



## SAR EVALUATION REPORT

**Applicant Name:**

Samsung Electronics, Co. Ltd.  
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Yeongtong-gu, Suwon-si,  
Gyeonggi-do, 443-742, Republic of Korea

**Date of Testing:**

02/10/13 - 02/25/13

**Test Site/Location:**

PCTEST Lab, Columbia, MD, USA

**Document Serial No.:**

OY1302120259-R2.A3L

**FCC ID:**

**A3LSCHI545**

**APPLICANT:**

**SAMSUNG ELECTRONICS, CO. LTD.**

**DUT Type:**

Portable Handset

**Application Type:**

Certification

**FCC Rule Part(s):**

CFR §2.1093

**Model(s):**

SCH-I545

| Equipment Class                                   | Band & Mode        | Tx Frequency          | Measured Conducted Power [dBm] | SAR              |                       |                     |
|---------------------------------------------------|--------------------|-----------------------|--------------------------------|------------------|-----------------------|---------------------|
|                                                   |                    |                       |                                | 1 gm Head (W/kg) | 1 gm Body-Worn (W/kg) | 1 gm Hotspot (W/kg) |
| PCE                                               | GSM/GPRS/EDGE 850  | 824.20 - 848.80 MHz   | 33.14                          | 0.13             | 0.41                  | 0.52                |
| PCE                                               | UMTS 850           | 826.40 - 846.60 MHz   | 22.95                          | 0.10             | 0.33                  | 0.33                |
| PCE                                               | GSM/GPRS/EDGE 1900 | 1850.20 - 1909.80 MHz | 29.88                          | 0.10             | 0.51                  | 0.57                |
| PCE                                               | UMTS 1900          | 1852.4 - 1907.6 MHz   | 22.86                          | 0.19             | 1.03                  | 1.03                |
| PCE                                               | Cell. CDMA/EVDO    | 824.70 - 848.31 MHz   | 24.41                          | 0.25             | 0.87                  | 1.06                |
| PCE                                               | PCS CDMA/EVDO      | 1851.25 - 1908.75 MHz | 24.45                          | 0.16             | 0.84                  | 0.84                |
| PCE                                               | LTE Band 13        | 782 MHz               | 23.13                          | 0.19             | 0.30                  | 0.35                |
| PCE                                               | LTE Band 4 (AWS)   | 1712.5 - 1752.5 MHz   | 23.36                          | 0.12             | 0.52                  | 0.52                |
| DTS                                               | 2.4 GHz WLAN       | 2412 - 2462 MHz       | 17.16                          | 0.45             | 0.26                  | 0.26                |
| DTS                                               | 5.8 GHz WLAN       | 5745 - 5825 MHz       | 13.60                          | 0.19             | 0.12                  |                     |
| UNII                                              | 5.2 GHz WLAN       | 5180 - 5240 MHz       | 14.03                          | 0.47             | 0.40                  |                     |
| UNII                                              | 5.3 GHz WLAN       | 5260 - 5320 MHz       | 14.01                          | 0.28             | 0.37                  |                     |
| UNII                                              | 5.5 GHz WLAN       | 5500 - 5700 MHz       | 14.10                          | 0.20             | 0.20                  |                     |
| DSS/DTS                                           | Bluetooth          | 2402 - 2480 MHz       | 8.83                           | N/A              |                       |                     |
| <b>Simultaneous SAR per KDB 690783 D01v01r02:</b> |                    |                       |                                | 0.75             | 1.43                  | 1.32                |

Note: Powers in the above table represent output powers for the SAR test configurations and may not represent the highest output powers for all configurations for each mode.

Note: This revised Test Report (S/N: OY1302120259-R2.A3L) supersedes and replaces the previously issued test report on the same subject EUT for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.9 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

  
Randy Ortanez  
President



|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>OY1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 1 of 69                           |

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# 1 DEVICE UNDER TEST

## 1.1 Device Overview

| Band & Mode        | Operating Modes | Tx Frequency          |
|--------------------|-----------------|-----------------------|
| GSM/GPRS/EDGE 850  | Voice/Data      | 824.20 - 848.80 MHz   |
| UMTS 850           | Voice/Data      | 826.40 - 846.60 MHz   |
| GSM/GPRS/EDGE 1900 | Voice/Data      | 1850.20 - 1909.80 MHz |
| UMTS 1900          | Voice/Data      | 1852.4 - 1907.6 MHz   |
| Cell. CDMA/EVDO    | Voice/Data      | 824.70 - 848.31 MHz   |
| PCS CDMA/EVDO      | Voice/Data      | 1851.25 - 1908.75 MHz |
| LTE Band 13        | Data            | 782 MHz               |
| LTE Band 4 (AWS)   | Data            | 1712.5 - 1752.5 MHz   |
| 2.4 GHz WLAN       | Data            | 2412 - 2462 MHz       |
| 5.8 GHz WLAN       | Data            | 5745 - 5825 MHz       |
| 5.2 GHz WLAN       | Data            | 5180 - 5240 MHz       |
| 5.3 GHz WLAN       | Data            | 5260 - 5320 MHz       |
| 5.5 GHz WLAN       | Data            | 5500 - 5700 MHz       |
| Bluetooth          | Data            | 2402 - 2480 MHz       |

## 1.2 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v05.

| Mode / Band        |         | Voice (dBm) | Burst Average GMSK (dBm) |            |            |            | Burst Average 8-PSK (dBm) |            |            |            |
|--------------------|---------|-------------|--------------------------|------------|------------|------------|---------------------------|------------|------------|------------|
|                    |         | 1 TX Slot   | 1 TX Slots               | 2 TX Slots | 3 TX Slots | 4 TX Slots | 1 TX Slots                | 2 TX Slots | 3 TX Slots | 4 TX Slots |
| GSM/GPRS/EDGE 850  | Maximum | 33.5        | 33.5                     | 31.5       | 30.0       | 29.0       | 27.5                      | 27.0       | 23.0       | 22.0       |
|                    | Nominal | 33.0        | 33.0                     | 31.0       | 29.5       | 28.5       | 27.0                      | 26.5       | 22.5       | 21.5       |
| GSM/GPRS/EDGE 1900 | Maximum | 30.5        | 30.5                     | 28.5       | 26.5       | 25.5       | 25.5                      | 25.5       | 21.0       | 20.0       |
|                    | Nominal | 30.0        | 30.0                     | 28.0       | 26.0       | 25.0       | 25.0                      | 25.0       | 20.5       | 19.5       |

| Mode / Band            |         | Modulated Average |            |            |
|------------------------|---------|-------------------|------------|------------|
|                        |         | 3GPP RMC          | 3GPP HSDPA | 3GPP HSUPA |
| UMTS Band 5 (850 MHz)  | Maximum | 23.0              | 22.0       | 21.0       |
|                        | Nominal | 22.5              | 21.5       | 20.5       |
| UMTS Band 2 (1900 MHz) | Maximum | 23.0              | 22.0       | 21.0       |
|                        | Nominal | 22.5              | 21.5       | 20.5       |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| Mode / Band     |         | Modulated Average (dBm) |
|-----------------|---------|-------------------------|
| Cell. CDMA/EVDO | Maximum | <b>25.0</b>             |
|                 | Nominal | <b>24.5</b>             |
| PCS CDMA/EVDO   | Maximum | <b>25.0</b>             |
|                 | Nominal | <b>24.5</b>             |

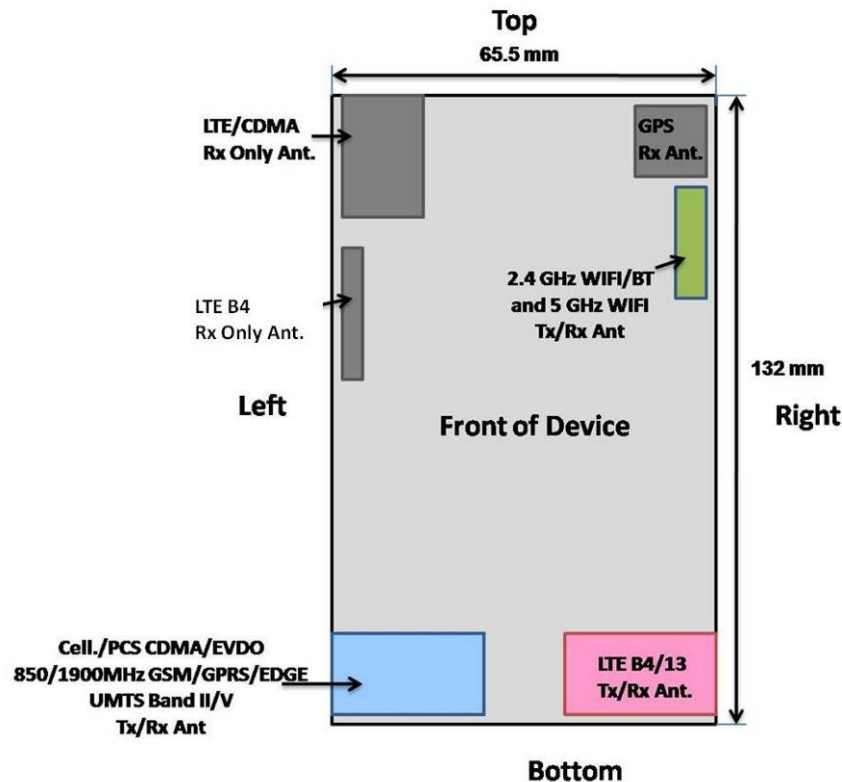
| Mode / Band |                          |         | Modulated Average (dBm) |
|-------------|--------------------------|---------|-------------------------|
| Cell. CDMA  | SVLTE<br>LTE is reducing | Maximum | <b>18.5</b>             |
|             |                          | Nominal | <b>18.0</b>             |
| PCS CDMA    | SVLTE<br>LTE is reducing | Maximum | <b>18.5</b>             |
|             |                          | Nominal | <b>18.0</b>             |

| Mode / Band |                                                |         | Modulated Average (dBm) |
|-------------|------------------------------------------------|---------|-------------------------|
| LTE Band 13 | Maximum                                        | Maximum | <b>23.5</b>             |
|             |                                                | Nominal | <b>23.0</b>             |
|             | Reduced<br>(CDMA Power $\geq$ Threshold Power) | Maximum | <b>19.5</b>             |
|             |                                                | Nominal | <b>19.0</b>             |
| LTE Band 4  | Maximum                                        | Maximum | <b>23.5</b>             |
|             |                                                | Nominal | <b>23.0</b>             |
|             | Reduced<br>(CDMA Power $\geq$ Threshold Power) | Maximum | <b>19.5</b>             |
|             |                                                | Nominal | <b>19.0</b>             |

| Mode / Band            |         | Modulated Average (dBm) |
|------------------------|---------|-------------------------|
| IEEE 802.11b (2.4 GHz) | Maximum | <b>17.5</b>             |
|                        | Nominal | <b>17.0</b>             |
| IEEE 802.11g (2.4 GHz) | Maximum | <b>14.5</b>             |
|                        | Nominal | <b>14.0</b>             |
| IEEE 802.11n (2.4 GHz) | Maximum | <b>13.5</b>             |
|                        | Nominal | <b>13.0</b>             |
| IEEE 802.11a (5 GHz)   | Maximum | <b>14.5</b>             |
|                        | Nominal | <b>14.0</b>             |
| IEEE 802.11n (5 GHz)   | Maximum | <b>13.5</b>             |
|                        | Nominal | <b>13.0</b>             |
| IEEE 802.11ac (5 GHz)  | Maximum | <b>12.0</b>             |
|                        | Nominal | <b>11.5</b>             |
| Bluetooth              | Maximum | <b>9.5</b>              |
|                        | Nominal | <b>9.0</b>              |

|                                             |                                                                                     |                                      |                                                                                       |                                        |
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## 1.3 DUT Antenna Locations



Note: Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC Filing.

**Figure 1-1**  
**DUT Antenna Locations**

**Table 1-1**  
**Mobile Hotspot Sides for SAR Testing**

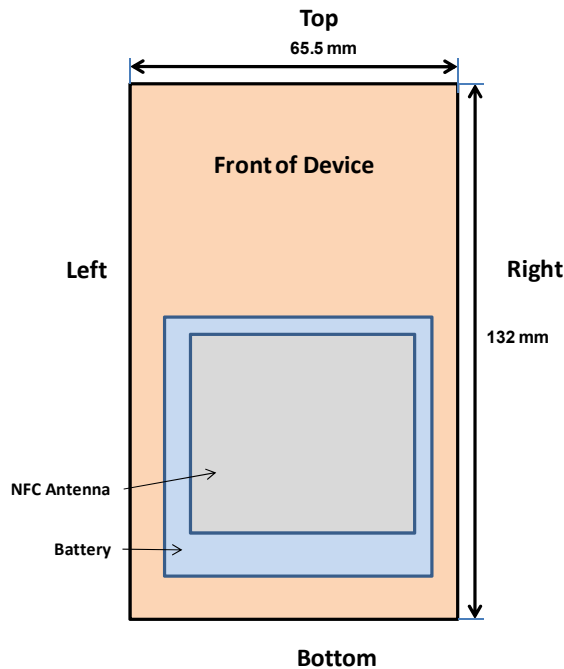
| Mobile Hotspot Sides for SAR Testing |      |       |     |        |       |      |
|--------------------------------------|------|-------|-----|--------|-------|------|
| Mode                                 | Back | Front | Top | Bottom | Right | Left |
| GPRS 850                             | Yes  | Yes   | No  | Yes    | No    | Yes  |
| UMTS 850                             | Yes  | Yes   | No  | Yes    | No    | Yes  |
| GPRS 1900                            | Yes  | Yes   | No  | Yes    | No    | Yes  |
| UMTS 1900                            | Yes  | Yes   | No  | Yes    | No    | Yes  |
| Cell. CDMA/EVDO                      | Yes  | Yes   | No  | Yes    | No    | Yes  |
| PCS CDMA/EVDO                        | Yes  | Yes   | No  | Yes    | No    | Yes  |
| LTE Band 13                          | Yes  | Yes   | No  | Yes    | Yes   | No   |
| LTE Band 4 (AWS)                     | Yes  | Yes   | No  | Yes    | Yes   | No   |
| 2.4 GHz WLAN                         | Yes  | Yes   | Yes | No     | Yes   | No   |

Note: Particular DUT edges were not required to be evaluated for Wireless Router SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v01 guidance, page 2. The antenna document shows the distances between the transmit antennas and the edges of the device. When the wireless router mode is enabled, all 5 GHz bands are disabled. Therefore 5 GHz WIFI is not considered in this section.

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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## 1.4 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the standard battery. The SAR tests were performed with the standard battery (model: B600BZ).



**Figure 1-2**  
**NFC Antenna Locations**

## 1.5 Power Reduction for SAR

This device uses power reduction mechanisms for LTE during SVLTE operation (1x-RTT CDMA voice + LTE data) for SAR compliance. See Section 10 for more details.

## 1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D05v01, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the DUT are shown in Figure 1-3 and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.



**Figure 1-3**  
**Simultaneous Transmission Paths**

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v05 3) procedures.

|                                             |                                                                                                                                                                                                        |                                        |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
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**Table 1-2**  
**Simultaneous Transmission Scenarios**

| Ref. | Simultaneous Transmit Configurations                         | Power Reduction | IEEE 1528, Supp C | Supplement C | FCC KDB 941225 D06 edges/sides | Note                                    |
|------|--------------------------------------------------------------|-----------------|-------------------|--------------|--------------------------------|-----------------------------------------|
| 1    | 1X CDMA 850 Voice + LTE B13 Data                             | LTE             | Yes               | 10mm         | N/A                            | SVLTE                                   |
| 2    | 1X CDMA 1900 Voice + LTE B13 Data                            | LTE             | Yes               | 10mm         | N/A                            | SVLTE                                   |
| 3    | 1X CDMA 850 Voice + LTE B4 Data                              | LTE             | Yes               | 10mm         | N/A                            | SVLTE                                   |
| 4    | 1X CDMA 1900 Voice + LTE B4 Data                             | LTE             | Yes               | 10mm         | N/A                            | SVLTE                                   |
| 5    | 1X CDMA 850 Voice + 2.4 GHz Bluetooth                        | N/A             | N/A               | 10mm         | N/A                            |                                         |
| 6    | 1X CDMA 1900 Voice + 2.4 GHz Bluetooth                       | N/A             | N/A               | 10mm         | N/A                            |                                         |
| 7    | GSM850 Voice + 2.4 GHz Bluetooth                             | N/A             | N/A               | 10mm         | N/A                            |                                         |
| 8    | GSM1900 Voice + 2.4 GHz Bluetooth                            | N/A             | N/A               | 10mm         | N/A                            |                                         |
| 9    | WCDMA 850 Voice + 2.4 GHz Bluetooth                          | N/A             | N/A               | 10mm         | N/A                            |                                         |
| 10   | WCDMA 1900 Voice + 2.4 GHz Bluetooth                         | N/A             | N/A               | 10mm         | N/A                            |                                         |
| 11   | 1X CDMA 850 Voice + 2.4 GHz WIFI / 5 GHz WIFI                | N/A             | Yes               | 10mm         | N/A                            |                                         |
| 12   | 1X CDMA 1900 Voice + 2.4 GHz WIFI / 5 GHz WIFI               | N/A             | Yes               | 10mm         | N/A                            |                                         |
| 13   | GSM850 Voice + 2.4 GHz WIFI / 5 GHz WIFI                     | N/A             | Yes               | 10mm         | N/A                            |                                         |
| 14   | GSM1900 Voice + 2.4 GHz WIFI / 5 GHz WIFI                    | N/A             | Yes               | 10mm         | N/A                            |                                         |
| 15   | WCDMA 850 Voice + 2.4 GHz WIFI / 5 GHz WIFI                  | N/A             | Yes               | 10mm         | N/A                            |                                         |
| 16   | WCDMA 1900 Voice + 2.4 GHz WIFI / 5 GHz WIFI                 | N/A             | Yes               | 10mm         | N/A                            |                                         |
| 17   | 1X CDMA 850 Voice + LTE B13 Data + 2.4 GHz Bluetooth         | LTE             | N/A               | 10mm         | N/A                            | SVLTE                                   |
| 18   | 1X CDMA 1900 Voice + LTE B13 Data + 2.4 GHz Bluetooth        | LTE             | N/A               | 10mm         | N/A                            | SVLTE                                   |
| 19   | 1X CDMA 850 Voice + LTE B4 Data + 2.4 GHz Bluetooth          | LTE             | N/A               | 10mm         | N/A                            | SVLTE                                   |
| 20   | 1X CDMA 1900 Voice + LTE B4 Data + 2.4 GHz Bluetooth         | LTE             | N/A               | 10mm         | N/A                            | SVLTE                                   |
| 21   | 1X CDMA 850 Voice + LTE B13 Data + 2.4 GHz WIFI              | LTE             | Yes               | 10mm         | Yes                            | Voice + LTE + WIFI Hotspot              |
| 22   | 1X CDMA 1900 Voice + LTE B13 Data + 2.4 GHz WIFI             | LTE             | Yes               | 10mm         | Yes                            | Voice + LTE + WIFI Hotspot              |
| 23   | 1X CDMA 850 Voice + LTE B4 Data + 2.4 GHz WIFI               | LTE             | Yes               | 10mm         | Yes                            | Voice + LTE + WIFI Hotspot              |
| 24   | 1X CDMA 1900 Voice + LTE B4 Data + 2.4 GHz WIFI              | LTE             | Yes               | 10mm         | Yes                            | Voice + LTE + WIFI Hotspot              |
| 25   | 1X CDMA 850 Data / EVDO 850 Data + 2.4 GHz WIFI              | N/A             | Yes*              | 10mm         | Yes                            | 1X CDMA Data / EVDO +WIFI Hotspot       |
| 26   | 1X CDMA 1900 Data / EVDO 1900 Data + 2.4 GHz WIFI            | N/A             | Yes*              | 10mm         | Yes                            | 1X CDMA Data / EVDO +WIFI Hotspot       |
| 27   | WCDMA 850 Data + 2.4 GHz WIFI                                | N/A             | Yes**             | 10mm         | Yes                            | WCDMA + WIFI Hotspot                    |
| 28   | WCDMA 1900 Data + 2.4 GHz WIFI                               | N/A             | Yes**             | 10mm         | Yes                            | WCDMA + WIFI Hotspot                    |
| 29   | LTE B13 Data + 2.4 GHz WIFI                                  | N/A             | Yes*              | 10mm         | Yes                            | LTE+WIFI Hotspot                        |
| 30   | LTE B4 Data + 2.4 GHz WIFI                                   | N/A             | Yes*              | 10mm         | Yes                            | LTE+WIFI Hotspot                        |
| 31   | GPRS/EDGE 850 Data + 2.4 GHz WIFI                            | N/A             | N/A               | N/A          | Yes                            | GPRS/EDGE + WIFI Hotspot                |
| 32   | GPRS/EDGE 1900 Data + 2.4 GHz WIFI                           | N/A             | N/A               | N/A          | Yes                            | GPRS/EDGE + WIFI Hotspot                |
| 33   | 1X CDMA 850 Voice + EVDO 850 Data                            | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 34   | 1X CDMA 850 Voice + EVDO 1900 Data                           | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 35   | 1X CDMA 1900 Voice + EVDO 850 Data                           | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 36   | 1X CDMA 1900 Voice + EVDO 1900 Data                          | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 37   | 1X CDMA 850 Voice + EVDO 850 Data + 2.4 GHz WIFI             | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 38   | 1X CDMA 1900 Voice + EVDO 850 Data + 2.4 GHz WIFI            | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 39   | 1X CDMA 850 Voice + EVDO 1900 Data + 2.4 GHz WIFI            | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 40   | 1X CDMA 1900 Voice + EVDO 1900 Data + 2.4 GHz WIFI           | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW (Non-SVDO)          |
| 41   | GSM 850/1900 Voice + 850/1900 1X-RTT CDMA Data               | N/A             | N/A               | N/A          | N/A                            | Not Supported by SW                     |
| 42   | GSM 850/1900 Voice + EVDO/GPRS/EDGE Data                     | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW                     |
| 43   | GSM 850/1900 Voice + LTE B13/B4                              | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW                     |
| 44   | GSM 850/1900 Voice + 850/1900 1X-RTT CDMA + 2.4/5 GHz WIFI   | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW                     |
| 45   | GSM 850/1900 Voice + EVDO/GPRS/EDGE + 2.4/5 GHz WIFI         | N/A             | N/A               | N/A          | N/A                            | Not supported by SW                     |
| 46   | GSM 850/1900 Voice + LTE B13/B4 + 2.4/5 GHz WIFI             | N/A             | N/A               | N/A          | N/A                            | Not supported by HW                     |
| 47   | 1X CDMA 850 Voice + LTE B13 Data + 5 GHz WIFI                | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 48   | 1X CDMA 1900 Voice + LTE B13 Data + 5 GHz WIFI               | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 49   | 1X CDMA 850 Voice + LTE B4 Data + 5 GHz WIFI                 | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 50   | 1X CDMA 1900 Voice + LTE B4 Data + 5 GHz WIFI                | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 51   | 1X CDMA 850 Data / EVDO 850 Data + 5 GHz WIFI                | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 52   | 1X CDMA 1900 Data / EVDO 1900 Data + 5 GHz WIFI              | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 53   | UMTS 850 Data + 5 GHz WIFI                                   | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 54   | UMTS 1900 Data + 5 GHz WIFI                                  | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 55   | LTE B13 Data + 5 GHz WIFI                                    | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 56   | LTE B4 Data + 5 GHz WIFI                                     | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 57   | GPRS/EDGE 850 Data + 5 GHz WIFI                              | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 58   | GPRS/EDGE 1900 Data + 5 GHz WIFI                             | N/A             | N/A               | N/A          | N/A                            | Not supported by SW (5GHz WIFI Hotspot) |
| 59   | 850/1900 GPRS/EDGE Data + LTE B13/B4 Data                    | N/A             | N/A               | N/A          | N/A                            | Not supported by HW                     |
| 60   | 850/1900 EVDO Data + 850/1900 GPRS/EDGE Data                 | N/A             | N/A               | N/A          | N/A                            | Not supported by SW                     |
| 61   | 850/1900 EVDO data + LTE B13/B4 MHz Data                     | N/A             | N/A               | N/A          | N/A                            | Not supported by SW                     |
| 62   | WCDMA 850/1900 Voice + 850/1900 1X-RTT CDMA Data             | N/A             | N/A               | N/A          | N/A                            | Not Supported by SW                     |
| 63   | WCDMA 850/1900 Voice + EVDO/GPRS/EDGE Data                   | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW                     |
| 64   | WCDMA 850/1900 Voice + LTE B13/B4                            | N/A             | N/A               | N/A          | N/A                            | Not Supported by HW                     |
| 65   | WCDMA 850/1900 Voice + 850/1900 1X-RTT CDMA + 2.4/5 GHz WIFI | N/A             | N/A               | N/A          | N/A                            | Not Supported by SW                     |
| 66   | WCDMA 850/1900 Voice + EVDO/GPRS/EDGE + 2.4/5 GHz WIFI       | N/A             | N/A               | N/A          | N/A                            | Not supported by HW                     |
| 67   | WCDMA 850/1900 Voice + LTE B13/B4 + 2.4/5 GHz WIFI           | N/A             | N/A               | N/A          | N/A                            | Not supported by HW                     |

**Notes:**

1. CDMA and EVDO share the same antenna path and cannot transmit simultaneously. (Non-SVDO)
2. Bluetooth and 2.4 GHz WLAN share the same antenna path and cannot transmit simultaneously.
3. GSM/WCDMA/LTE use one modem and transceiver IC. The signals can not be transmitted simultaneously.
4. This model cannot act as a master device in 5GHz WIFI, so this model is not capable of 5GHz WIFI hotspot. This cannot be changed by any S/W modification by any party after it is manufactured.
- (\*)-for VoIP 3rd party apps possibly installed and used by end - user
- (\*\*)-When the user utilizes multiple service in WCDMA 3G mode, it uses multi Radio Access Bearer or Multi RAB, The power control is based on a physical control channel(Dedicated Physical Control Channel[DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the WCDMA+WLAN scenario also represents the WCDMA Voice/DATA+WLAN Hotspot scenario.

|                                             |                                                                                     |                                      |                                                                                       |                                        |
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## 1.7 Wireless Charging Cover

This DUT may be used with a standard battery cover or with an optional wireless charging battery cover. Per FCC KDB Publication 648474 D04, SAR was measured using the standard battery cover and then repeated with the wireless charging battery cover for the highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. No other additional test with wireless charging cover was required since all reported SAR were less than 1.2 W/kg.

## 1.8 SAR Test Exclusions Applied

### (A) WIFI/BT

Since Wireless Router operations are not allowed by the chipset firmware using 5 GHz WIFI, only 2.4 GHz WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v01.

Per FCC KDB 447498 D01 v05, the SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency (GHz)}} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, Bluetooth SAR was not required;  $[(9/10) * \sqrt{2.441}] = 1.4 < 3.0$ .

This device supports 20 MHz and 40 MHz Bandwidths for IEEE 802.11n for 5 GHz WIFI only. IEEE 802.11n was not evaluated for SAR since the average output power of 20 MHz and 40 MHz bandwidths was not more than 0.25 dB higher than the average output power of IEEE 802.11a.

This device supports IEEE 802.11ac with the following features:

- a) 80 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 1 Tx antenna output
- d) 256 QAM is supported
- e) No new 5 GHz channels

Per October 2012 TCB workshop notes, SAR testing for 802.11ac was not required since the average output power was not more than 0.25 dB higher than the output power of IEEE 802.11a mode.

### (B) Licensed Transmitter(s)

GSM/GPRS/EDGE DTM is not supported for US bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS/EDGE Data.

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v02.

LTE Band 4 SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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## 1.9 Guidance Applied

- FCC OET Bulletin 65 Supplement C [June 2001]
- IEEE 1528-2003
- FCC KDB Publication 941225 D01-D06 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v01r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v05 (General SAR Guidance)
- FCC KDB Publication 865664 D01-D02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04 (Wireless Charging Battery Cover)

## 1.10 Device Serial Numbers

Several samples were used with identical hardware to support SAR testing. The manufacture confirmed all samples have the same physical, mechanical and thermal characteristics and are electrically identical to production units.

| Mode/Band          | Serial Number |
|--------------------|---------------|
| GSM/GPRS/EDGE 850  | 32F60         |
| UMTS 850           | 32F60         |
| GSM/GPRS/EDGE 1900 | 32F60         |
| UMTS 1900          | 32F60         |
| 2.4 GHz WLAN       | 32FB2/32FAF   |
| 5 GHz WLAN         | 32FAF         |

| Mode/Band       | Condition | Serial Number |
|-----------------|-----------|---------------|
| Cell. CDMA/EVDO | Maximum   | 32FB2         |
|                 | SVLTE     | 32F6F         |
| PCS CDMA/EVDO   | Maximum   | 32FB2         |
|                 | SVLTE     | 32F6F         |
| LTE Band 13     | Maximum   | 32FAF         |
|                 | Reduced   | 32FA3         |
| LTE Band 4      | Maximum   | 32FAF         |
|                 | Reduced   | 32FA3         |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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## 2 LTE INFORMATION

| LTE Information                                                                                                    |                                                            |                |                |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------|----------------|
| FCC ID                                                                                                             | A3LSCHI545                                                 |                |                |
| Form Factor                                                                                                        | Portable Handset                                           |                |                |
| Frequency Range of each LTE transmission band                                                                      | LTE Band 13 (782 MHz)                                      |                |                |
|                                                                                                                    | LTE Band 4 (AWS) (1712.5 - 1752.5 MHz)                     |                |                |
| Channel Bandwidths                                                                                                 | LTE Band 13: 10 MHz                                        |                |                |
|                                                                                                                    | LTE Band 4 (AWS): 5 MHz, 10 MHz, 15 MHz, 20 MHz            |                |                |
| Channel Numbers and Frequencies (MHz)                                                                              | Low                                                        | Mid            | High           |
| LTE Band 13: 10 MHz                                                                                                |                                                            | 782 (23230)    |                |
| LTE Band 4 (AWS): 5 MHz                                                                                            | 1712.5 (19975)                                             | 1732.5 (20175) | 1752.5 (20375) |
| LTE Band 4 (AWS): 10 MHz                                                                                           | 1715 (20000)                                               | 1732.5 (20175) | 1750 (20350)   |
| LTE Band 4 (AWS): 15 MHz                                                                                           | 1717.5 (20025)                                             | 1732.5 (20175) | 1747.5 (20325) |
| LTE Band 4 (AWS): 20 MHz                                                                                           | 1720 (20050)                                               | 1732.5 (20175) | 1745 (20300)   |
| UE Category                                                                                                        | 3                                                          |                |                |
| Modulations Supported in UL                                                                                        | QPSK, 16QAM                                                |                |                |
| LTE Transmitter and Antenna Implementation                                                                         | This device uses 1 Tx/Rx antenna and 2 Rx Antennas for LTE |                |                |
| Description of LTE Tx and Ant. Implementation                                                                      | LTE and CDMA operate on separate transmission paths        |                |                |
| Hotspot with LTE+WIFI                                                                                              | YES                                                        |                |                |
| Hotspot with LTE+WIFI active with 1XVoice sessions?                                                                | YES                                                        |                |                |
| LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)  | See section 9 and 10                                       |                |                |
| A-MPR (Additional MPR) disabled for SAR Testing?                                                                   | YES                                                        |                |                |
| Conducted power Table provided for 1RB (low, mid and high offset), 50% RB (low, mid, and high offset), and 100% RB | YES                                                        |                |                |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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### 3 INTRODUCTION

The FCC and Industry Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [24]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

#### 3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density ( $\rho$ ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

**Equation 3-1**  
**SAR Mathematical Equation**

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

**SAR is expressed in units of Watts per Kilogram (W/kg).**

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

where:

- $\sigma$  = conductivity of the tissue-simulating material (S/m)
- $\rho$  = mass density of the tissue-simulating material (kg/m<sup>3</sup>)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

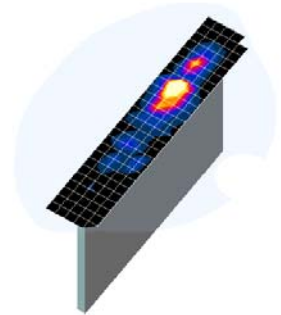
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## 4 DOSIMETRIC ASSESSMENT

### 4.1 Measurement Procedure

The evaluation was performed using the following procedure:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01 (See Table 4-1).
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01 (See Table 4-1). On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
  - a. The data was extrapolated to the surface of the outer-shell of the phantom. The combined distance extrapolated was the combined distance from the center of the dipoles 2.7mm away from the tip of the probe housing plus the 1.2 mm distance between the surface and the lowest measuring point. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
  - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
  - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.



**Figure 4-1**  
**Sample SAR Area Scan**

**Table 4-1**  
**Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01**

| Frequency | Maximum Area Scan Resolution (mm)<br>( $\Delta x_{\text{area}}, \Delta y_{\text{area}}$ ) | Maximum Zoom Scan Resolution (mm)<br>( $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$ ) | Maximum Zoom Scan Spatial Resolution (mm) |                             |                                      | Minimum Zoom Scan Volume (mm)<br>(x,y,z) |
|-----------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------|--------------------------------------|------------------------------------------|
|           |                                                                                           |                                                                                           | Uniform Grid                              | Graded Grid                 |                                      |                                          |
|           |                                                                                           |                                                                                           |                                           | $\Delta z_{\text{zoom}}(n)$ | $\Delta z_{\text{zoom}}(1)^*$        |                                          |
| ≤ 2 GHz   | ≤ 15                                                                                      | ≤ 8                                                                                       | ≤ 5                                       | ≤ 4                         | ≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥ 30                                     |
| 2-3 GHz   | ≤ 12                                                                                      | ≤ 5                                                                                       | ≤ 5                                       | ≤ 4                         | ≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥ 30                                     |
| 3-4 GHz   | ≤ 12                                                                                      | ≤ 5                                                                                       | ≤ 4                                       | ≤ 3                         | ≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥ 28                                     |
| 4-5 GHz   | ≤ 10                                                                                      | ≤ 4                                                                                       | ≤ 3                                       | ≤ 2.5                       | ≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥ 25                                     |
| 5-6 GHz   | ≤ 10                                                                                      | ≤ 4                                                                                       | ≤ 2                                       | ≤ 2                         | ≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$ | ≥ 22                                     |

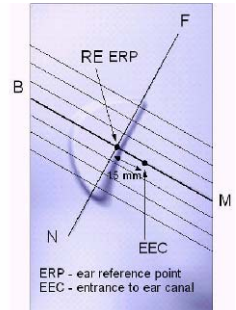
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## 5

## DEFINITION OF REFERENCE POINTS

### 5.1 EAR REFERENCE POINT

Figure 5-2 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 5-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 5-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].



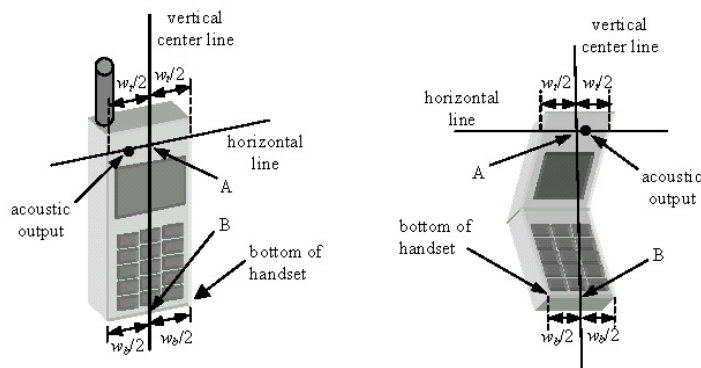
**Figure 5-1**  
Close-Up Side view  
of ERP

### 5.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the “test device reference point” located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 5-3). The “test device reference point” was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.



**Figure 5-2**  
Front, back and side view of SAM Twin Phantom



**Figure 5-3**  
Handset Vertical Center & Horizontal Line Reference Points

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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## 6 TEST CONFIGURATION POSITIONS FOR HANDSETS

### 6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ .

### 6.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

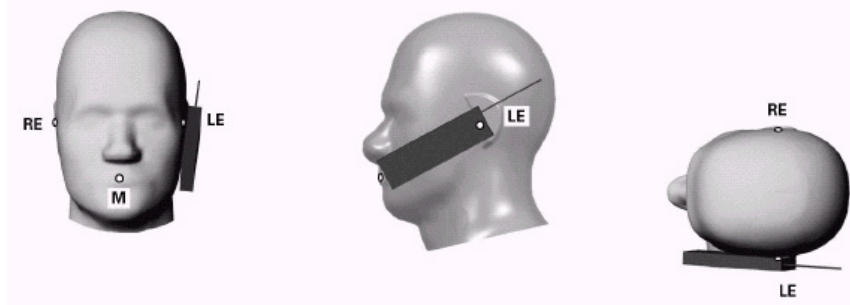


Figure 6-1 Front, Side and Top View of Cheek Position

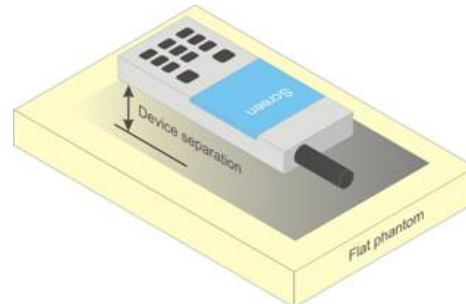
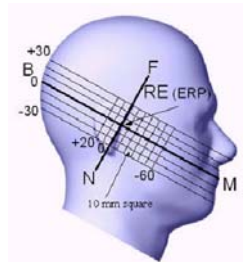
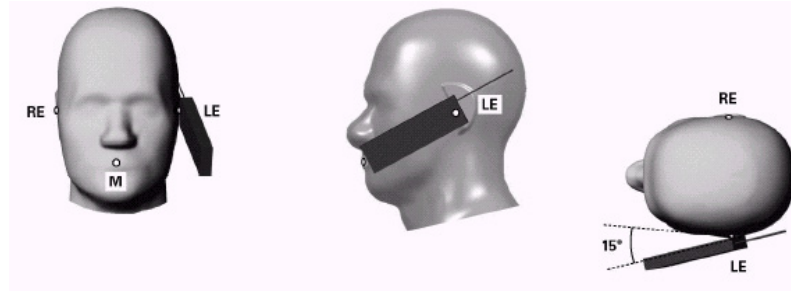
2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the ear.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the plane normal to MB-NF including the line MB (reference plane).
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the device contact with the ear, the device was rotated about the NF line until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 6-2).

### 6.3 Positioning for Ear / 15° Tilt

With the test device aligned in the “Cheek Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15 degrees.
2. The phone was then rotated around the horizontal line by 15 degrees.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the handset touched the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. The tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6-2).

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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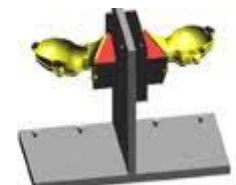


## 6.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04\_v01. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

The latest IEEE 1528 committee developments propose the usage of a tilted phantom when the antenna of the phone is mounted at the bottom or in all cases the peak absorption is in the chin region. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed individually from the table for emptying and cleaning.



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## 6.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D04\_v01, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01\_v05 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

## 6.6 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v01 where SAR test considerations for handsets ( $L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$ ) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v05 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

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## 7 RF EXPOSURE LIMITS

### 7.1 Uncontrolled Environment

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

### 7.2 Controlled Environment

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

**Table 7-1**  
**SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6**

| HUMAN EXPOSURE LIMITS                           |                                                                           |                                                                   |
|-------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------|
|                                                 | UNCONTROLLED ENVIRONMENT<br><i>General Population</i><br>(W/kg) or (mW/g) | CONTROLLED ENVIRONMENT<br><i>Occupational</i><br>(W/kg) or (mW/g) |
| SPATIAL PEAK SAR<br>Brain                       | 1.6                                                                       | 8.0                                                               |
| SPATIAL AVERAGE SAR<br>Whole Body               | 0.08                                                                      | 0.4                                                               |
| SPATIAL PEAK SAR<br>Hands, Feet, Ankles, Wrists | 4.0                                                                       | 20                                                                |

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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## 8 FCC MEASUREMENT PROCEDURES

Power measurements were performed using a base station simulator under digital average power.

### 8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v05, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r02.

### 8.2 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

The device was placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test were evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device was tested throughout the SAR test at maximum output power, the SAR measurement system measures a "point SAR" at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviated by more than 5%, the SAR test and drift measurements were repeated.

### 8.3 SAR Measurement Conditions for CDMA2000

The following procedures were performed according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

#### 8.3.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices" v02, October 2007. Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the "All Up" condition.

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH<sub>0</sub> and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH<sub>0</sub> data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 8-2 was applied.

|                                      |                                                                                     |                               |                                                                                       |                                 |
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**Table 8-1**  
**Parameters for Max. Power for RC1**

| Parameter                    | Units        | Value |
|------------------------------|--------------|-------|
| $I_{or}$                     | dBm/1.23 MHz | -104  |
| $\frac{Pilot E_c}{I_{or}}$   | dB           | -7    |
| $\frac{Traffic E_c}{I_{or}}$ | dB           | -7.4  |

**Table 8-2**  
**Parameters for Max. Power for RC3**

| Parameter                    | Units        | Value |
|------------------------------|--------------|-------|
| $I_{or}$                     | dBm/1.23 MHz | -86   |
| $\frac{Pilot E_c}{I_{or}}$   | dB           | -7    |
| $\frac{Traffic E_c}{I_{or}}$ | dB           | -7.4  |

5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

### 8.3.2 Head SAR Measurements

SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

Head SAR was additionally evaluated using EVDO Rev. A to support compliance for VoIP operations. See Section 8.3.4 for EVDO Rev. A configuration parameters.

### 8.3.3 Body SAR Measurements

SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCH<sub>n</sub>) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCH<sub>n</sub>) with FCH at full rate and SCH<sub>0</sub> enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the “All Up”.

Body SAR in RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3.

### 8.3.4 Handsets with EVDO

For handsets with Ev-Do capabilities, when the maximum average output of each channel in Rev. 0 is less than ¼ dB higher than that measured in RC3 (1x RTT), body SAR for EV-DO is not required. Otherwise, SAR for Rev. 0 is measured on the maximum output channel at 153.6 kbps using the body exposure configuration that results in the highest SAR for that channel in RC3. SAR for Rev. A is not required when the maximum average output of each channel is less than that measured in Rev. 0 or less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel for Rev. A using a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations. A Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots would be configured in the downlink for both Rev. 0 and Rev. A.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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### 8.3.5 Body SAR Measurements for EVDO Hotspot

Hotspot Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 per KDB Publication 941225 D01 procedures for “1x Ev-Do data Devices”. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channels is less than that measured in Subtype 0/1 Physical layer configurations. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for the RF channels in Rev. 0. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations.

SAR is not required for 1x RTT for Ev-Do devices that also support 1x RTT voice and/or data operations, when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0. Otherwise, CDMA “Body-SAR Measurement” procedures for “CDMA 2000 1x Handsets” were applied.

## 8.4 SAR Measurement Conditions for UMTS

### 8.4.1 Output Power Verification

Maximum output power is measured on the High, Middle and Low channels for each applicable transmission band according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1s”.

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121 (release 5), using the appropriate RMC with TPC (transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

### 8.4.2 Head SAR Measurements for Handsets

SAR for head exposure configurations is measured using the 12.2 kbps RMC with TPC bits configured to all “1s”. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than 0.25 dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 AMR with a 3.4 kbps SRB (signaling radio bearer) using the exposure configuration that resulted in the highest SAR for that RF channel in the 12.2 kbps RMC mode.

### 8.4.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”.

### 8.4.4 SAR Measurements for Handsets with Rel 5 HSDPA

Body SAR for HSDPA is not required for handsets with HSDPA capabilities when the maximum average output power of each RF channel with HSDPA active is less than 0.25 dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is  $\leq 75\%$  of the SAR limit. Otherwise, SAR is measured for HSDPA, using an FRC with H-Set 1

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration measured in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that resulted in the highest SAR in 12.2 kbps RMC mode for that RF channel.

The H-set used in FRC for HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HSPDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the applicable H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the FRC for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 2 ms to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors of  $\beta_c=9$  and  $\beta_d=15$ , and power offset parameters of  $\Delta_{ACK} = \Delta_{NACK} = 5$  and  $\Delta_{CQI}=2$  is used. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the FRC.

#### 8.4.5 SAR Measurements for Handsets with Rel 6 HSUPA

Body SAR for HSUPA is not required when the maximum average output of each RF channel with HSUPA/HSDPA active is less than 0.25 dB higher than as measured without HSUPA/HSDPA using 12.2 kbps RMC and maximum SAR for 12.2 kbps RMC is  $\leq 75\%$  of the SAR limit. Otherwise SAR is measured on the maximum output channel for the body exposure configuration produced highest SAR in 12.2 kbps RMC for that RF channel, using the additional procedures under “Release 6 HSPA data devices”

Head SAR for VOIP operations under HSPA is not required when maximum average output of each RF channel with HSPA is less than 0.25 dB higher than as measured using 12.2 kbps RMC. Otherwise SAR is measured using same HSPA configuration as used for body SAR.

| Sub-test | $\beta_c$            | $\beta_d$            | $\beta_d$ (SF) | $\beta_c/\beta_d$    | $\beta_{hs}^{(1)}$ | $\beta_{ec}$ | $\beta_{ed}$                                 | $\beta_{ed}$ (SF) | $\beta_{ed}$ (codes) | CM <sup>(2)</sup> (dB) | MPR (dB) | AG <sup>(4)</sup> Index | E-TFCI |
|----------|----------------------|----------------------|----------------|----------------------|--------------------|--------------|----------------------------------------------|-------------------|----------------------|------------------------|----------|-------------------------|--------|
| 1        | 11/15 <sup>(3)</sup> | 15/15 <sup>(3)</sup> | 64             | 11/15 <sup>(3)</sup> | 22/15              | 209/225      | 1039/225                                     | 4                 | 1                    | 1.0                    | 0.0      | 20                      | 75     |
| 2        | 6/15                 | 15/15                | 64             | 6/15                 | 12/15              | 12/15        | 94/75                                        | 4                 | 1                    | 3.0                    | 2.0      | 12                      | 67     |
| 3        | 15/15                | 9/15                 | 64             | 15/9                 | 30/15              | 30/15        | $\beta_{ed1}: 47/15$<br>$\beta_{ed2}: 47/15$ | 4                 | 2                    | 2.0                    | 1.0      | 15                      | 92     |
| 4        | 2/15                 | 15/15                | 64             | 2/15                 | 4/15               | 2/15         | 56/75                                        | 4                 | 1                    | 3.0                    | 2.0      | 17                      | 71     |
| 5        | 15/15 <sup>(4)</sup> | 15/15 <sup>(4)</sup> | 64             | 15/15 <sup>(4)</sup> | 30/15              | 24/15        | 134/15                                       | 4                 | 1                    | 1.0                    | 0.0      | 21                      | 81     |

Note 1:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 8 \Rightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Rightarrow \beta_{hs} = 30/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: For subtest 5 the  $\beta_c/\beta_d$  ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

|                                      |                                                                                     |                               |                                                                                       |                                 |
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## 8.5 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05v02 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing.

### 8.5.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

### 8.5.2 MPR

MPR is implemented for this device by the manufacturer when the device is operating at maximum power. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

### 8.5.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

### 8.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r01:

- a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
  - i. The required channel and offset combination with the highest maximum output power is required for SAR.
  - ii. When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
  - iii. When the reported SAR for a required test channel is  $> 1.45$  W/kg, SAR is required for all RB offset configurations for that channel.
- b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
- c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is  $< 0.8$  W/kg.
- d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to  $\frac{1}{2}$  dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is  $< 1.45$  W/kg.

|                                      |                                                                                     |                               |                                                                                       |                                 |
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## 8.6 SAR Testing with 802.11 Transmitters

Normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g/n/ac transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v01r02 for more details.

### 8.6.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

### 8.6.2 Frequency Channel Configurations [27]

For 2.4 GHz, the highest average RF output power channel between the low, mid and high channel at the lowest data rate was selected for SAR evaluation in 802.11b mode. 802.11g/n modes and higher data rates for 802.11b were additionally evaluated for SAR if the output power of the respective mode was 0.25 dB or higher than the powers of the SAR configurations tested in the 802.11b mode.

For 5 GHz, the highest average RF output power channel across the default test channels at the lowest data rate was selected for SAR evaluation in 802.11a. When the adjacent channels are higher in power than the default channels, these “required channels” were considered instead of the default channels for SAR testing. 802.11n modes and higher data rates for 802.11a/n/ac were evaluated only if the respective mode was 0.25 dB or higher than the 802.11a mode.

If the maximum extrapolated peak SAR of the zoom scan for the highest output channel was less than 1.6 W/kg or if the 1g averaged SAR was less than 0.8 W/kg, SAR testing was not required for the other test channels in the band.

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 23 of 69                          |

## 9 RF CONDUCTED POWERS

### 9.1 CDMA Conducted Powers

| Band     | Channel | Frequency | SO55 [dBm] | SO55 [dBm] | TDSO SO32 [dBm] | TDSO SO32 [dBm] | 1x EvDO Rev. 0 [dBm] | 1x EvDO Rev. A [dBm] |
|----------|---------|-----------|------------|------------|-----------------|-----------------|----------------------|----------------------|
|          | F-RC    | MHz       | RC1        | RC3        | FCH+SCH         | FCH             | (RTAP)               | (RETAP)              |
| Cellular | 1013    | 824.7     | 24.30      | 24.32      | 24.24           | 24.24           | 24.41                | 24.39                |
|          | 384     | 836.52    | 24.37      | 24.22      | 24.39           | 24.30           | 24.33                | 24.32                |
|          | 777     | 848.31    | 24.13      | 24.11      | 24.03           | 24.13           | 24.16                | 24.07                |
| PCS      | 25      | 1851.25   | 24.42      | 24.32      | 24.35           | 24.29           | 24.24                | 24.22                |
|          | 600     | 1880      | 24.41      | 24.44      | 24.47           | 24.45           | 24.43                | 24.37                |
|          | 1175    | 1908.75   | 24.50      | 24.48      | 24.38           | 24.41           | 24.40                | 24.39                |

Note: RC1 is only applicable for IS-95 compatibility.

Per KDB Publication 941225 D01v02:

1. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. Ev-Do and TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.
3. Hotspot SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. If the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, then Rev. A SAR is not required. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for that RF channel in Rev. 0.
4. CDMA 1x-RTT SAR was additionally required to be evaluated for Hotspot exposure conditions to support simultaneous transmission capabilities.
5. Head SAR was additionally evaluated with EVDO Rev. A to determine compliance for held-to-ear VoIP operations.



**Figure 9-1**  
**Power Measurement Setup**

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 24 of 69                          |

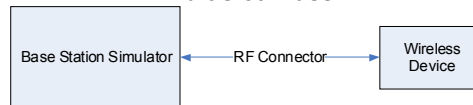
## 9.2 GSM Conducted Powers

|          |         | Maximum Burst-Averaged Output Power            |                            |                            |                            |                            |                            |                            |                            |                            |
|----------|---------|------------------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|          |         | Voice                                          | GPRS/EDGE Data (GMSK)      |                            |                            |                            | EDGE Data (8-PSK)          |                            |                            |                            |
| Band     | Channel | GSM<br>[dBm]<br>CS<br>(1 Slot)                 | GPRS<br>[dBm]<br>1 Tx Slot | GPRS<br>[dBm]<br>2 Tx Slot | GPRS<br>[dBm]<br>3 Tx Slot | GPRS<br>[dBm]<br>4 Tx Slot | EDGE<br>[dBm]<br>1 Tx Slot | EDGE<br>[dBm]<br>2 Tx Slot | EDGE<br>[dBm]<br>3 Tx Slot | EDGE<br>[dBm]<br>4 Tx Slot |
| GSM 850  | 128     | 33.37                                          | 33.47                      | 31.48                      | 29.99                      | 28.63                      | 27.16                      | 26.93                      | 22.99                      | 21.84                      |
|          | 190     | 33.14                                          | 33.37                      | 31.33                      | 29.92                      | 28.45                      | 27.07                      | 26.88                      | 22.95                      | 21.91                      |
|          | 251     | 33.01                                          | 33.07                      | 31.01                      | 29.61                      | 28.12                      | 26.83                      | 26.65                      | 22.86                      | 21.53                      |
| GSM 1900 | 512     | 29.77                                          | 29.71                      | 28.16                      | 26.44                      | 25.12                      | 25.50                      | 25.30                      | 20.99                      | 19.43                      |
|          | 661     | 29.88                                          | 29.92                      | 28.03                      | 26.34                      | 24.91                      | 25.12                      | 25.07                      | 20.63                      | 19.28                      |
|          | 810     | 30.26                                          | 30.22                      | 28.44                      | 26.50                      | 25.22                      | 25.46                      | 25.22                      | 20.96                      | 19.50                      |
|          |         | Calculated Maximum Frame-Averaged Output Power |                            |                            |                            |                            |                            |                            |                            |                            |
|          |         | Voice                                          | GPRS/EDGE Data (GMSK)      |                            |                            |                            | EDGE Data (8-PSK)          |                            |                            |                            |
| Band     | Channel | GSM<br>[dBm]<br>CS<br>(1 Slot)                 | GPRS<br>[dBm]<br>1 Tx Slot | GPRS<br>[dBm]<br>2 Tx Slot | GPRS<br>[dBm]<br>3 Tx Slot | GPRS<br>[dBm]<br>4 Tx Slot | EDGE<br>[dBm]<br>1 Tx Slot | EDGE<br>[dBm]<br>2 Tx Slot | EDGE<br>[dBm]<br>3 Tx Slot | EDGE<br>[dBm]<br>4 Tx Slot |
| GSM 850  | 128     | 24.34                                          | 24.44                      | 25.46                      | 25.73                      | 25.62                      | 18.13                      | 20.91                      | 18.73                      | 18.83                      |
|          | 190     | 24.11                                          | 24.34                      | 25.31                      | 25.66                      | 25.44                      | 18.04                      | 20.86                      | 18.69                      | 18.90                      |
|          | 251     | 23.98                                          | 24.04                      | 24.99                      | 25.35                      | 25.11                      | 17.80                      | 20.63                      | 18.60                      | 18.52                      |
| GSM 1900 | 512     | 20.74                                          | 20.68                      | 22.14                      | 22.18                      | 22.11                      | 16.47                      | 19.28                      | 16.73                      | 16.42                      |
|          | 661     | 20.85                                          | 20.89                      | 22.01                      | 22.08                      | 21.90                      | 16.09                      | 19.05                      | 16.37                      | 16.27                      |
|          | 810     | 21.23                                          | 21.19                      | 22.42                      | 22.24                      | 22.21                      | 16.43                      | 19.20                      | 16.70                      | 16.49                      |

Note:

- Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.
- The bolded GPRS modes were selected for SAR testing according to the highest frame-averaged output power table according to KDB 941225 D03v01.
- GPRS/EDGE (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.
- EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8PSK modulation do not have an impact on output power.
- This device does not support evolved EDGE (eEDGE)

**GSM Class: B**  
**GPRS Multislot class: 33** (Max 4 Tx uplink slots)  
**EDGE Multislot class: 33** (Max 4 Tx uplink slots)  
**DTM Multislot Class: N/A**



**Figure 9-2**  
**Power Measurement Setup**

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset | Page 25 of 69                                                                         |                                        |

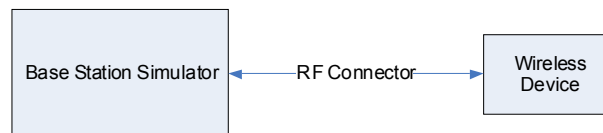
### 9.3 UMTS Conducted Powers

| 3GPP Release Version | Mode  | 3GPP 34.121 Subtest | Cellular Band [dBm] |       |       | PCS Band [dBm] |       |       | 3GPP MPR [dB] |
|----------------------|-------|---------------------|---------------------|-------|-------|----------------|-------|-------|---------------|
|                      |       |                     | 4132                | 4183  | 4233  | 9262           | 9400  | 9538  |               |
| 99                   | WCDMA | 12.2 kbps RMC       | 22.97               | 22.95 | 22.99 | 22.70          | 22.86 | 22.65 | -             |
| 99                   |       | 12.2 kbps AMR       | 22.95               | 22.90 | 22.94 | 22.61          | 22.83 | 22.60 | -             |
| 6                    | HSDPA | Subtest 1           | 21.96               | 21.99 | 21.98 | 21.74          | 21.85 | 21.69 | 0             |
| 6                    |       | Subtest 2           | 21.97               | 21.97 | 21.93 | 21.81          | 21.89 | 21.76 | 0             |
| 6                    |       | Subtest 3           | 21.40               | 21.48 | 21.50 | 21.29          | 21.33 | 21.20 | 0.5           |
| 6                    |       | Subtest 4           | 21.40               | 21.37 | 21.45 | 21.17          | 21.30 | 21.17 | 0.5           |
| 6                    | HSUPA | Subtest 1           | 20.90               | 20.95 | 20.97 | 20.79          | 20.90 | 20.81 | 0             |
| 6                    |       | Subtest 2           | 20.87               | 20.92 | 20.98 | 20.54          | 20.76 | 20.60 | 2             |
| 6                    |       | Subtest 3           | 20.56               | 20.64 | 20.89 | 20.16          | 20.28 | 20.39 | 1             |
| 6                    |       | Subtest 4           | 20.57               | 20.67 | 20.71 | 20.90          | 20.98 | 20.97 | 2             |
| 6                    |       | Subtest 5           | 20.65               | 20.73 | 20.97 | 20.69          | 20.89 | 20.79 | 0             |

UMTS SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v02. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

This device does not support DC-HSDPA.

It is expected by the manufacturer that MPR for some HSUPA subtests may be up to 1 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model.



**Figure 9-3**  
**Power Measurement Setup**

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset | Page 26 of 69                                                                         |                                        |

## 9.4 LTE Conducted Powers

### 9.4.1 LTE Band 13

Table 9-1  
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

|     | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|-----|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Mid | 782.0           | 23230   | 10              | QPSK       | 1       | 0         | <b>23.13</b>          | 0               | 0                         |
|     | 782.0           | 23230   | 10              | QPSK       | 1       | 25        | 23.03                 | 0               | 0                         |
|     | 782.0           | 23230   | 10              | QPSK       | 1       | 49        | 22.89                 | 0               | 0                         |
|     | 782.0           | 23230   | 10              | QPSK       | 25      | 0         | 21.93                 | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | QPSK       | 25      | 12        | <b>21.95</b>          | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | QPSK       | 25      | 25        | 21.90                 | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | QPSK       | 50      | 0         | 21.95                 | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 1       | 0         | 22.20                 | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 1       | 25        | 22.26                 | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 1       | 49        | 22.02                 | 1               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 25      | 0         | 20.88                 | 2               | 0-2                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 25      | 12        | 20.91                 | 2               | 0-2                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 25      | 25        | 20.89                 | 2               | 0-2                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 50      | 0         | 20.84                 | 2               | 0-2                       |

Note: LTE Band 13 at 10 MHz Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

### 9.4.2 LTE Band 4 (AWS)

Table 9-2  
LTE Band 4 (AWS) Conducted Powers - 20 MHz Bandwidth

|     | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|-----|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Mid | 1732.5          | 20175   | 20              | QPSK       | 1       | 0         | 23.06                 | 0               | 0                         |
|     | 1732.5          | 20175   | 20              | QPSK       | 1       | 50        | <b>23.36</b>          | 0               | 0                         |
|     | 1732.5          | 20175   | 20              | QPSK       | 1       | 99        | 23.06                 | 0               | 0                         |
|     | 1732.5          | 20175   | 20              | QPSK       | 50      | 0         | 22.12                 | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | QPSK       | 50      | 25        | <b>22.23</b>          | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | QPSK       | 50      | 50        | 22.09                 | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | QPSK       | 100     | 0         | 22.17                 | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 1       | 0         | 22.35                 | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 1       | 50        | 22.47                 | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 1       | 99        | 22.38                 | 1               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 50      | 0         | 21.10                 | 2               | 0-2                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 50      | 25        | 21.24                 | 2               | 0-2                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 50      | 50        | 21.25                 | 2               | 0-2                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 100     | 0         | 21.16                 | 2               | 0-2                       |

Note: LTE Band 4 at 20 MHz Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

|                                      |                                                                                                                                   |                               |                                                                                       |                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                | DUT Type:<br>Portable Handset |                                                                                       | Page 27 of 69                   |

**Table 9-3**  
**LTE Band 4 (AWS) Conducted Powers - 15 MHz Bandwidth**

|      | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Low  | 1717.5          | 20025   | 15              | QPSK       | 1       | 0         | 22.76                 | 0               | 0                         |
|      | 1717.5          | 20025   | 15              | QPSK       | 1       | 36        | 23.01                 | 0               | 0                         |
|      | 1717.5          | 20025   | 15              | QPSK       | 1       | 74        | 23.08                 | 0               | 0                         |
|      | 1717.5          | 20025   | 15              | QPSK       | 36      | 0         | 21.76                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | QPSK       | 36      | 18        | 21.96                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | QPSK       | 36      | 37        | 22.03                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | QPSK       | 75      | 0         | 21.91                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 1       | 0         | 22.12                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 1       | 36        | 22.33                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 1       | 74        | 22.37                 | 1               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 36      | 0         | 20.83                 | 2               | 0-2                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 36      | 18        | 20.98                 | 2               | 0-2                       |
| Mid  | 1717.5          | 20025   | 15              | 16QAM      | 36      | 37        | 21.06                 | 2               | 0-2                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 75      | 0         | 20.92                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 1       | 0         | 23.21                 | 0               | 0                         |
|      | 1732.5          | 20175   | 15              | QPSK       | 1       | 36        | 23.41                 | 0               | 0                         |
|      | 1732.5          | 20175   | 15              | QPSK       | 1       | 74        | 23.37                 | 0               | 0                         |
|      | 1732.5          | 20175   | 15              | QPSK       | 36      | 0         | 22.18                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 36      | 18        | 22.29                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 36      | 37        | 22.21                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 75      | 0         | 22.12                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 1       | 0         | 22.36                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 1       | 36        | 22.50                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 1       | 74        | 22.48                 | 1               | 0-1                       |
| High | 1732.5          | 20175   | 15              | 16QAM      | 36      | 0         | 21.19                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 36      | 18        | 21.15                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 36      | 37        | 21.32                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 75      | 0         | 21.24                 | 2               | 0-2                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 1       | 0         | 23.16                 | 0               | 0                         |
|      | 1747.5          | 20325   | 15              | QPSK       | 1       | 36        | 22.88                 | 0               | 0                         |
|      | 1747.5          | 20325   | 15              | QPSK       | 1       | 74        | 22.92                 | 0               | 0                         |
|      | 1747.5          | 20325   | 15              | QPSK       | 36      | 0         | 22.00                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 36      | 18        | 21.89                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 36      | 37        | 21.72                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 75      | 0         | 21.77                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 1       | 0         | 22.43                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 1       | 36        | 22.16                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 1       | 74        | 22.38                 | 1               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 36      | 0         | 21.02                 | 2               | 0-2                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 36      | 18        | 20.87                 | 2               | 0-2                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 36      | 37        | 20.78                 | 2               | 0-2                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 75      | 0         | 20.92                 | 2               | 0-2                       |

|                                      |                                                                                                                                                                                                        |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset   |
| Page 28 of 69                        |                                                                                                                                                                                                        |                                 |

**Table 9-4**  
**LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth**

|      | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Low  | 1715            | 20000   | 10              | QPSK       | 1       | 0         | 22.80                 | 0               | 0                         |
|      | 1715            | 20000   | 10              | QPSK       | 1       | 25        | 22.92                 | 0               | 0                         |
|      | 1715            | 20000   | 10              | QPSK       | 1       | 49        | 23.14                 | 0               | 0                         |
|      | 1715            | 20000   | 10              | QPSK       | 25      | 0         | 21.82                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | QPSK       | 25      | 12        | 21.80                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | QPSK       | 25      | 25        | 21.91                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | QPSK       | 50      | 0         | 21.74                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 1       | 0         | 22.21                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 1       | 25        | 22.26                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 1       | 49        | 22.39                 | 1               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 25      | 0         | 20.83                 | 2               | 0-2                       |
|      | 1715            | 20000   | 10              | 16QAM      | 25      | 12        | 20.90                 | 2               | 0-2                       |
| Mid  | 1715            | 20000   | 10              | 16QAM      | 25      | 25        | 21.01                 | 2               | 0-2                       |
|      | 1715            | 20000   | 10              | 16QAM      | 50      | 0         | 20.76                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 1       | 0         | 23.11                 | 0               | 0                         |
|      | 1732.5          | 20175   | 10              | QPSK       | 1       | 25        | 23.34                 | 0               | 0                         |
|      | 1732.5          | 20175   | 10              | QPSK       | 1       | 49        | 23.41                 | 0               | 0                         |
|      | 1732.5          | 20175   | 10              | QPSK       | 25      | 0         | 22.23                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 25      | 12        | 22.22                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 25      | 25        | 22.14                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 50      | 0         | 22.11                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 1       | 0         | 22.43                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 1       | 25        | 22.45                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 1       | 49        | 22.50                 | 1               | 0-1                       |
| High | 1732.5          | 20175   | 10              | 16QAM      | 25      | 0         | 21.23                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 25      | 12        | 21.28                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 25      | 25        | 21.18                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 50      | 0         | 21.13                 | 2               | 0-2                       |
|      | 1750            | 20350   | 10              | QPSK       | 1       | 0         | 22.89                 | 0               | 0                         |
|      | 1750            | 20350   | 10              | QPSK       | 1       | 25        | 22.96                 | 0               | 0                         |
|      | 1750            | 20350   | 10              | QPSK       | 1       | 49        | 22.98                 | 0               | 0                         |
|      | 1750            | 20350   | 10              | QPSK       | 25      | 0         | 21.82                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | QPSK       | 25      | 12        | 21.85                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | QPSK       | 25      | 25        | 21.71                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | QPSK       | 50      | 0         | 21.66                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 1       | 0         | 22.28                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 1       | 25        | 22.30                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 1       | 49        | 22.28                 | 1               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 25      | 0         | 20.93                 | 2               | 0-2                       |
|      | 1750            | 20350   | 10              | 16QAM      | 25      | 12        | 20.94                 | 2               | 0-2                       |
|      | 1750            | 20350   | 10              | 16QAM      | 25      | 25        | 20.84                 | 2               | 0-2                       |
|      | 1750            | 20350   | 10              | 16QAM      | 50      | 0         | 20.78                 | 2               | 0-2                       |

|                                      |                                                                                                                                                                                                        |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset   |
| Page 29 of 69                        |                                                                                                                                                                                                        |                                 |

**Table 9-5**  
**LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth**

|      | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Low  | 1712.5          | 19975   | 5               | QPSK       | 1       | 0         | 22.82                 | 0               | 0                         |
|      | 1712.5          | 19975   | 5               | QPSK       | 1       | 12        | 23.06                 | 0               | 0                         |
|      | 1712.5          | 19975   | 5               | QPSK       | 1       | 24        | 23.05                 | 0               | 0                         |
|      | 1712.5          | 19975   | 5               | QPSK       | 12      | 0         | 21.78                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | QPSK       | 12      | 6         | 21.75                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | QPSK       | 12      | 13        | 21.83                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | QPSK       | 25      | 0         | 21.65                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 1       | 0         | 22.12                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 1       | 12        | 22.26                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 1       | 24        | 22.28                 | 1               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 12      | 0         | 20.77                 | 2               | 0-2                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 12      | 6         | 20.76                 | 2               | 0-2                       |
| Mid  | 1712.5          | 19975   | 5               | 16-QAM     | 12      | 13        | 20.82                 | 2               | 0-2                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 25      | 0         | 20.76                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 1       | 0         | 23.34                 | 0               | 0                         |
|      | 1732.5          | 20175   | 5               | QPSK       | 1       | 12        | 23.48                 | 0               | 0                         |
|      | 1732.5          | 20175   | 5               | QPSK       | 1       | 24        | 23.43                 | 0               | 0                         |
|      | 1732.5          | 20175   | 5               | QPSK       | 12      | 0         | 22.32                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 12      | 6         | 22.25                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 12      | 13        | 22.25                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 25      | 0         | 22.10                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 1       | 0         | 22.49                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 1       | 12        | 22.50                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 1       | 24        | 22.50                 | 1               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 12      | 0         | 21.37                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 12      | 6         | 21.24                 | 2               | 0-2                       |
| High | 1732.5          | 20175   | 5               | 16-QAM     | 12      | 13        | 21.26                 | 2               | 0-2                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 25      | 0         | 21.11                 | 2               | 0-2                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 1       | 0         | 22.90                 | 0               | 0                         |
|      | 1752.5          | 20375   | 5               | QPSK       | 1       | 12        | 22.84                 | 0               | 0                         |
|      | 1752.5          | 20375   | 5               | QPSK       | 1       | 24        | 23.00                 | 0               | 0                         |
|      | 1752.5          | 20375   | 5               | QPSK       | 12      | 0         | 21.89                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 12      | 6         | 21.93                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 12      | 13        | 21.93                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 25      | 0         | 21.82                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 1       | 0         | 22.28                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 1       | 12        | 22.15                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 1       | 24        | 22.39                 | 1               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 12      | 0         | 20.98                 | 2               | 0-2                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 12      | 6         | 20.91                 | 2               | 0-2                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 12      | 13        | 21.00                 | 2               | 0-2                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 25      | 0         | 20.94                 | 2               | 0-2                       |

## 9.5 WLAN Conducted Powers

**Table 9-6**  
**IEEE 802.11b Average RF Power**

| Mode    | Freq [MHz] | Channel | 802.11b (2.4 GHz) Conducted Power [dBm] |       |       |       |
|---------|------------|---------|-----------------------------------------|-------|-------|-------|
|         |            |         | Data Rate [Mbps]                        |       |       |       |
|         |            |         | 1                                       | 2     | 5.5   | 11    |
| 802.11b | 2412       | 1*      | 16.95                                   | 16.43 | 16.35 | 16.44 |
| 802.11b | 2437       | 6*      | 17.16                                   | 16.66 | 16.67 | 16.64 |
| 802.11b | 2462       | 11*     | 16.79                                   | 16.31 | 16.29 | 16.32 |

|                                      |                                                                                                                                   |                               |                                                                                       |                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                | DUT Type:<br>Portable Handset |                                                                                       | Page 30 of 69                   |

**Table 9-7**  
**IEEE 802.11g Average RF Power**

| Mode    | Freq  | Channel | 802.11g (2.4 GHz) Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|-------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |       |         | Data Rate [Mbps]                        |       |       |       |       |       |       |       |
|         | [MHz] |         | 6                                       | 9     | 12    | 18    | 24    | 36    | 48    | 54    |
| 802.11g | 2412  | 1       | 13.74                                   | 13.62 | 13.79 | 13.75 | 13.66 | 13.69 | 13.78 | 13.61 |
| 802.11g | 2437  | 6       | 13.89                                   | 13.87 | 13.99 | 13.96 | 13.89 | 13.87 | 14.01 | 13.73 |
| 802.11g | 2462  | 11      | 13.55                                   | 13.47 | 13.59 | 13.64 | 13.64 | 13.52 | 13.60 | 13.52 |

**Table 9-8**  
**IEEE 802.11n Average RF Power**

| Mode    | Freq  | Channel | 802.11n (2.4 GHz) Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|-------|---------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |       |         | Data Rate [Mbps]                        |       |       |       |       |       |       |       |
|         | [MHz] |         | 6.5                                     | 13    | 20    | 26    | 39    | 52    | 58    | 65    |
| 802.11n | 2412  | 1       | 12.68                                   | 12.76 | 12.67 | 12.68 | 12.73 | 12.84 | 12.72 | 12.71 |
| 802.11n | 2437  | 6       | 12.97                                   | 12.89 | 13.03 | 13.00 | 12.86 | 12.92 | 12.94 | 12.91 |
| 802.11n | 2462  | 11      | 12.68                                   | 12.67 | 12.71 | 12.68 | 12.61 | 12.63 | 12.81 | 12.63 |

**Table 9-9**  
**IEEE 802.11a Average RF Power**

| Mode    | Freq  | Channel | 802.11a (5GHz) Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|-------|---------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |       |         | Data Rate [Mbps]                     |       |       |       |       |       |       |       |
|         | [MHz] |         | 6                                    | 9     | 12    | 18    | 24    | 36    | 48    | 54    |
| 802.11a | 5180  | 36*     | 14.03                                | 13.94 | 14.05 | 14.04 | 13.97 | 13.93 | 14.05 | 13.81 |
| 802.11a | 5200  | 40      | 13.85                                | 13.99 | 13.90 | 13.92 | 13.91 | 13.95 | 13.95 | 13.81 |
| 802.11a | 5220  | 44      | 13.86                                | 13.84 | 13.86 | 13.96 | 13.90 | 13.83 | 13.98 | 13.64 |
| 802.11a | 5240  | 48*     | 13.79                                | 13.86 | 13.93 | 13.78 | 13.87 | 13.83 | 13.99 | 13.79 |
| 802.11a | 5260  | 52*     | 13.79                                | 13.83 | 13.81 | 13.91 | 13.92 | 13.87 | 13.93 | 13.75 |
| 802.11a | 5280  | 56      | 14.01                                | 14.02 | 13.97 | 14.07 | 14.04 | 13.99 | 14.11 | 13.94 |
| 802.11a | 5300  | 60      | 13.88                                | 14.02 | 14.06 | 13.97 | 13.99 | 14.00 | 14.24 | 13.94 |
| 802.11a | 5320  | 64*     | 13.93                                | 13.98 | 13.91 | 13.98 | 13.93 | 13.96 | 14.00 | 13.83 |
| 802.11a | 5500  | 100     | 14.10                                | 14.09 | 14.14 | 14.20 | 14.09 | 14.10 | 14.18 | 14.01 |
| 802.11a | 5520  | 104*    | 14.04                                | 14.08 | 14.14 | 14.11 | 14.04 | 14.09 | 14.25 | 13.99 |
| 802.11a | 5540  | 108     | 14.00                                | 14.02 | 14.08 | 14.03 | 13.98 | 14.06 | 14.26 | 14.00 |
| 802.11a | 5560  | 112     | 13.96                                | 13.96 | 13.97 | 14.07 | 13.87 | 13.94 | 14.08 | 13.88 |
| 802.11a | 5580  | 116*    | 13.87                                | 13.93 | 14.00 | 13.97 | 13.90 | 13.85 | 14.01 | 13.89 |
| 802.11a | 5600  | 120     | N/A                                  | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   |
| 802.11a | 5620  | 124*    | N/A                                  | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   |
| 802.11a | 5640  | 128     | N/A                                  | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   |
| 802.11a | 5660  | 132     | 13.68                                | 13.57 | 13.53 | 13.65 | 13.69 | 13.59 | 13.78 | 13.60 |
| 802.11a | 5680  | 136*    | 13.59                                | 13.59 | 13.65 | 13.59 | 13.64 | 13.58 | 13.63 | 13.47 |
| 802.11a | 5700  | 140     | 13.41                                | 13.55 | 13.58 | 13.60 | 13.44 | 13.45 | 13.59 | 13.43 |
| 802.11a | 5745  | 149*    | 13.60                                | 13.59 | 13.61 | 13.74 | 13.66 | 13.61 | 13.75 | 13.57 |
| 802.11a | 5765  | 153     | 13.49                                | 13.59 | 13.64 | 13.64 | 13.57 | 13.56 | 13.67 | 13.47 |
| 802.11a | 5785  | 157*    | 13.49                                | 13.42 | 13.55 | 13.56 | 13.47 | 13.47 | 13.62 | 13.37 |
| 802.11a | 5805  | 161*    | 13.41                                | 13.36 | 13.51 | 13.51 | 13.50 | 13.40 | 13.56 | 13.34 |
| 802.11a | 5825  | 165     | 13.40                                | 13.41 | 13.37 | 13.47 | 13.42 | 13.41 | 13.51 | 13.28 |

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Band.

(\*) – indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.

|                                      |                                                                                                                                   |                               |                                                                                       |                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                | DUT Type:<br>Portable Handset |                                                                                       | Page 31 of 69                   |

**Table 9-10**  
**IEEE 802.11n Average RF Power – 20 MHz Bandwidth**

| Mode    | Freq  | Channel | 20MHz BW 802.11n (5GHz) Conducted Power [dBm] |       |       |       |       |       |       |       |
|---------|-------|---------|-----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|         |       |         | Data Rate [Mbps]                              |       |       |       |       |       |       |       |
|         | [MHz] |         | 6.5                                           | 13    | 20    | 26    | 39    | 52    | 58    | 65    |
| 802.11n | 5180  | 36      | 12.97                                         | 12.99 | 13.00 | 12.92 | 13.04 | 13.08 | 13.07 | 13.06 |
| 802.11n | 5200  | 40      | 12.95                                         | 12.95 | 13.00 | 12.97 | 13.06 | 13.03 | 13.01 | 13.06 |
| 802.11n | 5220  | 44      | 12.89                                         | 13.04 | 12.91 | 12.99 | 12.92 | 12.90 | 13.03 | 13.01 |
| 802.11n | 5240  | 48      | 12.84                                         | 12.93 | 12.92 | 12.93 | 12.92 | 12.95 | 13.02 | 12.96 |
| 802.11n | 5260  | 52      | 13.03                                         | 13.14 | 12.99 | 13.06 | 12.92 | 13.03 | 13.11 | 13.05 |
| 802.11n | 5280  | 56      | 12.90                                         | 12.95 | 13.04 | 12.90 | 13.07 | 13.02 | 12.99 | 13.03 |
| 802.11n | 5300  | 60      | 12.81                                         | 12.96 | 12.96 | 13.00 | 12.97 | 13.00 | 13.01 | 12.95 |
| 802.11n | 5320  | 64      | 12.84                                         | 12.91 | 12.94 | 12.78 | 12.94 | 12.99 | 12.99 | 13.02 |
| 802.11n | 5500  | 100     | 13.17                                         | 13.12 | 13.14 | 13.11 | 13.13 | 13.18 | 13.23 | 13.24 |
| 802.11n | 5520  | 104     | 13.09                                         | 13.09 | 13.00 | 13.01 | 13.11 | 13.10 | 13.01 | 13.18 |
| 802.11n | 5540  | 108     | 12.97                                         | 13.03 | 12.97 | 13.05 | 13.06 | 13.08 | 13.03 | 13.03 |
| 802.11n | 5560  | 112     | 12.95                                         | 12.99 | 12.98 | 12.96 | 12.85 | 12.96 | 12.97 | 12.98 |
| 802.11n | 5580  | 116     | 12.87                                         | 12.88 | 12.84 | 12.84 | 12.94 | 12.91 | 12.89 | 12.94 |
| 802.11a | 5600  | 120     | N/A                                           | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   |
| 802.11a | 5620  | 124     | N/A                                           | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   |
| 802.11a | 5640  | 128     | N/A                                           | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   | N/A   |
| 802.11n | 5660  | 132     | 12.64                                         | 12.55 | 12.68 | 12.63 | 12.69 | 12.60 | 12.60 | 12.64 |
| 802.11n | 5680  | 136     | 12.57                                         | 12.55 | 12.57 | 12.58 | 12.61 | 12.51 | 12.64 | 12.51 |
| 802.11n | 5700  | 140     | 12.51                                         | 12.54 | 12.52 | 12.43 | 12.48 | 12.46 | 12.53 | 12.49 |
| 802.11n | 5745  | 149     | 12.86                                         | 12.75 | 12.87 | 12.82 | 12.84 | 12.78 | 12.88 | 12.86 |
| 802.11n | 5765  | 153     | 12.82                                         | 12.75 | 12.79 | 12.78 | 12.79 | 12.86 | 12.89 | 12.87 |
| 802.11n | 5785  | 157     | 12.84                                         | 12.78 | 12.77 | 12.72 | 12.72 | 12.68 | 12.80 | 12.78 |
| 802.11n | 5805  | 161     | 12.70                                         | 12.64 | 12.73 | 12.69 | 12.71 | 12.67 | 12.77 | 12.63 |
| 802.11n | 5825  | 165     | 12.68                                         | 12.55 | 12.61 | 12.63 | 12.71 | 12.74 | 12.64 | 12.54 |

**Table 9-11**  
**IEEE 802.11n Average RF Power – 40 MHz Bandwidth**

| Mode    | Freq  | Channel | 40MHz BW 802.11n (5GHz) Conducted Power [dBm] |       |         |       |       |         |           |         |
|---------|-------|---------|-----------------------------------------------|-------|---------|-------|-------|---------|-----------|---------|
|         |       |         | Data Rate [Mbps]                              |       |         |       |       |         |           |         |
|         | [MHz] |         | 13.5/15                                       | 27/30 | 40.5/45 | 54/60 | 81/90 | 108/120 | 121.5/135 | 135/150 |
| 802.11n | 5190  | 38      | 12.13                                         | 12.20 | 12.22   | 12.09 | 12.19 | 12.20   | 12.30     | 12.06   |
| 802.11n | 5230  | 46      | 12.08                                         | 12.10 | 12.11   | 12.02 | 12.19 | 12.15   | 12.16     | 12.17   |
| 802.11n | 5270  | 54      | 11.57                                         | 11.53 | 11.55   | 11.42 | 11.64 | 11.66   | 11.50     | 11.56   |
| 802.11n | 5310  | 62      | 11.40                                         | 11.44 | 11.45   | 11.38 | 11.34 | 11.50   | 11.45     | 11.47   |
| 802.11n | 5510  | 102     | 12.32                                         | 12.31 | 12.43   | 12.27 | 12.44 | 12.47   | 12.50     | 12.49   |
| 802.11n | 5550  | 110     | 12.27                                         | 12.35 | 12.17   | 12.28 | 12.28 | 12.26   | 12.36     | 12.35   |
| 802.11n | 5590  | 118     | N/A                                           | N/A   | N/A     | N/A   | N/A   | N/A     | N/A       | N/A     |
| 802.11n | 5630  | 126     | N/A                                           | N/A   | N/A     | N/A   | N/A   | N/A     | N/A       | N/A     |
| 802.11n | 5670  | 134     | 11.87                                         | 11.88 | 11.97   | 11.92 | 11.94 | 11.99   | 12.00     | 11.88   |
| 802.11n | 5755  | 151     | 11.94                                         | 11.91 | 11.93   | 11.81 | 11.95 | 11.86   | 11.97     | 11.94   |
| 802.11n | 5795  | 159     | 11.83                                         | 11.76 | 11.72   | 11.76 | 11.78 | 11.79   | 11.83     | 11.90   |

**Table 9-12**  
**IEEE 802.11ac Average RF Power – 80 MHz Bandwidth**

| Mode     | Freq  | Channel | 80MHz BW 802.11ac (5GHz) Conducted Power [dBm] |         |           |         |           |         |             |           |         |           |
|----------|-------|---------|------------------------------------------------|---------|-----------|---------|-----------|---------|-------------|-----------|---------|-----------|
|          | [MHz] |         | Data Rate [Mbps]                               |         |           |         |           |         |             |           |         |           |
|          |       |         | 29.3/32.5                                      | 58.5/65 | 87.8/97.5 | 117/130 | 175.5/195 | 234/260 | 263.3/292.5 | 292.5/325 | 351/390 | 390/433.3 |
| 802.11ac | 5210  | 42      | 11.39                                          | 11.47   | 11.56     | 11.51   | 11.50     | 11.52   | 11.47       | 11.52     | 11.52   | 11.51     |
| 802.11ac | 5290  | 58      | 11.12                                          | 11.03   | 11.05     | 11.05   | 11.17     | 11.09   | 11.07       | 11.14     | 10.98   | 11.07     |
| 802.11ac | 5530  | 106     | 11.16                                          | 11.13   | 11.24     | 11.15   | 11.19     | 11.22   | 11.10       | 11.18     | 11.21   | 11.22     |
| 802.11ac | 5775  | 155     | 10.74                                          | 10.81   | 10.80     | 10.77   | 11.02     | 10.98   | 10.91       | 11.02     | 11.03   | 11.04     |

|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                  | DUT Type:<br>Portable Handset |                                                                                       | Page 32 of 69                   |

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes:

- For 2.4 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
- For 5 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11a were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11n 20 MHz and 40 MHz, and 802.11ac 80MHz) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
- When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.
- The bolded data rate and channel above were tested for SAR.



**Figure 9-4**  
**Power Measurement Setup**

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 33 of 69                          |

## 10 LTE POWER REDUCTION

### 10.1 Introduction to LTE Power Reduction

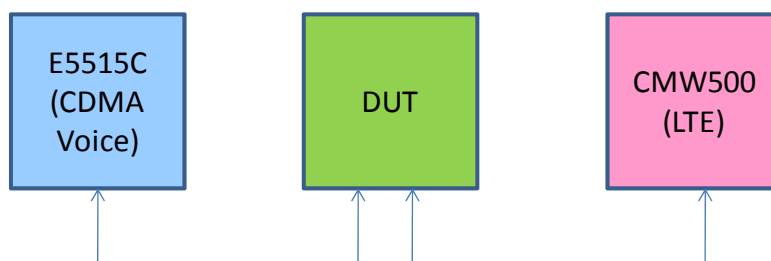
This device is capable of Simultaneous Voice and LTE (SVLTE) calls, with the voice call supported by a CDMA 1x-RTT transmitter and the data connection supported by a separate LTE transmitter. A LTE power reduction scheme is applied during a LTE connection operating simultaneously with 1x-RTT voice calls. The maximum transmit power of LTE is limited depending on the CDMA 1x voice transmit power level. When CDMA 1x Voice is operating at a certain range of high power levels, the maximum LTE transmit power is limited. When CDMA 1x Voice transmit power is below a certain threshold transmit power level, LTE can transmit at the maximum power. Target levels of power reduction and CDMA voice threshold levels are provided in Table 10-1.

**Table 10-1**  
**SVLTE Power Reduction Scheme**

| Mode  | Voice Avg Power(P) 1x<br>850/1900 MHz (dBm) | Max. B13/B4 LTE<br>Data Avg Power<br>(dBm) |
|-------|---------------------------------------------|--------------------------------------------|
| SVLTE | $P \geq 18$                                 | 19                                         |
|       | $P < 18$                                    | 23                                         |

### 10.2 Output Power Verification

Per KDB Publication 941225 D05v02 Section 4.4, output powers were measured in SVLTE mode to determine that the power reduction mechanism was operating reliably and consistently. The power reduction was investigated by simultaneously connecting the device to both LTE and CDMA base station simulators. LTE output powers were measured through conducted RF connections by first connecting the device in a LTE data call and subsequently a CDMA 1x-RTT call. CDMA powers were controlled by configuring the CDMA base station simulator to active bits. The LTE output power was monitored while changing the cell output power level. The power reduction targets and threshold level described in Table 10-1 were confirmed. Please see results in Table 10-2.



**Figure 10-1**  
**SVLTE Conducted Power Measurement Setup**

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset | Page 34 of 69                                                                         |                                        |

**Table 10-2**  
**SVLTE Power Reduction Verification Results**

| 1xRTT CDMA Voice Band | BC0 1xRTT CDMA Voice Channel | BC0 1xRTT CDMA Voice Tx [dBm] | LTE Band 13 Conducted Power (dBm) |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|-----------------------|------------------------------|-------------------------------|-----------------------------------|---------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
|                       |                              |                               | Mid                               |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|                       |                              |                               | QPSK 1 RB, Low Edge               | QPSK 1 RB, Mid Edge | QPSK 1 RB, Upper Edge | QPSK 50% RB, Low Edge | QPSK 50% RB, Mid Edge | QPSK 50% RB, Upper Edge | QPSK 100% RB ORB offset | 16 QAM 1 RB, Low Edge | 16 QAM 1 RB, Mid Edge | 16 QAM 1 RB, Upper Edge | 16 QAM 50% RB, Low Edge | 16 QAM 50% RB, Mid Edge | 16 QAM 50% RB, Upper Edge | 16 QAM 100% RB ORB offset |
| 850 MHz               | 384                          | 25                            | 18.75                             | 18.92               | 18.99                 | 18.85                 | 18.97                 | 19.08                   | 18.93                   | 18.72                 | 18.99                 | 19.04                   | 18.94                   | 19.05                   | 19.03                     | 18.80                     |
|                       |                              | 24                            | 18.74                             | 18.94               | 18.98                 | 18.87                 | 18.97                 | 19.03                   | 18.92                   | 18.83                 | 18.98                 | 19.05                   | 18.92                   | 19.06                   | 19.02                     | 18.83                     |
|                       |                              | 23                            | 18.73                             | 18.96               | 18.98                 | 18.90                 | 18.97                 | 19.04                   | 18.90                   | 18.82                 | 19.00                 | 19.07                   | 18.95                   | 19.05                   | 19.00                     | 18.81                     |
|                       |                              | 22                            | 18.74                             | 18.98               | 18.99                 | 18.92                 | 18.98                 | 19.06                   | 18.92                   | 18.80                 | 18.87                 | 19.03                   | 18.94                   | 19.03                   | 19.11                     | 18.80                     |
|                       |                              | 21                            | 18.74                             | 18.99               | 19.00                 | 18.93                 | 18.99                 | 19.00                   | 18.91                   | 18.78                 | 18.99                 | 19.04                   | 18.95                   | 19.01                   | 19.08                     | 18.84                     |
|                       |                              | 20                            | 18.75                             | 18.95               | 19.01                 | 18.95                 | 19.00                 | 19.01                   | 18.90                   | 18.77                 | 19.02                 | 19.07                   | 18.92                   | 19.02                   | 19.08                     | 18.83                     |
|                       |                              | 19                            | 18.76                             | 18.95               | 18.96                 | 18.95                 | 19.02                 | 19.05                   | 18.93                   | 18.79                 | 18.98                 | 19.06                   | 18.95                   | 19.00                   | 19.07                     | 18.82                     |
|                       |                              | 18                            | 18.77                             | 18.94               | 19.00                 | 18.94                 | 19.03                 | 19.04                   | 18.93                   | 18.80                 | 19.00                 | 19.05                   | 18.94                   | 19.01                   | 19.05                     | 18.82                     |
|                       |                              | 17                            | 22.82                             | 22.89               | 22.81                 | 21.95                 | 22.06                 | 22.04                   | 21.91                   | 22.01                 | 22.14                 | 22.15                   | 21.02                   | 21.13                   | 21.14                     | 20.79                     |
|                       |                              | 16                            | 22.82                             | 22.85               | 22.84                 | 21.96                 | 22.05                 | 22.04                   | 21.95                   | 22.01                 | 22.12                 | 22.14                   | 21.01                   | 21.12                   | 21.13                     | 20.78                     |
|                       |                              | 15                            | 22.75                             | 22.87               | 22.81                 | 21.97                 | 22.01                 | 22.05                   | 21.90                   | 22.03                 | 22.13                 | 22.10                   | 21.03                   | 21.11                   | 21.14                     | 20.87                     |
|                       |                              | 14                            | 22.79                             | 22.88               | 22.82                 | 21.99                 | 22.04                 | 22.05                   | 21.91                   | 22.02                 | 22.15                 | 22.13                   | 21.02                   | 21.14                   | 21.15                     | 20.84                     |
|                       |                              | 13                            | 22.83                             | 22.88               | 22.88                 | 22.00                 | 22.03                 | 22.02                   | 21.92                   | 22.01                 | 22.10                 | 22.19                   | 21.04                   | 21.09                   | 21.13                     | 20.85                     |
|                       |                              | 12                            | 22.84                             | 22.87               | 22.84                 | 22.00                 | 22.00                 | 22.01                   | 21.90                   | 22.03                 | 22.11                 | 22.18                   | 21.02                   | 21.08                   | 21.14                     | 20.83                     |
|                       |                              | 11                            | 22.92                             | 22.86               | 22.90                 | 21.99                 | 22.01                 | 22.03                   | 21.91                   | 22.07                 | 22.15                 | 22.16                   | 21.05                   | 21.08                   | 21.12                     | 20.84                     |

| 1xRTT CDMA Voice Band | BC1 1xRTT CDMA Voice Channel | BC1 1xRTT CDMA Voice Tx [dBm] | LTE Band 13 Conducted Power (dBm) |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|-----------------------|------------------------------|-------------------------------|-----------------------------------|---------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
|                       |                              |                               | Mid                               |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|                       |                              |                               | QPSK 1 RB, Low Edge               | QPSK 1 RB, Mid Edge | QPSK 1 RB, Upper Edge | QPSK 50% RB, Low Edge | QPSK 50% RB, Mid Edge | QPSK 50% RB, Upper Edge | QPSK 100% RB ORB offset | 16 QAM 1 RB, Low Edge | 16 QAM 1 RB, Mid Edge | 16 QAM 1 RB, Upper Edge | 16 QAM 50% RB, Low Edge | 16 QAM 50% RB, Mid Edge | 16 QAM 50% RB, Upper Edge | 16 QAM 100% RB ORB offset |
| 1900 MHz              | 600                          | 25                            | 18.74                             | 18.92               | 19.00                 | 18.96                 | 19.07                 | 19.08                   | 18.91                   | 18.89                 | 19.03                 | 19.06                   | 18.94                   | 19.03                   | 19.09                     | 18.82                     |
|                       |                              | 24                            | 18.73                             | 18.93               | 19.01                 | 18.95                 | 19.05                 | 19.07                   | 18.90                   | 18.85                 | 19.02                 | 19.07                   | 18.93                   | 19.04                   | 19.06                     | 18.80                     |
|                       |                              | 23                            | 18.75                             | 18.90               | 19.02                 | 18.96                 | 19.05                 | 19.09                   | 18.91                   | 18.86                 | 19.03                 | 19.09                   | 18.94                   | 19.03                   | 19.07                     | 18.82                     |
|                       |                              | 22                            | 18.77                             | 18.94               | 19.00                 | 18.95                 | 19.04                 | 19.08                   | 18.92                   | 18.87                 | 19.04                 | 19.08                   | 18.95                   | 19.07                   | 19.05                     | 18.81                     |
|                       |                              | 21                            | 18.76                             | 18.95               | 18.98                 | 18.97                 | 19.07                 | 19.05                   | 18.94                   | 18.85                 | 19.01                 | 19.03                   | 18.97                   | 19.08                   | 19.03                     | 18.80                     |
|                       |                              | 20                            | 18.72                             | 18.93               | 18.99                 | 18.98                 | 19.03                 | 19.03                   | 18.95                   | 18.86                 | 19.02                 | 19.07                   | 18.98                   | 19.04                   | 18.78                     | 18.80                     |
|                       |                              | 19                            | 18.78                             | 18.95               | 19.01                 | 19.00                 | 19.05                 | 19.04                   | 18.93                   | 18.84                 | 19.00                 | 19.06                   | 18.97                   | 19.09                   | 19.03                     | 18.79                     |
|                       |                              | 18                            | 18.72                             | 18.94               | 19.02                 | 19.00                 | 19.06                 | 19.03                   | 18.85                   | 18.82                 | 19.00                 | 19.06                   | 18.94                   | 19.10                   | 19.05                     | 18.80                     |
|                       |                              | 17                            | 22.81                             | 22.91               | 22.92                 | 22.02                 | 22.12                 | 22.14                   | 21.86                   | 22.04                 | 22.12                 | 22.11                   | 21.05                   | 21.11                   | 21.16                     | 20.82                     |
|                       |                              | 16                            | 22.77                             | 22.90               | 22.91                 | 22.06                 | 22.10                 | 22.10                   | 21.87                   | 22.05                 | 22.14                 | 22.13                   | 21.04                   | 21.12                   | 21.16                     | 20.83                     |
|                       |                              | 15                            | 22.76                             | 22.91               | 22.90                 | 22.04                 | 22.13                 | 22.09                   | 21.86                   | 22.08                 | 22.13                 | 22.15                   | 21.03                   | 21.11                   | 21.17                     | 20.84                     |
|                       |                              | 14                            | 22.76                             | 22.92               | 22.91                 | 22.04                 | 22.10                 | 22.08                   | 21.88                   | 22.04                 | 22.11                 | 22.16                   | 21.06                   | 21.12                   | 21.09                     | 20.83                     |
|                       |                              | 13                            | 22.74                             | 22.93               | 22.92                 | 22.06                 | 22.12                 | 22.07                   | 21.90                   | 22.00                 | 22.13                 | 22.15                   | 21.07                   | 21.14                   | 21.15                     | 20.85                     |
|                       |                              | 12                            | 22.78                             | 22.91               | 22.91                 | 22.05                 | 22.13                 | 22.05                   | 21.87                   | 21.98                 | 22.13                 | 22.12                   | 21.05                   | 21.13                   | 21.14                     | 20.84                     |
|                       |                              | 11                            | 22.79                             | 22.92               | 22.92                 | 22.06                 | 22.13                 | 22.15                   | 21.88                   | 21.97                 | 22.12                 | 22.13                   | 20.98                   | 21.16                   | 21.12                     | 20.85                     |

| 1xRTT CDMA Voice Band | BC0 1xRTT CDMA Voice Channel | BC0 1xRTT CDMA Voice Tx [dBm] | LTE Band 4 Conducted Power (dBm) - 20 MHz BW |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|-----------------------|------------------------------|-------------------------------|----------------------------------------------|---------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
|                       |                              |                               | Mid                                          |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|                       |                              |                               | QPSK 1 RB, Low Edge                          | QPSK 1 RB, Mid Edge | QPSK 1 RB, Upper Edge | QPSK 50% RB, Low Edge | QPSK 50% RB, Mid Edge | QPSK 50% RB, Upper Edge | QPSK 100% RB ORB offset | 16 QAM 1 RB, Low Edge | 16 QAM 1 RB, Mid Edge | 16 QAM 1 RB, Upper Edge | 16 QAM 50% RB, Low Edge | 16 QAM 50% RB, Mid Edge | 16 QAM 50% RB, Upper Edge | 16 QAM 100% RB ORB offset |
| 850 MHz               | 384                          | 25                            | 19.18                                        | 19.41               | 19.02                 | 18.91                 | 19.07                 | 19.01                   | 19.04                   | 19.21                 | 19.41                 | 19.06                   | 18.92                   | 19.08                   | 18.95                     | 18.97                     |
|                       |                              | 24                            | 19.21                                        | 19.37               | 19.10                 | 18.99                 | 19.11                 | 19.12                   | 19.03                   | 19.31                 | 19.40                 | 19.10                   | 18.91                   | 19.12                   | 18.94                     | 19.01                     |
|                       |                              | 23                            | 19.21                                        | 19.37               | 19.02                 | 18.98                 | 19.15                 | 19.05                   | 19.01                   | 19.32                 | 19.43                 | 19.02                   | 18.91                   | 19.10                   | 18.97                     | 19.08                     |
|                       |                              | 22                            | 19.22                                        | 19.36               | 19.05                 | 19.02                 | 19.19                 | 19.06                   | 18.95                   | 19.31                 | 19.42                 | 19.04                   | 18.88                   | 19.04                   | 18.92                     | 19.02                     |
|                       |                              | 21                            | 19.16                                        | 19.34               | 19.07                 | 19.05                 | 19.22                 | 19.07                   | 19.00                   | 19.28                 | 19.40                 | 19.11                   | 18.96                   | 19.05                   | 18.91                     | 18.99                     |
|                       |                              | 20                            | 19.18                                        | 19.35               | 19.07                 | 19.06                 | 19.21                 | 19.03                   | 19.04                   | 19.24                 | 19.41                 | 19.13                   | 18.95                   | 19.13                   | 18.98                     | 19.20                     |
|                       |                              | 19                            | 19.20                                        | 19.25               | 19.03                 | 19.10                 | 19.20                 | 19.10                   | 19.03                   | 19.23                 | 19.42                 | 19.17                   | 18.94                   | 19.11                   | 19.00                     | 19.00                     |
|                       |                              | 18                            | 19.23                                        | 19.32               | 19.03                 | 18.94                 | 19.09                 | 19.05                   | 19.06                   | 19.27                 | 19.42                 | 19.15                   | 18.89                   | 19.07                   | 18.91                     | 18.92                     |
|                       |                              | 17                            | 23.04                                        | 23.23               | 22.94                 | 21.98                 | 22.09                 | 21.96                   | 21.97                   | 22.09                 | 22.28                 | 21.94                   | 20.85                   | 21.13                   | 20.94                     | 20.97                     |
|                       |                              | 16                            | 23.12                                        | 23.26               | 22.91                 | 21.97                 | 22.11                 | 22.01                   | 22.06                   | 22.13                 | 22.22                 | 22.01                   | 20.95                   | 21.15                   | 21.10                     | 20.98                     |
|                       |                              | 15                            | 23.11                                        | 23.33               | 22.92                 | 21.95                 | 22.12                 | 22.06                   | 22.00                   | 22.15                 | 22.24                 | 22.07                   | 20.97                   | 21.10                   | 21.06                     | 21.06                     |
|                       |                              | 14                            | 23.16                                        | 23.31               | 22.91                 | 21.90                 | 22.14                 | 22.08                   | 22.01                   | 22.21                 | 22.26                 | 22.10                   | 20.99                   | 21.03                   | 21.04                     | 21.13                     |
|                       |                              | 13                            | 23.06                                        | 23.31               | 22.94                 | 21.91                 | 22.18                 | 21.99                   | 22.05                   | 22.24                 | 22.28                 | 22.22                   | 20.91                   | 21.08                   | 21.02                     | 21.11                     |
|                       |                              | 12                            | 23.10                                        | 23.32               | 22.97                 | 21.92                 | 22.21                 | 22.00                   | 22.02                   | 22.19                 | 22.32                 | 22.01                   | 20.92                   | 21.12                   | 21.00                     | 21.10                     |
|                       |                              | 11                            | 23.07                                        | 23.25               | 22.89                 | 21.95                 | 22.11                 | 21.99                   | 22.00                   | 22.10                 | 22.30                 | 21.96                   | 20.88                   | 21.07                   | 20.97                     | 20.98                     |

| 1xRTT CDMA Voice Band | BC1 1xRTT CDMA Voice Channel | BC1 1xRTT CDMA Voice Tx [dBm] | LTE Band 4 Conducted Power (dBm) - 20 MHz BW |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|-----------------------|------------------------------|-------------------------------|----------------------------------------------|---------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------------------------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
|                       |                              |                               | Mid                                          |                     |                       |                       |                       |                         |                         |                       |                       |                         |                         |                         |                           |                           |
|                       |                              |                               | QPSK 1 RB, Low Edge                          | QPSK 1 RB, Mid Edge | QPSK 1 RB, Upper Edge | QPSK 50% RB, Low Edge | QPSK 50% RB, Mid Edge | QPSK 50% RB, Upper Edge | QPSK 100% RB ORB offset | 16 QAM 1 RB, Low Edge | 16 QAM 1 RB, Mid Edge | 16 QAM 1 RB, Upper Edge | 16 QAM 50% RB, Low Edge | 16 QAM 50% RB, Mid Edge | 16 QAM 50% RB, Upper Edge | 16 QAM 100% RB ORB offset |
| 1900 MHz              | 600                          | 25                            | 19.19                                        | 19.35               | 19.07                 | 18.96                 | 19.12                 | 18.98                   | 19.05                   | 19.21                 | 19.45                 | 19.10                   | 18.91                   | 19.06                   | 18.95                     | 18.96                     |
|                       |                              | 24                            | 19.21                                        | 19.36               | 19.11                 | 18.97                 | 19.15                 | 19.00                   | 19.02                   | 19.28                 | 19.44                 | 19.11                   | 18.93                   | 19.07                   | 19.01                     | 18.97                     |
|                       |                              | 23                            | 19.22                                        | 19.39               | 19.12                 | 18.96                 | 19.16                 | 19.07                   | 19.01                   | 19.31                 | 19.43                 | 19.09                   | 18.91                   | 19.11                   | 19.02                     | 19.03                     |
|                       |                              | 22                            | 19.27                                        | 19.40               | 19.15                 | 18.98                 | 19.20                 | 19.06                   | 19.00                   | 19.23                 | 19.44                 | 19.12                   | 18.97                   | 19.10                   | 18.98                     | 19.00                     |
|                       |                              | 21                            | 19.25                                        | 19.37               | 19.13                 | 18.94                 | 19.21                 | 19.02                   | 19.06                   | 19.25                 | 19.41                 | 19.11                   | 18.96                   | 19.06                   | 19.01                     | 19.01                     |
|                       |                              | 20                            | 19.21                                        | 19.38               | 19.18                 | 18.91                 | 19.16                 | 19.10                   | 18.97                   | 19.31                 | 19.42                 | 19.10                   | 18.95                   | 19.07                   | 19.05                     | 18.96                     |
|                       |                              | 19                            | 19.19                                        | 19.41               | 19.08                 | 18.95                 | 19.15                 | 19.06                   | 19.04                   | 19.32                 | 19.43                 | 19.08                   | 18.93                   | 19.11                   | 18.99                     | 19.02                     |
|                       |                              | 18                            | 19.22                                        | 19.38               | 19.02                 | 18.99                 | 19.14                 | 19.01                   | 19.07                   | 19.24                 | 19.44                 | 19.07                   | 18.95                   | 19.08                   | 18.95                     | 18.96                     |
|                       |                              | 17                            | 23.03                                        | 23.22               | 22.93                 | 21.98                 | 22.14                 | 22.04                   | 21.97                   | 22.15                 | 22.31                 | 21.93                   | 20.97                   | 21.09                   | 20.95                     | 20.93                     |
|                       |                              | 16                            | 23.12                                        | 23.27               | 22.91                 | 21.99                 | 22.24                 | 22.10                   | 22.10                   | 22.10                 | 22.32                 | 22.00                   | 20.92                   | 21.12                   | 21.00                     | 20.94                     |
|                       |                              | 15                            | 23.24                                        | 23.24               | 22.93                 | 22.01                 | 22.10                 | 22.03                   | 22.08                   | 22.10                 | 22.33                 | 22.01                   | 20.97                   | 21.10                   | 21.02                     | 20.91                     |
|                       |                              | 14                            | 23.15                                        | 23.26               | 22.97                 | 22.04                 | 22.15                 | 22.17                   | 22.06                   | 22.12                 | 22.34                 | 22.02                   | 20.96                   | 21.08                   | 21.03                     | 20.85                     |
|                       |                              | 13                            | 23.24                                        | 23.31               | 22.88                 | 22.03                 | 22.17                 | 22.11                   | 22.05                   | 22.11                 | 22.35                 | 22.05                   | 20.94                   | 21.15                   | 21.05                     | 20.88                     |
| 12                    | 23.26                        | 23.35                         | 22.80                                        | 22.01               | 22.20                 | 22.16                 | 22.01                 | 22.12                   | 22.31                   | 22.07                 | 20.95                 | 21.13                   | 21.01                   | 20.93                   |                           |                           |
| 11                    | 23.05                        | 23.23                         | 22.91                                        | 21.98               | 22.16                 | 22.06                 | 21.99                 | 22.13                   | 22.33                   | 21.92                 | 20.94                 | 21.11                   | 20.93                   | 20.91                   |                           |                           |

### 10.3 SVLTE SAR Testing Procedures

Per KDB 941225 D05v02 Section 4.4 B), SAR testing was additionally performed at the reduced CDMA and LTE power levels with respect to the simultaneous transmission scenarios. Additional samples were tuned to fixed reduced power levels to represent the SVLTE condition in a standalone environment. While the power reduction mechanism is activated at the CDMA Voice power level of 18 dBm, simultaneous SAR summations of maximum power LTE were evaluated at this reduced fixed CDMA voice power level. SAR was additionally evaluated at reduced power LTE levels to perform simultaneous SAR analysis when CDMA voice is at maximum power.

#### 10.3.1 Reduced LTE B13 Conducted Powers

Table 10-3  
Reduced LTE Band 13 Conducted Power – 10MHz Bandwidths

|     | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|-----|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Mid | 782.0           | 23230   | 10              | QPSK       | 1       | 0         | 19.35                 | 0               | 0                         |
|     | 782.0           | 23230   | 10              | QPSK       | 1       | 25        | <b>19.38</b>          | 0               | 0                         |
|     | 782.0           | 23230   | 10              | QPSK       | 1       | 49        | 19.33                 | 0               | 0                         |
|     | 782.0           | 23230   | 10              | QPSK       | 25      | 0         | 19.17                 | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | QPSK       | 25      | 12        | 19.12                 | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | QPSK       | 25      | 25        | <b>19.21</b>          | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | QPSK       | 50      | 0         | 19.14                 | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 1       | 0         | 19.11                 | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 1       | 25        | 19.19                 | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 1       | 49        | 19.13                 | 0               | 0-1                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 25      | 0         | 19.12                 | 0               | 0-2                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 25      | 12        | 19.10                 | 0               | 0-2                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 25      | 25        | 19.23                 | 0               | 0-2                       |
|     | 782.0           | 23230   | 10              | 16QAM      | 50      | 0         | 18.95                 | 0               | 0-2                       |

#### 10.3.2 Reduced LTE B4 Conducted Powers

Table 10-4  
Reduced LTE Band 4 Conducted Power – 20MHz Bandwidths

|     | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|-----|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Mid | 1732.5          | 20175   | 20              | QPSK       | 1       | 0         | 19.21                 | 0               | 0                         |
|     | 1732.5          | 20175   | 20              | QPSK       | 1       | 50        | <b>19.44</b>          | 0               | 0                         |
|     | 1732.5          | 20175   | 20              | QPSK       | 1       | 99        | 19.24                 | 0               | 0                         |
|     | 1732.5          | 20175   | 20              | QPSK       | 50      | 0         | 19.19                 | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | QPSK       | 50      | 25        | 19.23                 | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | QPSK       | 50      | 50        | <b>19.32</b>          | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | QPSK       | 100     | 0         | 19.21                 | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 1       | 0         | 19.08                 | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 1       | 50        | 19.26                 | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 1       | 99        | 19.05                 | 0               | 0-1                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 50      | 0         | 19.10                 | 0               | 0-2                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 50      | 25        | 19.15                 | 0               | 0-2                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 50      | 50        | 19.27                 | 0               | 0-2                       |
|     | 1732.5          | 20175   | 20              | 16QAM      | 100     | 0         | 19.14                 | 0               | 0-2                       |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 36 of 69                          |

**Table 10-5**  
**Reduced LTE Band 4 Conducted Power – 15MHz Bandwidths**

|      | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Low  | 1717.5          | 20025   | 15              | QPSK       | 1       | 0         | 19.31                 | 0               | 0                         |
|      | 1717.5          | 20025   | 15              | QPSK       | 1       | 36        | 19.35                 | 0               | 0                         |
|      | 1717.5          | 20025   | 15              | QPSK       | 1       | 74        | 19.22                 | 0               | 0                         |
|      | 1717.5          | 20025   | 15              | QPSK       | 36      | 0         | 19.14                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | QPSK       | 36      | 18        | 19.21                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | QPSK       | 36      | 37        | 19.00                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | QPSK       | 75      | 0         | 19.17                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 1       | 0         | 19.35                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 1       | 36        | 19.41                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 1       | 74        | 19.29                 | 0               | 0-1                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 36      | 0         | 19.15                 | 0               | 0-2                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 36      | 18        | 19.09                 | 0               | 0-2                       |
| Mid  | 1717.5          | 20025   | 15              | 16QAM      | 36      | 37        | 19.08                 | 0               | 0-2                       |
|      | 1717.5          | 20025   | 15              | 16QAM      | 75      | 0         | 19.06                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 1       | 0         | 19.15                 | 0               | 0                         |
|      | 1732.5          | 20175   | 15              | QPSK       | 1       | 36        | 19.50                 | 0               | 0                         |
|      | 1732.5          | 20175   | 15              | QPSK       | 1       | 74        | 19.43                 | 0               | 0                         |
|      | 1732.5          | 20175   | 15              | QPSK       | 36      | 0         | 19.19                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 36      | 18        | 19.37                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 36      | 37        | 19.24                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 15              | QPSK       | 75      | 0         | 19.17                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 1       | 0         | 19.04                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 1       | 36        | 19.39                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 1       | 74        | 19.33                 | 0               | 0-1                       |
| High | 1732.5          | 20175   | 15              | 16QAM      | 36      | 0         | 19.16                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 36      | 18        | 19.31                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 36      | 37        | 19.21                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 15              | 16QAM      | 75      | 0         | 19.15                 | 0               | 0-2                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 1       | 0         | 19.33                 | 0               | 0                         |
|      | 1747.5          | 20325   | 15              | QPSK       | 1       | 36        | 19.11                 | 0               | 0                         |
|      | 1747.5          | 20325   | 15              | QPSK       | 1       | 74        | 19.37                 | 0               | 0                         |
|      | 1747.5          | 20325   | 15              | QPSK       | 36      | 0         | 18.89                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 36      | 18        | 18.94                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 36      | 37        | 19.02                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | QPSK       | 75      | 0         | 18.92                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 1       | 0         | 19.22                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 1       | 36        | 18.94                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 1       | 74        | 19.28                 | 0               | 0-1                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 36      | 0         | 18.88                 | 0               | 0-2                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 36      | 18        | 18.97                 | 0               | 0-2                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 36      | 37        | 18.96                 | 0               | 0-2                       |
|      | 1747.5          | 20325   | 15              | 16QAM      | 75      | 0         | 19.00                 | 0               | 0-2                       |

|                                      |                                                                                                                                                                                                        |                                 |
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| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset   |
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**Table 10-6**  
**Reduced LTE Band 4 Conducted Power – 10MHz Bandwidths**

|      | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Low  | 1715            | 20000   | 10              | QPSK       | 1       | 0         | 19.11                 | 0               | 0                         |
|      | 1715            | 20000   | 10              | QPSK       | 1       | 25        | 19.32                 | 0               | 0                         |
|      | 1715            | 20000   | 10              | QPSK       | 1       | 49        | 19.09                 | 0               | 0                         |
|      | 1715            | 20000   | 10              | QPSK       | 25      | 0         | 19.10                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | QPSK       | 25      | 12        | 19.23                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | QPSK       | 25      | 25        | 19.22                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | QPSK       | 50      | 0         | 19.19                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 1       | 0         | 18.99                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 1       | 25        | 19.20                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 1       | 49        | 18.95                 | 0               | 0-1                       |
|      | 1715            | 20000   | 10              | 16QAM      | 25      | 0         | 19.22                 | 0               | 0-2                       |
|      | 1715            | 20000   | 10              | 16QAM      | 25      | 12        | 19.27                 | 0               | 0-2                       |
| Mid  | 1715            | 20000   | 10              | 16QAM      | 25      | 25        | 19.20                 | 0               | 0-2                       |
|      | 1715            | 20000   | 10              | 16QAM      | 50      | 0         | 19.15                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 1       | 0         | 19.24                 | 0               | 0                         |
|      | 1732.5          | 20175   | 10              | QPSK       | 1       | 25        | 19.45                 | 0               | 0                         |
|      | 1732.5          | 20175   | 10              | QPSK       | 1       | 49        | 19.42                 | 0               | 0                         |
|      | 1732.5          | 20175   | 10              | QPSK       | 25      | 0         | 19.28                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 25      | 12        | 19.31                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 25      | 25        | 19.36                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 10              | QPSK       | 50      | 0         | 19.22                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 1       | 0         | 19.05                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 1       | 25        | 19.22                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 1       | 49        | 19.33                 | 0               | 0-1                       |
| High | 1732.5          | 20175   | 10              | 16QAM      | 25      | 0         | 19.35                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 25      | 12        | 19.38                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 25      | 25        | 19.42                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 10              | 16QAM      | 50      | 0         | 19.12                 | 0               | 0-2                       |
|      | 1750            | 20350   | 10              | QPSK       | 1       | 0         | 19.00                 | 0               | 0                         |
|      | 1750            | 20350   | 10              | QPSK       | 1       | 25        | 19.06                 | 0               | 0                         |
|      | 1750            | 20350   | 10              | QPSK       | 1       | 49        | 19.25                 | 0               | 0                         |
|      | 1750            | 20350   | 10              | QPSK       | 25      | 0         | 18.98                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | QPSK       | 25      | 12        | 18.93                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | QPSK       | 25      | 25        | 18.86                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | QPSK       | 50      | 0         | 18.92                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 1       | 0         | 18.82                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 1       | 25        | 18.89                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 1       | 49        | 19.14                 | 0               | 0-1                       |
|      | 1750            | 20350   | 10              | 16QAM      | 25      | 0         | 18.93                 | 0               | 0-2                       |
|      | 1750            | 20350   | 10              | 16QAM      | 25      | 12        | 18.93                 | 0               | 0-2                       |
|      | 1750            | 20350   | 10              | 16QAM      | 25      | 25        | 18.92                 | 0               | 0-2                       |
|      | 1750            | 20350   | 10              | 16QAM      | 50      | 0         | 18.88                 | 0               | 0-2                       |

|                                      |                                                                                                                                                                                                        |                                 |
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| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset   |
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**Table 10-7**  
**Reduced LTE Band 4 Conducted Power – 5MHz Bandwidths**

|      | Frequency [MHz] | Channel | Bandwidth [MHz] | Modulation | RB Size | RB Offset | Conducted Power [dBm] | Target MPR [dB] | MPR Allowed per 3GPP [dB] |
|------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------|-----------------|---------------------------|
| Low  | 1712.5          | 19975   | 5               | QPSK       | 1       | 0         | 18.97                 | 0               | 0                         |
|      | 1712.5          | 19975   | 5               | QPSK       | 1       | 12        | 18.97                 | 0               | 0                         |
|      | 1712.5          | 19975   | 5               | QPSK       | 1       | 24        | 19.19                 | 0               | 0                         |
|      | 1712.5          | 19975   | 5               | QPSK       | 12      | 0         | 19.15                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | QPSK       | 12      | 6         | 19.18                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | QPSK       | 12      | 13        | 19.20                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | QPSK       | 25      | 0         | 19.09                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 1       | 0         | 18.78                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 1       | 12        | 18.83                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 1       | 24        | 18.81                 | 0               | 0-1                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 12      | 0         | 19.18                 | 0               | 0-2                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 12      | 6         | 19.19                 | 0               | 0-2                       |
| Mid  | 1712.5          | 19975   | 5               | 16-QAM     | 12      | 13        | 19.21                 | 0               | 0-2                       |
|      | 1712.5          | 19975   | 5               | 16-QAM     | 25      | 0         | 19.06                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 1       | 0         | 19.05                 | 0               | 0                         |
|      | 1732.5          | 20175   | 5               | QPSK       | 1       | 12        | 19.16                 | 0               | 0                         |
|      | 1732.5          | 20175   | 5               | QPSK       | 1       | 24        | 19.11                 | 0               | 0                         |
|      | 1732.5          | 20175   | 5               | QPSK       | 12      | 0         | 18.98                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 12      | 6         | 19.02                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 12      | 13        | 18.96                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 5               | QPSK       | 25      | 0         | 18.92                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 1       | 0         | 18.96                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 1       | 12        | 18.92                 | 0               | 0-1                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 1       | 24        | 19.03                 | 0               | 0-1                       |
| High | 1732.5          | 20175   | 5               | 16-QAM     | 12      | 0         | 18.86                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 12      | 6         | 18.81                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 12      | 13        | 18.91                 | 0               | 0-2                       |
|      | 1732.5          | 20175   | 5               | 16-QAM     | 25      | 0         | 18.78                 | 0               | 0-2                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 1       | 0         | 18.78                 | 0               | 0                         |
|      | 1752.5          | 20375   | 5               | QPSK       | 1       | 12        | 18.92                 | 0               | 0                         |
|      | 1752.5          | 20375   | 5               | QPSK       | 1       | 24        | 18.92                 | 0               | 0                         |
|      | 1752.5          | 20375   | 5               | QPSK       | 12      | 0         | 18.83                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 12      | 6         | 18.91                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 12      | 13        | 18.88                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | QPSK       | 25      | 0         | 18.73                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 1       | 0         | 18.80                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 1       | 12        | 18.91                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 1       | 24        | 18.85                 | 0               | 0-1                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 12      | 0         | 18.94                 | 0               | 0-2                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 12      | 6         | 18.99                 | 0               | 0-2                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 12      | 13        | 18.83                 | 0               | 0-2                       |
|      | 1752.5          | 20375   | 5               | 16-QAM     | 25      | 0         | 18.72                 | 0               | 0-2                       |

|                                      |                                                                                                                                                                                                        |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset   |
| Page 39 of 69                        |                                                                                                                                                                                                        |                                 |

### 10.3.3 Fixed CDMA Conducted Powers

**Table 10-8**  
**Fixed CDMA Conducted Powers**

| Band     | Channel | Rule Part | Frequency | SO55 [dBm] | SO55 [dBm] | TDSO SO32 [dBm] | TDSO SO32 [dBm] |
|----------|---------|-----------|-----------|------------|------------|-----------------|-----------------|
|          | F-RC    |           | MHz       | RC1        | RC3        | FCH+SCH         | FCH             |
| Cellular | 1013    | 22H       | 824.7     | 18.48      | 18.49      | 18.47           | 18.49           |
|          | 384     | 22H       | 836.52    | 18.39      | 18.47      | 18.43           | 18.47           |
|          | 777     | 22H       | 848.31    | 18.31      | 18.27      | 18.38           | 18.40           |
| PCS      | 25      | 24E       | 1851.25   | 18.05      | 18.07      | 18.08           | 18.08           |
|          | 600     | 24E       | 1880      | 18.11      | 18.09      | 18.20           | 18.08           |
|          | 1175    | 24E       | 1908.75   | 18.12      | 18.21      | 18.16           | 18.18           |

Note:

1. RC1 is only applicable for IS-95 compatibility.
2. There is no power reduction applied to the CDMA Voice modes, however the device with output powers represented in the table above was tuned down (for SAR Test purposes only) to analyze simultaneous SAR scenarios in the SVLTE condition where LTE is operating at maximum output power in conjunction with a lower CDMA voice level (see Table 10-1).

Per KDB Publication 941225 D01v02:

1. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.
3. CDMA 1x-RTT SAR was required to be evaluated for Hotspot exposure conditions to support simultaneous transmission capabilities.



**Figure 10-2**  
**Power Measurement Setup**

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 40 of 69                          |

# 11 SYSTEM VERIFICATION

## 11.1 Tissue Verification

Table 11-1  
Measured Tissue Properties

| Calibrated for Tests Performed on: | Tissue Type  | Tissue Temp During Calibration (C°) | Measured Frequency (MHz) | Measured Conductivity, $\sigma$ (S/m) | Measured Dielectric Constant, $\epsilon$ | TARGET Conductivity, $\sigma$ (S/m) | TARGET Dielectric Constant, $\epsilon$ | % dev $\sigma$ | % dev $\epsilon$ |
|------------------------------------|--------------|-------------------------------------|--------------------------|---------------------------------------|------------------------------------------|-------------------------------------|----------------------------------------|----------------|------------------|
| 02/11/2013                         | 740H         | 23.2                                | 740                      | 0.895                                 | 40.756                                   | 0.889                               | 41.953                                 | 0.67%          | -2.85%           |
|                                    |              |                                     | 755                      | 0.908                                 | 40.528                                   | 0.891                               | 41.876                                 | 1.91%          | -3.22%           |
|                                    |              |                                     | 770                      | 0.921                                 | 40.327                                   | 0.892                               | 41.806                                 | 3.25%          | -3.54%           |
|                                    |              |                                     | 785                      | 0.935                                 | 40.151                                   | 0.894                               | 41.735                                 | 4.59%          | -3.80%           |
| 02/13/2013                         | 835H         | 23.4                                | 820                      | 0.894                                 | 40.158                                   | 0.898                               | 41.571                                 | -0.45%         | -3.40%           |
|                                    |              |                                     | 835                      | 0.908                                 | 39.969                                   | 0.900                               | 41.500                                 | 0.89%          | -3.69%           |
|                                    |              |                                     | 850                      | 0.923                                 | 39.759                                   | 0.916                               | 41.500                                 | 0.76%          | -4.20%           |
|                                    |              |                                     | 820                      | 0.915                                 | 42.513                                   | 0.898                               | 41.571                                 | 1.89%          | 2.27%            |
| 02/16/2013                         | 835H         | 22.8                                | 835                      | 0.931                                 | 42.408                                   | 0.900                               | 41.500                                 | 3.44%          | 2.19%            |
|                                    |              |                                     | 850                      | 0.949                                 | 42.127                                   | 0.916                               | 41.500                                 | 3.60%          | 1.51%            |
|                                    |              |                                     | 1710                     | 1.326                                 | 40.488                                   | 1.348                               | 40.136                                 | -1.63%         | 0.88%            |
|                                    |              |                                     | 1750                     | 1.367                                 | 40.278                                   | 1.370                               | 40.100                                 | -0.22%         | 0.44%            |
| 02/12/2013                         | 1750H        | 23.4                                | 1790                     | 1.402                                 | 40.090                                   | 1.394                               | 40.020                                 | 0.57%          | 0.17%            |
|                                    |              |                                     | 1850                     | 1.343                                 | 38.347                                   | 1.400                               | 40.000                                 | -4.07%         | -4.13%           |
|                                    |              |                                     | 1880                     | 1.362                                 | 38.198                                   | 1.400                               | 40.000                                 | -2.71%         | -4.51%           |
|                                    |              |                                     | 1910                     | 1.392                                 | 38.043                                   | 1.400                               | 40.000                                 | -0.57%         | -4.89%           |
| 02/12/2013                         | 1900H        | 21.0                                | 1850                     | 1.355                                 | 39.452                                   | 1.400                               | 40.000                                 | -3.21%         | -1.37%           |
|                                    |              |                                     | 1880                     | 1.385                                 | 39.316                                   | 1.400                               | 40.000                                 | -1.07%         | -1.71%           |
|                                    |              |                                     | 1910                     | 1.416                                 | 39.151                                   | 1.400                               | 40.000                                 | 1.14%          | -2.12%           |
|                                    |              |                                     | 2401                     | 1.812                                 | 38.296                                   | 1.758                               | 39.298                                 | 3.07%          | -2.55%           |
| 02/20/2013                         | 2450H        | 23.7                                | 2450                     | 1.862                                 | 38.106                                   | 1.800                               | 39.200                                 | 3.44%          | -2.79%           |
|                                    |              |                                     | 2499                     | 1.927                                 | 37.910                                   | 1.852                               | 39.135                                 | 4.05%          | -3.13%           |
|                                    |              |                                     | 5180                     | 4.643                                 | 36.957                                   | 4.639                               | 36.020                                 | 0.09%          | 2.60%            |
|                                    |              |                                     | 5200                     | 4.618                                 | 37.176                                   | 4.660                               | 36.000                                 | -0.90%         | 3.27%            |
| 02/18/2013                         | 5200 - 5800H | 23.9                                | 5220                     | 4.645                                 | 37.117                                   | 4.680                               | 35.980                                 | -0.75%         | 3.16%            |
|                                    |              |                                     | 5280                     | 4.762                                 | 36.507                                   | 4.740                               | 35.920                                 | 0.46%          | 1.63%            |
|                                    |              |                                     | 5300                     | 4.815                                 | 36.609                                   | 4.760                               | 35.900                                 | 1.16%          | 1.97%            |
|                                    |              |                                     | 5500                     | 4.916                                 | 36.374                                   | 4.965                               | 35.650                                 | -0.99%         | 2.03%            |
|                                    |              |                                     | 5745                     | 5.315                                 | 35.953                                   | 5.215                               | 35.355                                 | 1.92%          | 1.69%            |
|                                    |              |                                     | 5800                     | 5.390                                 | 35.299                                   | 5.270                               | 35.300                                 | 2.28%          | 0.00%            |
|                                    |              |                                     | 740                      | 0.970                                 | 53.239                                   | 0.963                               | 55.570                                 | 0.73%          | -4.19%           |
|                                    |              |                                     | 755                      | 0.982                                 | 53.107                                   | 0.964                               | 55.512                                 | 1.87%          | -4.33%           |
| 02/12/2013                         | 740B         | 22.8                                | 770                      | 0.998                                 | 52.935                                   | 0.965                               | 55.453                                 | 3.42%          | -4.54%           |
|                                    |              |                                     | 785                      | 1.013                                 | 52.789                                   | 0.966                               | 55.395                                 | 4.87%          | -4.70%           |
|                                    |              |                                     | 820                      | 0.984                                 | 53.933                                   | 0.969                               | 55.258                                 | 1.55%          | -2.40%           |
|                                    |              |                                     | 835                      | 0.998                                 | 53.789                                   | 0.970                               | 55.200                                 | 2.89%          | -2.56%           |
| 02/13/2013                         | 835B         | 24.3                                | 850                      | 1.016                                 | 53.567                                   | 0.988                               | 55.154                                 | 2.83%          | -2.88%           |
|                                    |              |                                     | 820                      | 0.975                                 | 54.154                                   | 0.969                               | 55.258                                 | 0.62%          | -2.00%           |
|                                    |              |                                     | 835                      | 0.988                                 | 53.996                                   | 0.970                               | 55.200                                 | 1.86%          | -2.18%           |
|                                    |              |                                     | 850                      | 1.004                                 | 53.897                                   | 0.988                               | 55.154                                 | 1.62%          | -2.28%           |
| 02/16/2013                         | 835B         | 23.3                                | 820                      | 0.979                                 | 55.567                                   | 0.969                               | 55.258                                 | 1.03%          | 0.56%            |
|                                    |              |                                     | 835                      | 1.001                                 | 55.060                                   | 0.970                               | 55.200                                 | 3.20%          | -0.25%           |
|                                    |              |                                     | 850                      | 1.020                                 | 54.659                                   | 0.988                               | 55.154                                 | 3.24%          | -0.90%           |
|                                    |              |                                     | 1710                     | 1.421                                 | 52.490                                   | 1.460                               | 53.540                                 | -2.67%         | -1.96%           |
| 02/10/2013                         | 1750B        | 24.0                                | 1750                     | 1.461                                 | 52.300                                   | 1.490                               | 53.430                                 | -1.95%         | -2.11%           |
|                                    |              |                                     | 1790                     | 1.499                                 | 52.190                                   | 1.510                               | 53.330                                 | -0.73%         | -2.14%           |
|                                    |              |                                     | 1850                     | 1.472                                 | 52.178                                   | 1.520                               | 53.300                                 | -3.16%         | -2.11%           |
|                                    |              |                                     | 1880                     | 1.507                                 | 52.045                                   | 1.520                               | 53.300                                 | -0.86%         | -2.35%           |
| 02/13/2013                         | 1900B        | 23.8                                | 1910                     | 1.540                                 | 51.917                                   | 1.520                               | 53.300                                 | 1.32%          | -2.59%           |
|                                    |              |                                     | 1850                     | 1.491                                 | 51.176                                   | 1.520                               | 53.300                                 | -1.91%         | -3.98%           |
|                                    |              |                                     | 1880                     | 1.519                                 | 51.175                                   | 1.520                               | 53.300                                 | -0.07%         | -3.99%           |
|                                    |              |                                     | 1910                     | 1.544                                 | 50.923                                   | 1.520                               | 53.300                                 | 1.58%          | -4.46%           |
| 02/25/2013                         | 1900B        | 20.3                                | 2401                     | 1.923                                 | 51.233                                   | 1.903                               | 52.765                                 | 1.05%          | -2.90%           |
|                                    |              |                                     | 2450                     | 1.982                                 | 51.037                                   | 1.950                               | 52.700                                 | 1.64%          | -3.16%           |
|                                    |              |                                     | 2499                     | 2.055                                 | 50.823                                   | 2.019                               | 52.638                                 | 1.78%          | -3.45%           |
|                                    |              |                                     | 5180                     | 5.188                                 | 48.319                                   | 5.276                               | 49.041                                 | -1.67%         | -1.47%           |
| 02/19/2013                         | 5200 - 5800B | 22.8                                | 5200                     | 5.224                                 | 48.368                                   | 5.299                               | 49.014                                 | -1.42%         | -1.32%           |
|                                    |              |                                     | 5220                     | 5.246                                 | 48.266                                   | 5.323                               | 48.987                                 | -1.45%         | -1.47%           |
|                                    |              |                                     | 5280                     | 5.323                                 | 48.184                                   | 5.393                               | 48.879                                 | -1.30%         | -1.42%           |
|                                    |              |                                     | 5300                     | 5.362                                 | 48.203                                   | 5.416                               | 48.851                                 | -1.00%         | -1.33%           |
|                                    |              |                                     | 5500                     | 5.603                                 | 47.923                                   | 5.650                               | 48.580                                 | -0.83%         | -1.35%           |
|                                    |              |                                     | 5745                     | 5.895                                 | 47.497                                   | 5.936                               | 48.248                                 | -0.69%         | -1.56%           |
|                                    |              |                                     | 5800                     | 5.992                                 | 47.430                                   | 6.000                               | 48.200                                 | -0.13%         | -1.60%           |

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per IEEE 1528 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

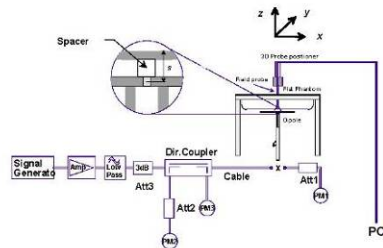
|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  | SAR EVALUATION REPORT         |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                  | DUT Type:<br>Portable Handset | Page 41 of 69                                                                         |                                 |

## 11.2 Test System Verification

Prior to SAR assessment, the system is verified to  $\pm 10\%$  of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

**Table 11-2**  
**System Verification Results**

| System Verification<br>TARGET & MEASURED |             |            |                |                  |                 |           |          |                                   |                                     |                                         |               |
|------------------------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|-----------------------------------|-------------------------------------|-----------------------------------------|---------------|
| Tissue Frequency (MHz)                   | Tissue Type | Date:      | Amb. Temp (°C) | Liquid Temp (°C) | Input Power (W) | Dipole SN | Probe SN | Measured SAR <sub>1g</sub> (W/kg) | 1 W Target SAR <sub>1g</sub> (W/kg) | 1 W Normalized SAR <sub>1g</sub> (W/kg) | Deviation (%) |
| 750                                      | HEAD        | 02/11/2013 | 21.9           | 22.0             | 0.170           | 1003      | 3022     | 1.430                             | 8.460                               | 8.412                                   | -0.57%        |
| 835                                      | HEAD        | 02/13/2013 | 24.4           | 23.4             | 0.100           | 4d119     | 3022     | 0.984                             | 9.420                               | 9.840                                   | 4.46%         |
| 835                                      | HEAD        | 02/16/2013 | 23.7           | 22.9             | 0.100           | 4d119     | 3022     | 0.970                             | 9.420                               | 9.700                                   | 2.97%         |
| 1750                                     | HEAD        | 02/12/2013 | 23.9           | 22.2             | 0.100           | 1051      | 3288     | 3.440                             | 36.600                              | 34.400                                  | -6.01%        |
| 1900                                     | HEAD        | 02/12/2013 | 23.0           | 21.1             | 0.100           | 5d149     | 3263     | 3.870                             | 39.300                              | 38.700                                  | -1.53%        |
| 1900                                     | HEAD        | 02/14/2013 | 24.2           | 22.8             | 0.100           | 5d149     | 3263     | 4.030                             | 39.300                              | 40.300                                  | 2.54%         |
| 2450                                     | HEAD        | 02/20/2013 | 24.5           | 23.5             | 0.100           | 719       | 3022     | 5.380                             | 52.700                              | 53.800                                  | 2.09%         |
| 5200                                     | HEAD        | 02/18/2013 | 23.4           | 22.0             | 0.100           | 1057      | 3589     | 7.010                             | 75.900                              | 70.100                                  | -7.64%        |
| 5300                                     | HEAD        | 02/18/2013 | 23.3           | 22.1             | 0.100           | 1057      | 3589     | 7.320                             | 76.900                              | 73.200                                  | -4.81%        |
| 5500                                     | HEAD        | 02/18/2013 | 23.5           | 22.3             | 0.100           | 1057      | 3589     | 7.580                             | 80.100                              | 75.800                                  | -5.37%        |
| 5800                                     | HEAD        | 02/18/2013 | 23.7           | 22.5             | 0.100           | 1057      | 3589     | 7.750                             | 76.100                              | 77.500                                  | 1.84%         |
| 750                                      | BODY        | 02/12/2013 | 23.9           | 23.3             | 0.100           | 1003      | 3287     | 0.887                             | 8.830                               | 8.870                                   | 0.45%         |
| 835                                      | BODY        | 02/13/2013 | 24.7           | 24.2             | 0.100           | 4d133     | 3213     | 0.957                             | 9.600                               | 9.570                                   | -0.31%        |
| 835                                      | BODY        | 02/16/2013 | 23.3           | 21.9             | 0.100           | 4d026     | 3287     | 1.010                             | 9.580                               | 10.100                                  | 5.43%         |
| 835                                      | BODY        | 02/22/2013 | 24.8           | 23.2             | 0.100           | 4d026     | 3287     | 1.010                             | 9.580                               | 10.100                                  | 5.43%         |
| 1750                                     | BODY        | 02/10/2013 | 23.3           | 22.3             | 0.100           | 1051      | 3288     | 4.040                             | 37.600                              | 40.400                                  | 7.45%         |
| 1900                                     | BODY        | 02/13/2013 | 24.1           | 22.1             | 0.100           | 5d149     | 3263     | 4.040                             | 39.300                              | 40.400                                  | 2.80%         |
| 1900                                     | BODY        | 02/25/2013 | 22.3           | 20.3             | 0.100           | 5d148     | 3288     | 3.930                             | 40.800                              | 39.300                                  | -3.68%        |
| 2450                                     | BODY        | 02/20/2013 | 24.2           | 22.9             | 0.040           | 797       | 3263     | 1.980                             | 49.600                              | 49.500                                  | -0.20%        |
| 5200                                     | BODY        | 02/19/2013 | 23.8           | 22.6             | 0.100           | 1057      | 3589     | 6.980                             | 75.500                              | 69.800                                  | -7.55%        |
| 5300                                     | BODY        | 02/19/2013 | 23.8           | 22.7             | 0.100           | 1057      | 3589     | 7.190                             | 75.300                              | 71.900                                  | -4.52%        |
| 5500                                     | BODY        | 02/19/2013 | 23.9           | 22.7             | 0.100           | 1057      | 3589     | 7.600                             | 80.800                              | 76.000                                  | -5.94%        |
| 5800                                     | BODY        | 02/19/2013 | 24.0           | 22.8             | 0.100           | 1057      | 3589     | 7.120                             | 75.100                              | 71.200                                  | -5.19%        |



**Figure 11-1**  
**System Verification Setup Diagram**



**Figure 11-2**  
**System Verification Setup Photo**

|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  | SAR EVALUATION REPORT         |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                  | DUT Type:<br>Portable Handset |                                                                                       | Page 42 of 69                   |

## 12 SAR DATA SUMMARY

### 12.1 Standalone Head SAR Data

Table 12-1  
GSM 850 Head SAR

| MEASUREMENT RESULTS                                                                               |     |           |         |                             |                       |                  |       |                                                 |                   |                      |            |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|-----|-----------|---------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |     | Mode/Band | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch. |           |         |                             |                       |                  |       |                                                 |                   |                      |            | (W/kg)   |                | (W/kg)          |        |
| 836.60                                                                                            | 190 | GSM 850   | GSM     | 33.5                        | 33.14                 | 0.02             | Right | Cheek                                           | Standard          | 32F60                | 1:8.3      | 0.101    | 1.086          | 0.110           |        |
| 836.60                                                                                            | 190 | GSM 850   | GSM     | 33.5                        | 33.14                 | 0.01             | Right | Tilt                                            | Standard          | 32F60                | 1:8.3      | 0.063    | 1.086          | 0.068           |        |
| 836.60                                                                                            | 190 | GSM 850   | GSM     | 33.5                        | 33.14                 | 0.06             | Left  | Cheek                                           | Standard          | 32F60                | 1:8.3      | 0.117    | 1.086          | 0.127           | A1     |
| 836.60                                                                                            | 190 | GSM 850   | GSM     | 33.5                        | 33.14                 | 0.09             | Left  | Cheek                                           | Wireless Charging | 32F60                | 1:8.3      | 0.094    | 1.086          | 0.102           |        |
| 836.60                                                                                            | 190 | GSM 850   | GSM     | 33.5                        | 33.14                 | -0.02            | Left  | Tilt                                            | Standard          | 32F60                | 1:8.3      | 0.074    | 1.086          | 0.080           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |           |         |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |          |                |                 |        |

Table 12-2  
UMTS 850 Head SAR

| MEASUREMENT RESULTS                                                                               |      |           |         |                             |                       |                  |       |                                                 |                   |                      |            |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|------|-----------|---------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |      | Mode/Band | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch.  |           |         |                             |                       |                  |       |                                                 |                   |                      |            | (W/kg)   |                | (W/kg)          |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23                          | 22.95                 | 0.07             | Right | Cheek                                           | Standard          | 32F60                | 1:1        | 0.088    | 1.012          | 0.089           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23                          | 22.95                 | 0.04             | Right | Tilt                                            | Standard          | 32F60                | 1:1        | 0.056    | 1.012          | 0.056           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23                          | 22.95                 | 0.07             | Left  | Cheek                                           | Standard          | 32F60                | 1:1        | 0.098    | 1.012          | 0.099           | A2     |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23                          | 22.95                 | 0.03             | Left  | Cheek                                           | Wireless Charging | 32F60                | 1:1        | 0.076    | 1.012          | 0.077           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23                          | 22.95                 | 0.04             | Left  | Tilt                                            | Standard          | 32F60                | 1:1        | 0.062    | 1.012          | 0.063           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |      |           |         |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |          |                |                 |        |

Table 12-3  
GSM 1900 Head SAR

| MEASUREMENT RESULTS                                                                               |     |           |         |                             |                       |                  |       |                                                 |                   |                      |            |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|-----|-----------|---------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |     | Mode/Band | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch. |           |         |                             |                       |                  |       |                                                 |                   |                      |            | (W/kg)   |                | (W/kg)          |        |
| 1880.00                                                                                           | 661 | GSM 1900  | GSM     | 30.5                        | 29.88                 | 0.19             | Right | Cheek                                           | Standard          | 32F60                | 1:8.3      | 0.054    | 1.153          | 0.063           |        |
| 1880.00                                                                                           | 661 | GSM 1900  | GSM     | 30.5                        | 29.88                 | 0.12             | Right | Tilt                                            | Standard          | 32F60                | 1:8.3      | 0.035    | 1.153          | 0.040           |        |
| 1880.00                                                                                           | 661 | GSM 1900  | GSM     | 30.5                        | 29.88                 | 0.10             | Left  | Cheek                                           | Standard          | 32F60                | 1:8.3      | 0.085    | 1.153          | 0.099           | A3     |
| 1880.00                                                                                           | 661 | GSM 1900  | GSM     | 30.5                        | 29.88                 | 0.10             | Left  | Cheek                                           | Wireless Charging | 32F60                | 1:8.3      | 0.063    | 1.153          | 0.072           |        |
| 1880.00                                                                                           | 661 | GSM 1900  | GSM     | 30.5                        | 29.88                 | 0.15             | Left  | Tilt                                            | Standard          | 32F60                | 1:8.3      | 0.035    | 1.153          | 0.041           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |           |         |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |          |                |                 |        |

|                                      |                                                                                                                                                                                                        |                               |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  |                               | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset | Page 43 of 69                   |

**Table 12-4**  
**UMTS 1900 Head SAR**

| MEASUREMENT RESULTS                                                                               |      |           |         |                             |                       |                  |       |                                                 |                   |                      |            |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|------|-----------|---------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |      | Mode/Band | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch.  |           |         |                             |                       |                  |       |                                                 |                   |                      |            | (W/kg)   |                | (W/kg)          |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | 0.05             | Right | Cheek                                           | Standard          | 32F60                | 1:1        | 0.113    | 1.033          | 0.117           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | 0.02             | Right | Tilt                                            | Standard          | 32F60                | 1:1        | 0.067    | 1.033          | 0.069           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | -0.06            | Left  | Cheek                                           | Standard          | 32F60                | 1:1        | 0.182    | 1.033          | 0.188           | A4     |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | 0.05             | Left  | Cheek                                           | Wireless Charging | 32F60                | 1:1        | 0.117    | 1.033          | 0.121           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | 0.15             | Left  | Tilt                                            | Standard          | 32F60                | 1:1        | 0.055    | 1.033          | 0.057           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |      |           |         |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |          |                |                 |        |

**Table 12-5**  
**Cell. CDMA Head SAR**

| MEASUREMENT RESULTS                                                                               |     |            |             |                             |                       |                  |       |                                                 |                   |                      |            |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|-----|------------|-------------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |     | Mode/Band  | Service     | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch. |            |             |                             |                       |                  |       |                                                 |                   |                      |            | (W/kg)   |                | (W/kg)          |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 25.0                        | 24.22                 | -0.07            | Right | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.179    | 1.197          | 0.214           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 25.0                        | 24.22                 | 0.01             | Right | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.117    | 1.197          | 0.140           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 25.0                        | 24.22                 | -0.01            | Left  | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.209    | 1.197          | 0.250           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 25.0                        | 24.22                 | -0.11            | Left  | Cheek                                           | Wireless Charging | 32FB2                | 1:1        | 0.165    | 1.197          | 0.197           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 25.0                        | 24.22                 | 0.00             | Left  | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.153    | 1.197          | 0.183           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 18.5                        | 18.47                 | -0.05            | Right | Cheek                                           | Standard          | 32F6F                | 1:1        | 0.056    | 1.007          | 0.056           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 18.5                        | 18.47                 | 0.05             | Right | Tilt                                            | Standard          | 32F6F                | 1:1        | 0.036    | 1.007          | 0.036           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 18.5                        | 18.47                 | 0.03             | Left  | Cheek                                           | Standard          | 32F6F                | 1:1        | 0.065    | 1.007          | 0.065           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | RC3 / SO55  | 18.5                        | 18.47                 | 0.12             | Left  | Tilt                                            | Standard          | 32F6F                | 1:1        | 0.038    | 1.007          | 0.038           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | EVDO Rev. A | 25.0                        | 24.32                 | 0.02             | Right | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.189    | 1.169          | 0.221           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | EVDO Rev. A | 25.0                        | 24.32                 | 0.00             | Right | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.120    | 1.169          | 0.140           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | EVDO Rev. A | 25.0                        | 24.32                 | -0.02            | Left  | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.213    | 1.169          | 0.249           | A5     |
| 836.52                                                                                            | 384 | Cell. CDMA | EVDO Rev. A | 25.0                        | 24.32                 | 0.18             | Left  | Cheek                                           | Wireless Charging | 32FB2                | 1:1        | 0.173    | 1.169          | 0.202           |        |
| 836.52                                                                                            | 384 | Cell. CDMA | EVDO Rev. A | 25.0                        | 24.32                 | -0.03            | Left  | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.130    | 1.169          | 0.152           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |            |             |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |          |                |                 |        |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 44 of 69                          |

**Table 12-6**  
**PCS CDMA Head SAR**

| MEASUREMENT RESULTS                                                                               |     |           |             |                             |                       |                  |       |                                                 |                   |                      |            |          |                |                        |        |
|---------------------------------------------------------------------------------------------------|-----|-----------|-------------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------|----------|----------------|------------------------|--------|
| FREQUENCY                                                                                         |     | Mode/Band | Service     | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) (W/kg) | Plot # |
| MHz                                                                                               | Ch. |           |             |                             |                       |                  |       |                                                 |                   |                      |            | (W/kg)   |                |                        |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 25.0                        | 24.44                 | 0.14             | Right | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.068    | 1.138          | 0.077                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 25.0                        | 24.44                 | 0.17             | Right | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.023    | 1.138          | 0.026                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 25.0                        | 24.44                 | 0.00             | Left  | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.120    | 1.138          | 0.137                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 25.0                        | 24.44                 | -0.01            | Left  | Cheek                                           | Wireless Charging | 32FB2                | 1:1        | 0.108    | 1.138          | 0.123                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 25.0                        | 24.44                 | 0.13             | Left  | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.019    | 1.138          | 0.022                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 18.5                        | 18.09                 | 0.19             | Right | Cheek                                           | Standard          | 32F6F                | 1:1        | 0.028    | 1.099          | 0.031                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 18.5                        | 18.09                 | 0.03             | Right | Tilt                                            | Standard          | 32F6F                | 1:1        | 0.017    | 1.099          | 0.018                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 18.5                        | 18.09                 | -0.07            | Left  | Cheek                                           | Standard          | 32F6F                | 1:1        | 0.057    | 1.099          | 0.063                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | RC3 / SO55  | 18.5                        | 18.09                 | 0.14             | Left  | Tilt                                            | Standard          | 32F6F                | 1:1        | 0.011    | 1.099          | 0.012                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | EVDO Rev. A | 25.0                        | 24.37                 | 0.11             | Right | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.077    | 1.156          | 0.089                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | EVDO Rev. A | 25.0                        | 24.37                 | 0.12             | Right | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.034    | 1.156          | 0.040                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | EVDO Rev. A | 25.0                        | 24.37                 | 0.08             | Left  | Cheek                                           | Standard          | 32FB2                | 1:1        | 0.142    | 1.156          | 0.164                  | A6     |
| 1880.00                                                                                           | 600 | PCS CDMA  | EVDO Rev. A | 25.0                        | 24.37                 | 0.11             | Left  | Cheek                                           | Wireless Charging | 32FB2                | 1:1        | 0.115    | 1.156          | 0.133                  |        |
| 1880.00                                                                                           | 600 | PCS CDMA  | EVDO Rev. A | 25.0                        | 24.37                 | 0.07             | Left  | Tilt                                            | Standard          | 32FB2                | 1:1        | 0.042    | 1.156          | 0.049                  |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |           |             |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |          |                |                        |        |

**Table 12-7**  
**LTE Band 13 Head SAR**

| MEASUREMENT RESULTS                                                                               |       |      |                 |                 |                             |                       |                  |          |      |                                                 |            |         |           |                      |            |          |                |                        |        |    |
|---------------------------------------------------------------------------------------------------|-------|------|-----------------|-----------------|-----------------------------|-----------------------|------------------|----------|------|-------------------------------------------------|------------|---------|-----------|----------------------|------------|----------|----------------|------------------------|--------|----|
| FREQUENCY                                                                                         |       | Mode | Bandwidth [MHz] | Back Cover Type | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | MPR [dB] | Side | Test Position                                   | Modulation | RB Size | RB Offset | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) (W/kg) | Plot # |    |
| MHz                                                                                               | Ch.   |      |                 |                 |                             |                       |                  |          |      |                                                 |            |         |           |                      |            | (W/kg)   |                |                        |        |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 23.5                  | 23.13            | 0.06     | 0    | Right                                           | Cheek      | QPSK    | 1         | 0                    | 32FAF      | 1:1      | 0.176          | 1.089                  | 0.192  | A7 |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 22.5                  | 21.95            | 0.07     | 1    | Right                                           | Cheek      | QPSK    | 25        | 12                   | 32FAF      | 1:1      | 0.132          | 1.135                  | 0.150  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Wireless Charging           | 23.5                  | 23.13            | 0.06     | 0    | Right                                           | Cheek      | QPSK    | 1         | 0                    | 32FAF      | 1:1      | 0.134          | 1.089                  | 0.146  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 23.5                  | 23.13            | 0.03     | 0    | Right                                           | Tilt       | QPSK    | 1         | 0                    | 32FAF      | 1:1      | 0.120          | 1.089                  | 0.131  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 22.5                  | 21.95            | 0.10     | 1    | Right                                           | Tilt       | QPSK    | 25        | 12                   | 32FAF      | 1:1      | 0.086          | 1.135                  | 0.098  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 23.5                  | 23.13            | 0.01     | 0    | Left                                            | Cheek      | QPSK    | 1         | 0                    | 32FAF      | 1:1      | 0.151          | 1.089                  | 0.164  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 22.5                  | 21.95            | 0.15     | 1    | Left                                            | Cheek      | QPSK    | 25        | 12                   | 32FAF      | 1:1      | 0.111          | 1.135                  | 0.126  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 23.5                  | 23.13            | 0.14     | 0    | Left                                            | Tilt       | QPSK    | 1         | 0                    | 32FAF      | 1:1      | 0.104          | 1.089                  | 0.113  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 22.5                  | 21.95            | 0.12     | 1    | Left                                            | Tilt       | QPSK    | 25        | 12                   | 32FAF      | 1:1      | 0.074          | 1.135                  | 0.084  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.38            | 0.10     | 0    | Right                                           | Cheek      | QPSK    | 1         | 25                   | 32FA3      | 1:1      | 0.069          | 1.028                  | 0.070  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.21            | 0.08     | 0    | Right                                           | Cheek      | QPSK    | 25        | 25                   | 32FA3      | 1:1      | 0.053          | 1.069                  | 0.057  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.38            | 0.07     | 0    | Right                                           | Tilt       | QPSK    | 1         | 25                   | 32FA3      | 1:1      | 0.045          | 1.028                  | 0.046  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.21            | 0.02     | 0    | Right                                           | Tilt       | QPSK    | 25        | 25                   | 32FA3      | 1:1      | 0.035          | 1.069                  | 0.037  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.38            | 0.06     | 0    | Left                                            | Cheek      | QPSK    | 1         | 25                   | 32FA3      | 1:1      | 0.049          | 1.028                  | 0.050  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.21            | 0.07     | 0    | Left                                            | Cheek      | QPSK    | 25        | 25                   | 32FA3      | 1:1      | 0.038          | 1.069                  | 0.040  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.38            | 0.03     | 0    | Left                                            | Tilt       | QPSK    | 1         | 25                   | 32FA3      | 1:1      | 0.034          | 1.028                  | 0.035  |    |
| 782.00                                                                                            | 23230 | Mid  | LTE Band 13     | 10              | Standard                    | 19.5                  | 19.21            | 0.02     | 0    | Left                                            | Tilt       | QPSK    | 25        | 25                   | 32FA3      | 1:1      | 0.027          | 1.069                  | 0.029  |    |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |       |      |                 |                 |                             |                       |                  |          |      | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |            |         |           |                      |            |          |                |                        |        |    |

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset | Page 45 of 69                                                                         |                                        |

**Table 12-8**  
**LTE Band 4 (AWS) Head SAR**

| MEASUREMENT RESULTS                                                                               |       |      |                  |                 |                             |                       |                  |          |      |                                                 |            |         |           |                      |            |          |                |                 |        |    |
|---------------------------------------------------------------------------------------------------|-------|------|------------------|-----------------|-----------------------------|-----------------------|------------------|----------|------|-------------------------------------------------|------------|---------|-----------|----------------------|------------|----------|----------------|-----------------|--------|----|
| FREQUENCY                                                                                         |       | Mode | Bandwidth [MHz]  | Back Cover Type | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | MPR [dB] | Side | Test Position                                   | Modulation | RB Size | RB Offset | Device Serial Number | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |    |
| MHz                                                                                               | Ch.   |      |                  |                 |                             |                       |                  |          |      |                                                 |            |         |           |                      |            | (W/kg)   |                | (W/kg)          |        |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | 0.05     | 0    | Right                                           | Cheek      | QPSK    | 1         | 50                   | 32FAF      | 1:1      | 0.076          | 1.033           | 0.079  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.13     | 1    | Right                                           | Cheek      | QPSK    | 50        | 25                   | 32FAF      | 1:1      | 0.057          | 1.064           | 0.061  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | -0.05    | 0    | Right                                           | Tilt       | QPSK    | 1         | 50                   | 32FAF      | 1:1      | 0.075          | 1.033           | 0.078  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.06     | 1    | Right                                           | Tilt       | QPSK    | 50        | 25                   | 32FAF      | 1:1      | 0.059          | 1.064           | 0.063  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | 0.10     | 0    | Left                                            | Cheek      | QPSK    | 1         | 50                   | 32FAF      | 1:1      | 0.116          | 1.033           | 0.120  | A8 |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.11     | 1    | Left                                            | Cheek      | QPSK    | 50        | 25                   | 32FAF      | 1:1      | 0.088          | 1.064           | 0.093  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Wireless Charging           | 23.5                  | 23.36            | 0.13     | 0    | Left                                            | Cheek      | QPSK    | 1         | 50                   | 32FAF      | 1:1      | 0.102          | 1.033           | 0.105  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | 0.04     | 0    | Left                                            | Tilt       | QPSK    | 1         | 50                   | 32FAF      | 1:1      | 0.049          | 1.033           | 0.051  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.02     | 1    | Left                                            | Tilt       | QPSK    | 50        | 25                   | 32FAF      | 1:1      | 0.051          | 1.064           | 0.054  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.17     | 0    | Right                                           | Cheek      | QPSK    | 1         | 50                   | 32FA3      | 1:1      | 0.023          | 1.014           | 0.023  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.03     | 0    | Right                                           | Cheek      | QPSK    | 50        | 50                   | 32FA3      | 1:1      | 0.027          | 1.042           | 0.028  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.06     | 0    | Right                                           | Tilt       | QPSK    | 1         | 50                   | 32FA3      | 1:1      | 0.011          | 1.014           | 0.011  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.05     | 0    | Right                                           | Tilt       | QPSK    | 50        | 50                   | 32FA3      | 1:1      | 0.014          | 1.042           | 0.015  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.13     | 0    | Left                                            | Cheek      | QPSK    | 1         | 50                   | 32FA3      | 1:1      | 0.030          | 1.014           | 0.030  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.10     | 0    | Left                                            | Cheek      | QPSK    | 50        | 50                   | 32FA3      | 1:1      | 0.030          | 1.042           | 0.031  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.03     | 0    | Left                                            | Tilt       | QPSK    | 1         | 50                   | 32FA3      | 1:1      | 0.011          | 1.014           | 0.011  |    |
| 1732.50                                                                                           | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.05     | 0    | Left                                            | Tilt       | QPSK    | 50        | 50                   | 32FA3      | 1:1      | 0.011          | 1.042           | 0.011  |    |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |       |      |                  |                 |                             |                       |                  |          |      | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |            |         |           |                      |            |          |                |                 |        |    |

**Table 12-9**  
**DTS Head SAR**

| MEASUREMENT RESULTS                                                                               |     |              |         |                             |                       |                  |       |                                                 |                   |                      |                  |            |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|-----|--------------|---------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |     | Mode         | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Data Rate (Mbps) | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch. |              |         |                             |                       |                  |       |                                                 |                   |                      |                  |            | (W/kg)   |                | (W/kg)          |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.08             | Right | Cheek                                           | Standard          | 32FB2                | 1                | 1:1        | 0.145    | 1.081          | 0.157           |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.06             | Right | Tilt                                            | Standard          | 32FB2                | 1                | 1:1        | 0.128    | 1.081          | 0.138           |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | -0.01            | Left  | Cheek                                           | Standard          | 32FB2                | 1                | 1:1        | 0.418    | 1.081          | 0.452           | A9     |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.16             | Left  | Cheek                                           | Wireless Charging | 32FB2                | 1                | 1:1        | 0.276    | 1.081          | 0.298           |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | -0.05            | Left  | Tilt                                            | Standard          | 32FB2                | 1                | 1:1        | 0.170    | 1.081          | 0.184           |        |
| 5745                                                                                              | 149 | IEEE 802.11a | OFDM    | 14.5                        | 13.60                 | 0.13             | Right | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.016    | 1.230          | 0.020           |        |
| 5745                                                                                              | 149 | IEEE 802.11a | OFDM    | 14.5                        | 13.60                 | 0.18             | Right | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.001    | 1.230          | 0.001           |        |
| 5745                                                                                              | 149 | IEEE 802.11a | OFDM    | 14.5                        | 13.60                 | 0.14             | Left  | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.154    | 1.230          | 0.189           | A10    |
| 5745                                                                                              | 149 | IEEE 802.11a | OFDM    | 14.5                        | 13.60                 | 0.06             | Left  | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.010    | 1.230          | 0.013           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |              |         |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |                  |            |          |                |                 |        |

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 46 of 69                          |

**Table 12-10  
NII Head SAR**

| MEASUREMENT RESULTS                                                                               |     |              |         |                             |                       |                  |       |                                                 |                   |                      |                  |            |          |        |                |        |
|---------------------------------------------------------------------------------------------------|-----|--------------|---------|-----------------------------|-----------------------|------------------|-------|-------------------------------------------------|-------------------|----------------------|------------------|------------|----------|--------|----------------|--------|
| FREQUENCY                                                                                         |     | Mode         | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Side  | Test Position                                   | Back Cover Type   | Device Serial Number | Data Rate (Mbps) | Duty Cycle | SAR (1g) |        | Scaling Factor | Plot # |
| MHz                                                                                               | Ch. |              |         |                             |                       |                  |       |                                                 |                   |                      |                  |            | (W/kg)   | (W/kg) |                |        |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | 0.15             | Right | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.034    | 1.114  | 0.038          |        |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | -0.05            | Right | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.031    | 1.114  | 0.035          |        |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | 0.15             | Left  | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.423    | 1.114  | 0.471          | A11    |
| 5220                                                                                              | 44  | IEEE 802.11a | OFDM    | 14.5                        | 13.86                 | 0.07             | Left  | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.292    | 1.159  | 0.338          |        |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | 0.05             | Left  | Touch                                           | Wireless Charging | 32FAF                | 6                | 1:1        | 0.183    | 1.114  | 0.204          |        |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | 0.15             | Left  | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.077    | 1.114  | 0.085          |        |
| 5280                                                                                              | 56  | IEEE 802.11a | OFDM    | 14.5                        | 14.01                 | 0.03             | Right | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.032    | 1.119  | 0.036          |        |
| 5280                                                                                              | 56  | IEEE 802.11a | OFDM    | 14.5                        | 14.01                 | -0.12            | Right | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.001    | 1.119  | 0.001          |        |
| 5280                                                                                              | 56  | IEEE 802.11a | OFDM    | 14.5                        | 14.01                 | 0.02             | Left  | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.250    | 1.119  | 0.280          |        |
| 5280                                                                                              | 56  | IEEE 802.11a | OFDM    | 14.5                        | 14.01                 | 0.18             | Left  | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.068    | 1.119  | 0.076          |        |
| 5500                                                                                              | 100 | IEEE 802.11a | OFDM    | 14.5                        | 14.10                 | 0.03             | Right | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.022    | 1.096  | 0.024          |        |
| 5500                                                                                              | 100 | IEEE 802.11a | OFDM    | 14.5                        | 14.10                 | 0.00             | Right | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.011    | 1.096  | 0.012          |        |
| 5500                                                                                              | 100 | IEEE 802.11a | OFDM    | 14.5                        | 14.10                 | 0.04             | Left  | Touch                                           | Standard          | 32FAF                | 6                | 1:1        | 0.181    | 1.096  | 0.198          |        |
| 5500                                                                                              | 100 | IEEE 802.11a | OFDM    | 14.5                        | 14.10                 | 0.03             | Left  | Tilt                                            | Standard          | 32FAF                | 6                | 1:1        | 0.028    | 1.096  | 0.031          |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |              |         |                             |                       |                  |       | Head<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |                  |            |          |        |                |        |

## 12.2 Standalone Body-Worn SAR Data

**Table 12-11  
GSM/UMTS/CDMA Body-Worn SAR Data**

| MEASUREMENT RESULTS                                                                               |      |            |             |                             |                       |                  |         |                                                 |                      |                 |            |      |          |        |                |        |
|---------------------------------------------------------------------------------------------------|------|------------|-------------|-----------------------------|-----------------------|------------------|---------|-------------------------------------------------|----------------------|-----------------|------------|------|----------|--------|----------------|--------|
| FREQUENCY                                                                                         |      | Mode       | Service     | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing | Back Cover Type                                 | Device Serial Number | # of Time Slots | Duty Cycle | Side | SAR (1g) |        | Scaling Factor | Plot # |
| MHz                                                                                               | Ch.  |            |             |                             |                       |                  |         |                                                 |                      |                 |            |      | (W/kg)   | (W/kg) |                |        |
| 836.60                                                                                            | 190  | GSM 850    | GSM         | 33.5                        | 33.14                 | -0.02            | 10 mm   | Standard                                        | 32F60                | 1               | 1:8.3      | back | 0.373    | 1.086  | 0.405          | A12    |
| 836.60                                                                                            | 190  | GSM 850    | GSM         | 33.5                        | 33.14                 | 0.07             | 10 mm   | Wireless Charging                               | 32F60                | 1               | 1:8.3      | back | 0.230    | 1.086  | 0.250          |        |
| 836.60                                                                                            | 4183 | UMTS 850   | RMC         | 23.0                        | 22.95                 | 0.00             | 10 mm   | Standard                                        | 32F60                | N/A             | 1:1        | back | 0.322    | 1.012  | 0.326          | A14    |
| 836.60                                                                                            | 4183 | UMTS 850   | RMC         | 23.0                        | 22.95                 | -0.04            | 10 mm   | Wireless Charging                               | 32F60                | N/A             | 1:1        | back | 0.190    | 1.012  | 0.192          |        |
| 1880.00                                                                                           | 661  | GSM 1900   | GSM         | 30.5                        | 29.88                 | 0.04             | 10 mm   | Standard                                        | 32F60                | 1               | 1:8.3      | back | 0.442    | 1.153  | 0.510          | A15    |
| 1880.00                                                                                           | 661  | GSM 1900   | GSM         | 30.5                        | 29.88                 | -0.03            | 10 mm   | Wireless Charging                               | 32F60                | 1               | 1:8.3      | back | 0.405    | 1.153  | 0.467          |        |
| 1852.40                                                                                           | 9262 | UMTS 1900  | RMC         | 23.0                        | 22.70                 | -0.05            | 10 mm   | Standard                                        | 32F60                | N/A             | 1:1        | back | 0.683    | 1.072  | 0.732          |        |
| 1880.00                                                                                           | 9400 | UMTS 1900  | RMC         | 23.0                        | 22.86                 | -0.05            | 10 mm   | Standard                                        | 32F60                | N/A             | 1:1        | back | 0.799    | 1.033  | 0.825          |        |
| 1907.60                                                                                           | 9538 | UMTS 1900  | RMC         | 23.0                        | 22.65                 | 0.20             | 10 mm   | Standard                                        | 32F60                | N/A             | 1:1        | back | 0.841    | 1.084  | 0.912          |        |
| 1907.60                                                                                           | 9538 | UMTS 1900  | RMC         | 23.0                        | 22.65                 | -0.08            | 10 mm   | Wireless Charging                               | 32F60                | N/A             | 1:1        | back | 0.628    | 1.084  | 0.681          |        |
| 1907.60                                                                                           | 9538 | UMTS 1900  | RMC         | 23.0                        | 22.65                 | -0.06            | 10 mm   | Standard                                        | 32F60                | N/A             | 1:1        | back | 0.948    | 1.084  | 1.028          | A17    |
| 824.70                                                                                            | 1013 | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.24                 | 0.06             | 10 mm   | Standard                                        | 32FB2                | N/A             | 1:1        | back | 0.532    | 1.191  | 0.634          |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | -0.01            | 10 mm   | Standard                                        | 32FB2                | N/A             | 1:1        | back | 0.743    | 1.175  | 0.873          | A18    |
| 848.31                                                                                            | 777  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.13                 | -0.16            | 10 mm   | Standard                                        | 32FB2                | N/A             | 1:1        | back | 0.699    | 1.222  | 0.854          |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | 0.03             | 10 mm   | Wireless Charging                               | 32FB2                | N/A             | 1:1        | back | 0.481    | 1.175  | 0.565          |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 18.5                        | 18.47                 | -0.05            | 10 mm   | Standard                                        | 32F6F                | N/A             | 1:1        | back | 0.233    | 1.007  | 0.235          |        |
| 1851.25                                                                                           | 25   | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.29                 | -0.02            | 10 mm   | Standard                                        | 32FB2                | N/A             | 1:1        | back | 0.697    | 1.178  | 0.821          |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.45                 | 0.07             | 10 mm   | Standard                                        | 32FB2                | N/A             | 1:1        | back | 0.706    | 1.135  | 0.801          |        |
| 1908.75                                                                                           | 1175 | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.41                 | -0.07            | 10 mm   | Standard                                        | 32FB2                | N/A             | 1:1        | back | 0.737    | 1.146  | 0.844          | A20    |
| 1908.75                                                                                           | 1175 | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.41                 | -0.06            | 10 mm   | Wireless Charging                               | 32FB2                | N/A             | 1:1        | back | 0.486    | 1.146  | 0.557          |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 18.5                        | 18.08                 | -0.05            | 10 mm   | Standard                                        | 32F6F                | N/A             | 1:1        | back | 0.305    | 1.102  | 0.336          |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |      |            |             |                             |                       |                  |         | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                      |                 |            |      |          |        |                |        |

Note: Blue entry represents variability measurement.

|                                      |                                                                                                                                                                                                        |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset   |
| Page 47 of 69                        |                                                                                                                                                                                                        |                                 |

**Table 12-12**  
**LTE Body-Worn SAR**

| MEASUREMENT RESULTS                                   |       |      |                  |                 |                             |                       |                  |          |                      |                                                 |         |           |         |       |            |          |       |                |                        |        |
|-------------------------------------------------------|-------|------|------------------|-----------------|-----------------------------|-----------------------|------------------|----------|----------------------|-------------------------------------------------|---------|-----------|---------|-------|------------|----------|-------|----------------|------------------------|--------|
| FREQUENCY                                             |       | Mode | Bandwidth [MHz]  | Back Cover Type | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | MPR [dB] | Device Serial Number | Modulation                                      | RB Size | RB Offset | Spacing | Side  | Duty Cycle | SAR (1g) |       | Scaling Factor | Scaled SAR (1g) (W/kg) | Plot # |
| MHz                                                   | Ch.   |      |                  |                 |                             |                       |                  |          |                      |                                                 |         |           |         |       |            | (W/kg)   |       |                |                        |        |
| 782.00                                                | 23230 | Mid  | LTE Band 13      | 10              | Standard                    | 23.5                  | 23.13            | 0.03     | 0                    | 32FAF                                           | QPSK    | 1         | 0       | 10 mm | back       | 1:1      | 0.271 | 1.089          | 0.295                  | A21    |
| 782.00                                                | 23230 | Mid  | LTE Band 13      | 10              | Standard                    | 22.5                  | 21.95            | -0.06    | 1                    | 32FAF                                           | QPSK    | 25        | 12      | 10 mm | back       | 1:1      | 0.191 | 1.135          | 0.217                  |        |
| 782.00                                                | 23230 | Mid  | LTE Band 13      | 10              | Wireless Charging           | 23.5                  | 23.13            | 0.07     | 0                    | 32FAF                                           | QPSK    | 1         | 0       | 10 mm | back       | 1:1      | 0.243 | 1.089          | 0.265                  |        |
| 782.00                                                | 23230 | Mid  | LTE Band 13      | 10              | Standard                    | 19.5                  | 19.38            | -0.02    | 0                    | 32FA3                                           | QPSK    | 1         | 25      | 10 mm | back       | 1:1      | 0.084 | 1.028          | 0.086                  |        |
| 782.00                                                | 23230 | Mid  | LTE Band 13      | 10              | Standard                    | 19.5                  | 19.21            | 0.02     | 0                    | 32FA3                                           | QPSK    | 25        | 25      | 10 mm | back       | 1:1      | 0.072 | 1.069          | 0.077                  |        |
| 1732.50                                               | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | 0.04     | 0                    | 32FAF                                           | QPSK    | 1         | 50      | 10 mm | back       | 1:1      | 0.506 | 1.033          | 0.523                  | A23    |
| 1732.50                                               | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.02     | 1                    | 32FAF                                           | QPSK    | 50        | 25      | 10 mm | back       | 1:1      | 0.392 | 1.064          | 0.417                  |        |
| 1732.50                                               | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Wireless Charging           | 23.5                  | 23.36            | -0.16    | 0                    | 32FAF                                           | QPSK    | 1         | 50      | 10 mm | back       | 1:1      | 0.209 | 1.033          | 0.216                  |        |
| 1732.50                                               | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.04     | 0                    | 32FA3                                           | QPSK    | 1         | 50      | 10 mm | back       | 1:1      | 0.094 | 1.014          | 0.095                  |        |
| 1732.50                                               | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.01     | 0                    | 32FA3                                           | QPSK    | 50        | 50      | 10 mm | back       | 1:1      | 0.100 | 1.042          | 0.104                  |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak |       |      |                  |                 |                             |                       |                  |          |                      | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |         |           |         |       |            |          |       |                |                        |        |
| Uncontrolled Exposure/General Population              |       |      |                  |                 |                             |                       |                  |          |                      |                                                 |         |           |         |       |            |          |       |                |                        |        |

**Table 12-13**  
**DTS Body-Worn SAR**

| MEASUREMENT RESULTS                                                                               |     |              |         |                             |                       |                  |                                                 |                   |                      |                  |      |            |          |                |                 |        |  |
|---------------------------------------------------------------------------------------------------|-----|--------------|---------|-----------------------------|-----------------------|------------------|-------------------------------------------------|-------------------|----------------------|------------------|------|------------|----------|----------------|-----------------|--------|--|
| FREQUENCY                                                                                         |     | Mode         | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                                         | Back Cover Type   | Device Serial Number | Data Rate (Mbps) | Side | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |  |
| MHz                                                                                               | Ch. |              |         |                             |                       |                  |                                                 |                   |                      |                  |      |            | (W/kg)   |                | (W/kg)          |        |  |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.04             | 10 mm                                           | Standard          | 32FAF                | 1                | back | 1:1        | 0.241    | 1.081          | 0.261           | A24    |  |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | -0.02            | 10 mm                                           | Wireless Charging | 32FAF                | 1                | back | 1:1        | 0.162    | 1.081          | 0.175           |        |  |
| 5745                                                                                              | 149 | IEEE 802.11a | OFDM    | 14.5                        | 13.60                 | -0.08            | 10 mm                                           | Standard          | 32FAF                | 6                | back | 1:1        | 0.099    | 1.230          | 0.121           | A25    |  |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |              |         |                             |                       |                  | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |                  |      |            |          |                |                 |        |  |

**Table 12-14**  
**NII Body-Worn SAR**

| MEASUREMENT RESULTS                                                                               |     |              |         |                             |                       |                  |         |                                                 |                      |                  |      |            |          |                |                        |        |  |
|---------------------------------------------------------------------------------------------------|-----|--------------|---------|-----------------------------|-----------------------|------------------|---------|-------------------------------------------------|----------------------|------------------|------|------------|----------|----------------|------------------------|--------|--|
| FREQUENCY                                                                                         |     | Mode         | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing | Back Cover Type                                 | Device Serial Number | Data Rate (Mbps) | Side | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) (W/kg) | Plot # |  |
| MHz                                                                                               | Ch. |              |         |                             |                       |                  |         |                                                 |                      |                  |      |            | (W/kg)   |                |                        |        |  |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | -0.10            | 10 mm   | Standard                                        | 32FAF                | 6                | back | 1:1        | 0.361    | 1.114          | 0.402                  | A26    |  |
| 5220                                                                                              | 44  | IEEE 802.11a | OFDM    | 14.5                        | 13.86                 | -0.12            | 10 mm   | Standard                                        | 32FAF                | 6                | back | 1:1        | 0.315    | 1.159          | 0.365                  |        |  |
| 5180                                                                                              | 36  | IEEE 802.11a | OFDM    | 14.5                        | 14.03                 | 0.16             | 10 mm   | Wireless Charging                               | 32FAF                | 6                | back | 1:1        | 0.204    | 1.114          | 0.227                  |        |  |
| 5280                                                                                              | 56  | IEEE 802.11a | OFDM    | 14.5                        | 14.01                 | -0.11            | 10 mm   | Standard                                        | 32FAF                | 6                | back | 1:1        | 0.328    | 1.119          | 0.367                  |        |  |
| 5500                                                                                              | 100 | IEEE 802.11a | OFDM    | 14.5                        | 14.10                 | -0.12            | 10 mm   | Standard                                        | 32FAF                | 6                | back | 1:1        | 0.185    | 1.096          | 0.203                  |        |  |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |              |         |                             |                       |                  |         | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                      |                  |      |            |          |                |                        |        |  |

|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                  | DUT Type:<br>Portable Handset |                                                                                       | Page 48 of 69                   |

## 12.3 Standalone Wireless Router SAR Data

Table 12-15  
GPRS/UMTS Hotspot SAR Data

| MEASUREMENT RESULTS                                                                               |      |           |         |                             |                       |                  |                                                 |                   |                      |                 |            |        |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|------|-----------|---------|-----------------------------|-----------------------|------------------|-------------------------------------------------|-------------------|----------------------|-----------------|------------|--------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |      | Mode      | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                                         | Back Cover Type   | Device Serial Number | # of GPRS Slots | Duty Cycle | Side   | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch.  |           |         |                             |                       |                  |                                                 |                   |                      |                 |            |        | (W/kg)   |                | (W/kg)          |        |
| 836.60                                                                                            | 190  | GSM 850   | GPRS    | 30.0                        | 29.92                 | 0.07             | 10 mm                                           | Standard          | 32F60                | 3               | 1:2.76     | back   | 0.508    | 1.019          | 0.517           | A13    |
| 824.20                                                                                            | 128  | GSM 850   | GPRS    | 29.0                        | 28.63                 | -0.06            | 10 mm                                           | Standard          | 32F60                | 4               | 1:2.076    | back   | 0.445    | 1.089          | 0.485           |        |
| 836.60                                                                                            | 190  | GSM 850   | GPRS    | 30.0                        | 29.92                 | -0.11            | 10 mm                                           | Wireless Charging | 32F60                | 3               | 1:2.76     | back   | 0.303    | 1.019          | 0.309           |        |
| 836.60                                                                                            | 190  | GSM 850   | GPRS    | 30.0                        | 29.92                 | -0.17            | 10 mm                                           | Standard          | 32F60                | 3               | 1:2.76     | front  | 0.248    | 1.019          | 0.253           |        |
| 836.60                                                                                            | 190  | GSM 850   | GPRS    | 30.0                        | 29.92                 | 0.09             | 10 mm                                           | Standard          | 32F60                | 3               | 1:2.76     | bottom | 0.096    | 1.019          | 0.098           |        |
| 836.60                                                                                            | 190  | GSM 850   | GPRS    | 30.0                        | 29.92                 | 0.01             | 10 mm                                           | Standard          | 32F60                | 3               | 1:2.76     | left   | 0.397    | 1.019          | 0.404           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23.0                        | 22.95                 | 0.00             | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | back   | 0.322    | 1.012          | 0.326           | A14    |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23.0                        | 22.95                 | -0.04            | 10 mm                                           | Wireless Charging | 32F60                | N/A             | 1:1        | back   | 0.190    | 1.012          | 0.192           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23.0                        | 22.95                 | -0.04            | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | front  | 0.130    | 1.012          | 0.132           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23.0                        | 22.95                 | 0.09             | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | bottom | 0.070    | 1.012          | 0.071           |        |
| 836.60                                                                                            | 4183 | UMTS 850  | RMC     | 23.0                        | 22.95                 | -0.06            | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | left   | 0.184    | 1.012          | 0.186           |        |
| 1880.00                                                                                           | 661  | GSM 1900  | GPRS    | 25.5                        | 24.91                 | 0.03             | 10 mm                                           | Standard          | 32F60                | 4               | 1:2.076    | back   | 0.497    | 1.146          | 0.569           |        |
| 1880.00                                                                                           | 661  | GSM 1900  | GPRS    | 28.5                        | 28.03                 | 0.08             | 10 mm                                           | Standard          | 32F60                | 2               | 1:4.15     | back   | 0.500    | 1.114          | 0.557           | A16    |
| 1880.00                                                                                           | 661  | GSM 1900  | GPRS    | 28.5                        | 28.03                 | -0.05            | 10 mm                                           | Wireless Charging | 32F60                | 2               | 1:4.15     | back   | 0.370    | 1.114          | 0.412           |        |
| 1880.00                                                                                           | 661  | GSM 1900  | GPRS    | 28.5                        | 28.03                 | -0.03            | 10 mm                                           | Standard          | 32F60                | 2               | 1:4.15     | front  | 0.156    | 1.114          | 0.174           |        |
| 1880.00                                                                                           | 661  | GSM 1900  | GPRS    | 28.5                        | 28.03                 | -0.02            | 10 mm                                           | Standard          | 32F60                | 2               | 1:4.15     | bottom | 0.226    | 1.114          | 0.252           |        |
| 1880.00                                                                                           | 661  | GSM 1900  | GPRS    | 28.5                        | 28.03                 | 0.04             | 10 mm                                           | Standard          | 32F60                | 2               | 1:4.15     | left   | 0.076    | 1.114          | 0.084           |        |
| 1852.40                                                                                           | 9262 | UMTS 1900 | RMC     | 23.0                        | 22.70                 | -0.05            | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | back   | 0.683    | 1.072          | 0.732           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | -0.05            | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | back   | 0.799    | 1.033          | 0.825           |        |
| 1907.60                                                                                           | 9538 | UMTS 1900 | RMC     | 23.0                        | 22.65                 | 0.20             | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | back   | 0.841    | 1.084          | 0.912           |        |
| 1907.60                                                                                           | 9538 | UMTS 1900 | RMC     | 23.0                        | 22.65                 | -0.08            | 10 mm                                           | Wireless Charging | 32F60                | N/A             | 1:1        | back   | 0.628    | 1.084          | 0.681           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | -0.06            | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | front  | 0.206    | 1.033          | 0.213           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | 0.12             | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | bottom | 0.349    | 1.033          | 0.360           |        |
| 1880.00                                                                                           | 9400 | UMTS 1900 | RMC     | 23.0                        | 22.86                 | 0.10             | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | left   | 0.121    | 1.033          | 0.125           |        |
| 1907.60                                                                                           | 9538 | UMTS 1900 | RMC     | 23.0                        | 22.65                 | -0.06            | 10 mm                                           | Standard          | 32F60                | N/A             | 1:1        | back   | 0.948    | 1.084          | 1.028           | A17    |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |      |           |         |                             |                       |                  | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |                 |            |        |          |                |                 |        |

Note:

- Blue entry represents variability measurement.
- Per FCC KDB Publication 447498 D01v05, since the maximum output power variation across the required test channels is > 0.5dB, low channel was tested for GPRS850 4 GPRS slots back side.

|                                      |                                                                                                                                                                                                        |                               |                                 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>SAR EVALUATION REPORT</b>  |                               | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                                                                                     | DUT Type:<br>Portable Handset | Page 49 of 69                   |

**Table 12-16**  
**CDMA/EVDO Hotspot SAR Data**

| MEASUREMENT RESULTS                                                                               |      |            |             |                             |                       |                  |                                                 |                   |                      |            |        |          |                |                 |        |
|---------------------------------------------------------------------------------------------------|------|------------|-------------|-----------------------------|-----------------------|------------------|-------------------------------------------------|-------------------|----------------------|------------|--------|----------|----------------|-----------------|--------|
| FREQUENCY                                                                                         |      | Mode       | Service     | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing                                         | Back Cover Type   | Device Serial Number | Duty Cycle | Side   | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                                                                               | Ch.  |            |             |                             |                       |                  |                                                 |                   |                      |            |        | (W/kg)   |                | (W/kg)          |        |
| 824.70                                                                                            | 1013 | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.24                 | 0.05             | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.532    | 1.191          | 0.634           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | -0.01            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.743    | 1.175          | 0.873           |        |
| 848.31                                                                                            | 777  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.13                 | -0.16            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.699    | 1.222          | 0.854           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | 0.03             | 10 mm                                           | Wireless Charging | 32FB2                | 1:1        | back   | 0.481    | 1.175          | 0.565           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | -0.01            | 10 mm                                           | Standard          | 32FB2                | 1:1        | front  | 0.286    | 1.175          | 0.336           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | -0.07            | 10 mm                                           | Standard          | 32FB2                | 1:1        | bottom | 0.116    | 1.175          | 0.136           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 25.0                        | 24.30                 | -0.09            | 10 mm                                           | Standard          | 32FB2                | 1:1        | left   | 0.572    | 1.175          | 0.672           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 18.5                        | 18.47                 | -0.05            | 10 mm                                           | Standard          | 32F6F                | 1:1        | back   | 0.233    | 1.007          | 0.235           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 18.5                        | 18.47                 | 0.00             | 10 mm                                           | Standard          | 32F6F                | 1:1        | front  | 0.074    | 1.007          | 0.075           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 18.5                        | 18.47                 | -0.02            | 10 mm                                           | Standard          | 32F6F                | 1:1        | bottom | 0.053    | 1.007          | 0.053           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | TDSO / SO32 | 18.5                        | 18.47                 | -0.01            | 10 mm                                           | Standard          | 32F6F                | 1:1        | left   | 0.134    | 1.007          | 0.135           |        |
| 824.70                                                                                            | 1013 | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.41                 | 0.06             | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.599    | 1.146          | 0.686           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.33                 | -0.07            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.878    | 1.167          | 1.024           | A19    |
| 848.31                                                                                            | 777  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.16                 | 0.00             | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.876    | 1.213          | 1.063           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.33                 | -0.08            | 10 mm                                           | Wireless Charging | 32FB2                | 1:1        | back   | 0.451    | 1.167          | 0.526           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.33                 | -0.01            | 10 mm                                           | Standard          | 32FB2                | 1:1        | front  | 0.344    | 1.167          | 0.401           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.33                 | 0.01             | 10 mm                                           | Standard          | 32FB2                | 1:1        | bottom | 0.135    | 1.167          | 0.158           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.33                 | -0.04            | 10 mm                                           | Standard          | 32FB2                | 1:1        | left   | 0.580    | 1.167          | 0.677           |        |
| 836.52                                                                                            | 384  | Cell. CDMA | EVDO Rev. 0 | 25.0                        | 24.33                 | -0.08            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.804    | 1.167          | 0.938           |        |
| 1851.25                                                                                           | 25   | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.29                 | -0.04            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.697    | 1.178          | 0.821           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.45                 | 0.02             | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.706    | 1.135          | 0.801           |        |
| 1908.75                                                                                           | 1175 | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.41                 | -0.07            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.737    | 1.146          | 0.844           | A20    |
| 1908.75                                                                                           | 1175 | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.41                 | -0.06            | 10 mm                                           | Wireless Charging | 32FB2                | 1:1        | back   | 0.486    | 1.146          | 0.557           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.45                 | -0.04            | 10 mm                                           | Standard          | 32FB2                | 1:1        | front  | 0.185    | 1.135          | 0.210           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.45                 | 0.02             | 10 mm                                           | Standard          | 32FB2                | 1:1        | bottom | 0.250    | 1.135          | 0.284           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 25.0                        | 24.45                 | 0.02             | 10 mm                                           | Standard          | 32FB2                | 1:1        | left   | 0.101    | 1.135          | 0.115           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 18.5                        | 18.08                 | -0.05            | 10 mm                                           | Standard          | 32F6F                | 1:1        | back   | 0.305    | 1.102          | 0.336           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 18.5                        | 18.08                 | 0.00             | 10 mm                                           | Standard          | 32F6F                | 1:1        | front  | 0.073    | 1.102          | 0.080           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 18.5                        | 18.08                 | -0.02            | 10 mm                                           | Standard          | 32F6F                | 1:1        | bottom | 0.115    | 1.102          | 0.127           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | TDSO / SO32 | 18.5                        | 18.08                 | 0.14             | 10 mm                                           | Standard          | 32F6F                | 1:1        | left   | 0.044    | 1.102          | 0.048           |        |
| 1851.25                                                                                           | 25   | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.24                 | -0.02            | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.649    | 1.191          | 0.773           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.43                 | 0.07             | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.716    | 1.140          | 0.816           |        |
| 1908.75                                                                                           | 1175 | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.40                 | 0.08             | 10 mm                                           | Standard          | 32FB2                | 1:1        | back   | 0.648    | 1.148          | 0.744           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.43                 | 0.00             | 10 mm                                           | Wireless Charging | 32FB2                | 1:1        | back   | 0.449    | 1.140          | 0.512           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.43                 | 0.01             | 10 mm                                           | Standard          | 32FB2                | 1:1        | front  | 0.179    | 1.140          | 0.204           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.43                 | 0.00             | 10 mm                                           | Standard          | 32FB2                | 1:1        | bottom | 0.293    | 1.140          | 0.334           |        |
| 1880.00                                                                                           | 600  | PCS CDMA   | EVDO Rev. 0 | 25.0                        | 24.43                 | -0.03            | 10 mm                                           | Standard          | 32FB2                | 1:1        | left   | 0.107    | 1.140          | 0.122           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |      |            |             |                             |                       |                  | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                      |            |        |          |                |                 |        |

Note: Blue entry represents variability measurement.

|                                      |                                                                                                                                   |                               |                                                                                       |                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                                                                | DUT Type:<br>Portable Handset |                                                                                       | Page 50 of 69                   |

**Table 12-17**  
**LTE Band 13 Hotspot SAR**

| MEASUREMENT RESULTS                      |       |      |             |                 |                   |                             |                       |                  |          |                      |                      |         |           |         |        |            |          |                |                 |        |
|------------------------------------------|-------|------|-------------|-----------------|-------------------|-----------------------------|-----------------------|------------------|----------|----------------------|----------------------|---------|-----------|---------|--------|------------|----------|----------------|-----------------|--------|
| FREQUENCY                                |       |      | Mode        | Bandwidth [MHz] | Back Cover Type   | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | MPR [dB] | Device Serial Number | Modulation           | RB Size | RB Offset | Spacing | Side   | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |
| MHz                                      | Ch.   | High |             |                 |                   |                             |                       |                  |          |                      |                      |         |           |         |        |            | (W/kg)   |                | (W/kg)          |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 23.5                        | 23.13                 | 0.03             | 0        | 32FAF                | QPSK                 | 1       | 0         | 10 mm   | back   | 1:1        | 0.271    | 1.089          | 0.295           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 22.5                        | 21.95                 | -0.06            | 1        | 32FAF                | QPSK                 | 25      | 12        | 10 mm   | back   | 1:1        | 0.191    | 1.135          | 0.217           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 23.5                        | 23.13                 | -0.09            | 0        | 32FAF                | QPSK                 | 1       | 0         | 10 mm   | front  | 1:1        | 0.218    | 1.089          | 0.237           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 22.5                        | 21.95                 | -0.06            | 1        | 32FAF                | QPSK                 | 25      | 12        | 10 mm   | front  | 1:1        | 0.149    | 1.135          | 0.169           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 23.5                        | 23.13                 | -0.10            | 0        | 32FAF                | QPSK                 | 1       | 0         | 10 mm   | bottom | 1:1        | 0.199    | 1.089          | 0.217           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 22.5                        | 21.95                 | -0.11            | 1        | 32FAF                | QPSK                 | 25      | 12        | 10 mm   | bottom | 1:1        | 0.172    | 1.135          | 0.195           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 23.5                        | 23.13                 | -0.01            | 0        | 32FAF                | QPSK                 | 1       | 0         | 10 mm   | right  | 1:1        | 0.320    | 1.089          | 0.348           | A22    |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 22.5                        | 21.95                 | 0.06             | 1        | 32FAF                | QPSK                 | 25      | 12        | 10 mm   | right  | 1:1        | 0.237    | 1.135          | 0.269           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Wireless Charging | 23.5                        | 23.13                 | 0.05             | 0        | 32FAF                | QPSK                 | 1       | 0         | 10 mm   | right  | 1:1        | 0.283    | 1.089          | 0.308           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.38                 | -0.02            | 0        | 32FA3                | QPSK                 | 1       | 25        | 10 mm   | back   | 1:1        | 0.084    | 1.028          | 0.086           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.21                 | 0.02             | 0        | 32FA3                | QPSK                 | 25      | 25        | 10 mm   | back   | 1:1        | 0.072    | 1.069          | 0.077           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.38                 | 0.03             | 0        | 32FA3                | QPSK                 | 1       | 25        | 10 mm   | front  | 1:1        | 0.075    | 1.028          | 0.077           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.21                 | 0.13             | 0        | 32FA3                | QPSK                 | 25      | 25        | 10 mm   | front  | 1:1        | 0.061    | 1.069          | 0.065           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.38                 | 0.01             | 0        | 32FA3                | QPSK                 | 1       | 25        | 10 mm   | bottom | 1:1        | 0.070    | 1.028          | 0.072           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.21                 | 0.06             | 0        | 32FA3                | QPSK                 | 25      | 25        | 10 mm   | bottom | 1:1        | 0.059    | 1.069          | 0.063           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.38                 | 0.00             | 0        | 32FA3                | QPSK                 | 1       | 25        | 10 mm   | right  | 1:1        | 0.128    | 1.028          | 0.132           |        |
| 782.00                                   | 23230 | Mid  | LTE Band 13 | 10              | Standard          | 19.5                        | 19.21                 | 0.04             | 0        | 32FA3                | QPSK                 | 25      | 25        | 10 mm   | right  | 1:1        | 0.107    | 1.069          | 0.114           |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT    |       |      |             |                 |                   |                             |                       |                  |          |                      | Body                 |         |           |         |        |            |          |                |                 |        |
| Spatial Peak                             |       |      |             |                 |                   |                             |                       |                  |          |                      | 1.6 W/kg (mW/g)      |         |           |         |        |            |          |                |                 |        |
| Uncontrolled Exposure/General Population |       |      |             |                 |                   |                             |                       |                  |          |                      | averaged over 1 gram |         |           |         |        |            |          |                |                 |        |

**Table 12-18**  
**LTE Band 4 (AWS) Hotspot SAR**

| MEASUREMENT RESULTS                      |       |      |                  |                 |                             |                       |                  |          |                      |            |                      |           |         |       |            |          |                |                 |        |     |
|------------------------------------------|-------|------|------------------|-----------------|-----------------------------|-----------------------|------------------|----------|----------------------|------------|----------------------|-----------|---------|-------|------------|----------|----------------|-----------------|--------|-----|
| FREQUENCY                                |       | Mode | Bandwidth [MHz]  | Back Cover Type | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | MPR [dB] | Device Serial Number | Modulation | RB Size              | RB Offset | Spacing | Side  | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) | Plot # |     |
| MHz                                      | Ch.   |      |                  |                 |                             |                       |                  |          |                      |            |                      |           |         |       |            | (W/kg)   |                | (W/kg)          |        |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | 0.04     | 0                    | 32FAF      | QPSK                 | 1         | 50      | 10 mm | back       | 1:1      | 0.506          | 1.033           | 0.523  | A23 |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.02     | 1                    | 32FAF      | QPSK                 | 50        | 25      | 10 mm | back       | 1:1      | 0.392          | 1.064           | 0.417  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Wireless Charging           | 23.5                  | 23.36            | -0.16    | 0                    | 32FAF      | QPSK                 | 1         | 50      | 10 mm | back       | 1:1      | 0.209          | 1.033           | 0.216  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | -0.04    | 0                    | 32FAF      | QPSK                 | 1         | 50      | 10 mm | front      | 1:1      | 0.205          | 1.033           | 0.212  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.07     | 1                    | 32FAF      | QPSK                 | 50        | 25      | 10 mm | front      | 1:1      | 0.158          | 1.064           | 0.168  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | -0.12    | 0                    | 32FAF      | QPSK                 | 1         | 50      | 10 mm | bottom     | 1:1      | 0.182          | 1.033           | 0.188  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | -0.01    | 1                    | 32FAF      | QPSK                 | 50        | 25      | 10 mm | bottom     | 1:1      | 0.146          | 1.064           | 0.155  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 23.5                  | 23.36            | 0.04     | 0                    | 32FAF      | QPSK                 | 1         | 50      | 10 mm | right      | 1:1      | 0.057          | 1.033           | 0.059  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 22.5                  | 22.23            | 0.06     | 1                    | 32FAF      | QPSK                 | 50        | 25      | 10 mm | right      | 1:1      | 0.044          | 1.064           | 0.046  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.04     | 0                    | 32FA3      | QPSK                 | 1         | 50      | 10 mm | back       | 1:1      | 0.094          | 1.014           | 0.095  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.01     | 0                    | 32FA3      | QPSK                 | 50        | 50      | 10 mm | back       | 1:1      | 0.100          | 1.042           | 0.104  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.03     | 0                    | 32FA3      | QPSK                 | 1         | 50      | 10 mm | front      | 1:1      | 0.052          | 1.014           | 0.053  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | 0.06     | 0                    | 32FA3      | QPSK                 | 50        | 50      | 10 mm | front      | 1:1      | 0.057          | 1.042           | 0.059  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | -0.09    | 0                    | 32FA3      | QPSK                 | 1         | 50      | 10 mm | bottom     | 1:1      | 0.077          | 1.014           | 0.078  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | -0.06    | 0                    | 32FA3      | QPSK                 | 50        | 50      | 10 mm | bottom     | 1:1      | 0.080          | 1.042           | 0.084  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.44            | 0.07     | 0                    | 32FA3      | QPSK                 | 1         | 50      | 10 mm | right      | 1:1      | 0.028          | 1.014           | 0.029  |     |
| 1732.50                                  | 20175 | Mid  | LTE Band 4 (AWS) | 20              | Standard                    | 19.5                  | 19.32            | -0.05    | 0                    | 32FA3      | QPSK                 | 50        | 50      | 10 mm | right      | 1:1      | 0.030          | 1.042           | 0.032  |     |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT    |       |      |                  |                 |                             |                       |                  |          |                      |            | Body                 |           |         |       |            |          |                |                 |        |     |
| Spatial Peak                             |       |      |                  |                 |                             |                       |                  |          |                      |            | 1.6 W/kg (mW/g)      |           |         |       |            |          |                |                 |        |     |
| Uncontrolled Exposure/General Population |       |      |                  |                 |                             |                       |                  |          |                      |            | averaged over 1 gram |           |         |       |            |          |                |                 |        |     |

**Table 12-19**  
**WLAN Hotspot SAR**

| MEASUREMENT RESULTS                                                                               |     |              |         |                             |                       |                  |         |                   |                      |                                                 |       |            |          |                |                        |        |
|---------------------------------------------------------------------------------------------------|-----|--------------|---------|-----------------------------|-----------------------|------------------|---------|-------------------|----------------------|-------------------------------------------------|-------|------------|----------|----------------|------------------------|--------|
| FREQUENCY                                                                                         |     | Mode         | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing | Back Cover Type   | Device Serial Number | Data Rate (Mbps)                                | Side  | Duty Cycle | SAR (1g) | Scaling Factor | Scaled SAR (1g) (W/kg) | Plot # |
| MHz                                                                                               | Ch. |              |         |                             |                       |                  |         |                   |                      |                                                 |       |            | (W/kg)   |                |                        |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.04             | 10 mm   | Standard          | 32FAF                | 1                                               | back  | 1:1        | 0.241    | 1.081          | 0.261                  | A24    |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | -0.02            | 10 mm   | Wireless Charging | 32FAF                | 1                                               | back  | 1:1        | 0.162    | 1.081          | 0.175                  |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.03             | 10 mm   | Standard          | 32FAF                | 1                                               | front | 1:1        | 0.066    | 1.081          | 0.071                  |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | -0.05            | 10 mm   | Standard          | 32FAF                | 1                                               | top   | 1:1        | 0.044    | 1.081          | 0.047                  |        |
| 2437                                                                                              | 6   | IEEE 802.11b | DSSS    | 17.5                        | 17.16                 | 0.19             | 10 mm   | Standard          | 32FAF                | 1                                               | right | 1:1        | 0.161    | 1.081          | 0.174                  |        |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |     |              |         |                             |                       |                  |         |                   |                      | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |       |            |          |                |                        |        |

|                                      |                                                                                     |                               |                                                                                       |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHI545                   |  | <b>SAR EVALUATION REPORT</b>  |  | Reviewed by:<br>Quality Manager |
| Document S/N:<br>0Y1302120259-R2.A3L | Test Dates:<br>02/10/13 - 02/25/13                                                  | DUT Type:<br>Portable Handset |                                                                                       | Page 51 of 69                   |

## 12.4 SAR Test Notes

### General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2003, FCC/OET Bulletin 65, Supplement C [June 2001] and FCC KDB Publication 447498 D01v05.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery with NFC antenna was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v05.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01 v01, variability SAR tests were performed when the measured SAR results for a frequency band were greater than 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 14 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.6 for more details).
10. This DUT may be used with a standard battery cover or with an optional wireless charging battery cover. Per FCC KDB Publication 648474 D04, SAR was measured using the standard battery cover and then repeated with the wireless charging battery cover for the highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. No other additional testing with the wireless charging battery cover was not required since all reported SAR were under 1.2 W/kg.

### GSM Test Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. Justification for reduced test configurations per KDB Publication 941225 D03v01: The source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configurations with the highest frame averaged output power and maximum allowed powers were evaluated for SAR.
3. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is  $\leq 0.8$  W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is  $> \frac{1}{2}$  dB, instead of the middle channel, the highest output power channel must be used.

### CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v02.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO and TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers, per FCC KDB Publication 941225 D01v02.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01 procedures for data devices. If the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, then EVDO Rev. A SAR is not

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset | Page 52 of 69                                                                         |                                        |

- required. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for that RF channel in Rev. 0.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
  5. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is  $\leq 0.8$  W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is  $> \frac{1}{2}$  dB, instead of the middle channel, the highest output power channel must be used.
  6. CDMA 1x-RTT SAR was required to be evaluated for Hotspot exposure conditions to support simultaneous transmission capabilities.

#### UMTS Notes:

1. UMTS mode in Body SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v02. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.
2. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is  $\leq 0.8$  W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is  $> \frac{1}{2}$  dB, instead of the middle channel, the highest output power channel must be used.

#### LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r01. Implementation of the general test procedures can be found in Section 8.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.

#### WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for 2.4 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for 5 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE 802.11 modes (including 802.11n 20 MHz and 40 MHz bandwidths, and 802.11ac 80MHz) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
3. When Hotspot is enabled, all 5 GHz bands are disabled. Therefore no 5 GHz WIFI Wireless Router SAR Data was required.
4. WIFI transmission was verified using an uncalibrated spectrum analyzer.
5. SAR testing on other default channels was required since the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is  $> 1.6$  W/kg.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 53 of 69                          |

## 13 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

### 13.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v05 are applicable to handsets with built-in unlicensed transmitters such as 802.11a/b/g/n and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

### 13.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05 IV.C.1.iii, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is  $\leq 1.6$  W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05 4.3.2 2), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(\text{GHz})}}{7.5} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

**Table 13-1**  
**Estimated SAR**

| Mode      | Frequency | Maximum Allowed Power | Separation Distance (Body) | Estimated SAR (Body) |
|-----------|-----------|-----------------------|----------------------------|----------------------|
|           | [MHz]     | [dBm]                 | [mm]                       | [W/kg]               |
| Bluetooth | 2441      | 9.50                  | 10                         | <b>0.187</b>         |

Note: Held-to ear configurations are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission.

### 13.3 Head SAR Simultaneous Transmission Analysis

**Table 13-2**  
**Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to Ear)**

| Simult Tx | Configuration | GSM 850 SAR (W/kg)  | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) | Simult Tx | Configuration | UMTS 850 SAR (W/kg)  | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
|-----------|---------------|---------------------|-------------------------|--------------|-----------|---------------|----------------------|-------------------------|--------------|
| Head SAR  | Right Cheek   | 0.110               | 0.157                   | 0.267        | Head SAR  | Right Cheek   | 0.089                | 0.157                   | 0.246        |
|           | Right Tilt    | 0.068               | 0.138                   | 0.206        |           | Right Tilt    | 0.056                | 0.138                   | 0.194        |
|           | Left Cheek    | 0.127               | 0.452                   | 0.579        |           | Left Cheek    | 0.099                | 0.452                   | 0.551        |
|           | Left Tilt     | 0.080               | 0.184                   | 0.264        |           | Left Tilt     | 0.063                | 0.184                   | 0.247        |
| Simult Tx | Configuration | GSM 1900 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) | Simult Tx | Configuration | UMTS 1900 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
| Head SAR  | Right Cheek   | 0.063               | 0.157                   | 0.220        | Head SAR  | Right Cheek   | 0.117                | 0.157                   | 0.274        |
|           | Right Tilt    | 0.040               | 0.138                   | 0.178        |           | Right Tilt    | 0.069                | 0.138                   | 0.207        |
|           | Left Cheek    | 0.099               | 0.452                   | 0.551        |           | Left Cheek    | 0.188                | 0.452                   | 0.640        |
|           | Left Tilt     | 0.041               | 0.184                   | 0.225        |           | Left Tilt     | 0.057                | 0.184                   | 0.241        |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 54 of 69                          |

| Simult Tx | Configuration | Cell.<br>CDMA<br>SAR<br>(W/kg) | 2.4 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) | Simult Tx | Configuration | Cell.<br>EVDO<br>Rev. A<br>SAR       | 2.4 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) |
|-----------|---------------|--------------------------------|----------------------------------|-----------------|-----------|---------------|--------------------------------------|----------------------------------|-----------------|
| Head SAR  | Right Cheek   | 0.214                          | 0.157                            | 0.371           | Head SAR  | Right Cheek   | 0.221                                | 0.157                            | 0.378           |
|           | Right Tilt    | 0.140                          | 0.138                            | 0.278           |           | Right Tilt    | 0.140                                | 0.138                            | 0.278           |
|           | Left Cheek    | 0.250                          | 0.452                            | 0.702           |           | Left Cheek    | 0.249                                | 0.452                            | 0.701           |
|           | Left Tilt     | 0.183                          | 0.184                            | 0.367           |           | Left Tilt     | 0.152                                | 0.184                            | 0.336           |
| Simult Tx | Configuration | PCS<br>CDMA<br>SAR<br>(W/kg)   | 2.4 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) | Simult Tx | Configuration | PCS<br>EVDO<br>Rev. A<br>SAR         | 2.4 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) |
| Head SAR  | Right Cheek   | 0.077                          | 0.157                            | 0.234           | Head SAR  | Right Cheek   | 0.089                                | 0.157                            | 0.246           |
|           | Right Tilt    | 0.026                          | 0.138                            | 0.164           |           | Right Tilt    | 0.040                                | 0.138                            | 0.178           |
|           | Left Cheek    | 0.137                          | 0.452                            | 0.589           |           | Left Cheek    | 0.164                                | 0.452                            | 0.616           |
|           | Left Tilt     | 0.022                          | 0.184                            | 0.206           |           | Left Tilt     | 0.049                                | 0.184                            | 0.233           |
| Simult Tx | Configuration | LTE Band<br>13 SAR<br>(W/kg)   | 2.4 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) | Simult Tx | Configuration | LTE Band<br>4 (AWS)<br>SAR<br>(W/kg) | 2.4 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) |
| Head SAR  | Right Cheek   | 0.192                          | 0.157                            | 0.349           | Head SAR  | Right Cheek   | 0.079                                | 0.157                            | 0.236           |
|           | Right Tilt    | 0.131                          | 0.138                            | 0.269           |           | Right Tilt    | 0.078                                | 0.138                            | 0.216           |
|           | Left Cheek    | 0.164                          | 0.452                            | 0.616           |           | Left Cheek    | 0.120                                | 0.452                            | 0.572           |
|           | Left Tilt     | 0.113                          | 0.184                            | 0.297           |           | Left Tilt     | 0.054                                | 0.184                            | 0.238           |

**Table 13-3**  
**Simultaneous Transmission Scenario with 5 GHz WLAN (Held to Ear)**

| Simult Tx | Configuration | GSM 850<br>SAR<br>(W/kg)       | 5 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) | Simult Tx | Configuration | UMTS<br>850 SAR<br>(W/kg)    | 5 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) |
|-----------|---------------|--------------------------------|--------------------------------|-----------------|-----------|---------------|------------------------------|--------------------------------|-----------------|
| Head SAR  | Right Cheek   | 0.110                          | 0.038                          | 0.148           | Head SAR  | Right Cheek   | 0.089                        | 0.038                          | 0.127           |
|           | Right Tilt    | 0.068                          | 0.035                          | 0.103           |           | Right Tilt    | 0.056                        | 0.035                          | 0.091           |
|           | Left Cheek    | 0.127                          | 0.471                          | 0.598           |           | Left Cheek    | 0.099                        | 0.471                          | 0.570           |
|           | Left Tilt     | 0.080                          | 0.085                          | 0.165           |           | Left Tilt     | 0.063                        | 0.085                          | 0.148           |
| Simult Tx | Configuration | GSM<br>1900 SAR<br>(W/kg)      | 5 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) | Simult Tx | Configuration | UMTS<br>1900 SAR<br>(W/kg)   | 5 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) |
| Head SAR  | Right Cheek   | 0.063                          | 0.038                          | 0.101           | Head SAR  | Right Cheek   | 0.117                        | 0.038                          | 0.155           |
|           | Right Tilt    | 0.040                          | 0.035                          | 0.075           |           | Right Tilt    | 0.069                        | 0.035                          | 0.104           |
|           | Left Cheek    | 0.099                          | 0.471                          | 0.570           |           | Left Cheek    | 0.188                        | 0.471                          | 0.659           |
|           | Left Tilt     | 0.041                          | 0.085                          | 0.126           |           | Left Tilt     | 0.057                        | 0.085                          | 0.142           |
| Simult Tx | Configuration | Cell.<br>CDMA<br>SAR<br>(W/kg) | 5 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) | Simult Tx | Configuration | PCS<br>CDMA<br>SAR<br>(W/kg) | 5 GHz<br>WLAN<br>SAR<br>(W/kg) | Σ SAR<br>(W/kg) |
| Head SAR  | Right Cheek   | 0.214                          | 0.038                          | 0.252           | Head SAR  | Right Cheek   | 0.077                        | 0.038                          | 0.115           |
|           | Right Tilt    | 0.140                          | 0.035                          | 0.175           |           | Right Tilt    | 0.026                        | 0.035                          | 0.061           |
|           | Left Cheek    | 0.250                          | 0.471                          | 0.721           |           | Left Cheek    | 0.137                        | 0.471                          | 0.608           |
|           | Left Tilt     | 0.183                          | 0.085                          | 0.268           |           | Left Tilt     | 0.022                        | 0.085                          | 0.107           |

## 13.4 Body-Worn Simultaneous Transmission Analysis

**Table 13-4**  
**Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 10 mm)**

| Configuration | Mode             | 2G/3G/4G SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |
|---------------|------------------|---------------------|-------------------------|---------------------|
| Back Side     | GSM 850          | 0.405               | 0.261                   | 0.666               |
| Back Side     | UMTS 850         | 0.326               | 0.261                   | 0.587               |
| Back Side     | GSM 1900         | 0.510               | 0.261                   | 0.771               |
| Back Side     | UMTS 1900        | 1.028               | 0.261                   | 1.289               |
| Back Side     | Cell. CDMA       | 0.873               | 0.261                   | 1.134               |
| Back Side     | PCS CDMA         | 0.844               | 0.261                   | 1.105               |
| Back Side     | LTE Band 13      | 0.295               | 0.261                   | 0.556               |
| Back Side     | LTE Band 4 (AWS) | 0.523               | 0.261                   | 0.784               |

**Table 13-5**  
**Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 10 mm)**

| Configuration | Mode       | 2G/3G SAR (W/kg) | 5 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |
|---------------|------------|------------------|-----------------------|---------------------|
| Back Side     | GSM 850    | 0.405            | 0.402                 | 0.807               |
| Back Side     | UMTS 850   | 0.326            | 0.402                 | 0.728               |
| Back Side     | GSM 1900   | 0.510            | 0.402                 | 0.912               |
| Back Side     | UMTS 1900  | 1.028            | 0.402                 | <b>1.430</b>        |
| Back Side     | Cell. CDMA | 0.873            | 0.402                 | 1.275               |
| Back Side     | PCS CDMA   | 0.844            | 0.402                 | 1.246               |

**Table 13-6**  
**Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 10 mm)**

| Configuration | Mode             | 2G/3G/4G SAR (W/kg) | Bluetooth SAR (W/kg) | $\Sigma$ SAR (W/kg) |
|---------------|------------------|---------------------|----------------------|---------------------|
| Back Side     | GSM 850          | 0.405               | 0.187                | 0.592               |
| Back Side     | UMTS 850         | 0.326               | 0.187                | 0.513               |
| Back Side     | GSM 1900         | 0.510               | 0.187                | 0.697               |
| Back Side     | UMTS 1900        | 1.028               | 0.187                | 1.215               |
| Back Side     | Cell. CDMA       | 0.873               | 0.187                | 1.060               |
| Back Side     | PCS CDMA         | 0.844               | 0.187                | 1.031               |
| Back Side     | LTE Band 13      | 0.295               | 0.187                | 0.482               |
| Back Side     | LTE Band 4 (AWS) | 0.523               | 0.187                | 0.710               |

Note: Bluetooth SAR was not required to be measured per FCC KDB 447498. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 56 of 69                          |

### 13.5 Hotspot SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-”).

**Table 13-7**  
**Simultaneous Transmission Scenario (Hotspot at 1.0 cm)**

| Simult Tx | Configuration | GPRS 850 SAR (W/kg)    | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) | Simult Tx | Configuration | UMTS 850 SAR (W/kg)         | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
|-----------|---------------|------------------------|-------------------------|--------------|-----------|---------------|-----------------------------|-------------------------|--------------|
| Body SAR  | Back          | 0.517                  | 0.261                   | 0.778        | Body SAR  | Back          | 0.326                       | 0.261                   | 0.587        |
|           | Front         | 0.253                  | 0.071                   | 0.324        |           | Front         | 0.132                       | 0.071                   | 0.203        |
|           | Top           | -                      | 0.047                   | 0.047        |           | Top           | -                           | 0.047                   | 0.047        |
|           | Bottom        | 0.098                  | -                       | 0.098        |           | Bottom        | 0.071                       | -                       | 0.071        |
|           | Right         | -                      | 0.174                   | 0.174        |           | Right         | -                           | 0.174                   | 0.174        |
|           | Left          | 0.404                  | -                       | 0.404        |           | Left          | 0.186                       | -                       | 0.186        |
| Simult Tx | Configuration | GPRS 1900 SAR (W/kg)   | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) | Simult Tx | Configuration | UMTS 1900 SAR (W/kg)        | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
| Body SAR  | Back          | 0.569                  | 0.261                   | 0.830        | Body SAR  | Back          | 1.028                       | 0.261                   | 1.289        |
|           | Front         | 0.174                  | 0.071                   | 0.245        |           | Front         | 0.213                       | 0.071                   | 0.284        |
|           | Top           | -                      | 0.047                   | 0.047        |           | Top           | -                           | 0.047                   | 0.047        |
|           | Bottom        | 0.252                  | -                       | 0.252        |           | Bottom        | 0.360                       | -                       | 0.360        |
|           | Right         | -                      | 0.174                   | 0.174        |           | Right         | -                           | 0.174                   | 0.174        |
|           | Left          | 0.084                  | -                       | 0.084        |           | Left          | 0.125                       | -                       | 0.125        |
| Simult Tx | Configuration | Cell. EVDO SAR (W/kg)  | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) | Simult Tx | Configuration | PCS EVDO SAR (W/kg)         | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
| Body SAR  | Back          | 1.063                  | 0.261                   | 1.324        | Body SAR  | Back          | 0.816                       | 0.261                   | 1.077        |
|           | Front         | 0.401                  | 0.071                   | 0.472        |           | Front         | 0.204                       | 0.071                   | 0.275        |
|           | Top           | -                      | 0.047                   | 0.047        |           | Top           | -                           | 0.047                   | 0.047        |
|           | Bottom        | 0.158                  | -                       | 0.158        |           | Bottom        | 0.334                       | -                       | 0.334        |
|           | Right         | -                      | 0.174                   | 0.174        |           | Right         | -                           | 0.174                   | 0.174        |
|           | Left          | 0.677                  | -                       | 0.677        |           | Left          | 0.122                       | -                       | 0.122        |
| Simult Tx | Configuration | LTE Band 13 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) | Simult Tx | Configuration | LTE Band 4 (AWS) SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
| Body SAR  | Back          | 0.295                  | 0.261                   | 0.556        | Body SAR  | Back          | 0.523                       | 0.261                   | 0.784        |
|           | Front         | 0.237                  | 0.071                   | 0.308        |           | Front         | 0.212                       | 0.071                   | 0.283        |
|           | Top           | -                      | 0.047                   | 0.047        |           | Top           | -                           | 0.047                   | 0.047        |
|           | Bottom        | 0.217                  | -                       | 0.217        |           | Bottom        | 0.188                       | -                       | 0.188        |
|           | Right         | 0.348                  | 0.174                   | 0.522        |           | Right         | 0.059                       | 0.174                   | 0.233        |
|           | Left          | -                      | -                       | 0.000        |           | Left          | -                           | -                       | 0.000        |

|                                             |                                                                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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## 13.6 SVLTE Simultaneous Transmission Analysis

**Table 13-8**  
**Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to Ear)**

| Simult Tx | CDMA Power Level (dBm) | Configuration      | Cell. CDMA SAR (W/kg) | LTE Band 13 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|-----------|------------------------|--------------------|-----------------------|------------------------|-------------------------|---------------------|-------|
|           |                        | Tx Antenna         | 1                     | 2                      | 3                       | 1+2                 | 1+2+3 |
|           |                        | Target Power (dBm) | 24.5                  | 19                     | 17                      |                     |       |
| Head SAR  | $P \geq 18$            | Right Cheek        | 0.214                 | 0.070                  | 0.157                   | 0.284               | 0.441 |
|           |                        | Right Tilt         | 0.140                 | 0.046                  | 0.138                   | 0.186               | 0.324 |
|           |                        | Left Cheek         | 0.250                 | 0.050                  | 0.452                   | 0.300               | 0.752 |
|           |                        | Left Tilt          | 0.183                 | 0.035                  | 0.184                   | 0.218               | 0.402 |
|           |                        | Target Power (dBm) | 18                    | 23                     | 17                      |                     |       |
|           | $P < 18$               | Right Cheek        | 0.056                 | 0.192                  | 0.157                   | 0.248               | 0.405 |
|           |                        | Right Tilt         | 0.036                 | 0.131                  | 0.138                   | 0.167               | 0.305 |
|           |                        | Left Cheek         | 0.065                 | 0.164                  | 0.452                   | 0.229               | 0.681 |
|           |                        | Left Tilt          | 0.038                 | 0.113                  | 0.184                   | 0.151               | 0.335 |
| Simult Tx | CDMA Power Level (dBm) | Configuration      | PCS CDMA SAR (W/kg)   | LTE Band 13 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|           |                        | Tx Antenna         | 1                     | 2                      | 3                       | 1+2                 | 1+2+3 |
|           |                        | Target Power (dBm) | 24.5                  | 19                     | 17                      |                     |       |
| Head SAR  | $P \geq 18$            | Right Cheek        | 0.077                 | 0.070                  | 0.157                   | 0.147               | 0.304 |
|           |                        | Right Tilt         | 0.026                 | 0.046                  | 0.138                   | 0.072               | 0.210 |
|           |                        | Left Cheek         | 0.137                 | 0.050                  | 0.452                   | 0.187               | 0.639 |
|           |                        | Left Tilt          | 0.022                 | 0.035                  | 0.184                   | 0.057               | 0.241 |
|           |                        | Target Power (dBm) | 18                    | 23                     | 17                      |                     |       |
|           | $P < 18$               | Right Cheek        | 0.031                 | 0.192                  | 0.157                   | 0.223               | 0.380 |
|           |                        | Right Tilt         | 0.018                 | 0.131                  | 0.138                   | 0.149               | 0.287 |
|           |                        | Left Cheek         | 0.063                 | 0.164                  | 0.452                   | 0.227               | 0.679 |
|           |                        | Left Tilt          | 0.012                 | 0.113                  | 0.184                   | 0.125               | 0.309 |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 58 of 69                          |

| Simult Tx | CDMA Power Level (dBm) | Configuration      | Cell. CDMA SAR (W/kg) | LTE Band 4 (AWS) SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|-----------|------------------------|--------------------|-----------------------|-----------------------------|-------------------------|---------------------|-------|
|           |                        | Tx Antenna         | 1                     | 2                           | 3                       | 1+2                 | 1+2+3 |
|           |                        | Target Power (dBm) | 24.5                  | 19                          | 17                      |                     |       |
| Head SAR  | $P \geq 18$            | Right Cheek        | 0.214                 | 0.028                       | 0.157                   | 0.242               | 0.399 |
|           |                        | Right Tilt         | 0.140                 | 0.015                       | 0.138                   | 0.155               | 0.293 |
|           |                        | Left Cheek         | 0.250                 | 0.031                       | 0.452                   | 0.281               | 0.733 |
|           |                        | Left Tilt          | 0.183                 | 0.011                       | 0.184                   | 0.194               | 0.378 |
|           |                        | Target Power (dBm) | 18                    | 23                          | 17                      |                     |       |
|           | $P < 18$               | Right Cheek        | 0.056                 | 0.079                       | 0.157                   | 0.135               | 0.292 |
|           |                        | Right Tilt         | 0.036                 | 0.078                       | 0.138                   | 0.114               | 0.252 |
|           |                        | Left Cheek         | 0.065                 | 0.120                       | 0.452                   | 0.185               | 0.637 |
|           |                        | Left Tilt          | 0.038                 | 0.054                       | 0.184                   | 0.092               | 0.276 |
| Simult Tx | CDMA Power Level (dBm) | Configuration      | PCS CDMA SAR (W/kg)   | LTE Band 4 (AWS) SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|           |                        | Tx Antenna         | 1                     | 2                           | 3                       | 1+2                 | 1+2+3 |
|           |                        | Target Power (dBm) | 24.5                  | 19                          | 17                      |                     |       |
| Head SAR  | $P \geq 18$            | Right Cheek        | 0.077                 | 0.028                       | 0.157                   | 0.105               | 0.262 |
|           |                        | Right Tilt         | 0.026                 | 0.015                       | 0.138                   | 0.041               | 0.179 |
|           |                        | Left Cheek         | 0.137                 | 0.031                       | 0.452                   | 0.168               | 0.620 |
|           |                        | Left Tilt          | 0.022                 | 0.011                       | 0.184                   | 0.033               | 0.217 |
|           |                        | Target Power (dBm) | 18                    | 23                          | 17                      |                     |       |
|           | $P < 18$               | Right Cheek        | 0.031                 | 0.079                       | 0.157                   | 0.110               | 0.267 |
|           |                        | Right Tilt         | 0.018                 | 0.078                       | 0.138                   | 0.096               | 0.234 |
|           |                        | Left Cheek         | 0.063                 | 0.120                       | 0.452                   | 0.183               | 0.635 |
|           |                        | Left Tilt          | 0.012                 | 0.054                       | 0.184                   | 0.066               | 0.250 |

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 59 of 69                          |

**Table 13-9**  
**Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 10 mm)**

| CDMA Power Level (dBm) | Mode               | CDMA SAR (W/kg) | LTE Band 13 SAR (W/kg)      | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|------------------------|--------------------|-----------------|-----------------------------|-------------------------|---------------------|-------|
|                        | Tx Antenna         | 1               | 2                           | 3                       |                     |       |
|                        | Target Power (dBm) | 24.5            | 19                          | 17                      | 1+2                 | 1+2+3 |
| $P \geq 18$            | Cell. CDMA         | 0.873           | 0.086                       | 0.261                   | 0.959               | 1.220 |
|                        | PCS CDMA           | 0.844           | 0.086                       | 0.261                   | 0.930               | 1.191 |
|                        | Target Power (dBm) | 18              | 23                          | 17                      |                     |       |
| $P < 18$               | Cell. CDMA         | 0.235           | 0.295                       | 0.261                   | 0.530               | 0.791 |
|                        | PCS CDMA           | 0.336           | 0.295                       | 0.261                   | 0.631               | 0.892 |
| CDMA Power Level (dBm) | Mode               | CDMA SAR (W/kg) | LTE Band 4 (AWS) SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|                        | Tx Antenna         | 1               | 2                           | 3                       |                     |       |
|                        | Target Power (dBm) | 24.5            | 19                          | 17                      | 1+2                 | 1+2+3 |
| $P \geq 18$            | Cell. CDMA         | 0.873           | 0.104                       | 0.261                   | 0.977               | 1.238 |
|                        | PCS CDMA           | 0.844           | 0.104                       | 0.261                   | 0.948               | 1.209 |
|                        | Target Power (dBm) | 18              | 23                          | 17                      |                     |       |
| $P < 18$               | Cell. CDMA         | 0.235           | 0.523                       | 0.261                   | 0.758               | 1.019 |
|                        | PCS CDMA           | 0.336           | 0.523                       | 0.261                   | 0.859               | 1.120 |

**Table 13-10**  
**Simultaneous Transmission Scenario with 2.4 GHz Bluetooth (Body-Worn at 10 mm)**

| CDMA Power Level (dBm) | Mode               | CDMA SAR (W/kg) | LTE Band 13 SAR (W/kg)      | Bluetooth SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|------------------------|--------------------|-----------------|-----------------------------|----------------------|---------------------|-------|
|                        | Tx Antenna         | 1               | 2                           | 3                    |                     |       |
|                        | Target Power (dBm) | 24.5            | 19                          | 9                    | 1+2                 | 1+2+3 |
| $P \geq 18$            | Cell. CDMA         | 0.873           | 0.086                       | 0.187                | 0.959               | 1.146 |
|                        | PCS CDMA           | 0.844           | 0.086                       | 0.187                | 0.930               | 1.117 |
|                        | Target Power (dBm) | 18              | 23                          | 9                    |                     |       |
| $P < 18$               | Cell. CDMA         | 0.235           | 0.295                       | 0.187                | 0.530               | 0.717 |
|                        | PCS CDMA           | 0.336           | 0.295                       | 0.187                | 0.631               | 0.818 |
| CDMA Power Level (dBm) | Mode               | CDMA SAR (W/kg) | LTE Band 4 (AWS) SAR (W/kg) | Bluetooth SAR (W/kg) | $\Sigma$ SAR (W/kg) |       |
|                        | Tx Antenna         | 1               | 2                           | 3                    |                     |       |
|                        | Target Power (dBm) | 24.5            | 19                          | 9                    | 1+2                 | 1+2+3 |
| $P \geq 18$            | Cell. CDMA         | 0.873           | 0.104                       | 0.187                | 0.977               | 1.164 |
|                        | PCS CDMA           | 0.844           | 0.104                       | 0.187                | 0.948               | 1.135 |
|                        | Target Power (dBm) | 18              | 23                          | 9                    |                     |       |
| $P < 18$               | Cell. CDMA         | 0.235           | 0.523                       | 0.187                | 0.758               | 0.945 |
|                        | PCS CDMA           | 0.336           | 0.523                       | 0.187                | 0.859               | 1.046 |

Note: Bluetooth SAR was not required to be measured per FCC KDB 447498. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion.

|                                             |                                                                                                                               |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                     | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 60 of 69                          |

**Table 13-11**  
**Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 10 mm)**

| Simult Tx | CDMA Power Level (dBm) | Configuration      | Cell. CDMA SAR (W/kg) | LTE Band 13 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
|-----------|------------------------|--------------------|-----------------------|------------------------|-------------------------|--------------|
|           |                        | Tx Antenna         | 1                     | 2                      | 3                       | 1+2+3        |
|           |                        | Target Power (dBm) | 24.5                  | 19                     | 17                      |              |
| Body SAR  | P ≥ 18                 | Back               | 0.873                 | 0.086                  | 0.261                   | <b>1.220</b> |
|           |                        | Front              | 0.336                 | 0.077                  | 0.071                   | 0.484        |
|           |                        | Top                | -                     | -                      | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.136                 | 0.072                  | -                       | 0.208        |
|           |                        | Right              | -                     | 0.132                  | 0.174                   | 0.306        |
|           |                        | Left               | 0.672                 | -                      | -                       | 0.672        |
|           |                        | Target Power (dBm) | 18                    | 23                     | 17                      |              |
|           | P < 18                 | Back               | 0.235                 | 0.295                  | 0.261                   | 0.791        |
|           |                        | Front              | 0.075                 | 0.237                  | 0.071                   | 0.383        |
|           |                        | Top                | -                     | -                      | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.053                 | 0.217                  | -                       | 0.270        |
|           |                        | Right              | -                     | 0.348                  | 0.174                   | 0.522        |
|           |                        | Left               | 0.135                 | -                      | -                       | 0.135        |
| Simult Tx | CDMA Power Level (dBm) | Configuration      | PCS CDMA SAR (W/kg)   | LTE Band 13 SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
|           |                        | Tx Antenna         | 1                     | 2                      | 3                       | 1+2+3        |
|           |                        | Target Power (dBm) | 24.5                  | 19                     | 17                      |              |
| Body SAR  | P ≥ 18                 | Back               | 0.844                 | 0.086                  | 0.261                   | <b>1.191</b> |
|           |                        | Front              | 0.210                 | 0.077                  | 0.071                   | 0.358        |
|           |                        | Top                | -                     | -                      | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.284                 | 0.072                  | -                       | 0.356        |
|           |                        | Right              | -                     | 0.132                  | 0.174                   | 0.306        |
|           |                        | Left               | 0.115                 | -                      | -                       | 0.115        |
|           |                        | Target Power (dBm) | 18                    | 23                     | 17                      |              |
|           | P < 18                 | Back               | 0.336                 | 0.295                  | 0.261                   | 0.892        |
|           |                        | Front              | 0.080                 | 0.237                  | 0.071                   | 0.388        |
|           |                        | Top                | -                     | -                      | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.127                 | 0.217                  | -                       | 0.344        |
|           |                        | Right              | -                     | 0.348                  | 0.174                   | 0.522        |
|           |                        | Left               | 0.048                 | -                      | -                       | 0.048        |

| Simult Tx | CDMA Power Level (dBm) | Configuration      | Cell. CDMA SAR (W/kg) | LTE Band 4 (AWS) SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
|-----------|------------------------|--------------------|-----------------------|-----------------------------|-------------------------|--------------|
|           |                        | Tx Antenna         | 1                     | 2                           | 3                       | 1+2+3        |
|           |                        | Target Power (dBm) | 24.5                  | 19                          | 17                      |              |
| Body SAR  | P ≥ 18                 | Back               | 0.873                 | 0.104                       | 0.261                   | <b>1.238</b> |
|           |                        | Front              | 0.336                 | 0.059                       | 0.071                   | 0.466        |
|           |                        | Top                | -                     | -                           | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.136                 | 0.084                       | -                       | 0.220        |
|           |                        | Right              | -                     | 0.032                       | 0.174                   | 0.206        |
|           |                        | Left               | 0.672                 | -                           | -                       | 0.672        |
|           |                        | Target Power (dBm) | 18                    | 23                          | 17                      |              |
|           | P < 18                 | Back               | 0.235                 | 0.523                       | 0.261                   | 1.019        |
|           |                        | Front              | 0.075                 | 0.212                       | 0.071                   | 0.358        |
|           |                        | Top                | -                     | -                           | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.053                 | 0.188                       | -                       | 0.241        |
|           |                        | Right              | -                     | 0.059                       | 0.174                   | 0.233        |
|           |                        | Left               | 0.135                 | -                           | -                       | 0.135        |
| Simult Tx | CDMA Power Level (dBm) | Configuration      | PCS CDMA SAR (W/kg)   | LTE Band 4 (AWS) SAR (W/kg) | 2.4 GHz WLAN SAR (W/kg) | Σ SAR (W/kg) |
|           |                        | Tx Antenna         | 1                     | 2                           | 3                       | 1+2+3        |
|           |                        | Target Power (dBm) | 24.5                  | 19                          | 17                      |              |
| Body SAR  | P ≥ 18                 | Back               | 0.844                 | 0.104                       | 0.261                   | <b>1.209</b> |
|           |                        | Front              | 0.210                 | 0.059                       | 0.071                   | 0.340        |
|           |                        | Top                | -                     | -                           | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.284                 | 0.084                       | -                       | 0.368        |
|           |                        | Right              | -                     | 0.032                       | 0.174                   | 0.206        |
|           |                        | Left               | 0.115                 | -                           | -                       | 0.115        |
|           |                        | Target Power (dBm) | 18                    | 23                          | 17                      |              |
|           | P < 18                 | Back               | 0.336                 | 0.523                       | 0.261                   | 1.120        |
|           |                        | Front              | 0.080                 | 0.212                       | 0.071                   | 0.363        |
|           |                        | Top                | -                     | -                           | 0.047                   | 0.047        |
|           |                        | Bottom             | 0.127                 | 0.188                       | -                       | 0.315        |
|           |                        | Right              | -                     | 0.059                       | 0.174                   | 0.233        |
|           |                        | Left               | 0.048                 | -                           | -                       | 0.048        |

### 13.7 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v05.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 62 of 69                          |

## 14 SAR MEASUREMENT VARIABILITY

### 14.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .
- 4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

**Table 14-1**  
**Body SAR Measurement Variability Results**

| BODY VARIABILITY RESULTS                                                                          |           |      |            |             |      |                                                 |                   |                       |       |                       |       |                       |       |
|---------------------------------------------------------------------------------------------------|-----------|------|------------|-------------|------|-------------------------------------------------|-------------------|-----------------------|-------|-----------------------|-------|-----------------------|-------|
| Band                                                                                              | FREQUENCY |      | Mode       | Service     | Side | Spacing                                         | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | Ratio | 3rd Repeated SAR (1g) | Ratio |
|                                                                                                   | MHz       | Ch.  |            |             |      |                                                 | (W/kg)            | (W/kg)                |       | (W/kg)                |       | (W/kg)                |       |
| 835                                                                                               | 836.52    | 384  | Cell. CDMA | EVDO Rev. 0 | back | 10 mm                                           | 0.878             | 0.804                 | 1.09  | N/A                   | N/A   | N/A                   | N/A   |
| 1900                                                                                              | 1907.60   | 9538 | UMTS 1900  | RMC         | back | 10 mm                                           | 0.841             | 0.948                 | 1.13  | N/A                   | N/A   | N/A                   | N/A   |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT<br>Spatial Peak<br>Uncontrolled Exposure/General Population |           |      |            |             |      | Body<br>1.6 W/kg (mW/g)<br>averaged over 1 gram |                   |                       |       |                       |       |                       |       |

### 14.2 Measurement Uncertainty

The measured SAR was  $< 1.5$  W/kg for all frequency bands. Therefore, per KDB Publication 865664 D01v01, the extended measurement uncertainty analysis per IEEE 1528-2003 was not required.

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: A3LSCHI545                          |  <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>SAR EVALUATION REPORT</b>         |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                                                                         | <b>DUT Type:</b><br>Portable Handset | Page 63 of 69                                                                         |                                        |

| Manufacturer         | Model           | Description                                   | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|----------------------|-----------------|-----------------------------------------------|------------|--------------|------------|---------------|
| Agilent              | E8257D          | (250kHz-20GHz) Signal Generator               | 4/5/2012   | Annual       | 4/5/2013   | MY45470194    |
| Agilent              | 8753E           | (30kHz-6GHz) Network Analyzer                 | 4/3/2012   | Annual       | 4/3/2013   | US37390350    |
| Agilent              | 8753E           | (30kHz-6GHz) Network Analyzer                 | 4/4/2012   | Annual       | 4/4/2013   | JP38020182    |
| Agilent              | 8594A           | (9kHz-2.9GHz) Spectrum Analyzer               | N/A        | N/A          | N/A        | 3051A00187    |
| Agilent              | 8648D           | (9kHz-4GHz) Signal Generator                  | 10/10/2012 | Annual       | 10/10/2013 | 3613A00315    |
| Agilent              | 85070E          | Dielectric Probe Kit                          | 3/8/2012   | Annual       | 3/8/2013   | MY44300633    |
| Agilent              | 8648D           | Signal Generator                              | 4/3/2012   | Annual       | 4/3/2013   | 3629U00687    |
| Agilent              | 85047A          | S-Parameter Test Set                          | N/A        | N/A          | N/A        | 2904A00579    |
| Agilent              | MA24106A        | USB Power Sensor                              | 12/7/2012  | Annual       | 12/7/2013  | 1244515       |
| Agilent              | MA24106A        | USB Power Sensor                              | 12/7/2012  | Annual       | 12/7/2013  | 1244512       |
| Agilent              | E5515C          | Wireless Communications Test Set              | 9/24/2012  | Annual       | 9/24/2013  | GB43163447    |
| Agilent              | E5515C          | Wireless Communications Test Set              | 4/4/2012   | Annual       | 4/4/2013   | US41140256    |
| Amplifier Research   | SS1G4           | 5W, 800MHz-4.2GHz                             | CBT        | N/A          | CBT        | 21910         |
| Anritsu              | ML2495A         | Power Meter                                   | 10/11/2012 | Annual       | 10/11/2013 | 1039008       |
| Anritsu              | ML2496A         | Power Meter                                   | 11/28/2012 | Annual       | 11/28/2013 | 1138001       |
| Anritsu              | ML2438A         | Power Meter                                   | 12/4/2012  | Annual       | 12/4/2013  | 1070030       |
| Anritsu              | MA2411B         | Power Sensor                                  | 3/5/2012   | Annual       | 3/5/2013   | 846215        |
| Anritsu              | MA2481A         | Power Sensor                                  | 4/5/2012   | Annual       | 4/5/2013   | 5605          |
| Anritsu              | MA2411B         | Pulse Power Sensor                            | 12/4/2012  | Annual       | 12/4/2013  | 1207364       |
| Anritsu              | MA2411B         | Pulse Power Sensor                            | 12/5/2012  | Annual       | 12/5/2013  | 1126066       |
| Anritsu              | MA2411B         | Pulse Sensor                                  | 9/19/2012  | Annual       | 9/19/2013  | 1027293       |
| Anritsu              | MT8820C         | Radio Communication Tester                    | 11/6/2012  | Annual       | 11/6/2013  | 6200901190    |
| Anritsu              | MA24106A        | USB Power Sensor                              | 8/22/2012  | Annual       | 8/22/2013  | 1231538       |
| Anritsu              | MA24106A        | USB Power Sensor                              | 8/22/2012  | Annual       | 8/22/2013  | 1231535       |
| COMTECH              | AR85729-5/5759B | Solid State Amplifier                         | CBT        | N/A          | CBT        | M3W1A00-1002  |
| COMTECH              | AR85729-5       | Solid State Amplifier                         | CBT        | N/A          | CBT        | M155A00-009   |
| Gigatronics          | 80701A          | (0.05-18GHz) Power Sensor                     | 10/10/2012 | Annual       | 10/10/2013 | 1833460       |
| Gigatronics          | 8651A           | Universal Power Meter                         | 10/10/2012 | Annual       | 10/10/2013 | 8650319       |
| Intelligent Weigh    | PD-3000         | Electronic Balance                            | 3/27/2012  | Annual       | 3/27/2013  | 11081534      |
| Intelligent Weighing | PD-3000         | Electronic Balance                            | 6/29/2012  | Annual       | 6/29/2013  | 120405017     |
| MCL                  | BW-N6W5+        | 6dB Attenuator                                | CBT        | N/A          | CBT        | 1139          |
| MiniCircuits         | VLF-6000+       | Low Pass Filter                               | CBT        | N/A          | CBT        | N/A           |
| MiniCircuits         | SLP-2400+       | Low Pass Filter                               | CBT        | N/A          | CBT        | R8979500903   |
| Mini-Circuits        | BW-N20W5+       | DC to 18 GHz Precision Fixed 20 dB Attenuator | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits        | NLP-1200+       | Low Pass Filter DC to 1000 MHz                | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits        | NLP-2950+       | Low Pass Filter DC to 2700 MHz                | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits        | BW-N20W5        | Power Attenuator                              | CBT        | N/A          | CBT        | 1226          |
| Narda                | 4014C-6         | 4 - 8 GHz SMA 6 dB Directional Coupler        | CBT        | N/A          | CBT        | N/A           |
| Narda                | 4772-3          | Attenuator (3dB)                              | CBT        | N/A          | CBT        | 9406          |
| Narda                | BW-S3W2         | Attenuator (3dB)                              | CBT        | N/A          | CBT        | 120           |
| Pasternack           | PE2208-6        | Bidirectional Coupler                         | CBT        | N/A          | CBT        | N/A           |
| Pasternack           | PE2209-10       | Bidirectional Coupler                         | CBT        | N/A          | CBT        | N/A           |
| Rohde & Schwarz      | CMU200          | Base Station Simulator                        | 5/22/2012  | Annual       | 5/22/2013  | 109892        |
| Rohde & Schwarz      | NRVD            | Dual Channel Power Meter                      | 10/12/2012 | Biennial     | 10/12/2014 | 101695        |
| Rohde & Schwarz      | CMW500          | LTE Radio Communication Tester                | 2/8/2013   | Annual       | 2/8/2014   | 101699        |
| Rohde & Schwarz      | NRV-Z32         | Peak Power Sensor                             | 10/12/2012 | Biennial     | 10/12/2014 | 836019/013    |
| Rohde & Schwarz      | SMI003B         | Signal Generator                              | 4/5/2012   | Annual       | 4/5/2013   | DE27259       |
| Rohde & Schwarz      | SME06           | Signal Generator                              | 10/11/2012 | Annual       | 10/11/2013 | 832026        |
| Seekonk              | NC-100          | Torque Wrench (8" lb)                         | 3/5/2012   | Triennial    | 3/5/2015   | N/A           |
| Seekonk              | NC-100          | Torque Wrench (8" lb)                         | 3/5/2012   | Triennial    | 3/5/2015   | N/A           |
| SPEAG                | D1750V2         | 1750 MHz SAR Dipole                           | 4/24/2012  | Annual       | 4/24/2013  | 1051          |
| SPEAG                | D1900V2         | 1900 MHz SAR Dipole                           | 2/22/2012  | Annual       | 2/22/2013  | 5d149         |
| SPEAG                | D1900V2         | 1900 MHz SAR Dipole                           | 2/6/2013   | Annual       | 2/6/2014   | 5d148         |
| SPEAG                | D2450V2         | 2450 MHz SAR Dipole                           | 8/23/2012  | Annual       | 8/23/2013  | 719           |
| SPEAG                | D2450V2         | 2450 MHz SAR Dipole                           | 1/8/2013   | Annual       | 1/8/2014   | 797           |
| SPEAG                | D5GHZV2         | 5 GHz SAR Dipole                              | 1/11/2013  | Annual       | 1/11/2014  | 1057          |
| SPEAG                | D750V3          | 750 MHz Dipole                                | 1/7/2013   | Annual       | 1/7/2014   | 1003          |
| SPEAG                | D835V2          | 835 MHz SAR Dipole                            | 2/17/2012  | Annual       | 2/17/2013  | 4d133         |
| SPEAG                | D835V2          | 835 MHz SAR Dipole                            | 4/20/2012  | Annual       | 4/20/2013  | 4d119         |
| SPEAG                | D835V2          | 835 MHz SAR Dipole                            | 8/23/2012  | Annual       | 8/23/2013  | 4d026         |
| SPEAG                | DAE4            | Dasy Data Acquisition Electronics             | 4/19/2012  | Annual       | 4/19/2013  | 665           |
| SPEAG                | DAE4            | Dasy Data Acquisition Electronics             | 5/7/2012   | Annual       | 5/7/2013   | 1334          |
| SPEAG                | DAE4            | Dasy Data Acquisition Electronics             | 8/24/2012  | Annual       | 8/24/2013  | 1322          |
| SPEAG                | DAE4            | Dasy Data Acquisition Electronics             | 9/19/2012  | Annual       | 9/19/2013  | 1323          |
| SPEAG                | DAE4            | Dasy Data Acquisition Electronics             | 11/13/2012 | Annual       | 11/13/2013 | 1333          |
| SPEAG                | DAE4            | Dasy Data Acquisition Electronics             | 1/17/2013  | Annual       | 1/17/2014  | 1272          |
| SPEAG                | DAK-3.5         | Dielectric Assessment Kit                     | 6/19/2012  | Annual       | 6/19/2013  | 1070          |
| SPEAG                | DAK-3.5         | Dielectric Assessment Kit                     | 12/11/2012 | Annual       | 12/11/2013 | 1091          |
| SPEAG                | ES3DV3          | SAR Probe                                     | 4/24/2012  | Annual       | 4/24/2013  | 3213          |
| SPEAG                | ES3DV3          | SAR Probe                                     | 5/18/2012  | Annual       | 5/18/2013  | 3263          |
| SPEAG                | ES3DV2          | SAR Probe                                     | 8/28/2012  | Annual       | 8/28/2013  | 3022          |
| SPEAG                | ES3DV3          | SAR Probe                                     | 9/20/2012  | Annual       | 9/20/2013  | 3288          |
| SPEAG                | ES3DV3          | SAR Probe                                     | 11/15/2012 | Annual       | 11/15/2013 | 3287          |
| SPEAG                | EX3DV4          | SAR Probe                                     | 1/17/2013  | Annual       | 1/17/2014  | 3589          |
| Tektronix            | RSA-6114A       | Real Time Spectrum Analyzer                   | 4/5/2012   | Annual       | 4/5/2013   | 8010177       |
| VWR                  | 23226-658       | Long Stem Thermometer                         | 3/30/2012  | Biennial     | 3/30/2014  | 122179874     |
| VWR                  | 23226-658       | Long Stem Thermometer                         | 5/16/2012  | Biennial     | 5/16/2014  | 122295544     |
| VWR                  | 62344-925       | Mini-Thermometer                              | 10/24/2011 | Biennial     | 10/24/2013 | 111886414     |
| VWR                  | 62344-925       | Mini-Thermometer                              | 10/24/2011 | Biennial     | 10/24/2013 | 111886441     |
| VWR                  | 36934-158       | Wall-Mounted Thermometer                      | 9/30/2011  | Biennial     | 9/30/2013  | 111859323     |
| VWR                  | 36934-158       | Wall-Mounted Thermometer                      | 9/30/2011  | Biennial     | 9/30/2013  | 111859332     |

Note:

1. CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.
2. All Calibrated Equipments were used within their calibration period.

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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| <b>Document S/N:</b><br>0Y1302120259-R2.A3L | <b>Test Dates:</b><br>02/10/13 - 02/25/13                                           | <b>DUT Type:</b><br>Portable Handset |                                                                                       | Page 64 of 69                          |

## 16 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

| a                                                                                | b                    | c             | d              | e=<br>f(d,k) | f                     | g                        | h =<br>c x f/e                 | i =<br>c x g/e                   | k              |
|----------------------------------------------------------------------------------|----------------------|---------------|----------------|--------------|-----------------------|--------------------------|--------------------------------|----------------------------------|----------------|
| Uncertainty<br>Component                                                         | IEEE<br>1528<br>Sec. | Tol.<br>(± %) | Prob.<br>Dist. | Div.         | c <sub>i</sub><br>1gm | c <sub>i</sub><br>10 gms | 1gm<br>u <sub>i</sub><br>(± %) | 10gms<br>u <sub>i</sub><br>(± %) | v <sub>i</sub> |
| <b>Measurement System</b>                                                        |                      |               |                |              |                       |                          |                                |                                  |                |
| Probe Calibration                                                                | E.2.1                | 6.0           | N              | 1            | 1.0                   | 1.0                      | 6.0                            | 6.0                              | ∞              |
| Axial Isotropy                                                                   | E.2.2                | 0.25          | N              | 1            | 0.7                   | 0.7                      | 0.2                            | 0.2                              | ∞              |
| Hemishperical Isotropy                                                           | E.2.2                | 1.3           | N              | 1            | 1.0                   | 1.0                      | 1.3                            | 1.3                              | ∞              |
| Boundary Effect                                                                  | E.2.3                | 0.4           | N              | 1            | 1.0                   | 1.0                      | 0.4                            | 0.4                              | ∞              |
| Linearity                                                                        | E.2.4                | 0.3           | N              | 1            | 1.0                   | 1.0                      | 0.3                            | 0.3                              | ∞              |
| System Detection Limits                                                          | E.2.5                | 5.1           | N              | 1            | 1.0                   | 1.0                      | 5.1                            | 5.1                              | ∞              |
| Readout Electronics                                                              | E.2.6                | 1.0           | N              | 1            | 1.0                   | 1.0                      | 1.0                            | 1.0                              | ∞              |
| Response Time                                                                    | E.2.7                | 0.8           | R              | 1.73         | 1.0                   | 1.0                      | 0.5                            | 0.5                              | ∞              |
| Integration Time                                                                 | E.2.8                | 2.6           | R              | 1.73         | 1.0                   | 1.0                      | 1.5                            | 1.5                              | ∞              |
| RF Ambient Conditions                                                            | E.6.1                | 3.0           | R              | 1.73         | 1.0                   | 1.0                      | 1.7                            | 1.7                              | ∞              |
| Probe Positioner Mechanical Tolerance                                            | E.6.2                | 0.4           | R              | 1.73         | 1.0                   | 1.0                      | 0.2                            | 0.2                              | ∞              |
| Probe Positioning w/ respect to Phantom                                          | E.6.3                | 2.9           | R              | 1.73         | 1.0                   | 1.0                      | 1.7                            | 1.7                              | ∞              |
| Extrapolation, Interpolation & Integration algorithms for<br>Max. SAR Evaluation | E.5                  | 1.0           | R              | 1.73         | 1.0                   | 1.0                      | 0.6                            | 0.6                              | ∞              |
| <b>Test Sample Related</b>                                                       |                      |               |                |              |                       |                          |                                |                                  |                |
| Test Sample Positioning                                                          | E.4.2                | 6.0           | N              | 1            | 1.0                   | 1.0                      | 6.0                            | 6.0                              | 287            |
| Device Holder Uncertainty                                                        | E.4.1                | 3.32          | R              | 1.73         | 1.0                   | 1.0                      | 1.9                            | 1.9                              | ∞              |
| Output Power Variation - SAR drift measurement                                   | 6.6.2                | 5.0           | R              | 1.73         | 1.0                   | 1.0                      | 2.9                            | 2.9                              | ∞              |
| <b>Phantom &amp; Tissue Parameters</b>                                           |                      |               |                |              |                       |                          |                                |                                  |                |
| Phantom Uncertainty (Shape & Thickness tolerances)                               | E.3.1                | 4.0           | R              | 1.73         | 1.0                   | 1.0                      | 2.3                            | 2.3                              | ∞              |
| Liquid Conductivity - deviation from target values                               | E.3.2                | 5.0           | R              | 1.73         | 0.64                  | 0.43                     | 1.8                            | 1.2                              | ∞              |
| Liquid Conductivity - measurement uncertainty                                    | E.3.3                | 3.8           | N              | 1            | 0.64                  | 0.43                     | 2.4                            | 1.6                              | 6              |
| Liquid Permittivity - deviation from target values                               | E.3.2                | 5.0           | R              | 1.73         | 0.60                  | 0.49                     | 1.7                            | 1.4                              | ∞              |
| Liquid Permittivity - measurement uncertainty                                    | E.3.3                | 4.5           | N              | 1            | 0.60                  | 0.49                     | 2.7                            | 2.2                              | 6              |
| <b>Combined Standard Uncertainty (k=1)</b>                                       |                      |               |                |              |                       |                          | RSS                            | 12.1                             | 11.7           |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL)                            |                      |               |                |              |                       |                          | k=2                            | 24.2                             | 23.5           |

The above measurement uncertainties are according to IEEE Std. 1528-2003

|                                             |                                                                                     |                                      |                                                                                       |                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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Applicable for frequencies up to 6 GHz.

| a                                                                                | b                    | c             | d              | e=<br>f(d,k) | f                     | g                        | h =<br>c x f/e                 | i =<br>c x g/e                   | k              |
|----------------------------------------------------------------------------------|----------------------|---------------|----------------|--------------|-----------------------|--------------------------|--------------------------------|----------------------------------|----------------|
| Uncertainty<br>Component                                                         | IEEE<br>1528<br>Sec. | Tol.<br>(± %) | Prob.<br>Dist. | Div.         | c <sub>i</sub><br>1gm | c <sub>i</sub><br>10 gms | 1gm<br>u <sub>i</sub><br>(± %) | 10gms<br>u <sub>i</sub><br>(± %) | v <sub>i</sub> |
| <b>Measurement System</b>                                                        |                      |               |                |              |                       |                          |                                |                                  |                |
| Probe Calibration                                                                | E.2.1                | 6.55          | N              | 1            | 1.0                   | 1.0                      | 6.6                            | 6.6                              | ∞              |
| Axial Isotropy                                                                   | E.2.2                | 0.25          | N              | 1            | 0.7                   | 0.7                      | 0.2                            | 0.2                              | ∞              |
| Hemishperical Isotropy                                                           | E.2.2                | 1.3           | N              | 1            | 1.0                   | 1.0                      | 1.3                            | 1.3                              | ∞              |
| Boundary Effect                                                                  | E.2.3                | 0.4           | N              | 1            | 1.0                   | 1.0                      | 0.4                            | 0.4                              | ∞              |
| Linearity                                                                        | E.2.4                | 0.3           | N              | 1            | 1.0                   | 1.0                      | 0.3                            | 0.3                              | ∞              |
| System Detection Limits                                                          | E.2.5                | 5.1           | N              | 1            | 1.0                   | 1.0                      | 5.1                            | 5.1                              | ∞              |
| Readout Electronics                                                              | E.2.6                | 1.0           | N              | 1            | 1.0                   | 1.0                      | 1.0                            | 1.0                              | ∞              |
| Response Time                                                                    | E.2.7                | 0.8           | R              | 1.73         | 1.0                   | 1.0                      | 0.5                            | 0.5                              | ∞              |
| Integration Time                                                                 | E.2.8                | 2.6           | R              | 1.73         | 1.0                   | 1.0                      | 1.5                            | 1.5                              | ∞              |
| RF Ambient Conditions                                                            | E.6.1                | 3.0           | R              | 1.73         | 1.0                   | 1.0                      | 1.7                            | 1.7                              | ∞              |
| Probe Positioner Mechanical Tolerance                                            | E.6.2                | 0.4           | R              | 1.73         | 1.0                   | 1.0                      | 0.2                            | 0.2                              | ∞              |
| Probe Positioning w/ respect to Phantom                                          | E.6.3                | 2.9           | R              | 1.73         | 1.0                   | 1.0                      | 1.7                            | 1.7                              | ∞              |
| Extrapolation, Interpolation & Integration algorithms for<br>Max. SAR Evaluation | E.5                  | 1.0           | R              | 1.73         | 1.0                   | 1.0                      | 0.6                            | 0.6                              | ∞              |
| <b>Test Sample Related</b>                                                       |                      |               |                |              |                       |                          |                                |                                  |                |
| Test Sample Positioning                                                          | E.4.2                | 6.0           | N              | 1            | 1.0                   | 1.0                      | 6.0                            | 6.0                              | 287            |
| Device Holder Uncertainty                                                        | E.4.1                | 3.32          | R              | 1.73         | 1.0                   | 1.0                      | 1.9                            | 1.9                              | ∞              |
| Output Power Variation - SAR drift measurement                                   | 6.6.2                | 5.0           | R              | 1.73         | 1.0                   | 1.0                      | 2.9                            | 2.9                              | ∞              |
| <b>Phantom &amp; Tissue Parameters</b>                                           |                      |               |                |              |                       |                          |                                |                                  |                |
| Phantom Uncertainty (Shape & Thickness tolerances)                               | E.3.1                | 4.0           | R              | 1.73         | 1.0                   | 1.0                      | 2.3                            | 2.3                              | ∞              |
| Liquid Conductivity - deviation from target values                               | E.3.2                | 5.0           | R              | 1.73         | 0.64                  | 0.43                     | 1.8                            | 1.2                              | ∞              |
| Liquid Conductivity - measurement uncertainty                                    | E.3.3                | 3.8           | N              | 1            | 0.64                  | 0.43                     | 2.4                            | 1.6                              | 6              |
| Liquid Permittivity - deviation from target values                               | E.3.2                | 5.0           | R              | 1.73         | 0.60                  | 0.49                     | 1.7                            | 1.4                              | ∞              |
| Liquid Permittivity - measurement uncertainty                                    | E.3.3                | 4.5           | N              | 1            | 0.60                  | 0.49                     | 2.7                            | 2.2                              | 6              |
| <b>Combined Standard Uncertainty (k=1)</b>                                       |                      |               |                |              |                       |                          | RSS                            | 12.4                             | 12.0           |
| <b>Expanded Uncertainty</b><br>(95% CONFIDENCE LEVEL)                            |                      |               |                |              |                       |                          | k=2                            | 24.7                             | 24.0           |

The above measurement uncertainties are according to IEEE Std. 1528-2003

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
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## 17 CONCLUSION

### 17.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

|                                             |                                                                                                                                   |                                      |                                                                                       |                                        |
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