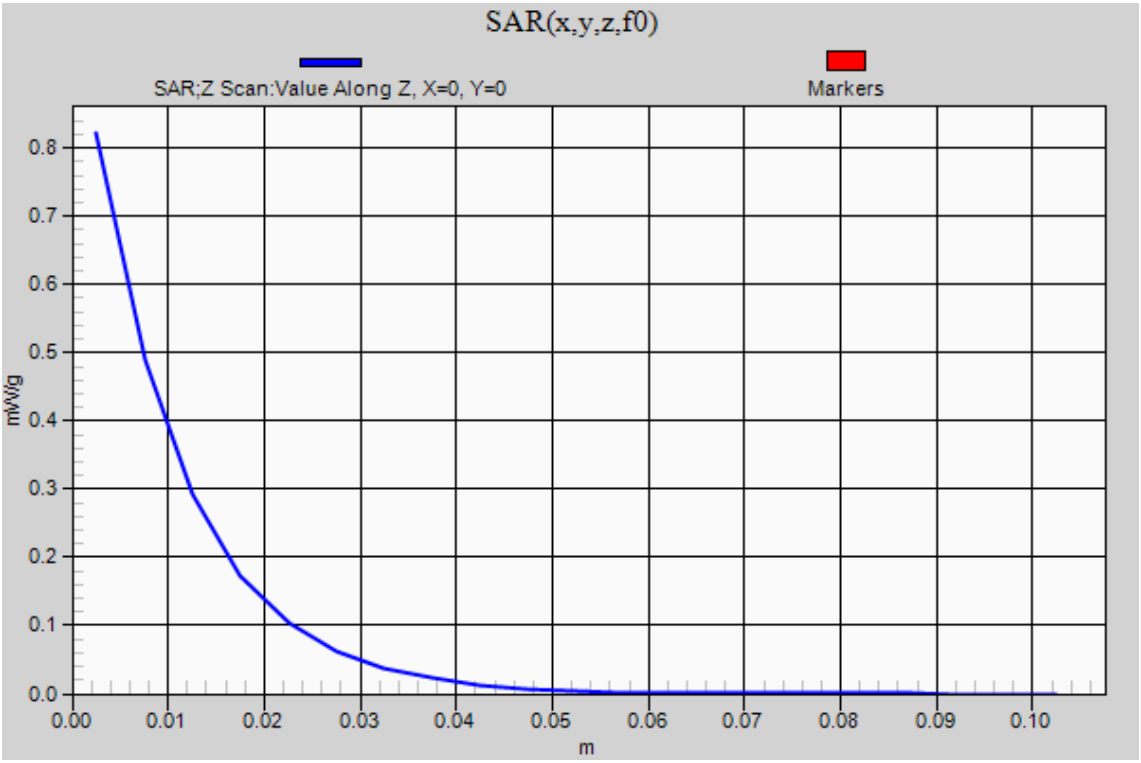
Test Laboratory: UL CCS SAR Lab B Date: 6/8/2012

## LTE Band4

Frequency: 1732.5 MHz; Duty Cycle: 1:1

## Rear/QPSK RB 1_49/Ch 20175/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.822 mW/g



Test Laboratory: UL CCS SAR Lab C Date: 6/1/2012

## LTE Band2

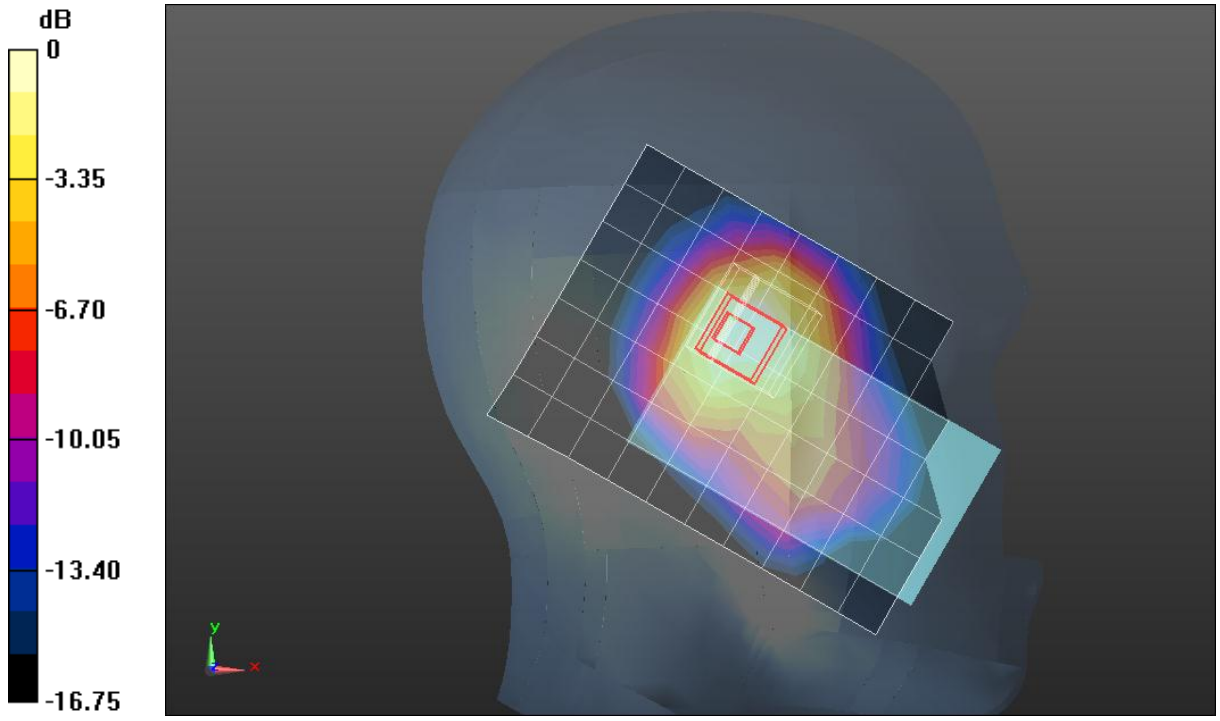
Frequency: 1880 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.388 mho/m; $\varepsilon_r$ = 38.603; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1257; Calibrated: 10/25/2011
- Probe: EX3DV4 - SN3773; ConvF(7.51, 7.51, 7.51); Calibrated: 3/14/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM; Type: QD000P40CD; Serial: 1632

### Left Touch/QPSK RB 1_49/Ch 18900/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.198 mW/g

### Left Touch/QPSK RB 1_49/Ch 18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.939 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.6640
**SAR(1 g) = 0.948 mW/g; SAR(10 g) = 0.551 mW/g**
Maximum value of SAR (measured) = 1.182 mW/g



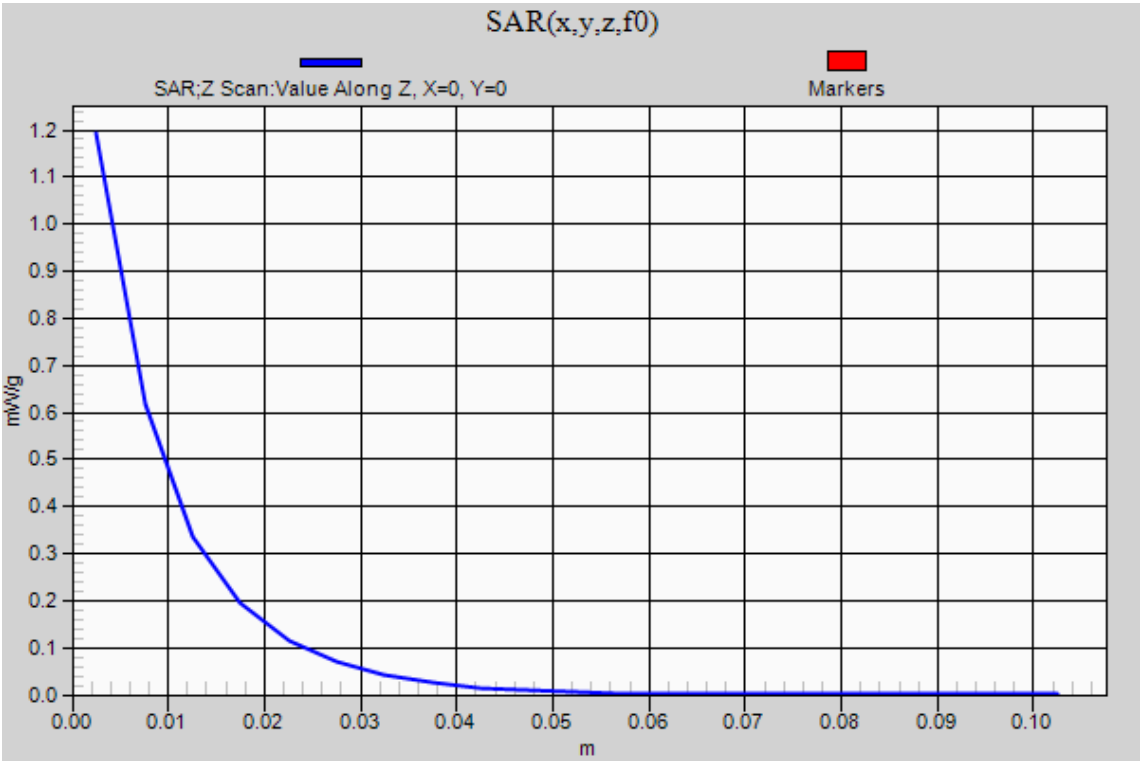

0 dB = 1.180mW/g = 1.44 dB mW/g

Test Laboratory: UL CCS SAR Lab C
Date: 6/1/2012

## LTE Band2

Frequency: 1880 MHz; Duty Cycle: 1:1

**Left Touch/QPSK RB 1_49/Ch 18900/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 1.193 mW/g



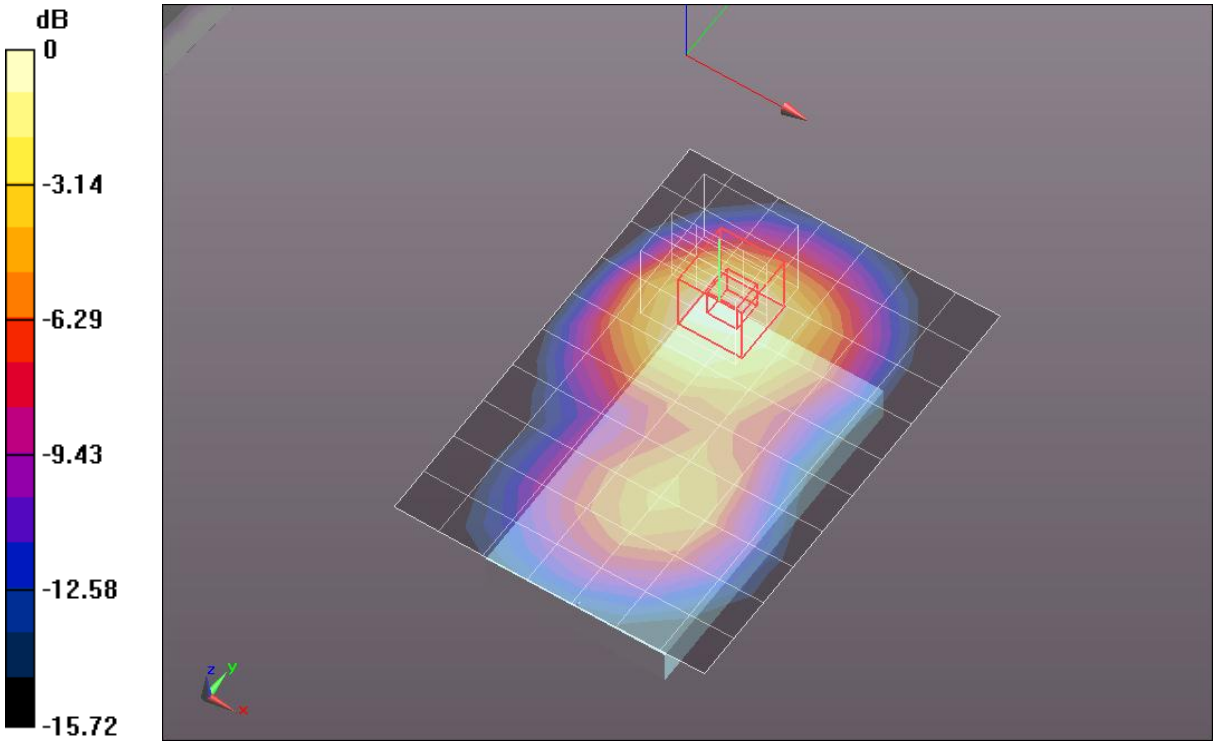
Test Laboratory: UL CCS SAR Lab B Date: 6/5/2012

## LTE Band2

Frequency: 1880 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.528 mho/m; $\varepsilon_r$ = 51.289; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1259; Calibrated: 2/13/2012
- Probe: EX3DV4 - SN3686; ConvF(7.04, 7.04, 7.04); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (A); Type: QDOVA001BB; Serial: 1120

**Rear/QPSK_RB 1_49/Ch 18900/Area Scan (8x11x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.846 mW/g

**Rear/QPSK_RB 1_49/Ch 18900/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.854 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.2940
**SAR(1 g) = 0.761 mW/g; SAR(10 g) = 0.447 mW/g**
Maximum value of SAR (measured) = 0.985 mW/g



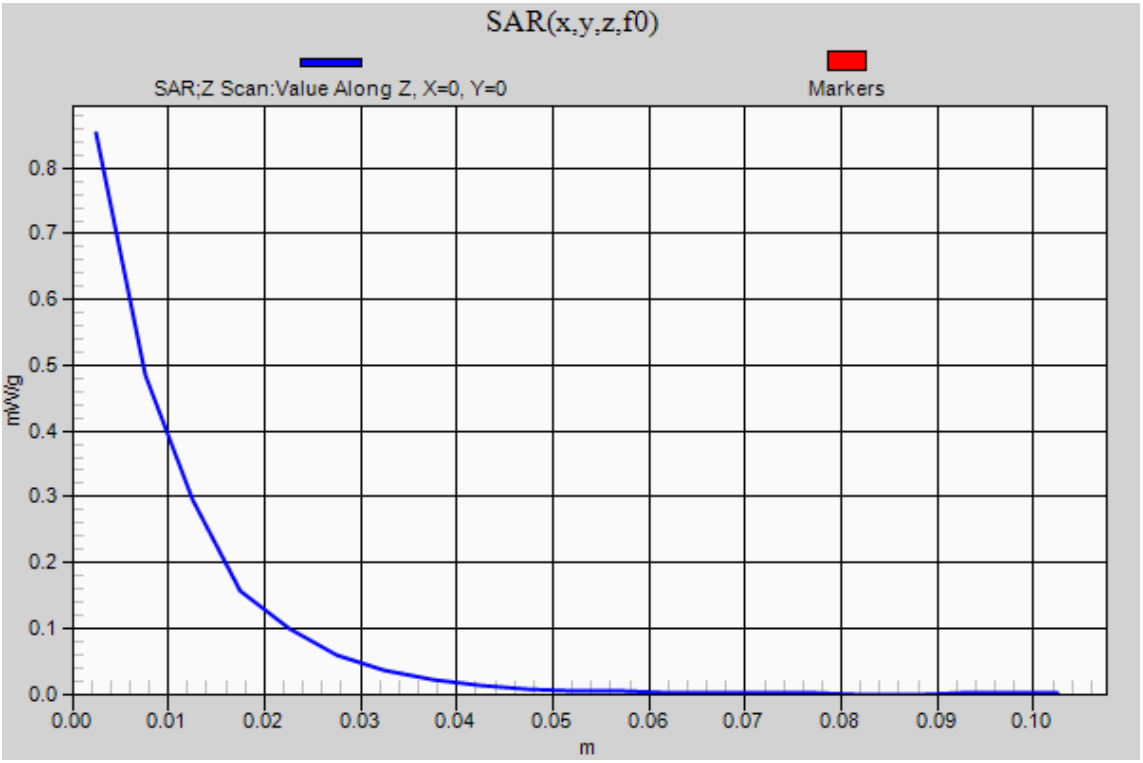

0 dB = 0.980mW/g = -0.18 dB mW/g

Test Laboratory: UL CCS SAR Lab B
Date: 6/5/2012

## LTE Band2

Frequency: 1880 MHz; Duty Cycle: 1:1

**Rear/QPSK_RB 1_49/Ch 18900/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.853 mW/g



Test Laboratory: UL CCS SAR Lab A Date: 6/8/2012

## WiFi 2.4GHz

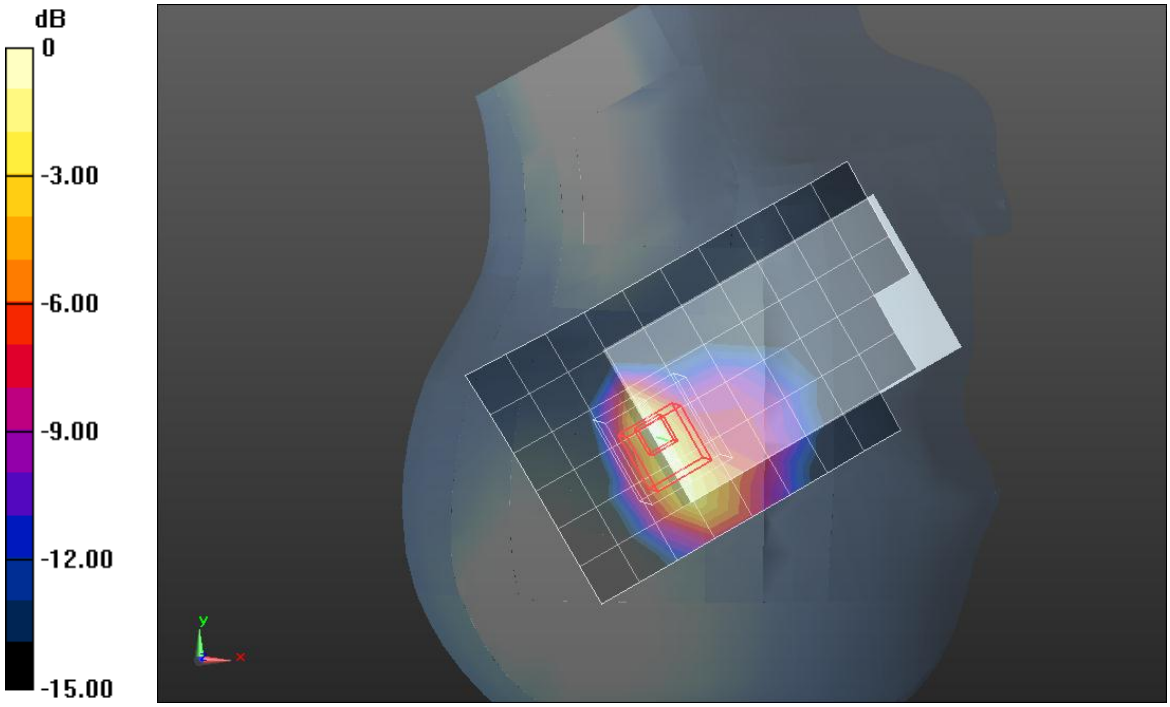
Frequency: 2412 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 2412 MHz; $\sigma$ = 1.756 mho/m; $\varepsilon_r$ = 40.763; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1258; Calibrated: 3/8/2012
- Probe: EX3DV4 - SN3772; ConvF(6.64, 6.64, 6.64); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: SAM v5.0 (A); Type: QD000P40CC; Serial: 1602

### Right Tilt/802.11b/Ch 1/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.213 mW/g

### Right Tilt/802.11b/Ch 1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.143 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.3070
**SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.065 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.



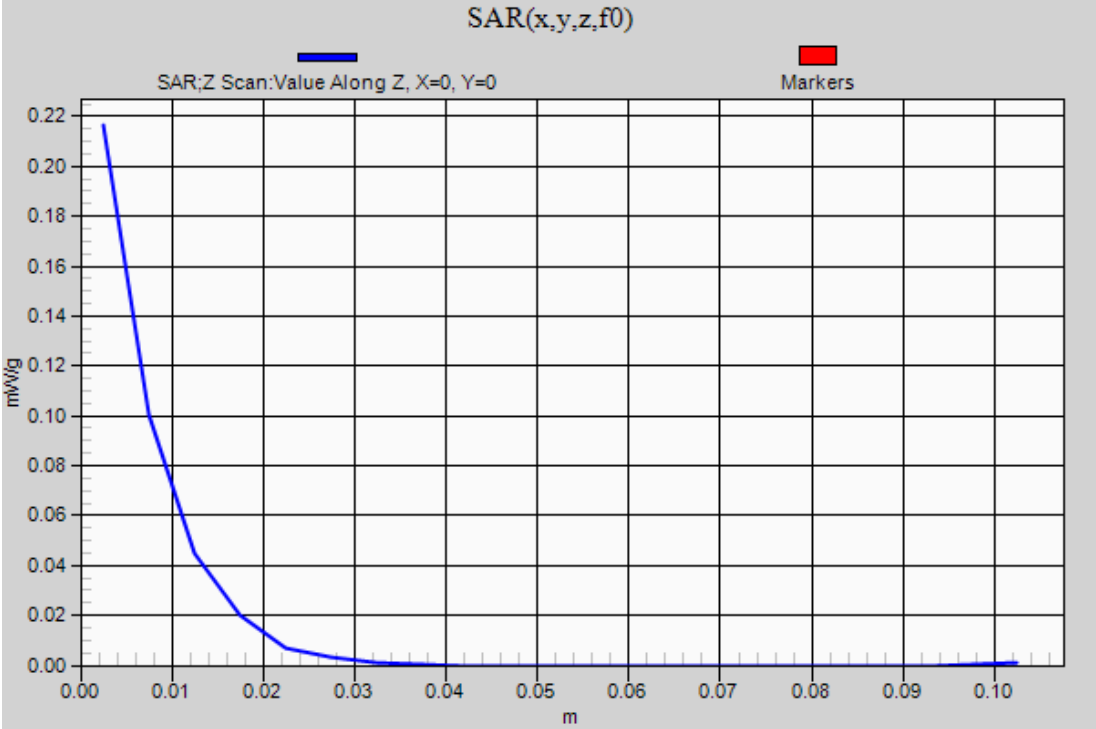

0 dB = 0.210mW/g = -13.56 dB mW/g

Test Laboratory: UL CCS SAR Lab A
Date: 6/8/2012

## WiFi 2.4GHz

Frequency: 2412 MHz; Duty Cycle: 1:1

**Right Tilt/802.11b/Ch 1/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.216 mW/g



Test Laboratory: UL CCS SAR Lab A
Date: 6/8/2012

## WiFi 2.4GHz

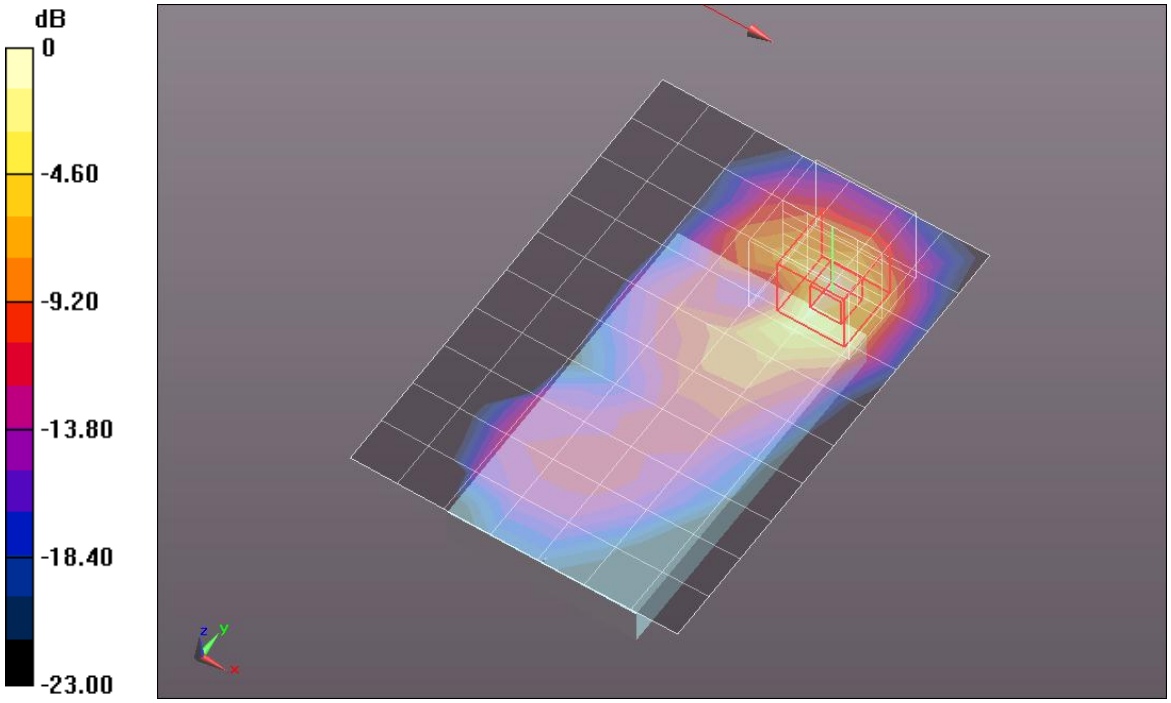
Frequency: 2412 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 2412 MHz; $\sigma$ = 1.938 mho/m; $\varepsilon_r$ = 53.991; $\rho$ = 1000 kg/m$^3$
DASY5 Configuration:
- Electronics: DAE4 Sn1258; Calibrated: 3/8/2012
- Probe: EX3DV4 - SN3772; ConvF(6.65, 6.65, 6.65); Calibrated: 2/16/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1099

### Rear/802.11b/Ch 1/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.239 mW/g

### Rear/802.11b/Ch 1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.102 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.3850
**SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.078 mW/g**
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.263 mW/g



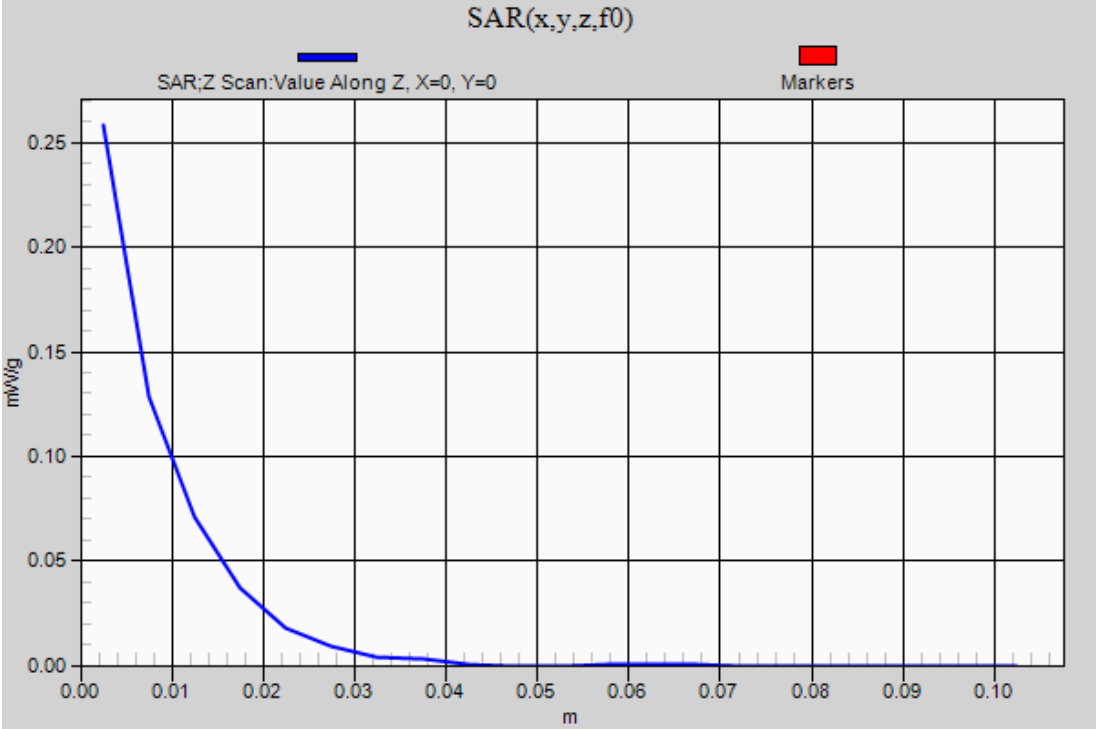

0 dB = 0.260mW/g = -11.70 dB mW/g

Test Laboratory: UL CCS SAR Lab A
Date: 6/8/2012

## WiFi 2.4GHz

Frequency: 2412 MHz; Duty Cycle: 1:1

**Rear/802.11b/Ch 1/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.258 mW/g



# 16. Simultaneous Transmission SAR Analysis

**Simultaneous Transmission SAR Test Exclusion for Bluetooth**

As its max average power is 7.41 mW [<60/f(GHz) mW], standalone SAR is not required for Bluetooth. Therefore, Bluetooth need not be considered in the simultaneous transmission SAR evaluation of other transmitters.

## 16.1. Head Exposure Conditions

### 16.1.1. Sum of the SAR for SV-DO & WiFi, with all Transmitters at Maximum Power

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Left Tilt | 0.280 | | | 0.637 | | 0.118 | 1.035 |
| | 0.280 | | | | 0.571 | 0.118 | 0.969 |
| | | 0.286 | | 0.637 | | 0.118 | 1.041 |
| | | 0.286 | | | 0.571 | 0.118 | 0.975 |
| | | | 0.172 | 0.637 | | 0.118 | 0.927 |
| | | | 0.172 | | 0.571 | 0.118 | 0.861 |
| Right Tilt | 0.305 | | | 0.639 | | 0.142 | 1.086 |
| | 0.305 | | | | 0.534 | 0.142 | 0.981 |
| | | 0.306 | | 0.639 | | 0.142 | 1.087 |
| | | 0.306 | | | 0.534 | 0.142 | 0.982 |
| | | | 0.226 | 0.639 | | 0.142 | 1.007 |
| | | | 0.226 | | 0.534 | 0.142 | 0.902 |

**SAR to Peak Location Separation Ratio (SPLSR)**

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

### 16.1.2. Sum of the SAR for SV-DO & WiFi, with Voice Mode Power Reduction

This is equivalent to SAR $_{(Reduced\ Power\ 1xRTT)}$ + SAR $_{(Max\ Power\ 1xEVDO)}$ + SAR $_{(Max\ Power\ WiFi)}$, which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVDO Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **CDMA EVDO Max. Power for BC1 & BC15** |
| **SVDO** | P < 15.5 dBm | **23.5dBm (Limited)** |
| | P ≥ 15.5 dBm | **18.5dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at a slightly higher power level than the trigger point shown in the table

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Left Touch | 0.094 | | | 0.979 | | 0.099 | 1.172 |
| | 0.094 | | | | 0.668 | 0.099 | 0.861 |
| | | 0.086 | | 0.979 | | 0.099 | 1.164 |
| | | 0.086 | | | 0.668 | 0.099 | 0.853 |
| | | | 0.108 | 0.979 | | 0.099 | 1.186 |
| | | | 0.108 | | 0.668 | 0.099 | 0.875 |
| Right Touch | 0.109 | | | 0.652 | | 0.136 | 0.897 |
| | 0.109 | | | | 0.469 | 0.136 | 0.714 |
| | | 0.106 | | 0.652 | | 0.136 | 0.894 |
| | | 0.106 | | | 0.469 | 0.136 | 0.711 |
| | | | 0.124 | 0.652 | | 0.136 | 0.912 |
| | | | 0.124 | | 0.469 | 0.136 | 0.729 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

### 16.1.3. Sum of the SAR for SV-DO & WiFi, with Data Mode Power Reduction

This is equivalent to: SAR $_{(Max\ Power\ 1xRTT)}$ + SAR $_{(Reduced\ Power\ 1xEVDO)}$ + SAR $_{(Max\ Power\ WiFi),}$ which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVDO Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **CDMA EVDO Max. Power for BC1 & BC15** |
| **SVDO** | P < 15.5 dBm | **23.5dBm (Limited)** |
| | P ≥ 15.5 dBm | **18.5dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at the maximum target output power level.

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Left Touch | 0.467 | | | 0.284 | | 0.099 | 0.850 |
| | 0.467 | | | | 0.190 | 0.099 | 0.756 |
| | | 0.642 | | 0.284 | | 0.099 | 1.025 |
| | | 0.642 | | | 0.190 | 0.099 | 0.931 |
| | | | 0.492 | 0.284 | | 0.099 | 0.875 |
| | | | 0.492 | | 0.190 | 0.099 | 0.781 |
| Right Touch | 0.525 | | | 0.207 | | 0.136 | 0.868 |
| | 0.525 | | | | 0.142 | 0.136 | 0.803 |
| | | 0.727 | | 0.207 | | 0.136 | 1.070 |
| | | 0.727 | | | 0.142 | 0.136 | 1.005 |
| | | | 0.575 | 0.207 | | 0.136 | 0.918 |
| | | | 0.575 | | 0.142 | 0.136 | 0.853 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

### 16.1.4. Sum of the SAR for SV-LTE & WiFi, with all Transmitters at Maximum Power

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Left Tilt | 0.28 | | | 0.655 | | 0.118 | 1.053 |
| | 0.28 | | | | 0.560 | 0.118 | 0.958 |
| | | 0.286 | | 0.655 | | 0.118 | 1.059 |
| | | 0.286 | | | 0.560 | 0.118 | 0.964 |
| | | | 0.172 | 0.655 | | 0.118 | 0.945 |
| | | | 0.172 | | 0.560 | 0.118 | 0.850 |
| Right Tilt | 0.305 | | | 0.534 | | 0.142 | 0.981 |
| | 0.305 | | | | 0.553 | 0.142 | 1.000 |
| | | 0.306 | | 0.534 | | 0.142 | 0.982 |
| | | 0.306 | | | 0.553 | 0.142 | 1.001 |
| | | | 0.226 | 0.534 | | 0.142 | 0.902 |
| | | | 0.226 | | 0.553 | 0.142 | 0.921 |

**SAR to Peak Location Separation Ratio (SPLSR)**

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

### 16.1.5. Sum of the SAR for SV-LTE & WiFi, with Voice Mode Power Reduction

This is equivalent to SAR $_{(Reduced\ Power\ 1xRTT)}$ + SAR $_{(Max\ Power\ LTE)}$ + SAR $_{(Max\ Power\ WiFi)}$, which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVLTE Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **LTE Max. Power for B2 & B4** |
| **SVLTE** | P < 18.5 dBm | **22.8dBm (Limited)** |
| | P ≥ 18.5 dBm | **18.8dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at a slightly higher power level than the trigger point shown in the table.

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Left Touch | 0.195 | | | 0.948 | | 0.099 | 1.242 |
| | 0.195 | | | | 0.693 | 0.099 | 0.987 |
| | | 0.165 | | 0.948 | | 0.099 | 1.212 |
| | | 0.165 | | | 0.693 | 0.099 | 0.957 |
| | | | 0.136 | 0.948 | | 0.099 | 1.183 |
| | | | 0.136 | | 0.693 | 0.099 | 0.928 |
| Right Touch | 0.213 | | | 0.618 | | 0.136 | 0.967 |
| | 0.213 | | | | 0.550 | 0.136 | 0.899 |
| | | 0.189 | | 0.618 | | 0.136 | 0.943 |
| | | 0.189 | | | 0.550 | 0.136 | 0.875 |
| | | | 0.158 | 0.618 | | 0.136 | 0.912 |
| | | | 0.158 | | 0.550 | 0.136 | 0.844 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

### 16.1.6. Sum of the SAR for SV-LTE & WiFi, with Power Reduction for Data Mode

This is equivalent to: SAR $_{(Max\ Power\ 1xRTT)}$ + SAR $_{(Reduced\ Power\ LTE)}$ + SAR $_{(Max\ Power\ WiFi),}$ which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVLTE Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **LTE Max. Power for B2 & B4** |
| **SVLTE** | P < 18.5 dBm | **22.8dBm (Limited)** |
| | P ≥ 18.5 dBm | **18.8dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at the maximum target output power level.

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Left Touch | 0.467 | | | 0.371 | | 0.099 | 0.937 |
| | 0.467 | | | | 0.206 | 0.099 | 0.772 |
| | | 0.642 | | 0.371 | | 0.099 | 1.112 |
| | | 0.642 | | | 0.206 | 0.099 | 0.947 |
| | | | 0.492 | 0.371 | | 0.099 | 0.962 |
| | | | 0.492 | | 0.206 | 0.099 | 0.797 |
| Right Touch | 0.525 | | | 0.290 | | 0.136 | 0.951 |
| | 0.525 | | | | 0.165 | 0.136 | 0.826 |
| | | 0.727 | | 0.290 | | 0.136 | 1.153 |
| | | 0.727 | | | 0.165 | 0.136 | 1.028 |
| | | | 0.575 | 0.290 | | 0.136 | 1.001 |
| | | | 0.575 | | 0.165 | 0.136 | 0.876 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

## 16.2. Body Exposure Conditions

### 16.2.1. Sum of the SAR for SV-DO & WiFi, with all Transmitters at Maximum Power

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Front | 0.554 | | | 0.448 | | 0.033 | 1.035 |
| | 0.554 | | | | 0.307 | 0.033 | 0.894 |
| | | 0.608 | | 0.448 | | 0.033 | 1.089 |
| | | 0.608 | | | 0.307 | 0.033 | 0.948 |
| | | | 0.49 | 0.448 | | 0.033 | 0.971 |
| | | | 0.49 | | 0.307 | 0.033 | 0.830 |
| Edge 1 | | | | 0.307 | | 0.071 | 0.378 |
| | | | | | 0.127 | 0.071 | 0.198 |
| | | | | 0.307 | | 0.071 | 0.378 |
| | | | | | 0.127 | 0.071 | 0.198 |
| | | | | 0.307 | | 0.071 | 0.378 |
| | | | | | 0.127 | 0.071 | 0.198 |
| Edge 2 | 0.464 | | | 0.444 | | | 0.908 |
| | 0.464 | | | | 0.228 | | 0.692 |
| | | 0.242 | | 0.444 | | | 0.686 |
| | | 0.242 | | | 0.228 | | 0.470 |
| | | | 0.186 | 0.444 | | | 0.630 |
| | | | 0.186 | | 0.228 | | 0.414 |
| Edge 3 | 0.174 | | | | | | 0.174 |
| | 0.174 | | | | | | 0.174 |
| | | 1.06 | | | | | 1.060 |
| | | 1.06 | | | | | 1.060 |
| | | | 0.397 | | | | 0.397 |
| | | | 0.397 | | | | 0.397 |
| Edge 4 | 0.245 | | | | | | 0.245 |
| | 0.245 | | | | | 0.085 | 0.330 |
| | | 0.144 | | | | 0.085 | 0.229 |
| | | 0.144 | | | | 0.085 | 0.229 |
| | | | 0.130 | | | 0.085 | 0.215 |
| | | | 0.130 | | | 0.085 | 0.215 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

## 16.2.2. Sum of the SAR for SV-DO & WiFi, with Power Reduction for Voice Mode

This is equivalent to SAR $_{(Reduced\ Power\ 1xRTT)}$ + SAR $_{(Max\ Power\ 1xEVDO)}$ + SAR $_{(Max\ Power\ WiFi)}$, which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVDO Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **CDMA EVDO Max. Power for BC1 & BC15** |
| **SVDO** | P < 15.5 dBm | **23.5dBm (Limited)** |
| | P ≥ 15.5 dBm | **18.5dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at a slightly higher power level than the trigger point shown in the table.

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Rear | 0.14 | | | 1.03 | | 0.181 | 1.351 |
| | 0.14 | | | | 0.670 | 0.181 | 0.991 |
| | | 0.141 | | 1.03 | | 0.181 | 1.352 |
| | | 0.141 | | | 0.670 | 0.181 | 0.992 |
| | | | 0.134 | 1.03 | | 0.181 | 1.345 |
| | | | 0.134 | | 0.670 | 0.181 | 0.985 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

## 16.2.3. Sum of the SAR for SV-DO & WiFi, with Power Reduction for Data Mode

This is equivalent to: SAR $_{(Max\ Power\ 1xRTT)}$ + SAR $_{(Reduced\ Power\ 1xEVDO)}$ + SAR $_{(Max\ Power\ WiFi)}$, which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVDO Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **CDMA EVDO Max. Power for BC1 & BC15** |
| **SVDO** | P < 15.5 dBm | **23.5dBm (Limited)** |
| | P ≥ 15.5 dBm | **18.5dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at the maximum target output power level.

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Rear | 0.975 | | | 0.279 | | 0.181 | 1.435 |
| | 0.975 | | | | 0.223 | 0.181 | 1.379 |
| | | 1.120 | | 0.279 | | 0.181 | **1.580** |
| | | 1.120 | | | 0.223 | 0.181 | 1.524 |
| | | | 0.689 | 0.279 | | 0.181 | 1.149 |
| | | | 0.689 | | 0.223 | 0.181 | 1.093 |

**Note:**

| |
|---|
| 1.435 |
| 1.580 |
| 1.524 |

Denotes the select Simultaneous Transmission case(s) for which SAR scaling considerations are applied to

**Sum of the SAR with Scaled Values for Select Case(s)**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | CDMA BC1 1xEVDO | CDMA BC15 1xEVDO | WiFi 2.4 GHz | |
| Rear | 1.045 | | | 0.279 | | 0.181 | 1.505 |
| | | 1.173 | | 0.279 | | 0.181 | 1.633 |
| | | 1.173 | | | 0.223 | 0.181 | 1.577 |

## SAR to Peak Location Separation Ratio (SPLSR)

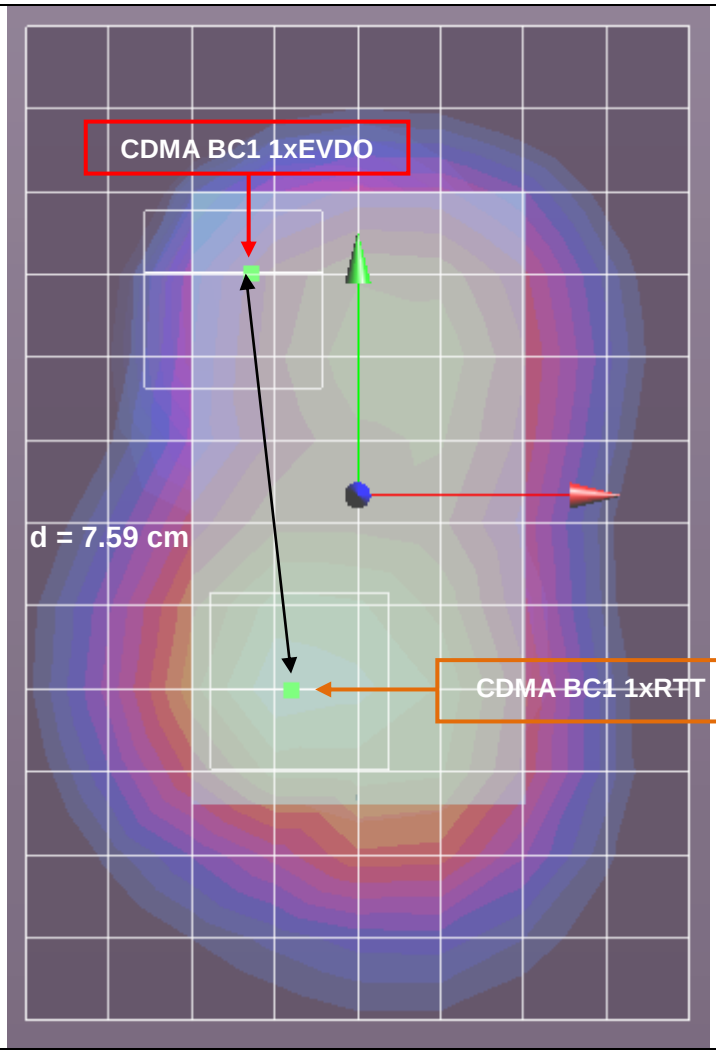
| Test Position | Worst-case combination | | | ∑ 1-g SAR (mW/g) | Calculated distance (cm) | SPLSR | Figure |
|---|---|---|---|---|---|---|---|
| | CDMA BC1 1xRTT | CDMA BC1 1xEVDO | WiFi 802.11b | | | | |
| Rear | 1.173 | 0.279 | | 1.452 | 7.59 | 0.191 | 1 |
| | 1.173 | | 0.181 | 1.354 | 8.85 | 0.153 | 2 |
| | | 0.279 | 0.181 | 0.460 | 4.58 | 0.100 | 3 |

**Conclusions:**

Simultaneous transmission SAR measurement (Volume Scan) is not required because the SAR to peak location separation ratios is < 0.3.

## SAR Peak Location Separation Distance

**Figure (1)**



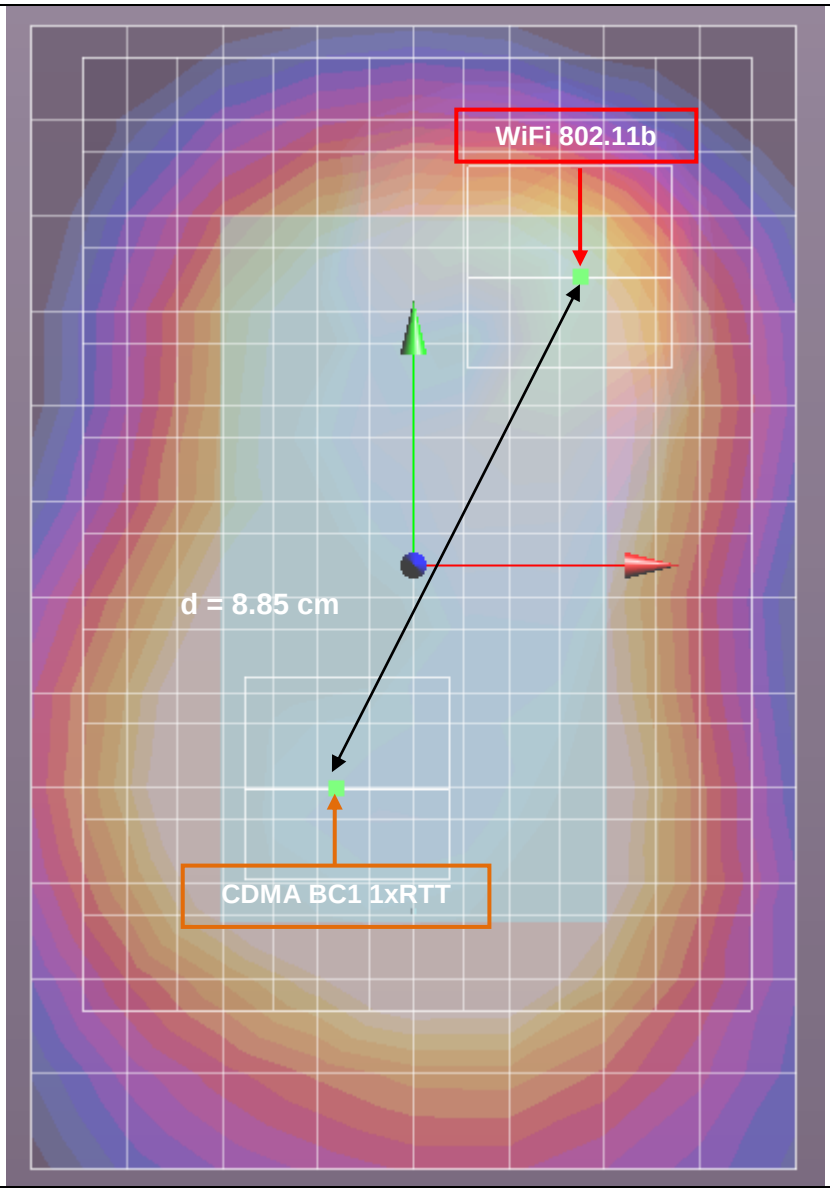

| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC1 1xRTT | 1.856 | -0.0105 | -0.0351 | -0.185 |
| CDMA BC1 1xEVDO | 0.493 | -0.0193 | 0.0403 | -0.185 |

| Separation distance (cm) |
|---|
| 7.59 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## SAR Peak Location Separation Distance

**Figure (2)**



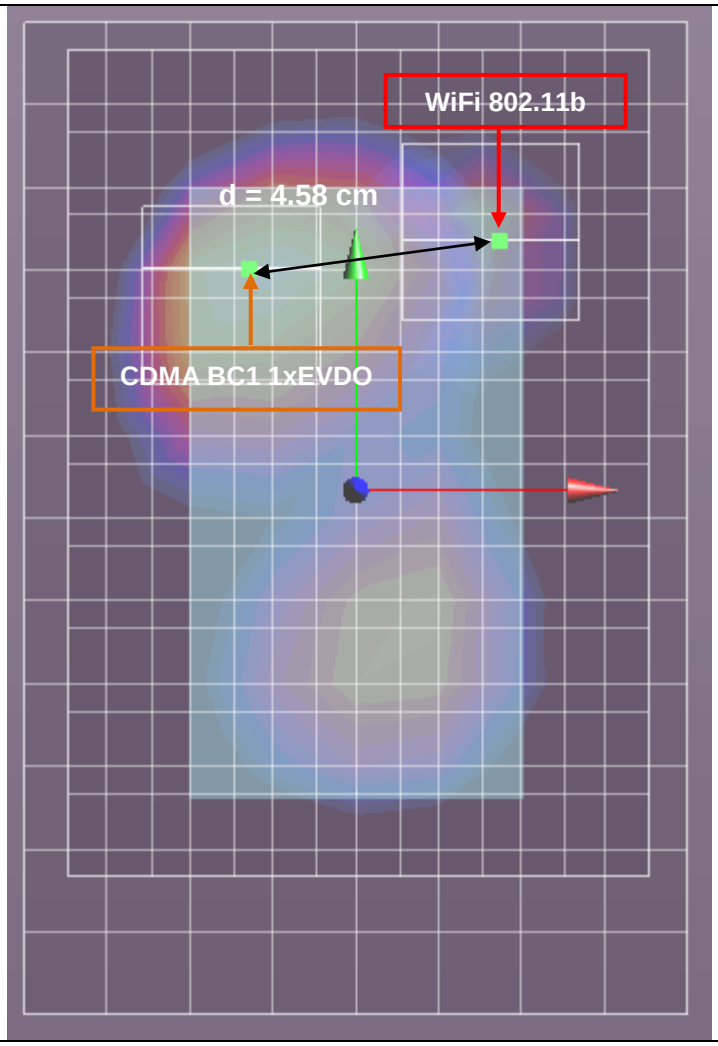

| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC1 1xRTT | 1.856 | -0.0105 | -0.0351 | -0.185 |
| WiFi 802.11b | 0.385 | 0.0261 | 0.0454 | -0.182 |

| Separation distance (cm) |
|---|
| 8.85 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## SAR Peak Location Separation Distance

**Figure (3)**




| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC1 1xEVDO | 0.493 | -0.0193 | 0.0403 | -0.185 |
| WiFi 802.11b | 0.385 | 0.0261 | 0.0454 | -0.182 |

| Separation distance (cm) |
|---|
| 4.58 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## 16.2.4. Sum of the SAR for SV-LTE & WiFi, with all Transmitters at Max Power

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Front | 0.554 | | | 0.579 | | 0.033 | 1.166 |
| | 0.554 | | | | 0.370 | 0.033 | 0.957 |
| | | 0.608 | | 0.579 | | 0.033 | 1.220 |
| | | 0.608 | | | 0.370 | 0.033 | 1.011 |
| | | | 0.49 | 0.579 | | 0.033 | 1.102 |
| | | | 0.49 | | 0.370 | 0.033 | 0.893 |
| Edge 1 | | | | 0.208 | | 0.071 | 0.279 |
| | | | | | 0.141 | 0.071 | 0.212 |
| | | | | 0.208 | | 0.071 | 0.279 |
| | | | | | 0.141 | 0.071 | 0.212 |
| | | | | 0.208 | | 0.071 | 0.279 |
| | | | | | 0.141 | 0.071 | 0.212 |
| Edge 2 | 0.464 | | | 0.472 | | | 0.936 |
| | 0.464 | | | | 0.196 | | 0.660 |
| | | 0.242 | | 0.472 | | | 0.714 |
| | | 0.242 | | | 0.196 | | 0.438 |
| | | | 0.186 | 0.472 | | | 0.658 |
| | | | 0.186 | | 0.196 | | 0.382 |
| Edge 3 | 0.174 | | | | | | 0.174 |
| | 0.174 | | | | | | 0.174 |
| | | 1.06 | | | | | 1.060 |
| | | 1.06 | | | | | 1.060 |
| | | | 0.397 | | | | 0.397 |
| | | | 0.397 | | | | 0.397 |
| Edge 4 | 0.25 | | | | | | 0.245 |
| | 0.25 | | | | | 0.085 | 0.330 |
| | | 0.14 | | | | 0.085 | 0.229 |
| | | 0.14 | | | | 0.085 | 0.229 |
| | | | 0.13 | | | 0.085 | 0.215 |
| | | | 0.13 | | | 0.085 | 0.215 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

## 16.2.5. Sum of the SAR for SV-LTE & WiFi, with Power Reduction for Voice Mode

This is equivalent to SAR $_{(Reduced\ Power\ 1xRTT)}$ + SAR $_{(Max\ Power\ LTE)}$ + SAR $_{(Max\ Power\ WiFi)}$, which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVLTE Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **LTE Max. Power for B2 & B4** |
| **SVLTE** | P < 18.5 dBm | **22.8dBm (Limited)** |
| | P ≥ 18.5 dBm | **18.8dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at a slightly higher power level than the trigger point shown in the table.

**With Measured SAR**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Rear | 0.249 | | | 0.761 | | 0.181 | 1.191 |
| | 0.249 | | | | 0.728 | 0.181 | 1.158 |
| | | 0.291 | | 0.761 | | 0.181 | 1.233 |
| | | 0.291 | | | 0.728 | 0.181 | 1.200 |
| | | | 0.224 | 0.761 | | 0.181 | 1.166 |
| | | | 0.224 | | 0.728 | 0.181 | 1.133 |

**SAR to Peak Location Separation Ratio (SPLSR)**
As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

**Conclusion:**

- Simultaneous transmission SAR measurement (Volume Scan) is not required because the sum of the 1-g SAR is < 1.6 W/kg.

## 16.2.6. Sum of the SAR for SV-LTE & WiFi, with Power Reduction for Data Mode

This is equivalent to: SAR $_{(Max\ Power\ 1xRTT)}$ + SAR $_{(Reduced\ Power\ LTE)}$ + SAR $_{(Max\ Power\ WiFi),}$ which represents the following Power Reduction scenario operating concurrently with WiFi:

| Power Reduction Operation Table for SVLTE Mode | | |
|---|---|---|
| **Mode** | **CDMA Current Voice Power for BC0, BC1, BC15** | **LTE Max. Power for B2 & B4** |
| **SVLTE** | P < 18.5 dBm | **22.8dBm (Limited)** |
| | P ≥ 18.5 dBm | **18.8dBm (Limited)** |

Note that in this case, the SAR reflects Voice (1xRTT) at the maximum target output power level.

**Sum of the SAR with Measured Values**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Rear | 0.975 | | | 0.414 | | 0.181 | 1.570 |
| | 0.975 | | | | 0.239 | 0.181 | 1.395 |
| | | 1.12 | | 0.414 | | 0.181 | 1.715 |
| | | 1.12 | | | 0.239 | 0.181 | 1.540 |
| | | | 0.689 | 0.414 | | 0.181 | 1.284 |
| | | | 0.689 | | 0.239 | 0.181 | 1.109 |

**Note:**

| |
|---|
| 1.570 |
| 1.715 |
| 1.540 |

Denotes the select Simultaneous Transmission case(s) for which SAR scaling considerations are applied to

**Scaled SAR**

| Test Configuration | | Mode | Ch #. | Freq. (MHz) | Power (dBm) | | SAR (W/kg) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Max. tune-up limit | Measured | Measured | Scaled |
| CDMA BC0 | Rear | 1xRTT (RC3 SO32) | 384 | 836.52 | 25.2 | 24.90 | 0.975 | 1.045 |
| CDMA BC1 | Rear | 1xRTT (RC3 SO32) | 600 | 1880.00 | 24.5 | 24.30 | 1.120 | 1.173 |
| CDMA BC15 | Rear | 1xRTT (RC3 SO32) | 450 | 1732.50 | 24.5 | 24.30 | 0.689 | 0.721 |

**Sum of the SAR with Scaled Values for Select Case(s)**

| Test Position | Voice | | | Data | | | ∑ 1-g SAR (mW/g) |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | CDMA BC1 1xRTT | CDMA BC15 1xRTT | LTE Band 2 | LTE Band 4 | WiFi 2.4 GHz | |
| Rear | 1.045 | | | 0.414 | | 0.181 | 1.640 |
| | | 1.173 | | 0.414 | | 0.181 | **1.768** |
| | | 1.173 | | | 0.239 | 0.181 | 1.593 |

### 16.2.6.1. SAR to Peak Location Separation Ratio (SPLSR)

| Test Position | Worst-case combination | | | ∑ 1-g SAR (mW/g) | Calculated distance (cm) | SPLSR | Figure |
|---|---|---|---|---|---|---|---|
| | CDMA BC0 1xRTT | LTE Band 2 | WiFi 802.11b | | | | |
| Rear | 1.045 | 0.414 | | 1.459 | 6.98 | 0.209 | 4 |
| | 1.045 | | 0.181 | 1.226 | 8.44 | 0.145 | 5 |
| | | 0.414 | 0.181 | 0.595 | 4.72 | 0.126 | 6 |

**Conclusions:**
Simultaneous transmission SAR measurement (Volume Scan) is not required because the SAR to peak location separation ratios is < 0.3.

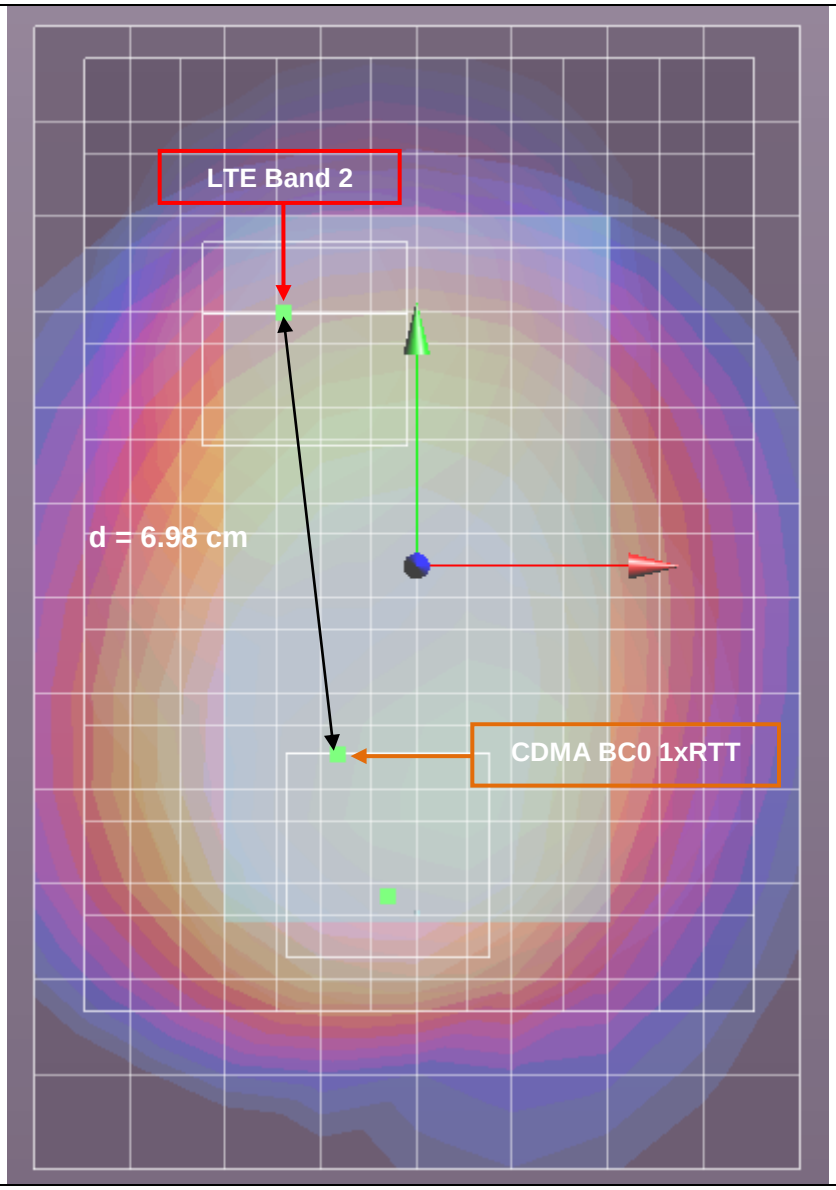
### 16.2.6.2. SAR to Peak Location Separation Ratio (SPLSR)

| Test Position | Worst-case combination | | | ∑ 1-g SAR (mW/g) | Calculated distance (cm) | SPLSR | Figure |
|---|---|---|---|---|---|---|---|
| | CDMA BC1 1xRTT | LTE Band 2 | WiFi 802.11b | | | | |
| Rear | 1.173 | 0.414 | | 1.587 | 7.56 | 0.210 | 7 |
| | 1.173 | | 0.181 | 1.354 | 8.85 | 0.153 | 8 |
| | | 0.414 | 0.181 | 0.595 | 4.72 | 0.126 | 6 |

**Conclusions:**
Simultaneous transmission SAR measurement (Volume Scan) is not required because the SAR to peak location separation ratios is < 0.3.

## SAR Peak Location Separation Distance

**Figure (4)**



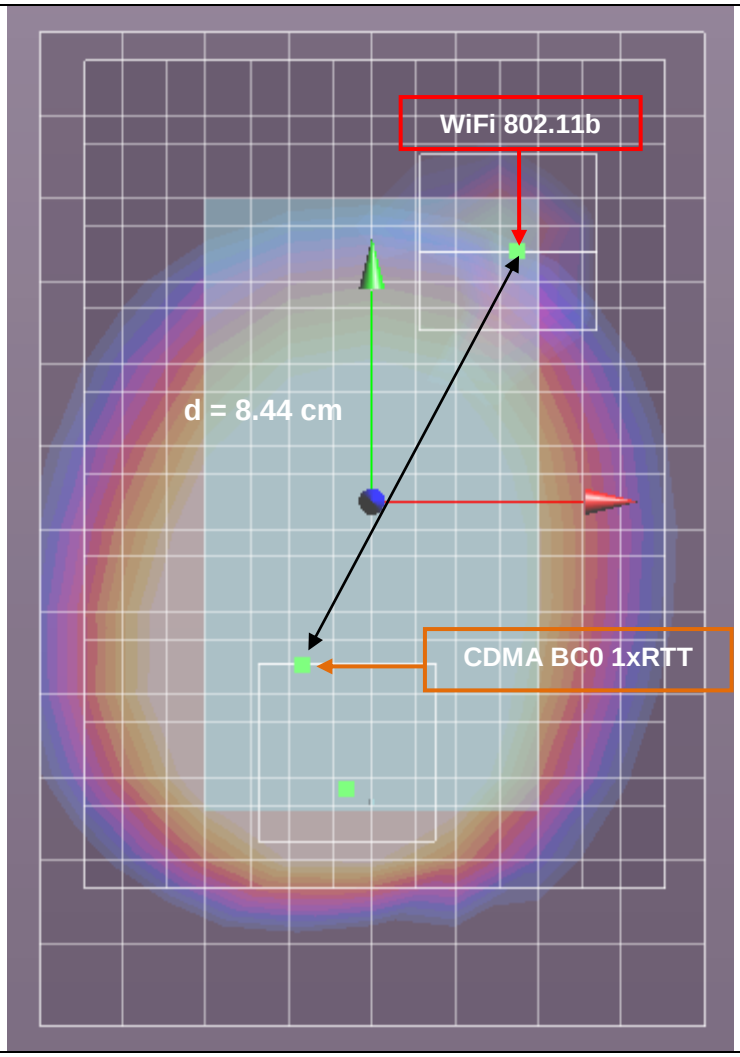

| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC0 1xRTT | 1.498 | -0.0125 | -0.0295 | -0.186 |
| LTE Band 2 | 0.729 | -0.0207 | 0.0398 | -0.185 |

| Separation distance (cm) |
|---|
| 6.98 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## SAR Peak Location Separation Distance

**Figure (5)**



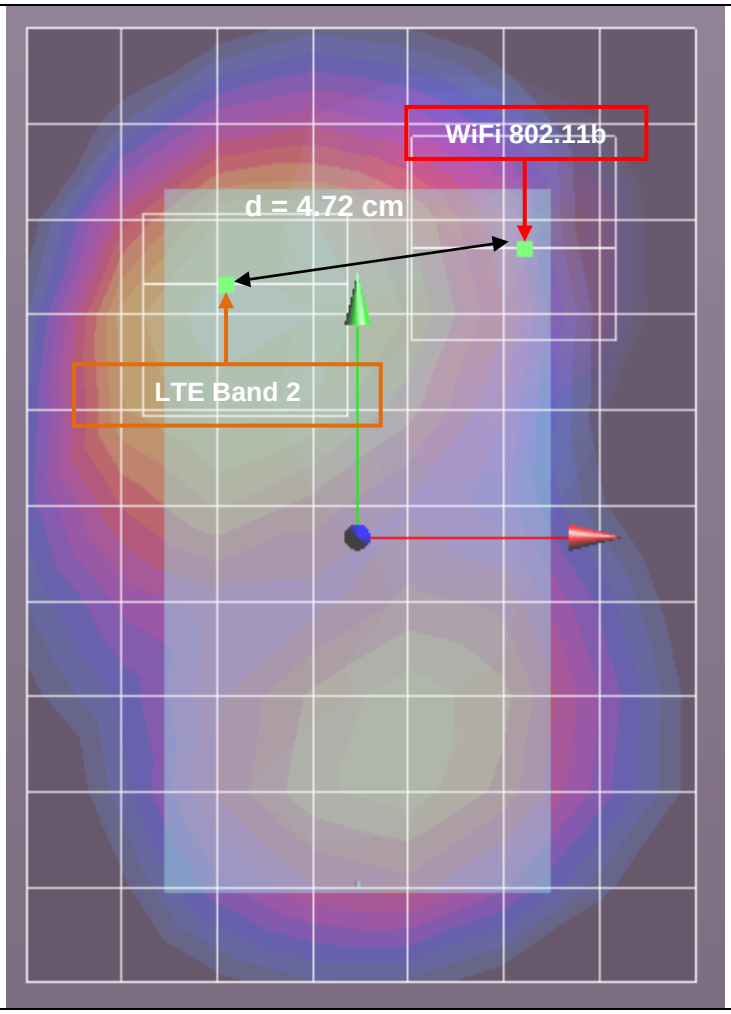

| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC0 1xRTT | 1.498 | -0.0125 | -0.0295 | -0.186 |
| WiFi 802.11b | 0.385 | 0.0261 | 0.0454 | -0.182 |

| Separation distance (cm) |
|---|
| 8.44 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## SAR Peak Location Separation Distance

**Figure (6)**



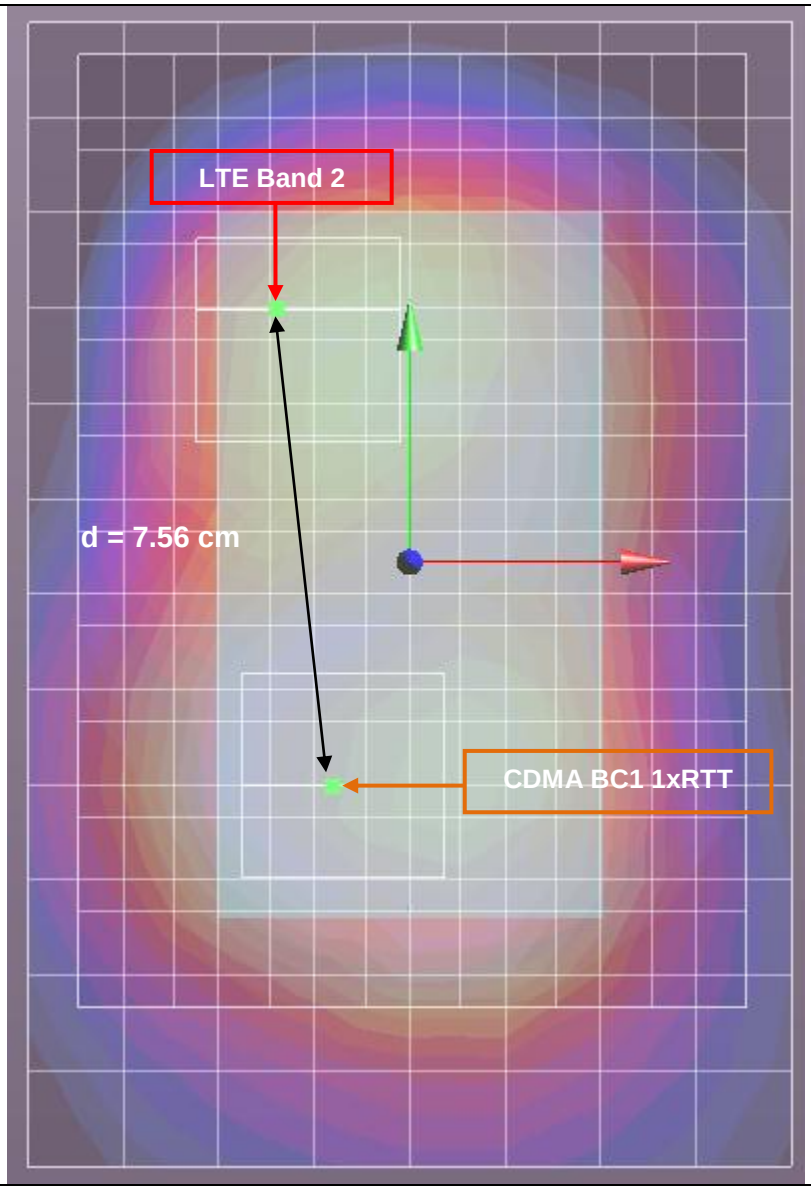

| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| LTE Band 2 | 0.729 | -0.0207 | 0.0398 | -0.185 |
| WiFi 802.11b | 0.385 | 0.0261 | 0.0454 | -0.182 |

| Separation distance (cm) |
|---|
| 4.72 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## SAR Peak Location Separation Distance

**Figure (7)**



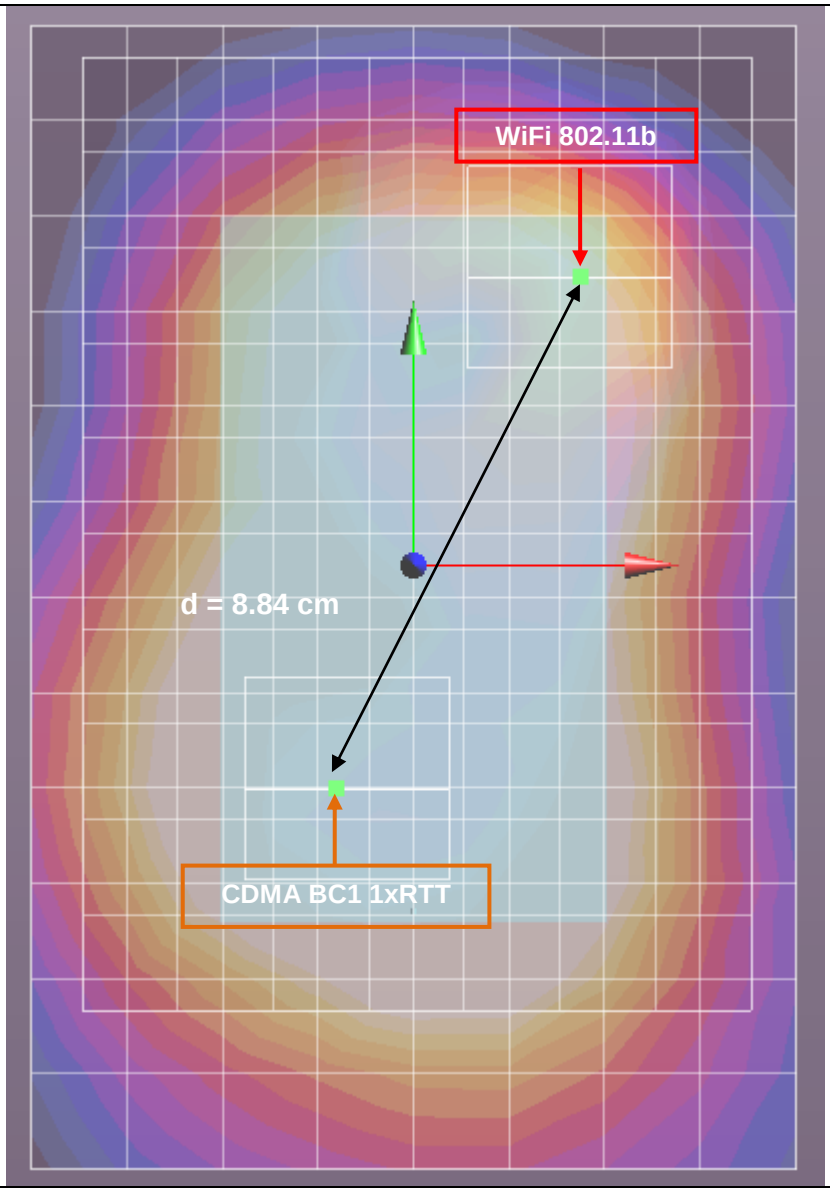

| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC1 1xRTT | 1.856 | -0.0105 | -0.0351 | -0.185 |
| LTE Band 2 | 0.729 | -0.0207 | 0.0398 | -0.185 |

| Separation distance (cm) |
|---|
| 7.56 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

## SAR Peak Location Separation Distance

**Figure (8)**




| Mode | Peak SAR | X | Y | Z |
|---|---|---|---|---|
| | mW/g | m | m | m |
| CDMA BC1 1xRTT | 1.856 | -0.0105 | -0.0351 | -0.185 |
| WiFi 802.11b | 0.385 | 0.0261 | 0.0454 | -0.182 |

| Separation distance (cm) |
|---|
| 8.85 |

Note: SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

# 17. Appendixes

**Refer to separated files for the following appendixes.**

**17.1. System Performance Check Plots**

**17.2. SAR Test Plots for CDMA2000 BC0**

**17.3. SAR Test Plots for CDMA2000 BC1**

**17.4. SAR Test Plots for CDMA2000 BC15**

**17.5. SAR Test Plots for LTE Band 4**

**17.6. SAR Test Plots for LTE Band 2**

**17.7. SAR Test Plots for WiFi 2.4GHz**

**17.8. SAR Test Plots for CDMA2000 BC0 with Power Back-off**

**17.9. SAR Test Plots for CDMA2000 BC1 with Power Back-off**

**17.10. SAR Test Plots for CDMA2000 BC15 with Power Back-off**

**17.11. SAR Test Plots for LTE Band 4 with Power Back-off**

**17.12. SAR Test Plots for LTE Band 2 with Power Back-off**

**17.13. Calibration Certificate for E-Field Probe EX3DV4 - SN 3772**

**17.14. Calibration Certificate for E-Field Probe EX3DV4 - SN 3773**

**17.15. Calibration Certificate for E-Field Probe EX3DV4 - SN 3686**

**17.16. Calibration Certificate for D835V2 - SN 4d002**

**17.17. Calibration Certificate for D1750V2 - SN 1050**

**17.18. Calibration Certificate for D1900V2 - SN 5d043**

**17.19. Calibration Certificate for D2450V2 - SN 748**