



**FCC OET BULLETIN 65 SUPPLEMENT C 01-01  
IEEE STD 1528:2003**

**SAR EVALUATION REPORT**

*For*  
**Cellular/PCS BC 10 CDMA and LTE Phone with Bluetooth and WLAN**

**MODEL: LS840, LGLS840 and LG-LS840  
FCC ID: ZNFLS840**

**REPORT NUMBER: 11U14124-5A  
ISSUE DATE: December 2, 2011**

*Prepared for*  
**LG ELECTRONICS MOBILECOMM U.S.A., INC.  
10101 OLD GROVE ROAD  
SAN DIEGO, CA 92131**

*Prepared by*  
**COMPLIANCE CERTIFICATION SERVICES (UL CCS)  
47173 BENICIA STREET  
FREMONT, CA 94538, U.S.A.  
TEL: (510) 771-1000  
FAX: (510) 661-0888**



**NVLAP LAB CODE 200065-0**

Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u>  | <u>Revised By</u> |
|-------------|-------------------|---|-------------------|
| --          | November 21, 2011 | Initial Issue   | --                |
| A           | December 2, 2011  | Updated report based on reviewer's comments.<br>1. Sec. 5.8: Corrected typo and deleted duplicate item.<br>2. Sec. 10.1: Updated 1x advanced output power parameters setting. | Sunny Shih        |

## Table of Contents

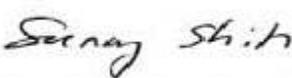
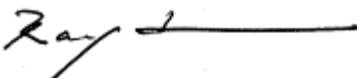
|   |           |
|---|-----------|
| <b>1. Attestation of Test Results .....</b>                             | <b>6</b>  |
| <b>2. Test Methodology .....</b>  | <b>7</b>  |
| <b>3. Facilities and Accreditation .....</b>                            | <b>7</b>  |
| <b>4. Calibration and Uncertainty .....</b>                             | <b>8</b>  |
| 4.1. <i>Measuring Instrument Calibration.....</i>                       | <i>8</i>  |
| 4.2. <i>Measurement Uncertainty.....</i>                                | <i>9</i>  |
| <b>5. Equipment Under Test .....</b>                                    | <b>10</b> |
| 5.1. <i>Band and Air Interlaces .....</i>                               | <i>10</i> |
| 5.2. <i>Antenna Description .....</i>                                   | <i>11</i> |
| 5.3. <i>Antenna Separation Distance .....</i>                           | <i>11</i> |
| 5.4. <i>Head Exposure Condition.....</i>                                | <i>12</i> |
| 5.5. <i>Body Exposure Condition .....</i>                               | <i>12</i> |
| 5.6. <i>Hotspot (Wireless router) Exposure Condition .....</i>          | <i>12</i> |
| 5.7. <i>KDB 941225 D05 SAR for LTE Devices v01 .....</i>                | <i>13</i> |
| 5.8. <i>Simultaneous Transmission Conditions.....</i>                   | <i>15</i> |
| <b>6. Composition of Ingredients for Tissue Simulating Liquids.....</b> | <b>16</b> |
| <b>7. Liquid Parameters .....</b>                                       | <b>17</b> |
| 7.1. <i>Liquid Check Results.....</i>                                   | <i>18</i> |
| <b>8. System Verification .....</b>                                     | <b>21</b> |
| 8.1. <i>System Check Results.....</i>                                   | <i>22</i> |
| <b>9. SAR Measurement Procedures .....</b>                              | <b>23</b> |
| 9.1. <i>Normal SAR Measurement Procedures .....</i>                     | <i>23</i> |
| 9.2. <i>Volume Scan Procedures.....</i>                                 | <i>24</i> |
| <b>10. RF Output Power Measurement.....</b>                             | <b>25</b> |
| 10.1. <i>CDMA .....</i>   | <i>25</i> |
| 10.2. <i>LTE .....</i>  | <i>29</i> |
| 10.3. <i>Wi-Fi.....</i>   | <i>30</i> |
| 10.4. <i>Bluetooth.....</i>   | <i>30</i> |
| 10.5. <i>Power Reduction for SV-DO .....</i>                            | <i>31</i> |
| 10.6. <i>Power Reduction for SV-LTE Band 25.....</i>                    | <i>32</i> |
| <b>11. Standalone SAR Test Results .....</b>                            | <b>33</b> |

11.1. CDMA BC0 ..... 33  
11.2. CDMA BC10 ..... 35  
11.3. CDMA BC1 ..... 37  
11.4. LTE Band 25..... 39  
11.5. Wi-Fi..... 43  
**12. Summary of Highest 1-g SAR ..... 44**  
**13. Worst-case SAR Plots..... 45**  
**14. Simultaneous Transmission SAR Analysis (KDB 648474)..... 70**  
14.1. SV-DO Head Exposure Condition..... 70  
14.1.1. SV-DO Head Volume Scans & Combined Results ..... 73  
14.2. SV-DO Body and Hotspot exposure condition..... 74  
14.2.1. SV-DO Body Volume Scans & Combined Results ..... 78  
14.3. SV-LTE Band 25 Head Exposure Condition ..... 79  
14.3.1. SV-LTE Band 25 Head Volume Scans & Combined Results ..... 81  
14.4. SV-LTE Band 25 Body &-hotspot exposure condition ..... 82  
14.4.1. SV-LTE Band 25 Body Volume Scans & Combined Results..... 84  
**15. Appendixes ..... 85**  
15.1. Appendix A: System check plots..... 85  
15.2. Appendix B: SAR Test plots for CDMA BC10..... 85  
15.3. Appendix C: SAR test plots for CDMA BC0..... 85  
15.4. Appendix D: SAR test plots for CDMA BC1 ..... 85  
15.5. Appendix E: SAR test plots for LTE Band 25..... 85  
15.6. Appendix F: SAR test plots for WiFi..... 85  
15.7. Appendix G: SAR test plots for SV-DO Volume scans ..... 85  
15.8. Appendix H: SAR test plots for SV-DO Combined results ..... 85  
15.9. Appendix I: SAR test plots for SV-LTE volume scans..... 85  
15.10. Appendix J: SAR test plots for SV-LTE Combined results..... 85  
15.11. Appendix K: Calibration certificate for E-Field Probe EX3DV4 SN 3772 ..... 85  
15.12. Appendix L: Calibration certificate for E-Field Probe EX3DV4 SN 3773..... 85  
15.13. Appendix M: Calibration Certificate for D835V2 - SN 4d117 ..... 85  
15.14. Appendix N: Calibration certificate for D1900V2 SN 5d140..... 85  
15.15. Appendix O: Calibration certificate for D2450V2 SN: 706 w/ extended cal. data..... 85  
**16. Setup Photos ..... 86**

---

**17. External Photos ..... 92**

# 1. Attestation of Test Results

|   |  |   |              |
|---|--|---|--------------|
| Applicant:  | LG ELECTRONICS MOBILECOMM U.S.A., INC.                               |   |              |
| EUT description:  | Cellular/PCS BC10 CDMA and LTE Band 25 Phone with Bluetooth and WLAN |   |              |
| Model numbers:  | LS840, LGLS840 and LG-LS840  |   |              |
| Device category:  | Portable devices   |   |              |
| Exposure category:  | General Population/Uncontrolled Exposure                             |   |              |
| Date tested:  | November 1 - 15, 2011  |   |              |
| FCC Rule Parts  | Freq. Range [MHz]  | Highest 1-g SAR (W/kg)  | Limit (W/kg) |
| 22  | 824-849  | Head: 0.71 W/kg (Left Touch)<br>Body: 0.76 W/kg (Rear w/ 10 mm distance)<br>Hotspot: 0.67 W/kg (Rear w/ 10 mm distance) | 1.6          |
| 90  | 817.9-823.1  | Head: 0.62 W/kg (Left Touch)<br>Body: 0.78 W/kg (Rear w/ 10 mm distance)  |              |
| 24  | 1850-1910  | Head: 1.05 W/kg (Left Touch)<br>Body: 1.16 W/kg (Rear w/ 10 mm distance)<br>Hotspot: 0.72 W/kg (Rear w/ 10 mm distance) |              |
| 24<br>(LTE Band 25)   | 1852.5-1912.5  | Head: 0.80 W/kg (Left Touch)<br>Body: 0.58 W/kg (Rear w/ 10 mm distance)<br>Hotspot: 0.58 W/kg (Rear w/ 10 mm distance) |              |
| 15.247  | 2412-2462  | Head: 0.22 W/kg (Left Touch)<br>Body: 0.25 W/kg (Rear w/ 10 mm distance)<br>Hotspot: 0.26 W/kg (Rear w/ 10 mm distance) |              |
| Simultaneous transmission condition:  |  | 1.42 W/kg (p.78)<br>(The highest SAR value from combined results)   |              |
| Applicable Standards  |  |   | Test Results |
| FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528:2003  |  |   | Pass         |
| <p>Compliance Certification Services, Inc. (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.</p> <p><b>Note:</b> 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.</p> <p>Approved &amp; Released For UL CCS By: </p> <p>Tested By: </p> |  |   |              |
| Sunny Shih<br>Engineering Team Leader<br>Compliance Certification Services (UL CCS)   |  | Ray Su<br>EMC Associate Engineer<br>Compliance Certification Services (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 and the following KDB Procedures.

- 648474 D01 SAR Handsets Multi Xmitter 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**

## 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 utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's 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       | Agilent      | 8960              | GB46160222 | 6             | 17 | 2012 |
| Base Station Simulator       | R & S        | CMU 200           | 106291     | 6             | 24 | 2012 |
| Base Station Simulator       | Anritsu      | MT8820C           | 6200985430 | 6             | 17 | 2012 |
| ESA Series Network Analyzer  | Agilent      | E5071B            | MY42100131 | 2             | 2  | 2012 |
| Synthesized Signal Generator | HP           | 83732B            | US34490599 | 7             | 14 | 2012 |
| E-Field Probe                | SPEAG        | EX3DV4            | 3772       | 5             | 3  | 2012 |
| E-Field Probe                | SPEAG        | EX3DV4            | 3773       | 5             | 3  | 2012 |
| Thermometer                  | ERTCO        | 639-1S            | 1718       | 7             | 19 | 2012 |
| Data Acquisition Electronics | SPEAG        | DAE4              | 1258       | 5             | 2  | 2012 |
| Data Acquisition Electronics | SPEAG        | DAE4              | 1239       | 10            | 18 | 2012 |
| System Validation Dipole     | SPEAG        | D835V2            | 4d117      | 4             | 15 | 2012 |
| System Validation Dipole     | SPEAG        | D1900V2           | 5d140      | 4             | 18 | 2012 |
| System Validation Dipole     | SPEAG        | *D2450V2          | 706        | 4             | 19 | 2012 |
| Power Meter                  | Giga-tronics | 8651A             | 8651404    | 5             | 13 | 2012 |
| Power Sensor                 | Giga-tronics | 80701A            | 1834588    | 5             | 13 | 2012 |
| Power Meter                  | HP           | 437B              | 3125U16345 | 5             | 13 | 2012 |
| Power Sensor                 | HP           | 8481A             | 2702A60780 | 5             | 13 | 2012 |
| Amplifier                    | MITEQ        | 4D00400600-50-30P | 1620606    | N/A           |    |      |
| Directional coupler          | Werlatone    | C8060-102         | 2141       | N/A           |    |      |

**Notes:**

\*Per KDB 450824 D02 requirements for dipole calibration, UL CCS has adopted two years calibration intervals. On annual basis, each measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole
2. System validation with specific dipole is within 10% of calibrated value.
3. Return-loss is within 20% of calibrated measurement. (See Appendix O\_Calibration Certificate for D2450V2 SN 706 incl. extended cal. data)
4. Impedance is within 5Ω of calibrated measurement (See Appendix O\_Calibration Certificate for D2450V2 SN 706 incl. extended cal. data)

## 4.2. Measurement Uncertainty

| Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram |          |                    |         |             |                        |
|---|----------|--------------------|---------|-------------|------------------------|
| Component   | error, % | Probe Distribution | Divisor | Sensitivity | U (X <sub>i</sub> ), % |
| <b>Measurement System</b>   |          |                    |         |             |                        |
| Probe Calibration (k=1)   | 5.50     | Normal             | 1       | 1           | 5.50                   |
| 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                   |
| <b>Test Sample Related</b>  |          |                    |         |             |                        |
| 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                   |
| <b>Phantom and Tissue Parameters</b>                              |          |                    |         |             |                        |
| 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                                 | -4.92    | Normal             | 1       | 0.64        | -3.15                  |
| Liquid Permittivity - deviation from target                       | 5.00     | Rectangular        | 1.732   | 0.6         | 1.73                   |
| Liquid Permittivity - measurement uncertainty                     | -4.00    | Normal             | 1       | 0.6         | -2.40                  |
| Combined Standard Uncertainty U <sub>c</sub> (y) =                |          |                    |         |             | 10.24                  |
| Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =  |          |                    |         | 20.47       | %                      |
| Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =  |          |                    |         | 1.62        | dB                     |

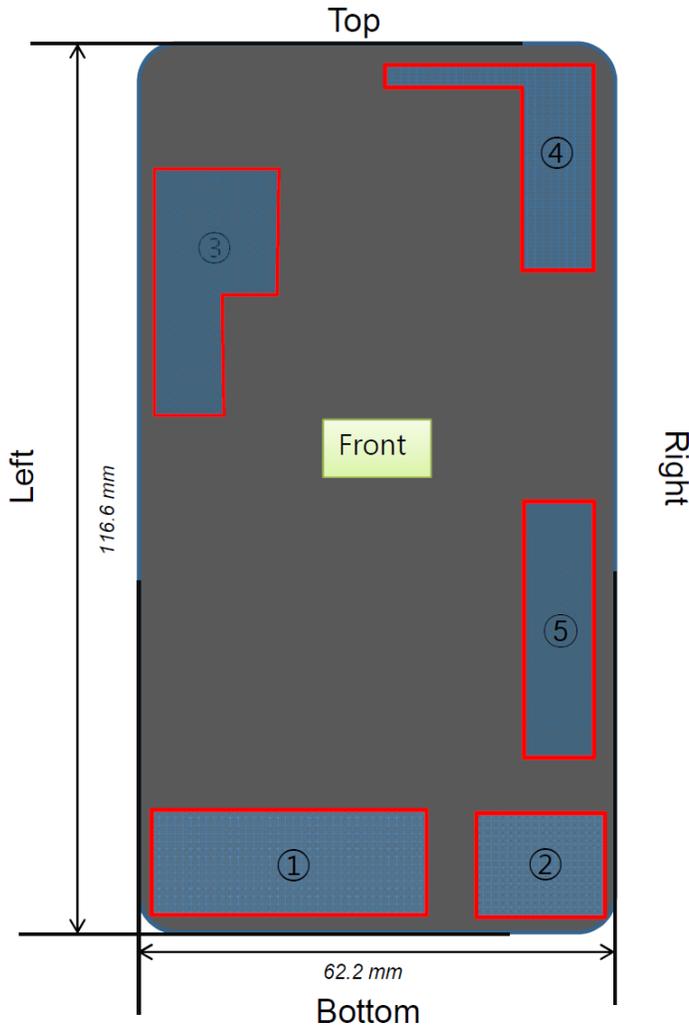
## 5. Equipment Under Test

|  |  |
|--|--|
| Cellular/PCS BC10 CDMA and LTE Band 25 Phone with Bluetooth and WLAN<br>MODEL: LS840, LGLS840 and LG-LS840 |  |
| Normal operation:  | <ul style="list-style-type: none"> <li>- Held to head,</li> <li>- Body (Rear and Front sides) with 10 mm separation distance.</li> <li>- Hotspot (wireless router) with 10 mm separation distance to all sides and edges.</li> </ul> |
| Body Worn Accessory  | Headset  |

### 5.1. Band and Air Interlaces

|                     |  |
|---------------------|--|
| Tx Frequency Bands: | CDMA BC 0: 824 - 849 MHz<br>CDMA BC 10: 817.9 - 823.1 MHz<br>CDMA BC 1: 1850 - 1910 MHz<br>LTE Band 25: 1852.5 – 1912.5 MHz<br>802.11b/g/n: 2412 - 2462MHz, HT20<br>Bluetooth: 2402 - 2480 MHz |
| Air Interfaces:     | CDMA 1xRTT: BC 0, BC10 and BC 1<br>CDMA 1x Advanced: BC 0, BC10 and BC 1<br>EVDO: BC 0 and BC 1 (BC 10 does not support EVDO)<br>LTE: Band 25<br>802.11b/g/n.<br>Bluetooth                     |

### 5.2. Antenna Description



① CDMA 1x BC0, BC1, BC10 Rx/Tx

| MODE | BAND | TX(MHz)     | RX(MHz)     |
|------|------|-------------|-------------|
| CDMA | BC0  | 824 ~ 849   | 869 ~ 894   |
|      | BC1  | 1850 ~ 1910 | 1930 ~ 1990 |
|      | BC10 | 816 ~ 824   | 861 ~ 869   |

② LTE Band 25 2<sup>nd</sup> RX, EVDO BC1 Rx Diversity

| MODE | BAND | TX(MHz)            | RX(MHz)     |
|------|------|--------------------|-------------|
| LTE  | B25  | 2 <sup>nd</sup> Rx | 1930 ~ 1995 |
| EVDO | BC1  | Diversity          | 1930 ~ 1990 |

③ LTE Band 25 Rx/Tx , EVDO BC1 Rx/Tx

| MODE | BAND | TX(MHz)     | RX(MHz)     |
|------|------|-------------|-------------|
| LTE  | B25  | 1850 ~ 1915 | 1930 ~ 1995 |
| EVDO | BC1  | 1850 ~ 1910 | 1930 ~ 1990 |

④ EVDO BC0 Rx/Tx , GPS

| MODE     | TX(MHz)   | RX(MHz) |
|----------|-----------|---------|
| GPS      | x         | 1575.42 |
| EVDO BC0 | 824 ~ 849 | 869~894 |

⑤ BT/Wifi

| MODE                    | TX(MHz)  | RX(MHz)  |
|-------------------------|--|--|
| BT & Wifi (802.11b/g/n) | BT : 2402 (1ch) ~ 2480 (79ch)<br>Wifi : 2412(1ch) ~ 2462(11ch) | BT : 2402 (1ch) ~ 2480 (79ch)<br>Wifi : 2412(1ch) ~ 2462(11ch) |

### 5.3. Antenna Separation Distance

| Antennas | Physical Separation Distance (mm) |       |       |       |       |
|----------|-----------------------------------|-------|-------|-------|-------|
|          | ANT ①                             | ANT ② | ANT ③ | ANT ④ | ANT ⑤ |
| ANT ①    |                                   | 4.7   | 61.1  | 68.1  | 20.0  |
| ANT ②    | 4.7                               |       | 73.5  | 68.5  | 13.2  |
| ANT ③    | 61.1                              | 73.5  |       | 21.0  | 55.5  |
| ANT ④    | 68.1                              | 68.5  | 21.0  |       | 27.8  |
| ANT ⑤    | 20.0                              | 13.2  | 55.5  | 27.8  |       |

### 5.4. Head Exposure Condition

| Mode                          | Band       | Tx (MHz)  | ANT ① | ANT ② | ANT ③ | ANT ④ | ANT ⑤ |
|-------------------------------|------------|-----------|-------|-------|-------|-------|-------|
| CDMA Voice (1xRTT/1xAdvanced) | BC0        | 835       | Yes   | No    | No    | No    | No    |
| CDMA Voice (1xRTT/1xAdvanced) | BC1        | 1900      | Yes   | No    | No    | No    | No    |
| CDMA Voice (1xRTT/1xAdvanced) | BC10       | 820       | Yes   | No    | No    | No    | No    |
| EVDO (VOIP)                   | BC0        | 835       | No    | No    | No    | Yes   | No    |
| EVDO (VOIP)                   | BC1        | 1900      | No    | No    | Yes   | No    | No    |
| EVDO (VOIP)                   | BC10       | 820       | No    | No    | No    | No    | No    |
| LTE Data                      | 25         | 1900      | No    | No    | Yes   | No    | No    |
| SV-DO (Voice & Data)          | BC0        | 835       | Yes   | No    | No    | Yes   | No    |
| SV-DO (Voice & Data)          | BC1        | 1900      | Yes   | No    | Yes   | No    | No    |
| SV-LTE (Voice & Data)         | BC0 & B25  | 835/1900  | Yes   | No    | Yes   | No    | No    |
| SV-LTE (Voice & Data)         | BC1 & B25  | 1900/1900 | Yes   | No    | Yes   | No    | No    |
| SV-LTE (Voice & Data)         | BC10 & B25 | 820/1900  | Yes   | No    | Yes   | No    | No    |
| Wi-Fi (VOIP)                  | 2400       | 2400      | No    | No    | No    | No    | Yes   |
| BT                            | 2400       | 2400      | No    | No    | No    | No    | Yes   |

### 5.5. Body Exposure Condition

| Separation Distance = 10 mm   |            |           |       |       |       |       |       |
|-------------------------------|------------|-----------|-------|-------|-------|-------|-------|
| Mode                          | Band       | Tx (MHz)  | ANT ① | ANT ② | ANT ③ | ANT ④ | ANT ⑤ |
| CDMA Voice (1xRTT/1xAdvanced) | BC0        | 835       | Yes   | No    | No    | No    | No    |
| CDMA Voice (1xRTT/1xAdvanced) | BC1        | 1900      | Yes   | No    | No    | No    | No    |
| CDMA Voice (1xRTT/1xAdvanced) | BC10       | 820       | Yes   | No    | No    | No    | No    |
| EVDO (VOIP)                   | BC0        | 835       | No    | No    | No    | Yes   | No    |
| EVDO (VOIP)                   | BC1        | 1900      | No    | No    | Yes   | No    | No    |
| EVDO (VOIP)                   | BC10       | 820       | No    | No    | No    | No    | No    |
| LTE Data                      | 25         | 1900      | No    | No    | Yes   | No    | No    |
| SV-DO (Voice & Data)          | BC0        | 835       | Yes   | No    | No    | Yes   | No    |
| SV-DO (Voice & Data)          | BC1        | 1900      | Yes   | No    | Yes   | No    | No    |
| SV-LTE (Voice & Data)         | BC0 & B25  | 835/1900  | Yes   | No    | Yes   | No    | No    |
| SV-LTE (Voice & Data)         | BC1 & B25  | 1900/1900 | Yes   | No    | Yes   | No    | No    |
| SV-LTE (Voice & Data)         | BC10 & B25 | 820/1900  | Yes   | No    | Yes   | No    | No    |
| Wi-Fi (VOIP)                  | 2400       | 2400      | No    | No    | No    | No    | Yes   |
| BT                            | 2400       | 2400      | No    | No    | No    | No    | Yes   |

### 5.6. Hotspot (Wireless router) Exposure Condition

| Separation Distance = 10 mm  |            |                |       |       |       |       |       |
|------------------------------|------------|----------------|-------|-------|-------|-------|-------|
| Mode                         | Band       | Tx (MHz)       | ANT ① | ANT ② | ANT ③ | ANT ④ | ANT ⑤ |
| EVDO + WiFi                  | BC0        | 835/2400       | No    | No    | No    | Yes   | Yes   |
| EVDO + WiFi                  | BC1        | 1900/2400      | No    | No    | Yes   | No    | Yes   |
| LTE Data + WiFi              | 25         | 1900/2400      | No    | No    | Yes   | No    | Yes   |
| SV-DO (Voice & Data) + WiFi  | BC0/BC1    | 835/835/2400   | Yes   | No    | No    | Yes   | Yes   |
| SV-DO (Voice & Data) + WiFi  | BC0/BC1    | 835/1900/2400  | Yes   | No    | Yes   |       | Yes   |
| SV-DO (Voice & Data) + WiFi  | BC1/BC0    | 1900/835/2400  | Yes   | No    |       | Yes   | Yes   |
| SV-DO (Voice & Data) + WiFi  | BC1/BC1    | 1900/1900/2400 | Yes   | No    | Yes   |       | Yes   |
| SV-LTE (Voice & Data) + WiFi | BC0 & B25  | 835/1900/2400  | Yes   | No    | Yes   |       | Yes   |
| SV-LTE (Voice & Data) + WiFi | BC10 & B25 | 820/1900/2400  | Yes   | No    | Yes   |       | Yes   |
| SV-LTE (Voice & Data) + WiFi | BC1 & B25  | 1900/1900/2400 | Yes   | No    | Yes   |       | Yes   |

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

| #          | Description   | Parameter  |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
|------------|---|--|------------|---|--|--|----------|---------|---------|---------|------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|
| 1          | Identify the operating frequency range of each LTE transmission band used by the device   | Band 25: 1852.5-1912.5 MHz   |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 2          | Identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc  | Band 25: 5 MHz   |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 3          | Identify the high, middle and low (H, M, L) channel numbers and frequencies in each LTE frequency band  | Please refer to section 10.2   |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 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.   | Please refer to the antenna description and distance at section 5.2 and 5.3.   |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 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.  | Please refer to Tables in section 5.4, 5.5, and 5.6.   |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 7          | 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. | <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="3">Channel bandwidth / Transmission bandwidth configuration (RB)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5.0 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>≤ 1</td> </tr> </tbody> </table> | Modulation | Channel bandwidth / Transmission bandwidth configuration (RB) |  |  | MPR (dB) | 1.4 MHz | 3.0 MHz | 5.0 MHz | QPSK | > 5 | > 4 | > 8 | ≤ 1 | 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 1 | 16 QAM | > 5 | > 4 | > 8 | ≤ 1 |
| Modulation | Channel bandwidth / Transmission bandwidth configuration (RB)   |  |            | MPR (dB)  |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
|            | 1.4 MHz   | 3.0 MHz  | 5.0 MHz    |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| QPSK       | > 5   | > 4  | > 8        | ≤ 1   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 16 QAM     | ≤ 5   | ≤ 4  | ≤ 8        | ≤ 1   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 16 QAM     | > 5   | > 4  | > 8        | ≤ 1   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |
| 8          | 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              | Refer to section 10.2 RF output power table  |            |   |  |  |          |         |         |         |      |     |     |     |     |        |     |     |     |     |        |     |     |     |     |

KDB 941225 D05 SAR for LTE Devices v01 (Continued)

| #     | Description  | Parameter  |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
|-------|--|--|------|--|------------------------------------|------|--------------|--------------------|--------------|--------------------|------|--|------------------------|-------|--------------|--------------------|--------------|--------------------|
| 9     | 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  | Please refer to the tables in section 5.4, 5.5. and 5.6  |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| 10    | Include the maximum average conducted output power measured for the other wireless mode and frequency bands  | See section 10 RF output power measurements  |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| 11    | 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.)   | Please refer to the table in section 5.8   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| 12    | 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 | <p>1. Power Reduction operation table for SVDO Mode</p> <table border="1"> <thead> <tr> <th>Mode</th> <th>CDMA Current Voice Power for BC0, BC1 &amp; BC10<br/>CDMA voice Max Power: 24.3 dBm</th> <th>CDMA EVDO Max. Power for BC0 &amp; BC1</th> </tr> </thead> <tbody> <tr> <td rowspan="2">SVDO</td> <td>P &lt; 15.5 dBm</td> <td>23.8 dBm (Limited)</td> </tr> <tr> <td>P ≥ 15.5 dBm</td> <td>18.8 dBm (Limited)</td> </tr> </tbody> </table> <p>2. Power Reduction operation table for SVLTE Mode</p> <table border="1"> <thead> <tr> <th>Mode</th> <th>CDMA Current Voice Power for BC0, BC1 &amp; BC10</th> <th>LTE Max. Power for B25</th> </tr> </thead> <tbody> <tr> <td rowspan="2">SVLTE</td> <td>P &lt; 18.5 dBm</td> <td>23.0 dBm (Limited)</td> </tr> <tr> <td>P ≥ 18.5 dBm</td> <td>19.0 dBm (Limited)</td> </tr> </tbody> </table> | Mode | CDMA Current Voice Power for BC0, BC1 & BC10<br>CDMA voice Max Power: 24.3 dBm | CDMA EVDO Max. Power for BC0 & BC1 | SVDO | P < 15.5 dBm | 23.8 dBm (Limited) | P ≥ 15.5 dBm | 18.8 dBm (Limited) | Mode | CDMA Current Voice Power for BC0, BC1 & BC10 | LTE Max. Power for B25 | SVLTE | P < 18.5 dBm | 23.0 dBm (Limited) | P ≥ 18.5 dBm | 19.0 dBm (Limited) |
| Mode  | CDMA Current Voice Power for BC0, BC1 & BC10<br>CDMA voice Max Power: 24.3 dBm   | CDMA EVDO Max. Power for BC0 & BC1   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| SVDO  | P < 15.5 dBm   | 23.8 dBm (Limited)   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
|       | P ≥ 15.5 dBm   | 18.8 dBm (Limited)   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| Mode  | CDMA Current Voice Power for BC0, BC1 & BC10   | LTE Max. Power for B25   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| SVLTE | P < 18.5 dBm   | 23.0 dBm (Limited)   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
|       | P ≥ 18.5 dBm   | 19.0 dBm (Limited)   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| 13    | 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  | <p>* Power reduction is implemented on EVDO in SVDO mode</p> <p>* Power reduction is implemented on LTE in SVLTE mode</p>  |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| 14    | When appropriate, include a SAR test plan proposal with respect to the above   | Not Applicable   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |
| 15    | 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 device; for example, simultaneous transmission configurations   | Not applicable   |      |  |                                    |      |              |                    |              |                    |      |  |                        |       |              |                    |              |                    |

## 5.8. Simultaneous Transmission Conditions

### Summary of Simultaneous

| No. | Capable TX Configuration      | Head SAR | Body SAR | Hotspot SAR | Power Reduction (CDMA EVDO) | Power Reduction (LTE) | Note                   |
|-----|-------------------------------|----------|----------|-------------|-----------------------------|-----------------------|------------------------|
| 1   | CDMA Voice                    | O        | O        | X           | X                           | X                     | Stand-alone CDMA Voice |
| 2   | CDMA EVDO                     | O        | O        | X           | X                           | X                     | Stand-alone CDMA EVDO  |
| 3   | LTE                           | O        | O        | X           | X                           | O                     | Stand-alone LTE        |
| 4   | Wi-Fi                         | O        | O        | X           | X                           | X                     | Stand-alone Wi-Fi      |
| 5   | BT                            | X        | X        | X           | X                           | X                     |                        |
| 6   | CDMA Voice + CDMA EVDO        | O        | O        | X           | O                           | X                     | SVDO                   |
| 7   | CDMA Voice + LTE              | O        | O        | X           | X                           | O                     | SVLTE                  |
| 8   | CDMA Voice + CDMA EVDO + WLAN | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot          |
| 9   | CDMA Voice + LTE + WLAN       | O        | O        | O           | X                           | O                     | Wi-Fi Hotspot          |

\* BT and WLAN are not simultaneous transmission.  
 \* CDMA EVDO and LTE are not simultaneous transmission.  
 \* CDMA BC10 EVDO is not supported  
 \* VOIP support (LTE, EVDO).  
 \* SVLTE, SVDO is supported  
 \* Power reduction is implemented on EVDO in SVDO mode  
 \* Power reduction is implemented on LTE in SVLTE mode.

### All Simultaneous case

| No. | Capable TX Configuration              | 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 BC10 Voice                       | O        | O        | X           | X                           | X                     | Stand-alone CDMA BC10 Voice |
| 4   | CDMA BC0 EVDO                         | O        | O        | X           | X                           | X                     | Stand-alone CDMA EVDO BC0   |
| 5   | CDMA BC1 EVDO                         | O        | O        | X           | X                           | X                     | Stand-alone CDMA EVDO BC1   |
| 6   | LTE B25                               | O        | O        | X           | X                           | X                     | Stand-alone LTE B25 data    |
| 7   | Wi-Fi                                 | O        | O        | X           | X                           | X                     | Stand-alone Wi-Fi           |
| 8   | BT                                    | X        | X        | X           | X                           | X                     |                             |
| 9   | CDMA BC0 Voice + Wi-Fi data           | O        | O        | X           | X                           | X                     |                             |
| 10  | CDMA BC1 Voice + Wi-Fi data           | O        | O        | X           | X                           | X                     |                             |
| 11  | CDMA BC10 Voice + Wi-Fi data          | O        | O        | X           | X                           | X                     |                             |
| 12  | CDMA BC0 EVDO+ Wi-Fi data             | X        | O        | O           | X                           | X                     | Wi-Fi Hotspot               |
| 13  | CDMA BC1 EVDO+ Wi-Fi data             | X        | O        | O           | X                           | X                     | Wi-Fi Hotspot               |
| 14  | LTE B25 + Wi-Fi data                  | X        | O        | O           | X                           | X                     | Wi-Fi Hotspot               |
| 15  | CDMA BC0 Voice + CDMA BC0EVDO         | O        | O        | X           | O                           | X                     | SVDO                        |
| 16  | CDMA BC0 Voice + CDMA BC1 EVDO        | O        | O        | X           | O                           | X                     | SVDO                        |
| 17  | CDMA BC0 Voice + LTE B25              | O        | O        | X           | X                           | O                     | SVLTE                       |
| 18  | CDMA BC1 Voice + CDMA BC0 EVDO        | O        | O        | X           | O                           | X                     | SVDO                        |
| 19  | CDMA BC1 Voice + CDMA BC1 EVDO        | O        | O        | X           | O                           | X                     | SVDO                        |
| 20  | CDMA BC1 Voice + LTE B25              | O        | O        | X           | X                           | O                     | SVLTE                       |
| 21  | CDMA BC10 Voice + CDMA BC0 EVDO       | O        | O        | X           | O                           | X                     | SVDO                        |
| 22  | CDMA BC10 Voice + CDMA BC1 EVDO       | O        | O        | X           | O                           | X                     | SVDO                        |
| 23  | CDMA BC0 Voice + CDMA BC0 EVDO + WLAN | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot               |
| 24  | CDMA BC0 Voice + CDMA BC1 EVDO + WLAN | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot               |
| 25  | CDMA BC0 Voice + LTE B25 + WLAN       | O        | O        | O           | X                           | O                     | Wi-Fi Hotspot               |
| 26  | CDMA BC1 Voice + CDMA BC0 EVDO+ WLAN  | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot               |
| 27  | CDMA BC1 Voice + CDMA BC1 EVDO+ WLAN  | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot               |
| 28  | CDMA BC1 Voice + LTE B25+ WLAN        | O        | O        | O           | X                           | O                     | Wi-Fi Hotspot               |
| 29  | CDMA BC10 Voice + CDMA BC1 EVDO+ WLAN | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot               |
| 30  | CDMA BC10 Voice + CDMA BC1 EVDO+ WLAN | O        | O        | O           | O                           | X                     | Wi-Fi Hotspot               |
| 31  | CDMA BC10 Voice + LTE B25 + WLAN      | O        | O        | O           | X                           | O                     | Wi-Fi Hotspot               |

## 6. Composition of Ingredients for Tissue Simulating Liquids

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<br>(% 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 HSL750   |
| Type No  | SL AAH 075  |
| Manufacturer                                       | SPEAG   |
| The item is composed of the following ingredients: |   |
| H <sup>2</sup> O                                   | Water, 35 – 58%   |
| Sucrose  | Sugar, white, refined, 40-60%   |
| NaCl   | Sodium Chloride, 0-6%   |
| Hydroxyethyl-cellulose                             | 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-methyl-3(2H)-isothiazolone, 0.1-0.7% |

### MSL/HSL1750 (Body and Head liquids for 1700 – 1800 MHz)

|   |   |
|---|---|
| Item  | Head Tissue Simulation Liquids HSL1750<br>Muscle (body) Tissue Simulation Liquids HSL1750 |
| Type No   | SL AAM 175  |
| Manufacturer  | SPEAG   |
| -The item is composed of the following ingredients: |   |
| H <sup>2</sup> O                                    | Water, 52 – 75%   |
| C8H18O3   | Diethylene glycol monobutyl ether (DGBE), 25-48%  |
| NaCl  | Sodium Chloride, <1.0%  |

## 7. Liquid Parameters

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine if the dielectric parameters are within the tolerances of the specified target values. For frequencies in 300 MHz to just under 2 GHz, the measured conductivity and relative permittivity should be within  $\pm 5\%$  of the target values. For frequencies in the range of 2–3 GHz and above the measured conductivity should be within  $\pm 5\%$  of the target values. The measured relative permittivity tolerance can be relaxed to no more than  $\pm 10\%$ .

### Reference Values of Tissue Dielectric Parameters for Head & Body Phantom

The body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in IEEE Standard 1528.

| Target Frequency (MHz) | Head         |                | Body         |                |
|------------------------|--------------|----------------|--------------|----------------|
|                        | $\epsilon_r$ | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) |
| 150                    | 52.3         | 0.76           | 61.9         | 0.8            |
| 300                    | 45.3         | 0.87           | 58.2         | 0.92           |
| 450                    | 43.5         | 0.87           | 56.7         | 0.94           |
| 750                    | 41.96        | 0.89           | 55.6         | 0.96           |
| 835                    | 41.5         | 0.9            | 55.2         | 0.97           |
| 900                    | 41.5         | 0.97           | 55           | 1.05           |
| 915                    | 41.5         | 0.98           | 55           | 1.06           |
| 1450                   | 40.5         | 1.2            | 54           | 1.3            |
| 1610                   | 40.3         | 1.29           | 53.8         | 1.4            |
| 1750                   | 40.08        | 1.37           | 53.44        | 1.49           |
| 1800 – 2000            | 40           | 1.4            | 53.3         | 1.52           |
| 2450                   | 39.2         | 1.8            | 52.7         | 1.95           |
| 3000                   | 38.5         | 2.4            | 52           | 2.73           |

( $\epsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho = 1000 \text{ kg/m}^3$ )

**7.1. Liquid Check Results**

| Date       | Freq. (MHz) | Liquid Parameters |         | Measured                                | Target | Delta (%) | Limit ±(%) |   |
|------------|-------------|-------------------|---------|---|--------|-----------|------------|---|
| 10/31/2011 | Body 1900   | e'                | 51.6165 | Relative Permittivity ( $\epsilon_r$ ): | 51.62  | 53.30     | -3.16      | 5 |
|            |             | e''               | 14.2825 | Conductivity ( $\sigma$ ):              | 1.51   | 1.52      | -0.73      | 5 |
|            | Body 1850   | e'                | 51.6836 | Relative Permittivity ( $\epsilon_r$ ): | 51.68  | 53.30     | -3.03      | 5 |
|            |             | e''               | 14.0928 | Conductivity ( $\sigma$ ):              | 1.45   | 1.52      | -4.63      | 5 |
|            | Body 1880   | e'                | 51.6431 | Relative Permittivity ( $\epsilon_r$ ): | 51.64  | 53.30     | -3.11      | 5 |
|            |             | e''               | 14.2180 | Conductivity ( $\sigma$ ):              | 1.49   | 1.52      | -2.22      | 5 |
|            | Body 1910   | e'                | 51.5816 | Relative Permittivity ( $\epsilon_r$ ): | 51.58  | 53.30     | -3.22      | 5 |
|            |             | e''               | 14.3035 | Conductivity ( $\sigma$ ):              | 1.52   | 1.52      | -0.06      | 5 |
| 11/1/2011  | Body 1900   | e'                | 52.1455 | Relative Permittivity ( $\epsilon_r$ ): | 52.15  | 53.30     | -2.17      | 5 |
|            |             | e''               | 14.7080 | Conductivity ( $\sigma$ ):              | 1.55   | 1.52      | 2.23       | 5 |
|            | Body 1850   | e'                | 52.3326 | Relative Permittivity ( $\epsilon_r$ ): | 52.33  | 53.30     | -1.82      | 5 |
|            |             | e''               | 14.5097 | Conductivity ( $\sigma$ ):              | 1.49   | 1.52      | -1.81      | 5 |
|            | Body 1880   | e'                | 52.2240 | Relative Permittivity ( $\epsilon_r$ ): | 52.22  | 53.30     | -2.02      | 5 |
|            |             | e''               | 14.6294 | Conductivity ( $\sigma$ ):              | 1.53   | 1.52      | 0.61       | 5 |
|            | Body 1910   | e'                | 52.1097 | Relative Permittivity ( $\epsilon_r$ ): | 52.11  | 53.30     | -2.23      | 5 |
|            |             | e''               | 14.7486 | Conductivity ( $\sigma$ ):              | 1.57   | 1.52      | 3.05       | 5 |
| 11/2/2011  | Head 1900   | e'                | 40.6240 | Relative Permittivity ( $\epsilon_r$ ): | 40.62  | 40.00     | 1.56       | 5 |
|            |             | e''               | 13.3388 | Conductivity ( $\sigma$ ):              | 1.41   | 1.40      | 0.66       | 5 |
|            | Head 1850   | e'                | 40.8521 | Relative Permittivity ( $\epsilon_r$ ): | 40.85  | 40.00     | 2.13       | 5 |
|            |             | e''               | 13.1650 | Conductivity ( $\sigma$ ):              | 1.35   | 1.40      | -3.27      | 5 |
|            | Head 1880   | e'                | 40.7172 | Relative Permittivity ( $\epsilon_r$ ): | 40.72  | 40.00     | 1.79       | 5 |
|            |             | e''               | 13.2671 | Conductivity ( $\sigma$ ):              | 1.39   | 1.40      | -0.94      | 5 |
|            | Head 1910   | e'                | 40.5829 | Relative Permittivity ( $\epsilon_r$ ): | 40.58  | 40.00     | 1.46       | 5 |
|            |             | e''               | 13.3713 | Conductivity ( $\sigma$ ):              | 1.42   | 1.40      | 1.43       | 5 |
| 11/2/2011  | Body 835    | e'                | 55.2377 | Relative Permittivity ( $\epsilon_r$ ): | 55.24  | 55.20     | 0.07       | 5 |
|            |             | e''               | 21.1561 | Conductivity ( $\sigma$ ):              | 0.98   | 0.97      | 1.26       | 5 |
|            | Body 825    | e'                | 55.3330 | Relative Permittivity ( $\epsilon_r$ ): | 55.33  | 55.26     | 0.14       | 5 |
|            |             | e''               | 21.2072 | Conductivity ( $\sigma$ ):              | 0.97   | 0.97      | 0.41       | 5 |
|            | Body 850    | e'                | 55.1058 | Relative Permittivity ( $\epsilon_r$ ): | 55.11  | 55.16     | -0.09      | 5 |
|            |             | e''               | 21.0893 | Conductivity ( $\sigma$ ):              | 1.00   | 0.99      | 0.97       | 5 |
| 11/3/2011  | Head 835    | e'                | 42.6696 | Relative Permittivity ( $\epsilon_r$ ): | 42.67  | 41.50     | 2.82       | 5 |
|            |             | e''               | 19.2094 | Conductivity ( $\sigma$ ):              | 0.89   | 0.90      | -0.90      | 5 |
|            | Head 815    | e'                | 42.9189 | Relative Permittivity ( $\epsilon_r$ ): | 42.92  | 41.63     | 3.10       | 5 |
|            |             | e''               | 19.2640 | Conductivity ( $\sigma$ ):              | 0.87   | 0.90      | -2.79      | 5 |
|            | Head 820    | e'                | 42.8536 | Relative Permittivity ( $\epsilon_r$ ): | 42.85  | 41.60     | 3.01       | 5 |
|            |             | e''               | 19.2469 | Conductivity ( $\sigma$ ):              | 0.88   | 0.90      | -2.33      | 5 |
|            | Head 825    | e'                | 42.7939 | Relative Permittivity ( $\epsilon_r$ ): | 42.79  | 41.58     | 2.93       | 5 |
|            |             | e''               | 19.2348 | Conductivity ( $\sigma$ ):              | 0.88   | 0.90      | -1.84      | 5 |
| 11/3/2011  | Body 835    | e'                | 55.1875 | Relative Permittivity ( $\epsilon_r$ ): | 55.19  | 55.20     | -0.02      | 5 |
|            |             | e''               | 21.1564 | Conductivity ( $\sigma$ ):              | 0.98   | 0.97      | 1.26       | 5 |
|            | Body 825    | e'                | 55.2920 | Relative Permittivity ( $\epsilon_r$ ): | 55.29  | 55.26     | 0.06       | 5 |
|            |             | e''               | 21.1997 | Conductivity ( $\sigma$ ):              | 0.97   | 0.97      | 0.38       | 5 |
|            | Body 850    | e'                | 55.0387 | Relative Permittivity ( $\epsilon_r$ ): | 55.04  | 55.16     | -0.21      | 5 |
|            |             | e''               | 21.0967 | Conductivity ( $\sigma$ ):              | 1.00   | 0.99      | 1.01       | 5 |

Liquid Check Results (continued)

| Date       | Freq. (MHz) | Liquid Parameters |         | Measured                                | Target | Delta (%) | Limit ±(%) |   |
|------------|-------------|-------------------|---------|---|--------|-----------|------------|---|
| 11/3/2011  | Head 1900   | e'                | 40.3942 | Relative Permittivity ( $\epsilon_r$ ): | 40.39  | 40.00     | 0.99       | 5 |
|            |             | e"                | 13.3884 | Conductivity ( $\sigma$ ):              | 1.41   | 1.40      | 1.03       | 5 |
|            | Head 1850   | e'                | 40.5228 | Relative Permittivity ( $\epsilon_r$ ): | 40.52  | 40.00     | 1.31       | 5 |
|            |             | e"                | 13.2236 | Conductivity ( $\sigma$ ):              | 1.36   | 1.40      | -2.84      | 5 |
|            | Head 1880   | e'                | 40.4346 | Relative Permittivity ( $\epsilon_r$ ): | 40.43  | 40.00     | 1.09       | 5 |
|            |             | e"                | 13.3211 | Conductivity ( $\sigma$ ):              | 1.39   | 1.40      | -0.54      | 5 |
|            | Head 1910   | e'                | 40.3549 | Relative Permittivity ( $\epsilon_r$ ): | 40.35  | 40.00     | 0.89       | 5 |
|            |             | e"                | 13.4056 | Conductivity ( $\sigma$ ):              | 1.42   | 1.40      | 1.69       | 5 |
| 11/4/2011  | Head 1900   | e'                | 41.1261 | Relative Permittivity ( $\epsilon_r$ ): | 41.13  | 40.00     | 2.82       | 5 |
|            |             | e"                | 13.5228 | Conductivity ( $\sigma$ ):              | 1.43   | 1.40      | 2.04       | 5 |
|            | Head 1850   | e'                | 41.3715 | Relative Permittivity ( $\epsilon_r$ ): | 41.37  | 40.00     | 3.43       | 5 |
|            |             | e"                | 13.3624 | Conductivity ( $\sigma$ ):              | 1.37   | 1.40      | -1.82      | 5 |
|            | Head 1880   | e'                | 41.1975 | Relative Permittivity ( $\epsilon_r$ ): | 41.20  | 40.00     | 2.99       | 5 |
|            |             | e"                | 13.4587 | Conductivity ( $\sigma$ ):              | 1.41   | 1.40      | 0.49       | 5 |
|            | Head 1910   | e'                | 41.0905 | Relative Permittivity ( $\epsilon_r$ ): | 41.09  | 40.00     | 2.73       | 5 |
|            |             | e"                | 13.5507 | Conductivity ( $\sigma$ ):              | 1.44   | 1.40      | 2.79       | 5 |
| 11/5/2011  | Body 835    | e'                | 53.8553 | Relative Permittivity ( $\epsilon_r$ ): | 53.86  | 55.20     | -2.44      | 5 |
|            |             | e"                | 21.0986 | Conductivity ( $\sigma$ ):              | 0.98   | 0.97      | 0.99       | 5 |
|            | Body 820    | e'                | 54.0588 | Relative Permittivity ( $\epsilon_r$ ): | 54.06  | 55.28     | -2.20      | 5 |
|            |             | e"                | 21.1496 | Conductivity ( $\sigma$ ):              | 0.96   | 0.97      | -0.43      | 5 |
| 11/7/2011  | Body 1900   | e'                | 52.3101 | Relative Permittivity ( $\epsilon_r$ ): | 52.31  | 53.30     | -1.86      | 5 |
|            |             | e"                | 14.0465 | Conductivity ( $\sigma$ ):              | 1.48   | 1.52      | -2.37      | 5 |
|            | Body 1885   | e'                | 52.3503 | Relative Permittivity ( $\epsilon_r$ ): | 52.35  | 53.30     | -1.78      | 5 |
|            |             | e"                | 14.0092 | Conductivity ( $\sigma$ ):              | 1.47   | 1.52      | -3.40      | 5 |
| 11/8/2011  | Head 1900   | e'                | 39.1757 | Relative Permittivity ( $\epsilon_r$ ): | 39.18  | 40.00     | -2.06      | 5 |
|            |             | e"                | 13.3133 | Conductivity ( $\sigma$ ):              | 1.41   | 1.40      | 0.46       | 5 |
|            | Head 1885   | e'                | 39.2295 | Relative Permittivity ( $\epsilon_r$ ): | 39.23  | 40.00     | -1.93      | 5 |
|            |             | e"                | 13.2703 | Conductivity ( $\sigma$ ):              | 1.39   | 1.40      | -0.65      | 5 |
| 11/8/2011  | Body 1900   | e'                | 52.7620 | Relative Permittivity ( $\epsilon_r$ ): | 52.76  | 53.30     | -1.01      | 5 |
|            |             | e"                | 14.0984 | Conductivity ( $\sigma$ ):              | 1.49   | 1.52      | -2.01      | 5 |
|            | Body 1885   | e'                | 52.8147 | Relative Permittivity ( $\epsilon_r$ ): | 52.81  | 53.30     | -0.91      | 5 |
|            |             | e"                | 14.0432 | Conductivity ( $\sigma$ ):              | 1.47   | 1.52      | -3.16      | 5 |
| 11/9/2011  | Head 1900   | e'                | 40.8482 | Relative Permittivity ( $\epsilon_r$ ): | 40.85  | 40.00     | 2.12       | 5 |
|            |             | e"                | 13.0999 | Conductivity ( $\sigma$ ):              | 1.38   | 1.40      | -1.15      | 5 |
|            | Head 1885   | e'                | 40.8786 | Relative Permittivity ( $\epsilon_r$ ): | 40.88  | 40.00     | 2.20       | 5 |
|            |             | e"                | 13.0612 | Conductivity ( $\sigma$ ):              | 1.37   | 1.40      | -2.22      | 5 |
| 11/10/2011 | Head 1900   | e'                | 39.4362 | Relative Permittivity ( $\epsilon_r$ ): | 39.44  | 40.00     | -1.41      | 5 |
|            |             | e"                | 13.3585 | Conductivity ( $\sigma$ ):              | 1.41   | 1.40      | 0.81       | 5 |
|            | Head 1855   | e'                | 39.6223 | Relative Permittivity ( $\epsilon_r$ ): | 39.62  | 40.00     | -0.94      | 5 |
|            |             | e"                | 13.1966 | Conductivity ( $\sigma$ ):              | 1.36   | 1.40      | -2.78      | 5 |
|            | Head 1885   | e'                | 39.4965 | Relative Permittivity ( $\epsilon_r$ ): | 39.50  | 40.00     | -1.26      | 5 |
|            |             | e"                | 13.3032 | Conductivity ( $\sigma$ ):              | 1.39   | 1.40      | -0.40      | 5 |
|            | Head 1915   | e'                | 39.3747 | Relative Permittivity ( $\epsilon_r$ ): | 39.37  | 40.00     | -1.56      | 5 |
|            |             | e"                | 13.4088 | Conductivity ( $\sigma$ ):              | 1.43   | 1.40      | 1.98       | 5 |

Liquid Check Results (continued)

| Date       | Freq. (MHz) | Liquid Parameters |   | Measured                                | Target | Delta (%) | Limit ±(%) |   |
|------------|-------------|-------------------|---|---|--------|-----------|------------|---|
| 11/11/2011 | Head 1900   | e'                | 39.7791                                 | Relative Permittivity ( $\epsilon_r$ ): | 39.78  | 40.00     | -0.55      | 5 |
|            |             | e"                | 13.1612                                 | Conductivity ( $\sigma$ ):              | 1.39   | 1.40      | -0.68      | 5 |
|            | Head 1855   | e'                | 39.9507                                 | Relative Permittivity ( $\epsilon_r$ ): | 39.95  | 40.00     | -0.12      | 5 |
|            |             | e"                | 13.0303                                 | Conductivity ( $\sigma$ ):              | 1.34   | 1.40      | -4.00      | 5 |
|            | Head 1885   | e'                | 39.8343                                 | Relative Permittivity ( $\epsilon_r$ ): | 39.83  | 40.00     | -0.41      | 5 |
|            |             | e"                | 13.1190                                 | Conductivity ( $\sigma$ ):              | 1.38   | 1.40      | -1.78      | 5 |
| Head 1915  | e'          | 39.7184           | Relative Permittivity ( $\epsilon_r$ ): | 39.72                                   | 40.00  | -0.70     | 5          |   |
|            | e"          | 13.1979           | Conductivity ( $\sigma$ ):              | 1.41                                    | 1.40   | 0.38      | 5          |   |
| 11/11/2011 | Body 1900   | e'                | 52.7620                                 | Relative Permittivity ( $\epsilon_r$ ): | 52.76  | 53.30     | -1.01      | 5 |
|            |             | e"                | 14.0984                                 | Conductivity ( $\sigma$ ):              | 1.49   | 1.52      | -2.01      | 5 |
|            | Body 1885   | e'                | 52.8147                                 | Relative Permittivity ( $\epsilon_r$ ): | 52.81  | 53.30     | -0.91      | 5 |
|            |             | e"                | 14.0432                                 | Conductivity ( $\sigma$ ):              | 1.47   | 1.52      | -3.16      | 5 |
|            | Body 1915   | e'                | 52.7143                                 | Relative Permittivity ( $\epsilon_r$ ): | 52.71  | 53.30     | -1.10      | 5 |
|            |             | e"                | 14.1508                                 | Conductivity ( $\sigma$ ):              | 1.51   | 1.52      | -0.87      | 5 |
| 11/12/2011 | Body 1900   | e'                | 51.8784                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.88  | 53.30     | -2.67      | 5 |
|            |             | e"                | 14.0439                                 | Conductivity ( $\sigma$ ):              | 1.48   | 1.52      | -2.39      | 5 |
|            | Body 1885   | e'                | 51.9206                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.92  | 53.30     | -2.59      | 5 |
|            |             | e"                | 13.9987                                 | Conductivity ( $\sigma$ ):              | 1.47   | 1.52      | -3.47      | 5 |
|            | Body 1915   | e'                | 51.8397                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.84  | 53.30     | -2.74      | 5 |
|            |             | e"                | 14.0951                                 | Conductivity ( $\sigma$ ):              | 1.50   | 1.52      | -1.26      | 5 |
| 11/13/2011 | Head 2450   | e'                | 38.4936                                 | Relative Permittivity ( $\epsilon_r$ ): | 38.49  | 39.20     | -1.80      | 5 |
|            |             | e"                | 13.5473                                 | Conductivity ( $\sigma$ ):              | 1.85   | 1.80      | 2.53       | 5 |
|            | Head 2410   | e'                | 38.6715                                 | Relative Permittivity ( $\epsilon_r$ ): | 38.67  | 39.28     | -1.55      | 5 |
|            |             | e"                | 13.4514                                 | Conductivity ( $\sigma$ ):              | 1.80   | 1.76      | 2.39       | 5 |
|            | Head 2435   | e'                | 38.5624                                 | Relative Permittivity ( $\epsilon_r$ ): | 38.56  | 39.24     | -1.71      | 5 |
|            |             | e"                | 13.5042                                 | Conductivity ( $\sigma$ ):              | 1.83   | 1.78      | 2.58       | 5 |
| Head 2460  | e'          | 38.4515           | Relative Permittivity ( $\epsilon_r$ ): | 38.45                                   | 39.19  | -1.88     | 5          |   |
|            | e"          | 13.5773           | Conductivity ( $\sigma$ ):              | 1.86                                    | 1.81   | 2.56      | 5          |   |
| 11/14/2011 | Body 2450   | e'                | 51.5614                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.56  | 52.70     | -2.16      | 5 |
|            |             | e"                | 14.3398                                 | Conductivity ( $\sigma$ ):              | 1.95   | 1.95      | 0.18       | 5 |
|            | Body 2410   | e'                | 51.7535                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.75  | 52.76     | -1.91      | 5 |
|            |             | e"                | 14.1977                                 | Conductivity ( $\sigma$ ):              | 1.90   | 1.91      | -0.26      | 5 |
|            | Body 2435   | e'                | 51.6268                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.63  | 52.73     | -2.09      | 5 |
|            |             | e"                | 14.2735                                 | Conductivity ( $\sigma$ ):              | 1.93   | 1.93      | 0.07       | 5 |
| Body 2460  | e'          | 51.5292           | Relative Permittivity ( $\epsilon_r$ ): | 51.53                                   | 52.69  | -2.20     | 5          |   |
|            | e"          | 14.3831           | Conductivity ( $\sigma$ ):              | 1.97                                    | 1.96   | 0.17      | 5          |   |
| 11/14/2011 | Body 1900   | e'                | 51.1875                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.19  | 53.30     | -3.96      | 5 |
|            |             | e"                | 14.1983                                 | Conductivity ( $\sigma$ ):              | 1.50   | 1.52      | -1.32      | 5 |
|            | Body 1850   | e'                | 51.3015                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.30  | 53.30     | -3.75      | 5 |
|            |             | e"                | 14.0492                                 | Conductivity ( $\sigma$ ):              | 1.45   | 1.52      | -4.92      | 5 |
|            | Body 1880   | e'                | 51.2206                                 | Relative Permittivity ( $\epsilon_r$ ): | 51.22  | 53.30     | -3.90      | 5 |
|            |             | e"                | 14.1446                                 | Conductivity ( $\sigma$ ):              | 1.48   | 1.52      | -2.72      | 5 |
| Body 1910  | e'          | 51.1700           | Relative Permittivity ( $\epsilon_r$ ): | 51.17                                   | 53.30  | -4.00     | 5          |   |
|            | e"          | 14.2283           | Conductivity ( $\sigma$ ):              | 1.51                                    | 1.52   | -0.59     | 5          |   |

## 8. System Verification

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  $\pm 10\%$ .

### System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness:  $2.0 \pm 0.2$  mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The DASY system with an E-Field Probe EX3DV4 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 fine cube was chosen for 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.

### Reference SAR Values for HEAD & BODY-tissue from calibration certificate of SPEAG.

| System validation dipole | Cal. certificate #  | Cal. date | SAR Avg (mW/g) |       |       |
|--------------------------|---------------------|-----------|----------------|-------|-------|
|                          |                     |           | Tissue:        | Head  | Body  |
| D1900V2                  | D1900V2-5d140-Apr11 | 4/18/11   | 1g SAR:        | 41.60 | 41.20 |
|                          |                     |           | 10g SAR:       | 21.50 | 21.60 |
| D835V2                   | D835V2-4d117-Apr11  | 4/15/11   | 1g SAR:        | 9.64  | 10.10 |
|                          |                     |           | 10g SAR:       | 6.28  | 6.60  |
| D2450V2                  | D2450V2-706_Apr10   | 4/19/10   | 1g SAR:        | 51.6  | 52.4  |
|                          |                     |           | 10g SAR:       | 24.4  | 24.5  |

### 8.1. System Check Results

| System validation dipole | Date Tested | Measured (Normalized to 1 W) |       | Target | Delta (%) | Tolerance (%) |
|--------------------------|-------------|------------------------------|-------|--------|-----------|---------------|
| D1900V2<br>Body          | 11/01/11    | 1g SAR:                      | 40.50 | 41.2   | -1.70     | ±10           |
|                          |             | 10g SAR:                     | 21.00 | 21.6   | -2.78     |               |
| D835V2<br>Body           | 11/02/11    | 1g SAR:                      | 9.98  | 10.10  | -1.19     | ±10           |
|                          |             | 10g SAR:                     | 6.57  | 6.60   | -0.45     |               |
| D1900V2<br>Head          | 11/02/11    | 1g SAR:                      | 44.00 | 41.6   | 5.77      | ±10           |
|                          |             | 10g SAR:                     | 22.80 | 21.5   | 6.05      |               |
| D835V2<br>Head           | 11/03/11    | 1g SAR:                      | 9.61  | 9.64   | -0.31     | ±10           |
|                          |             | 10g SAR:                     | 6.30  | 6.28   | 0.32      |               |
| D835V2<br>Body           | 11/03/11    | 1g SAR:                      | 10.10 | 10.10  | 0.00      | ±10           |
|                          |             | 10g SAR:                     | 6.64  | 6.60   | 0.61      |               |
| D1900V2<br>Head          | 11/03/11    | 1g SAR:                      | 40.20 | 41.6   | -3.37     | ±10           |
|                          |             | 10g SAR:                     | 20.80 | 21.5   | -3.26     |               |
| D1900V2<br>Head          | 11/04/11    | 1g SAR:                      | 39.80 | 41.6   | -4.33     | ±10           |
|                          |             | 10g SAR:                     | 20.40 | 21.5   | -5.12     |               |
| D835V2<br>Body           | 11/05/11    | 1g SAR:                      | 10.30 | 10.10  | 1.98      | ±10           |
|                          |             | 10g SAR:                     | 6.78  | 6.60   | 2.73      |               |
| D1900V2<br>Body          | 11/07/11    | 1g SAR:                      | 39.70 | 41.2   | -3.64     | ±10           |
|                          |             | 10g SAR:                     | 20.30 | 21.6   | -6.02     |               |
| D1900V2<br>Head          | 11/08/11    | 1g SAR:                      | 41.20 | 41.6   | -0.96     | ±10           |
|                          |             | 10g SAR:                     | 21.40 | 21.5   | -0.47     |               |
| D1900V2<br>Body          | 11/08/11    | 1g SAR:                      | 41.20 | 41.2   | 0.00      | ±10           |
|                          |             | 10g SAR:                     | 21.60 | 21.6   | 0.00      |               |
| D1900V2<br>Head          | 11/09/11    | 1g SAR:                      | 41.20 | 41.6   | -0.96     | ±10           |
|                          |             | 10g SAR:                     | 21.40 | 21.5   | -0.47     |               |
| D1900V2<br>Head          | 11/10/11    | 1g SAR:                      | 41.40 | 41.6   | -0.48     | ±10           |
|                          |             | 10g SAR:                     | 21.60 | 21.5   | 0.47      |               |
| D1900V2<br>Head          | 11/11/11    | 1g SAR:                      | 40.60 | 41.6   | -2.40     | ±10           |
|                          |             | 10g SAR:                     | 21.10 | 21.5   | -1.86     |               |
| D1900V2<br>Body          | 11/11/11    | 1g SAR:                      | 41.30 | 41.2   | 0.24      | ±10           |
|                          |             | 10g SAR:                     | 21.50 | 21.6   | -0.46     |               |
| D1900V2<br>Body          | 11/12/11    | 1g SAR:                      | 39.90 | 41.2   | -3.16     | ±10           |
|                          |             | 10g SAR:                     | 20.70 | 21.6   | -4.17     |               |
| D2450V2<br>HEAD          | 11/13/11    | 1g SAR:                      | 54.70 | 51.6   | 6.01      | ±10           |
|                          |             | 10g SAR:                     | 25.10 | 24.4   | 2.87      |               |
| D2450V2<br>BODY          | 11/14/11    | 1g SAR:                      | 53.20 | 52.4   | 1.53      | ±10           |
|                          |             | 10g SAR:                     | 24.80 | 24.5   | 1.22      |               |
| D1900V2<br>Body          | 11/14/11    | 1g SAR:                      | 39.50 | 41.2   | -4.13     | ±10           |
|                          |             | 10g SAR:                     | 20.60 | 21.6   | -4.63     |               |

## 9. SAR Measurement Procedures

### 9.1. Normal SAR Measurement 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 DASYS 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  $\geq 7 \times 7 \times 9$  (above 4.5 GHz) or  $5 \times 5 \times 7$  (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

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.

## 9.2. 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 DASYS 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  $\geq 7 \times 7 \times 9$  (above 4.5 GHz) or  $5 \times 5 \times 7$  (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.

## 10. RF Output Power Measurement

Maximum output power is verified on the Low, Middle and High channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E for 1xRTT, section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rel. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A

### 10.1. CDMA

#### CDMA2000 1xRTT

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application                      Rev, License  
 CDMA2000 Mobile Test      B.19.07, L

- Protocol Rev > 6 (IS-2000-0)
- System ID: 7; NID: 1, Reg. Ch. #: 610 for BC0, 600 for BC1 & 500 for BC10
- Radio Config (RC) > RC1 or RC3
- Service Option (SO) Setup > SO55 or SO32
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

#### RF Output Power for BC0 1XRTT

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) |                    |                    |
|--------------------------|---------------------|------------------------------|--------------------|--------------------|
|                          |                     | Ch. 1013/824.7 MHz           | Ch. 384/836.52 MHz | Ch. 777/848.31 MHz |
|                          |                     | Average                      | Average            | Average            |
| RC1                      | 55 (Loopback)       | 25.20                        | 25.17              | 25.00              |
| RC3                      | 55 (Loopback)       | 25.02                        | 25.10              | 25.05              |
|                          | 32 (+ F-SCH)        | 25.08                        | 25.05              | 25.05              |

#### RF Output Power for BC10 1XRTT

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) |                   |                   |
|--------------------------|---------------------|------------------------------|-------------------|-------------------|
|                          |                     | Ch. 476/817.9 MHz            | Ch. 580/820.5 MHz | Ch. 684/823.1 MHz |
|                          |                     | Average                      | Average           | Average           |
| RC1                      | 55 (Loopback)       | 25.17                        | 25.27             | 25.24             |
| RC3                      | 55 (Loopback)       | 24.90                        | 25.23             | 25.27             |
|                          | 32 (+ F-SCH)        | 24.90                        | 25.23             | 25.28             |

#### RF Output Power for BC1 1X RTT

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) |                  |                     |
|--------------------------|---------------------|------------------------------|------------------|---------------------|
|                          |                     | Ch. 25/1851.25 MHz           | Ch. 600/1880 MHz | Ch.1175/1908.75 MHz |
|                          |                     | Average                      | Average          | Average             |
| RC1                      | 55 (Loopback)       | 24.93                        | 25.05            | 25.12               |
| RC3                      | 55 (Loopback)       | 24.93                        | 25.02            | 25.05               |
|                          | 32 (+ F-SCH)        | 25.05                        | 25.16            | 25.07               |

**CDMA2000 1x Advanced**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application                      Rev. License  
 CDMA2000 Mobile Test      B.19.07, L

- Protocol Rev > 6 (IS-2000-0)
- System ID: 7; NID: 1, Reg. Ch. #: 610 for BC0, 600 for BC1 & 500 for BC10
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

**RF Output Power for BC0 1X Advanced**

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) |                    |                    |
|--------------------------|---------------------|------------------------------|--------------------|--------------------|
|                          |                     | Ch. 1013/824.7 MHz           | Ch. 384/836.52 MHz | Ch. 777/848.31 MHz |
|                          |                     | Average                      | Average            | Average            |
| Fwd11/Rvs8               | 75 (Loopback)       | 25.11                        | 25.15              | 24.94              |

**RF Output Power for BC10 (Secondary 800) 1X Advanced**

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) |                   |                   |
|--------------------------|---------------------|------------------------------|-------------------|-------------------|
|                          |                     | Ch. 476/817.9 MHz            | Ch. 580/820.5 MHz | Ch. 684/823.1 MHz |
|                          |                     | Average                      | Average           | Average           |
| Fwd11/Rvs8               | 75 (Loopback)       | 25.10                        | 25.25             | 25.08             |

**RF Output Power for BC1 1X Advanced**

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) |                  |                     |
|--------------------------|---------------------|------------------------------|------------------|---------------------|
|                          |                     | Ch. 25/1851.25 MHz           | Ch. 600/1880 MHz | Ch.1175/1908.75 MHz |
|                          |                     | Average                      | Average          | Average             |
| Fwd11/Rvs8               | 75 (Loopback)       | 25.00                        | 25.13            | 25.12               |

**1xEV-Do - Release 0 (Rel. 0)**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

| <u>Application</u>    | <u>Rev, License</u> |
|-----------------------|---------------------|
| 1xEV-DO Terminal Test | B.13.10, L          |

**EVDO Release 0 - RTAPS**

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 >
  - Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -93 dBm/1.23 MHz
  - System ID: 7; NID: 1, Reg. Ch. #: 610 for BC0, 600 for BC1 & 500 for BC10
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

**EVDO Release 0 - FTAP**

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 >
  - Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
  - Cell Power > -93 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

| Band | FTAP Rate                    | RTAP Rate  | Channel | f (MHz) | Conducted power (dBm) |      |
|------|------------------------------|------------|---------|---------|-----------------------|------|
|      |                              |            |         |         | Average               | Peak |
| BC0  | 307.2 kbps<br>(2 slot, QPSK) | 153.6 kbps | 1013    | 824.70  | 24.23                 |      |
|      |                              |            | 384     | 836.52  | 24.4                  |      |
|      |                              |            | 777     | 848.31  | 24.55                 |      |
| BC1  | 307.2 kbps<br>(2 slot, QPSK) | 153.6 kbps | 25      | 1851.25 | 24.25                 |      |
|      |                              |            | 600     | 1880.00 | 24.20                 |      |
|      |                              |            | 1175    | 1908.75 | 24.34                 |      |

**Note(s):**

1. BC10 does not support 1xEVDO

**1xEV-Do - Revision A (Rev. A)**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

|                       |                     |
|-----------------------|---------------------|
| <u>Application</u>    | <u>Rev, License</u> |
| 1xEV-DO Terminal Test | B.13.10, L          |

EVDO Rev. A – RETAP

- Call Setup > Shift & Preset
- Cell Power > --93 and -96 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots
- Rvs Power Ctrl > All Up bits (to get the maximum power)

EVDO Rev. A - FETAP

- Call Setup > Shift & Preset
- Cell Power > -93, and -96 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
- PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots
- Rvs Power Ctrl > All Up bits (to get the maximum power)

| Band | FETAP Traffic Format                                      | RETAP Data Payload Size | Channel | f (MHz) | Conducted power (dBm) |      |
|------|---|-------------------------|---------|---------|-----------------------|------|
|      |   |                         |         |         | Average               | Peak |
| BC0  | 307.2k, QPSK/ ACK channel is transmitted at all the slots | 4096                    | 1013    | 824.70  | 24.37                 |      |
|      |   |                         | 384     | 836.52  | 24.31                 |      |
|      |   |                         | 777     | 848.31  | 24.50                 |      |
| BC1  | 307.2k, QPSK/ ACK channel is transmitted at all the slots | 4096                    | 25      | 1851.25 | 24.35                 |      |
|      |   |                         | 600     | 1880.00 | 24.38                 |      |
|      |   |                         | 1175    | 1908.75 | 24.41                 |      |

**Note(s):**

1. BC10 does not support 1xEVDO

**10.2. LTE**

**Output power for LTE Band 25**

| BW    | UL Ch. # | Freq. (MHz) | Modulation | RB Size | RB Offset | MPR | Max Avg Power (dBm) |
|-------|----------|-------------|------------|---------|-----------|-----|---------------------|
| 5 MHz | 26065    | 1852.5      | QPSK       | 1       | 0         | 0   | 23.35               |
|       |          |             |            | 1       | 24        | 0   | 23.48               |
|       |          |             |            | 12      | 6         | 1   | 22.48               |
|       |          |             |            | 25      | 0         | 1   | 22.44               |
|       |          |             | 16-QAM     | 1       | 0         | 1   | 22.41               |
|       |          |             |            | 1       | 24        | 1   | 22.56               |
|       |          |             |            | 12      | 6         | 2   | 21.29               |
|       |          |             |            | 25      | 0         | 2   | 21.51               |
|       | 26365    | 1882.5      | QPSK       | 1       | 0         | 0   | 23.50               |
|       |          |             |            | 1       | 24        | 0   | 23.51               |
|       |          |             |            | 12      | 6         | 1   | 22.56               |
|       |          |             |            | 25      | 0         | 1   | 22.49               |
|       |          |             | 16-QAM     | 1       | 0         | 1   | 22.33               |
|       |          |             |            | 1       | 24        | 1   | 22.45               |
|       |          |             |            | 12      | 6         | 2   | 21.50               |
|       |          |             |            | 25      | 0         | 2   | 21.62               |
|       | 26665    | 1912.5      | QPSK       | 1       | 0         | 0   | 23.70               |
|       |          |             |            | 1       | 24        | 0   | 23.70               |
|       |          |             |            | 12      | 6         | 1   | 22.59               |
|       |          |             |            | 25      | 0         | 1   | 22.57               |
|       |          |             | 16-QAM     | 1       | 0         | 1   | 22.51               |
|       |          |             |            | 1       | 24        | 1   | 22.66               |
|       |          |             |            | 12      | 6         | 2   | 21.60               |
|       |          |             |            | 25      | 0         | 2   | 21.73               |

### 10.3. Wi-Fi

802.11b

| Channel # | Freq. (MHz) | Conducted Avg Power |      |
|-----------|-------------|---------------------|------|
|           |             | (dBm)               | (mW) |
| 1         | 2412        | 14.50               | 28.2 |
| 6         | 2437        | 14.60               | 28.8 |
| 11        | 2462        | 14.85               | 30.5 |

802.11g

|    |      |       |      |
|----|------|-------|------|
| 1  | 2412 | 11.10 | 12.9 |
| 6  | 2437 | 11.25 | 13.3 |
| 11 | 2462 | 11.50 | 14.1 |

802.11n HT20

|    |      |       |      |
|----|------|-------|------|
| 1  | 2412 | 9.90  | 9.8  |
| 6  | 2437 | 10.05 | 10.1 |
| 11 | 2462 | 10.25 | 10.6 |

**Note(s):**

KDB 248227 - 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 802.11b channels.

### 10.4. Bluetooth

| Mode | Channel # | Freq. (MHz) | Conducted Avg Power |      |
|------|-----------|-------------|---------------------|------|
|      |           |             | (dBm)               | (mW) |
| GFSK | 0         | 2402        | 9.2                 | 8.3  |
|      | 39        | 2441        | 9.2                 | 8.3  |
|      | 78        | 2480        | 9.2                 | 8.3  |
| 8PSK | 0         | 2402        | 6.8                 | 4.8  |
|      | 39        | 2441        | 6.9                 | 4.9  |
|      | 78        | 2480        | 6.9                 | 4.9  |

**Note(s):**

According to KDB 648474, Table 2, Unlicensed transmitters  
 When there is simultaneous transmission, Stand-alone SAR not required due to

- Output  $\leq 2 \cdot P_{Ref}$  (24 mW) and antenna is  $\geq 5.0$  cm from other antennas
- Output  $\leq P_{Ref}$  (12 mW) and antenna is  $\geq 2.5$  cm from other antennas
- Output  $\leq P_{Ref}$  (12 mW) and antenna is  $< 2.5$  cm from other antennas

### 10.5. Power Reduction for SV-DO

#### SV-DO: CDMA 1xRTT (BC0) to 11xEVDO (BC0 & BC1)

| CDMA BC0 850 1xRTT |                    | BC0 850 1xEVDO     |            |          | BC1 1900 1xEVDO    |            |           |
|--------------------|--------------------|--------------------|------------|----------|--------------------|------------|-----------|
|                    |                    | Output Power [dBm] |            |          | Output Power [dBm] |            |           |
| Ch. #              | Output Power [dBm] | Low_1013           | Middle_384 | High_777 | Low_25             | Middle_600 | High_1175 |
| Low_1013           | 11                 | 24.4               | 24.3       | 24.3     | 24.2               | 24.0       | 24.0      |
|                    | 15                 | 24.4               | 24.3       | 24.3     | 24.2               | 24.0       | 24.0      |
|                    | 16                 | 19.1               | 19.3       | 19.2     | 19.2               | 19.0       | 19.2      |
|                    | 24                 | 19.1               | 19.3       | 19.2     | 19.2               | 19.0       | 19.2      |
| Middle_384         | 11                 | 24.2               | 24.1       | 24.4     | 24.3               | 24.0       | 24.0      |
|                    | 15                 | 24.2               | 24.1       | 24.4     | 24.3               | 24.0       | 24.0      |
|                    | 16                 | 19.1               | 19.2       | 19.3     | 19.2               | 19.2       | 19.2      |
|                    | 24                 | 19.1               | 19.2       | 19.3     | 19.2               | 19.2       | 19.2      |
| High_777           | 11                 | 24.1               | 24.1       | 24.2     | 24.2               | 24.1       | 24.0      |
|                    | 15                 | 24.1               | 24.1       | 24.2     | 24.2               | 24.1       | 24.0      |
|                    | 16                 | 19.2               | 19.2       | 19.0     | 19.1               | 19.3       | 19.3      |
|                    | 24                 | 19.2               | 19.2       | 19.0     | 19.1               | 19.3       | 19.3      |

#### SV-DO: CDMA 1xRTT (BC1) to 1xEVDO (BC0 & BC1)

| CDMA BC1 1900 1xRTT |                    | BC0 850 1xEVDO     |            |          | BC1 1900 1xEVDO    |            |           |
|---------------------|--------------------|--------------------|------------|----------|--------------------|------------|-----------|
|                     |                    | Output Power [dBm] |            |          | Output Power [dBm] |            |           |
| Ch. #               | Output Power [dBm] | Low_1013           | Middle_384 | High_777 | Low_25             | Middle_600 | High_1175 |
| Low_25              | 11                 | 24.0               | 24.0       | 24.0     | 24.3               | 24.0       | 24.2      |
|                     | 15                 | 24.0               | 24.0       | 24.0     | 24.3               | 24.0       | 24.2      |
|                     | 16                 | 19.2               | 19.1       | 19.2     | 19.2               | 19.2       | 19.2      |
|                     | 24                 | 19.2               | 19.1       | 19.2     | 19.2               | 19.2       | 19.2      |
| Middle_600          | 11                 | 24.0               | 24.0       | 24.1     | 24.1               | 24.0       | 24.0      |
|                     | 15                 | 24.0               | 24.0       | 24.1     | 24.1               | 24.0       | 24.0      |
|                     | 16                 | 19.1               | 19.0       | 19.2     | 19.1               | 19.1       | 19.2      |
|                     | 24                 | 19.1               | 19.0       | 19.2     | 19.1               | 19.1       | 19.2      |
| High_1175           | 11                 | 24.4               | 24.1       | 24.0     | 24.1               | 24.0       | 24.2      |
|                     | 15                 | 24.4               | 24.1       | 24.0     | 24.1               | 24.0       | 24.2      |
|                     | 16                 | 19.1               | 19.1       | 19.1     | 19.1               | 19.2       | 19.2      |
|                     | 24                 | 19.1               | 19.1       | 19.1     | 19.1               | 19.2       | 19.2      |

#### SV-DO: CDMA 1xRTT(BC10) to 1xEVDO (BC0 & BC1)

| Secondary 800 BC10 1xRTT |                    | BC0 850 1xEVDO     |            |          | BC1 1900 1xEVDO    |            |           |
|--------------------------|--------------------|--------------------|------------|----------|--------------------|------------|-----------|
|                          |                    | Output Power [dBm] |            |          | Output Power [dBm] |            |           |
| Ch. #                    | Output Power [dBm] | Low_1013           | Middle_384 | High_777 | Low_25             | Middle_600 | High_1175 |
| Middle_580               | 11                 | 24.0               | 24.1       | 24.2     | 24.2               | 24.0       | 24.0      |
|                          | 15                 | 24.0               | 24.1       | 24.2     | 24.2               | 24.0       | 24.0      |
|                          | 16                 | 18.9               | 18.9       | 18.9     | 19.1               | 19.0       | 19.1      |
|                          | 24                 | 18.9               | 18.9       | 18.9     | 19.1               | 19.0       | 19.1      |

### 10.6. Power Reduction for SV-LTE Band 25

#### SV-LTE: CDMA 1xRTT (BC0) to SV-LTE Band 25 (QPSK, 16QAM)

| CDMA BC0 850 1xRTT |                    | QPSK               |               |               |      | 16QAM              |               |               |      |
|--------------------|--------------------|--------------------|---------------|---------------|------|--------------------|---------------|---------------|------|
| Ch. #              | Output Power [dBm] | Output Power [dBm] |               |               |      | Output Power [dBm] |               |               |      |
|                    |                    | 1RB, 0 offset      | 1RB 24 offset | 12RB 6 offset | 25RB | 1RB, 0 offset      | 1RB 24 offset | 12RB 6 offset | 25RB |
| Low_1013           | 11                 | 23.7               | 23.8          | 22.6          | 22.6 | 22.7               | 22.8          | 21.6          | 21.7 |
|                    | 18                 | 23.7               | 23.8          | 22.6          | 22.6 | 22.7               | 22.8          | 21.6          | 21.7 |
|                    | 19                 | 19.4               | 19.5          | 18.9          | 19.1 | 19.2               | 19.3          | 19.4          | 19.5 |
|                    | 24                 | 19.4               | 19.5          | 18.9          | 19.1 | 19.2               | 19.3          | 19.4          | 19.5 |
| Middle_384         | 11                 | 23.9               | 24.0          | 22.7          | 22.6 | 22.6               | 22.6          | 21.8          | 21.9 |
|                    | 18                 | 23.9               | 24.0          | 22.7          | 22.6 | 22.6               | 22.6          | 21.8          | 21.9 |
|                    | 19                 | 19.1               | 19.1          | 19.3          | 19.0 | 19.3               | 19.3          | 19.4          | 19.5 |
|                    | 24                 | 19.1               | 19.1          | 19.3          | 19.0 | 19.3               | 19.3          | 19.4          | 19.5 |
| High_777           | 11                 | 23.7               | 23.6          | 22.7          | 22.5 | 22.6               | 22.5          | 21.6          | 21.6 |
|                    | 18                 | 23.7               | 23.6          | 22.7          | 22.5 | 22.6               | 22.5          | 21.6          | 21.6 |
|                    | 19                 | 19.1               | 19.1          | 19.1          | 19.0 | 19.3               | 19.4          | 19.2          | 19.5 |
|                    | 24                 | 19.1               | 19.1          | 19.1          | 19.0 | 19.3               | 19.4          | 19.2          | 19.5 |

#### SV-LTE: CDMA 1xRTT (BC1) to SV-LTE Band 25 (QPSK, 16QAM)

| CDMA BC1 1900 1xRTT |                    | QPSK               |                |                |      | 16QAM              |                |                |      |
|---------------------|--------------------|--------------------|----------------|----------------|------|--------------------|----------------|----------------|------|
| Ch. #               | Output Power [dBm] | Output Power [dBm] |                |                |      | Output Power [dBm] |                |                |      |
|                     |                    | 1RB, 0 offset      | 1RB, 24 offset | 12RB, 6 offset | 25RB | 1RB, 0 offset      | 1RB, 24 offset | 12RB, 6 offset | 25RB |
| Low_25              | 11                 | 23.8               | 23.6           | 22.4           | 22.4 | 22.6               | 22.7           | 21.6           | 21.8 |
|                     | 18                 | 23.8               | 23.6           | 22.4           | 22.4 | 22.6               | 22.7           | 21.6           | 21.8 |
|                     | 19                 | 19.2               | 19.4           | 18.9           | 19.0 | 19.3               | 19.3           | 19.4           | 19.4 |
|                     | 24                 | 19.2               | 19.4           | 18.9           | 19.0 | 19.3               | 19.3           | 19.4           | 19.4 |
| Middle_600          | 11                 | 23.8               | 23.7           | 22.5           | 22.5 | 22.5               | 22.6           | 21.6           | 21.7 |
|                     | 18                 | 23.8               | 23.7           | 22.5           | 22.5 | 22.5               | 22.6           | 21.6           | 21.7 |
|                     | 19                 | 19.2               | 19.3           | 19.1           | 19.0 | 19.2               | 19.3           | 19.1           | 19.3 |
|                     | 24                 | 19.2               | 19.3           | 19.1           | 19.0 | 19.2               | 19.3           | 19.1           | 19.3 |
| High_1175           | 11                 | 23.7               | 23.7           | 22.6           | 22.5 | 22.5               | 22.4           | 21.7           | 21.5 |
|                     | 18                 | 23.7               | 23.7           | 22.6           | 22.5 | 22.5               | 22.4           | 21.7           | 21.5 |
|                     | 19                 | 19.2               | 19.4           | 19.0           | 18.9 | 19.2               | 19.1           | 19.2           | 19.4 |
|                     | 24                 | 19.2               | 19.4           | 19.0           | 18.9 | 19.2               | 19.1           | 19.2           | 19.4 |

#### SV-LTE: CDMA 1xRTT (BC10) to SV-LTE Band 25 (QPSK, 16QAM)

| Secondary 800 BC10 1xRTT |                    | QPSK               |                |                |      | 16QAM              |                |                |      |
|--------------------------|--------------------|--------------------|----------------|----------------|------|--------------------|----------------|----------------|------|
| Ch. #                    | Output Power [dBm] | Output Power [dBm] |                |                |      | Output Power [dBm] |                |                |      |
|                          |                    | 1RB, 0 offset      | 1RB, 24 offset | 12RB, 6 offset | 25RB | 1RB, 0 offset      | 1RB, 24 offset | 12RB, 6 offset | 25RB |
| Middle_580               | 11                 | 23.7               | 23.6           | 22.5           | 22.4 | 22.4               | 22.4           | 21.5           | 21.5 |
|                          | 18                 | 23.7               | 23.6           | 22.5           | 22.4 | 22.4               | 22.4           | 21.5           | 21.5 |
|                          | 19                 | 19.3               | 19.3           | 19.1           | 19.0 | 19.1               | 19.3           | 19.2           | 19.3 |
|                          | 24                 | 19.3               | 19.3           | 19.1           | 19.0 | 19.1               | 19.3           | 19.2           | 19.3 |

## 11. Standalone SAR Test Results

The device also contains the NFC (Near-Field Communication) antenna. However, there is no additional SAR test because NFC antenna is built-in the back cover of the EUT when we performed the tests.

### 11.1. CDMA BC0

This device supports 1x Advanced. However, SAR is not required because the maximum output for 1x Advanced is no more than 0.25 dB higher than the maximum measured for 1xRTT. If the measured SAR on 1xRTT mode is greater than 1.2 W/kg, repeat the highest of those configurations above 1.2 W/kg for each exposure condition in 1x Advanced. All measured SAR in 1xRTT mode higher than 1.5 W/kg must be repeated for 1x Advanced, as Per KDB 760669.

#### 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  | 824.70      | 25.02         |            |       | 1    |
|                  |                  | 384   | 836.52      | 25.10         | 0.707      | 0.517 |      |
|                  |                  | 777   | 848.31      | 25.05         |            |       | 1    |
| Left Tilt (15°)  | 1xRTT (RC3,SO55) | 1013  | 824.70      | 25.02         |            |       | 1    |
|                  |                  | 384   | 836.52      | 25.10         | 0.417      | 0.319 |      |
|                  |                  | 777   | 848.31      | 25.05         |            |       | 1    |
| Right Touch      | 1xRTT (RC3,SO55) | 1013  | 824.70      | 25.02         |            |       | 1    |
|                  |                  | 384   | 836.52      | 25.10         | 0.562      | 0.418 |      |
|                  |                  | 777   | 848.31      | 25.05         |            |       | 1    |
| Right Tilt (15°) | 1xRTT (RC3,SO55) | 1013  | 824.70      | 25.02         |            |       | 1    |
|                  |                  | 384   | 836.52      | 25.10         | 0.314      | 0.245 |      |
|                  |                  | 777   | 848.31      | 25.05         |            |       | 1    |

#### Head SAR (VOIP mode operation)

| Test Position    | Mode            | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) |       | Note |
|------------------|-----------------|-------|-------------|---------------|------------|-------|------|
|                  |                 |       |             |               | 1-g        | 10-g  |      |
| Left Touch       | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|                  |                 | 384   | 836.52      | 24.40         | 0.479      | 0.299 |      |
|                  |                 | 777   | 848.31      | 24.55         |            |       | 1    |
| Left Tilt (15°)  | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|                  |                 | 384   | 836.52      | 24.40         | 0.297      | 0.169 |      |
|                  |                 | 777   | 848.31      | 24.55         |            |       | 1    |
| Right Touch      | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|                  |                 | 384   | 836.52      | 24.40         | 0.387      | 0.258 |      |
|                  |                 | 777   | 848.31      | 24.55         |            |       | 1    |
| Right Tilt (15°) | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|                  |                 | 384   | 836.52      | 24.40         | 0.232      | 0.152 |      |
|                  |                 | 777   | 848.31      | 24.55         |            |       | 1    |

#### Note(s):

- SAR test was performed in the middle channel only as the measured level was < 50% (0.8 mW/g) of the SAR limit as stated in FCC "Public Notice DA 02-1438" by the SCC-34/SC-2. Testing in the low and high channel is optional.

**Body SAR with 10 mm separation distance**

| Test Position | Mode              | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) |       | Note |
|---------------|-------------------|-------|-------------|---------------|------------|-------|------|
|               |                   |       |             |               | 1-g        | 10-g  |      |
| Rear          | 1xRTT (RC3, SO32) | 1013  | 824.70      | 25.08         |            |       | 1    |
|               |                   | 384   | 836.52      | 25.05         | 0.757      | 0.533 |      |
|               |                   | 777   | 848.31      | 25.05         |            |       | 1    |
|               |                   | 384   | 836.52      | 25.05         | 0.740      | 0.523 | 2    |
| Front         | 1xRTT (RC3, SO32) | 1013  | 824.70      | 25.08         |            |       | 1    |
|               |                   | 384   | 836.52      | 25.05         | 0.612      | 0.439 |      |
|               |                   | 777   | 848.31      | 25.05         |            |       | 1    |

**Hotspot SAR with 10 mm separation distance**

| Test Position | Mode            | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) |       | Note |
|---------------|-----------------|-------|-------------|---------------|------------|-------|------|
|               |                 |       |             |               | 1-g        | 10-g  |      |
| Rear          | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|               |                 | 384   | 836.52      | 24.40         | 0.668      | 0.422 |      |
|               |                 | 777   | 848.31      | 24.55         |            |       | 1    |
|               |                 | 384   | 836.52      | 24.40         | 0.462      | 0.283 | 2    |
| Front         | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|               |                 | 384   | 836.52      | 24.40         | 0.177      | 0.107 |      |
|               |                 | 777   | 848.31      | 24.55         |            |       | 1    |
| Left          | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 3    |
|               |                 | 384   | 836.52      | 24.40         |            |       | 3    |
|               |                 | 777   | 848.31      | 24.55         |            |       | 3    |
| Right         | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|               |                 | 384   | 836.52      | 24.40         | 0.119      | 0.072 |      |
|               |                 | 777   | 848.31      | 24.55         |            |       | 1    |
| Bottom        | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 3    |
|               |                 | 384   | 836.52      | 24.40         |            |       | 3    |
|               |                 | 777   | 848.31      | 24.55         |            |       | 3    |
| Top           | 1xEVDO (Rel. 0) | 1013  | 824.70      | 24.23         |            |       | 1    |
|               |                 | 384   | 836.52      | 24.40         | 0.038      | 0.018 |      |
|               |                 | 777   | 848.31      | 24.55         |            |       | 1    |

**Note(s):**

1. SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC "Public Notice DA 02-1438" by the SCC-34/SC-2. Testing in the low and high channel is optional.
2. With headset attached.
3. SAR is not required due to antenna-to-edge's distance is greater than 2.5 cm.

**11.2. CDMA BC10**

This device supports 1x Advanced. However, SAR is not required because the maximum output for 1x Advanced is no more than 0.25 dB higher than the maximum measured for 1xRTT. If the measured SAR on 1xRTT mode is greater than 1.2 W/kg, repeat the highest of those configurations above 1.2 W/kg for each exposure condition in 1x Advanced. All measured SAR in 1xRTT mode higher than 1.5 W/kg must be repeated for 1x Advanced, as Per KDB 760669.

**Head SAR**

| Test Position    | Mode             | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) |       | Note |
|------------------|------------------|-------|-------------|---------------|------------|-------|------|
|                  |                  |       |             |               | 1-g        | 10-g  |      |
| Left Touch       | 1xRTT (RC3,SO55) | 476   | 817.90      | 24.90         |            |       | 1    |
|                  |                  | 580   | 820.50      | 25.23         | 0.615      | 0.455 |      |
|                  |                  | 684   | 823.10      | 25.27         |            |       | 1    |
| Left Tilt (15°)  | 1xRTT (RC3,SO55) | 476   | 817.90      | 24.90         |            |       | 1    |
|                  |                  | 580   | 820.50      | 25.23         | 0.379      | 0.293 |      |
|                  |                  | 684   | 823.10      | 25.27         |            |       | 1    |
| Right Touch      | 1xRTT (RC3,SO55) | 476   | 817.90      | 24.90         |            |       | 1    |
|                  |                  | 580   | 820.50      | 25.23         | 0.484      | 0.371 |      |
|                  |                  | 684   | 823.10      | 25.27         |            |       | 1    |
| Right Tilt (15°) | 1xRTT (RC3,SO55) | 476   | 817.90      | 24.90         |            |       | 1    |
|                  |                  | 580   | 820.50      | 25.23         | 0.295      | 0.228 |      |
|                  |                  | 684   | 823.10      | 25.27         |            |       | 1    |

**Note(s):**

- SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC "Public Notice DA 02-1438" by the SCC-34/SC-2. Testing in the low and high channel is optional.

**Head SAR (VOIP mode operation)**

Not applicable. Due to the BC 10 does not support EVDO

**Body SAR with 10 mm separation distance**

| Test Position | Mode              | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) |       | Note |
|---------------|-------------------|-------|-------------|---------------|------------|-------|------|
|               |                   |       |             |               | 1-g        | 10-g  |      |
| Rear          | 1xRTT (RC3, SO32) | 476   | 817.90      | 24.90         |            |       | 1    |
|               |                   | 580   | 820.50      | 25.23         | 0.781      | 0.558 |      |
|               |                   | 684   | 823.10      | 25.28         |            |       | 1    |
|               |                   | 580   | 820.50      | 25.23         | 0.749      | 0.526 | 2    |
| Front         | 1xRTT (RC3, SO32) | 476   | 817.90      | 24.90         |            |       | 1    |
|               |                   | 580   | 820.50      | 25.23         | 0.578      | 0.417 |      |
|               |                   | 684   | 823.10      | 25.28         |            |       | 1    |

**Note(s):**

- SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC "Public Notice DA 02-1438" by the SCC-34/SC-2. Testing in the low and high channel is optional.
- With headset attached.

**Hotspot SAR**

Not applicable. Due to the BC 10 does not support EVDO

### 11.3. CDMA BC1

This device supports 1x Advanced. However, SAR is not required because the maximum output for 1x Advanced is no more than 0.25 dB higher than the maximum measured for 1xRTT. If the measured SAR on 1xRTT mode is greater than 1.2 W/kg, repeat the highest of those configurations above 1.2 W/kg for each exposure condition in 1x Advanced. All measured SAR in 1xRTT mode higher than 1.5 W/kg must be repeated for 1x Advanced as Per KDB 760669.

#### 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     | 24.93         | 0.797        | 0.500        |      |
|                  |                  | 600   | 1880.00     | 25.02         | 0.957        | 0.591        |      |
|                  |                  | 1175  | 1908.75     | 25.05         | <b>1.050</b> | <b>0.619</b> |      |
| Left Tilt (15°)  | 1xRTT (RC3,SO55) | 25    | 1851.25     | 24.93         |              |              | 1    |
|                  |                  | 600   | 1880.00     | 25.02         | 0.327        | 0.211        |      |
|                  |                  | 1175  | 1908.75     | 25.05         |              |              | 1    |
| Right Touch      | 1xRTT (RC3,SO55) | 25    | 1851.25     | 24.93         |              |              | 1    |
|                  |                  | 600   | 1880.00     | 25.02         | 0.686        | 0.420        |      |
|                  |                  | 1175  | 1908.75     | 25.05         |              |              | 1    |
| Right Tilt (15°) | 1xRTT (RC3,SO55) | 25    | 1851.25     | 24.93         |              |              | 1    |
|                  |                  | 600   | 1880.00     | 25.02         | 0.260        | 0.155        |      |
|                  |                  | 1175  | 1908.75     | 25.05         |              |              | 1    |

#### Head SAR (VOIP mode operation)

| 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     | 24.25         |            |       | 1    |
|                  |                 | 600   | 1880.00     | 24.20         | 0.640      | 0.390 |      |
|                  |                 | 1175  | 1908.75     | 24.34         |            |       | 1    |
| Left Tilt (15°)  | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 1    |
|                  |                 | 600   | 1880.00     | 24.20         | 0.761      | 0.449 |      |
|                  |                 | 1175  | 1908.75     | 24.34         |            |       | 1    |
| Right Touch      | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         | 0.782      | 0.468 |      |
|                  |                 | 600   | 1880.00     | 24.20         | 0.822      | 0.494 |      |
|                  |                 | 1175  | 1908.75     | 24.34         | 0.887      | 0.524 |      |
| Right Tilt (15°) | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         | 0.647      | 0.381 |      |
|                  |                 | 600   | 1880.00     | 24.20         | 0.945      | 0.527 |      |
|                  |                 | 1175  | 1908.75     | 24.34         | 0.732      | 0.436 |      |

#### Note(s):

- SAR test was performed in the middle channel only as the measured level was < 50% (0.8 mW/g) of the SAR limit as stated in FCC "Public Notice DA 02-1438" by the SCC-34/SC-2. Testing in the low and high channel is optional.

**Body SAR with 10 mm separation distance**

| Test Position | Mode              | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g)   |              | Note |
|---------------|-------------------|-------|-------------|---------------|--------------|--------------|------|
|               |                   |       |             |               | 1-g          | 10-g         |      |
| Rear          | 1xRTT (RC3, SO32) | 25    | 1851.25     | 25.05         | 0.998        | 0.551        |      |
|               |                   | 600   | 1880.0      | 25.16         | <b>1.160</b> | <b>0.648</b> |      |
|               |                   | 1175  | 1908.75     | 25.07         | 1.06         | 0.609        |      |
|               |                   | 600   | 1880.0      | 25.16         | 0.92         | 0.517        | 2    |
| Front         | 1xRTT (RC3, SO32) | 25    | 1851.25     | 25.05         | 0.911        | 0.550        |      |
|               |                   | 600   | 1880.0      | 25.16         | 1.160        | 0.704        |      |
|               |                   | 1175  | 1908.75     | 25.07         | 1.140        | 0.696        |      |

**Hotspot SAR with 10 mm separation distance**

| Test Position | Mode            | Ch #. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g) |       | Note |
|---------------|-----------------|-------|-------------|---------------|------------|-------|------|
|               |                 |       |             |               | 1-g        | 10-g  |      |
| Rear          | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 1    |
|               |                 | 600   | 1880.0      | 24.20         | 0.718      | 0.427 |      |
|               |                 | 1175  | 1908.75     | 24.34         |            |       | 1    |
|               |                 | 600   | 1880.0      | 24.20         | 0.693      | 0.405 | 2    |
| Front         | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 1    |
|               |                 | 600   | 1880.0      | 24.20         | 0.311      | 0.194 |      |
|               |                 | 1175  | 1908.75     | 24.34         |            |       | 1    |
| Left          | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 1    |
|               |                 | 600   | 1880.0      | 24.20         | 0.316      | 0.186 |      |
|               |                 | 1175  | 1908.75     | 24.34         |            |       | 1    |
| Right         | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 3    |
|               |                 | 600   | 1880.0      | 24.20         |            |       | 3    |
|               |                 | 1175  | 1908.75     | 24.34         |            |       | 3    |
| Bottom        | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 3    |
|               |                 | 600   | 1880.0      | 24.20         |            |       | 3    |
|               |                 | 1175  | 1908.75     | 24.34         |            |       | 3    |
| Top           | 1xEVDO (Rel. 0) | 25    | 1851.25     | 24.25         |            |       | 1    |
|               |                 | 600   | 1880.0      | 24.20         | 0.202      | 0.125 |      |
|               |                 | 1175  | 1908.75     | 24.34         |            |       | 1    |

**Note(s):**

- SAR test was performed in the middle channel only as the measured level was < 50% of the SAR limit as stated in FCC "Public Notice DA 02-1438" by the SCC-34/SC-2. Testing in the low and high channel is optional.
- With headset attached.
- SAR is not required due to antenna-to-edge's distance is greater than 2.5 cm.

### 11.4. LTE Band 25

**(1) Head SAR**

**Left Hand Side (LHS): 5 MHz BW**

| Test Position | UL Ch #. | Freq. (MHz) | Mode  | RB Size | RB Offset | Avg Pwr (dBm) | MPR | SAR (mW/g) |       | Note |
|---------------|----------|-------------|-------|---------|-----------|---------------|-----|------------|-------|------|
|               |          |             |       |         |           |               |     | 1-g        | 10-g  |      |
| Left Touch    | 26065    | 1852.5      | QPSK  | 1       | 0         | 23.35         | 0   |            |       | 1    |
|               |          |             |       | 1       | 24        | 23.48         | 0   |            |       | 1    |
|               |          |             |       | 12      | 6         | 22.48         | 1   |            |       | 1    |
|               |          |             |       | 25      | 0         | 22.44         | 1   |            |       | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.41         | 1   |            |       | 1    |
|               |          |             |       | 1       | 24        | 22.56         | 1   |            |       | 1    |
|               |          |             |       | 12      | 6         | 21.29         | 2   |            |       | 1    |
|               |          |             |       | 25      | 0         | 21.51         | 2   |            |       | 1    |
|               | 26365    | 1882.5      | QPSK  | 1       | 0         | 23.50         | 0   | 0.564      | 0.347 |      |
|               |          |             |       | 1       | 24        | 23.51         | 0   | 0.537      | 0.328 |      |
|               |          |             |       | 12      | 6         | 22.56         | 1   | 0.400      | 0.244 |      |
|               |          |             |       | 25      | 0         | 22.49         | 1   |            |       | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.33         | 1   | 0.461      | 0.284 |      |
|               |          |             |       | 1       | 24        | 22.45         | 1   | 0.435      | 0.267 |      |
|               |          |             |       | 12      | 6         | 21.50         | 2   | 0.313      | 0.191 |      |
|               |          |             |       | 25      | 0         | 21.62         | 2   |            |       | 1    |
|               | 26665    | 1912.5      | QPSK  | 1       | 0         | 23.70         | 0   | 0.602      | 0.369 |      |
|               |          |             |       | 1       | 24        | 23.70         | 0   | 0.577      | 0.352 |      |
|               |          |             |       | 12      | 6         | 22.59         | 1   |            |       | 1    |
|               |          |             |       | 25      | 0         | 22.57         | 1   |            |       | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.51         | 1   | 0.494      | 0.298 |      |
|               |          |             |       | 1       | 24        | 22.66         | 1   | 0.493      | 0.301 |      |
|               |          |             |       | 12      | 6         | 21.60         | 2   |            |       | 1    |
|               |          |             |       | 25      | 0         | 21.73         | 2   |            |       | 1    |
| Left Tilt     | 26065    | 1852.5      | QPSK  | 1       | 0         | 23.35         | 0   |            |       | 1    |
|               |          |             |       | 1       | 24        | 23.48         | 0   |            |       |      |
|               |          |             |       | 12      | 6         | 22.48         | 1   |            |       | 1    |
|               |          |             |       | 25      | 0         | 22.44         | 1   |            |       | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.41         | 1   |            |       | 1    |
|               |          |             |       | 1       | 24        | 22.56         | 1   |            |       | 1    |
|               |          |             |       | 12      | 6         | 21.29         | 2   |            |       | 1    |
|               |          |             |       | 25      | 0         | 21.51         | 2   |            |       | 1    |
|               | 26365    | 1882.5      | QPSK  | 1       | 0         | 23.50         | 0   | 0.698      | 0.414 |      |
|               |          |             |       | 1       | 24        | 23.51         | 0   | 0.666      | 0.392 |      |
|               |          |             |       | 12      | 6         | 22.56         | 1   | 0.495      | 0.293 |      |
|               |          |             |       | 25      | 0         | 22.49         | 1   |            |       | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.33         | 1   | 0.543      | 0.323 |      |
|               |          |             |       | 1       | 24        | 22.45         | 1   | 0.486      | 0.288 |      |
|               |          |             |       | 12      | 6         | 21.50         | 2   | 0.372      | 0.220 |      |
|               |          |             |       | 25      | 0         | 21.62         | 2   |            |       | 1    |
|               | 26665    | 1912.5      | QPSK  | 1       | 0         | 23.70         | 0   | 0.748      | 0.439 |      |
|               |          |             |       | 1       | 24        | 23.70         | 0   | 0.722      | 0.422 |      |
|               |          |             |       | 12      | 6         | 22.59         | 1   |            |       | 1    |
|               |          |             |       | 25      | 0         | 22.57         | 1   |            |       | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.51         | 1   | 0.633      | 0.371 |      |
|               |          |             |       | 1       | 24        | 22.66         | 1   | 0.647      | 0.379 |      |
|               |          |             |       | 12      | 6         | 21.60         | 2   |            |       | 1    |
|               |          |             |       | 25      | 0         | 21.73         | 2   |            |       | 1    |

**Note(s):**

- The test reduction for LTE SAR are based on KDB 941225 D05 SAR for LTE Devices v01

**Right Hand Side (RHS): 5 MHz BW**

| Test Position | UL Ch #. | Freq. (MHz) | Mode  | RB Size | RB Offset | Avg Pwr (dBm) | MPR | SAR (mW/g)   |       | Note         |              |   |
|---------------|----------|-------------|-------|---------|-----------|---------------|-----|--------------|-------|--------------|--------------|---|
|               |          |             |       |         |           |               |     | 1-g          | 10-g  |              |              |   |
| RightTouch    | 26065    | 1852.5      | QPSK  | 1       | 0         | 23.35         | 0   |              |       | 1            |              |   |
|               |          |             |       | 1       | 24        | 23.48         | 0   |              |       | 1            |              |   |
|               |          |             |       | 12      | 6         | 22.48         | 1   |              |       | 1            |              |   |
|               |          |             |       | 25      | 0         | 22.44         | 1   |              |       | 1            |              |   |
|               |          |             | 16QAM | 1       | 0         | 22.41         | 1   |              |       | 1            |              |   |
|               |          |             |       | 1       | 24        | 22.56         | 1   |              |       | 1            |              |   |
|               |          |             |       | 12      | 6         | 21.29         | 2   |              |       | 1            |              |   |
|               |          |             |       | 25      | 0         | 21.51         | 2   |              |       | 1            |              |   |
|               |          |             | 26365 | 1882.5  | QPSK      | 1             | 0   | 23.50        | 0     | 0.778        | 0.454        |   |
|               |          |             |       |         |           | 1             | 24  | 23.51        | 0     | <b>0.798</b> | <b>0.459</b> |   |
|               |          |             |       |         |           | 12            | 6   | 22.56        | 1     | 0.629        | 0.373        |   |
|               |          |             |       |         |           | 25            | 0   | 22.49        | 1     |              |              | 1 |
|               | 16QAM    | 1           |       |         | 0         | 22.33         | 1   | 0.617        | 0.367 |              |              |   |
|               |          | 1           |       |         | 24        | 22.45         | 1   | 0.671        | 0.398 |              |              |   |
|               |          | 12          |       |         | 6         | 21.50         | 2   | 0.483        | 0.287 |              |              |   |
|               |          | 25          |       |         | 0         | 21.62         | 2   |              |       | 1            |              |   |
|               | 26665    | 1912.5      |       |         | QPSK      | 1             | 0   | <b>23.70</b> | 0     | 0.745        | 0.450        |   |
|               |          |             |       |         |           | 1             | 24  | <b>23.70</b> | 0     | 0.757        | 0.455        |   |
|               |          |             |       |         |           | 12            | 6   | 22.59        | 1     |              |              | 1 |
|               |          |             |       |         |           | 25            | 0   | 22.57        | 1     |              |              | 1 |
|               |          |             | 16QAM | 1       | 0         | <b>22.51</b>  | 1   | 0.622        | 0.372 |              |              |   |
|               |          |             |       | 1       | 24        | <b>22.66</b>  | 1   | 0.740        | 0.437 |              |              |   |
|               |          |             |       | 12      | 6         | 21.60         | 2   |              |       | 1            |              |   |
|               |          |             |       | 25      | 0         | 21.73         | 2   |              |       | 1            |              |   |
| RightTilt     |          |             | 26065 | 1852.5  | QPSK      | 1             | 0   | 23.35        | 0     |              |              | 1 |
|               |          |             |       |         |           | 1             | 24  | 23.48        | 0     |              |              | 1 |
|               |          |             |       |         |           | 12            | 6   | 22.48        | 1     |              |              | 1 |
|               |          |             |       |         |           | 25            | 0   | 22.44        | 1     |              |              | 1 |
|               | 16QAM    | 1           |       |         | 0         | 22.41         | 1   |              |       | 1            |              |   |
|               |          | 1           |       |         | 24        | 22.56         | 1   |              |       | 1            |              |   |
|               |          | 12          |       |         | 6         | 21.29         | 2   |              |       | 1            |              |   |
|               |          | 25          |       |         | 0         | 21.51         | 2   |              |       | 1            |              |   |
|               | 26365    | 1882.5      |       |         | QPSK      | 1             | 0   | 23.50        | 0     | <b>0.700</b> | <b>0.419</b> |   |
|               |          |             |       |         |           | 1             | 24  | 23.51        | 0     | 0.667        | 0.401        |   |
|               |          |             |       |         |           | 12            | 6   | 22.56        | 1     | 0.504        | 0.302        |   |
|               |          |             |       |         |           | 25            | 0   | 22.49        | 1     |              |              | 1 |
|               |          |             | 16QAM | 1       | 0         | 22.33         | 1   | 0.567        | 0.340 |              |              |   |
|               |          |             |       | 1       | 24        | 22.45         | 1   | 0.543        | 0.327 |              |              |   |
|               |          |             |       | 12      | 6         | 21.50         | 2   | 0.401        | 0.241 |              |              |   |
|               |          |             |       | 25      | 0         | 21.62         | 2   |              |       | 1            |              |   |
|               |          |             | 26665 | 1912.5  | QPSK      | 1             | 0   | <b>23.70</b> | 0     | 0.681        | 0.410        |   |
|               |          |             |       |         |           | 1             | 24  | <b>23.70</b> | 0     | 0.659        | 0.398        |   |
|               |          |             |       |         |           | 12            | 6   | 22.59        | 1     |              |              | 1 |
|               |          |             |       |         |           | 25            | 0   | 22.57        | 1     |              |              | 1 |
|               | 16QAM    | 1           |       |         | 0         | <b>22.51</b>  | 1   | 0.571        | 0.344 |              |              |   |
|               |          | 1           |       |         | 24        | <b>22.66</b>  | 1   | 0.580        | 0.346 |              |              |   |
|               |          | 12          |       |         | 6         | 21.60         | 2   |              |       | 1            |              |   |
|               |          | 25          |       |         | 0         | 21.73         | 2   |              |       | 1            |              |   |

**Note(s):**

1. The test reduction for LTE SAR is based on KDB 941225 D05 SAR for LTE Devices v01

**(2) Body & Hotspot SAR 5 MHz BW**

| Test Position | UL Ch #. | Freq. (MHz) | Mode  | RB Size | RB Offset | Avg Pwr (dBm) | MPR | SAR (mW/g)   |              | Note |
|---------------|----------|-------------|-------|---------|-----------|---------------|-----|--------------|--------------|------|
|               |          |             |       |         |           |               |     | 1-g          | 10-g         |      |
| Rear          | 26065    | 1852.5      | QPSK  | 1       | 0         | 23.35         | 0   |              |              | 1    |
|               |          |             |       | 1       | 24        | 23.48         | 0   |              |              | 1    |
|               |          |             |       | 12      | 6         | 22.48         | 1   |              |              | 1    |
|               |          |             |       | 25      | 0         | 22.44         | 1   |              |              | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.41         | 1   |              |              | 1    |
|               |          |             |       | 1       | 24        | 22.56         | 1   |              |              | 1    |
|               |          |             |       | 12      | 6         | 21.29         | 2   |              |              | 1    |
|               |          |             |       | 25      | 0         | 21.51         | 2   |              |              | 1    |
|               | 26365    | 1882.5      | QPSK  | 1       | 0         | 23.50         | 0   | 0.490        | 0.296        |      |
|               |          |             |       | 1       | 24        | 23.51         | 0   | <b>0.580</b> | <b>0.345</b> |      |
|               |          |             |       | 1       | 24        | 23.51         | 0   | 0.534        | 0.312        | 2    |
|               |          |             |       | 12      | 6         | 22.56         | 1   | 0.460        | 0.274        |      |
|               |          |             | 16QAM | 25      | 0         | 22.49         | 1   |              |              | 1    |
|               |          |             |       | 1       | 0         | 22.33         | 1   | 0.401        | 0.246        |      |
|               |          |             |       | 1       | 24        | 22.45         | 1   | 0.439        | 0.261        |      |
|               |          |             |       | 12      | 6         | 21.50         | 2   | 0.320        | 0.191        |      |
|               | 26665    | 1912.5      | QPSK  | 25      | 0         | 21.62         | 2   |              |              | 1    |
|               |          |             |       | 1       | 0         | <b>23.70</b>  | 0   | 0.353        | 0.210        | 1    |
|               |          |             |       | 1       | 24        | <b>23.70</b>  | 0   | 0.336        | 0.197        |      |
|               |          |             |       | 12      | 6         | 22.59         | 1   |              |              | 1    |
|               |          |             | 16QAM | 25      | 0         | 22.57         | 1   |              |              | 1    |
|               |          |             |       | 1       | 0         | <b>22.51</b>  | 1   | 0.284        | 0.169        |      |
|               |          |             |       | 1       | 24        | <b>22.66</b>  | 1   | 0.364        | 0.212        |      |
|               |          |             |       | 12      | 6         | 21.60         | 2   |              |              | 1    |
| Front         | 26065    | 1852.5      | QPSK  | 1       | 0         | 23.35         | 0   |              |              | 1    |
|               |          |             |       | 1       | 24        | 23.48         | 0   |              |              | 1    |
|               |          |             |       | 12      | 6         | 22.48         | 1   |              |              | 1    |
|               |          |             |       | 25      | 0         | 22.44         | 1   |              |              | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.41         | 1   |              |              | 1    |
|               |          |             |       | 1       | 24        | 22.56         | 1   |              |              | 1    |
|               |          |             |       | 12      | 6         | 21.29         | 2   |              |              | 1    |
|               |          |             |       | 25      | 0         | 21.51         | 2   |              |              | 1    |
|               | 26365    | 1882.5      | QPSK  | 1       | 0         | 23.50         | 0   | 0.290        | 0.180        |      |
|               |          |             |       | 1       | 24        | 23.51         | 0   | <b>0.330</b> | <b>0.205</b> |      |
|               |          |             |       | 12      | 6         | 22.56         | 1   | 0.263        | 0.162        |      |
|               |          |             |       | 25      | 0         | 22.49         | 1   |              |              | 1    |
|               |          |             | 16QAM | 1       | 0         | 22.33         | 1   | 0.238        | 0.147        |      |
|               |          |             |       | 1       | 24        | 22.45         | 1   | 0.261        | 0.162        |      |
|               |          |             |       | 12      | 6         | 21.50         | 2   | 0.196        | 0.121        |      |
|               |          |             |       | 25      | 0         | 21.62         | 2   |              |              | 1    |
|               | 26665    | 1912.5      | QPSK  | 1       | 0         | <b>23.70</b>  | 0   | 0.275        | 0.168        |      |
|               |          |             |       | 1       | 24        | <b>23.70</b>  | 0   | 0.257        | 0.156        |      |
|               |          |             |       | 12      | 6         | 22.59         | 1   |              |              | 1    |
|               |          |             |       | 25      | 0         | 22.57         | 1   |              |              | 1    |
|               |          |             | 16QAM | 1       | 0         | <b>22.51</b>  | 1   | 0.224        | 0.137        |      |
|               |          |             |       | 1       | 24        | <b>22.66</b>  | 1   | 0.233        | 0.144        |      |
|               |          |             |       | 12      | 6         | 21.60         | 2   |              |              | 1    |
|               |          |             |       | 25      | 0         | 21.73         | 2   |              |              | 1    |

**Note(s):**

1. The test reduction for LTE SAR is based on KDB 941225 D05 SAR for LTE Devices v01.
2. With headset attached.

**(3) Hotspot SAR 5 MHz BW**

| Test Position | UL Ch #. | Freq. (MHz) | Mode  | RB Size | RB Offset | Avg Pwr (dBm) | MPR | SAR (mW/g) |       | Note  |       |   |
|---------------|----------|-------------|-------|---------|-----------|---------------|-----|------------|-------|-------|-------|---|
|               |          |             |       |         |           |               |     | 1-g        | 10-g  |       |       |   |
| Left          | 26065    | 1852.5      | QPSK  | 1       | 0         | 23.35         | 0   |            |       | 1     |       |   |
|               |          |             |       | 1       | 24        | 23.48         | 0   |            |       | 1     |       |   |
|               |          |             |       | 12      | 6         | 22.48         | 1   |            |       | 1     |       |   |
|               |          |             |       | 25      | 0         | 22.44         | 1   |            |       | 1     |       |   |
|               |          |             | 16QAM | 1       | 0         | 22.41         | 1   |            |       | 1     |       |   |
|               |          |             |       | 1       | 24        | 22.56         | 1   |            |       | 1     |       |   |
|               |          |             |       | 12      | 6         | 21.29         | 2   |            |       | 1     |       |   |
|               |          |             |       | 25      | 0         | 21.51         | 2   |            |       | 1     |       |   |
|               |          |             | 26365 | 1882.5  | QPSK      | 1             | 0   | 23.50      | 0     | 0.298 | 0.174 |   |
|               |          |             |       |         |           | 1             | 24  | 23.51      | 0     | 0.320 | 0.185 |   |
|               |          |             |       |         |           | 12            | 6   | 22.56      | 1     | 0.243 | 0.141 |   |
|               |          |             |       |         |           | 25            | 0   | 22.49      | 1     |       |       | 1 |
|               | 16QAM    | 1           |       |         | 0         | 22.33         | 1   | 0.245      | 0.142 |       |       |   |
|               |          | 1           |       |         | 24        | 22.45         | 1   | 0.262      | 0.151 |       |       |   |
|               |          | 12          |       |         | 6         | 21.50         | 2   | 0.192      | 0.112 |       |       |   |
|               |          | 25          |       |         | 0         | 21.62         | 2   |            |       | 1     |       |   |
|               | 26665    | 1912.5      |       |         | QPSK      | 1             | 0   | 23.70      | 0     | 0.331 | 0.189 |   |
|               |          |             |       |         |           | 1             | 24  | 23.70      | 0     | 0.354 | 0.200 |   |
|               |          |             |       |         |           | 12            | 6   | 22.59      | 1     |       |       | 1 |
|               |          |             |       |         |           | 25            | 0   | 22.57      | 1     |       |       | 1 |
|               |          |             | 16QAM | 1       | 0         | 22.51         | 1   | 0.277      | 0.157 |       |       |   |
|               |          |             |       | 1       | 24        | 22.66         | 1   | 0.295      | 0.166 |       |       |   |
|               |          |             |       | 12      | 6         | 21.60         | 2   |            |       | 1     |       |   |
|               |          |             |       | 25      | 0         | 21.73         | 2   |            |       | 1     |       |   |
| Top           |          |             | 26065 | 1852.5  | QPSK      | 1             | 0   | 23.35      | 0     |       |       | 1 |
|               |          |             |       |         |           | 1             | 24  | 23.48      | 0     |       |       | 1 |
|               |          |             |       |         |           | 12            | 6   | 22.48      | 1     |       |       | 1 |
|               |          |             |       |         |           | 25            | 0   | 22.44      | 1     |       |       | 1 |
|               | 16QAM    | 1           |       |         | 0         | 22.41         | 1   |            |       | 1     |       |   |
|               |          | 1           |       |         | 24        | 22.56         | 1   |            |       | 1     |       |   |
|               |          | 12          |       |         | 6         | 21.29         | 2   |            |       | 1     |       |   |
|               |          | 25          |       |         | 0         | 21.51         | 2   |            |       | 1     |       |   |
|               | 26365    | 1882.5      |       |         | QPSK      | 1             | 0   | 23.50      | 0     | 0.231 | 0.142 |   |
|               |          |             |       |         |           | 1             | 24  | 23.51      | 0     | 0.221 | 0.137 |   |
|               |          |             |       |         |           | 12            | 6   | 22.56      | 1     | 0.165 | 0.102 |   |
|               |          |             |       |         |           | 25            | 0   | 22.49      | 1     |       |       | 1 |
|               |          |             | 16QAM | 1       | 0         | 22.33         | 1   | 0.190      | 0.116 |       |       |   |
|               |          |             |       | 1       | 24        | 22.45         | 1   | 0.180      | 0.112 |       |       |   |
|               |          |             |       | 12      | 6         | 21.50         | 2   | 0.130      | 0.080 |       |       |   |
|               |          |             |       | 25      | 0         | 21.62         | 2   |            |       | 1     |       |   |
|               |          |             | 26665 | 1912.5  | QPSK      | 1             | 0   | 23.70      | 0     | 0.206 | 0.128 |   |
|               |          |             |       |         |           | 1             | 24  | 23.70      | 0     | 0.184 | 0.115 |   |
|               |          |             |       |         |           | 12            | 6   | 22.59      | 1     |       |       | 1 |
|               |          |             |       |         |           | 25            | 0   | 22.57      | 1     |       |       | 1 |
|               | 16QAM    | 1           |       |         | 0         | 22.51         | 1   | 0.173      | 0.107 |       |       |   |
|               |          | 1           |       |         | 24        | 22.66         | 1   | 0.163      | 0.101 |       |       |   |
|               |          | 12          |       |         | 6         | 21.60         | 2   |            |       | 1     |       |   |
|               |          | 25          |       |         | 0         | 21.73         | 2   |            |       | 1     |       |   |

**Note(s):**

1. The test reduction for LTE SAR is based on KDB 941225 D05 SAR for LTE Devices v01.

### 11.5. Wi-Fi

#### Head SAR

| Test position | Mode    | Ch No. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g)   |              | Note |
|---------------|---------|--------|-------------|---------------|--------------|--------------|------|
|               |         |        |             |               | 1-g          | 10-g         |      |
| Left Touch    | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              | 1    |
|               |         | 11     | 2462        | 14.85         | 0.115        | 0.058        |      |
| Left Tilt     | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              | 1    |
|               |         | 11     | 2462        | 14.85         | 0.034        | 0.016        |      |
| Right Touch   | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              |      |
|               |         | 11     | 2462        | 14.85         | <b>0.218</b> | <b>0.104</b> |      |
| Right Tilt    | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              | 1    |
|               |         | 11     | 2462        | 14.85         | 0.026        | 0.012        |      |

#### Body SAR with 10 mm separation distance

| Test position | Mode    | Ch No. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g)   |              | Note |
|---------------|---------|--------|-------------|---------------|--------------|--------------|------|
|               |         |        |             |               | 1-g          | 10-g         |      |
| Rear          | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              |      |
|               |         | 11     | 2462        | 14.85         | <b>0.245</b> | <b>0.112</b> |      |
| Front         | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              |      |
|               |         | 11     | 2462        | 14.85         | 0.067        | 0.033        |      |

#### Hotspot SAR with 10 mm separation distance

| Test position | Mode    | Ch No. | Freq. (MHz) | Avg Pwr (dBm) | SAR (mW/g)   |              | Note |
|---------------|---------|--------|-------------|---------------|--------------|--------------|------|
|               |         |        |             |               | 1-g          | 10-g         |      |
| Rear          | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              |      |
|               |         | 11     | 2462        | 14.85         | <b>0.245</b> | <b>0.112</b> |      |
| Front         | 802.11b | 1      | 2412        | 14.50         |              |              | 1    |
|               |         | 6      | 2437        | 14.60         |              |              |      |
|               |         | 11     | 2462        | 14.85         | 0.067        | 0.033        |      |
| Left          | 802.11b | 1      | 2412        | 14.5          |              |              | 3    |
|               |         | 6      | 2437        | 14.6          |              |              | 3    |
|               |         | 11     | 2462        | 14.9          |              |              | 3    |
| Right         | 802.11b | 1      | 2412        | 14.5          |              |              | 1    |
|               |         | 6      | 2437        | 14.6          |              |              |      |
|               |         | 11     | 2462        | 14.9          | <b>0.257</b> | <b>0.118</b> |      |
| Bottom        | 802.11b | 1      | 2412        | 14.5          |              |              | 3    |
|               |         | 6      | 2437        | 14.6          |              |              | 3    |
|               |         | 11     | 2462        | 14.9          |              |              | 3    |
| Top           | 802.11b | 1      | 2412        | 14.5          |              |              | 3    |
|               |         | 6      | 2437        | 14.6          |              |              | 3    |
|               |         | 11     | 2462        | 14.9          |              |              | 3    |

#### Note(s):

1. Testing was performed on the channel with the highest output power only as the SAR was  $\leq 0.8$  W/kg with the operating frequency band having a range of  $< 100$  MHz. Per KDB 447498 1) e) i)
2. With headset attached.
3. SAR is not required as the antenna-to-edge distance is greater than 2.5 cm.

## 12. Summary of Highest 1-g SAR

The test configuration for each body exposure condition (head, body and Hotspot) is dependent on the applicable voice or data modes, and antenna selected.

| FCC rule part | Technology/Band    | Test configuration    | Mode                      | Separation distance (mm) | Highest 1g SAR (W/kg) |
|---------------|--------------------|-----------------------|---------------------------|--------------------------|-----------------------|
| 22            | CDMA BC0 (835)     | Head: Left Touch      | 1xRTT (RC3, SO55)         | --                       | 0.707                 |
|               |                    | Body: Rear            | 1xRTT (RC3, SO32)         | 10                       | 0.757                 |
|               |                    | Hotspot: Rear         | 1xEVDO (Rel. 0)           | 10                       | 0.668                 |
| 90            | CDMA BC10 (820)    | Head: Left Touch      | 1xRTT (RC3, SO55)         | --                       | 0.615                 |
|               |                    | Body: Rear            | 1xRTT (RC3, SO32)         | 10                       | 0.781                 |
|               |                    | Hotspot: Rear         | See note 1                | --                       | --                    |
| 24            | CDMA BC1 (1900)    | Head: Left Touch      | 1xRTT (RC3, SO55)         | --                       | 1.05                  |
|               |                    | Body: Rear            | 1xRTT (RC3, SO32)         | 10                       | 1.16                  |
|               |                    | Hotspot: Rear         | 1xEVDO (Rel. 0)           | 10                       | 0.718                 |
| 24            | LTE Band 25 (1900) | Head: Right Touch     | 5 MHz (QPSK) RB# 1 RB# 24 | --                       | 0.798                 |
|               |                    | Body & -hotspot: Rear | 5 MHz (QPSK) RB# 1 RB# 24 | 10                       | 0.580                 |
| 15.247        | Wi-Fi 2.4 GHz      | Head: Right touch     | 802.11b, 1 kbps           | --                       | 0.218                 |
|               |                    | Body: Rear            | 802.11b, 1 kbps           | 10                       | 0.245                 |
|               |                    | Hotspot: Right        | 802.11b, 1 kbps           | 10                       | 0.257                 |

**Note(s):**

1. Not applicable. Due to the BC 10 does not support EVDO

### 13. Worst-case SAR Plots

Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab C

#### CDMA BC0(850) Measure\_Head

Communication System: CDMA2000; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 836.52$  MHz;  $\sigma = 0.875$  mho/m;  $\epsilon_r = 41.634$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

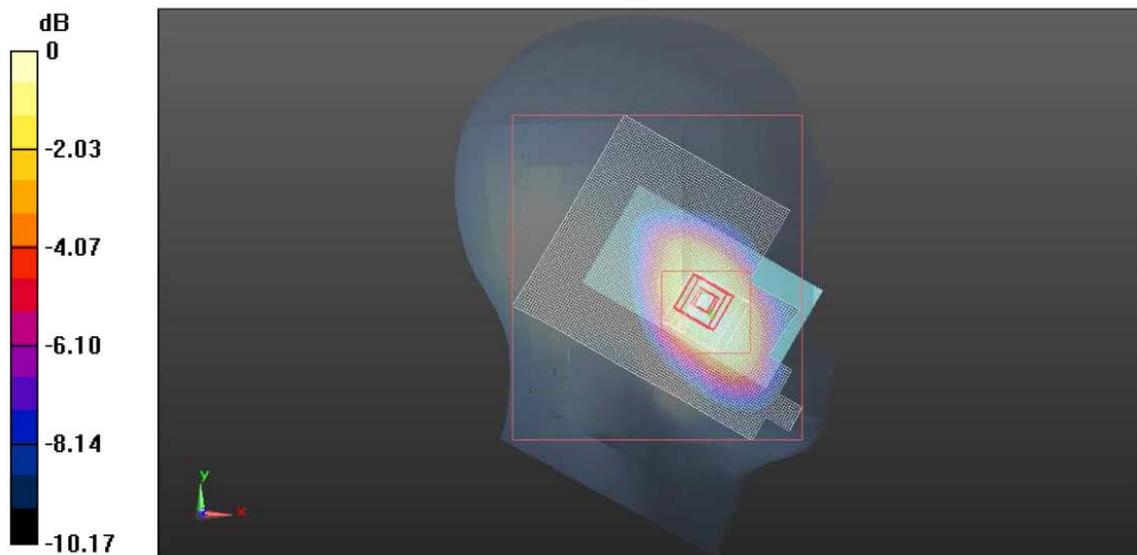
- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(8.52, 8.52, 8.52); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 10/18/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP1632
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

#### LHS\_CDMA BC0(850)\_1xRTT\_RC3, SO55/Touch\_Mid-Ch/Area Scan (81x111x1):

Measurement grid: dx=15mm, dy=15mm  
Info: [Interpolated medium parameters used for SAR evaluation.](#)  
Maximum value of SAR (interpolated) = 0.769 mW/g

#### LHS\_CDMA BC0(850)\_1xRTT\_RC3, SO55/Touch\_Mid-Ch/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 28.638 V/m; Power Drift = 0.16 dB  
Peak SAR (extrapolated) = 0.905 W/kg  
**SAR(1 g) = 0.707 mW/g; SAR(10 g) = 0.517 mW/g**  
Info: [Interpolated medium parameters used for SAR evaluation.](#)  
Maximum value of SAR (measured) = 0.798 mW/g



0 dB = 0.800mW/g

Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab C

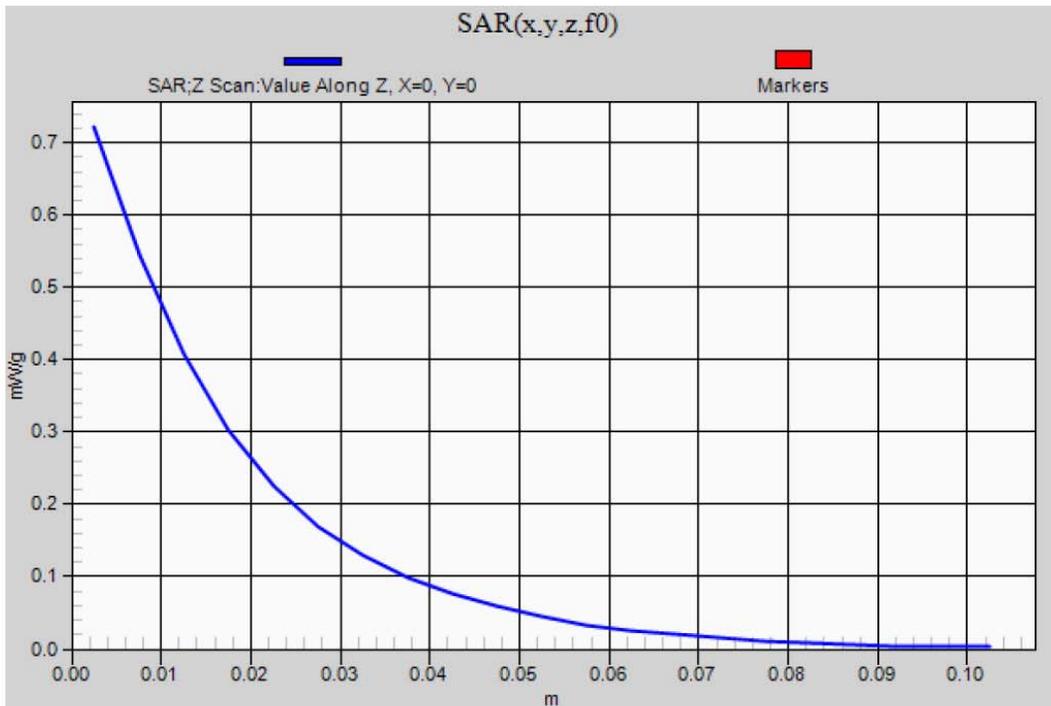
### CDMA BC0(850) Measure\_Head

Communication System: CDMA2000; Frequency: 836.52 MHz; Duty Cycle: 1:1

**LHS\_CDMA BC0(850)\_1xRTT\_RC3, SO55/Touch\_Mid-Ch/Z Scan (1x1x21):** Measurement grid:  
dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.721 mW/g



Date: 11/2/2011

Test Laboratory: UL CCS SAR Lab C

### CDMA BC0(850) measure\_Body\_1xRTT RC3, SO32

Communication System: CDMA2000; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 836.52$  MHz;  $\sigma = 0.987$  mho/m;  $\epsilon_r = 54.646$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(8.57, 8.57, 8.57); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 10/18/2011
- Phantom: ELI v4.0 (B); Type: QDOVA001BB; Serial: 1121
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

**Rear/Mid-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.864 mW/g

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

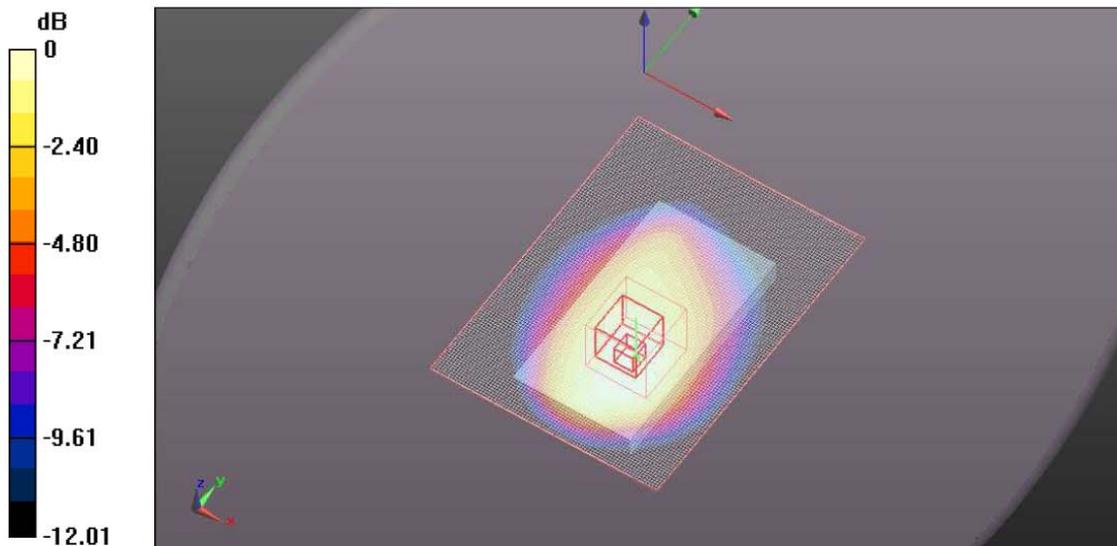
Reference Value = 29.570 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.112 W/kg

**SAR(1 g) = 0.757 mW/g; SAR(10 g) = 0.533 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.888 mW/g



0 dB = 0.890mW/g

Date: 11/2/2011

Test Laboratory: UL CCS SAR Lab C

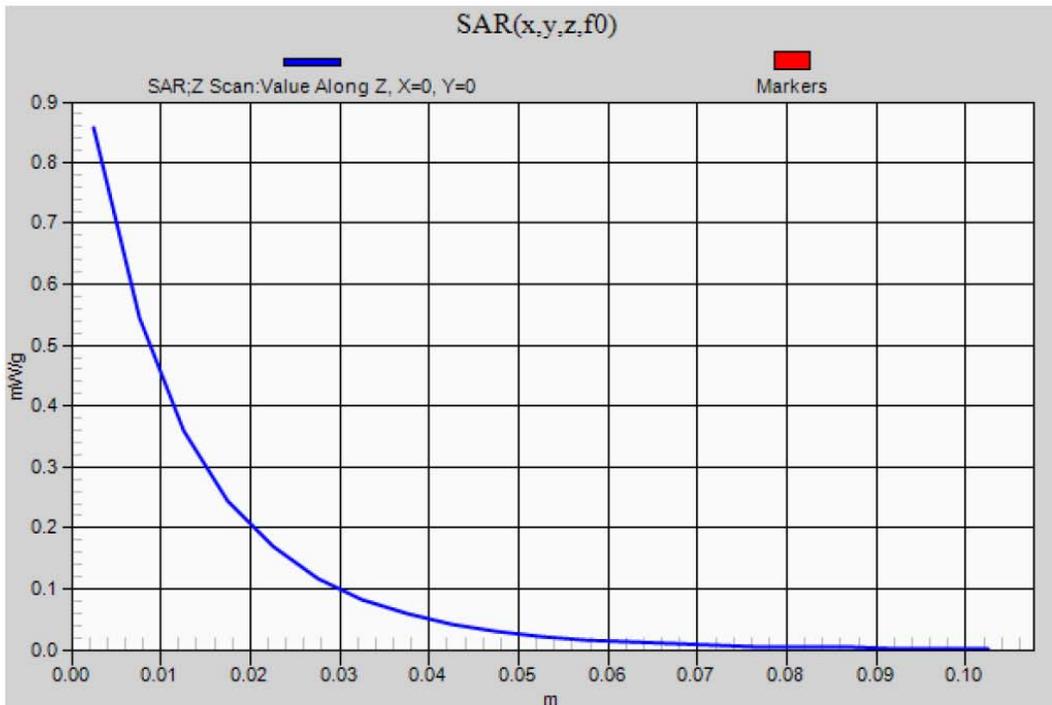
### CDMA BC0(850) measure\_Body\_1xRTT RC3, SO32

Communication System: CDMA2000; Frequency: 836.52 MHz; Duty Cycle: 1:1

**Rear/Mid-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.857 mW/g



Date: 11/2/2011

Test Laboratory: UL CCS SAR Lab C

### CDMA BC0(850) measure\_Hotspot\_1xEVDO Rel.0

Communication System: CDMA2000; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 836.52$  MHz;  $\sigma = 0.987$  mho/m;  $\epsilon_r = 54.646$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(8.57, 8.57, 8.57); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 10/18/2011
- Phantom: ELI v4.0 (B); Type: QDOVA001BB; Serial: 1121
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

**Rear/Mid-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.754 mW/g

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

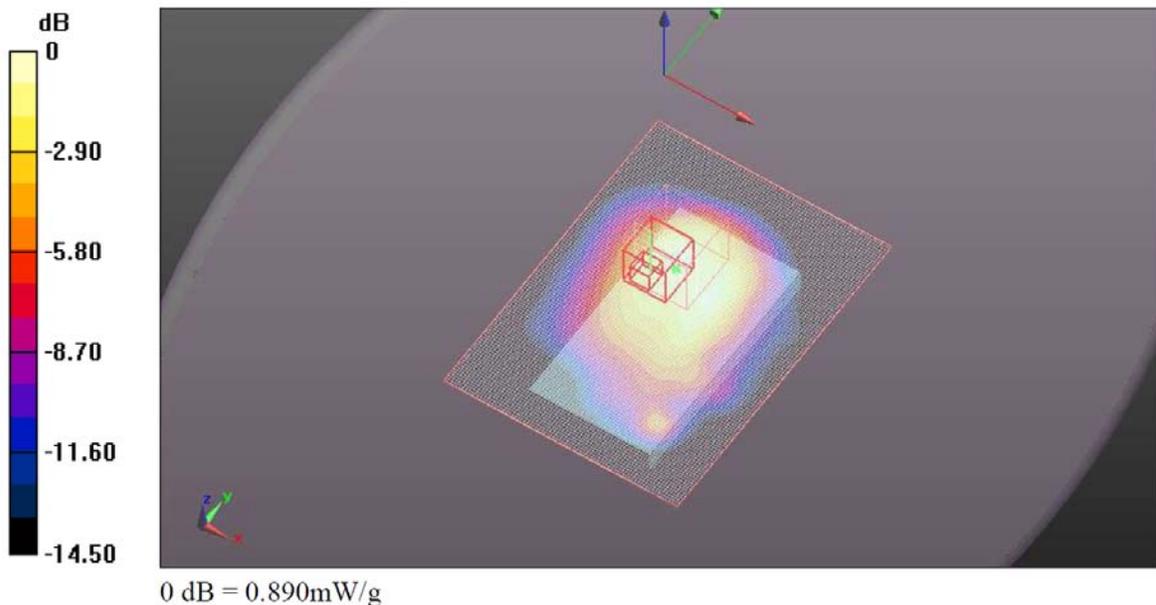
Reference Value = 25.174 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.175 W/kg

**SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.422 mW/g**

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.886 mW/g



Date: 11/2/2011

Test Laboratory: UL CCS SAR Lab C

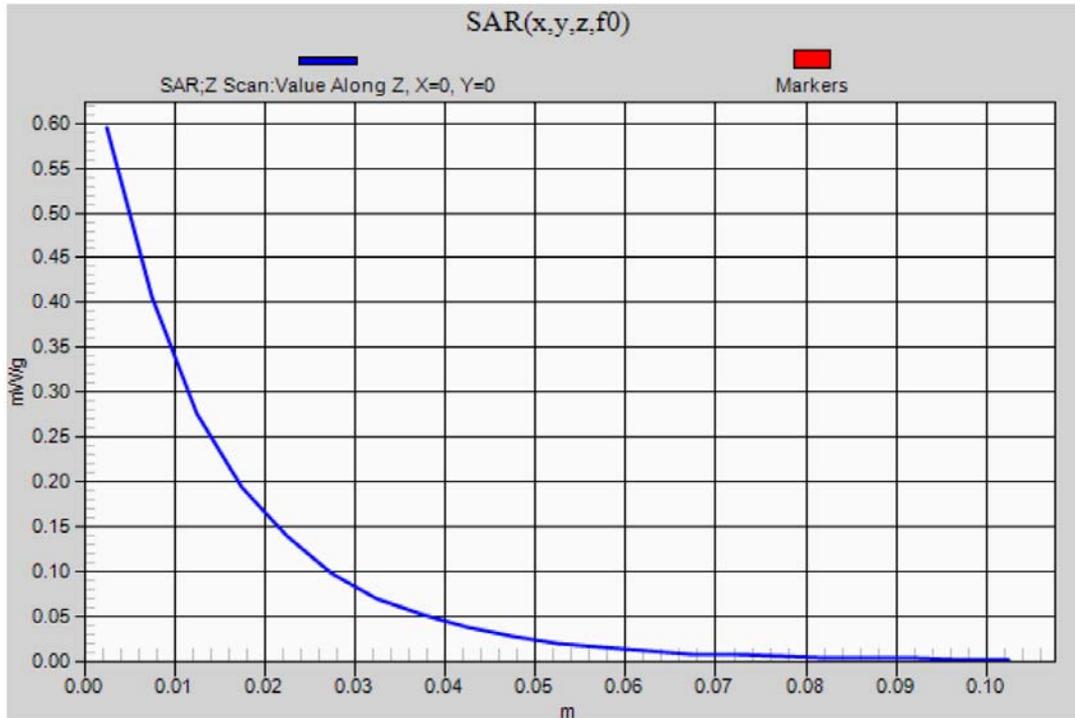
### CDMA BC0(850) measure\_Hotspot\_1xEVDO Rel.0

Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1

**Rear/Mid-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.595 mW/g



Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab C

### CDMA BC10(800)\_Head\_1xRTT RC3, SO55

Communication System: CDMA2000; Frequency: 820.5 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 820.5$  MHz;  $\sigma = 0.878$  mho/m;  $\epsilon_r = 42.848$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(8.52, 8.52, 8.52); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 10/18/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP1632
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

**LHS/Touch\_Mid-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.744 mW/g

**LHS/Touch\_Mid-Ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

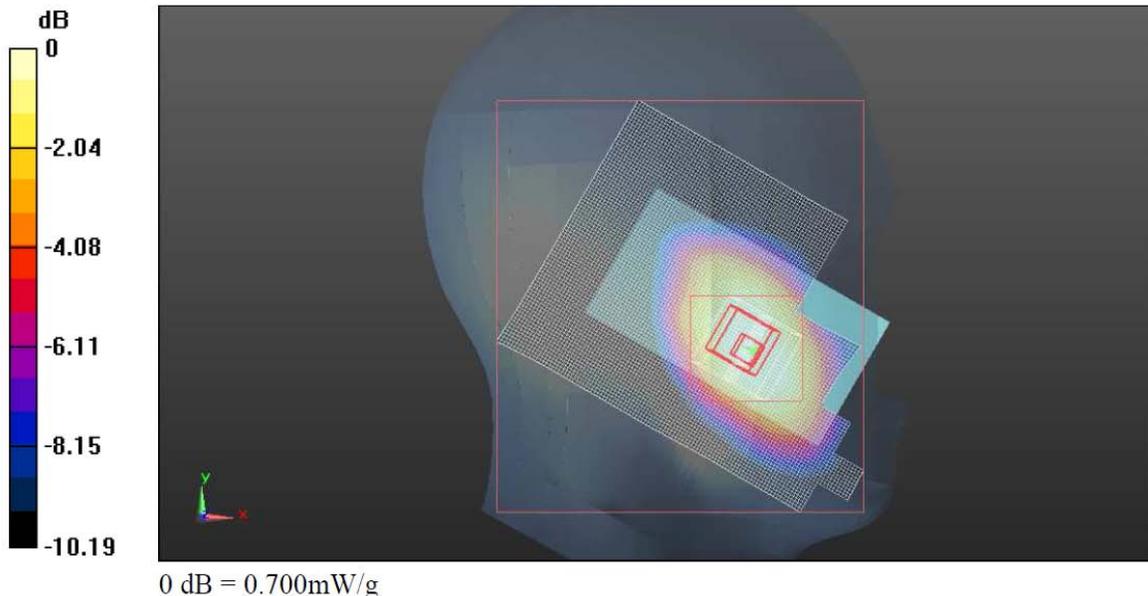
Reference Value = 27.963 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.805 W/kg

**SAR(1 g) = 0.615 mW/g; SAR(10 g) = 0.455 mW/g**

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.700 mW/g



Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab C

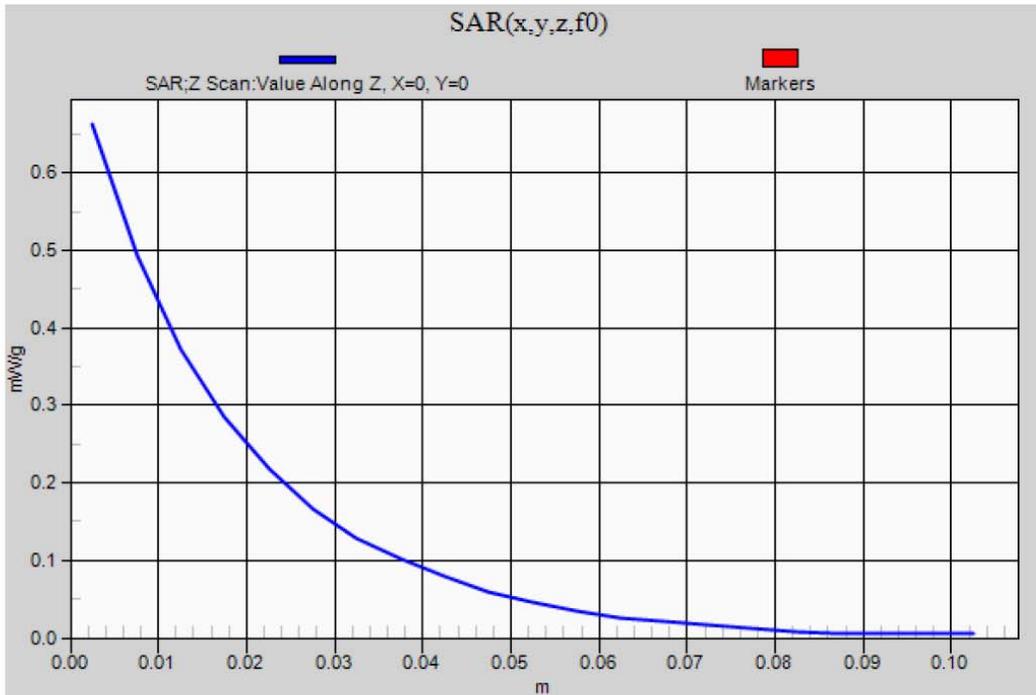
### CDMA BC10(800)\_Head\_1xRTT RC3, SO55

Communication System: CDMA2000; Frequency: 820.5 MHz; Duty Cycle: 1:1

**LHS/Touch\_Mid-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.662 mW/g



Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab C

### CDMA BC10(800)\_Body worn\_1xRTT RC3, SO32

Communication System: CDMA2000; Frequency: 820.5 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 820.5$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 55.339$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(8.57, 8.57, 8.57); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 10/18/2011
- Phantom: ELI v4.0 (B); Type: QDOVA001BB; Serial: 1121
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

**Rear/Mid-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.903 mW/g

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

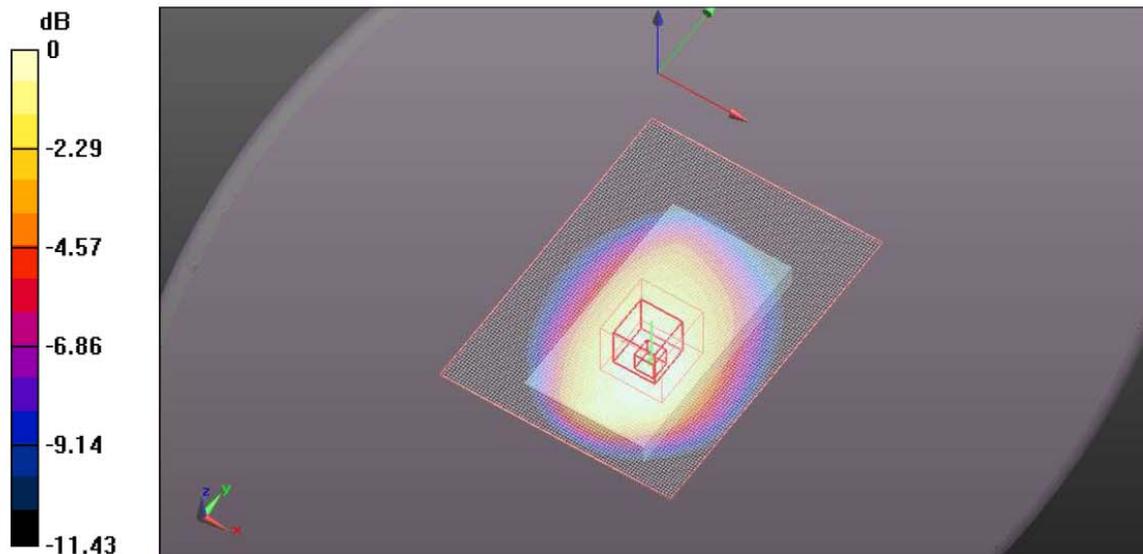
Reference Value = 30.498 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.111 W/kg

**SAR(1 g) = 0.781 mW/g; SAR(10 g) = 0.558 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.910 mW/g



0 dB = 0.910mW/g

Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab C

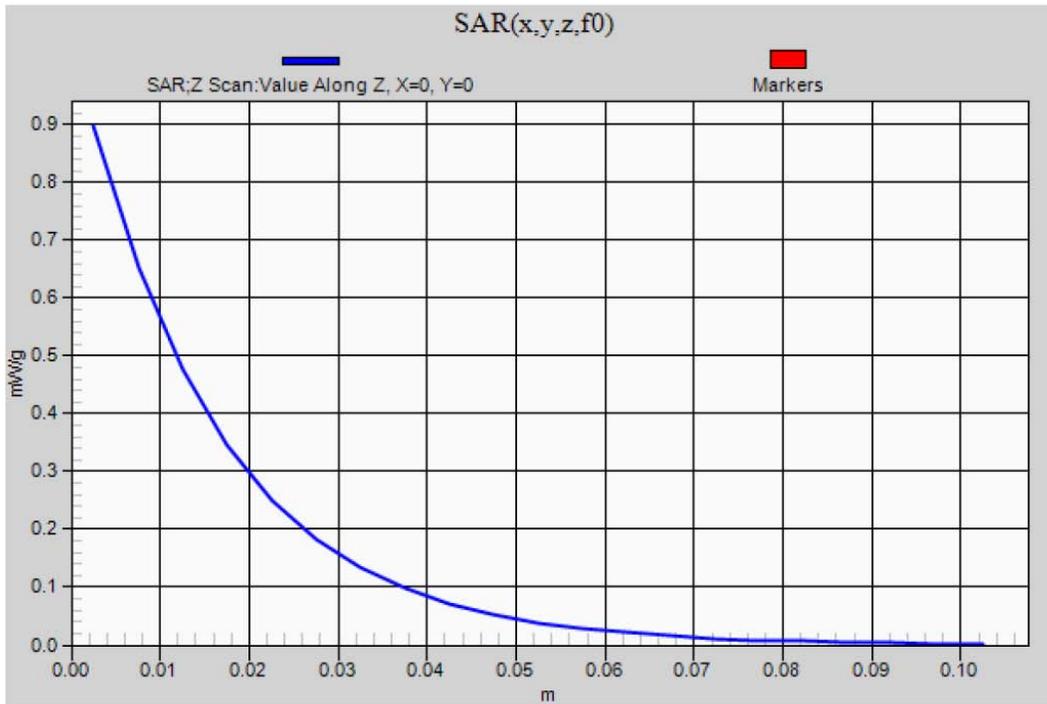
**CDMA BC10(800)\_Body worn\_1xRTT RC3, SO32**

Communication System: CDMA2000; Frequency: 820.5 MHz; Duty Cycle: 1:1

**Rear/Mid-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.897 mW/g



Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab B

### CDMA BC1\_Head\_1xRTT RC3 SO55

Communication System: CDMA2000; Frequency: 1908.75 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 1908.75$  MHz;  $\sigma = 1.423$  mho/m;  $\epsilon_r = 40.36$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(7.3, 7.3, 7.3); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP1632
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

**LHS/Touch\_H ch /Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.253 mW/g

**LHS/Touch\_H ch /Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

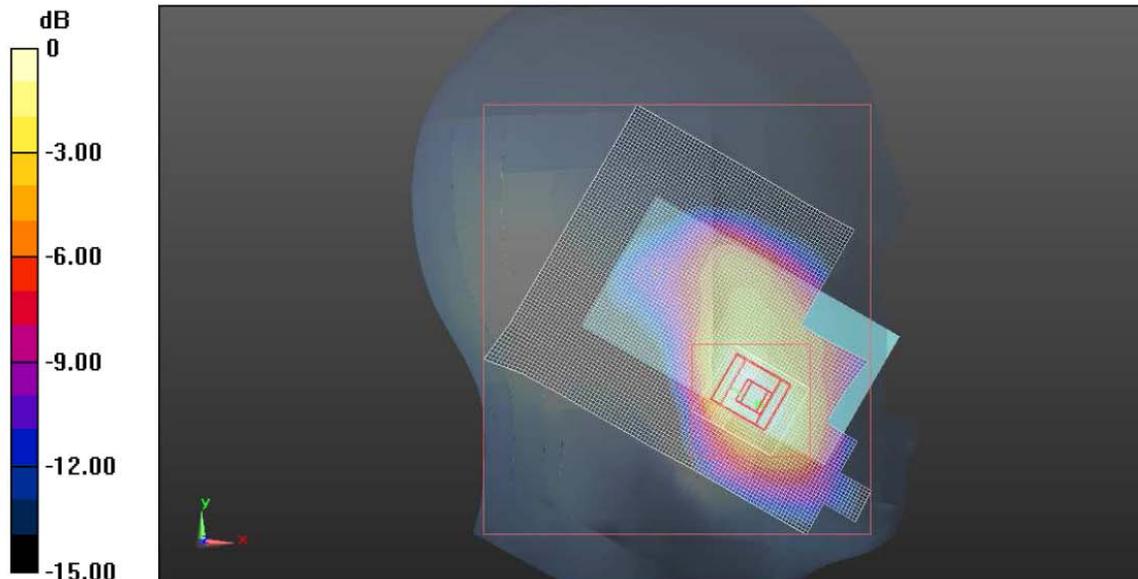
Reference Value = 27.816 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.676 W/kg

**SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.619 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.305 mW/g



0 dB = 1.310mW/g

Date: 11/3/2011

Test Laboratory: UL CCS SAR Lab B

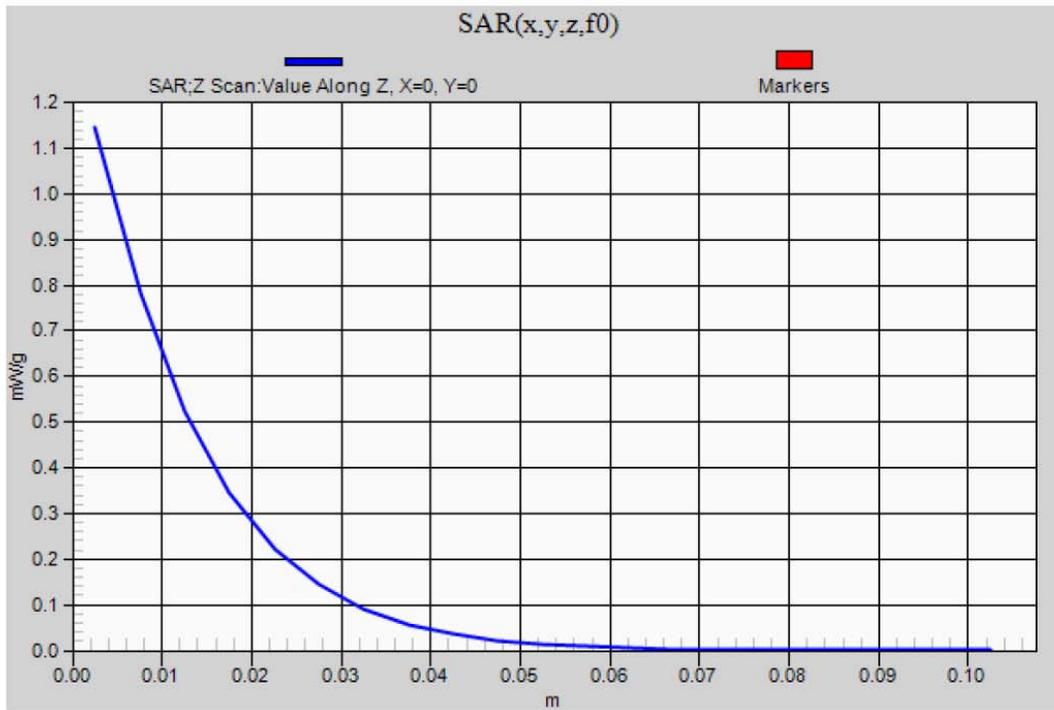
### CDMA BC1\_Head\_1xRTT RC3 SO55

Communication System: CDMA2000; Frequency: 1908.75 MHz; Duty Cycle: 1:1

**LHS/Touch\_H ch /Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.145 mW/g



Date: 11/15/2011

Test Laboratory: UL CCS SAR Lab A

### CDMA BC1\_Body worn

Communication System: CDMA2000; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.479$  mho/m;  $\epsilon_r = 51.221$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

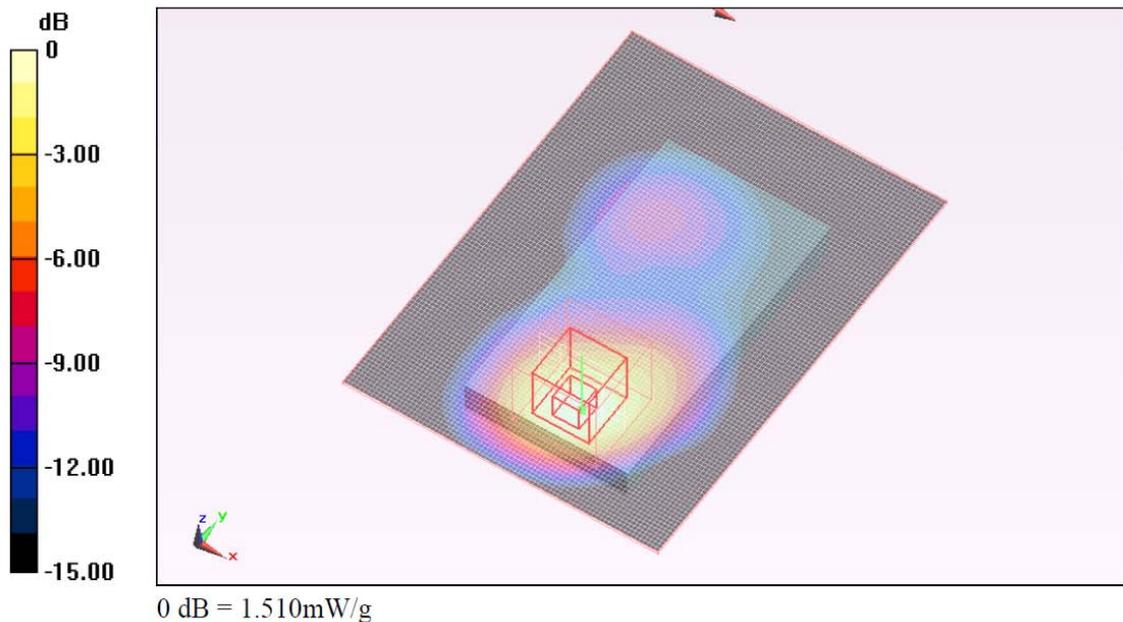
Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3772; ConvF(6.76, 6.76, 6.76); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1239; Calibrated: 10/18/2011
- Phantom: ELI v4.0 (A); Type: QDOVA001BB; Serial: 1117
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

**Rear/1xRTT\_M-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 1.451 mW/g

**Rear/1xRTT\_M-Ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 29.114 V/m; Power Drift = 0.11 dB  
Peak SAR (extrapolated) = 2.063 W/kg  
**SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.648 mW/g**  
Maximum value of SAR (measured) = 1.507 mW/g



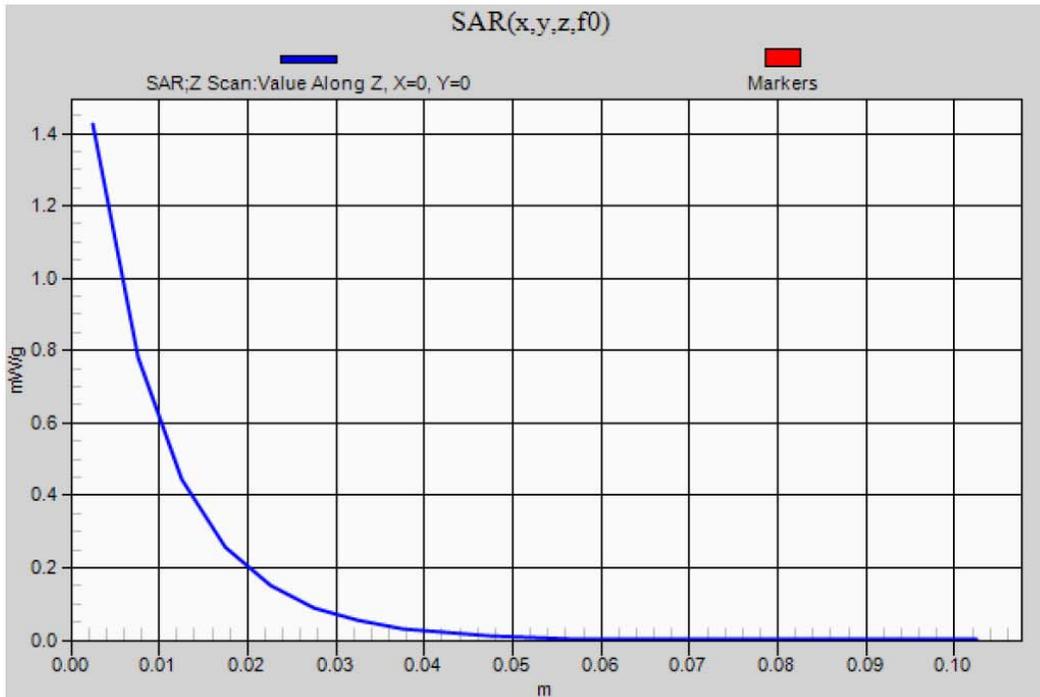
Date: 11/15/2011

Test Laboratory: UL CCS SAR Lab A

### CDMA BC1\_Body worn

Communication System: CDMA2000; Frequency: 1880 MHz; Duty Cycle: 1:1

**Rear/1xRTT\_M-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm  
Maximum value of SAR (measured) = 1.425 mW/g



Date: 11/2/2011

Test Laboratory: UL CCS SAR Lab B

### CDMA BC1\_Hotspot

Communication System: CDMA2000; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 52.224$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(7.37, 7.37, 7.37); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

**Rear/1xEvDo\_M-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.819 mW/g

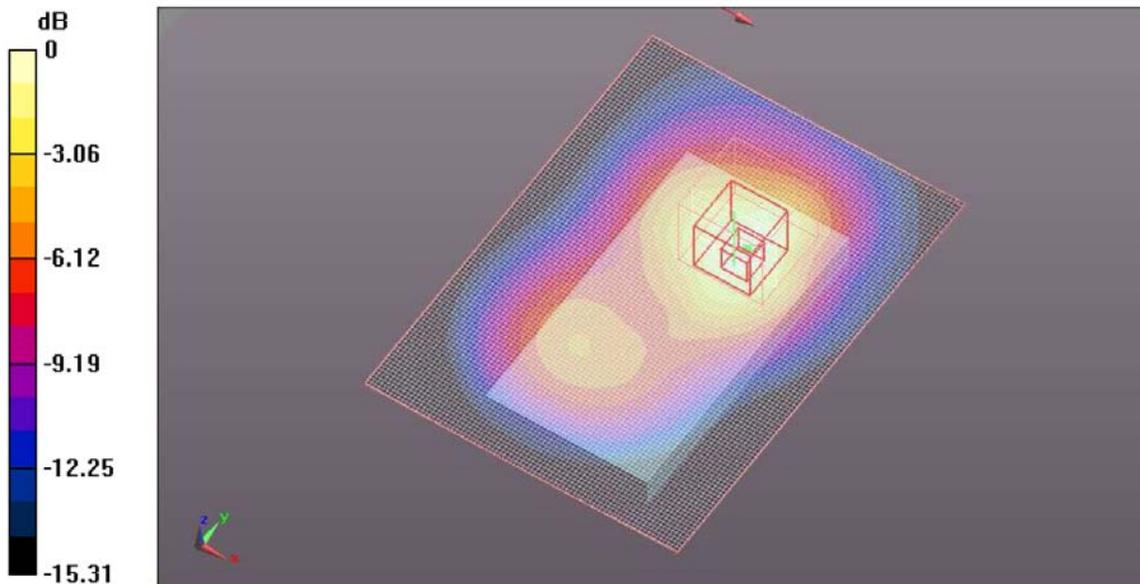
**Rear/1xEvDo\_M-Ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.889 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.246 W/kg

**SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.427 mW/g**

Maximum value of SAR (measured) = 0.905 mW/g



0 dB = 0.900mW/g

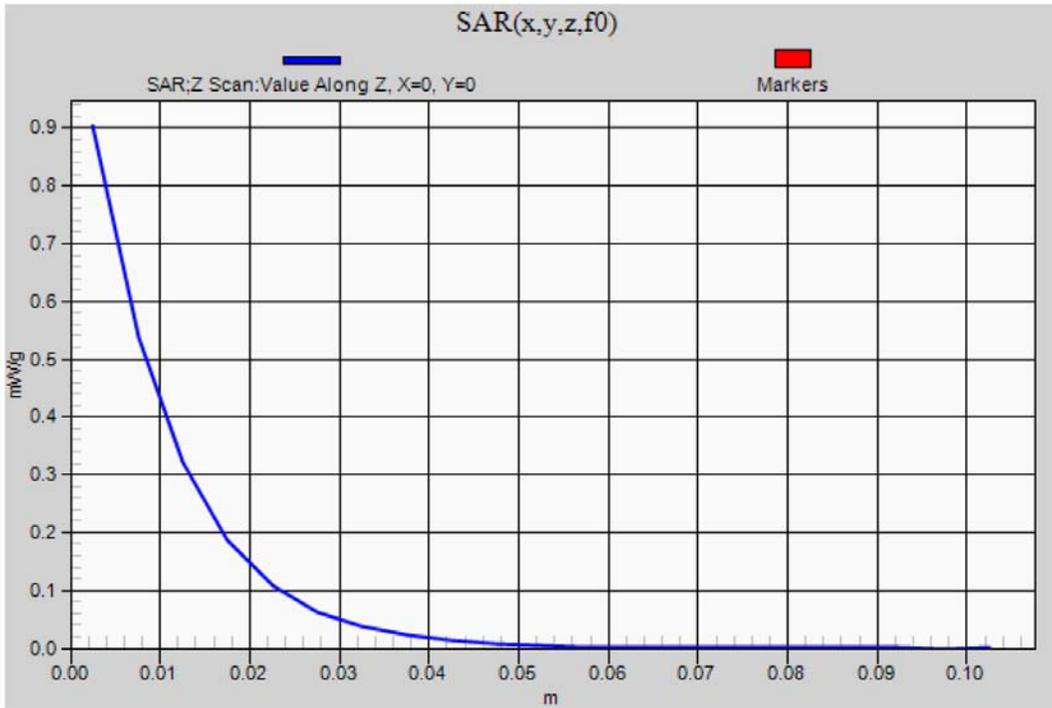
Date: 11/2/2011

Test Laboratory: UL CCS SAR Lab B

### CDMA BC1\_Hotspot

Communication System: CDMA2000; Frequency: 1880 MHz; Duty Cycle: 1:1

**Rear/1xEvDo\_M-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm  
Maximum value of SAR (measured) = 0.903 mW/g



Date: 11/11/2011

Test Laboratory: UL CCS SAR Lab B

### LTE Band 25\_Head

Communication System: LTE; Frequency: 1882.5 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 1882.5$  MHz;  $\sigma = 1.373$  mho/m;  $\epsilon_r = 39.844$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(7.3, 7.3, 7.3); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP1632
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

### RHS/Touch\_QPSK\_5MHz\_RB1\_RB24\_M-Ch\_Vol. Scan/Area Scan (81x111x1): Measurement

grid: dx=15mm, dy=15mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.099 mW/g

### RHS/Touch\_QPSK\_5MHz\_RB1\_RB24\_M-Ch\_Vol. Scan/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

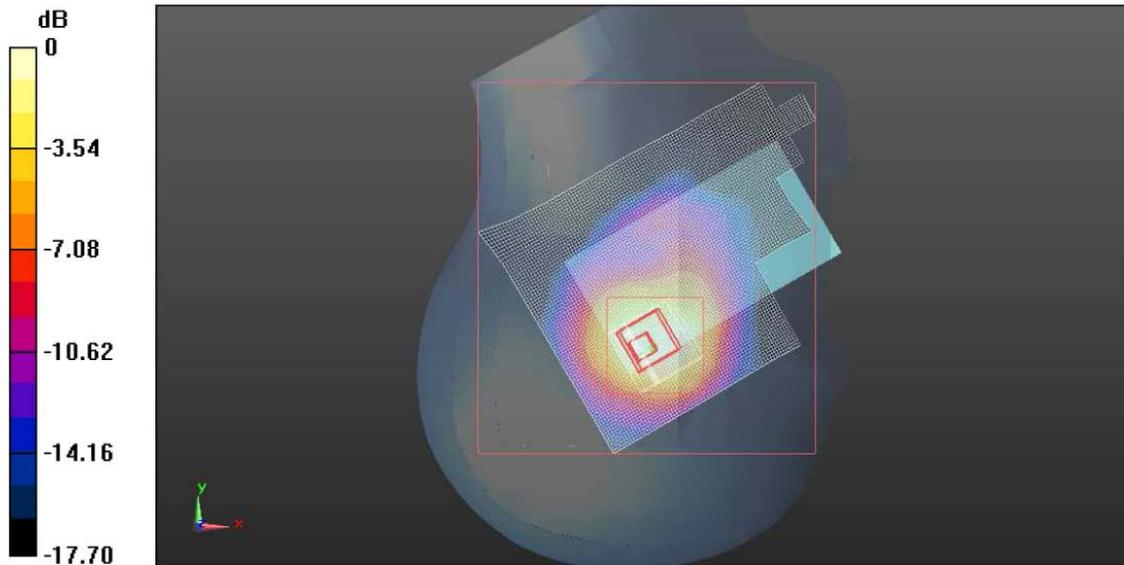
Reference Value = 27.112 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.427 W/kg

**SAR(1 g) = 0.798 mW/g; SAR(10 g) = 0.459 mW/g**

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.020 mW/g



0 dB = 1.020mW/g

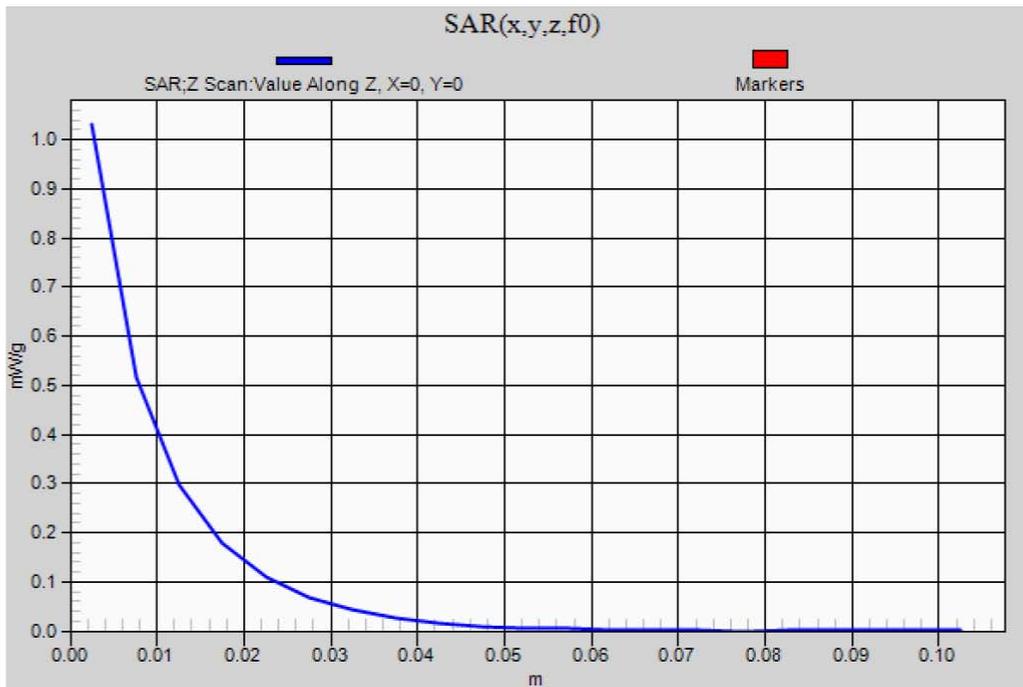
Date: 11/9/2011

Test Laboratory: UL CCS SAR Lab B

### LTE Band 25\_Head

Communication System: LTE; Frequency: 1882.5 MHz; Duty Cycle: 1:1

**RHS/Touch\_QPSK\_5MHz\_RB1\_RB24\_M-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm  
Info: [Interpolated medium parameters used for SAR evaluation.](#)  
Maximum value of SAR (measured) = 1.031 mW/g



Date: 11/7/2011

Test Laboratory: UL CCS SAR Lab B

### LTE Band 25\_Body

Communication System: LTE; Frequency: 1882.5 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 1882.5$  MHz;  $\sigma = 1.466$  mho/m;  $\epsilon_r = 52.356$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(7.37, 7.37, 7.37); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

**Rear/QPSK\_5MHz\_RB1\_RB24\_M-Ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.783 mW/g

**Rear/QPSK\_5MHz\_RB1\_RB24\_M-Ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

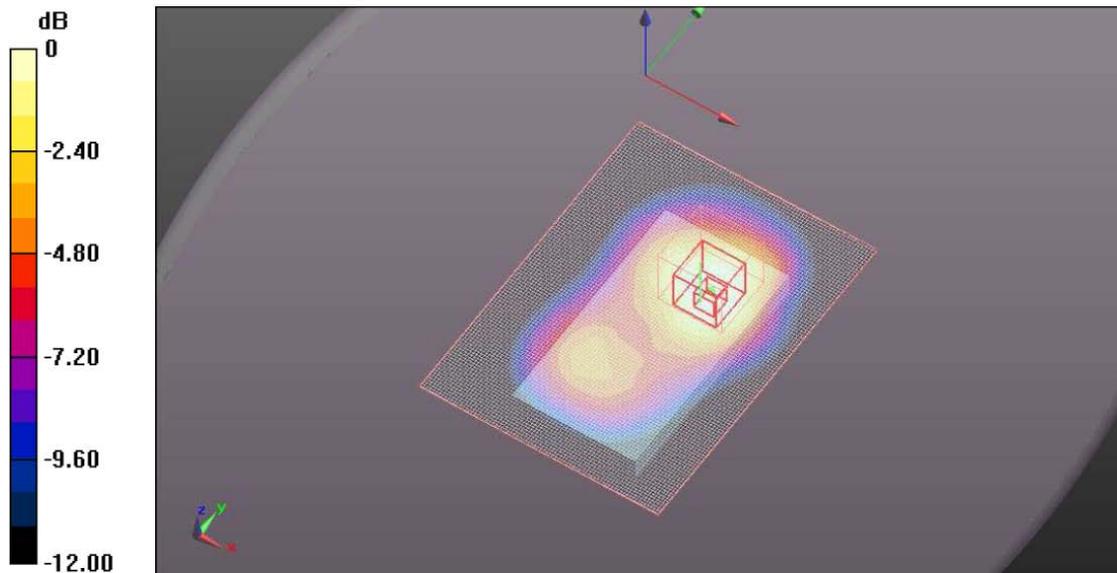
Reference Value = 22.742 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.987 W/kg

**SAR(1 g) = 0.580 mW/g; SAR(10 g) = 0.345 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.719 mW/g



0 dB = 0.720mW/g

Date: 11/7/2011

Test Laboratory: UL CCS SAR Lab B

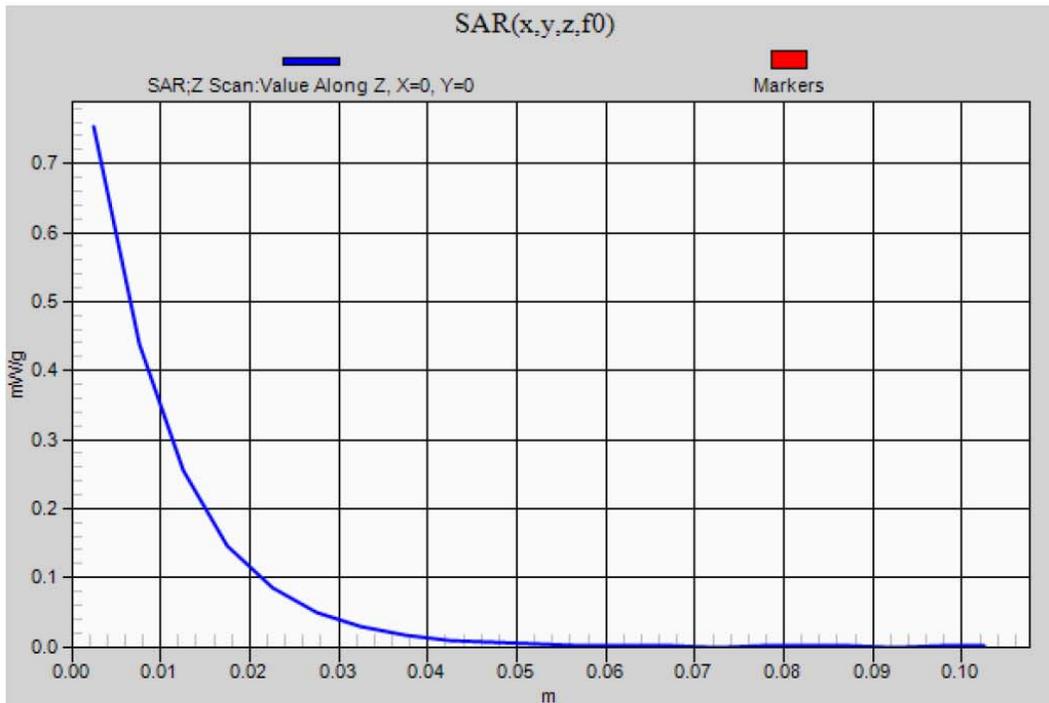
### LTE Band 25\_Body

Communication System: LTE; Frequency: 1882.5 MHz; Duty Cycle: 1:1

**Rear/QPSK\_5MHz\_RB1\_RB24\_M-Ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.753 mW/g



Date: 11/13/2011, Date: 11/14/2011

Test Laboratory: UL CCS SAR Lab B

### WiFi\_2.4GHz\_Head

Communication System: WLAN\_2.4GHz; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.861$  mho/m;  $\epsilon_r = 38.443$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(6.56, 6.56, 6.56); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP1632
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

**RHS/Touch\_H ch/Area Scan (81x111x1):** Measurement grid: dx=15mm, dy=15mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.342 mW/g

**RHS/Touch\_H ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

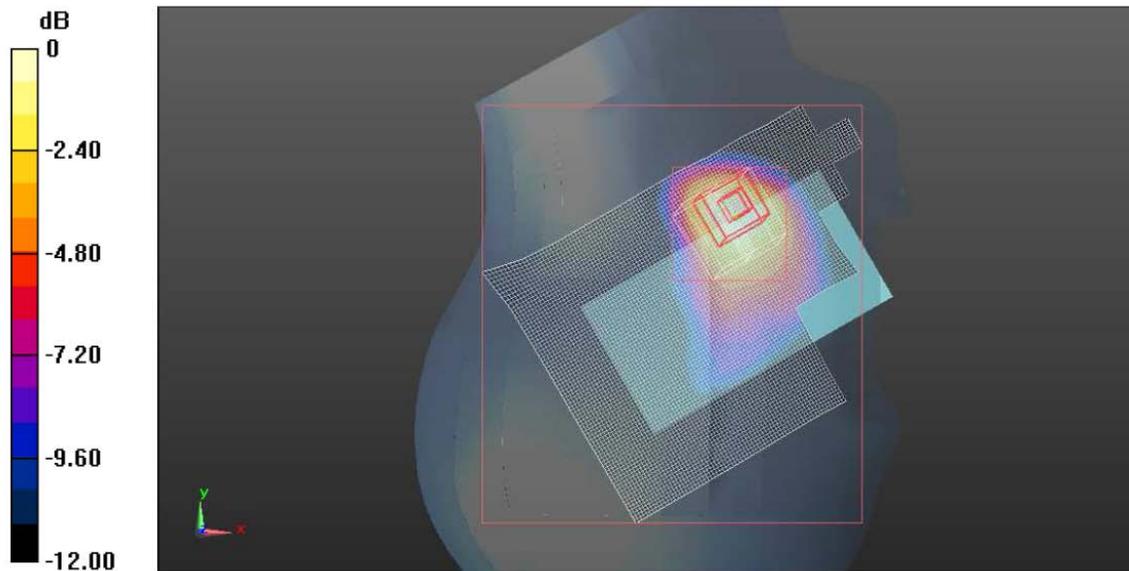
Reference Value = 12.661 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.463 W/kg

**SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.104 mW/g**

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.299 mW/g



0 dB = 0.300mW/g

Date: 11/14/2011

Test Laboratory: UL CCS SAR Lab B

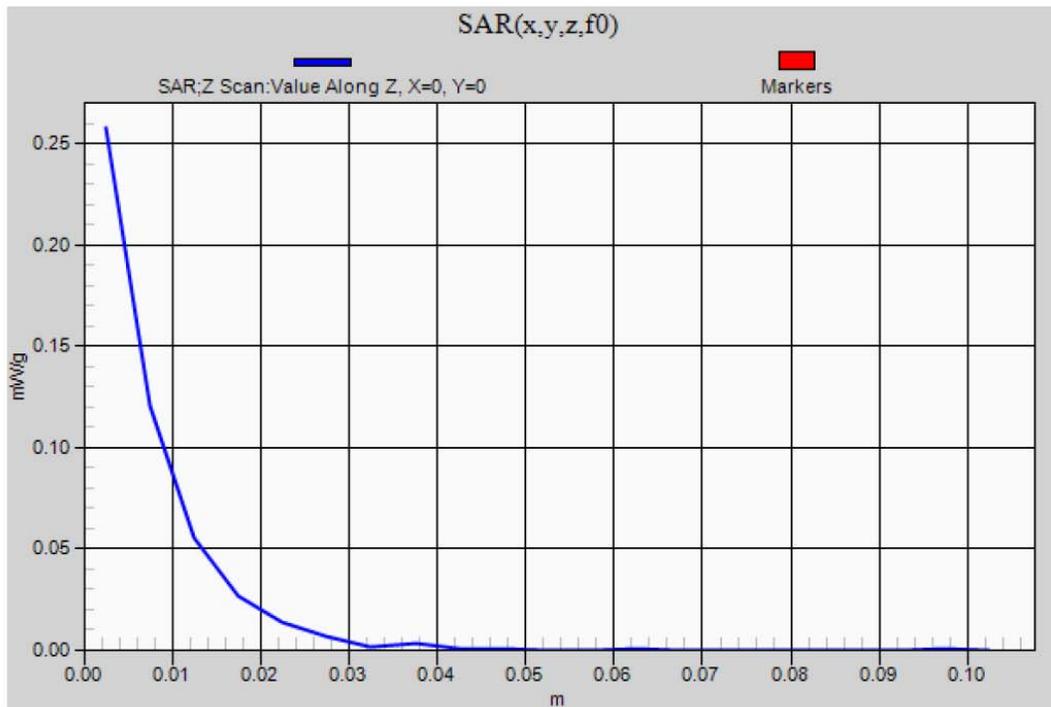
### WiFi\_2.4GHz\_Head

Communication System: WLAN\_2.4GHz; Frequency: 2462 MHz; Duty Cycle: 1:1

**RHS/Touch\_H ch/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



Date: 11/14/2011

Test Laboratory: UL CCS SAR Lab B

### WiFi\_Body

Communication System: WLAN\_2.4GHz; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.971$  mho/m;  $\epsilon_r = 51.524$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(6.87, 6.87, 6.87); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

### 802.11b\_Ant 3/Rear Side\_H ch/Area Scan (81x111x1):

Measurement grid: dx=15mm, dy=15mm  
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.286 mW/g

### 802.11b\_Ant 3/Rear Side\_H ch/Zoom Scan (5x5x7)/Cube 0:

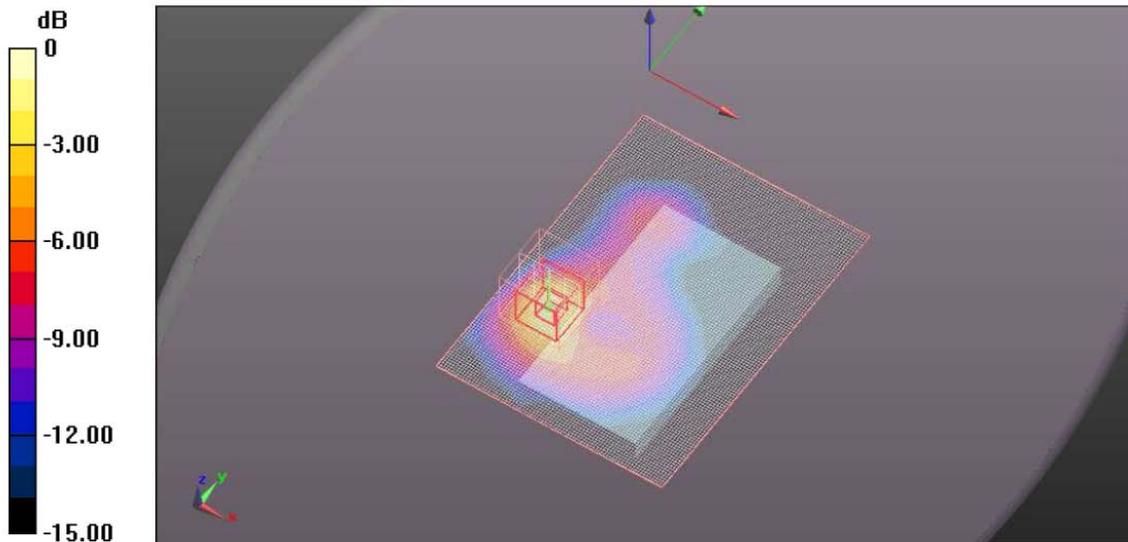
Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11.007 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.533 W/kg

**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.112 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.355 mW/g



0 dB = 0.350mW/g

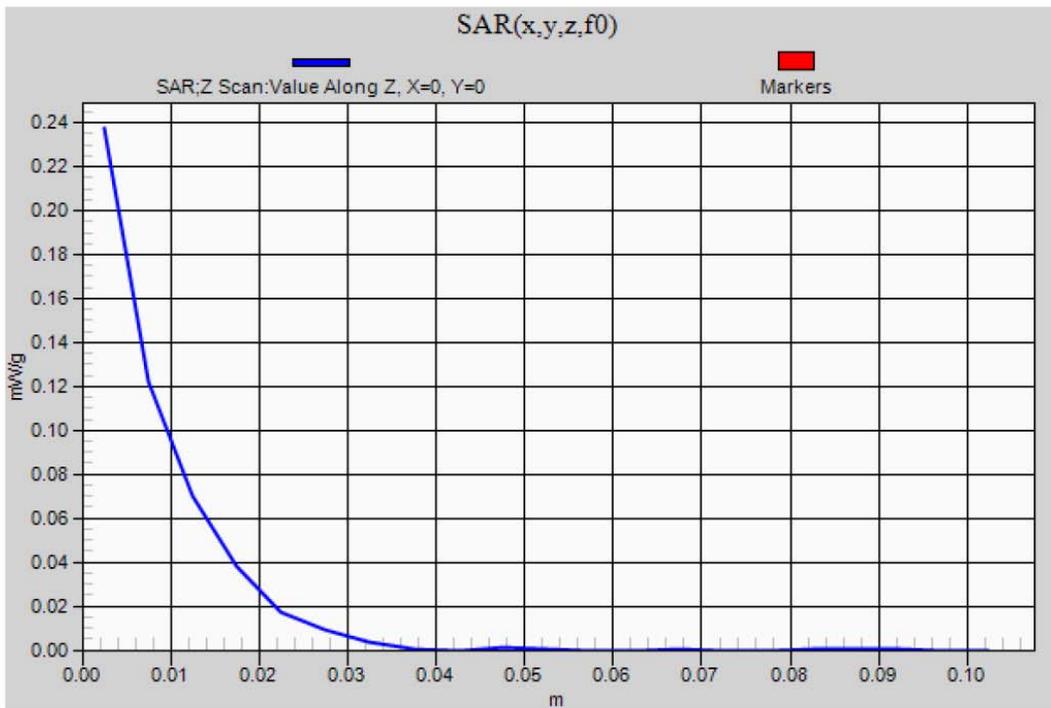
Date: 11/14/2011

Test Laboratory: UL CCS SAR Lab B

### WiFi\_Body

Communication System: WLAN\_2.4GHz; Frequency: 2462 MHz; Duty Cycle: 1:1

**802.11b\_Ant 3/Rear Side\_H ch/Z Scan (1x1x21):** Measurement grid: dx=20mm, dy=20mm, dz=5mm  
Info: [Interpolated medium parameters used for SAR evaluation.](#)  
Maximum value of SAR (measured) = 0.238 mW/g



Date: 11/14/2011

Test Laboratory: UL CCS SAR Lab B

### WiFi\_Body

Communication System: WLAN\_2.4GHz; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 2462$  MHz;  $\sigma = 1.971$  mho/m;  $\epsilon_r = 51.524$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 24.0 deg. C; Liquid Temperature: 23.0 deg. C

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3773; ConvF(6.87, 6.87, 6.87); Calibrated: 5/3/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1258; Calibrated: 5/2/2011
- Phantom: ELI v5.0 (B); Type: QDOVA001BB; Serial: 1118
- Measurement SW: DASY52, Version 52.6 (2);SEMCAD X Version 14.4.5 (3634)

### 802.11b\_Ant 3/Right Side\_H ch/Area Scan (81x111x1):

Measurement grid: dx=15mm, dy=15mm  
Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.357 mW/g

### 802.11b\_Ant 3/Right Side\_H ch/Zoom Scan (5x5x7)/Cube 0:

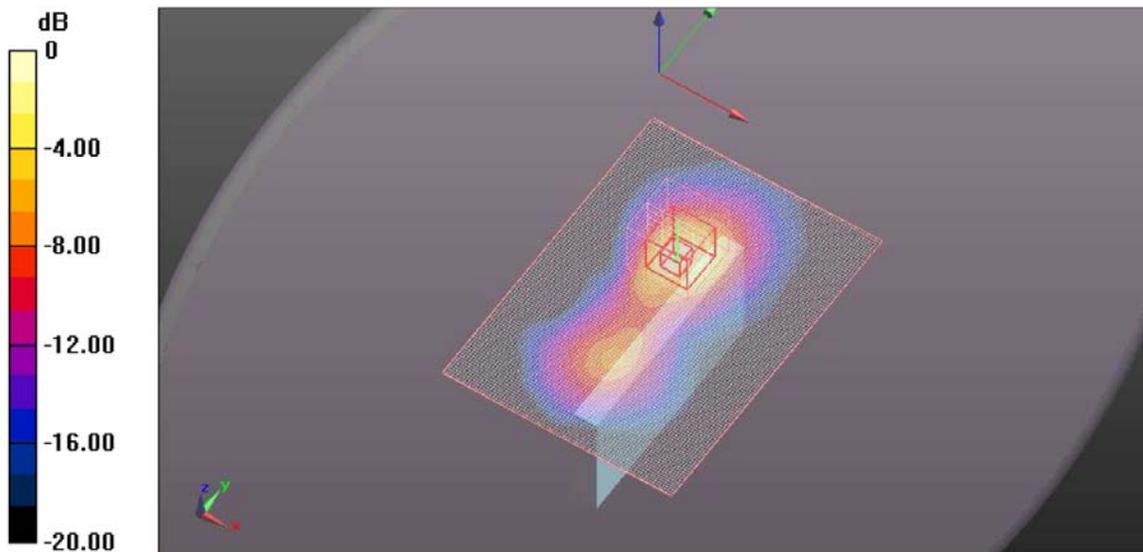
Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11.834 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.543 W/kg

SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.118 mW/g

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.368 mW/g



0 dB = 0.370mW/g

## 14. Simultaneous Transmission SAR Analysis (KDB 648474)

### 14.1. SV-DO Head Exposure Condition

| Test Position | Voice                    |                           |                          | Data                      |  |                           |             | Σ 1g SAR (mW/g) |
|---------------|--------------------------|---------------------------|--------------------------|---------------------------|--|---------------------------|-------------|-----------------|
|               | (1)<br>CDMA<br>BC0 1xRTT | (2)<br>CDMA BC10<br>1xRTT | (3)<br>CDMA<br>BC1 1xRtt | (4)<br>CDMA BC0<br>1xEVDO | (5)<br>CDMA BC10 1xEVDO<br>(not supported) | (6)<br>CDMA BC1<br>1xEVDO | (7)<br>WiFi |                 |
| Left touch    | 0.707                    |                           |                          | 0.479                     |  |                           | 0.115       | 1.301           |
| Left tilt     | 0.417                    |                           |                          | 0.297                     |  |                           | 0.034       | 0.748           |
| Right touch   | 0.561                    |                           |                          | 0.387                     |  |                           | 0.218       | 1.166           |
| Right tilt    | 0.314                    |                           |                          | 0.232                     |  |                           | 0.026       | 0.572           |
| Left touch    | 0.707                    |                           |                          |                           |  | 0.640                     | 0.115       | 1.462           |
| Left tilt     | 0.417                    |                           |                          |                           |  | 0.761                     | 0.034       | 1.212           |
| Right touch   | 0.561                    |                           |                          |                           |  | 0.887                     | 0.218       | 1.666           |
| Right tilt    | 0.314                    |                           |                          |                           |  | 0.945                     | 0.026       | 1.285           |
| Left touch    |                          | 0.615                     |                          | 0.479                     |  |                           | 0.115       | 1.209           |
| Left tilt     |                          | 0.379                     |                          | 0.297                     |  |                           | 0.034       | 0.710           |
| Right touch   |                          | 0.484                     |                          | 0.387                     |  |                           | 0.218       | 1.089           |
| Right tilt    |                          | 0.295                     |                          | 0.232                     |  |                           | 0.026       | 0.553           |
| Left touch    |                          | 0.615                     |                          |                           |  | 0.640                     | 0.115       | 1.370           |
| Left tilt     |                          | 0.379                     |                          |                           |  | 0.761                     | 0.034       | 1.174           |
| Right touch   |                          | 0.484                     |                          |                           |  | 0.887                     | 0.218       | 1.589           |
| Right tilt    |                          | 0.295                     |                          |                           |  | 0.945                     | 0.026       | 1.266           |
| Left touch    |                          |                           | 1.050                    | 0.479                     |  |                           | 0.115       | 1.644           |
| Left tilt     |                          |                           | 0.327                    | 0.297                     |  |                           | 0.034       | 0.658           |
| Right touch   |                          |                           | 0.686                    | 0.387                     |  |                           | 0.218       | 1.291           |
| Right tilt    |                          |                           | 0.260                    | 0.232                     |  |                           | 0.026       | 0.518           |
| Left touch    |                          |                           | 1.050                    |                           |  | 0.640                     | 0.115       | 1.805           |
| Left tilt     |                          |                           | 0.327                    |                           |  | 0.761                     | 0.034       | 1.122           |
| Right touch   |                          |                           | 0.686                    |                           |  | 0.887                     | 0.218       | 1.791           |
| Right tilt    |                          |                           | 0.260                    |                           |  | 0.945                     | 0.026       | 1.231           |

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

| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|---------------|------------------------|------------------------|-------------|-------------------------|------------------|-------|
|               | (1)<br>CDMA BC0 1xRTT  | (6)<br>CDMA BC1 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Right touch   | 0.561                  | 0.887                  | 0.218       | 1.666                   | n/a              | n/a   |
|               | 0.561                  | 0.887                  |             | 1.448                   | n/a              | n/a   |
|               | 0.561                  |                        | 0.218       | 0.779                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (3)<br>CDMA BC1 1xRTT  | (4)<br>CDMA BC0 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Left touch    | 1.050                  | 0.479                  | 0.115       | 1.644                   | n/a              | n/a   |
|               | 1.050                  | 0.479                  |             | 1.529                   | n/a              | n/a   |
|               | 1.050                  |                        | 0.115       | 1.165                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (3)<br>CDMA BC1 1xRTT  | (6)<br>CDMA BC1 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Left touch    | 1.050                  | 0.640                  | 0.115       | 1.805                   | n/a              | n/a   |
|               | 1.050                  | 0.640                  |             | 1.690                   | 6.97             | 0.243 |
|               | 1.050                  |                        | 0.115       | 1.165                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (3)<br>CDMA BC1 1xRTT  | (6)<br>CDMA BC1 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Right touch   | 0.686                  | 0.887                  | 0.218       | 1.791                   | n/a              | n/a   |
|               | 0.686                  | 0.887                  |             | 1.573                   | n/a              | n/a   |
|               | 0.686                  |                        | 0.218       | 0.904                   | n/a              | n/a   |

**Conclusions:**

Volume scan SAR is required because the sum of the 1-g SAR is > 1.6 W/kg

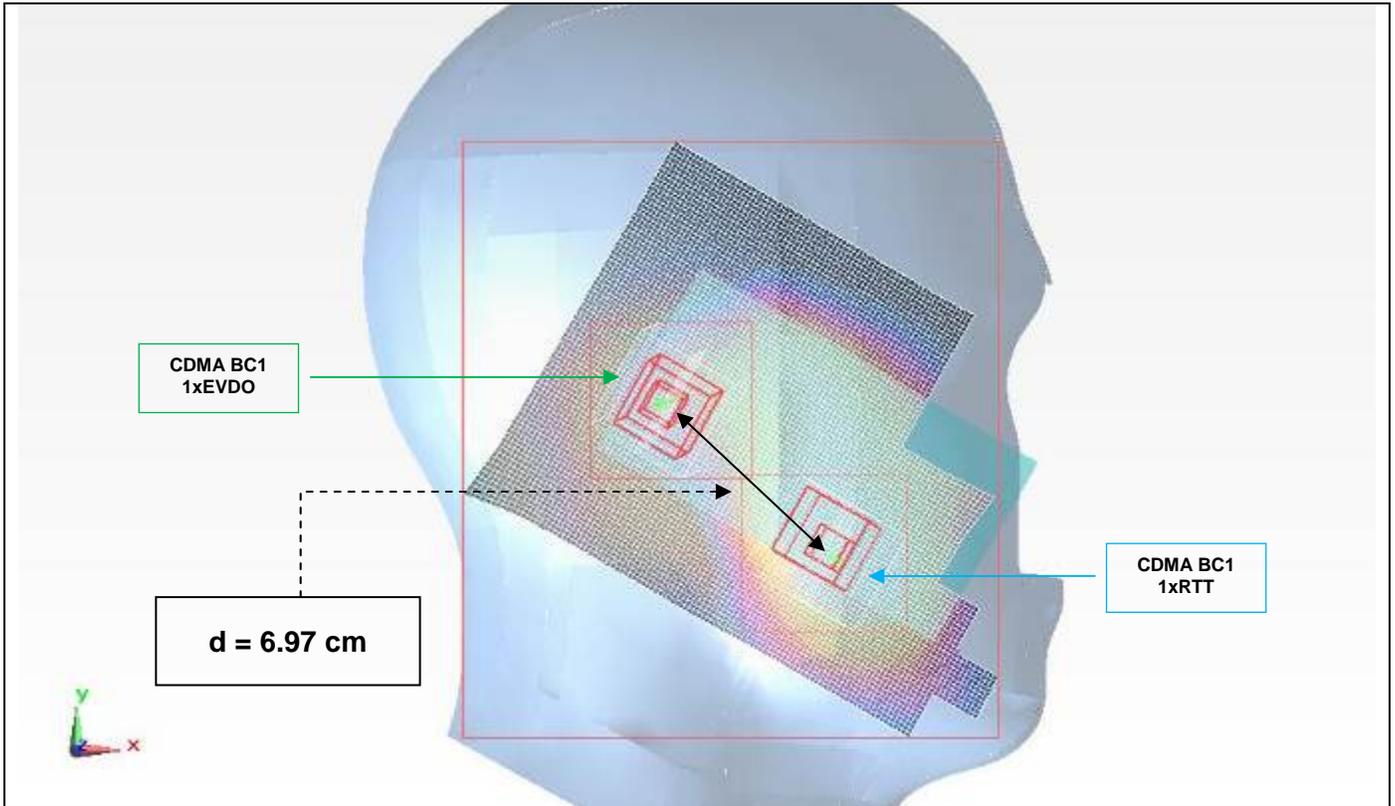
**Note(s):**

With 3 simultaneously transmitting antennas, it is not possible to calculate the 3D distance.

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

**Left Touch**

"(3) CDMA BC1 1xRTT" to "(6) CDMA BC1 1xEVDO"



CDMABC1 1xRTT:  
 CDMABC1 1xEVDO:  
 m

| Value of SAR | X      | Y     | Z      |
|--------------|--------|-------|--------|
| mW/g         | m      | m     | m      |
| 1.2          | 0.0675 | 0.251 | -0.171 |
| 0.802        | 0.0152 | 0.297 | -0.17  |

|                           |                                     |             |  |
|---------------------------|-------------------------------------|-------------|--|
| Separation distance (d) = | 0.0697                              | <b>6.97</b> |  |
|                           | SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2) |             |  |

**14.1.1. SV-DO Head Volume Scans & Combined Results**

| Test position | Combination         | Test Results (mW/g) |             |                  |       |
|---------------|---------------------|---------------------|-------------|------------------|-------|
|               |                     | Zoom Scan           | Volume scan | Combined results |       |
| Right Touch   | (1) CDMA BC0 1xRTT  | 0.561               | 0.554       | 0.821            | 0.832 |
|               | (6) CDMA BC1 1xEvDO | 0.887               | 0.794       |                  |       |
|               | (7) WiFi 2.4GHz     | 0.218               | 0.235       |                  |       |
| Left Touch    | (3) CDMA BC1 1xRTT  | 1.050               | 1.04        | 1.07             | 1.15  |
|               | (4) CDMA BC0 1xEvDO | 0.479               | 0.455       |                  |       |
|               | (7) WiFi 2.4GHz     | 0.115               | 0.109       |                  |       |
| Left Touch    | (3) CDMA BC1 1xRTT  | 1.050               | 1.04        | 1.11             | 1.19  |
|               | (6) CDMA BC1 1xEvDO | 0.640               | 0.590       |                  |       |
|               | (7) WiFi 2.4GHz     | 0.115               | 0.109       |                  |       |
| Right Touch   | (3) CDMA BC1 1xRTT  | 0.686               | 0.694       | 0.852            | 0.864 |
|               | (6) CDMA BC1 1xEvDO | 0.887               | 0.794       |                  |       |
|               | (7) WiFi 2.4GHz     | 0.218               | 0.235       |                  |       |

**Note(s):**

1. See Appendix G\_SAR test plots for SV-DO volume scans.
2. See Appendix H\_SAR test plots for SV-DO Multi band results

### 14.2. SV-DO Body and Hotspot exposure condition

| Test Position | Voice                    |                           |                          | Data                      |   |                           |             | Σ 1g SAR (mW/g) |
|---------------|--------------------------|---------------------------|--------------------------|---------------------------|---|---------------------------|-------------|-----------------|
|               | (1)<br>CDMA BC0<br>1xRTT | (2)<br>CDMA BC10<br>1xRTT | (3)<br>CDMA BC1<br>1xRTT | (4)<br>CDMA BC0<br>1xEVDO | (5)<br>CDMA BC10 1xEVDO<br><b>(Not supported)</b> | (6)<br>CDMA BC1<br>1xEVDO | (7)<br>WiFi |                 |
| Rear          | 0.757                    |                           |                          | 0.668                     |   |                           | 0.245       | 1.670           |
|               | 0.757                    |                           |                          |                           |   | 0.718                     | 0.245       | 1.720           |
| Front         | 0.612                    |                           |                          | 0.177                     |   |                           | 0.073       | 0.862           |
|               | 0.612                    |                           |                          |                           |   | 0.311                     | 0.073       | 0.996           |
| Rear          |                          | 0.781                     |                          | 0.668                     |   |                           | 0.245       | 1.694           |
|               |                          | 0.781                     |                          |                           |   | 0.718                     | 0.245       | 1.744           |
| Front         |                          | 0.578                     |                          | 0.177                     |   |                           | 0.073       | 0.828           |
|               |                          | 0.578                     |                          |                           |   | 0.311                     | 0.073       | 0.962           |
| Rear          |                          |                           | 1.160                    | 0.668                     |   |                           | 0.245       | 2.073           |
|               |                          |                           | 1.160                    |                           |   | 0.718                     | 0.245       | 2.123           |
| Front         |                          |                           | 1.160                    | 0.177                     |   |                           | 0.073       | 1.410           |
|               |                          |                           | 1.160                    |                           |   | 0.311                     | 0.073       | 1.544           |

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

| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|---------------|------------------------|------------------------|-------------|-------------------------|------------------|-------|
|               | (1)<br>CDMA BC0 1xRTT  | (4)<br>CDMA BC0 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Rear          | 0.757                  | 0.668                  | 0.245       | 1.670                   | n/a              | n/a   |
|               | 0.757                  | 0.668                  |             | 1.425                   | n/a              | n/a   |
|               | 0.757                  |                        | 0.245       | 1.002                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (1)<br>CDMA BC0 1xRTT  | (6)<br>CDMA BC1 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Rear          | 0.757                  | 0.718                  | 0.245       | 1.720                   | n/a              | n/a   |
|               | 0.757                  | 0.718                  |             | 1.475                   | n/a              | n/a   |
|               | 0.757                  |                        | 0.245       | 1.002                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (2)<br>CDMA BC10 1xRTT | (4)<br>CDMA BC0 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Rear          | 0.781                  | 0.668                  | 0.245       | 1.694                   | n/a              | n/a   |
|               | 0.781                  | 0.668                  |             | 1.449                   | n/a              | n/a   |
|               | 0.781                  |                        | 0.245       | 1.026                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (2)<br>CDMA BC10 1xRTT | (6)<br>CDMA BC0 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Rear          | 0.781                  | 0.718                  | 0.245       | 1.744                   | n/a              | n/a   |
|               | 0.781                  | 0.718                  |             | 1.499                   | n/a              | n/a   |
|               | 0.781                  |                        | 0.245       | 1.026                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (3)<br>CDMA BC1 1xRTT  | (4)<br>CDMA BC0 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Rear          | 1.160                  | 0.668                  | 0.245       | 2.073                   | n/a              | n/a   |
|               | 1.160                  | 0.668                  |             | 1.828                   | 7.46             | 0.245 |
|               | 1.160                  |                        | 0.245       | 1.405                   | n/a              | n/a   |
| Test Position | Worst-case combination |                        |             | $\Sigma$ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (3)<br>CDMA BC1 1xRTT  | (6)<br>CDMA BC1 1xEVDO | (7)<br>WiFi |                         |                  |       |
| Rear          | 1.160                  | 0.718                  | 0.245       | 2.123                   | n/a              | n/a   |
|               | 1.160                  | 0.718                  |             | 1.878                   | 7.81             | 0.240 |
|               | 1.160                  |                        | 0.245       | 1.405                   | n/a              | n/a   |

**Conclusions:**

Volume scan SAR is required because the sum of the 1-g SAR is > 1.6 W/kg

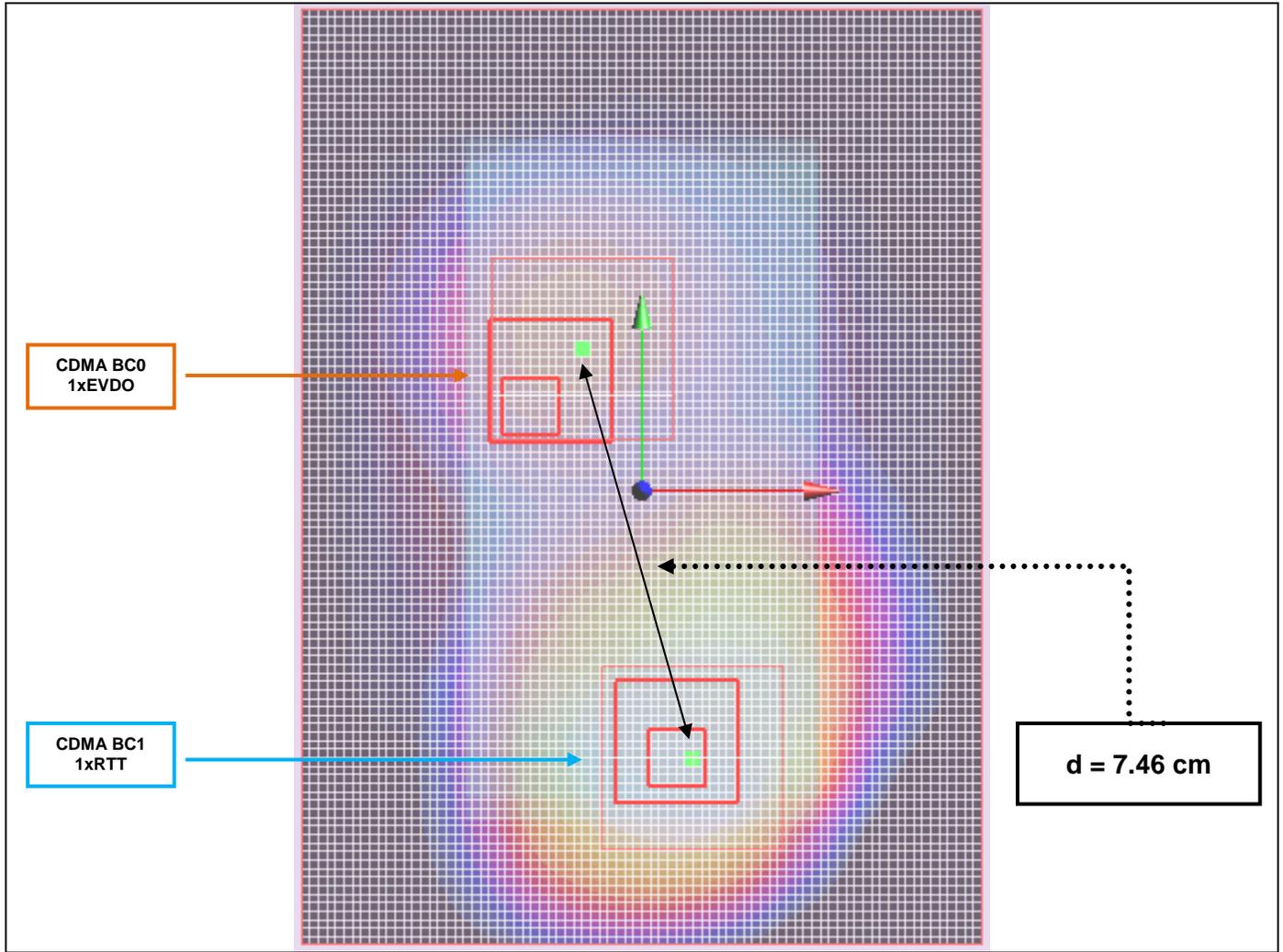
**Note:**

With 3 simultaneously transmitting antennas, it is not possible to calculate the 3D distance.

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

Rear

"(3) CDMA BC1 1xRTT" to "(4) CDMA BC0 1xEVDO"



CDMA BC1 1xRTT:  
 CDMA BC0 1xEVDO:  
 m

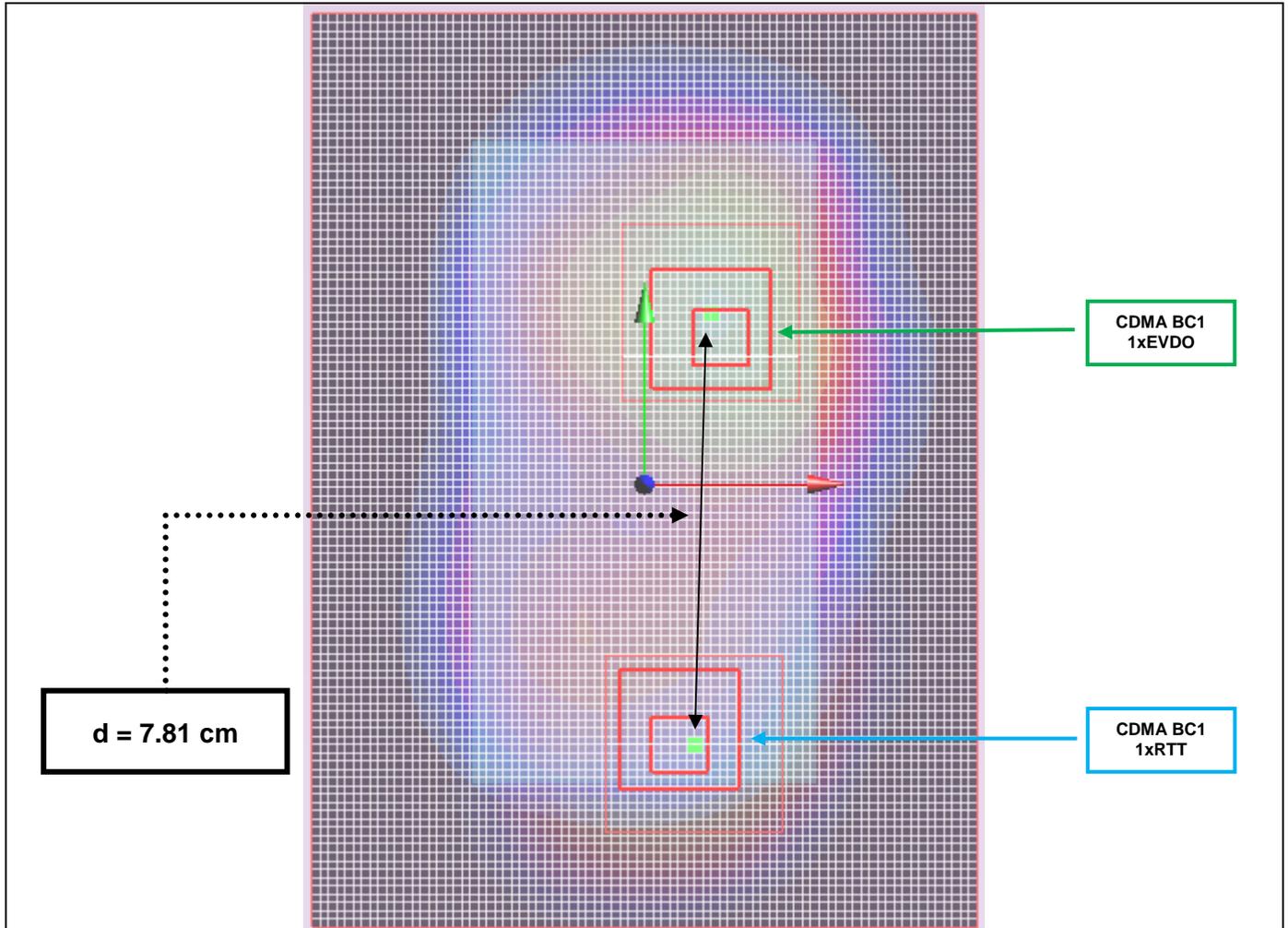
| Value of SAR | X       | Y      | Z      |
|--------------|---------|--------|--------|
| mW/g         | m       | m      | m      |
| 1.45         | 0.009   | -0.047 | -0.182 |
| 0.754        | -0.0105 | 0.025  | -0.184 |

|                           |                                     |             |  |
|---------------------------|-------------------------------------|-------------|--|
| Separation distance (d) = | 0.0746                              | <b>7.46</b> |  |
|                           | SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2) |             |  |

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

Rear

"(3) CDMA1900 1xRTT" to "(6) CDMA BC1 1xEVDO"



CDMA BC1 1xRTT:  
 CDMA BC1 1xEVDO:

| Value of SAR | X     | Y      | Z      |
|--------------|-------|--------|--------|
| mW/g         | m     | m      | m      |
| 1.45         | 0.009 | -0.047 | -0.182 |
| 0.989        | 0.012 | 0.031  | -0.183 |

|  |        |             |  |
|--|--------|-------------|--|
| Separation distance (d) =                    | m      | cm          |  |
|  | 0.0781 | <b>7.81</b> |  |
| $\text{SQRT}((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)$ |        |             |  |

**14.2.1. SV-DO Body Volume Scans & Combined Results**

| Test position | Combination         | Test Results (mW/g) |             |                  |      |      |
|---------------|---------------------|---------------------|-------------|------------------|------|------|
|               |                     | Zoom Scan           | Volume scan | Combined results |      |      |
| Rear          | (1) CDMA BC0 1xRTT  | 0.757               | 0.787       | 1.02             | 1.04 |      |
|               | (4) CDMA BC0 1xEvDO | 0.668               | 0.721       |                  |      |      |
|               | (7) WiFi 2.4GHz     | 0.245               | 0.252       |                  |      |      |
|               | Rear                | (1) CDMA BC0 1xRTT  | 0.757       | 0.787            | 1.03 | 1.06 |
|               |                     | (6) CDMA BC1 1xEvDO | 0.718       | 0.726            |      |      |
|               |                     | (7) WiFi 2.4GHz     | 0.245       | 0.252            |      |      |
| Rear          | (2) CDMA BC10 1xRTT | 0.781               | 0.842       | 1.13             | 1.15 |      |
|               | (4) CDMA BC0 1xEvDO | 0.668               | 0.721       |                  |      |      |
|               | (7) WiFi 2.4GHz     | 0.245               | 0.252       |                  |      |      |
|               | Rear                | (2) CDMA BC10 1xRTT | 0.781       | 0.842            | 1.1  | 1.12 |
|               |                     | (6) CDMA BC1 1xEvDO | 0.718       | 0.726            |      |      |
|               |                     | (7) WiFi 2.4GHz     | 0.245       | 0.252            |      |      |
| Rear          | (3) CDMA BC1 1xRTT  | 1.160               | 1.160       | 1.29             | 1.36 |      |
|               | (4) CDMA BC0 1xEvDO | 0.668               | 0.721       |                  |      |      |
|               | (7) WiFi 2.4GHz     | 0.245               | 0.252       |                  |      |      |
|               | Rear                | (3) CDMA BC1 1xRTT  | 1.160       | 1.160            | 1.36 | 1.42 |
|               |                     | (6) CDMA BC1 1xEvDO | 0.718       | 0.726            |      |      |
|               |                     | (7) WiFi 2.4GHz     | 0.245       | 0.252            |      |      |

**Note(s):**

1. See Appendix F\_SAR test plots for SV-DO volume scans.
2. See Appendix G\_SAR test plots for SV-DO Multi band results

### 14.3. SV-LTE Band 25 Head Exposure Condition

| Test Position      | Voice                    |                           |                          | Data               |              | Σ 1g SAR (mW/g) |
|--------------------|--------------------------|---------------------------|--------------------------|--------------------|--------------|-----------------|
|                    | (1)<br>CDMA BC0<br>1xRTT | (2)<br>CDMA BC10<br>1xRTT | (3)<br>CDMA BC1<br>1xRTT | (4)<br>LTE Band 25 | (5)<br>WiFi  |                 |
| Left touch         | 0.707                    |                           |                          | 0.602              | 0.115        | 1.424           |
| Left tilt          | 0.417                    |                           |                          | 0.748              | 0.034        | 1.199           |
| Right touch        | 0.561                    |                           |                          | 0.798              | 0.218        | 1.577           |
| Right tilt         | 0.314                    |                           |                          | 0.700              | 0.026        | 1.040           |
| Left touch         |                          | 0.615                     |                          | 0.602              | 0.115        | 1.332           |
| Left tilt          |                          | 0.379                     |                          | 0.748              | 0.034        | 1.161           |
| Right touch        |                          | 0.484                     |                          | 0.798              | 0.218        | 1.500           |
| Right tilt         |                          | 0.295                     |                          | 0.700              | 0.026        | 1.021           |
| <b>Left touch</b>  |                          |                           | <b>1.05</b>              | <b>0.602</b>       | <b>0.115</b> | <b>1.767</b>    |
| Left tilt          |                          |                           | 0.327                    | 0.748              | 0.034        | 1.109           |
| <b>Right touch</b> |                          |                           | <b>0.686</b>             | <b>0.798</b>       | <b>0.218</b> | <b>1.702</b>    |
| Right tilt         |                          |                           | 0.260                    | 0.700              | 0.026        | 0.986           |

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

| Test Position | Worst-case combination |                    |             | Σ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|---------------|------------------------|--------------------|-------------|------------------|------------------|-------|
|               | (3)<br>CDMA BC1 1xRTT  | (4)<br>LTE Band 25 | (5)<br>WiFi |                  |                  |       |
| Left Touch    | 1.050                  | 0.602              | 0.115       | <b>1.767</b>     |                  |       |
|               | 1.050                  | 0.602              |             | <b>1.652</b>     | 6.5              | 0.254 |
|               | 1.050                  |                    | 0.115       | 1.165            | n/a              | n/a   |
| Test Position | Worst-case combination |                    |             | Σ 1-g SAR (mW/g) | 3D distance (cm) | SPLSR |
|               | (3)<br>CDMA BC1 1xRTT  | (4)<br>LTE Band 25 | (5)<br>WiFi |                  |                  |       |
| Right Touch   | 0.686                  | 0.798              | 0.218       | <b>1.702</b>     |                  |       |
|               | 0.686                  | 0.798              |             | 1.484            | n/a              | n/a   |
|               | 0.686                  |                    | 0.218       | 0.904            | n/a              | n/a   |

**Conclusions:**

Volume scan SAR is required because the sum of the 1-g SAR is > 1.6 W/kg

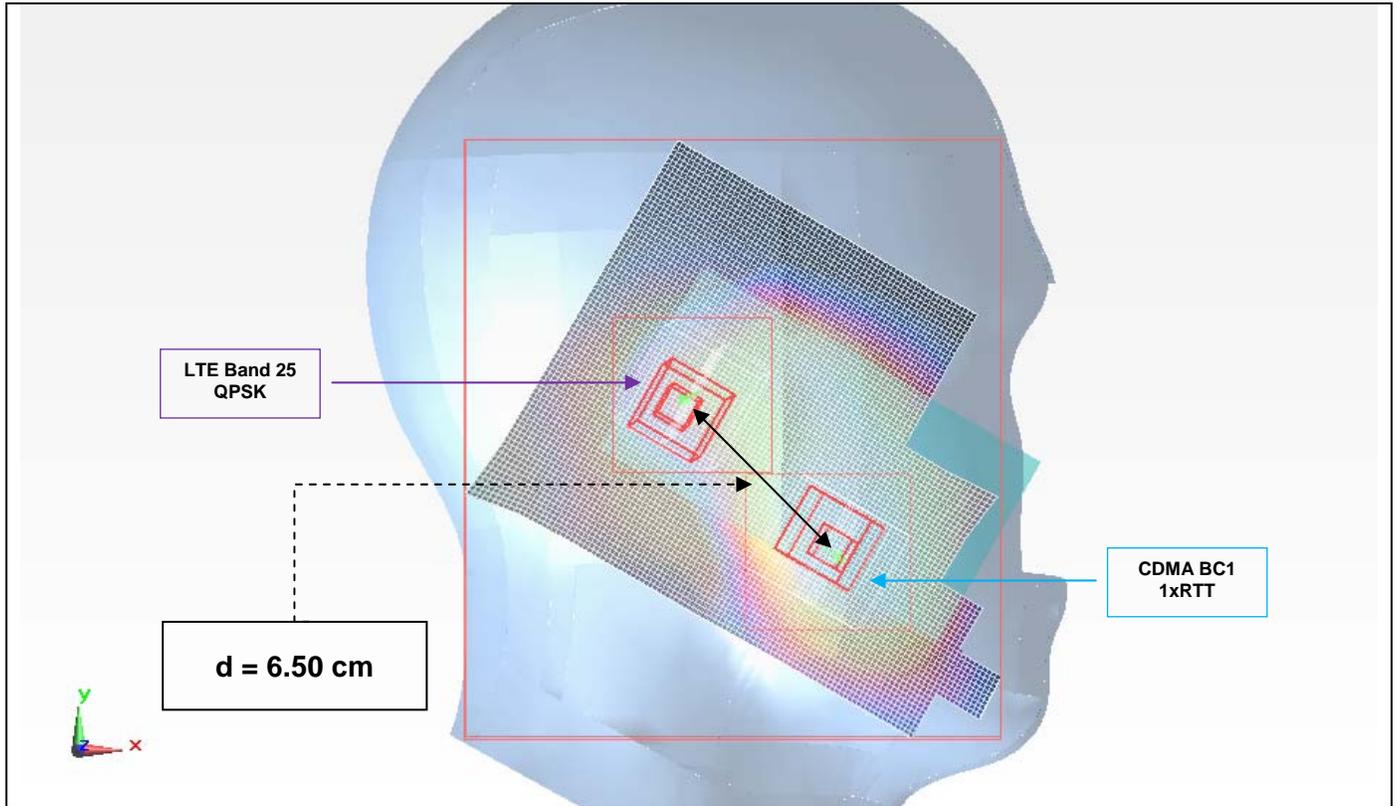
**Note(s):**

With 3 simultaneously transmitting antennas, it is not possible to calculate the 3D distance.

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

**Left Touch**

**"(3) CDMA1900 1xRTT" to "(4) LTE Band 25 QPSK"**



CDMA BC1 1xRTT:  
 LTE Band 25 QPSK:  
 m

| Value of SAR | X      | Y     | Z      |
|--------------|--------|-------|--------|
| mW/g         | m      | m     | m      |
| 1.2          | 0.0675 | 0.251 | -0.171 |
| 0.766        | 0.0226 | 0.298 | -0.172 |

|                           |                                     |             |  |
|---------------------------|-------------------------------------|-------------|--|
| Separation distance (d) = | 0.0650                              | <b>6.50</b> |  |
|                           | SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2) |             |  |

**14.3.1. SV-LTE Band 25 Head Volume Scans & Combined Results**

| Test position | Multi-band         | Test Results (mW/g) |             |                  |       |
|---------------|--------------------|---------------------|-------------|------------------|-------|
|               |                    | Zoom Scan           | Volume scan | Combined results |       |
| Left Touch    | (3) CDMA BC1 1xRTT | 1.050               | 1.04        | 1.1              | 1.17  |
|               | (4) LTE Band 25    | 0.602               | 0.597       |                  |       |
|               | (5) WiFi 2.4GHz    | 0.115               | 0.109       |                  |       |
| Right Touch   | (3) CDMA BC1 1xRTT | 0.686               | 0.694       | 0.792            | 0.855 |
|               | (4) LTE Band 25    | 0.798               | 0.754       |                  |       |
|               | (5) WiFi 2.4GHz    | 0.218               | 0.235       |                  |       |

### 14.4. SV-LTE Band 25 Body &-hotspot exposure condition

| Test Position | Voice                    |                           |                          | (4)<br>LTE<br>Band 25 | (5)<br>WiFi  | Σ 1g SAR<br>(mW/g) |
|---------------|--------------------------|---------------------------|--------------------------|-----------------------|--------------|--------------------|
|               | (1)<br>CDMA BC0<br>1xRTT | (2)<br>CDMA BC10<br>1xRTT | (3)<br>CDMA BC1<br>1xRTT |                       |              |                    |
| Rear          | 0.757                    |                           |                          | 0.580                 | 0.245        | 1.582              |
| Front         | 0.612                    |                           |                          | 0.330                 | 0.073        | 1.015              |
| <b>Rear</b>   |                          | <b>0.781</b>              |                          | <b>0.580</b>          | <b>0.245</b> | <b>1.606</b>       |
| Front         |                          | 0.578                     |                          | 0.330                 | 0.073        | 0.981              |
| <b>Rear</b>   |                          |                           | <b>1.160</b>             | <b>0.580</b>          | <b>0.245</b> | <b>1.985</b>       |
| Front         |                          |                           | 1.160                    | 0.330                 | 0.073        | 1.563              |

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

| Test Position | Worst-case combination    |                    |             | Σ 1-g SAR<br>(mW/g) | 3D distance<br>(cm) | SPLSR |
|---------------|---------------------------|--------------------|-------------|---------------------|---------------------|-------|
|               | (2)<br>CDMA BC10<br>1xRTT | (4)<br>LTE Band 25 | (5)<br>WiFi |                     |                     |       |
| Rear          | 0.781                     | 0.580              | 0.245       | <b>1.606</b>        |                     |       |
|               | 0.781                     | 0.580              |             | 1.361               | n/a                 | n/a   |
|               | 0.781                     |                    | 0.245       | 1.026               | n/a                 | n/a   |
| Test Position | Worst-case combination    |                    |             | Σ 1-g SAR<br>(mW/g) | 3D distance<br>(cm) | SPLSR |
|               | (3)<br>CDMA BC1<br>1xRTT  | (4)<br>LTE Band 25 | (5)<br>WiFi |                     |                     |       |
| Rear          | 1.160                     | 0.580              | 0.245       | <b>1.985</b>        |                     |       |
|               | 1.160                     | 0.580              |             | <b>1.740</b>        | 7.66                | 0.227 |
|               | 1.160                     |                    | 0.245       | 1.405               | n/a                 | n/a   |

**Conclusions:**

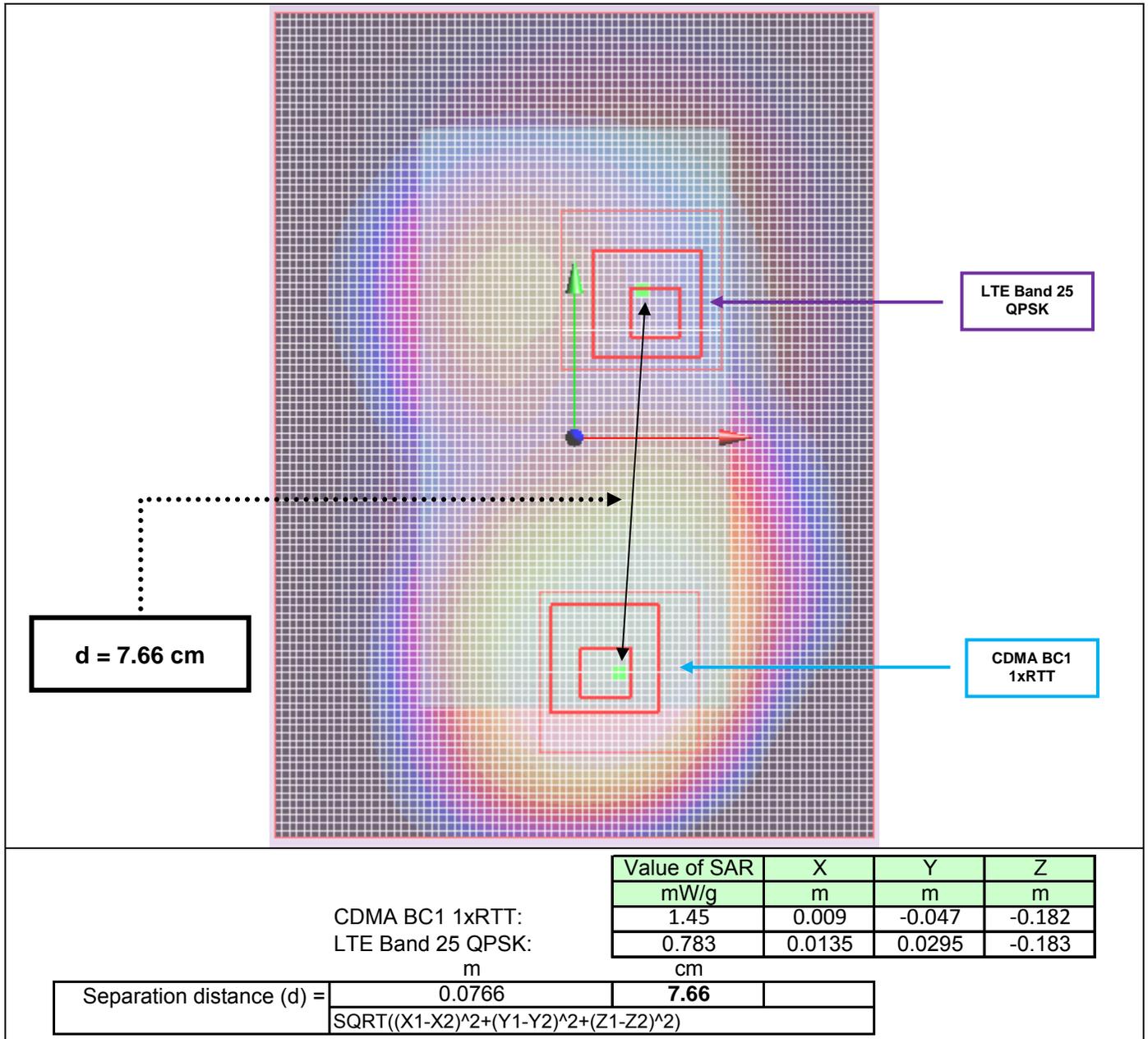
Volume scan SAR is not required because the sum of the 1-g SAR is > 1.6 W/kg

**Note:**

With 3 simultaneously transmitting antennas, it is not possible to calculate the 3D distance.

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

**"(3) CDMA1900 1xRTT" to "(4) LTE Band 25 QPSK"**



**14.4.1. SV-LTE Band 25 Body Volume Scans & Combined Results**

| Test position | Multi-band          | Test Results (mW/g) |             |                  |      |
|---------------|---------------------|---------------------|-------------|------------------|------|
|               |                     | Zoom Scan           | Volume scan | Combined results |      |
| Rear          | (2) CDMA BC10 1xRTT | 0.781               | 0.842       | 1.01             | 1.07 |
|               | (4) LTE Band 25     | 0.580               | 0.584       |                  |      |
|               | (5) WiFi 2.4GHz     | 0.245               | 0.252       |                  |      |
| Rear          | (3) CDMA BC1 1xRTT  | 1.160               | 1.160       | 1.21             | 1.28 |
|               | (4) LTE Band 25     | 0.580               | 0.584       |                  |      |
|               | (5) WiFi 2.4GHz     | 0.245               | 0.252       |                  |      |

## 15. Appendixes

Refer to separated files for the following appendixes.

- 15.1. Appendix A: System check plots
- 15.2. Appendix B: SAR Test plots for CDMA BC10
- 15.3. Appendix C: SAR test plots for CDMA BC0
- 15.4. Appendix D: SAR test plots for CDMA BC1
- 15.5. Appendix E: SAR test plots for LTE Band 25
- 15.6. Appendix F: SAR test plots for WiFi
- 15.7. Appendix G: SAR test plots for SV-DO Volume scans
- 15.8. Appendix H: SAR test plots for SV-DO Combined results
- 15.9. Appendix I: SAR test plots for SV-LTE volume scans
- 15.10. Appendix J: SAR test plots for SV-LTE Combined results
- 15.11. Appendix K: Calibration certificate for E-Field Probe EX3DV4 SN 3772
- 15.12. Appendix L: Calibration certificate for E-Field Probe EX3DV4 SN 3773
- 15.13. Appendix M: Calibration Certificate for D835V2 - SN 4d117
- 15.14. Appendix N: Calibration certificate for D1900V2 SN 5d140
- 15.15. Appendix O: Calibration certificate for D2450V2 SN: 706 w/ extended cal. data