# FCC SAR Test Report

| | | |
|---|---|---|
| APPLICANT | : | SIERRA WIRELESS |
| EQUIPMENT | : | Muiti-Band Wireless Modem |
| BRAND NAME | : | AirPrime |
| MODEL NAME | : | EM7655 |
| FCC ID | : | N7NEM7655 |
| STANDARD | : | FCC 47 CFR Part 2 (2.1093)<br>ANSI/IEEE C95.1-1992<br>IEEE 1528-2003<br>FCC OET Bulletin 65 Supplement C (Edition 01-01) |

**The product was installed into Tablet (Brand Name: Dell, Model Name:T05G) during testing**

**The product was completely tested on Feb. 26, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.**

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

**Reviewed by:**

**Jones Tsai / Manager**

Testing Laboratory 1190

***SPORTON INTERNATIONAL INC.***
***No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.***

# Table of Contents

# Revision History

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FA311703 | Rev. 01 | Initial issue of report | Feb. 28, 2013 |
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# 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **SIERRA WIRELESS Muiti-Band Wireless Modem, EM7655** are as follows.

**<Highest Reported standalone SAR Summary>**

| Exposure Position | Frequency Band | Reported 1g-SAR (W/kg) | Equipment Class | Highest Reported 1g-SAR (W/kg) |
|---|---|---|---|---|
| Body (0cm Gap) | GPRS850 | **1.47** | PCB | **1.47** |
| | GPRS1900 | **1.42** | | |
| | WCDMA Band V | **1.33** | | |
| | WCDMA Band IV | **1.42** | | |
| | WCDMA Band II | **1.45** | | |
| | CDMA 2000 BC10 | **1.41** | | |
| | CDMA 2000 BC0 | **1.43** | | |
| | CDMA 2000 BC1 | **1.45** | | |
| | LTE Band 17 | **1.13** | | |
| | LTE Band 13 | **1.41** | | |
| | LTE Band 5 | **1.33** | | |
| | LTE Band 4 | **1.41** | | |
| | LTE Band 2 | **1.42** | | |
| | LTE Band 25 | **1.44** | | |

**<Highest Simultaneous transmission SAR>**

| Frequency Band | Equipment Class | Exposure Position | Highest Reported Simultaneous Transmission 1g-SAR (W/kg) |
|---|---|---|---|
| **LTE Band 5** | **PCE** | **Bottom Face (0cm Gap)** | **1.57** |
| **WLAN 5.8GHz Band** | **DTS** | | |

| Frequency Band | Equipment Class | Exposure Position | Highest Reported Simultaneous Transmission 1g-SAR (W/kg) |
|---|---|---|---|
| **CDMA2000 BC10** | **PCE** | **Bottom Face (0cm Gap)** | **1.56** |
| **2.4GHz Bluetooth** | **DSS** | | |

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).

# 2. Administration Data

## 2.1 Testing Laboratory

| | |
|---|---|
| **Test Site** | SPORTON INTERNATIONAL INC. |
| **Test Site Location** | No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,<br>Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL: +886-3-327-3456<br>FAX: +886-3-328-4978 |

## 2.2 Applicant

| | |
|---|---|
| **Company Name** | SIERRA WIRELESS |
| **Address** | 13811 Wireless Way, Richmond, BC Canada V6V 3A4 |

## 2.3 Manufacturer

| | |
|---|---|
| **Company Name** | SIERRA WIRELESS |
| **Address** | 13811 Wireless Way Richmond, BC Canada V6V 3A4 |

## 2.4 Application Details

| | |
|---|---|
| **Date of Testing Started** | Jan. 02, 2013 |
| **Date of Testing Completed** | Feb. 26, 2013 |

# 3. General Information

## 3.1 Description of Equipment Under Test (EUT)

| Product Feature & Specification | |
|---|---|
| **EUT** | Muiti-Band Wireless Modem |
| **Brand Name** | AirPrime |
| **Model Name** | EM7655 |
| **FCC ID** | N7NEM7655 |
| **IMEI Code** | 013445000000739 |
| **HW Version** | Rev 1.0 |
| **HW Version** | FW 01.04.02.00 |
| **TX Frequency** | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8 MHz<br>WCDMA Band V: 826.4 MHz ~ 846.6 MHz<br>WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>CDMA 2000 BC10: 817.9 MHz ~ 823.1 MHz<br>CDMA 2000 BC0: 824.7 MHz ~ 848.31 MHz<br>CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz<br>LTE Band 17: 706.5 MHz ~ 713.5 MHz<br>LTE Band 13: 779.5 MHz ~ 784.5 MHz<br>LTE Band 5: 824.7 MHz ~ 848.3 MHz<br>LTE Band 4: 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 25: 1850.7 MHz ~ 1914.3 MHz |
| **Uplink Modulations** | GSM: GMSK<br>GPRS: GMSK<br>EDGE: GMSK / 8PSK<br>WCDMA (Rel 99): QPSK<br>HSDPA (Rel 6): QPSK<br>HSUPA (Rel 6): QPSK<br>CDMA2000 1xEV-DO: 8PSK<br>LTE: QPSK, 16QAM |
| **Remark:**<br>1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.<br>2. Voice call is not supported. | |

The product was installed into Tablet PC (Brand Name: Dell, Model Name: T05G) during test, and this Tablet specification is listed below.

| Product Feature & Specification | |
|---|---|
| **Host** | Tablet PC |
| **Brand Name** | Dell |
| **Model Name** | T05G |
| **HW Version** | 11308-SC |
| **HW Version** | A03 |
| **Antenna Type** | WWAN: PIFA Antenna<br>WLAN/BT: PIFA Antenna |
| **Remark:**<br>1. WLAN module, FCC ID: EW4DWMW091, is also integrated into this Tablet via WLAN module C2PC filing. To address simultaneous transmission SAR compliance, WLAN module SAR was tested at the exposure positions at which WWAN SAR testing is necessary. | |

## 3.2 Maximum RF output power among production units

| Band | average power (dBm) | | | |
|---|---|---|---|---|
| | GSM 850 | | GSM 1900 | |
| Output Power Status | Normal | Reduced | Normal | Reduced |
| GPRS/EDGE (GMSK, 1 Tx slot) | 33.5 | 31 | 30.5 | 28 |
| GPRS/EDGE (GMSK, 2 Tx slots) | 33 | 28.5 | 30 | 25 |
| EDGE (GMSK, 3 Tx slots) | 29.5 | 26.5 | 27.5 | 23 |
| EDGE (GMSK, 4 Tx slots) | 27.5 | 25.5 | 26.5 | 22 |
| EDGE (8PSK, 1 Tx slot) | 28 | 28 | 27 | 27 |
| EDGE (8PSK, 2 Tx slots) | 28 | 28 | 27 | 25 |
| EDGE (8PSK, 3 Tx slots) | 26.2 | 26.2 | 25.2 | 23.2 |
| EDGE (8PSK, 4 Tx slots) | 25 | 25 | 24 | 22 |

| Band | average power(dBm) | | | | | |
|---|---|---|---|---|---|---|
| | WCDMA Band V | | WCDMA Band IV | | WCDMA Band II | |
| Output Power Status | Normal | Reduced | Normal | Reduced | Normal | Reduced |
| RMC 12.2Kbps | 24 | 22 | 24 | 20.5 | 24 | 19 |
| HSDPA Subtest-1 | 24 | 22 | 24 | 20.5 | 24 | 19 |
| HSUPA Subtest-5 | 24 | 22 | 24 | 20.5 | 24 | 19 |

| Band | average power(dBm) | | | | | |
|---|---|---|---|---|---|---|
| | CDMA BC10 | | CDMA BC0 | | CDMA BC1 | |
| Output Power Status | Normal | Reduced | Normal | Reduced | Normal | Reduced |
| 1xRTT RC3 SO55 | 24.5 | 22.5 | 24.5 | 22.5 | 24.5 | 19.5 |
| 1xRTT RC3 SO32 | 24.5 | 22.5 | 24.5 | 22.5 | 24.5 | 19.5 |
| 1xEV-DO Rev 0 (RTAP 153.6kbps) | 24.5 | 22.5 | 24.5 | 22.5 | 24.5 | 19.5 |
| 1xEV-DO Rev A (RETAP 4096 bits) | 24.5 | 22.5 | 24.5 | 22.5 | 24.5 | 19.5 |

| LTE Band 17 | | | | | |
|---|---|---|---|---|---|
| average power(dBm) | | | | | |
| Modulation | BW (MHz) | RB size | Target MPR | Normal | Reduced |
| QPSK | 10 | ≤ 12 | **0** | **24** | **22** |
| QPSK | 10 | > 12 | **1** | **23** | **22** |
| 16QAM | 10 | ≤ 12 | **1** | **23** | **22** |
| 16QAM | 10 | > 12 | **2** | **22** | **22** |
| QPSK | 5 | ≤ 8 | **0** | **24** | **22** |
| QPSK | 5 | > 8 | **1** | **23** | **22** |
| 16QAM | 5 | ≤ 8 | **1** | **23** | **22** |
| 16QAM | 5 | > 8 | **2** | **22** | **22** |

| LTE Band 13 | | | | | |
|---|---|---|---|---|---|
| average power(dBm) | | | | | |
| Modulation | BW (MHz) | RB size | Target MPR | Normal | Reduced |
| QPSK | 10 | ≤ 12 | **0** | **24** | **22** |
| QPSK | 10 | > 12 | **1** | **23** | **22** |
| 16QAM | 10 | ≤ 12 | **1** | **23** | **22** |
| 16QAM | 10 | > 12 | **2** | **22** | **22** |
| QPSK | 5 | ≤ 8 | **0** | **24** | **22** |
| QPSK | 5 | > 8 | **1** | **23** | **22** |
| 16QAM | 5 | ≤ 8 | **1** | **23** | **22** |
| 16QAM | 5 | > 8 | **2** | **22** | **22** |

| LTE Band 5 | | | | | |
|---|---|---|---|---|---|
| average power(dBm) | | | | | |
| Modulation | BW (MHz) | RB size | Target MPR | Normal | Reduced |
| QPSK | 10 | ≤ 12 | **0** | **24** | **22** |
| QPSK | 10 | > 12 | **1** | **23** | **22** |
| 16QAM | 10 | ≤ 12 | **1** | **23** | **22** |
| 16QAM | 10 | > 12 | **2** | **22** | **22** |
| QPSK | 5 | ≤ 8 | **0** | **24** | **22** |
| QPSK | 5 | > 8 | **1** | **23** | **22** |
| 16QAM | 5 | ≤ 8 | **1** | **23** | **22** |
| 16QAM | 5 | > 8 | **2** | **22** | **22** |

| LTE Band 4 | | | | | |
|---|---|---|---|---|---|
| average power(dBm) | | | | | |
| Modulation | BW (MHz) | RB size | Target MPR | Normal | Reduced |
| QPSK | 20 | ≤ 18 | **0** | **24** | **21** |
| QPSK | 20 | > 18 | **1** | **23** | **21** |
| 16QAM | 20 | ≤ 18 | **1** | **23** | **21** |
| 16QAM | 20 | > 18 | **2** | **22** | **21** |
| QPSK | 15 | ≤ 16 | **0** | **24** | **21** |
| QPSK | 15 | > 16 | **1** | **23** | **21** |
| 16QAM | 15 | ≤ 16 | **1** | **23** | **21** |
| 16QAM | 15 | > 16 | **2** | **22** | **21** |
| QPSK | 10 | ≤ 12 | **0** | **24** | **21** |
| QPSK | 10 | > 12 | **1** | **23** | **21** |
| 16QAM | 10 | ≤ 12 | **1** | **23** | **21** |
| 16QAM | 10 | > 12 | **2** | **22** | **21** |
| QPSK | 5 | ≤ 8 | **0** | **24** | **21** |
| QPSK | 5 | > 8 | **1** | **23** | **21** |
| 16QAM | 5 | ≤ 8 | **1** | **23** | **21** |
| 16QAM | 5 | > 8 | **2** | **22** | **21** |

| LTE Band 2 | | | | | |
|---|---|---|---|---|---|
| average power(dBm) | | | | | |
| Modulation | BW (MHz) | RB size | Target MPR | Normal | Reduced |
| QPSK | 20 | ≤ 18 | **0** | **24** | **21** |
| QPSK | 20 | > 18 | **1** | **23** | **21** |
| 16QAM | 20 | ≤ 18 | **1** | **23** | **21** |
| 16QAM | 20 | > 18 | **2** | **22** | **21** |
| QPSK | 15 | ≤ 16 | **0** | **24** | **21** |
| QPSK | 15 | > 16 | **1** | **23** | **21** |
| 16QAM | 15 | ≤ 16 | **1** | **23** | **21** |
| 16QAM | 15 | > 16 | **2** | **22** | **21** |
| QPSK | 10 | ≤ 12 | **0** | **24** | **21** |
| QPSK | 10 | > 12 | **1** | **23** | **21** |
| 16QAM | 10 | ≤ 12 | **1** | **23** | **21** |
| 16QAM | 10 | > 12 | **2** | **22** | **21** |
| QPSK | 5 | ≤ 8 | **0** | **24** | **21** |
| QPSK | 5 | > 8 | **1** | **23** | **21** |
| 16QAM | 5 | ≤ 8 | **1** | **23** | **21** |
| 16QAM | 5 | > 8 | **2** | **22** | **21** |

| LTE Band 25 | | | | | |
|---|---|---|---|---|---|
| average power(dBm) | | | | | |
| Modulation | BW (MHz) | RB size | Target MPR | Normal | Reduced |
| QPSK | 20 | ≤ 18 | **0** | **24** | **19** |
| QPSK | 20 | > 18 | **1** | **23** | **19** |
| 16QAM | 20 | ≤ 18 | **1** | **23** | **19** |
| 16QAM | 20 | > 18 | **2** | **22** | **19** |
| QPSK | 15 | ≤ 16 | **0** | **24** | **19** |
| QPSK | 15 | > 16 | **1** | **23** | **19** |
| 16QAM | 15 | ≤ 16 | **1** | **23** | **19** |
| 16QAM | 15 | > 16 | **2** | **22** | **19** |
| QPSK | 10 | ≤ 12 | **0** | **24** | **19** |
| QPSK | 10 | > 12 | **1** | **23** | **19** |
| 16QAM | 10 | ≤ 12 | **1** | **23** | **19** |
| 16QAM | 10 | > 12 | **2** | **22** | **19** |
| QPSK | 5 | ≤ 8 | **0** | **24** | **19** |
| QPSK | 5 | > 8 | **1** | **23** | **19** |
| 16QAM | 5 | ≤ 8 | **1** | **23** | **19** |
| 16QAM | 5 | > 8 | **2** | **22** | **19** |

**Remark:**

1. By design, maximum LTE RF power of smaller supported bandwidth does not exceed the RF power of largest supported bandwidth; the information is included in “tune-up procedure” exhibit

| IEEE 802.11 average power(dBm) | | | | |
|---|---|---|---|---|
| Normal | | | | |
| Mode/Band | a | b | g | n |
| WLAN 2.4 GHz Band | | 17 | 17 | 17 |
| WLAN 5.8 GHz Band | 13 | | | 13 |

| Mode / Band | Bluetooth Average power(dBm) | | |
|---|---|---|---|
| | 1Mbps (GFSK) | 3Mbps (8-DPSK) | BT4.0-LE (GFSK) |
| 2.4 GHz Bluetooth | 9.5 | 7.5 | -0.5 |

## The table below summarized necessary items addressed in KDB 941225 D05 v02.

| | |
|---|---|
| FCC ID | N7NEM7655 |
| EUT | MUITI-BAND WIRELESS MODEM |
| Operating Frequency Range of each LTE transmission band | LTE Band 17: 706.5 MHz ~ 713.5 MHz<br>LTE Band 13: 779.5 MHz ~ 784.5 MHz<br>LTE Band 5: 824.7 MHz ~ 848.3 MHz<br>LTE Band 4: 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 25: 1850.7 MHz ~ 1914.3 MHz |
| Channel Bandwidth | LTE Band 17: 5MHz, 10MHz<br>LTE Band 13: 5MHz, 10MHz<br>LTE Band 5: 5MHz, 10MHz<br>LTE Band 4: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 2: 5MHz, 10MHz,15MHz, 20MHz<br>LTE Band 25: 5MHz, 10MHz, 15MHz, 20MHz |

Transmission (H, M, L) channel numbers and frequencies in each LTE band

Band 17

| | Bandwidth 5 MHz | | Bandwidth 10 MHz | |
|---|---|---|---|---|
| | Channel # | Frequency (MHz) | Channel # | Frequency (MHz) |
| L | 23755 | 706.5 | 23780 | 709 |
| M | 23790 | 710 | 23790 | 710 |
| H | 23825 | 713.5 | 23800 | 711 |

Band 13

| | Bandwidth 5 MHz | | Bandwidth 10 MHz | |
|---|---|---|---|---|
| | Channel # | Frequency (MHz) | Channel # | Frequency (MHz) |
| L | 23205 | 779.5 | 23230 | 782 |
| M | 23230 | 782 | | |
| H | 23255 | 784.5 | | |

Band 5

| | Bandwidth 5 MHz | | Bandwidth 10 MHz | |
|---|---|---|---|---|
| | Channel # | Frequency (MHz) | Channel # | Frequency (MHz) |
| L | 20425 | 826.5 | 20450 | 829 |
| M | 20525 | 836.5 | 20525 | 836.5 |
| H | 20625 | 846.5 | 20600 | 844 |

LTE Band 4

| | Bandwidth 5 MHz | | Bandwidth 10 MHz | | Bandwidth 15 MHz | | Bandwidth 20 MHz | |
|---|---|---|---|---|---|---|---|---|
| | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) |
| L | 19975 | 1712.5 | 20000 | 1715 | 20025 | 1717.5 | 20050 | 1720 |
| M | 20175 | 1732.5 | 20175 | 1732.5 | 20175 | 1732.5 | 20175 | 1732.5 |
| H | 20375 | 1752.5 | 20350 | 1750 | 20325 | 1747.5 | 20300 | 1745 |

| LTE Band 2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Bandwidth 5 MHz | | Bandwidth 10 MHz | | Bandwidth 15 MHz | | Bandwidth 20 MHz | |
| | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) |
| L | 1852.5 | 18625 | 1855 | 18650 | 1857.5 | 18675 | 1860 | 18700 |
| M | 1880 | 18900 | 1880 | 18900 | 1880 | 18900 | 1880 | 18900 |
| H | 1907.5 | 19175 | 1905 | 19150 | 1902.5 | 19125 | 1900 | 19100 |
| LTE Band 25 | | | | | | | | |
| | Bandwidth 5 MHz | | Bandwidth 10 MHz | | Bandwidth 15 MHz | | Bandwidth 20 MHz | |
| | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) | Ch. # | Freq. (MHz) |
| L | 26065 | 1852.5 | 26090 | 1855 | 26115 | 1857.5 | 26140 | 1860 |
| M | 26365 | 1882.5 | 26365 | 1882.5 | 26365 | 1882.5 | 26365 | 1882.5 |
| H | 26665 | 1912.5 | 26640 | 1910 | 26615 | 1907.5 | 26590 | 1905 |

| | |
|---|---|
| E category, uplink modulations used | Category 3, QPSK, and 16QAM |
| LTE transmitter and antenna implementation (standalone or sharing hardware components / antennas ) | In the host tablet,<br>A primary antenna is used for LTE and other wireless interfaces (GSM/CDMA/WCDMA) for transmitting and receiving. LTE and other wireless interfaces (GSM/CDMA/WCDMA) share the same antenna, and cannot transmit simultaneously.<br><br>A 2nd antenna is used for LTE and other wireless interfaces (GSM/CDMA/WCDMA) for receiving only |
| LTE Voice / Data requirements | 1. Data only |
| LTE MPR permanently built-in by design | Yes, per 3GPP TS 36.101 v11.0.0<br>**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3** |
| LTE A-MPR | In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing. |
| Base station simulator used for Testing | Anritsu MT8820C |
| Power reduction applied to satisfy SAR compliance | Yes, proximity sensor in the host Tablet PC |

| Modulation | Channel bandwidth / Transmission bandwidth (RB) | | | | | | MPR (dB) |
|---|---|---|---|---|---|---|---|
| | 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | |
| QPSK | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 |

## 3.3 Applied Standard

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v05
- FCC KDB 616217 D04 v01
- FCC KDB 941225 D01 v02
- FCC KDB 941225 D03 v01
- FCC KDB 941225 D05 v02
- FCC KDB 248227 D01 v01r02

## 3.4 Device Category and SAR Limits

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

## 3.5 Test Conditions

### 3.5.1 Ambient Condition

| | |
|---|---|
| **Ambient Temperature** | 20 to 24 ℃ |
| **Humidity** | < 60 % |

### 3.5.2 Test Configuration

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

**Target Power reduction applied for each wireless mode and orientation**

| Exposure Position / wireless mode | Bottom Face(1) | Edge 1 | Edge 2 | Edge 3(1) | Edge 4 |
|---|---|---|---|---|---|
| GSM850 GPRS/EDGE (GMSK 1 Tx slot) - CS1/MCS1 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| GSM850 GPRS/EDGE (GMSK 2 Tx slot) - CS1/MCS1 | 4.5 dB | 0 dB | 0 dB | 4.5 dB | 0 dB |
| GSM850 EDGE (GMSK 3 Tx slot) – MCS1 | 3 dB | 0 dB | 0 dB | 3 dB | 0 dB |
| GSM850 EDGE (GMSK 4 Tx slot) – MCS1 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| GSM850 EDGE (8PSK 1 Tx slot) - MCS5 | 0 dB | 0 dB | 0 dB | 0 dB | 0 dB |
| GSM850 EDGE (8PSK 2 Tx slot) - MCS5 | 0 dB | 0 dB | 0 dB | 0 dB | 0 dB |
| GSM850 EDGE (8PSK 3 Tx slot) - MCS5 | 0 dB | 0 dB | 0 dB | 0 dB | 0 dB |
| GSM850 EDGE (8PSK 4 Tx slot) - MCS5 | 0 dB | 0 dB | 0 dB | 0 dB | 0 dB |
| GSM1900 GPRS/EDGE (GMSK 1 Tx slot) - CS1/MCS1 | 2.5 dB | 0 dB | 0 dB | 2.5 dB | 0 dB |
| GSM1900 GPRS/EDGE (GMSK 2 Tx slot) - CS1/MCS1 | 5 dB | 0 dB | 0 dB | 5 dB | 0 dB |
| GSM1900 EDGE (GMSK 3 Tx slot) – MCS1 | 4.5 dB | 0 dB | 0 dB | 4.5 dB | 0 dB |
| GSM1900 EDGE (GMSK 4 Tx slot) – MCS1 | 4.5 dB | 0 dB | 0 dB | 4.5 dB | 0 dB |
| GSM1900 EDGE (8PSK 1 Tx slot) - MCS5 | 0 dB | 0 dB | 0 dB | 0 dB | 0 dB |
| GSM1900 EDGE (8PSK 2 Tx slot) - MCS5 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| GSM1900 EDGE (8PSK 3 Tx slot) - MCS5 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| GSM1900 EDGE (8PSK 4 Tx slot) - MCS5 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| WCDMA Band V | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| WCDMA Band IV | 3.5 dB | 0 dB | 0 dB | 3.5 dB | 0 dB |
| WCDMA Band II | 5 dB | 0 dB | 0 dB | 5 dB | 0 dB |
| CDMA2000 BC10 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| CDMA2000 BC0 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| CDMA2000 BC1 | 5 dB | 0 dB | 0 dB | 5 dB | 0 dB |
| LTE Band 17 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| LTE Band 13 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| LTE Band 5 | 2 dB | 0 dB | 0 dB | 2 dB | 0 dB |
| LTE Band 4 | 3 dB | 0 dB | 0 dB | 3 dB | 0 dB |
| LTE Band 2 | 5 dB | 0 dB | 0 dB | 5 dB | 0 dB |
| LTE Band 25 | 5 dB | 0 dB | 0 dB | 5 dB | 0 dB |

**Remark:**

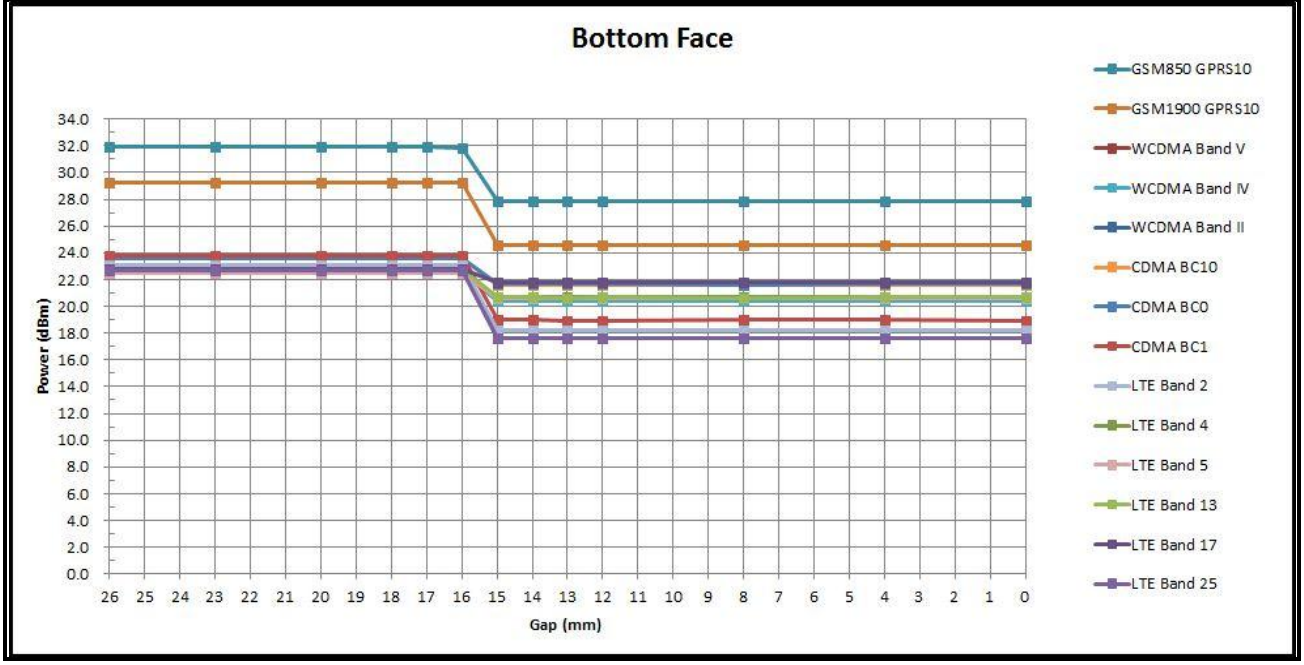
1. (1): Reduced maximum limit applied by activation of proximity sensor.

.

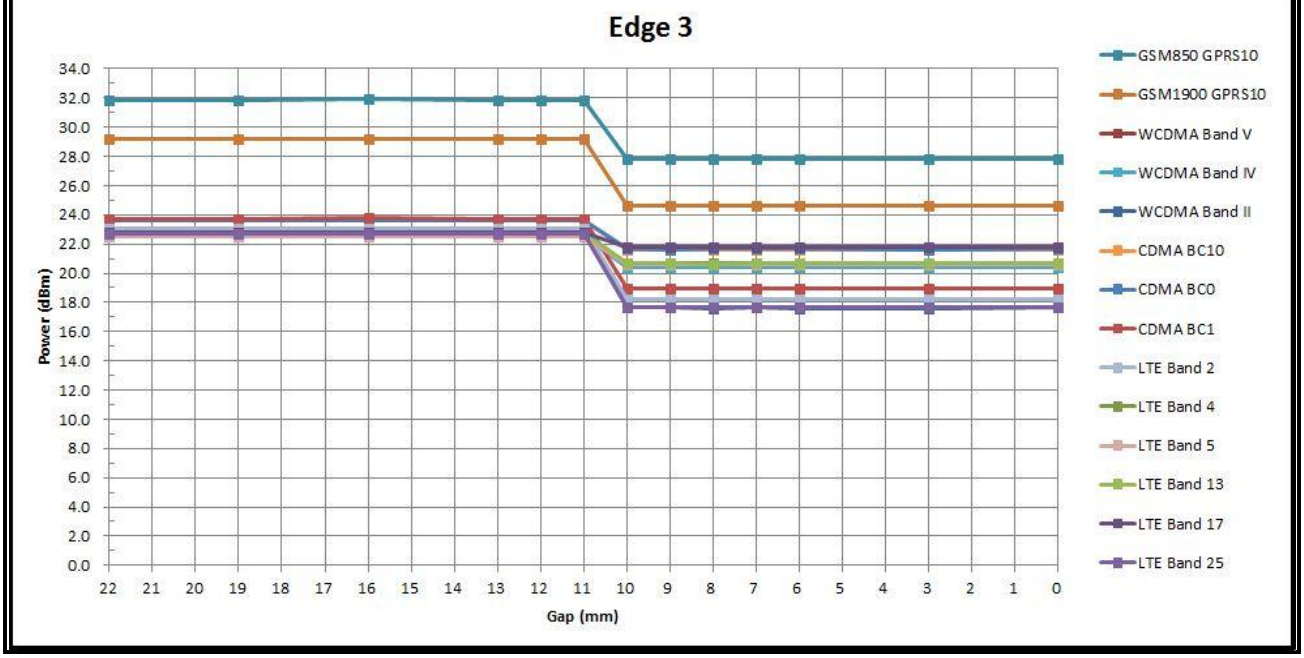
**Measurement on EUT:**

| Band/Mode | Ch # | Measured power reduction (dBm) | | Reduction Levels |
|---|---|---|---|---|
| | | w/o power back-off | w/ power back-off | (dBm) |
| GSM850 GPRS (GMSK 1 Tx slot) - CS1 | 189 | 32.16 | 29.76 | 2.43 |
| GSM850 GPRS (GMSK 2 Tx slot) - CS1 | 189 | 31.96 | 27.83 | 4.10 |
| GSM1900 GPRS (GMSK 1 Tx slot) - CS1 | 661 | 29.38 | 26.73 | 2.34 |
| GSM1900 GPRS (GMSK 2 Tx slot) - CS1 | 661 | 29.25 | 24.57 | 4.51 |
| WCDMA Band V (RMC 12.2Kbps) | 4182 | 22.72 | 20.41 | 2.31 |
| WCDMA Band IV (RMC 12.2Kbps) | 1413 | 22.60 | 20.47 | 2.13 |
| WCDMA Band II (RMC 12.2Kbps) | 9400 | 22.72 | 17.62 | 5.14 |
| EVDO BC10 (RTAP 153.6Kbps) | 580 | 23.49 | 21.55 | 1.94 |
| EVDO BC0 (RTAP 153.6Kbps) | 384 | 23.70 | 21.71 | 1.98 |
| EVDO BC1 (RTAP 153.6Kbps) | 600 | 23.70 | 19.06 | 4.81 |
| LTE Band 17 (QPSK 1RB 24 offset) | 710 | 22.70 | 21.64 | 0.94 |
| LTE Band 13 (QPSK 1RB 0 offset) | 782 | 22.76 | 20.68 | 2.08 |
| LTE Band 5 (QPSK 1RB 24 offset) | 20525 | 22.38 | 20.63 | 1.75 |
| LTE Band 4 (QPSK 1RB 0 offset) | 20175 | 22.67 | 20.62 | 2.05 |
| LTE Band 2 (QPSK 1RB 0 offset) | 18900 | 22.89 | 17.89 | 5.00 |
| LTE Band 25 (QPSK 1RB 49 offset) | 26365 | 22.68 | 17.61 | 5.07 |

**Proximity Sensor for Bottom Face detection**



**Proximity Sensor for Edge 3 detection**



# 4. Specific Absorption Rate (SAR)

## 4.1 Introduction

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

## 4.2 SAR Definition

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

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

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

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

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

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

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

# 5. SAR Measurement System

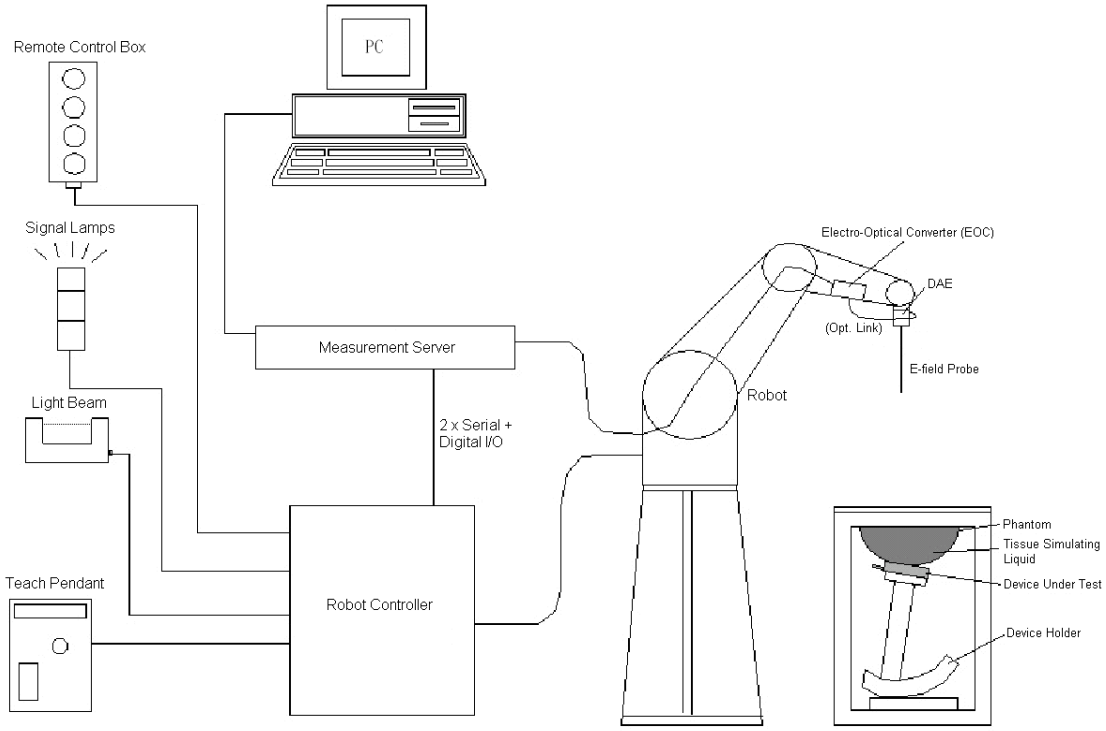



**Fig 5.1 SPEAG DASY System Configurations**

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

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

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

## 5.1 E-Field Probe

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

### 5.1.1 E-Field Probe Specification

**<ET3DV6 Probe >**

| | |
|---|---|
| **Construction** | Symmetrical design with triangular core<br>Built-in optical fiber for surface detection system.<br>Built-in shielding against static charges.<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| **Frequency** | 10 MHz to 3 GHz; Linearity: ± 0.2 dB |
| **Directivity** | ± 0.2 dB in HSL (rotation around probe axis)<br>± 0.4 dB in HSL (rotation normal to probe axis) |
| **Dynamic Range** | 5 µW/g to 100 mW/g; Linearity: ± 0.2 dB |
| **Dimensions** | Overall length: 330 mm (Tip: 16 mm)<br>Tip diameter: 6.8 mm (Body: 12 mm)<br>Distance from probe tip to dipole centers: 2.7 mm |

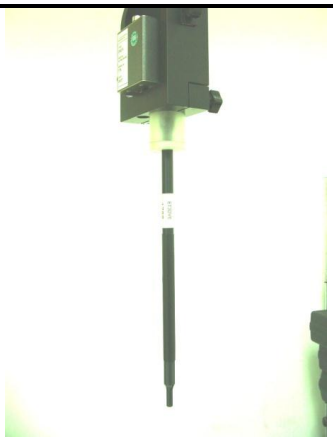


**Fig 5.2 Photo of ET3DV6/ET3DV6**

**<ES3DV3 Probe >**

| | |
|---|---|
| **Construction** | Symmetrical design with triangular core<br>Built-in optical fiber for surface detection system.<br>Built-in shielding against static charges.<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| **Frequency** | 10 MHz to 3 GHz; Linearity: ± 0.2 dB |
| **Directivity** | ± 0.2 dB in HSL (rotation around probe axis)<br>± 0.4 dB in HSL (rotation normal to probe axis) |
| **Dynamic Range** | 10 µW/g to 100 mW/g; Linearity: ± 0.2 dB |
| **Dimensions** | Overall length: 337 mm (Tip: 10 mm)<br>Tip diameter: 4 mm (Body: 10 mm)<br>Distance from probe tip to dipole centers: 3 mm |

**Fig 5.3 Photo of ES3DV3**

**<EX3DV4 / ES3DV4 Probe>**

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

**Fig 5.4 Photo of EX3DV4/ES3DV4**

### *5.1.2 E-Field Probe Calibration*

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

## *5.2 Data Acquisition Electronics (DAE)*

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

**Fig 5.5 Photo of DAE**

## *5.3 Robot*

The SPEAG DASY system uses the high precision robots (DASY4: RX90BL; DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY4: CS7MB; DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

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

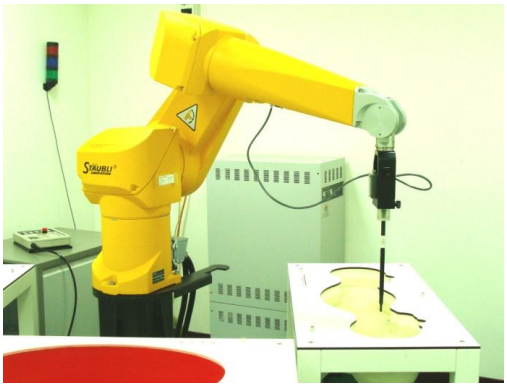


Fig 5.6 Photo of DASY4

Fig 5.7 Photo of DASY5

## 5.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY4: 166 MHz, Intel Pentium; DASY5: 400 MHz, Intel Celeron), chipdisk (DASY4: 32 MB; DASY5: 128 MB), RAM (DASY4: 64 MB, DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

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


Fig 5.8 Photo of Server for DASY4


Fig 5.9 Photo of Server for DASY5

## 5.5 Phantom

**<SAM Twin Phantom>**

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

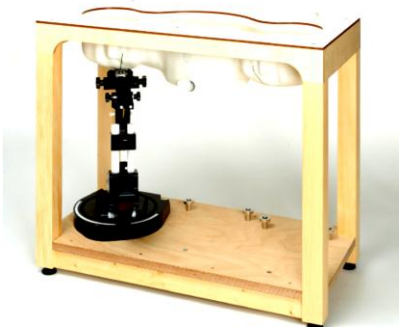


Fig 5.10 Photo of SAM Phantom

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

**<ELI4 Phantom>**

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

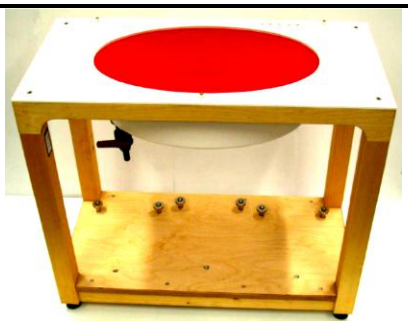


**Fig 5.11 Photo of ELI4 Phantom**

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

## *5.6 Device Holder*

**<Device Holder for SAM Twin Phantom>**

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

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

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

**Fig 5.12 Device Holder**

**<Laptop Extension Kit>**

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

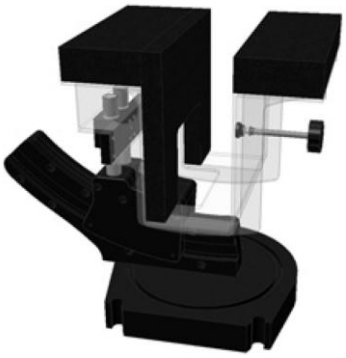


**Fig 5.13 Laptop Extension Kit**

## *5.7 Data Storage and Evaluation*

### *5.7.1 Data Storage*

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

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

### *5.7.2 Data Evaluation*

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

| | | |
|---|---|---|
| **Probe parameters**： | - Sensitivity | $Norm_i$, $a_{i0}$, $a_{i1}$, $a_{i2}$ |
| | - Conversion factor | $ConvF_i$ |
| | - Diode compression point | $dcp_i$ |
| **Device parameters**： | - Frequency | f |
| | - Crest factor | cf |
| **Media parameters**： | - Conductivity | σ |
| | - Density | ρ |

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

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the

DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as：

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

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

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

E-field Probes：$\mathbf{E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}}$

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

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

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

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

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

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

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

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

## 5.8 Test Equipment List

| Manufacturer | Name of Equipment | Type/Model | Serial Number | Calibration | |
|---|---|---|---|---|---|
| | | | | Last Cal. | Due Date |
| SPEAG | 750MHz System Validation Kit | D750V3 | 1012 | Jun. 11, 2010 | Jun. 10, 2013 |
| SPEAG | 835MHz System Validation Kit | D835V2 | 499 | Mar. 22, 2010 | Mar. 21, 2013 |
| SPEAG | 1750MHz System Validation Kit | D1750V2 | 1068 | Jun. 20, 2012 | Jun. 19, 2013 |
| SPEAG | 1900MHz System Validation Kit | D1900V2 | 5d041 | Mar. 23, 2010 | Mar. 22, 2013 |
| SPEAG | 2450MHz System Validation Kit | D2450V2 | 736 | Jul. 25, 2011 | Jul. 24, 2013 |
| SPEAG | 5GHz System Validation Kit | D5GHzV2 | 1006 | Dec. 11, 2012 | Dec. 10, 2013 |
| SPEAG | Data Acquisition Electronics | DAE4 | 778 | Aug. 27, 2012 | Aug. 26, 2013 |
| SPEAG | Data Acquisition Electronics | DAE3 | 495 | Apr. 23, 2012 | Apr. 22, 2013 |
| SPEAG | Data Acquisition Electronics | DAE4 | 910 | Dec. 05, 2012 | Dec. 04, 2013 |
| SPEAG | Data Acquisition Electronics | DAE4 | 1338 | Jun. 12, 2012 | Jun. 11, 2013 |
| SPEAG | Dosimetric E-Field Probe | ET3DV6 | 1787 | May. 29, 2012 | May. 28, 2013 |
| SPEAG | Dosimetric E-Field Probe | EX3DV4 | 3792 | Jun. 21, 2012 | Jun. 20, 2013 |
| SPEAG | Dosimetric E-Field Probe | ES3DV3 | 3270 | Sep. 28, 2012 | Sep. 27, 2013 |
| SPEAG | Dosimetric E-Field Probe | EX3DV4 | 3578 | Jun. 21, 2012 | Jun. 20, 2013 |
| Wisewind | Thermometer | ETP-101 | TM685 | Nov. 13, 2012 | Nov. 12, 2013 |
| Wisewind | Thermometer | HTC-1 | TM642 | Nov. 13, 2012 | Nov. 12, 2013 |
| Wisewind | Thermometer | HTC-1 | TM281 | Nov. 13, 2012 | Nov. 12, 2013 |
| SPEAG | Device Holder | N/A | N/A | NCR | NCR |
| SPEAG | ELI4 Phantom | QD 0VA 001 BB | 1026 | NCR | NCR |
| SPEAG | ELI4 Phantom | QD 0VA 001 BA | 1029 | NCR | NCR |
| SPEAG | ELI4 Phantom | QD 0VA 002 AA | TP-1127 | NCR | NCR |
| Agilent | Network Analyzer | E5071C | MY46101588 | May. 11, 2012 | May. 10, 2013 |
| Agilent | ESG Vector Series Signal Generator | E4438C | MY49070755 | Oct. 02, 2012 | Oct. 01, 2013 |
| Anritsu | Power Meter | ML2495A | 1132003 | Aug. 14, 2012 | Aug. 13, 2013 |
| Anritsu | Radio Communication Analyzer | MT8820C | 6201074414 | Dec. 11, 2012 | Dec. 10, 2014 |
| Agilent | Wireless Communication Test Set | E5515C | MY48360820 | Jan. 05, 2012 | Jan. 04, 2014 |
| Agilent | Dual Directional Coupler | 778D | 50422 | Note 4 | |
| Woken | Attenuator 1 | WK0602-XX | N/A | Note 4 | |
| PE | Attenuator 2 | PE7005-10 | N/A | Note 4 | |
| PE | Attenuator 3 | PE7005- 3 | N/A | Note 4 | |
| Agilent | Dielectric Probe Kit | 85070D | US01440205 | Note 5 | |
| AR | Power Amplifier | 5S1G4M2 | 328767 | Note 6 | |
| R&S | Spectrum Analyzer | FSP | 101131 | Jul. 23, 2012 | Jul. 22, 2013 |

**Table 5.1 Test Equipment List**

**Note:**

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. Referring to KDB 865664 D01v01, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D750V2, SN: 1012, D835V2, SN: 499, D1900V2, SN: 5d041, D2450V2, SN: 736, can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.
4. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
5. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Agilent.
6. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it
7. Attenuator 1 insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.

# 6. Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.2.

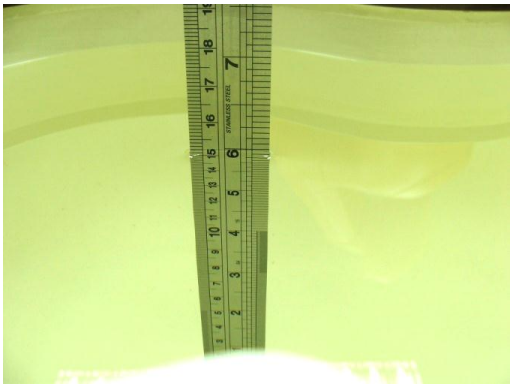


**Fig 6.1 Photo of Liquid Height for Head SAR**

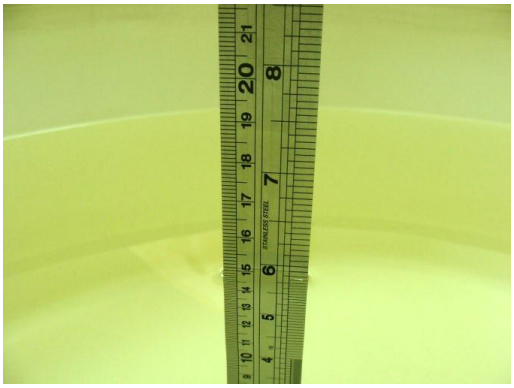


**Fig 6.2 Photo of Liquid Height for Body SAR**

The following table gives the recipes for tissue simulating liquid.

| Frequency (MHz) | Water (%) | Sugar (%) | Cellulose (%) | Salt (%) | Preventol (%) | DGBE (%) | Conductivity (σ) | Permittivity ($\varepsilon_r$) |
|---|---|---|---|---|---|---|---|---|
| **For Head** | | | | | | | | |
| 750 | 41.1 | 57.0 | 0.2 | 1.4 | 0.2 | 0 | 0.89 | 41.9 |
| 835 | 40.3 | 57.9 | 0.2 | 1.4 | 0.2 | 0 | 0.90 | 41.5 |
| 900 | 40.3 | 57.9 | 0.2 | 1.4 | 0.2 | 0 | 0.97 | 41.5 |
| 1800, 1900, 2000 | 55.2 | 0 | 0 | 0.3 | 0 | 44.5 | 1.40 | 40.0 |
| 2450 | 55.0 | 0 | 0 | 0 | 0 | 45.0 | 1.80 | 39.2 |
| **For Body** | | | | | | | | |
| 750 | 51.7 | 47.2 | 0 | 0.9 | 0.1 | 0 | 0.96 | 55.5 |
| 835 | 50.8 | 48.2 | 0 | 0.9 | 0.1 | 0 | 0.97 | 55.2 |
| 900 | 50.8 | 48.2 | 0 | 0.9 | 0.1 | 0 | 1.05 | 55.0 |
| 1800, 1900, 2000 | 70.2 | 0 | 0 | 0.4 | 0 | 29.4 | 1.52 | 53.3 |
| 2450 | 68.6 | 0 | 0 | 0 | 0 | 31.4 | 1.95 | 52.7 |

**Table 6.1 Recipes of Tissue Simulating Liquid**

**Simulating Liquid for 5G, Manufactured by SPEAG**

| Ingredients | (% by weight) |
|---|---|
| Water | 64~78% |
| Mineral oil | 11~18% |
| Emulsifiers | 9~15% |
| Additives and Salt | 2~3% |

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

The following table shows the measuring results for simulating liquid.

| Frequency (MHz) | Liquid Type | Liquid Temp. (℃) | Conductivity (σ) | Permittivity (εr) | Conductivity Target (σ) | Permittivity Target (εr) | Delta (σ) (%) | Delta (εr) (%) | Limit (%) | Date |
|---|---|---|---|---|---|---|---|---|---|---|
| 750 | Body | 21.5 | 0.965 | 54.725 | 0.96 | 55.5 | 0.52 | -1.40 | ±5 | 2013/1/16 |
| 750 | Body | 21.6 | 0.962 | 55.754 | 0.96 | 55.5 | 0.21 | 0.46 | ±5 | 2013/1/18 |
| 835 | Body | 21.5 | 0.968 | 54.858 | 0.97 | 55.2 | -0.21 | -0.62 | ±5 | 2013/1/12 |
| 835 | Body | 21.3 | 0.958 | 53.02 | 0.97 | 55.2 | -1.24 | -3.95 | ±5 | 2013/1/15 |
| 835 | Body | 21.7 | 0.953 | 52.613 | 0.97 | 55.2 | -1.75 | -4.69 | ±5 | 2013/2/20 |
| 835 | Body | 21.2 | 0.963 | 54.5 | 0.97 | 55.2 | -0.72 | -1.27 | ±5 | 2013/2/21 |
| 1750 | Body | 21.6 | 1.546 | 51.518 | 1.52 | 53.3 | 1.71 | -3.34 | ±5 | 2013/1/17 |
| 1750 | Body | 21.7 | 1.523 | 51.561 | 1.52 | 53.3 | 0.20 | -3.26 | ±5 | 2013/1/21 |
| 1750 | Body | 21.6 | 1.516 | 52.234 | 1.52 | 53.3 | -0.26 | -2.00 | ±5 | 2013/2/22 |
| 1750 | Body | 21.7 | 1.541 | 51.611 | 1.52 | 53.3 | 1.38 | -3.17 | ±5 | 2013/2/26 |
| 1900 | Body | 21.3 | 1.499 | 53.26 | 1.52 | 53.3 | -1.38 | -0.08 | ±5 | 2013/1/11 |
| 1900 | Body | 21.2 | 1.516 | 53.631 | 1.52 | 53.3 | -0.26 | 0.62 | ±5 | 2013/1/14 |
| 1900 | Body | 21.5 | 1.526 | 52.813 | 1.52 | 53.3 | 0.39 | -0.91 | ±5 | 2013/1/24 |
| 1900 | Body | 21.4 | 1.531 | 54.169 | 1.52 | 53.3 | 0.72 | 1.63 | ±5 | 2013/2/21 |
| 1900 | Body | 21.6 | 1.547 | 50.964 | 1.52 | 53.3 | 1.78 | -4.38 | ±5 | 2013/2/22 |
| 2450 | Body | 21.5 | 2.02 | 53.936 | 1.95 | 52.7 | 3.59 | 2.35 | ±5 | 2013/1/2 |
| 2450 | Body | 21.7 | 1.931 | 53.552 | 1.95 | 52.7 | -0.97 | 1.62 | ±5 | 2013/1/11 |
| 5200 | Body | 21.4 | 5.138 | 47.493 | 5.3 | 49 | -3.06 | -3.08 | ±5 | 2013/1/3 |
| 5300 | Body | 21.4 | 5.27 | 47.255 | 5.3 | 49 | -0.57 | -3.56 | ±5 | 2013/1/3 |
| 5600 | Body | 21.4 | 5.653 | 46.801 | 5.65 | 48.6 | 0.05 | -3.70 | ±5 | 2013/1/3 |
| 5800 | Body | 21.4 | 5.991 | 46.521 | 6 | 48.2 | -0.15 | -3.48 | ±5 | 2013/1/3 |

**Table 6.2 Measuring Results for Simulating Liquid**

# 7. SAR System Verification

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

## 7.1 Purpose of System Performance check

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

## 7.2 System Setup

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

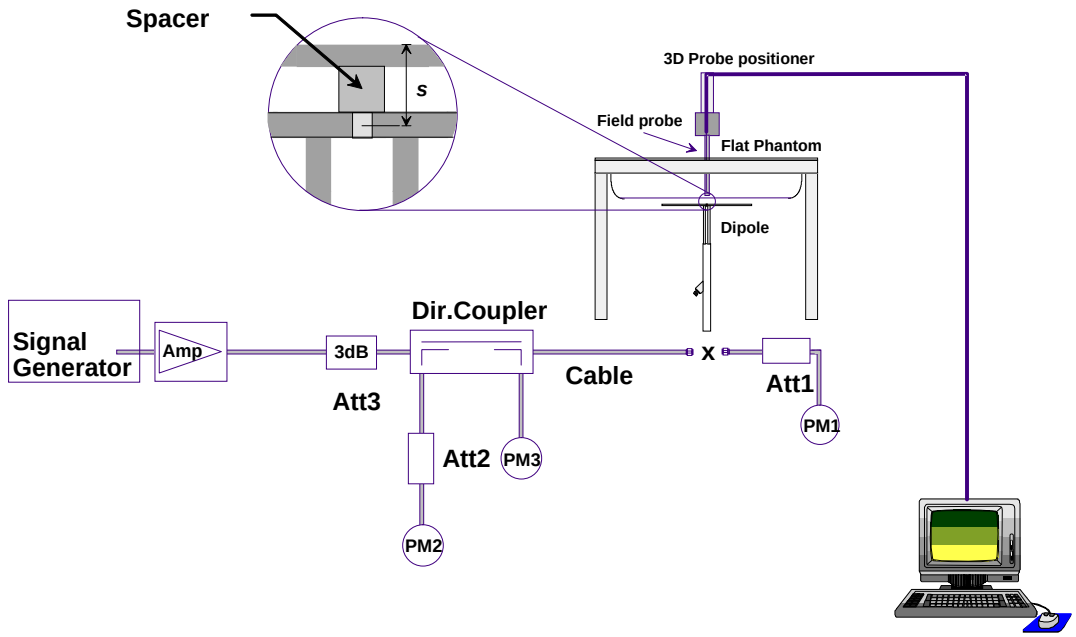



**Fig 7.1 System Setup for System Evaluation**

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

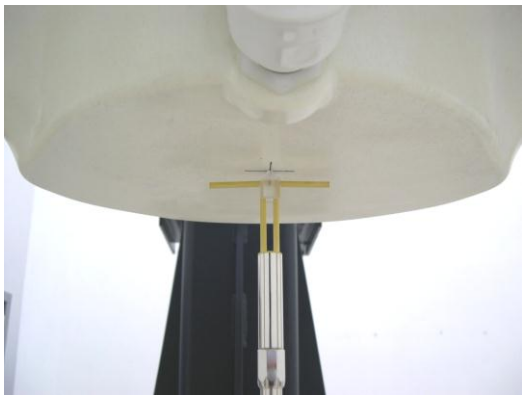


**Fig 7.2 Photo of Dipole Setup**

## *7.3 SAR System Verification Results*

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Table 7.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

| Date | Frequency (MHz) | Liquid Type | Power fed onto reference dipole (mW) | Targeted SAR (W/kg) | Measured SAR (W/kg) | Normalized SAR (W/kg) | Deviation (%) |
|---|---|---|---|---|---|---|---|
| 2013/1/16 | 750 | Body | 250 | 8.86 | 2.24 | 8.96 | 1.13 |
| 2013/1/18 | 750 | Body | 250 | 8.86 | 2.23 | 8.92 | 0.68 |
| 2013/1/12 | 835 | Body | 250 | 9.82 | 2.4 | 9.6 | -2.24 |
| 2013/1/15 | 835 | Body | 250 | 9.82 | 2.35 | 9.4 | -4.28 |
| 2013/2/20 | 835 | Body | 250 | 9.82 | 2.55 | 10.2 | 3.87 |
| 2013/2/21 | 835 | Body | 250 | 9.82 | 2.36 | 9.44 | -3.87 |
| 2013/1/17 | 1750 | Body | 250 | 36.8 | 9.29 | 37.16 | 0.98 |
| 2013/1/21 | 1750 | Body | 250 | 36.8 | 9.65 | 38.6 | 4.89 |
| 2013/2/22 | 1750 | Body | 250 | 36.8 | 9.61 | 38.44 | 4.46 |
| 2013/2/26 | 1750 | Body | 250 | 36.8 | 9.78 | 39.12 | 6.30 |
| 2013/1/11 | 1900 | Body | 250 | 40 | 9.47 | 37.88 | -5.30 |
| 2013/1/14 | 1900 | Body | 250 | 40 | 10.3 | 41.2 | 3.00 |
| 2013/1/24 | 1900 | Body | 250 | 40 | 10.4 | 41.6 | 4.00 |
| 2013/2/21 | 1900 | Body | 250 | 40 | 9.91 | 39.64 | -0.90 |
| 2013/2/22 | 1900 | Body | 250 | 40 | 10.5 | 42 | 5.00 |
| 2013/1/2 | 2450 | Body | 250 | 52.3 | 12.8 | 51.2 | -2.10 |
| 2013/1/11 | 2450 | Body | 250 | 52.3 | 12.3 | 49.2 | -5.93 |
| 2013/1/3 | 5200 | Body | 100 | 71.4 | 7.08 | 70.8 | -0.84 |
| 2013/1/3 | 5300 | Body | 100 | 73.5 | 7.31 | 73.1 | -0.54 |
| 2013/1/3 | 5600 | Body | 100 | 76.8 | 8 | 80 | 4.17 |
| 2013/1/3 | 5800 | Body | 100 | 71.7 | 7.46 | 74.6 | 4.04 |

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

# 8. EUT Testing Position

This EUT was tested in three different positions. They are bottom-face of tablet PC, Edge2, Edge3, and Edge4. In these positions, the surface of EUT is touching with phantom 0cm, and additional 1cm separation for bottom-face and 0.8cm separation for Edge3. Please refer to Appendix D for the test setup photos.

# 9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

## 9.1 Spatial Peak SAR Evaluation

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

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

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

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

## 9.2 Power Reference Measurement

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

## 9.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01 quoted below.

For any secondary peaks found in the area scan which are within 2 dB of the maximum peak and are not within this zoom scan, the zoom scan should be repeated

| | | | ≤ 3 GHz | > 3 GHz |
|---|---|---|---|---|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | | | 5 ± 1 mm | ½·δ·ln(2) ± 0.5 mm |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location | | | 30° ± 1° | 20° ± 1° |
| Maximum area scan spatial resolution: $\Delta x_{Area}$, $\Delta y_{Area}$ | | | ≤ 2 GHz: ≤ 15 mm<br>2 – 3 GHz: ≤ 12 mm | 3 – 4 GHz: ≤ 12 mm<br>4 – 6 GHz: ≤ 10 mm |
| | | | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device. | |
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$, $\Delta y_{Zoom}$ | | | ≤ 2 GHz: ≤ 8 mm<br>2 – 3 GHz: ≤ 5 mm* | 3 – 4 GHz: ≤ 5 mm*<br>4 – 6 GHz: ≤ 4 mm* |
| Maximum zoom scan spatial resolution, normal to phantom surface | uniform grid: $\Delta z_{Zoom}(n)$ | | ≤ 5 mm | 3 – 4 GHz: ≤ 4 mm<br>4 – 5 GHz: ≤ 3 mm<br>5 – 6 GHz: ≤ 2 mm |
| | graded grid | $\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface | ≤ 4 mm | 3 – 4 GHz: ≤ 3 mm<br>4 – 5 GHz: ≤ 2.5 mm<br>5 – 6 GHz: ≤ 2 mm |
| | | $\Delta z_{Zoom}(n>1)$: between subsequent points | ≤ 1.5·$\Delta z_{Zoom}(n-1)$ | |
| Minimum zoom scan volume | x, y, z | | ≥ 30 mm | 3 – 4 GHz: ≥ 28 mm<br>4 – 5 GHz: ≥ 25 mm<br>5 – 6 GHz: ≥ 22 mm |

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

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

## 9.4 Volume Scan Procedures

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

## 9.5 SAR Averaged Methods

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

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

## 9.6 Power Drift Monitoring

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

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

## <GSM Conducted Power>

**Maximum RF Power (Proximity Sensor Inactive)**

| Band GSM850 | Burst Average Power (dBm) | | | Frame-Average Power (dBm) | | |
|---|---|---|---|---|---|---|
| Channel | 128 | 189 | 251 | 128 | 189 | 251 |
| Frequency(MHz) | 824.2 | 836.4 | 848.8 | 824.2 | 836.4 | 848.8 |
| GPRS (GMSK, 1 Tx slot) – CS1 | 32.23 | 32.16 | 32.09 | 23.23 | 23.16 | 23.09 |
| GPRS (GMSK, 2 Tx slots) – CS1 | 31.98 | 31.96 | 31.95 | 25.98 | 25.96 | 25.95 |
| EDGE (GMSK, 1 Tx slot) – MCS1 | 31.89 | 31.90 | 31.88 | 22.89 | 22.90 | 22.88 |
| EDGE (GMSK, 2 Tx slots) – MCS1 | 31.84 | 31.81 | 31.71 | 25.84 | 25.81 | 25.71 |
| EDGE (GMSK, 3 Tx slots) – MCS1 | 29.12 | 29.07 | 29.01 | 24.86 | 24.81 | 24.75 |
| EDGE (GMSK, 4 Tx slots) – MCS1 | 27.12 | 27.10 | 26.98 | 24.12 | 24.10 | 23.98 |
| EDGE (8PSK, 1 Tx slot) – MCS5 | 26.22 | 26.20 | 26.31 | 17.22 | 17.20 | 17.31 |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 26.23 | 26.20 | 26.24 | 20.23 | 20.20 | 20.24 |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 25.28 | 25.20 | 25.16 | 21.02 | 20.94 | 20.90 |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 24.20 | 24.06 | 24.01 | 21.20 | 21.06 | 21.01 |

**Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.**
**The calculated method are shown as below:**
**Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB**
**Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB**
**Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB**
**Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB**

**Reduced RF Power (Proximity Sensor active)**

| Band GSM850 | Burst Average Power (dBm) | | | Frame-Average Power (dBm) | | |
|---|---|---|---|---|---|---|
| Channel | 128 | 189 | 251 | 128 | 189 | 251 |
| Frequency(MHz) | 824.2 | 836.4 | 848.8 | 824.2 | 836.4 | 848.8 |
| GPRS (GMSK, 1 Tx slot) – CS1 | 29.80 | 29.76 | 29.72 | 20.80 | 20.76 | 20.72 |
| GPRS (GMSK, 2 Tx slots) – CS1 | 27.88 | 27.83 | 27.76 | 21.88 | 21.83 | 21.76 |
| EDGE (GMSK, 1 Tx slot) – MCS1 | 29.72 | 29.47 | 29.70 | 20.72 | 20.47 | 20.70 |
| EDGE (GMSK, 2 Tx slots) – MCS1 | 27.80 | 27.75 | 27.72 | 21.80 | 21.75 | 21.72 |
| EDGE (GMSK, 3 Tx slots) – MCS1 | 26.13 | 25.98 | 26.05 | 21.87 | 21.72 | 21.79 |
| EDGE (GMSK, 4 Tx slots) – MCS1 | 24.85 | 24.86 | 24.85 | 21.85 | 21.86 | 21.85 |
| EDGE (8PSK, 1 Tx slot) – MCS5 | 26.22 | 26.20 | 26.31 | 17.22 | 17.20 | 17.31 |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 26.23 | 26.20 | 26.24 | 20.23 | 20.20 | 20.24 |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 25.28 | 25.20 | 25.16 | 21.02 | 20.94 | 20.90 |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 24.20 | 24.06 | 24.01 | 21.20 | 21.06 | 21.01 |

**Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.**
**The calculated method are shown as below:**
**Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB**
**Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB**
**Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB**
**Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB**

**Note:**

1. Following KDB 941225 D03, for Body SAR testing, the EUT operating without power back-off was set in GPRS (2 Tx slots) and the EUT operating with power back-off was set in GPRS (2 Tx slots) due to its highest frame-average power.
2. Per KDB 447498 D01v05, the maximum output power channel is used for SAR testing and for further SAR test reduction.

**Maximum RF Power (Proximity Sensor Inactive)**

| Band GSM1900 | Burst Average Power (dBm) | | | Frame-Average Power (dBm) | | |
|---|---|---|---|---|---|---|
| Channel | 512 | 661 | 810 | 512 | 661 | 810 |
| Frequency(MHz) | 1850.2 | 1880 | 1909.8 | 1850.2 | 1880 | 1909.8 |
| GPRS (GMSK, 1 Tx slot) – CS1 | 29.48 | 29.38 | 29.00 | 20.48 | 20.38 | 20.00 |
| GPRS (GMSK, 2 Tx slots) – CS1 | 29.28 | 29.25 | 29.00 | 23.28 | 23.25 | 23.00 |
| EDGE (GMSK, 1 Tx slot) – MCS1 | 29.43 | 29.36 | 28.94 | 20.43 | 20.36 | 19.94 |
| EDGE (GMSK, 2 Tx slots) – MCS1 | 29.26 | 29.22 | 28.80 | 23.26 | 23.22 | 22.80 |
| EDGE (GMSK, 3 Tx slots) – MCS1 | 26.80 | 26.86 | 26.76 | 22.54 | 22.60 | 22.50 |
| EDGE (GMSK, 4 Tx slots) – MCS1 | 25.69 | 25.65 | 25.65 | 22.69 | 22.65 | 22.65 |
| EDGE (8PSK, 1 Tx slot) – MCS5 | 25.32 | 25.35 | 25.21 | 16.32 | 16.35 | 16.21 |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 25.41 | 25.29 | 25.13 | 19.41 | 19.29 | 19.13 |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 25.17 | 25.10 | 24.98 | 20.91 | 20.84 | 20.72 |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 23.92 | 23.88 | 23.86 | 20.92 | 20.88 | 20.86 |

**Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.**
**The calculated method are shown as below:**
**Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB**
**Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB**
**Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB**
**Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB**

**Reduced RF Power (Proximity Sensor active)**

| Band GSM1900 | Burst Average Power (dBm) | | | Frame-Average Power (dBm) | | |
|---|---|---|---|---|---|---|
| Channel | 512 | 661 | 810 | 512 | 661 | 810 |
| Frequency(MHz) | 1850.2 | 1880 | 1909.8 | 1850.2 | 1880 | 1909.8 |
| GPRS (GMSK, 1 Tx slot) – CS1 | 27.14 | 26.73 | 26.84 | 18.14 | 17.73 | 17.84 |
| GPRS (GMSK, 2 Tx slots) – CS1 | 24.77 | 24.57 | 24.52 | 18.77 | 18.57 | 18.52 |
| EDGE (GMSK, 1 Tx slot) – MCS1 | 26.53 | 26.57 | 26.48 | 17.53 | 17.57 | 17.48 |
| EDGE (GMSK, 2 Tx slots) – MCS1 | 24.72 | 24.55 | 24.49 | 18.72 | 18.55 | 18.49 |
| EDGE (GMSK, 3 Tx slots) – MCS1 | 22.49 | 22.27 | 22.55 | 18.23 | 18.01 | 18.29 |
| EDGE (GMSK, 4 Tx slots) – MCS1 | 21.39 | 21.17 | 21.31 | 18.39 | 18.17 | 18.31 |
| EDGE (8PSK, 1 Tx slot) – MCS5 | 25.32 | 25.35 | 25.21 | 16.32 | 16.35 | 16.21 |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 24.41 | 24.29 | 24.13 | 18.41 | 18.29 | 18.13 |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 22.35 | 22.27 | 22.25 | 18.09 | 18.01 | 17.99 |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 21.25 | 21.20 | 21.18 | 18.25 | 18.20 | 18.18 |

**Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.**
**The calculated method are shown as below:**
**Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB**
**Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB**
**Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB**
**Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB**

**Note:**

1. Following KDB 941225 D03, for Body SAR testing, the EUT operating without power back-off was set in GPRS (2 Tx slots) and the EUT operating with power back-off was set in GPRS (2 Tx slots) due to its highest frame-average power.
2. Per KDB 447498 D01v05, the maximum output power channel is used for SAR testing and for further SAR test reduction.

**<WCDMA Conducted Power>**

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.

A summary of these settings are illustrated below:

**HSDPA Setup Configuration:**

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors ($\beta_c$ and $\beta_d$) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

**Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH**

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note1, Note 2) | CM (dB) (Note 3) | MPR (dB) (Note 3) |
|---|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 | 0.0 |
| 2 | 12/15 (Note 4) | 15/15 (Note 4) | 64 | 12/15 (Note 4) | 24/15 | 1.0 | 0.0 |
| 3 | 15/15 | 8/15 | 64 | 15/8 | 30/15 | 1.5 | 0.5 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 | 0.5 |

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

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, $\Delta_{ACK}$ and $\Delta_{NACK}$ = 30/15 with $\beta_{hs}$ = 30/15 * $\beta_c$, and $\Delta_{CQI}$ = 24/15 with $\beta_{hs}$ = 24/15 * $\beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d$ =12/15, $\beta_{hs}/\beta_c$=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the $\beta_c/\beta_d$ ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c$ = 11/15 and $\beta_d$ = 15/15.

**Setup Configuration**

**HSUPA Setup Configuration:**

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors ($\beta_c$ and $\beta_d$) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

**Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH**

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note1) | $\beta_{ec}$ | $\beta_{ed}$ (Note 5) (Note 6) | $\beta_{ed}$ (SF) | $\beta_{ed}$ (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) | AG Index (Note 6) | E-TFCI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15 (Note 3) | 15/15 (Note 3) | 64 | 11/15 (Note 3) | 22/15 | 209/225 | 1309/225 | 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_{ed}$1: 47/15<br>$\beta_{ed}$2: 47/15 | 4<br>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 (Note 4) | 15/15 (Note 4) | 64 | 15/15 (Note 4) | 30/15 | 24/15 | 134/15 | 4 | 1 | 1.0 | 0.0 | 21 | 81 |

Note 1: $\Delta_{ACK}$, $\Delta_{NACK}$ and $\Delta_{CQI}$ = 30/15 with $\beta_{hs}$ = 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 signalled 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 signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c$ = 14/15 and $\beta_d$ = 15/15.
Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.
Note 6: $\beta_{ed}$ can not be set directly, it is set by Absolute Grant Value.

**Setup Configuration**

## <WCDMA Conducted Power>

**Note:**

1. Applying the subtest setup in Table C.11.1.3 of 3GPP TS 34.121-1 V9.1.0 to Rel. 6 HSPA.
2. By design, HSDPA/HSUPA RF power will not be larger than RMC 12.2 kbps, detailed information is included in Tune-up Procure exhibit.

**Maximum Average RF Power (Proximity Sensor Inactive)**

| Band | | WCDMA V | | | WCDMA II | | | WCDMA IV | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TX Channel | | 4132 | 4182 | 4233 | 9262 | 9400 | 9538 | 1312 | 1413 | 1513 |
| Rx Channel | | 4357 | 4407 | 4458 | 9662 | 9800 | 9938 | 1537 | 1638 | 1738 |
| Frequency (MHz) | | 826.4 | 836.4 | 846.6 | 1852.4 | 1880 | 1907.6 | 1712.4 | 1732.6 | 1752.6 |
| 3GPP Rel 99 | RMC 12.2Kbps | 22.75 | 22.72 | 22.63 | 22.77 | 22.72 | 22.78 | 22.44 | 22.60 | 22.32 |
| 3GPP Rel 6 | HSDPA Subtest-1 | 22.19 | 22.16 | 22.11 | 22.28 | 22.25 | 22.30 | 21.88 | 22.01 | 22.00 |
| 3GPP Rel 6 | HSDPA Subtest-2 | 22.17 | 22.15 | 22.08 | 22.18 | 22.16 | 22.20 | 21.91 | 22.01 | 21.74 |
| 3GPP Rel 6 | HSDPA Subtest-3 | 21.78 | 21.72 | 21.69 | 21.85 | 21.82 | 21.87 | 21.43 | 21.54 | 21.21 |
| 3GPP Rel 6 | HSDPA Subtest-4 | 21.76 | 21.70 | 21.66 | 21.76 | 21.72 | 21.78 | 21.35 | 21.47 | 21.14 |
| 3GPP Rel 6 | HSUPA Subtest-1 | 21.84 | 21.85 | 21.55 | 22.04 | 22.30 | 21.81 | 21.33 | 21.83 | 21.83 |
| 3GPP Rel 6 | HSUPA Subtest-2 | 20.55 | 20.58 | 20.53 | 20.93 | 20.77 | 20.83 | 20.33 | 20.63 | 20.58 |
| 3GPP Rel 6 | HSUPA Subtest-3 | 21.02 | 21.05 | 21.07 | 21.24 | 21.30 | 21.18 | 20.76 | 20.94 | 20.50 |
| 3GPP Rel 6 | HSUPA Subtest-4 | 20.58 | 20.70 | 20.57 | 20.91 | 20.99 | 20.86 | 20.64 | 20.84 | 20.60 |
| 3GPP Rel 6 | HSUPA Subtest-5 | 22.05 | 22.10 | 22.09 | 22.29 | 22.36 | 22.16 | 22.02 | 22.15 | 21.94 |
| 3GPP MPR specification | MPR result | WCDMA V | | | WCDMA II | | | WCDMA IV | | |
| 0 | HSDPA Subtest-1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | HSDPA Subtest-2 | 0.02 | 0.01 | 0.03 | 0.10 | 0.09 | 0.10 | -0.03 | 0.00 | 0.26 |
| ≦0.5 | HSDPA Subtest-3 | 0.41 | 0.44 | 0.42 | 0.43 | 0.43 | 0.43 | 0.45 | 0.47 | 0.79 |
| ≦0.5 | HSDPA Subtest-4 | 0.43 | 0.46 | 0.45 | 0.52 | 0.53 | 0.52 | 0.53 | 0.54 | 0.86 |
| ≦0 | HSUPA Subtest-1 | 0.21 | 0.25 | 0.54 | 0.25 | 0.06 | 0.35 | 0.69 | 0.32 | 0.11 |
| ≦2 | HSUPA Subtest-2 | 1.50 | 1.52 | 1.56 | 1.36 | 1.59 | 1.33 | 1.69 | 1.52 | 1.36 |
| ≦1 | HSUPA Subtest-3 | 1.03 | 1.05 | 1.02 | 1.05 | 1.06 | 0.98 | 1.26 | 1.21 | 1.44 |
| ≦2 | HSUPA Subtest-4 | 1.47 | 1.40 | 1.52 | 1.38 | 1.37 | 1.30 | 1.38 | 1.31 | 1.34 |
| ≦0 | HSUPA Subtest-5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Reduced Average RF Power (Proximity Sensor active)**

| Band | | WCDMA V | | | WCDMA II | | | WCDMA IV | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TX Channel | | 4132 | 4182 | 4233 | 9262 | 9400 | 9538 | 1312 | 1413 | 1513 |
| Rx Channel | | 4357 | 4407 | 4458 | 9662 | 9800 | 9938 | 1537 | 1638 | 1738 |
| Frequency (MHz) | | 826.4 | 836.4 | 846.6 | 1852.4 | 1880 | 1907.6 | 1712.4 | 1732.6 | 1752.6 |
| 3GPP Rel 99 | RMC 12.2Kbps | 20.44 | 20.41 | 20.36 | 17.63 | 17.62 | 17.64 | 20.32 | 20.47 | 20.26 |
| 3GPP Rel 6 | HSDPA Subtest-1 | 20.26 | 20.23 | 20.18 | 17.28 | 17.26 | 17.30 | 19.85 | 19.98 | 19.76 |
| 3GPP Rel 6 | HSDPA Subtest-2 | 20.25 | 20.22 | 20.16 | 17.20 | 17.18 | 17.22 | 19.94 | 20.01 | 19.74 |
| 3GPP Rel 6 | HSDPA Subtest-3 | 19.83 | 19.77 | 19.74 | 16.87 | 16.84 | 16.90 | 19.37 | 19.48 | 19.26 |
| 3GPP Rel 6 | HSDPA Subtest-4 | 19.80 | 19.75 | 19.70 | 16.75 | 16.71 | 16.78 | 19.41 | 19.47 | 19.25 |
| 3GPP Rel 6 | HSUPA Subtest-1 | 20.03 | 20.04 | 20.08 | 17.02 | 17.32 | 17.06 | 19.45 | 19.48 | 19.32 |
| 3GPP Rel 6 | HSUPA Subtest-2 | 18.67 | 18.78 | 18.56 | 15.77 | 15.12 | 15.80 | 18.63 | 18.70 | 18.32 |
| 3GPP Rel 6 | HSUPA Subtest-3 | 19.05 | 19.07 | 19.09 | 16.37 | 16.13 | 16.40 | 18.47 | 18.85 | 18.49 |
| 3GPP Rel 6 | HSUPA Subtest-4 | 18.73 | 18.75 | 18.68 | 16.05 | 16.09 | 16.11 | 18.90 | 18.92 | 18.82 |
| 3GPP Rel 6 | HSUPA Subtest-5 | 20.10 | 20.08 | 20.10 | 17.41 | 17.50 | 17.58 | 20.03 | 20.04 | 19.78 |
| 3GPP MPR specification | MPR result | WCDMA V | | | WCDMA II | | | WCDMA IV | | |
| 0 | HSDPA Subtest-1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | HSDPA Subtest-2 | 0.01 | 0.01 | 0.02 | 0.08 | 0.08 | 0.08 | -0.09 | -0.03 | 0.02 |
| ≦0.5 | HSDPA Subtest-3 | 0.43 | 0.46 | 0.44 | 0.41 | 0.42 | 0.40 | 0.48 | 0.50 | 0.50 |
| ≦0.5 | HSDPA Subtest-4 | 0.46 | 0.48 | 0.48 | 0.53 | 0.55 | 0.52 | 0.44 | 0.51 | 0.51 |
| ≦0 | HSUPA Subtest-1 | 0.07 | 0.04 | 0.02 | 0.39 | 0.18 | 0.52 | 0.58 | 0.56 | 0.46 |
| ≦2 | HSUPA Subtest-2 | 1.43 | 1.30 | 1.54 | 1.64 | 2.38 | 1.78 | 1.40 | 1.34 | 1.46 |
| ≦1 | HSUPA Subtest-3 | 1.05 | 1.01 | 1.01 | 1.04 | 1.37 | 1.18 | 1.56 | 1.19 | 1.29 |
| ≦2 | HSUPA Subtest-4 | 1.37 | 1.33 | 1.42 | 1.36 | 1.41 | 1.47 | 1.13 | 1.12 | 0.96 |
| ≦0 | HSUPA Subtest-5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## <LTE Conducted Power>

**Note:**

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each *required test channel*.
4. Per KDB 941225 D05v02, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
5. 16QAM output power for each RB allocation configuration is not > ½ dB higher than the same configuration in QPSK
6. Smaller bandwidth output power for each RB allocation configuration is not > ½ dB higher than the same configuration in the largest supported bandwidth

## <LTE Band 17 Conducted Power >

**Maximum Average RF Power (Proximity Sensor Inactive)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Target MPR | MPR Low Ch. / Freq. | MPR Middle Ch. / Freq. | MPR High Ch. / Freq. |
|---|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 23780 | 23790 | 23800 | | 23780 | 23790 | 23800 |
| Frequency (MHz) | | | | 709 | 710 | 711 | | 709 | 710 | 711 |
| 10 | QPSK | 1 | 0 | 22.80 | 22.56 | 22.88 | 0 | 0.00 | 0.14 | 0.00 |
| 10 | QPSK | 1 | 24 | 22.78 | 22.70 | 22.75 | | 0.02 | 0.00 | 0.13 |
| 10 | QPSK | 1 | 49 | 22.79 | 22.69 | 22.84 | | 0.01 | 0.01 | 0.04 |
| 10 | QPSK | 25 | 0 | 21.61 | 21.64 | 21.67 | 1 | 1.19 | 1.06 | 1.21 |
| 10 | QPSK | 25 | 12 | 21.69 | 21.73 | 21.57 | | 1.11 | 0.97 | 1.31 |
| 10 | QPSK | 25 | 24 | 21.62 | 21.54 | 21.50 | | 1.18 | 1.16 | 1.38 |
| 10 | QPSK | 50 | 0 | 21.64 | 21.65 | 21.49 | | 1.16 | 1.05 | 1.39 |
| 10 | 16QAM | 1 | 0 | 21.90 | 21.57 | 21.58 | 1 | 0.90 | 1.13 | 1.30 |
| 10 | 16QAM | 1 | 24 | 21.80 | 21.51 | 21.50 | | 1.00 | 1.19 | 1.38 |
| 10 | 16QAM | 1 | 49 | 21.88 | 21.65 | 21.67 | | 0.92 | 1.05 | 1.21 |
| 10 | 16QAM | 25 | 0 | 20.48 | 20.57 | 20.60 | 2 | 2.32 | 2.13 | 2.28 |
| 10 | 16QAM | 25 | 12 | 20.60 | 20.62 | 20.86 | | 2.20 | 2.08 | 2.02 |
| 10 | 16QAM | 25 | 24 | 20.76 | 20.50 | 20.71 | | 2.04 | 2.20 | 2.17 |
| 10 | 16QAM | 50 | 0 | 20.61 | 20.46 | 20.50 | | 2.19 | 2.24 | 2.38 |
| Channel | | | | 23755 | 23790 | 23825 | | 23755 | 23790 | 23825 |
| Frequency (MHz) | | | | 706.5 | 710 | 713.5 | | 706.5 | 710 | 713.5 |
| 5 | QPSK | 1 | 0 | 22.74 | 22.66 | 22.50 | 0 | 0.00 | 0.21 | 0.00 |
| 5 | QPSK | 1 | 12 | 22.73 | 22.53 | 22.42 | | 0.01 | 0.34 | 0.08 |
| 5 | QPSK | 1 | 24 | 22.72 | 22.87 | 22.42 | | 0.02 | 0.00 | 0.08 |
| 5 | QPSK | 12 | 0 | 21.70 | 21.64 | 21.75 | 1 | 1.04 | 1.23 | 0.75 |
| 5 | QPSK | 12 | 6 | 21.68 | 21.69 | 21.72 | | 1.06 | 1.18 | 0.78 |
| 5 | QPSK | 12 | 11 | 21.71 | 21.63 | 21.58 | | 1.03 | 1.24 | 0.92 |
| 5 | QPSK | 25 | 0 | 21.58 | 21.61 | 21.57 | | 1.16 | 1.26 | 0.93 |
| 5 | 16QAM | 1 | 0 | 21.60 | 21.88 | 21.45 | 1 | 1.14 | 0.99 | 1.05 |
| 5 | 16QAM | 1 | 12 | 21.91 | 21.60 | 21.59 | | 0.83 | 1.27 | 0.91 |
| 5 | 16QAM | 1 | 24 | 21.58 | 21.58 | 21.15 | | 1.16 | 1.29 | 1.35 |
| 5 | 16QAM | 12 | 0 | 20.53 | 20.51 | 20.63 | 2 | 2.21 | 2.36 | 1.87 |
| 5 | 16QAM | 12 | 6 | 20.82 | 20.82 | 20.70 | | 1.92 | 2.05 | 1.80 |
| 5 | 16QAM | 12 | 11 | 20.80 | 20.74 | 20.44 | | 1.94 | 2.13 | 2.06 |
| 5 | 16QAM | 25 | 0 | 20.39 | 20.42 | 20.46 | | 2.35 | 2.45 | 2.04 |

**Reduced Average RF Power (Proximity Sensor active)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 23780 | 23790 | 23800 |
| Frequency (MHz) | | | | 709 | 710 | 711 |
| 10 | QPSK | 1 | 0 | 21.43 | 21.46 | 21.33 |
| 10 | QPSK | 1 | 24 | 21.83 | 21.64 | 21.59 |
| 10 | QPSK | 1 | 49 | 21.68 | 21.61 | 21.35 |
| 10 | QPSK | 25 | 0 | 21.45 | 21.66 | 21.73 |
| 10 | QPSK | 25 | 12 | 21.44 | 21.71 | 21.64 |
| 10 | QPSK | 25 | 24 | 21.51 | 21.65 | 21.56 |
| 10 | QPSK | 50 | 0 | 21.56 | 21.61 | 21.62 |
| 10 | 16QAM | 1 | 0 | 21.54 | 21.80 | 21.65 |
| 10 | 16QAM | 1 | 24 | 21.65 | 21.73 | 21.40 |
| 10 | 16QAM | 1 | 49 | 21.59 | 21.50 | 21.54 |
| 10 | 16QAM | 25 | 0 | 20.49 | 20.67 | 20.65 |
| 10 | 16QAM | 25 | 12 | 20.50 | 20.81 | 20.59 |
| 10 | 16QAM | 25 | 24 | 20.62 | 20.63 | 20.63 |
| 10 | 16QAM | 50 | 0 | 20.64 | 20.61 | 20.30 |
| Channel | | | | 23755 | 23790 | 23825 |
| Frequency (MHz) | | | | 706.5 | 710 | 713.5 |
| 5 | QPSK | 1 | 0 | 21.62 | 21.73 | 21.60 |
| 5 | QPSK | 1 | 12 | 21.71 | 21.60 | 21.59 |
| 5 | QPSK | 1 | 24 | 21.72 | 21.71 | 21.64 |
| 5 | QPSK | 12 | 0 | 21.66 | 21.74 | 21.70 |
| 5 | QPSK | 12 | 6 | 21.72 | 21.74 | 21.62 |
| 5 | QPSK | 12 | 11 | 21.82 | 21.66 | 21.54 |
| 5 | QPSK | 25 | 0 | 21.64 | 21.66 | 21.61 |
| 5 | 16QAM | 1 | 0 | 21.74 | 21.79 | 21.53 |
| 5 | 16QAM | 1 | 12 | 21.59 | 21.81 | 21.81 |
| 5 | 16QAM | 1 | 24 | 21.80 | 21.80 | 21.72 |
| 5 | 16QAM | 12 | 0 | 20.80 | 20.89 | 20.78 |
| 5 | 16QAM | 12 | 6 | 20.86 | 20.89 | 20.75 |
| 5 | 16QAM | 12 | 11 | 20.67 | 20.62 | 20.51 |
| 5 | 16QAM | 25 | 0 | 20.56 | 20.68 | 20.67 |

## <LTE Band 13 Conducted Power >

**Maximum Average RF Power (Proximity Sensor Inactive)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Middle Ch. / Freq. | | | Target MPR | MPR Middle Ch. / Freq. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 23230 | | | | 23230 | | |
| Frequency (MHz) | | | | 782 | | | | 782 | | |
| 10 | QPSK | 1 | 0 | 22.75 | | | 0 | 0.00 | | |
| 10 | QPSK | 1 | 24 | 22.60 | | | | 0.15 | | |
| 10 | QPSK | 1 | 49 | 22.50 | | | | 0.25 | | |
| 10 | QPSK | 25 | 0 | 21.50 | | | 1 | 1.25 | | |
| 10 | QPSK | 25 | 12 | 21.48 | | | | 1.27 | | |
| 10 | QPSK | 25 | 24 | 21.47 | | | | 1.28 | | |
| 10 | QPSK | 50 | 0 | 21.40 | | | | 1.35 | | |
| 10 | 16QAM | 1 | 0 | 21.77 | | | 1 | 0.98 | | |
| 10 | 16QAM | 1 | 24 | 21.70 | | | | 1.05 | | |
| 10 | 16QAM | 1 | 49 | 21.65 | | | | 1.10 | | |
| 10 | 16QAM | 25 | 0 | 20.50 | | | 2 | 2.25 | | |
| 10 | 16QAM | 25 | 12 | 20.42 | | | | 2.33 | | |
| 10 | 16QAM | 25 | 24 | 20.48 | | | | 2.27 | | |
| 10 | 16QAM | 50 | 0 | 20.35 | | | | 2.40 | | |
| Channel | | | | 23205 | 23230 | 23255 | | 23205 | 23230 | 23255 |
| Frequency (MHz) | | | | 779.5 | 782 | 784.5 | | 779.5 | 782 | 784.5 |
| 5 | QPSK | 1 | 0 | 22.65 | 22.66 | 22.60 | 0 | 0.00 | 0.00 | 0.00 |
| 5 | QPSK | 1 | 12 | 22.30 | 22.50 | 22.51 | | 0.35 | 0.16 | 0.09 |
| 5 | QPSK | 1 | 24 | 22.62 | 22.48 | 22.40 | | 0.03 | 0.18 | 0.20 |
| 5 | QPSK | 12 | 0 | 21.58 | 21.60 | 21.58 | 1 | 1.07 | 1.06 | 1.02 |
| 5 | QPSK | 12 | 6 | 21.56 | 21.48 | 21.46 | | 1.09 | 1.18 | 1.14 |
| 5 | QPSK | 12 | 11 | 21.60 | 21.58 | 21.52 | | 1.05 | 1.08 | 1.08 |
| 5 | QPSK | 25 | 0 | 21.45 | 21.38 | 21.32 | | 1.20 | 1.28 | 1.28 |
| 5 | 16QAM | 1 | 0 | 21.72 | 21.75 | 21.76 | 1 | 0.93 | 0.91 | 0.84 |
| 5 | 16QAM | 1 | 12 | 21.71 | 21.66 | 21.70 | | 0.94 | 1.00 | 0.90 |
| 5 | 16QAM | 1 | 24 | 21.52 | 21.46 | 21.73 | | 1.13 | 1.20 | 0.87 |
| 5 | 16QAM | 12 | 0 | 20.64 | 20.47 | 20.62 | 2 | 2.01 | 2.19 | 1.98 |
| 5 | 16QAM | 12 | 6 | 20.42 | 20.51 | 20.50 | | 2.23 | 2.15 | 2.10 |
| 5 | 16QAM | 12 | 11 | 20.54 | 20.60 | 20.45 | | 2.11 | 2.06 | 2.15 |
| 5 | 16QAM | 25 | 0 | 20.31 | 20.49 | 20.18 | | 2.34 | 2.17 | 2.42 |

**Reduced Average RF Power (Proximity Sensor active)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 23230 | | |
| Frequency (MHz) | | | | 782 | | |
| 10 | QPSK | 1 | 0 | 20.66 | | |
| 10 | QPSK | 1 | 24 | 20.50 | | |
| 10 | QPSK | 1 | 49 | 20.35 | | |
| 10 | QPSK | 25 | 0 | 20.55 | | |
| 10 | QPSK | 25 | 12 | 20.50 | | |
| 10 | QPSK | 25 | 24 | 20.48 | | |
| 10 | QPSK | 50 | 0 | 20.42 | | |
| 10 | 16QAM | 1 | 0 | 20.55 | | |
| 10 | 16QAM | 1 | 24 | 20.36 | | |
| 10 | 16QAM | 1 | 49 | 20.25 | | |
| 10 | 16QAM | 25 | 0 | 20.44 | | |
| 10 | 16QAM | 25 | 12 | 20.66 | | |
| 10 | 16QAM | 25 | 24 | 20.41 | | |
| 10 | 16QAM | 50 | 0 | 20.24 | | |
| Channel | | | | 23205 | 23230 | 23255 |
| Frequency (MHz) | | | | 779.5 | 782 | 784.5 |
| 5 | QPSK | 1 | 0 | 20.61 | 20.62 | 20.57 |
| 5 | QPSK | 1 | 12 | 20.58 | 20.48 | 20.51 |
| 5 | QPSK | 1 | 24 | 20.48 | 20.50 | 20.50 |
| 5 | QPSK | 12 | 0 | 20.55 | 20.52 | 20.51 |
| 5 | QPSK | 12 | 6 | 20.48 | 20.47 | 20.48 |
| 5 | QPSK | 12 | 11 | 20.45 | 20.42 | 20.41 |
| 5 | QPSK | 25 | 0 | 20.39 | 20.35 | 20.35 |
| 5 | 16QAM | 1 | 0 | 20.59 | 20.60 | 20.55 |
| 5 | 16QAM | 1 | 12 | 20.55 | 20.51 | 20.47 |
| 5 | 16QAM | 1 | 24 | 20.51 | 20.48 | 20.45 |
| 5 | 16QAM | 12 | 0 | 20.50 | 20.58 | 20.48 |
| 5 | 16QAM | 12 | 6 | 20.47 | 20.47 | 20.39 |
| 5 | 16QAM | 12 | 11 | 20.38 | 20.43 | 20.38 |
| 5 | 16QAM | 25 | 0 | 20.33 | 20.36 | 20.31 |

## <LTE Band 5 Conducted Power >

**Maximum Average RF Power (Proximity Sensor Inactive)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Target MPR | MPR Low Ch. / Freq. | MPR Middle Ch. / Freq. | MPR High Ch. / Freq. |
|---|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 20450 | 20525 | 20600 | | 20450 | 20525 | 20600 |
| Frequency (MHz) | | | | 829 | 836.5 | 844 | | 829 | 836.5 | 844 |
| 10 | QPSK | 1 | 0 | 22.10 | 22.19 | 22.10 | 0 | 0.21 | 0.19 | 0.45 |
| 10 | QPSK | 1 | 24 | 22.11 | 22.38 | 22.55 | | 0.20 | 0.00 | 0.00 |
| 10 | QPSK | 1 | 49 | 22.31 | 22.35 | 22.25 | | 0.00 | 0.03 | 0.30 |
| 10 | QPSK | 25 | 0 | 21.33 | 21.20 | 21.39 | 1 | 0.98 | 1.18 | 1.16 |
| 10 | QPSK | 25 | 12 | 21.41 | 21.20 | 21.44 | | 0.90 | 1.18 | 1.11 |
| 10 | QPSK | 25 | 24 | 21.20 | 21.15 | 21.32 | | 1.11 | 1.23 | 1.23 |
| 10 | QPSK | 50 | 0 | 21.07 | 21.05 | 21.12 | | 1.24 | 1.33 | 1.43 |
| 10 | 16QAM | 1 | 0 | 21.36 | 21.46 | 21.40 | 1 | 0.95 | 0.92 | 1.15 |
| 10 | 16QAM | 1 | 24 | 21.13 | 21.36 | 21.50 | | 1.18 | 1.02 | 1.05 |
| 10 | 16QAM | 1 | 49 | 21.25 | 21.44 | 21.27 | | 1.06 | 0.94 | 1.28 |
| 10 | 16QAM | 25 | 0 | 20.15 | 20.13 | 20.09 | 2 | 2.16 | 2.25 | 2.46 |
| 10 | 16QAM | 25 | 12 | 20.28 | 20.03 | 20.27 | | 2.03 | 2.35 | 2.28 |
| 10 | 16QAM | 25 | 24 | 20.23 | 20.07 | 20.08 | | 2.08 | 2.31 | 2.47 |
| 10 | 16QAM | 50 | 0 | 20.04 | 20.04 | 20.09 | | 2.27 | 2.34 | 2.46 |
| Channel | | | | 20425 | 20525 | 20625 | | 20425 | 20525 | 20625 |
| Frequency (MHz) | | | | 826.5 | 836.5 | 846.5 | | 826.5 | 836.5 | 846.5 |
| 5 | QPSK | 1 | 0 | 22.14 | 22.37 | 22.36 | 0 | 0.17 | 0.13 | 0.03 |
| 5 | QPSK | 1 | 12 | 22.31 | 22.50 | 22.31 | | 0.00 | 0.00 | 0.08 |
| 5 | QPSK | 1 | 24 | 22.17 | 22.36 | 22.39 | | 0.14 | 0.14 | 0.00 |
| 5 | QPSK | 12 | 0 | 21.35 | 21.25 | 21.43 | 1 | 0.96 | 1.25 | 0.96 |
| 5 | QPSK | 12 | 6 | 21.32 | 21.27 | 21.24 | | 0.99 | 1.23 | 1.15 |
| 5 | QPSK | 12 | 11 | 21.34 | 21.27 | 21.36 | | 0.97 | 1.23 | 1.03 |
| 5 | QPSK | 25 | 0 | 21.22 | 21.15 | 21.30 | | 1.09 | 1.35 | 1.09 |
| 5 | 16QAM | 1 | 0 | 21.34 | 21.24 | 21.48 | 1 | 0.97 | 1.26 | 0.91 |
| 5 | 16QAM | 1 | 12 | 21.06 | 21.11 | 21.03 | | 1.25 | 1.39 | 1.36 |
| 5 | 16QAM | 1 | 24 | 21.40 | 21.10 | 21.05 | | 0.91 | 1.40 | 1.34 |
| 5 | 16QAM | 12 | 0 | 20.34 | 20.22 | 20.28 | 2 | 1.97 | 2.28 | 2.11 |
| 5 | 16QAM | 12 | 6 | 20.38 | 20.36 | 20.33 | | 1.93 | 2.14 | 2.06 |
| 5 | 16QAM | 12 | 11 | 20.43 | 20.32 | 20.31 | | 1.88 | 2.18 | 2.08 |
| 5 | 16QAM | 25 | 0 | 20.15 | 20.04 | 20.03 | | 2.16 | 2.46 | 2.36 |

**Reduced Average RF Power (Proximity Sensor active)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 20450 | 20525 | 20600 |
| Frequency (MHz) | | | | 829 | 836.5 | 844 |
| 10 | QPSK | 1 | 0 | 20.18 | 20.36 | 20.41 |
| 10 | QPSK | 1 | 24 | 20.28 | 20.63 | 20.54 |
| 10 | QPSK | 1 | 49 | 20.27 | 20.44 | 20.52 |
| 10 | QPSK | 25 | 0 | 20.24 | 20.47 | 20.46 |
| 10 | QPSK | 25 | 12 | 20.22 | 20.23 | 20.43 |
| 10 | QPSK | 25 | 24 | 20.23 | 20.26 | 20.24 |
| 10 | QPSK | 50 | 0 | 20.17 | 20.24 | 20.30 |
| 10 | 16QAM | 1 | 0 | 20.27 | 20.25 | 20.44 |
| 10 | 16QAM | 1 | 24 | 20.24 | 20.60 | 20.52 |
| 10 | 16QAM | 1 | 49 | 20.25 | 20.21 | 20.32 |
| 10 | 16QAM | 25 | 0 | 20.05 | 20.27 | 20.28 |
| 10 | 16QAM | 25 | 12 | 20.09 | 20.13 | 20.43 |
| 10 | 16QAM | 25 | 24 | 20.09 | 20.26 | 20.24 |
| 10 | 16QAM | 50 | 0 | 20.05 | 20.23 | 20.24 |
| Channel | | | | 20425 | 20525 | 20625 |
| Frequency (MHz) | | | | 826.5 | 836.5 | 846.5 |
| 5 | QPSK | 1 | 0 | 20.50 | 20.32 | 20.61 |
| 5 | QPSK | 1 | 12 | 20.29 | 20.40 | 20.59 |
| 5 | QPSK | 1 | 24 | 20.12 | 20.20 | 20.27 |
| 5 | QPSK | 12 | 0 | 20.36 | 20.29 | 20.38 |
| 5 | QPSK | 12 | 6 | 20.42 | 20.28 | 20.28 |
| 5 | QPSK | 12 | 11 | 20.48 | 20.34 | 20.31 |
| 5 | QPSK | 25 | 0 | 20.47 | 20.24 | 20.27 |
| 5 | 16QAM | 1 | 0 | 20.36 | 20.22 | 20.58 |
| 5 | 16QAM | 1 | 12 | 20.21 | 20.38 | 20.55 |
| 5 | 16QAM | 1 | 24 | 20.25 | 20.15 | 20.56 |
| 5 | 16QAM | 12 | 0 | 20.15 | 20.26 | 20.22 |
| 5 | 16QAM | 12 | 6 | 20.14 | 20.28 | 20.28 |
| 5 | 16QAM | 12 | 11 | 20.28 | 20.28 | 20.16 |
| 5 | 16QAM | 25 | 0 | 20.04 | 20.17 | 20.17 |

## <LTE Band 4 Conducted Power >

**Maximum Average RF Power (Proximity Sensor Inactive)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Target MPR | MPR Low Ch. / Freq. | MPR Middle Ch. / Freq. | MPR High Ch. / Freq. |
|---|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 20050 | 20175 | 20300 | | 20050 | 20175 | 20300 |
| Frequency (MHz) | | | | 1720 | 1732.5 | 1745 | | 1720 | 1732.5 | 1745 |
| 20 | QPSK | 1 | 0 | 22.40 | 22.57 | 22.45 | 0 | 0.00 | 0.00 | 0.00 |
| 20 | QPSK | 1 | 49 | 22.29 | 22.47 | 22.19 | | 0.11 | 0.10 | 0.26 |
| 20 | QPSK | 1 | 99 | 22.17 | 22.10 | 22.20 | | 0.23 | 0.47 | 0.25 |
| 20 | QPSK | 50 | 0 | 21.13 | 21.12 | 21.08 | 1 | 1.27 | 1.45 | 1.37 |
| 20 | QPSK | 50 | 24 | 21.19 | 21.15 | 21.03 | | 1.21 | 1.42 | 1.42 |
| 20 | QPSK | 50 | 49 | 21.00 | 21.11 | 21.09 | | 1.40 | 1.46 | 1.36 |
| 20 | QPSK | 100 | 0 | 21.20 | 21.09 | 21.19 | | 1.20 | 1.48 | 1.26 |
| 20 | 16QAM | 1 | 0 | 21.49 | 21.55 | 21.40 | 1 | 0.91 | 1.02 | 1.05 |
| 20 | 16QAM | 1 | 49 | 21.48 | 21.36 | 21.38 | | 0.92 | 1.21 | 1.07 |
| 20 | 16QAM | 1 | 99 | 21.36 | 21.21 | 21.29 | | 1.04 | 1.36 | 1.16 |
| 20 | 16QAM | 50 | 0 | 20.29 | 20.60 | 20.16 | 2 | 2.11 | 1.97 | 2.29 |
| 20 | 16QAM | 50 | 24 | 20.19 | 20.52 | 20.09 | | 2.21 | 2.05 | 2.36 |
| 20 | 16QAM | 50 | 49 | 20.30 | 20.42 | 20.17 | | 2.10 | 2.15 | 2.28 |
| 20 | 16QAM | 100 | 0 | 20.20 | 20.38 | 20.15 | | 2.20 | 2.19 | 2.30 |
| Channel | | | | 20025 | 20175 | 20325 | | 20025 | 20175 | 20325 |
| Frequency (MHz) | | | | 1717.5 | 1732.5 | 1747.5 | | 1717.5 | 1732.5 | 1747.5 |
| 15 | QPSK | 1 | 0 | 22.11 | 22.38 | 22.40 | 0 | 0.00 | 0.00 | 0.00 |
| 15 | QPSK | 1 | 37 | 22.03 | 22.36 | 22.39 | | 0.08 | 0.02 | 0.01 |
| 15 | QPSK | 1 | 74 | 22.10 | 22.23 | 22.27 | | 0.01 | 0.15 | 0.13 |
| 15 | QPSK | 36 | 0 | 21.81 | 22.06 | 22.09 | 1 | 0.30 | 0.32 | 0.31 |
| 15 | QPSK | 36 | 19 | 21.81 | 22.07 | 22.01 | | 0.30 | 0.31 | 0.39 |
| 15 | QPSK | 36 | 39 | 21.80 | 22.08 | 22.06 | | 0.31 | 0.30 | 0.34 |
| 15 | QPSK | 75 | 0 | 21.00 | 21.17 | 21.01 | | 1.11 | 1.21 | 1.39 |
| 15 | 16QAM | 1 | 0 | 21.52 | 21.65 | 21.44 | 1 | 0.59 | 0.73 | 0.96 |
| 15 | 16QAM | 1 | 37 | 21.20 | 21.42 | 21.33 | | 0.91 | 0.96 | 1.07 |
| 15 | 16QAM | 1 | 74 | 21.23 | 21.30 | 21.26 | | 0.88 | 1.08 | 1.14 |
| 15 | 16QAM | 38 | 0 | 21.30 | 21.37 | 21.23 | 2 | 0.81 | 1.01 | 1.17 |
| 15 | 16QAM | 38 | 19 | 21.28 | 21.41 | 21.17 | | 0.83 | 0.97 | 1.23 |
| 15 | 16QAM | 38 | 39 | 21.31 | 21.44 | 21.29 | | 0.80 | 0.94 | 1.11 |
| 15 | 16QAM | 75 | 0 | 20.29 | 20.20 | 20.20 | | 1.82 | 2.18 | 2.20 |
| Channel | | | | 20000 | 20175 | 20350 | | 20000 | 20175 | 20350 |
| Frequency (MHz) | | | | 1715 | 1732.5 | 1750 | | 1715 | 1732.5 | 1750 |
| 10 | QPSK | 1 | 0 | 22.39 | 22.40 | 22.33 | 0 | 0.00 | 0.00 | 0.00 |
| 10 | QPSK | 1 | 24 | 22.35 | 22.38 | 22.32 | | 0.04 | 0.02 | 0.01 |
| 10 | QPSK | 1 | 49 | 22.36 | 22.36 | 22.23 | | 0.03 | 0.04 | 0.10 |
| 10 | QPSK | 25 | 0 | 21.49 | 21.39 | 21.24 | 1 | 0.90 | 1.01 | 1.09 |
| 10 | QPSK | 25 | 12 | 21.32 | 21.26 | 21.15 | | 1.07 | 1.14 | 1.18 |
| 10 | QPSK | 25 | 24 | 21.31 | 21.40 | 21.03 | | 1.08 | 1.00 | 1.30 |
| 10 | QPSK | 50 | 0 | 21.24 | 21.29 | 21.02 | | 1.15 | 1.11 | 1.31 |
| 10 | 16QAM | 1 | 0 | 21.45 | 21.60 | 21.62 | 1 | 0.94 | 0.80 | 0.71 |
| 10 | 16QAM | 1 | 24 | 21.42 | 21.59 | 21.60 | | 0.97 | 0.81 | 0.73 |
| 10 | 16QAM | 1 | 49 | 21.24 | 21.21 | 21.55 | | 1.15 | 1.19 | 0.78 |
| 10 | 16QAM | 25 | 0 | 20.37 | 20.20 | 20.31 | 2 | 2.02 | 2.20 | 2.02 |
| 10 | 16QAM | 25 | 12 | 20.29 | 20.41 | 20.14 | | 2.10 | 1.99 | 2.19 |
| 10 | 16QAM | 25 | 24 | 20.37 | 20.22 | 20.17 | | 2.02 | 2.18 | 2.16 |
| 10 | 16QAM | 50 | 0 | 20.29 | 20.28 | 20.26 | | 2.10 | 2.12 | 2.07 |

| Channel | | | | 19975 | 20175 | 20375 | | 19975 | 20175 | 20375 |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | | | | 1712.5 | 1732.5 | 1752.5 | | 1712.5 | 1732.5 | 1752.5 |
| 5 | QPSK | 1 | 0 | 22.56 | 22.43 | 22.23 | 0 | 0.00 | 0.00 | 0.00 |
| 5 | QPSK | 1 | 12 | 22.55 | 22.42 | 22.13 | | 0.01 | 0.01 | 0.10 |
| 5 | QPSK | 1 | 24 | 22.48 | 22.40 | 22.21 | | 0.08 | 0.03 | 0.02 |
| 5 | QPSK | 12 | 0 | 21.51 | 21.49 | 21.26 | 1 | 1.05 | 0.94 | 0.97 |
| 5 | QPSK | 12 | 6 | 21.53 | 21.32 | 21.22 | | 1.03 | 1.11 | 1.01 |
| 5 | QPSK | 12 | 11 | 21.59 | 21.27 | 21.13 | | 0.97 | 1.16 | 1.10 |
| 5 | QPSK | 25 | 0 | 21.54 | 21.27 | 21.09 | | 1.02 | 1.16 | 1.14 |
| 5 | 16QAM | 1 | 0 | 21.65 | 21.52 | 21.17 | 1 | 0.91 | 0.91 | 1.06 |
| 5 | 16QAM | 1 | 12 | 21.64 | 21.50 | 21.15 | | 0.92 | 0.93 | 1.08 |
| 5 | 16QAM | 1 | 24 | 21.63 | 21.40 | 21.13 | | 0.93 | 1.03 | 1.10 |
| 5 | 16QAM | 12 | 0 | 20.36 | 20.37 | 20.18 | 2 | 2.20 | 2.06 | 2.05 |
| 5 | 16QAM | 12 | 6 | 20.49 | 20.30 | 20.34 | | 2.07 | 2.13 | 1.89 |
| 5 | 16QAM | 12 | 11 | 20.52 | 20.28 | 20.17 | | 2.04 | 2.15 | 2.06 |
| 5 | 16QAM | 25 | 0 | 20.36 | 20.33 | 20.10 | | 2.20 | 2.10 | 2.13 |

**Reduced Average RF Power (Proximity Sensor active)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 20050 | 20175 | 20300 |
| Frequency (MHz) | | | | 1720 | 1732.5 | 1745 |
| 20 | QPSK | 1 | 0 | 20.69 | 20.62 | 20.67 |
| 20 | QPSK | 1 | 49 | 20.49 | 20.44 | 20.49 |
| 20 | QPSK | 1 | 99 | 20.23 | 20.28 | 20.26 |
| 20 | QPSK | 50 | 0 | 20.53 | 20.48 | 20.43 |
| 20 | QPSK | 50 | 24 | 20.22 | 20.22 | 20.31 |
| 20 | QPSK | 50 | 49 | 20.22 | 20.13 | 20.34 |
| 20 | QPSK | 100 | 0 | 20.46 | 20.26 | 20.30 |
| 20 | 16QAM | 1 | 0 | 20.47 | 20.20 | 20.24 |
| 20 | 16QAM | 1 | 49 | 20.56 | 20.51 | 20.28 |
| 20 | 16QAM | 1 | 99 | 20.50 | 20.16 | 20.58 |
| 20 | 16QAM | 50 | 0 | 20.20 | 20.12 | 20.17 |
| 20 | 16QAM | 50 | 24 | 20.22 | 20.17 | 20.26 |
| 20 | 16QAM | 50 | 49 | 20.19 | 20.12 | 20.24 |
| 20 | 16QAM | 100 | 0 | 20.23 | 20.16 | 20.17 |
| Channel | | | | 20025 | 20175 | 20325 |
| Frequency (MHz) | | | | 1717.5 | 1732.5 | 1747.5 |
| 15 | QPSK | 1 | 0 | 20.50 | 20.31 | 20.29 |
| 15 | QPSK | 1 | 37 | 20.57 | 20.55 | 20.63 |
| 15 | QPSK | 1 | 74 | 20.28 | 20.36 | 20.35 |
| 15 | QPSK | 36 | 0 | 20.49 | 20.29 | 20.33 |
| 15 | QPSK | 36 | 19 | 20.42 | 20.37 | 20.39 |
| 15 | QPSK | 36 | 39 | 20.38 | 20.36 | 20.40 |
| 15 | QPSK | 75 | 0 | 20.18 | 20.37 | 20.19 |
| 15 | 16QAM | 1 | 0 | 20.29 | 20.20 | 20.15 |
| 15 | 16QAM | 1 | 37 | 20.73 | 20.84 | 20.67 |
| 15 | 16QAM | 1 | 74 | 20.37 | 20.45 | 20.68 |
| 15 | 16QAM | 38 | 0 | 20.45 | 20.28 | 20.64 |
| 15 | 16QAM | 38 | 19 | 20.47 | 20.57 | 20.29 |
| 15 | 16QAM | 38 | 39 | 20.42 | 20.60 | 20.31 |
| 15 | 16QAM | 75 | 0 | 20.07 | 20.11 | 20.16 |
| Channel | | | | 20000 | 20175 | 20350 |
| Frequency (MHz) | | | | 1715 | 1732.5 | 1750 |
| 10 | QPSK | 1 | 0 | 20.43 | 20.24 | 20.25 |
| 10 | QPSK | 1 | 24 | 20.46 | 20.48 | 20.51 |
| 10 | QPSK | 1 | 49 | 20.32 | 20.37 | 20.23 |
| 10 | QPSK | 25 | 0 | 20.46 | 20.30 | 20.25 |
| 10 | QPSK | 25 | 12 | 20.30 | 20.38 | 20.26 |
| 10 | QPSK | 25 | 24 | 20.23 | 20.51 | 20.37 |
| 10 | QPSK | 50 | 0 | 20.21 | 20.28 | 20.19 |
| 10 | 16QAM | 1 | 0 | 20.73 | 20.77 | 20.35 |
| 10 | 16QAM | 1 | 24 | 20.20 | 20.29 | 20.40 |
| 10 | 16QAM | 1 | 49 | 20.05 | 20.32 | 20.29 |
| 10 | 16QAM | 25 | 0 | 20.22 | 20.28 | 20.36 |
| 10 | 16QAM | 25 | 12 | 20.24 | 20.30 | 20.28 |
| 10 | 16QAM | 25 | 24 | 20.21 | 20.23 | 20.33 |
| 10 | 16QAM | 50 | 0 | 20.14 | 20.11 | 20.03 |

| Channel | | | | 19975 | 20175 | 20375 |
|---|---|---|---|---|---|---|
| Frequency (MHz) | | | | 1712.5 | 1732.5 | 1752.5 |
| 5 | QPSK | 1 | 0 | 20.47 | 20.37 | 20.47 |
| 5 | QPSK | 1 | 12 | 20.62 | 20.37 | 20.44 |
| 5 | QPSK | 1 | 24 | 20.36 | 20.42 | 20.57 |
| 5 | QPSK | 12 | 0 | 20.60 | 20.49 | 20.47 |
| 5 | QPSK | 12 | 6 | 20.60 | 20.42 | 20.37 |
| 5 | QPSK | 12 | 11 | 20.56 | 20.39 | 20.35 |
| 5 | QPSK | 25 | 0 | 20.48 | 20.39 | 20.16 |
| 5 | 16QAM | 1 | 0 | 20.51 | 20.26 | 20.29 |
| 5 | 16QAM | 1 | 12 | 20.19 | 20.34 | 20.08 |
| 5 | 16QAM | 1 | 24 | 20.26 | 20.37 | 20.37 |
| 5 | 16QAM | 12 | 0 | 20.39 | 20.56 | 20.51 |
| 5 | 16QAM | 12 | 6 | 20.53 | 20.58 | 20.39 |
| 5 | 16QAM | 12 | 11 | 20.54 | 20.45 | 20.44 |
| 5 | 16QAM | 25 | 0 | 20.61 | 20.29 | 20.29 |

## <LTE Band 2 Conducted Power >

**Maximum Average RF Power (Proximity Sensor Inactive)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Target MPR | MPR Low Ch. / Freq. | MPR Middle Ch. / Freq. | MPR High Ch. / Freq. |
|---|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 18700 | 18900 | 19100 | | 18700 | 18900 | 19100 |
| Frequency (MHz) | | | | 1860 | 1880 | 1900 | | 1860 | 1880 | 1900 |
| 20 | QPSK | 1 | 0 | 22.93 | 22.89 | 22.67 | 0 | 0.14 | 0.00 | 0.45 |
| 20 | QPSK | 1 | 49 | 23.07 | 22.85 | 22.91 | | 0.00 | 0.04 | 0.21 |
| 20 | QPSK | 1 | 99 | 22.88 | 22.73 | 23.12 | | 0.19 | 0.16 | 0.00 |
| 20 | QPSK | 50 | 0 | 21.87 | 21.63 | 21.53 | 1 | 1.20 | 1.26 | 1.59 |
| 20 | QPSK | 50 | 24 | 21.61 | 21.57 | 21.47 | | 1.46 | 1.32 | 1.65 |
| 20 | QPSK | 50 | 49 | 21.59 | 21.65 | 21.57 | | 1.48 | 1.24 | 1.55 |
| 20 | QPSK | 100 | 0 | 21.71 | 21.76 | 21.57 | | 1.36 | 1.13 | 1.55 |
| 20 | 16QAM | 1 | 0 | 21.98 | 21.87 | 21.72 | 1 | 1.09 | 1.02 | 1.40 |
| 20 | 16QAM | 1 | 49 | 21.75 | 21.76 | 21.81 | | 1.32 | 1.13 | 1.31 |
| 20 | 16QAM | 1 | 99 | 21.71 | 21.70 | 22.10 | | 1.36 | 1.19 | 1.02 |
| 20 | 16QAM | 50 | 0 | 20.81 | 20.58 | 20.43 | 2 | 2.26 | 2.31 | 2.69 |
| 20 | 16QAM | 50 | 24 | 20.49 | 20.45 | 20.45 | | 2.58 | 2.44 | 2.67 |
| 20 | 16QAM | 50 | 49 | 20.50 | 20.52 | 20.55 | | 2.57 | 2.37 | 2.57 |
| 20 | 16QAM | 100 | 0 | 20.63 | 20.79 | 20.57 | | 2.44 | 2.10 | 2.55 |
| Channel | | | | 18675 | 18900 | 19125 | | 18675 | 18900 | 19125 |
| Frequency (MHz) | | | | 1857.5 | 1880 | 1902.5 | | 1857.5 | 1880 | 1902.5 |
| 15 | QPSK | 1 | 0 | 22.87 | 22.74 | 22.72 | 0 | 0.21 | 0.34 | 0.28 |
| 15 | QPSK | 1 | 37 | 23.08 | 23.08 | 23.00 | | 0.00 | 0.00 | 0.00 |
| 15 | QPSK | 1 | 74 | 22.77 | 22.96 | 22.98 | | 0.31 | 0.12 | 0.02 |
| 15 | QPSK | 36 | 0 | 22.89 | 22.87 | 22.60 | 1 | 0.19 | 0.21 | 0.40 |
| 15 | QPSK | 36 | 19 | 22.95 | 22.95 | 22.81 | | 0.13 | 0.13 | 0.19 |
| 15 | QPSK | 36 | 39 | 22.75 | 22.79 | 22.83 | | 0.33 | 0.29 | 0.17 |
| 15 | QPSK | 75 | 0 | 21.61 | 21.52 | 21.60 | | 1.47 | 1.56 | 1.40 |
| 15 | 16QAM | 1 | 0 | 21.89 | 22.16 | 21.86 | 1 | 1.19 | 0.92 | 1.14 |
| 15 | 16QAM | 1 | 37 | 22.03 | 22.17 | 22.17 | | 1.05 | 0.91 | 0.83 |
| 15 | 16QAM | 1 | 74 | 21.70 | 22.03 | 22.06 | | 1.38 | 1.05 | 0.94 |
| 15 | 16QAM | 38 | 0 | 22.00 | 21.85 | 21.72 | 2 | 1.08 | 1.23 | 1.28 |
| 15 | 16QAM | 38 | 19 | 22.00 | 21.95 | 21.94 | | 1.08 | 1.13 | 1.06 |
| 15 | 16QAM | 38 | 39 | 21.80 | 21.68 | 21.98 | | 1.28 | 1.40 | 1.02 |
| 15 | 16QAM | 75 | 0 | 20.40 | 20.54 | 20.63 | | 2.68 | 2.54 | 2.37 |
| Channel | | | | 18650 | 18900 | 19150 | | 18650 | 18900 | 19150 |
| Frequency (MHz) | | | | 1855 | 1880 | 1905 | | 1855 | 1880 | 1905 |
| 10 | QPSK | 1 | 0 | 22.72 | 22.83 | 22.83 | 0 | 0.15 | 0.05 | 0.13 |
| 10 | QPSK | 1 | 24 | 22.87 | 22.83 | 22.77 | | 0.00 | 0.05 | 0.19 |
| 10 | QPSK | 1 | 49 | 22.75 | 22.88 | 22.96 | | 0.12 | 0.00 | 0.00 |
| 10 | QPSK | 25 | 0 | 21.85 | 21.84 | 21.76 | 1 | 1.02 | 1.04 | 1.20 |
| 10 | QPSK | 25 | 12 | 21.83 | 21.66 | 21.82 | | 1.04 | 1.22 | 1.14 |
| 10 | QPSK | 25 | 24 | 21.82 | 21.71 | 21.87 | | 1.05 | 1.17 | 1.09 |
| 10 | QPSK | 50 | 0 | 21.61 | 21.62 | 21.65 | | 1.26 | 1.26 | 1.31 |
| 10 | 16QAM | 1 | 0 | 22.02 | 22.06 | 21.64 | 1 | 0.85 | 0.82 | 1.32 |
| 10 | 16QAM | 1 | 24 | 22.27 | 21.94 | 22.23 | | 0.60 | 0.94 | 0.73 |
| 10 | 16QAM | 1 | 49 | 22.18 | 22.25 | 22.27 | | 0.69 | 0.63 | 0.69 |
| 10 | 16QAM | 25 | 0 | 20.87 | 20.80 | 20.75 | 2 | 2.00 | 2.08 | 2.21 |
| 10 | 16QAM | 25 | 12 | 20.78 | 20.66 | 20.78 | | 2.09 | 2.22 | 2.18 |
| 10 | 16QAM | 25 | 24 | 20.69 | 20.70 | 20.86 | | 2.18 | 2.18 | 2.10 |
| 10 | 16QAM | 50 | 0 | 20.60 | 20.54 | 20.57 | | 2.27 | 2.34 | 2.39 |

| Channel | | | | 18625 | 18900 | 19175 | | 18625 | 18900 | 19175 |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | | | | 1852.5 | 1880 | 1907.5 | | 1852.5 | 1880 | 1907.5 |
| 5 | QPSK | 1 | 0 | 22.81 | 22.86 | 22.96 | 0 | 0.02 | 0.00 | 0.01 |
| 5 | QPSK | 1 | 12 | 22.83 | 22.80 | 22.97 | | 0.00 | 0.06 | 0.00 |
| 5 | QPSK | 1 | 24 | 22.77 | 22.66 | 22.95 | | 0.06 | 0.20 | 0.02 |
| 5 | QPSK | 12 | 0 | 21.77 | 21.93 | 21.98 | 1 | 1.06 | 0.93 | 0.99 |
| 5 | QPSK | 12 | 6 | 21.91 | 21.95 | 21.84 | | 0.92 | 0.91 | 1.13 |
| 5 | QPSK | 12 | 11 | 21.92 | 21.82 | 21.88 | | 0.91 | 1.04 | 1.09 |
| 5 | QPSK | 25 | 0 | 21.85 | 21.82 | 21.72 | | 0.98 | 1.04 | 1.25 |
| 5 | 16QAM | 1 | 0 | 21.73 | 22.05 | 21.70 | 1 | 1.10 | 0.81 | 1.27 |
| 5 | 16QAM | 1 | 12 | 22.00 | 22.01 | 22.18 | | 0.83 | 0.85 | 0.79 |
| 5 | 16QAM | 1 | 24 | 21.69 | 21.69 | 22.02 | | 1.14 | 1.17 | 0.95 |
| 5 | 16QAM | 12 | 0 | 20.80 | 21.01 | 21.02 | 2 | 2.03 | 1.85 | 1.95 |
| 5 | 16QAM | 12 | 6 | 21.02 | 20.81 | 20.95 | | 1.81 | 2.05 | 2.02 |
| 5 | 16QAM | 12 | 11 | 21.15 | 20.77 | 21.07 | | 1.68 | 2.09 | 1.90 |
| 5 | 16QAM | 25 | 0 | 20.78 | 20.71 | 20.94 | | 2.05 | 2.15 | 2.03 |

**Reduced Average RF Power (Proximity Sensor active)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 18700 | 18900 | 19100 |
| Frequency (MHz) | | | | 1860 | 1880 | 1900 |
| 20 | QPSK | 1 | 0 | 17.99 | 17.89 | 17.75 |
| 20 | QPSK | 1 | 49 | 17.94 | 18.05 | 17.79 |
| 20 | QPSK | 1 | 99 | 17.89 | 18.28 | 17.96 |
| 20 | QPSK | 50 | 0 | 17.76 | 18.15 | 17.70 |
| 20 | QPSK | 50 | 24 | 17.60 | 17.85 | 17.56 |
| 20 | QPSK | 50 | 49 | 17.55 | 17.68 | 17.71 |
| 20 | QPSK | 100 | 0 | 17.72 | 17.85 | 17.72 |
| 20 | 16QAM | 1 | 0 | 18.21 | 18.05 | 17.86 |
| 20 | 16QAM | 1 | 49 | 18.20 | 18.00 | 17.98 |
| 20 | 16QAM | 1 | 99 | 17.89 | 18.02 | 18.10 |
| 20 | 16QAM | 50 | 0 | 17.95 | 17.81 | 17.83 |
| 20 | 16QAM | 50 | 24 | 17.71 | 17.73 | 17.51 |
| 20 | 16QAM | 50 | 49 | 17.46 | 17.76 | 17.66 |
| 20 | 16QAM | 100 | 0 | 17.85 | 17.95 | 17.87 |
| Channel | | | | 18675 | 18900 | 19125 |
| Frequency (MHz) | | | | 1857.5 | 1880 | 1902.5 |
| 15 | QPSK | 1 | 0 | 17.96 | 17.84 | 17.74 |
| 15 | QPSK | 1 | 37 | 18.10 | 18.08 | 18.06 |
| 15 | QPSK | 1 | 74 | 17.87 | 17.83 | 18.19 |
| 15 | QPSK | 36 | 0 | 17.94 | 17.83 | 17.63 |
| 15 | QPSK | 36 | 19 | 17.86 | 17.89 | 17.81 |
| 15 | QPSK | 36 | 39 | 17.76 | 17.79 | 17.88 |
| 15 | QPSK | 75 | 0 | 17.65 | 17.71 | 17.73 |
| 15 | 16QAM | 1 | 0 | 17.99 | 18.20 | 17.86 |
| 15 | 16QAM | 1 | 37 | 17.62 | 18.01 | 17.97 |
| 15 | 16QAM | 1 | 74 | 17.80 | 17.75 | 18.24 |
| 15 | 16QAM | 38 | 0 | 17.96 | 18.27 | 17.95 |
| 15 | 16QAM | 38 | 19 | 17.95 | 17.99 | 18.20 |
| 15 | 16QAM | 38 | 39 | 17.83 | 17.88 | 18.15 |
| 15 | 16QAM | 75 | 0 | 17.62 | 17.63 | 17.72 |
| Channel | | | | 18650 | 18900 | 19150 |
| Frequency (MHz) | | | | 1855 | 1880 | 1905 |
| 10 | QPSK | 1 | 0 | 17.79 | 17.77 | 17.86 |
| 10 | QPSK | 1 | 24 | 17.92 | 18.09 | 18.23 |
| 10 | QPSK | 1 | 49 | 17.84 | 17.88 | 18.24 |
| 10 | QPSK | 25 | 0 | 17.82 | 17.87 | 18.05 |
| 10 | QPSK | 25 | 12 | 17.80 | 18.05 | 17.83 |
| 10 | QPSK | 25 | 24 | 17.90 | 17.71 | 18.14 |
| 10 | QPSK | 50 | 0 | 17.79 | 17.63 | 18.00 |
| 10 | 16QAM | 1 | 0 | 18.17 | 17.93 | 18.28 |
| 10 | 16QAM | 1 | 24 | 17.80 | 18.02 | 17.95 |
| 10 | 16QAM | 1 | 49 | 17.80 | 17.85 | 18.29 |
| 10 | 16QAM | 25 | 0 | 17.90 | 17.72 | 17.82 |
| 10 | 16QAM | 25 | 12 | 17.83 | 17.77 | 17.66 |
| 10 | 16QAM | 25 | 24 | 17.85 | 18.01 | 17.90 |
| 10 | 16QAM | 50 | 0 | 17.72 | 17.70 | 17.70 |

| Channel | | | | 18625 | 18900 | 19175 |
|---|---|---|---|---|---|---|
| Frequency (MHz) | | | | 1852.5 | 1880 | 1907.5 |
| 5 | QPSK | 1 | 0 | 17.81 | 17.95 | 17.85 |
| 5 | QPSK | 1 | 12 | 18.25 | 17.97 | 18.10 |
| 5 | QPSK | 1 | 24 | 18.07 | 17.83 | 18.18 |
| 5 | QPSK | 12 | 0 | 18.09 | 17.88 | 18.13 |
| 5 | QPSK | 12 | 6 | 17.92 | 17.95 | 17.97 |
| 5 | QPSK | 12 | 11 | 17.89 | 17.74 | 18.06 |
| 5 | QPSK | 25 | 0 | 17.85 | 17.85 | 17.85 |
| 5 | 16QAM | 1 | 0 | 17.56 | 17.58 | 17.78 |
| 5 | 16QAM | 1 | 12 | 18.14 | 17.95 | 18.25 |
| 5 | 16QAM | 1 | 24 | 18.21 | 17.72 | 18.07 |
| 5 | 16QAM | 12 | 0 | 18.20 | 17.84 | 17.74 |
| 5 | 16QAM | 12 | 6 | 17.87 | 17.91 | 18.23 |
| 5 | 16QAM | 12 | 11 | 18.05 | 17.90 | 18.04 |
| 5 | 16QAM | 25 | 0 | 17.88 | 17.87 | 17.83 |

## <LTE Band 25 Conducted Power >

**Maximum Average RF Power (Proximity Sensor Inactive)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Target MPR | MPR Low Ch. / Freq. | MPR Middle Ch. / Freq. | MPR High Ch. / Freq. |
|---|---|---|---|---|---|---|---|---|---|---|
| Channel | | | | 26140 | 26365 | 26590 | | 26140 | 26365 | 26590 |
| Frequency (MHz) | | | | 1860 | 1882.5 | 1905 | | 1860 | 1882.5 | 1905 |
| 20 | QPSK | 1 | 0 | 22.62 | 22.45 | 22.31 | 0 | 0.14 | 0.11 | 0.15 |
| 20 | QPSK | 1 | 49 | 22.76 | 22.56 | 22.46 | | 0.00 | 0.00 | 0.00 |
| 20 | QPSK | 1 | 99 | 22.53 | 22.44 | 22.40 | | 0.23 | 0.12 | 0.06 |
| 20 | QPSK | 50 | 0 | 21.55 | 21.29 | 21.12 | 1 | 1.21 | 1.27 | 1.34 |
| 20 | QPSK | 50 | 24 | 21.39 | 21.29 | 21.10 | | 1.37 | 1.27 | 1.36 |
| 20 | QPSK | 50 | 49 | 21.31 | 21.19 | 21.30 | | 1.45 | 1.37 | 1.16 |
| 20 | QPSK | 100 | 0 | 21.44 | 21.20 | 21.25 | | 1.32 | 1.36 | 1.21 |
| 20 | 16QAM | 1 | 0 | 21.26 | 21.11 | 21.23 | 1 | 1.50 | 1.45 | 1.23 |
| 20 | 16QAM | 1 | 49 | 21.76 | 21.32 | 21.26 | | 1.00 | 1.24 | 1.20 |
| 20 | 16QAM | 1 | 99 | 21.37 | 21.18 | 21.25 | | 1.39 | 1.38 | 1.21 |
| 20 | 16QAM | 50 | 0 | 20.47 | 20.25 | 20.08 | 2 | 2.29 | 2.31 | 2.38 |
| 20 | 16QAM | 50 | 24 | 20.40 | 20.24 | 20.09 | | 2.36 | 2.32 | 2.37 |
| 20 | 16QAM | 50 | 49 | 20.39 | 20.12 | 20.24 | | 2.37 | 2.44 | 2.22 |
| 20 | 16QAM | 100 | 0 | 20.36 | 20.27 | 20.23 | | 2.40 | 2.29 | 2.23 |
| Channel | | | | 26115 | 26365 | 26615 | | 26115 | 26365 | 26615 |
| Frequency (MHz) | | | | 1857.5 | 1882.5 | 1907.5 | | 1857.5 | 1882.5 | 1907.5 |
| 15 | QPSK | 1 | 0 | 22.60 | 22.40 | 22.30 | 0 | 0.08 | 0.29 | 0.27 |
| 15 | QPSK | 1 | 37 | 22.68 | 22.69 | 22.57 | | 0.00 | 0.00 | 0.00 |
| 15 | QPSK | 1 | 74 | 22.37 | 22.61 | 22.42 | | 0.31 | 0.08 | 0.15 |
| 15 | QPSK | 36 | 0 | 21.73 | 21.36 | 21.34 | 1 | 0.95 | 1.33 | 1.23 |
| 15 | QPSK | 36 | 19 | 21.82 | 21.41 | 21.58 | | 0.86 | 1.28 | 0.99 |
| 15 | QPSK | 36 | 39 | 21.61 | 21.34 | 21.49 | | 1.07 | 1.35 | 1.08 |
| 15 | QPSK | 75 | 0 | 21.44 | 21.36 | 21.19 | | 1.24 | 1.33 | 1.38 |
| 15 | 16QAM | 1 | 0 | 21.41 | 21.56 | 21.62 | 1 | 1.27 | 1.13 | 0.95 |
| 15 | 16QAM | 1 | 37 | 21.66 | 21.30 | 21.17 | | 1.02 | 1.39 | 1.40 |
| 15 | 16QAM | 1 | 74 | 21.59 | 21.29 | 21.15 | | 1.09 | 1.40 | 1.42 |
| 15 | 16QAM | 38 | 0 | 20.95 | 20.87 | 20.97 | 2 | 1.73 | 1.82 | 1.60 |
| 15 | 16QAM | 38 | 19 | 20.98 | 20.96 | 20.87 | | 1.70 | 1.73 | 1.70 |
| 15 | 16QAM | 38 | 39 | 20.97 | 20.81 | 20.89 | | 1.71 | 1.88 | 1.68 |
| 15 | 16QAM | 75 | 0 | 20.95 | 20.93 | 20.93 | | 1.73 | 1.76 | 1.64 |
| Channel | | | | 26090 | 26365 | 26640 | | 26090 | 26365 | 26640 |
| Frequency (MHz) | | | | 1855 | 1882.5 | 1910 | | 1855 | 1882.5 | 1910 |
| 10 | QPSK | 1 | 0 | 22.53 | 22.34 | 22.35 | 0 | 0.22 | 0.28 | 0.17 |
| 10 | QPSK | 1 | 24 | 22.75 | 22.51 | 22.52 | | 0.00 | 0.11 | 0.00 |
| 10 | QPSK | 1 | 49 | 22.64 | 22.62 | 22.42 | | 0.11 | 0.00 | 0.10 |
| 10 | QPSK | 25 | 0 | 21.59 | 21.52 | 21.48 | 1 | 1.16 | 1.10 | 1.04 |
| 10 | QPSK | 25 | 12 | 21.54 | 21.48 | 21.32 | | 1.21 | 1.14 | 1.20 |
| 10 | QPSK | 25 | 24 | 21.45 | 21.32 | 21.53 | | 1.30 | 1.30 | 0.99 |
| 10 | QPSK | 50 | 0 | 21.27 | 21.18 | 21.35 | | 1.48 | 1.44 | 1.17 |
| 10 | 16QAM | 1 | 0 | 21.60 | 21.71 | 21.76 | 1 | 1.15 | 0.91 | 0.76 |
| 10 | 16QAM | 1 | 24 | 21.46 | 21.56 | 21.34 | | 1.29 | 1.06 | 1.18 |
| 10 | 16QAM | 1 | 49 | 21.60 | 21.49 | 21.87 | | 1.15 | 1.13 | 0.65 |
| 10 | 16QAM | 25 | 0 | 20.73 | 20.52 | 20.45 | 2 | 2.02 | 2.10 | 2.07 |
| 10 | 16QAM | 25 | 12 | 20.68 | 20.43 | 20.37 | | 2.07 | 2.19 | 2.15 |
| 10 | 16QAM | 25 | 24 | 20.55 | 20.31 | 20.31 | | 2.20 | 2.31 | 2.21 |
| 10 | 16QAM | 50 | 0 | 20.36 | 20.24 | 20.37 | | 2.39 | 2.38 | 2.15 |

| Channel | | | | 26065 | 26365 | 26665 | | 26065 | 26365 | 26665 |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (MHz) | | | | 1852.5 | 1882.5 | 1912.5 | | 1852.5 | 1882.5 | 1912.5 |
| 5 | QPSK | 1 | 0 | 22.42 | 22.33 | 22.24 | 0 | 0.32 | 0.36 | 0.21 |
| 5 | QPSK | 1 | 12 | 22.70 | 22.69 | 22.45 | | 0.04 | 0.00 | 0.00 |
| 5 | QPSK | 1 | 24 | 22.74 | 22.42 | 22.36 | | 0.00 | 0.27 | 0.09 |
| 5 | QPSK | 12 | 0 | 21.57 | 21.55 | 21.62 | 1 | 1.17 | 1.14 | 0.83 |
| 5 | QPSK | 12 | 6 | 21.60 | 21.42 | 21.42 | | 1.14 | 1.27 | 1.03 |
| 5 | QPSK | 12 | 11 | 21.68 | 21.43 | 21.43 | | 1.06 | 1.26 | 1.02 |
| 5 | QPSK | 25 | 0 | 21.61 | 21.36 | 21.40 | | 1.13 | 1.33 | 1.05 |
| 5 | 16QAM | 1 | 0 | 21.48 | 21.61 | 21.62 | 1 | 1.26 | 1.08 | 0.83 |
| 5 | 16QAM | 1 | 12 | 21.98 | 21.86 | 21.73 | | 0.76 | 0.83 | 0.72 |
| 5 | 16QAM | 1 | 24 | 21.95 | 21.89 | 21.62 | | 0.79 | 0.80 | 0.83 |
| 5 | 16QAM | 12 | 0 | 20.54 | 20.41 | 20.50 | 2 | 2.20 | 2.28 | 1.95 |
| 5 | 16QAM | 12 | 6 | 20.66 | 20.56 | 20.44 | | 2.08 | 2.13 | 2.01 |
| 5 | 16QAM | 12 | 11 | 20.73 | 20.43 | 20.53 | | 2.01 | 2.26 | 1.92 |
| 5 | 16QAM | 25 | 0 | 20.53 | 20.29 | 20.50 | | 2.21 | 2.40 | 1.95 |

**Reduced Average RF Power (Proximity Sensor active)**

| BW [MHz] | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. |
|---|---|---|---|---|---|---|
| Channel | | | | 26140 | 26365 | 26590 |
| Frequency (MHz) | | | | 1860 | 1882.5 | 1905 |
| 20 | QPSK | 1 | 0 | 17.26 | 17.24 | 17.29 |
| 20 | QPSK | 1 | 49 | 17.70 | 17.51 | 17.38 |
| 20 | QPSK | 1 | 99 | 17.27 | 17.43 | 17.49 |
| 20 | QPSK | 50 | 0 | 17.53 | 17.29 | 17.19 |
| 20 | QPSK | 50 | 24 | 17.16 | 17.31 | 17.18 |
| 20 | QPSK | 50 | 49 | 17.05 | 17.19 | 17.27 |
| 20 | QPSK | 100 | 0 | 17.39 | 17.18 | 17.28 |
| 20 | 16QAM | 1 | 0 | 17.31 | 17.01 | 17.03 |
| 20 | 16QAM | 1 | 49 | 17.20 | 17.50 | 17.46 |
| 20 | 16QAM | 1 | 99 | 17.23 | 17.41 | 17.40 |
| 20 | 16QAM | 50 | 0 | 17.62 | 17.33 | 17.17 |
| 20 | 16QAM | 50 | 24 | 17.35 | 17.02 | 17.20 |
| 20 | 16QAM | 50 | 49 | 17.23 | 17.00 | 17.36 |
| 20 | 16QAM | 100 | 0 | 17.14 | 17.42 | 17.36 |
| Channel | | | | 26115 | 26365 | 26615 |
| Frequency (MHz) | | | | 1857.5 | 1882.5 | 1907.5 |
| 15 | QPSK | 1 | 0 | 17.57 | 17.45 | 17.45 |
| 15 | QPSK | 1 | 37 | 17.48 | 17.55 | 17.41 |
| 15 | QPSK | 1 | 74 | 17.30 | 17.45 | 17.42 |
| 15 | QPSK | 36 | 0 | 17.45 | 17.50 | 17.31 |
| 15 | QPSK | 36 | 19 | 17.49 | 17.48 | 17.53 |
| 15 | QPSK | 36 | 39 | 17.55 | 17.48 | 17.49 |
| 15 | QPSK | 75 | 0 | 17.40 | 17.24 | 17.47 |
| 15 | 16QAM | 1 | 0 | 17.42 | 17.54 | 17.35 |
| 15 | 16QAM | 1 | 37 | 17.41 | 17.36 | 17.36 |
| 15 | 16QAM | 1 | 74 | 17.22 | 17.10 | 17.43 |
| 15 | 16QAM | 38 | 0 | 17.38 | 17.07 | 17.41 |
| 15 | 16QAM | 38 | 19 | 17.38 | 17.48 | 17.45 |
| 15 | 16QAM | 38 | 39 | 17.36 | 17.23 | 17.42 |
| 15 | 16QAM | 75 | 0 | 17.34 | 17.32 | 17.24 |
| Channel | | | | 26090 | 26365 | 26640 |
| Frequency (MHz) | | | | 1855 | 1882.5 | 1910 |
| 10 | QPSK | 1 | 0 | 17.23 | 17.20 | 17.47 |
| 10 | QPSK | 1 | 24 | 17.38 | 17.62 | 17.41 |
| 10 | QPSK | 1 | 49 | 17.38 | 17.45 | 17.21 |
| 10 | QPSK | 25 | 0 | 17.59 | 17.50 | 17.53 |
| 10 | QPSK | 25 | 12 | 17.53 | 17.33 | 17.33 |
| 10 | QPSK | 25 | 24 | 17.42 | 17.39 | 17.51 |
| 10 | QPSK | 50 | 0 | 17.41 | 17.31 | 17.30 |
| 10 | 16QAM | 1 | 0 | 17.51 | 17.29 | 17.16 |
| 10 | 16QAM | 1 | 24 | 17.50 | 17.47 | 17.45 |
| 10 | 16QAM | 1 | 49 | 17.54 | 17.36 | 17.32 |
| 10 | 16QAM | 25 | 0 | 17.46 | 17.41 | 17.36 |
| 10 | 16QAM | 25 | 12 | 17.56 | 17.39 | 17.30 |
| 10 | 16QAM | 25 | 24 | 17.48 | 17.47 | 17.43 |
| 10 | 16QAM | 50 | 0 | 17.32 | 17.10 | 17.34 |

| Channel | | | | 26065 | 26365 | 26665 |
|---|---|---|---|---|---|---|
| Frequency (MHz) | | | | 1852.5 | 1882.5 | 1912.5 |
| 5 | QPSK | 1 | 0 | 17.34 | 17.36 | 17.28 |
| 5 | QPSK | 1 | 12 | 17.66 | 17.46 | 17.49 |
| 5 | QPSK | 1 | 24 | 17.50 | 17.27 | 17.23 |
| 5 | QPSK | 12 | 0 | 17.51 | 17.62 | 17.43 |
| 5 | QPSK | 12 | 6 | 17.61 | 17.45 | 17.47 |
| 5 | QPSK | 12 | 11 | 17.52 | 17.41 | 17.63 |
| 5 | QPSK | 25 | 0 | 17.51 | 17.38 | 17.43 |
| 5 | 16QAM | 1 | 0 | 17.54 | 17.61 | 17.57 |
| 5 | 16QAM | 1 | 12 | 17.61 | 17.56 | 17.40 |
| 5 | 16QAM | 1 | 24 | 17.55 | 17.60 | 17.61 |
| 5 | 16QAM | 12 | 0 | 17.46 | 17.53 | 17.43 |
| 5 | 16QAM | 12 | 6 | 17.60 | 17.45 | 17.48 |
| 5 | 16QAM | 12 | 11 | 17.59 | 17.22 | 17.43 |
| 5 | 16QAM | 25 | 0 | 17.27 | 17.25 | 17.42 |

**<CDMA2000 Conducted Power>**

**Note:**

1. Referring to KDB 941225 D01, the data device SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps). If 1xRTT and Ev-Do Rev A (RETAP 4096 bits) power is less than 1/4dB higher than Re v0, SAR tests with those settings are not necessary.

**Maximum Average RF Power (Proximity Sensor Inactive)**

| Band | CDMA2000 BC10 | | | CDMA2000 BC0 | | | CDMA2000 BC1 | | |
|---|---|---|---|---|---|---|---|---|---|
| TX Channel | 476 | 580 | 684 | 1013 | 384 | 777 | 25 | 600 | 1175 |
| Frequency (MHz) | 817.9 | 820.5 | 823.1 | 824.7 | 836.52 | 848.31 | 1851.25 | 1880 | 1908.75 |
| 1xRTT RC3 SO55 | 23.60 | 23.55 | 23.57 | 23.64 | 23.69 | 23.55 | 23.80 | 23.62 | 23.67 |
| 1xRTT RC3 SO32(+ F-SCH) | 23.61 | 23.51 | 23.55 | 23.66 | 23.65 | 23.45 | 23.82 | 23.63 | 23.68 |
| 1xRTT RC3 SO32(+SCH) | 23.60 | 23.49 | 23.59 | 23.68 | 23.65 | 23.52 | 23.80 | 23.64 | 23.67 |
| 1xEVDO RTAP 153.6Kbps | 23.57 | 23.49 | 23.53 | 23.60 | 23.68 | 23.52 | 23.56 | 23.78 | 23.72 |
| 1xEVDO RETAP 4096Bits | 23.55 | 23.48 | 23.54 | 23.50 | 23.62 | 23.47 | 23.47 | 23.76 | 23.54 |

**Reduced Average RF Power (Proximity Sensor active)**

| Band | CDMA2000 BC10 | | | CDMA2000 BC0 | | | CDMA2000 BC1 | | |
|---|---|---|---|---|---|---|---|---|---|
| TX Channel | 476 | 580 | 684 | 1013 | 384 | 777 | 25 | 600 | 1175 |
| Frequency (MHz) | 817.9 | 820.5 | 823.1 | 824.7 | 836.52 | 848.31 | 1851.25 | 1880 | 1908.75 |
| 1xRTT RC3 SO55 | 21.60 | 21.56 | 21.59 | 21.62 | 21.68 | 21.56 | 19.05 | 18.96 | 18.98 |
| 1xRTT RC3 SO32(+ F-SCH) | 21.62 | 21.52 | 21.61 | 21.66 | 21.67 | 21.46 | 19.06 | 18.97 | 19.01 |
| 1xRTT RC3 SO32(+SCH) | 21.59 | 21.51 | 21.56 | 21.69 | 21.65 | 21.55 | 18.04 | 18.95 | 18.96 |
| 1xEVDO RTAP 153.6Kbps | 21.62 | 21.55 | 21.60 | 21.68 | 21.70 | 21.66 | 18.93 | 18.97 | 18.95 |
| 1xEVDO RETAP 4096Bits | 21.61 | 21.54 | 21.59 | 21.60 | 21.65 | 21.60 | 18.82 | 18.90 | 18.85 |

**<WLAN 2.4GHz Antenna A Conducted Power>**

| WLAN 2.4G 802.11b Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | |
| Channel | Frequency (MHz) | Data Rate (bps) 1M | Channel | Data Rate (bps) 2M | 5.5M | 11M |
| CH 1 | 2412 | 16.14 | CH 6 | 16.20 | 16.10 | 15.97 |
| CH 6 | 2437 | 16.28 | | | | |
| CH 11 | 2462 | 16.22 | | | | |

| WLAN 2.4G 802.11g Average Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | |
| Channel | Frequency (MHz) | Data Rate (bps) 6M | Channel | Data Rate (bps) 9M | 12M | 18M | 24M | 36M | 48M | 54M |
| CH 1 | 2412 | 16.06 | CH 6 | 16.20 | 16.07 | 15.87 | 15.66 | 15.31 | 14.99 | 14.90 |
| CH 6 | 2437 | 16.32 | | | | | | | | |
| CH 11 | 2462 | 16.16 | | | | | | | | |

| WLAN 2.4G 802.11n-HT20 Average Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | |
| Channel | Frequency (MHz) | MCS Index MCS0 | Channel | MCS Index MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| CH 1 | 2412 | 16.20 | CH 6 | 16.21 | 15.90 | 15.77 | 15.40 | 15.12 | 15.00 | 14.84 |
| CH 6 | 2437 | 16.47 | | | | | | | | |
| CH 11 | 2462 | 16.36 | | | | | | | | |

**Note:**

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

**<WLAN 2.4GHz Antenna B Conducted Power>**

| WLAN 2.4G 802.11b Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | |
| Channel | Frequency (MHz) | Data Rate (bps) 1M | Channel | Data Rate (bps) 2M | 5.5M | 11M |
| CH 1 | 2412 | 16.06 | CH 6 | 15.82 | 15.77 | 15.59 |
| CH 6 | 2437 | 16.19 | | | | |
| CH 11 | 2462 | 16.13 | | | | |

| WLAN 2.4G 802.11g Average Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | |
| Channel | Frequency (MHz) | Data Rate (bps) 6M | Channel | Data Rate (bps) 9M | 12M | 18M | 24M | 36M | 48M | 54M |
| CH 1 | 2412 | 16.19 | CH 6 | 16.40 | 16.28 | 16.03 | 15.86 | 15.46 | 15.11 | 15.00 |
| CH 6 | 2437 | 16.46 | | | | | | | | |
| CH 11 | 2462 | 16.28 | | | | | | | | |

| WLAN 2.4G 802.11n-HT20 Average Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | |
| Channel | Frequency (MHz) | MCS Index MCS0 | Channel | MCS Index MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| CH 1 | 2412 | 16.09 | CH 6 | 16.10 | 15.90 | 15.74 | 15.36 | 15.03 | 14.91 | 14.77 |
| CH 6 | 2437 | 16.36 | | | | | | | | |
| CH 11 | 2462 | 16.10 | | | | | | | | |

**Note:**

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

## <WLAN 5GHz Antenna A Conducted Power>

| WLAN 5G 802.11a Average Power (dBm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | | |
| Channel | Frequency (MHz) | Data Rate (bps) | Channel | Data Rate (bps) | | | | | | |
| | | 6M | | 9M | 12M | 18M | 24M | 36M | 48M | 54M |
| CH 149 | 5745 | 11.22 | CH 165 | 11.35 | 11.30 | 11.04 | 10.83 | 10.75 | 10.35 | 10.23 |
| CH 153 | 5765 | 11.11 | | | | | | | | |
| CH 157 | 5785 | 11.06 | | | | | | | | |
| CH 161 | 5805 | 11.24 | | | | | | | | |
| CH 165 | 5825 | 11.44 | | | | | | | | |

| WLAN 5G 802.11n-HT20 Average Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | |
| Channel | Frequency (MHz) | MCS Index | Channel | MCS Index | | | | | |
| | | MCS0 | | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| CH 149 | 5745 | 11.14 | CH 165 | 11.14 | 10.97 | 10.77 | 10.60 | 10.11 | 9.94 | 9.85 |
| CH 153 | 5765 | 11.12 | | | | | | | | |
| CH 157 | 5785 | 11.02 | | | | | | | | |
| CH 161 | 5805 | 11.27 | | | | | | | | |
| CH 165 | 5825 | 11.32 | | | | | | | | |

**Note:**

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

## <WLAN 5GHz Antenna B Conducted Power>

| WLAN 5G 802.11a Average Power (dBm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | | |
| Channel | Frequency (MHz) | Data Rate (bps) | Channel | Data Rate (bps) | | | | | | |
| | | 6M | | 9M | 12M | 18M | 24M | 36M | 48M | 54M |
| CH 149 | 5745 | 11.31 | CH 165 | 11.51 | 11.34 | 11.14 | 10.97 | 10.48 | 10.31 | 10.22 |
| CH 153 | 5765 | 11.36 | | | | | | | | |
| CH 157 | 5785 | 11.26 | | | | | | | | |
| CH 161 | 5805 | 11.43 | | | | | | | | |
| CH 165 | 5825 | 11.55 | | | | | | | | |

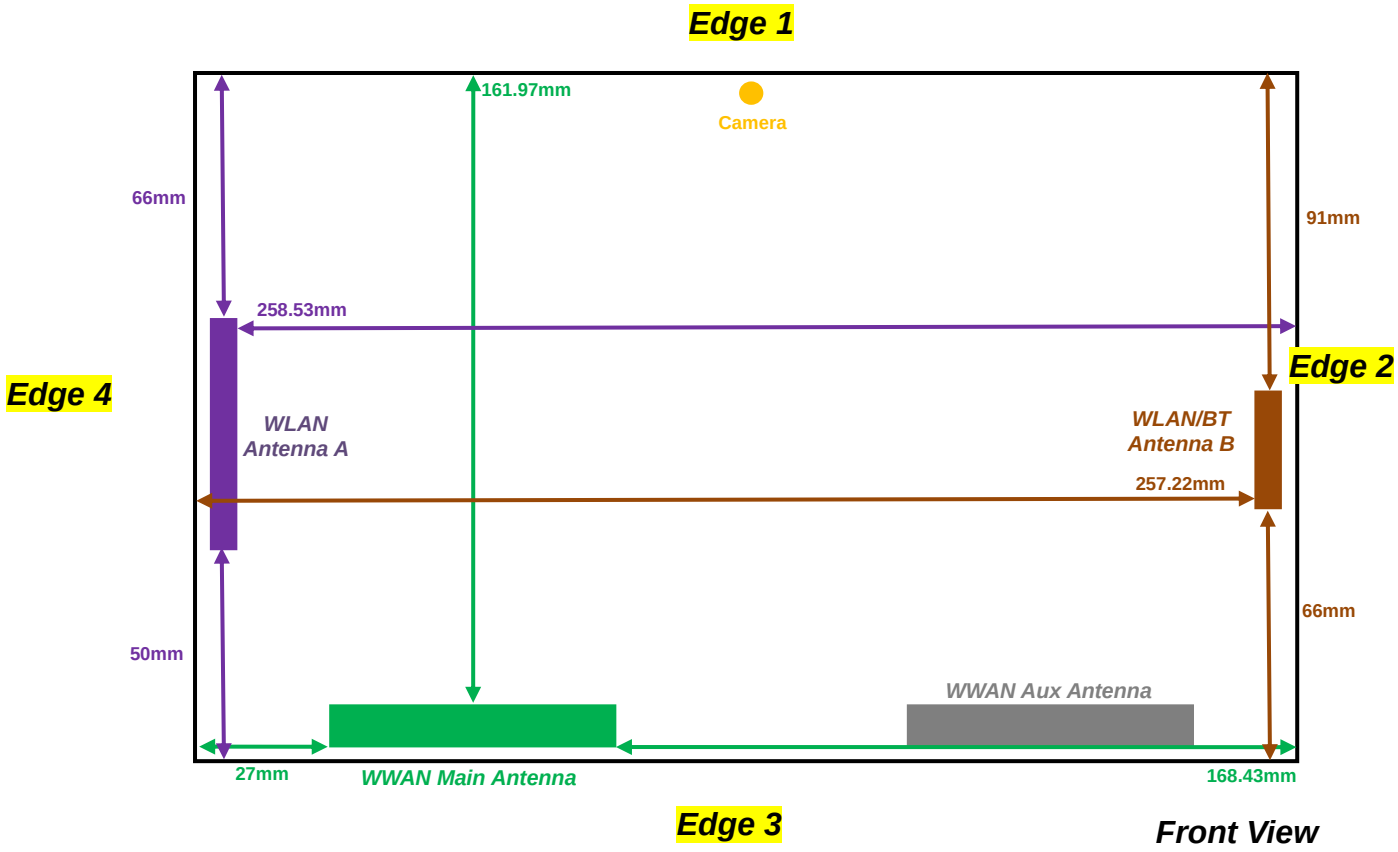
| WLAN 5G 802.11n-HT20 Average Power (dBm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power vs. Channel | | | Power vs. Data Rate | | | | | | |
| Channel | Frequency (MHz) | MCS Index | Channel | MCS Index | | | | | |
| | | MCS0 | | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| CH 149 | 5745 | 11.22 | CH 165 | 11.30 | 11.19 | 10.97 | 10.78 | 10.36 | 10.05 | 9.98 |
| CH 153 | 5765 | 11.19 | | | | | | | | |
| CH 157 | 5785 | 11.05 | | | | | | | | |
| CH 161 | 5805 | 11.28 | | | | | | | | |
| CH 165 | 5825 | 11.47 | | | | | | | | |

**Note:**

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

## 11. Exposure Positions Consideration

**<Tablet PC>**




| Antennas | Wireless Interface |
|---|---|
| **WWAN Main Antenna (Tx / Rx)** | GSM850<br>GSM1900<br>WCDMA Band V<br>WCDMA Band IV<br>WCDMA Band II<br>CDMA2000 BC10<br>CDMA2000 BC0<br>CDMA 2000 BC1<br>LTE Band 17<br>LTE Band 13<br>LTE Band 5<br>LTE Band 4<br>LTE Band 2<br>LTE Band 25 |
| **WLAN Antenna A (Tx / Rx)** | WLAN 2.4GHz<br>WLAN5GHz |
| **BT&WLAN Antenna B (Tx / Rx)** | WLAN 2.4GHz<br>WLAN5GHz<br>Bluetooth |

**<WWNA SAR test exclusion table>**

| Exposure Position | Wireless Interface | GPRS850 Class 10 | GPRS1900 Class 10 | WCDMA Band V | WCDMA Band IV | WCDMA Band II | CDMA 2000 BC10 | CDMA 2000 BC0 | CDMA 2000 BC1 | LTE Band 17 | LTE Band 13 | LTE Band 5 | LTE Band 4 | LTE Band 2 | LTE Band 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tune-up Maximum power (dBm) | 27 | 24 | 24 | 24 | 24 | 24.5 | 24.5 | 24.5 | 24 | 24 | 24 | 24 | 24 | 24 |
| | Tune-up Maximum rated power (mW) | 501.19 | 251.19 | 251.19 | 251.19 | 251.19 | 281.84 | 281.84 | 281.84 | 251.19 | 251.19 | 251.19 | 251.19 | 251.19 | 251.19 |
| Bottom Face | Antenna to user (mm) | 5 | | | | | | | | | | | | | |
| | SAR exclusion threshold (mW) | 16 | 11 | 16 | 11 | 11 | 16 | 16 | 11 | 18 | 17 | 16 | 11 | 11 | 11 |
| | SAR testing required? | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Edge 1 | Antenna to user (mm) | 161.97 | | | | | | | | | | | | | |
| | SAR exclusion threshold (mW) | 796 | 1228 | 795 | 1233 | 1228 | 777 | 796 | 1228 | 710 | 755 | 796 | 1233 | 1228 | 1228 |
| | SAR testing required? | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| Edge 2 | Antenna to user (mm) | 168.43 | | | | | | | | | | | | | |
| | SAR exclusion threshold (mW) | 832 | 1293 | 831 | 1298 | 1293 | 813 | 832 | 1293 | 741 | 788 | 832 | 1298 | 1293 | 1293 |
| | SAR testing required? | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| Edge 3 | Antenna to user (mm) | 5 | | | | | | | | | | | | | |
| | SAR exclusion threshold (mW) | 16 | 11 | 16 | 11 | 11 | 16 | 16 | 11 | 18 | 17 | 16 | 11 | 11 | 11 |
| | SAR testing required? | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Edge 4 | Antenna to user (mm) | 27 | | | | | | | | | | | | | |
| | SAR exclusion threshold (mW) | 88 | 59 | 88 | 61 | 59 | 88 | 88 | 59 | 96 | 91 | 88 | 61 | 59 | 59 |
| | SAR testing required? | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |

**Note:**

1. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
2. Per KDB 447498 D01v05, for larger devices, the *test separation distance* is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D01v05, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
4. Per KDB 447498 D01v05, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[$\sqrt{}$f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison
5. Per KDB 447498 D01v05, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
   a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·( f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

# 12. SAR Test Results

**Note:**

1. Per KDB 447498 D01v05, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   *Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.*
   *Reported SAR(W/kg)= Measured SAR(W/kg)* Scaling Factor*
2. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 1cm for bottom face, 0.8cm for edge3.
3. Per KDB 447498 D01v05, for each exposure position, if the highest output channel reported SAR ≤0.8W/kg, other channels SAR testing is not necessary.
4. Per KDB 447498 D01v05, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
5. Considering the curvature transition from bottom face to the edge, SAR testing at the curvature was performed. The SAR test setup is included in test setup photo exhibit, and the detail of the curvature is included in operation description exhibit. In the operational description exhibit, it is illustrated that when the device is placed completely under the flat phantom, the worst case position was chosen to have the antenna closest to the phantom surface.
6. The proximity sensor pad extends to the corner (vertex between edge3 and edge4) to provide the sensor coverage large enough to enclose the WWAN antenna, and the proximity sensor power reduction is not implemented for edge4. WWAN SAR at edge4 was tested with device transmitting at maximum output power.

## 12.1 Test Records for Body SAR Test

### <GSM SAR>

| Plot No. | Band | Mode | Test Position | Gap (cm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124 | GSM850 | GPRS (2 Tx slots) | Bottom Face | 1cm | 128 | 824.2 | 31.98 | 33 | 1.265 | -0.06 | 0.984 | 1.245 |
| 125 | GSM850 | GPRS (2 Tx slots) | Bottom Face | 1cm | 189 | 836.4 | 31.96 | 33 | 1.271 | -0.15 | 0.861 | 1.094 |
| 126 | GSM850 | GPRS (2 Tx slots) | Bottom Face | 1cm | 251 | 848.8 | 31.95 | 33 | 1.274 | 0.08 | 0.796 | 1.014 |
| 127 | GSM850 | GPRS (2 Tx slots) | Edge3 | 0.8cm | 128 | 824.2 | 31.98 | 33 | 1.265 | 0 | 0.806 | 1.019 |
| 128 | GSM850 | GPRS (2 Tx slots) | Edge3 | 0.8cm | 189 | 836.4 | 31.96 | 33 | 1.271 | -0.09 | 0.497 | 0.631 |
| 129 | GSM850 | GPRS (2 Tx slots) | Edge3 | 0.8cm | 251 | 848.8 | 31.95 | 33 | 1.274 | 0.15 | 0.472 | 0.601 |
| 130 | GSM850 | GPRS (2 Tx slots) | Edge4 | 0cm | 128 | 824.2 | 31.98 | 33 | 1.265 | 0.16 | 0.2 | 0.253 |
| 131 | GSM850 | GPRS (2 Tx slots) | Bottom Face | 0cm | 128 | 824.2 | 27.88 | 28.5 | 1.153 | -0.19 | 1.15 | 1.326 |
| 132 | GSM850 | GPRS (2 Tx slots) | Bottom Face | 0cm | 189 | 836.4 | 27.83 | 28.5 | 1.167 | 0.01 | 1.15 | 1.342 |
| 133 | GSM850 | GPRS (2 Tx slots) | Bottom Face | 0cm | 251 | 848.8 | 27.76 | 28.5 | 1.186 | -0.19 | 1.19 | 1.411 |
| 134 | GSM850 | GPRS (2 Tx slots) | Edge3 | 0cm | 128 | 824.2 | 27.88 | 28.5 | 1.153 | -0.13 | 0.532 | 0.614 |
| 135 | GSM850 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | 128 | 824.2 | 27.88 | 28.5 | 1.153 | -0.13 | 1.27 | 1.465 |
| 136 | GSM850 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | 189 | 836.4 | 27.83 | 28.5 | 1.167 | -0.03 | 1.21 | 1.412 |
| **137** | **GSM850** | **GPRS (2 Tx slots)** | **Curved surface of Edge3** | **0cm** | **251** | **848.8** | **27.76** | **28.5** | **1.186** | **-0.03** | **1.24** | **1.470** |
| 50 | GSM1900 | GPRS (2 Tx slots) | Bottom Face | 1cm | 512 | 1850.2 | 29.28 | 30 | 1.180 | -0.11 | 0.543 | 0.641 |
| 51 | GSM1900 | GPRS (2 Tx slots) | Edge3 | 0.8cm | 512 | 1850.2 | 29.28 | 30 | 1.180 | 0 | 0.664 | 0.784 |
| 52 | GSM1900 | GPRS (2 Tx slots) | Edge4 | 0cm | 512 | 1850.2 | 29.28 | 30 | 1.180 | -0.03 | 0.49 | 0.578 |
| 53 | GSM1900 | GPRS (2 Tx slots) | Bottom Face | 0cm | 512 | 1850.2 | 24.77 | 25 | 1.054 | -0.03 | 1.18 | 1.244 |
| **54** | **GSM1900** | **GPRS (2 Tx slots)** | **Bottom Face** | **0cm** | **661** | **1880** | **24.57** | **25** | **1.104** | **-0.13** | **1.29** | **1.424** |
| 55 | GSM1900 | GPRS (2 Tx slots) | Bottom Face | 0cm | 810 | 1909.8 | 24.52 | 25 | 1.117 | -0.06 | 1.08 | 1.206 |
| 56 | GSM1900 | GPRS (2 Tx slots) | Edge3 | 0cm | 512 | 1850.2 | 24.77 | 25 | 1.054 | 0.13 | 0.521 | 0.549 |
| 57 | GSM1900 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | 512 | 1850.2 | 24.77 | 25 | 1.054 | -0.09 | 1.11 | 1.170 |
| 58 | GSM1900 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | 661 | 1880 | 24.57 | 25 | 1.104 | -0.05 | 1.11 | 1.226 |
| 59 | GSM1900 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | 810 | 1909.8 | 24.52 | 25 | 1.117 | -0.04 | 1.01 | 1.128 |

## <WCDMA SAR>

### Note:

1. If Reported SAR with RMC 12.2kbps setting is > 1.2W/kg, HSDPA subtest-1 and HSUPA subtest-5 SAR is additionally tested at that exposure position.

| Plot No. | Band | Mode | Test Position | Gap (cm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 103 | WCDMA V | RMC 12.2Kbps | Bottom Face | 1cm | 4132 | 826.4 | 22.75 | 24 | 1.334 | -0.136 | 0.603 | 0.804 |
| 104 | WCDMA V | RMC 12.2Kbps | Bottom Face | 1cm | 4182 | 836.4 | 22.72 | 24 | 1.343 | 0.1 | 0.51 | 0.685 |
| 105 | WCDMA V | RMC 12.2Kbps | Bottom Face | 1cm | 4233 | 846.6 | 22.63 | 24 | 1.371 | -0.11 | 0.438 | 0.600 |
| 106 | WCDMA V | RMC 12.2Kbps | Edge3 | 0.8cm | 4132 | 826.4 | 22.75 | 24 | 1.334 | 0.14 | 0.568 | 0.757 |
| 107 | WCDMA V | RMC 12.2Kbps | Edge4 | 0cm | 4132 | 826.4 | 22.75 | 24 | 1.334 | -0.14 | 0.058 | 0.077 |
| 108 | WCDMA V | RMC 12.2Kbps | Bottom Face | 0cm | 4132 | 826.4 | 20.44 | 22 | 1.432 | -0.01 | 0.864 | 1.237 |
| 109 | WCDMA V | RMC 12.2Kbps | Bottom Face | 0cm | 4182 | 836.4 | 20.41 | 22 | 1.442 | 0.01 | 0.849 | 1.224 |
| 110 | WCDMA V | RMC 12.2Kbps | Bottom Face | 0cm | 4233 | 846.6 | 20.36 | 22 | 1.459 | -0.02 | 0.809 | 1.180 |
| 111 | WCDMA V | RMC 12.2Kbps | Edge3 | 0cm | 4132 | 826.4 | 20.44 | 22 | 1.432 | -0.16 | 0.413 | 0.591 |
| 114 | WCDMA V | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 4132 | 826.4 | 20.44 | 22 | 1.432 | -0.01 | 0.895 | 1.282 |
| **115** | **WCDMA V** | **RMC 12.2Kbps** | **Curved surface of Edge3** | **0cm** | **4182** | **836.4** | **20.41** | **22** | **1.442** | **-0.05** | **0.922** | **1.330** |
| 116 | WCDMA V | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 4233 | 846.6 | 20.36 | 22 | 1.459 | -0.1 | 0.901 | 1.314 |
| 117 | WCDMA V | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 4132 | 826.4 | 20.03 | 22 | 1.574 | 0.12 | 0.811 | 1.277 |
| 118 | WCDMA V | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 4182 | 836.4 | 20.04 | 22 | 1.570 | 0.02 | 0.821 | 1.289 |
| 119 | WCDMA V | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 4233 | 846.6 | 20.08 | 22 | 1.556 | 0.09 | 0.832 | 1.295 |
| 120 | WCDMA V | HSUPA Subtest-5 | Curved surface of Edge3 | 0cm | 4132 | 826.4 | 20.1 | 22 | 1.549 | 0 | 0.819 | 1.268 |
| 121 | WCDMA V | HSUPA Subtest-5 | Curved surface of Edge3 | 0cm | 4182 | 836.4 | 20.08 | 22 | 1.556 | 0.02 | 0.828 | 1.288 |
| 122 | WCDMA V | HSUPA Subtest-5 | Curved surface of Edge3 | 0cm | 4233 | 846.6 | 20.1 | 22 | 1.549 | 0.07 | 0.818 | 1.267 |
| 601 | WCDMA IV | RMC 12.2Kbps | Bottom Face | 1cm | 1413 | 1732.6 | 22.6 | 24 | 1.380 | 0.13 | 0.57 | 0.787 |
| 604 | WCDMA IV | RMC 12.2Kbps | Edge3 | 0.8cm | 1413 | 1732.6 | 22.6 | 24 | 1.380 | 0.19 | 0.937 | 1.293 |
| 605 | WCDMA IV | RMC 12.2Kbps | Edge3 | 0.8cm | 1312 | 1712.4 | 22.44 | 24 | 1.432 | 0.08 | 0.92 | 1.318 |
| 606 | WCDMA IV | RMC 12.2Kbps | Edge3 | 0.8cm | 1513 | 1752.6 | 22.32 | 24 | 1.472 | 0.14 | 0.759 | 1.117 |
| 607 | WCDMA IV | RMC 12.2Kbps | Edge4 | 0cm | 1413 | 1732.6 | 22.6 | 24 | 1.380 | 0.17 | 0.067 | 0.092 |
| 608 | WCDMA IV | RMC 12.2Kbps | Bottom Face | 0cm | 1413 | 1732.6 | 20.47 | 20.5 | 1.007 | -0.12 | 0.902 | 0.908 |
| 609 | WCDMA IV | RMC 12.2Kbps | Bottom Face | 0cm | 1312 | 1712.4 | 20.32 | 20.5 | 1.042 | -0.05 | 0.931 | 0.970 |
| 610 | WCDMA IV | RMC 12.2Kbps | Bottom Face | 0cm | 1513 | 1752.6 | 20.26 | 20.5 | 1.057 | -0.15 | 0.919 | 0.971 |
| 611 | WCDMA IV | RMC 12.2Kbps | Edge3 | 0cm | 1413 | 1732.6 | 20.47 | 20.5 | 1.007 | -0.06 | 0.761 | 0.766 |
| 614 | WCDMA IV | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 1413 | 1732.6 | 20.47 | 20.5 | 1.007 | -0.05 | 1.17 | 1.178 |
| 615 | WCDMA IV | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 1312 | 1712.4 | 20.32 | 20.5 | 1.042 | 0.04 | 1.09 | 1.136 |
| 616 | WCDMA IV | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 1513 | 1752.6 | 20.26 | 20.5 | 1.057 | -0.1 | 1.25 | 1.321 |
| 618 | WCDMA IV | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 1413 | 1732.6 | 19.98 | 20.5 | 1.127 | 0.04 | 1.19 | 1.341 |
| 619 | WCDMA IV | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 1312 | 1712.4 | 19.85 | 20.5 | 1.161 | -0.01 | 1.13 | 1.312 |
| **620** | **WCDMA IV** | **HSDPA Subtest-1** | **Curved surface of Edge3** | **0cm** | **1513** | **1752.6** | **19.76** | **20.5** | **1.186** | **0.05** | **1.2** | **1.423** |
| 621 | WCDMA IV | HSPA Subtest-5 | Curved surface of Edge3 | 0cm | 1413 | 1732.6 | 20.04 | 20.5 | 1.112 | -0.04 | 0.964 | 1.072 |
| 622 | WCDMA IV | HSPA Subtest-5 | Curved surface of Edge3 | 0cm | 1312 | 1712.4 | 20.03 | 20.5 | 1.114 | 0 | 0.899 | 1.002 |
| 623 | WCDMA IV | HSPA Subtest-5 | Curved surface of Edge3 | 0cm | 1513 | 1752.6 | 19.78 | 20.5 | 1.180 | 0.01 | 0.941 | 1.111 |
| 64 | WCDMA II | RMC 12.2Kbps | Bottom Face | 1cm | 9538 | 1907.6 | 22.78 | 24 | 1.324 | -0.07 | 0.634 | 0.840 |
| 65 | WCDMA II | RMC 12.2Kbps | Bottom Face | 1cm | 9262 | 1852.4 | 22.77 | 24 | 1.327 | 0.11 | 0.53 | 0.704 |
| 66 | WCDMA II | RMC 12.2Kbps | Bottom Face | 1cm | 9400 | 1880 | 22.72 | 24 | 1.343 | 0.06 | 0.608 | 0.816 |
| 67 | WCDMA II | RMC 12.2Kbps | Edge3 | 0.8cm | 9538 | 1907.6 | 22.78 | 24 | 1.324 | -0.02 | 0.799 | 1.058 |
| 68 | WCDMA II | RMC 12.2Kbps | Edge3 | 0.8cm | 9262 | 1852.4 | 22.77 | 24 | 1.327 | 0.14 | 0.666 | 0.884 |
| 69 | WCDMA II | RMC 12.2Kbps | Edge3 | 0.8cm | 9400 | 1880 | 22.72 | 24 | 1.343 | 0.04 | 0.767 | 1.030 |
| 70 | WCDMA II | RMC 12.2Kbps | Edge4 | 0cm | 9538 | 1907.6 | 22.78 | 24 | 1.324 | 0 | 0.673 | 0.891 |
| 71 | WCDMA II | RMC 12.2Kbps | Edge4 | 0cm | 9262 | 1852.4 | 22.77 | 24 | 1.327 | -0.02 | 0.323 | 0.429 |
| 72 | WCDMA II | RMC 12.2Kbps | Edge4 | 0cm | 9400 | 1880 | 22.72 | 24 | 1.343 | 0.11 | 0.464 | 0.623 |
| 74 | WCDMA II | RMC 12.2Kbps | Bottom Face | 0cm | 9538 | 1907.6 | 17.64 | 19 | 1.368 | 0 | 0.913 | 1.249 |
| 150 | WCDMA II | RMC 12.2Kbps | Bottom Face | 0cm | 9262 | 1852.4 | 17.63 | 19 | 1.371 | -0.14 | 0.777 | 1.065 |
| 151 | WCDMA II | RMC 12.2Kbps | Bottom Face | 0cm | 9400 | 1880 | 17.62 | 19 | 1.374 | -0.08 | 0.86 | 1.182 |
| 73 | WCDMA II | RMC 12.2Kbps | Edge3 | 0cm | 9538 | 1907.6 | 17.64 | 19 | 1.368 | 0.11 | 0.458 | 0.626 |
| **92** | **WCDMA II** | **RMC 12.2Kbps** | **Curved surface of Edge3** | **0cm** | **9538** | **1907.6** | **17.64** | **19** | **1.368** | **0** | **1.06** | **1.450** |
| 93 | WCDMA II | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 9262 | 1852.4 | 17.63 | 19 | 1.371 | 0.03 | 1.04 | 1.426 |
| 94 | WCDMA II | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | 9400 | 1880 | 17.62 | 19 | 1.374 | -0.03 | 1.04 | 1.429 |
| 95 | WCDMA II | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 9538 | 1907.6 | 17.3 | 19 | 1.479 | -0.03 | 0.96 | 1.420 |
| 96 | WCDMA II | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 9262 | 1852.4 | 17.28 | 19 | 1.486 | -0.11 | 0.914 | 1.358 |
| 97 | WCDMA II | HSDPA Subtest-1 | Curved surface of Edge3 | 0cm | 9400 | 1880 | 17.26 | 19 | 1.493 | -0.04 | 0.91 | 1.358 |
| 98 | WCDMA II | HSUPA Subtest-5 | Curved surface of Edge3 | 0cm | 9538 | 1907.6 | 17.58 | 19 | 1.387 | 0.14 | 0.863 | 1.197 |
| 99 | WCDMA II | HSUPA Subtest-5 | Curved surface of Edge3 | 0cm | 9262 | 1852.4 | 17.41 | 19 | 1.442 | -0.08 | 0.9 | 1.298 |
| 100 | WCDMA II | HSUPA Subtest-5 | Curved surface of Edge3 | 0cm | 9400 | 1880 | 17.5 | 19 | 1.413 | -0.11 | 0.945 | 1.335 |

## <CDMA2000>

| Plot No. | Band | Mode | Test Position | Gap (cm) | Ch. | Freq. (MHz) | Power Back-off | Burst Average Power (dBm) | Tune-up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 452 | CDMA BC10 | RTAP 153.6kbps | Bottom Face | 1cm | 476 | 817.9 | OFF | 23.57 | 24.5 | 1.239 | -0.06 | 0.53 | 0.657 |
| 453 | CDMA BC10 | RTAP 153.6kbps | Edge3 | 0.8cm | 476 | 817.9 | OFF | 23.57 | 24.5 | 1.239 | -0.03 | 0.315 | 0.390 |
| 454 | CDMA BC10 | RTAP 153.6kbps | Edge4 | 0cm | 476 | 817.9 | OFF | 23.57 | 24.5 | 1.239 | -0.02 | 0.174 | 0.216 |
| 455 | CDMA BC10 | RTAP 153.6kbps | Bottom Face | 0cm | 476 | 817.9 | ON | 21.62 | 22.5 | 1.225 | 0.13 | 0.969 | 1.187 |
| 456 | CDMA BC10 | RTAP 153.6kbps | Edge3 | 0cm | 476 | 817.9 | ON | 21.62 | 22.5 | 1.225 | -0.16 | 0.563 | 0.689 |
| **457** | **CDMA BC10** | **RTAP 153.6kbps** | **Curved surface of Edge3** | **0cm** | **476** | **817.9** | **ON** | **21.62** | **22.5** | **1.225** | **0.02** | **1.15** | **1.408** |
| 139 | CDMA BC0 | RTAP 153.6kbps | Bottom Face | 1cm | 384 | 836.52 | OFF | 23.68 | 24.5 | 1.208 | 0.09 | 0.584 | 0.705 |
| 140 | CDMA BC0 | RTAP 153.6kbps | Edge3 | 0.8cm | 384 | 836.52 | OFF | 23.68 | 24.5 | 1.208 | -0.12 | 0.326 | 0.394 |
| 141 | CDMA BC0 | RTAP 153.6kbps | Edge4 | 0cm | 384 | 836.52 | OFF | 23.68 | 24.5 | 1.208 | 0.03 | 0.133 | 0.161 |
| 142 | CDMA BC0 | RTAP 153.6kbps | Bottom Face | 0cm | 384 | 836.52 | ON | 21.7 | 22.5 | 1.202 | -0.12 | 1.11 | 1.335 |
| 143 | CDMA BC0 | RTAP 153.6kbps | Bottom Face | 0cm | 1013 | 824.7 | ON | 21.68 | 22.5 | 1.208 | 0.08 | 1.13 | 1.365 |
| 144 | CDMA BC0 | RTAP 153.6kbps | Bottom Face | 0cm | 777 | 848.31 | ON | 21.66 | 22.5 | 1.213 | -0.13 | 1.07 | 1.298 |
| 145 | CDMA BC0 | RTAP 153.6kbps | Edge3 | 0cm | 384 | 836.52 | ON | 21.7 | 22.5 | 1.202 | 0.11 | 0.422 | 0.507 |
| 146 | CDMA BC0 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | 384 | 836.52 | ON | 21.7 | 22.5 | 1.202 | -0.02 | 1.17 | 1.407 |
| **147** | **CDMA BC0** | **RTAP 153.6kbps** | **Curved surface of Edge3** | **0cm** | **1013** | **824.7** | **ON** | **21.68** | **22.5** | **1.208** | **0** | **1.18** | **1.425** |
| 148 | CDMA BC0 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | 777 | 848.31 | ON | 21.66 | 22.5 | 1.213 | 0.03 | 1.14 | 1.383 |
| 75 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 1cm | 25 | 1851.25 | OFF | 23.88 | 24.5 | 1.153 | 0.04 | 0.695 | 0.802 |
| 76 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 1cm | 600 | 1880 | OFF | 23.7 | 24.5 | 1.202 | -0.04 | 0.771 | 0.927 |
| 77 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 1cm | 1175 | 1908.75 | OFF | 23.73 | 24.5 | 1.194 | 0 | 0.803 | 0.959 |
| 78 | CDMA BC1 | RTAP 153.6kbps | Edge 3 | 0.8cm | 25 | 1851.25 | OFF | 23.88 | 24.5 | 1.153 | -0.12 | 0.739 | 0.852 |
| 79 | CDMA BC1 | RTAP 153.6kbps | Edge 3 | 0.8cm | 600 | 1880 | OFF | 23.7 | 24.5 | 1.202 | -0.1 | 0.801 | 0.963 |
| 80 | CDMA BC1 | RTAP 153.6kbps | Edge 3 | 0.8cm | 1175 | 1908.75 | OFF | 23.73 | 24.5 | 1.194 | 0.03 | 0.928 | 1.108 |
| 81 | CDMA BC1 | RTAP 153.6kbps | Edge 4 | 0cm | 25 | 1851.25 | OFF | 23.88 | 24.5 | 1.153 | -0.02 | 0.406 | 0.468 |
| 82 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 0cm | 25 | 1851.25 | ON | 19.1 | 19.5 | 1.096 | -0.02 | 1.3 | 1.425 |
| **83** | **CDMA BC1** | **RTAP 153.6kbps** | **Bottom Face** | **0cm** | **600** | **1880** | **ON** | **19.06** | **19.5** | **1.107** | **-0.03** | **1.31** | **1.450** |
| 84 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 0cm | 1175 | 1908.75 | ON | 19.07 | 19.5 | 1.104 | -0.07 | 1.31 | 1.446 |
| 85 | CDMA BC1 | RTAP 153.6kbps | Edge 3 | 0cm | 25 | 1851.25 | ON | 19.1 | 19.5 | 1.096 | 0.01 | 0.76 | 0.833 |
| 86 | CDMA BC1 | RTAP 153.6kbps | Edge 3 | 0cm | 600 | 1880 | ON | 19.06 | 19.5 | 1.107 | -0.02 | 0.742 | 0.821 |
| 87 | CDMA BC1 | RTAP 153.6kbps | Edge 3 | 0cm | 1175 | 1908.75 | ON | 19.07 | 19.5 | 1.104 | 0.01 | 0.682 | 0.753 |
| 88 | CDMA BC1 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | 25 | 1851.25 | ON | 19.1 | 19.5 | 1.096 | -0.16 | 1.29 | 1.414 |
| 89 | CDMA BC1 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | 600 | 1880 | ON | 19.06 | 19.5 | 1.107 | -0.16 | 1.28 | 1.416 |
| 90 | CDMA BC1 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | 1175 | 1908.75 | ON | 19.07 | 19.5 | 1.104 | 0 | 1.29 | 1.424 |

## <LTE SAR>

**Note:**

1. Per KDB 941225 D05v02, when reported SAR of 1RB and 50%RB allocation for QPSK >0.8W/kg for any exposure position, SAR testing of 100%RB allocation for QPSK is performed at the highest power channel.
2. 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the *reported* SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02, 16QAM SAR testing is not required.
3. Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth.

| Plot No. | Band | BW (MHz) | Mode | Test Position | Gap (cm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 321 | LTE Band 17 | 10M | QPSK 1RB 0offset | Bottom Face | 1cm | 23800 | 711 | 22.88 | 24 | 1.294 | -0.05 | 0.265 | 0.343 |
| 322 | LTE Band 17 | 10M | QPSK 25RB 12offset | Bottom Face | 1cm | 23790 | 710 | 21.73 | 23 | 1.340 | 0.15 | 0.217 | 0.291 |
| 323 | LTE Band 17 | 10M | QPSK 1RB 0offset | Edge3 | 0.8cm | 23800 | 711 | 22.88 | 24 | 1.294 | -0.01 | 0.154 | 0.199 |
| 324 | LTE Band 17 | 10M | QPSK 25RB 12offset | Edge3 | 0.8cm | 23790 | 710 | 21.73 | 23 | 1.340 | -0.01 | 0.125 | 0.167 |
| 325 | LTE Band 17 | 10M | QPSK 1RB 0offset | Edge4 | 0cm | 23800 | 711 | 22.88 | 24 | 1.294 | -0.09 | 0.143 | 0.185 |
| 326 | LTE Band 17 | 10M | QPSK 25RB 12offset | Edge4 | 0cm | 23790 | 710 | 21.73 | 22 | 1.064 | 0 | 0.111 | 0.118 |
| 314 | LTE Band 17 | 10M | QPSK 1RB 24offset | Bottom Face | 0cm | 23780 | 709 | 21.83 | 22 | 1.040 | -0.08 | 0.904 | 0.940 |
| 315 | LTE Band 17 | 10M | QPSK 1RB 24offset | Bottom Face | 0cm | 23790 | 710 | 21.64 | 22 | 1.086 | -0.01 | 1.01 | 1.097 |
| 316 | LTE Band 17 | 10M | QPSK 1RB 24offset | Bottom Face | 0cm | 23800 | 711 | 21.59 | 22 | 1.099 | -0.07 | 1.01 | 1.110 |
| 317 | LTE Band 17 | 10M | QPSK 25RB 0offset | Bottom Face | 0cm | 23800 | 711 | 21.73 | 22 | 1.064 | -0.04 | 0.986 | 1.049 |
| 318 | LTE Band 17 | 10M | QPSK 25RB 0offset | Bottom Face | 0cm | 23780 | 709 | 21.45 | 22 | 1.135 | -0.03 | 0.944 | 1.071 |
| 319 | LTE Band 17 | 10M | QPSK 25RB 0offset | Bottom Face | 0cm | 23790 | 710 | 21.66 | 22 | 1.081 | -0.02 | 0.966 | 1.045 |
| 320 | LTE Band 17 | 10M | QPSK 50RB 0offset | Bottom Face | 0cm | 23800 | 711 | 21.62 | 22 | 1.091 | -0.12 | 0.97 | 1.059 |
| 307 | LTE Band 17 | 10M | QPSK 1RB 24offset | Edge3 | 0cm | 23780 | 709 | 21.83 | 22 | 1.040 | 0.141 | 0.798 | 0.830 |
| 308 | LTE Band 17 | 10M | QPSK 1RB 24offset | Edge3 | 0cm | 23790 | 710 | 21.64 | 22 | 1.086 | -0.08 | 0.826 | 0.897 |
| 309 | LTE Band 17 | 10M | QPSK 1RB 24offset | Edge3 | 0cm | 23800 | 711 | 21.59 | 22 | 1.099 | -0.129 | 0.82 | 0.901 |
| 310 | LTE Band 17 | 10M | QPSK 25RB 0offset | Edge3 | 0cm | 23800 | 711 | 21.73 | 22 | 1.064 | -0.12 | 0.81 | 0.862 |
| 311 | LTE Band 17 | 10M | QPSK 25RB 0offset | Edge3 | 0cm | 23780 | 709 | 21.45 | 22 | 1.135 | -0.09 | 0.75 | 0.851 |
| 312 | LTE Band 17 | 10M | QPSK 25RB 0offset | Edge3 | 0cm | 23790 | 710 | 21.66 | 22 | 1.081 | -0.132 | 0.792 | 0.856 |
| 313 | LTE Band 17 | 10M | QPSK 50RB 0offset | Edge3 | 0cm | 23800 | 711 | 21.62 | 22 | 1.091 | 0.048 | 0.842 | 0.919 |
| 300 | LTE Band 17 | 10M | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | 23780 | 709 | 21.83 | 22 | 1.040 | 0.142 | 1.01 | 1.050 |
| **301** | **LTE Band 17** | **10M** | **QPSK 1RB 24offset** | **Curved surface of Edge3** | **0cm** | **23790** | **710** | **21.64** | **22** | **1.086** | **0.125** | **1.04** | **1.130** |
| 302 | LTE Band 17 | 10M | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | 23800 | 711 | 21.59 | 22 | 1.099 | -0.09 | 0.995 | 1.094 |
| 303 | LTE Band 17 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 23800 | 711 | 21.73 | 22 | 1.064 | -0.01 | 0.992 | 1.056 |
| 304 | LTE Band 17 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 23780 | 709 | 21.45 | 22 | 1.135 | -0.03 | 0.945 | 1.073 |
| 305 | LTE Band 17 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 23790 | 710 | 21.66 | 22 | 1.081 | -0.1 | 0.988 | 1.068 |
| 306 | LTE Band 17 | 10M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 23800 | 711 | 21.62 | 22 | 1.091 | -0.07 | 0.979 | 1.069 |
| 342 | LTE Band 13 | 10M | QPSK 1RB 0offset | Bottom Face | 1cm | 23230 | 782 | 22.75 | 24 | 1.334 | -0.15 | 0.652 | 0.869 |
| 343 | LTE Band 13 | 10M | QPSK 25RB 0offset | Bottom Face | 1cm | 23230 | 782 | 21.5 | 23 | 1.413 | -0.04 | 0.521 | 0.736 |
| 378 | LTE Band 13 | 10M | QPSK 50RB 0offset | Bottom Face | 1cm | 23230 | 782 | 21.4 | 23 | 1.445 | 0.145 | 0.512 | 0.740 |
| 337 | LTE Band 13 | 10M | QPSK 1RB 0offset | Edge3 | 0.8cm | 23230 | 782 | 22.75 | 24 | 1.334 | -0.11 | 0.541 | 0.721 |
| 338 | LTE Band 13 | 10M | QPSK 25RB 0offset | Edge3 | 0.8cm | 23230 | 782 | 21.5 | 23 | 1.413 | -0.15 | 0.421 | 0.595 |
| 340 | LTE Band 13 | 10M | QPSK 1RB 0offset | Edge4 | 0cm | 23230 | 782 | 22.75 | 24 | 1.334 | -0.16 | 0.099 | 0.132 |
| 341 | LTE Band 13 | 10M | QPSK 25RB 0offset | Edge4 | 0cm | 23230 | 782 | 21.5 | 23 | 1.413 | 0.05 | 0.075 | 0.106 |
| 332 | LTE Band 13 | 10M | QPSK 1RB 0offset | Bottom Face | 0cm | 23230 | 782 | 20.66 | 22 | 1.361 | 0.04 | 0.97 | 1.321 |
| **333** | **LTE Band 13** | **10M** | **QPSK 25RB 0offset** | **Bottom Face** | **0cm** | **23230** | **782** | **20.55** | **22** | **1.396** | **-0.16** | **1.01** | **1.410** |
| 331 | LTE Band 13 | 10M | QPSK 50RB 0offset | Bottom Face | 0cm | 23230 | 782 | 20.42 | 22 | 1.439 | -0.05 | 0.908 | 1.306 |
| 334 | LTE Band 13 | 10M | QPSK 1RB 0offset | Edge3 | 0cm | 23230 | 782 | 20.66 | 22 | 1.361 | -0.16 | 0.503 | 0.685 |
| 335 | LTE Band 13 | 10M | QPSK 25RB 24offset | Edge3 | 0cm | 23230 | 782 | 20.55 | 22 | 1.396 | -0.06 | 0.441 | 0.616 |
| 328 | LTE Band 13 | 10M | QPSK 1RB 0offset | Curved surface of Edge3 | 0cm | 23230 | 782 | 20.66 | 22 | 1.361 | 0.01 | 0.956 | 1.302 |
| 329 | LTE Band 13 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 23230 | 782 | 20.55 | 22 | 1.396 | -0.02 | 0.948 | 1.324 |
| 330 | LTE Band 13 | 10M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 23230 | 782 | 20.42 | 22 | 1.439 | 0.18 | 0.952 | 1.370 |

| Plot No. | Band | BW (MHz) | Mode | Test Position | Gap (cm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 424 | LTE Band 5 | 10M | QPSK 1RB 24offset | Bottom Face | 1cm | 20600 | 844 | 22.55 | 24 | 1.396 | 0.01 | 0.475 | 0.663 |
| 429 | LTE Band 5 | 10M | QPSK 25RB 12offset | Bottom Face | 1cm | 20600 | 844 | 21.44 | 23 | 1.432 | -0.04 | 0.386 | 0.553 |
| 425 | LTE Band 5 | 10M | QPSK 1RB 24offset | Edge3 | 0.8cm | 20600 | 844 | 22.55 | 24 | 1.396 | 0.19 | 0.396 | 0.553 |
| 428 | LTE Band 5 | 10M | QPSK 25RB 12offset | Edge3 | 0.8cm | 20600 | 844 | 21.44 | 23 | 1.432 | -0.1 | 0.308 | 0.441 |
| 426 | LTE Band 5 | 10M | QPSK 1RB 24offset | Edge4 | 0cm | 20600 | 844 | 22.55 | 24 | 1.396 | 0.12 | 0.142 | 0.198 |
| 427 | LTE Band 5 | 10M | QPSK 25RB 12offset | Edge4 | 0cm | 20600 | 844 | 21.44 | 23 | 1.432 | 0.05 | 0.11 | 0.158 |
| 430 | LTE Band 5 | 10M | QPSK 1RB 24offset | Bottom Face | 0cm | 20525 | 836.5 | 20.63 | 21.5 | 1.222 | 0.178 | 0.897 | 1.096 |
| 431 | LTE Band 5 | 10M | QPSK 1RB 24offset | Bottom Face | 0cm | 20450 | 829 | 20.28 | 21.5 | 1.324 | -0.03 | 0.87 | 1.152 |
| 432 | LTE Band 5 | 10M | QPSK 1RB 24offset | Bottom Face | 0cm | 20600 | 844 | 20.54 | 21.5 | 1.247 | -0.02 | 0.935 | 1.166 |
| 433 | LTE Band 5 | 10M | QPSK 25RB 0offset | Bottom Face | 0cm | 20525 | 836.5 | 20.47 | 21.5 | 1.268 | 0.11 | 0.879 | 1.114 |
| 434 | LTE Band 5 | 10M | QPSK 25RB 0offset | Bottom Face | 0cm | 20450 | 829 | 20.24 | 21.5 | 1.337 | -0.01 | 0.868 | 1.160 |
| 435 | LTE Band 5 | 10M | QPSK 25RB 0offset | Bottom Face | 0cm | 20600 | 844 | 20.46 | 21.5 | 1.271 | 0.01 | 0.894 | 1.136 |
| 436 | LTE Band 5 | 10M | QPSK 50RB 0offset | Bottom Face | 0cm | 20600 | 844 | 20.3 | 21.5 | 1.318 | -0.12 | 0.878 | 1.157 |
| 437 | LTE Band 5 | 10M | QPSK 1RB 24offset | Edge3 | 0cm | 20525 | 836.5 | 20.63 | 21.5 | 1.222 | -0.128 | 0.601 | 0.734 |
| 440 | LTE Band 5 | 10M | QPSK 25RB 0offset | Edge3 | 0cm | 20525 | 836.5 | 20.47 | 21.5 | 1.268 | -0.127 | 0.575 | 0.729 |
| 444 | LTE Band 5 | 10M | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | 20525 | 836.5 | 20.63 | 21.5 | 1.222 | -0.154 | 1.04 | 1.271 |
| 445 | LTE Band 5 | 10M | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | 20450 | 829 | 20.28 | 21.5 | 1.324 | -0.128 | 0.962 | 1.274 |
| 446 | LTE Band 5 | 10M | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | 20600 | 844 | 20.54 | 21.5 | 1.247 | 0.05 | 1.05 | 1.310 |
| 447 | LTE Band 5 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 20525 | 836.5 | 20.47 | 21.5 | 1.268 | -0.15 | 1 | 1.268 |
| 448 | LTE Band 5 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 20450 | 829 | 20.24 | 21.5 | 1.337 | 0.04 | 0.972 | 1.299 |
| 449 | LTE Band 5 | 10M | QPSK 25RB 0offset | Curved surface of Edge3 | 0cm | 20600 | 844 | 20.46 | 21.5 | 1.271 | -0.121 | 1.01 | 1.283 |
| **450** | **LTE Band 5** | **10M** | **QPSK 50RB 0offset** | **Curved surface of Edge3** | **0cm** | **20600** | **844** | **20.3** | **21.5** | **1.318** | **0.02** | **1.01** | **1.331** |
| 366 | LTE Band 4 | 20M | QPSK 1RB 0offset | Bottom Face | 1cm | 20175 | 1732.5 | 22.57 | 24 | 1.390 | -0.142 | 0.503 | 0.699 |
| 367 | LTE Band 4 | 20M | QPSK 50RB 24offset | Bottom Face | 1cm | 20050 | 1720 | 21.19 | 23 | 1.517 | 0.13 | 0.422 | 0.640 |
| 368 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge3 | 0.8cm | 20175 | 1732.5 | 22.57 | 24 | 1.390 | 0.01 | 0.932 | 1.295 |
| 369 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge3 | 0.8cm | 20050 | 1720 | 22.4 | 24 | 1.445 | 0.05 | 0.952 | 1.376 |
| 370 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge3 | 0.8cm | 20300 | 1745 | 22.45 | 24 | 1.429 | 0.04 | 0.964 | 1.377 |
| 371 | LTE Band 4 | 20M | QPSK 50RB 24offset | Edge3 | 0.8cm | 20050 | 1720 | 21.19 | 23 | 1.517 | 0.02 | 0.725 | 1.100 |
| 372 | LTE Band 4 | 20M | QPSK 50RB 24offset | Edge3 | 0.8cm | 20175 | 1732.5 | 21.15 | 23 | 1.531 | -0.01 | 0.699 | 1.070 |
| 373 | LTE Band 4 | 20M | QPSK 50RB 24offset | Edge3 | 0.8cm | 20300 | 1745 | 21.03 | 23 | 1.574 | 0.12 | 0.697 | 1.097 |
| 374 | LTE Band 4 | 20M | QPSK 100RB 0offset | Edge3 | 0.8cm | 20050 | 1720 | 21.2 | 23 | 1.514 | 0.11 | 0.721 | 1.091 |
| 375 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge4 | 0cm | 20175 | 1732.5 | 22.57 | 24 | 1.390 | -0.11 | 0.049 | 0.068 |
| 376 | LTE Band 4 | 20M | QPSK 50RB 24offset | Edge4 | 0cm | 20050 | 1720 | 21.19 | 23 | 1.517 | 0.01 | 0.037 | 0.056 |
| 352 | LTE Band 4 | 20M | QPSK 1RB 0offset | Bottom Face | 0cm | 20050 | 1720 | 20.69 | 21 | 1.074 | 0.07 | 1.14 | 1.224 |
| 353 | LTE Band 4 | 20M | QPSK 1RB 0offset | Bottom Face | 0cm | 20175 | 1732.5 | 20.62 | 21 | 1.091 | 0.07 | 1.1 | 1.201 |
| 354 | LTE Band 4 | 20M | QPSK 1RB 0offset | Bottom Face | 0cm | 20300 | 1745 | 20.67 | 21 | 1.079 | 0.08 | 1.09 | 1.176 |
| 355 | LTE Band 4 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 20050 | 1720 | 20.53 | 21 | 1.114 | 0.13 | 1.09 | 1.215 |
| 356 | LTE Band 4 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 20175 | 1732.5 | 20.48 | 21 | 1.127 | 0.078 | 1.01 | 1.138 |
| 357 | LTE Band 4 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 20300 | 1745 | 20.43 | 21 | 1.140 | 0.09 | 1.04 | 1.186 |
| 358 | LTE Band 4 | 20M | QPSK 100RB 0offset | Bottom Face | 0cm | 20050 | 1720 | 20.46 | 21 | 1.132 | 0.12 | 1.07 | 1.212 |
| 359 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge3 | 0cm | 20050 | 1720 | 20.69 | 21 | 1.074 | -0.08 | 1.18 | 1.267 |
| 360 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge3 | 0cm | 20175 | 1732.5 | 20.62 | 21 | 1.091 | 0.07 | 1.14 | 1.244 |
| 361 | LTE Band 4 | 20M | QPSK 1RB 0offset | Edge3 | 0cm | 20300 | 1745 | 20.67 | 21 | 1.079 | -0.1 | 1.12 | 1.208 |
| 362 | LTE Band 4 | 20M | QPSK 50RB 0offset | Edge3 | 0cm | 20050 | 1720 | 20.53 | 21 | 1.114 | 0.03 | 1.15 | 1.281 |
| 363 | LTE Band 4 | 20M | QPSK 50RB 0offset | Edge3 | 0cm | 20175 | 1732.5 | 20.48 | 21 | 1.127 | -0.03 | 1.16 | 1.308 |
| 364 | LTE Band 4 | 20M | QPSK 50RB 0offset | Edge3 | 0cm | 20300 | 1745 | 20.43 | 21 | 1.140 | 0.02 | 1.03 | 1.174 |
| 365 | LTE Band 4 | 20M | QPSK 100RB 0offset | Edge3 | 0cm | 20050 | 1720 | 20.46 | 21 | 1.132 | 0.06 | 1.15 | 1.302 |
| 345 | LTE Band 4 | 20M | QPSK 1RB 0offset | Curved surface of Edge3 | 0cm | 20050 | 1720 | 20.69 | 21 | 1.074 | 0.04 | 1.3 | 1.396 |
| **346** | **LTE Band 4** | **20M** | **QPSK 1RB 0offset** | **Curved surface of Edge3** | **0cm** | **20175** | **1732.5** | **20.62** | **21** | **1.091** | **0.03** | **1.29** | **1.408** |
| 347 | LTE Band 4 | 20M | QPSK 1RB 0offset | Curved surface of Edge3 | 0cm | 20300 | 1745 | 20.67 | 21 | 1.079 | -0.031 | 1.28 | 1.381 |
| 348 | LTE Band 4 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 20050 | 1720 | 20.53 | 21 | 1.114 | 0.01 | 1.25 | 1.393 |
| 349 | LTE Band 4 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 20175 | 1732.5 | 20.48 | 21 | 1.127 | 0 | 1.17 | 1.319 |
| 350 | LTE Band 4 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 20300 | 1745 | 20.43 | 21 | 1.140 | 0.01 | 1.19 | 1.357 |
| 351 | LTE Band 4 | 20M | QPSK 100RB 0offset | Curved surface of Edge3 | 0cm | 20050 | 1720 | 20.46 | 21 | 1.132 | -0.16 | 1.22 | 1.382 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 500 | LTE Band 2 | 20M | QPSK 1RB 99offset | Bottom Face | 1cm | 19100 | 1900 | 23.12 | 24 | 1.225 | 0.08 | 0.58 | 0.710 |
| 501 | LTE Band 2 | 20M | QPSK 50RB 0offset | Bottom Face | 1cm | 18700 | 1860 | 21.87 | 23 | 1.297 | 0.01 | 0.373 | 0.484 |
| 502 | LTE Band 2 | 20M | QPSK 1RB 99offset | Edge3 | 0.8cm | 19100 | 1900 | 23.12 | 24 | 1.225 | 0.09 | 0.622 | 0.762 |
| 503 | LTE Band 2 | 20M | QPSK 50RB 0offset | Edge3 | 0.8cm | 18700 | 1860 | 21.87 | 23 | 1.297 | 0 | 0.395 | 0.512 |
| 504 | LTE Band 2 | 20M | QPSK 1RB 99offset | Edge4 | 0cm | 19100 | 1900 | 23.12 | 24 | 1.225 | 0.07 | 0.648 | 0.794 |
| 505 | LTE Band 2 | 20M | QPSK 50RB 0offset | Edge4 | 0cm | 18700 | 1860 | 21.87 | 23 | 1.297 | 0 | 0.206 | 0.267 |
| 506 | LTE Band 2 | 20M | QPSK 1RB 99offset | Bottom Face | 0cm | 18900 | 1880 | 18.28 | 19 | 1.180 | -0.06 | 1.08 | 1.275 |
| 507 | LTE Band 2 | 20M | QPSK 1RB 99offset | Bottom Face | 0cm | 18700 | 1860 | 17.89 | 19 | 1.291 | -0.084 | 0.912 | 1.178 |
| 508 | LTE Band 2 | 20M | QPSK 1RB 99offset | Bottom Face | 0cm | 19100 | 1900 | 17.96 | 19 | 1.271 | -0.1 | 1.01 | 1.283 |
| 509 | LTE Band 2 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 18900 | 1880 | 18.15 | 19 | 1.216 | -0.132 | 1.02 | 1.241 |
| 510 | LTE Band 2 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 18700 | 1860 | 17.76 | 19 | 1.330 | -0.1 | 0.977 | 1.300 |
| 511 | LTE Band 2 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 19100 | 1900 | 17.7 | 19 | 1.349 | 0.05 | 0.955 | 1.288 |
| 512 | LTE Band 2 | 20M | QPSK 100RB 0offset | Bottom Face | 0cm | 18900 | 1880 | 17.85 | 19 | 1.303 | 0.14 | 0.989 | 1.289 |
| 513 | LTE Band 2 | 20M | QPSK 1RB 99offset | Edge3 | 0cm | 18900 | 1880 | 18.28 | 19 | 1.180 | -0.02 | 0.413 | 0.487 |
| 514 | LTE Band 2 | 20M | QPSK 50RB 0offset | Edge3 | 0cm | 18900 | 1880 | 18.15 | 19 | 1.216 | -0.05 | 0.4 | 0.486 |
| 515 | LTE Band 2 | 20M | QPSK 1RB 99offset | Curved surface of Edge3 | 0cm | 18900 | 1880 | 18.28 | 19 | 1.180 | -0.128 | 1.02 | 1.204 |
| **516** | **LTE Band 2** | **20M** | **QPSK 1RB 99offset** | **Curved surface of Edge3** | **0cm** | **18700** | **1860** | **17.89** | **19** | **1.291** | **-0.127** | **1.1** | **1.420** |
| 517 | LTE Band 2 | 20M | QPSK 1RB 99offset | Curved surface of Edge3 | 0cm | 19100 | 1900 | 17.96 | 19 | 1.271 | -0.13 | 0.979 | 1.244 |
| 518 | LTE Band 2 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 18900 | 1880 | 18.15 | 19 | 1.216 | -0.08 | 1.05 | 1.277 |
| 519 | LTE Band 2 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 18700 | 1860 | 17.76 | 19 | 1.330 | -0.04 | 0.991 | 1.318 |
| 520 | LTE Band 2 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 19100 | 1900 | 17.7 | 19 | 1.349 | -0.11 | 0.953 | 1.286 |
| 521 | LTE Band 2 | 20M | QPSK 100RB 0offset | Curved surface of Edge3 | 0cm | 18900 | 1880 | 17.85 | 19 | 1.303 | 0.06 | 1.05 | 1.368 |
| 416 | LTE Band 25 | 20M | QPSK 1RB 49offset | Bottom Face | 1cm | 26140 | 1860 | 22.9 | 24 | 1.288 | -0.15 | 0.466 | 0.600 |
| 417 | LTE Band 25 | 20M | QPSK 50RB 0offset | Bottom Face | 1cm | 26140 | 1860 | 21.55 | 23 | 1.396 | -0.1 | 0.342 | 0.478 |
| 418 | LTE Band 25 | 20M | QPSK 1RB 49offset | Edge3 | 0.8cm | 26140 | 1860 | 22.9 | 24 | 1.288 | -0.1 | 0.612 | 0.788 |
| 419 | LTE Band 25 | 20M | QPSK 50RB 0offset | Edge3 | 0.8cm | 26140 | 1860 | 21.55 | 23 | 1.396 | 0.04 | 0.435 | 0.607 |
| 420 | LTE Band 25 | 20M | QPSK 1RB 49offset | Edge4 | 0cm | 26140 | 1860 | 22.9 | 24 | 1.288 | 0.1 | 0.358 | 0.461 |
| 421 | LTE Band 25 | 20M | QPSK 50RB 0offset | Edge4 | 0cm | 26140 | 1860 | 21.55 | 23 | 1.396 | 0.02 | 0.255 | 0.356 |
| 407 | LTE Band 25 | 20M | QPSK 1RB 49offset | Bottom Face | 0cm | 26140 | 1860 | 17.7 | 19 | 1.349 | -0.04 | 0.913 | 1.232 |
| 408 | LTE Band 25 | 20M | QPSK 1RB 49offset | Bottom Face | 0cm | 26365 | 1882.5 | 17.51 | 19 | 1.409 | -0.07 | 0.894 | 1.260 |
| 409 | LTE Band 25 | 20M | QPSK 1RB 49offset | Bottom Face | 0cm | 26590 | 1905 | 17.38 | 19 | 1.452 | -0.16 | 0.873 | 1.268 |
| 410 | LTE Band 25 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 26140 | 1860 | 17.53 | 19 | 1.403 | -0.07 | 0.87 | 1.220 |
| 411 | LTE Band 25 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 26365 | 1882.5 | 17.29 | 19 | 1.483 | -0.05 | 0.849 | 1.259 |
| 412 | LTE Band 25 | 20M | QPSK 50RB 0offset | Bottom Face | 0cm | 26590 | 1905 | 17.19 | 19 | 1.517 | -0.03 | 0.846 | 1.283 |
| 413 | LTE Band 25 | 20M | QPSK 100RB 0offset | Bottom Face | 0cm | 26140 | 1860 | 17.39 | 19 | 1.449 | 0.17 | 0.856 | 1.240 |
| 414 | LTE Band 25 | 20M | QPSK 1RB 49offset | Edge3 | 0cm | 26140 | 1860 | 17.7 | 19 | 1.349 | -0.06 | 0.569 | 0.768 |
| 415 | LTE Band 25 | 20M | QPSK 50RB 0offset | Edge3 | 0cm | 26140 | 1860 | 17.53 | 19 | 1.403 | -0.01 | 0.551 | 0.773 |
| 400 | LTE Band 25 | 20M | QPSK 1RB 49offset | Curved surface of Edge3 | 0cm | 26140 | 1860 | 17.7 | 19 | 1.349 | 0.11 | 0.99 | 1.335 |
| 401 | LTE Band 25 | 20M | QPSK 1RB 49offset | Curved surface of Edge3 | 0cm | 26365 | 1882.5 | 17.51 | 19 | 1.409 | 0.12 | 0.97 | 1.367 |
| 402 | LTE Band 25 | 20M | QPSK 1RB 49offset | Curved surface of Edge3 | 0cm | 26590 | 1905 | 17.38 | 19 | 1.452 | -0.09 | 0.91 | 1.321 |
| 403 | LTE Band 25 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 26140 | 1860 | 17.53 | 19 | 1.403 | -0.03 | 1.02 | 1.431 |
| 404 | LTE Band 25 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 26365 | 1882.5 | 17.29 | 19 | 1.483 | 0.14 | 0.961 | 1.425 |
| 405 | LTE Band 25 | 20M | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | 26590 | 1905 | 17.19 | 19 | 1.517 | 0.01 | 0.938 | 1.423 |
| **406** | **LTE Band 25** | **20M** | **QPSK 100RB 0offset** | **Curved surface of Edge3** | **0cm** | **26140** | **1860** | **17.39** | **19** | **1.449** | **0.05** | **0.996** | **1.443** |

## <WLAN SAR DTS>

**Note:**

1. Additional WLAN SAR testing was performed for simultaneous transmission analysis.

## <WLAN2.4GHz>

| Plot No. | Band | Mode | Test Position | Gap (cm) | Ant | Ch. | Freq. (MHz) | Data Rate | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WLAN2.4GHz | 802.11b | Bottom Face | 0cm | A | 6 | 2437 | 1M | 16.28 | 17 | 1.180 | 0.02 | 1.09 | 1.287 |
| **24** | **WLAN2.4GHz** | **802.11b** | **Bottom Face** | **0cm** | **A** | **1** | **2412** | **1M** | **16.14** | **17** | **1.219** | **0.03** | **1.18** | **1.438** |
| 25 | WLAN2.4GHz | 802.11b | Bottom Face | 0cm | A | 11 | 2462 | 1M | 16.22 | 17 | 1.197 | 0.19 | 1.08 | 1.292 |
| 2 | WLAN2.4GHz | 802.11b | Edge 4 | 0cm | A | 6 | 2437 | 1M | 16.28 | 17 | 1.180 | 0.01 | 0.349 | 0.412 |
| 33 | WLAN2.4GHz | 802.11b | Bottom Face | 1cm | A | 6 | 2437 | 1M | 16.28 | 17 | 1.180 | -0.046 | 0.112 | 0.132 |
| 4 | WLAN2.4GHz | 802.11b | Bottom Face | 0cm | B | 6 | 2437 | 1M | 16.19 | 17 | 1.205 | -0.19 | 0.94 | 1.133 |
| **27** | **WLAN2.4GHz** | **802.11b** | **Bottom Face** | **0cm** | **B** | **1** | **2412** | **1M** | **16.06** | **17** | **1.242** | **-0.18** | **1.01** | **1.254** |
| 28 | WLAN2.4GHz | 802.11b | Bottom Face | 0cm | B | 11 | 2462 | 1M | 16.13 | 17 | 1.222 | -0.13 | 0.758 | 0.926 |

## <WLAN5.8GHz>

| Plot No. | Band | Mode | Test Position | Gap (cm) | Ant | Ch. | Freq. (MHz) | Data Rate | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured SAR1g (W/kg) | Reported SAR1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | WLAN5GHz | 802.11a | Bottom Face | 0cm | A | 165 | 5825 | 6M | 11.44 | 13 | 1.432 | 0.19 | 0.166 | 0.238 |
| **13** | **WLAN5GHz** | **802.11a** | **Edge 4** | **0cm** | **A** | **165** | **5825** | **6M** | **11.44** | **13** | **1.432** | **0.09** | **0.174** | **0.249** |
| **22** | **WLAN5GHz** | **802.11a** | **Bottom Face** | **0cm** | **B** | **165** | **5825** | **6M** | **11.55** | **13** | **1.396** | **0** | **0.292** | **0.408** |

## 12.2 Repeated SAR Measurement

| Plot No. | Band | Mode | Test Position | Gap (cm) | Ant | Ch. | Freq. (MHz) | Power Back-off | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured SAR 1g (W/kg) | Ratio | Reported SAR 1g (W/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 135 | GSM850 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | | 128 | 824.2 | ON | 27.88 | 28.5 | 1.153 | -0.13 | 1.27 | 1 | 1.465 |
| 138 | GSM850 | GPRS (2 Tx slots) | Curved surface of Edge3 | 0cm | | 128 | 824.2 | ON | 27.88 | 28.5 | 1.153 | -0.08 | 1.26 | 1.01 | 1.453 |
| 54 | GSM1900 | GPRS (2 Tx slots) | Bottom Face | 0cm | | 661 | 1880 | ON | 24.57 | 25 | 1.104 | -0.13 | 1.29 | 1 | 1.424 |
| 60 | GSM1900 | GPRS (2 Tx slots) | Bottom Face | 0cm | | 661 | 1880 | ON | 24.57 | 25 | 1.104 | -0.06 | 1.26 | 1.02 | 1.391 |
| 115 | WCDMA V | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | | 4182 | 836.4 | ON | 20.41 | 22 | 1.442 | -0.05 | 0.922 | 1 | 1.330 |
| 123 | WCDMA V | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | | 4182 | 836.4 | ON | 20.41 | 22 | 1.442 | -0.01 | 0.904 | 1.02 | 1.304 |
| 616 | WCDMA IV | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | | 1513 | 1752.6 | ON | 20.26 | 20.5 | 1.057 | -0.1 | 1.25 | 1 | 1.321 |
| 617 | WCDMA IV | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | | 1513 | 1752.6 | ON | 20.26 | 20.5 | 1.057 | 0.08 | 1.2 | 1.04 | 1.268 |
| 92 | WCDMA II | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | | 9538 | 1907.6 | ON | 17.64 | 19 | 1.368 | 0 | 1.06 | 1 | 1.450 |
| 101 | WCDMA II | RMC 12.2Kbps | Curved surface of Edge3 | 0cm | | 9538 | 1907.6 | ON | 17.64 | 19 | 1.368 | -0.03 | 1.05 | 1.01 | 1.436 |
| 457 | CDMA BC10 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | | 476 | 817.9 | ON | 21.62 | 22.5 | 1.225 | 0.02 | 1.15 | 1 | 1.408 |
| 458 | CDMA BC10 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | | 476 | 817.9 | ON | 21.62 | 22.5 | 1.225 | 0.02 | 1.14 | 1.01 | 1.396 |
| 147 | CDMA BC0 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | | 1013 | 824.7 | ON | 21.68 | 22.5 | 1.208 | 0 | 1.18 | 1 | 1.425 |
| 149 | CDMA BC0 | RTAP 153.6kbps | Curved surface of Edge3 | 0cm | | 1013 | 824.7 | ON | 21.68 | 22.5 | 1.208 | -0.05 | 1.17 | 1.01 | 1.413 |
| 83 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 0cm | | 600 | 1880 | ON | 19.06 | 19.5 | 1.107 | -0.03 | 1.31 | 1 | 1.450 |
| 91 | CDMA BC1 | RTAP 153.6kbps | Bottom Face | 0cm | | 600 | 1880 | ON | 19.06 | 19.5 | 1.107 | -0.17 | 1.3 | 1.01 | 1.439 |
| 301 | LTE Band 17 | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | | 23790 | 710 | ON | 21.64 | 22 | 1.086 | 0.125 | 1.04 | 1 | 1.130 |
| 327 | LTE Band 17 | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | | 23790 | 710 | ON | 21.64 | 22 | 1.086 | -0.04 | 0.937 | 1.11 | 1.018 |
| 333 | LTE Band 13 | QPSK 25RB 0offset | Bottom Face | 0cm | | 23230 | 782 | ON | 20.55 | 22 | 1.396 | -0.16 | 1.01 | 1 | 1.410 |
| 344 | LTE Band 13 | QPSK 25RB 0offset | Bottom Face | 0cm | | 23230 | 782 | ON | 20.55 | 22 | 1.396 | -0.164 | 0.93 | 1.08 | 1.299 |
| 446 | LTE Band 5 | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | | 20600 | 844 | ON | 20.54 | 21.5 | 1.247 | 0.05 | 1.05 | 1 | 1.310 |
| 451 | LTE Band 5 | QPSK 1RB 24offset | Curved surface of Edge3 | 0cm | | 20600 | 844 | ON | 20.54 | 21.5 | 1.247 | -0.16 | 1.02 | 1.03 | 1.272 |
| 345 | LTE Band 4 | QPSK 1RB 0offset | Curved surface of Edge3 | 0cm | | 20050 | 1720 | ON | 20.69 | 21 | 1.074 | 0.04 | 1.3 | 1 | 1.396 |
| 377 | LTE Band 4 | QPSK 1RB 0offset | Curved surface of Edge3 | 0cm | | 20050 | 1720 | ON | 20.69 | 21 | 1.074 | -0.163 | 1.27 | 1.02 | 1.364 |
| 516 | LTE Band 2 | QPSK 1RB 99offset | Curved surface of Edge3 | 0cm | | 18700 | 1860 | ON | 17.89 | 19 | 1.291 | -0.127 | 1.1 | 1 | 1.420 |
| 522 | LTE Band 2 | QPSK 1RB 99offset | Curved surface of Edge3 | 0cm | | 18700 | 1860 | ON | 17.89 | 19 | 1.291 | -0.09 | 1.06 | 1.04 | 1.369 |
| 403 | LTE Band 25 | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | | 26140 | 1860 | ON | 17.53 | 19 | 1.403 | -0.03 | 1.02 | 1 | 1.431 |
| 422 | LTE Band 25 | QPSK 50RB 0offset | Curved surface of Edge3 | 0cm | | 26140 | 1860 | ON | 17.53 | 19 | 1.403 | -0.13 | 0.95 | 1.07 | 1.333 |
| 24 | WLAN2.4G | 802.11b | Bottom Face | 0cm | Ant A | 1 | 2412 | | 16.14 | 17 | 1.219 | 0.03 | 1.18 | 1 | 1.438 |
| 26 | WLAN2.4G | 802.11b | Bottom Face | 0cm | Ant A | 1 | 2412 | | 16.14 | 17 | 1.219 | -0.05 | 1.11 | 1.06 | 1.353 |
| 27 | WLAN2.4G | 802.11b | Bottom Face | 0cm | Ant B | 1 | 2412 | | 16.06 | 17 | 1.242 | -0.18 | 1.01 | 1 | 1.254 |
| 29 | WLAN2.4G | 802.11b | Bottom Face | 0cm | Ant B | 1 | 2412 | | 16.06 | 17 | 1.242 | -0.09 | 0.957 | 1.06 | 1.188 |

**Note:**

1. Per KDB 865664 D01v01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg
2. Per KDB 865664 D01v01, if the deviation among the repeated measurement is ≤20% and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The deviation is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

## 12.3 Highest SAR Plot

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/15

**#137_ GSM850_GPRS (2 Tx slots)_Curved surface of Edge3_0cm_Ch251**

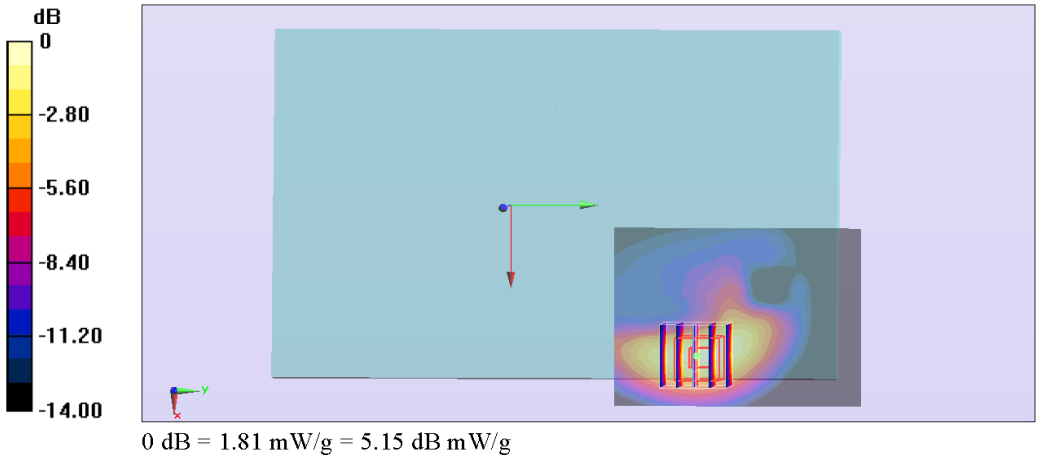
**DUT: 12-4-138**

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: MSL_850_130115 Medium parameters used: f = 849 MHz; $\sigma$ = 0.971 mho/m; $\varepsilon_r$ = 52.884; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(8.99, 8.99, 8.99); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch251/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.56 mW/g

**Configuration/Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 44.102 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.355 mW/g
**SAR(1 g) = 1.24 mW/g; SAR(10 g) = 0.677 mW/g**
Maximum value of SAR (measured) = 1.81 mW/g




0 dB = 1.81 mW/g = 5.15 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/14

**#54_GSM1900_GPRS (2 Tx slots)_Bottom Face_0cm_Ch661**

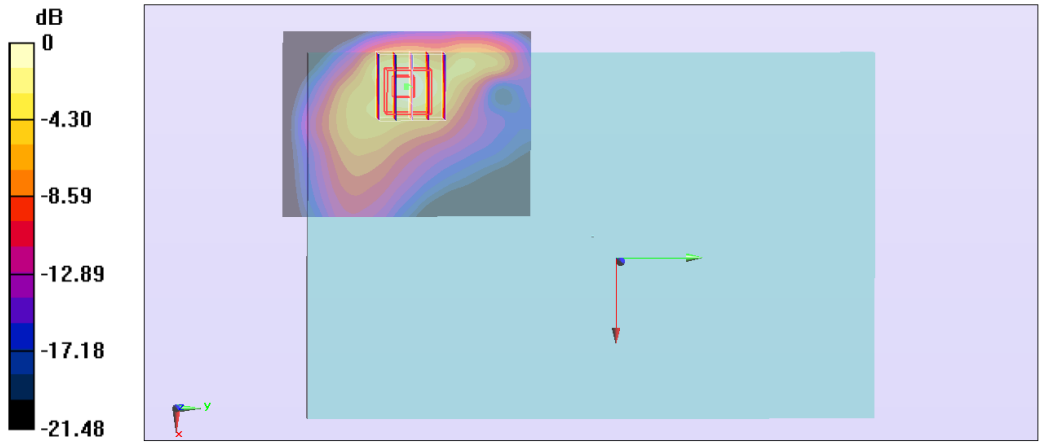
**DUT: 12-4-138**

Communication System: PCS; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: MSL_1900_130114 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.5 mho/m; $\varepsilon_r$ = 53.744; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.2 ℃; Liquid Temperature：21.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.29, 7.29, 7.29); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch661/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.65 mW/g

**Configuration/Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 36.740 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 2.566 mW/g
**SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.628 mW/g**
Maximum value of SAR (measured) = 1.85 mW/g




0 dB = 1.85 mW/g = 5.34 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/12

### #115_ WCDMA V_RMC 12.2Kbps_Curved surface of Edge3_0cm_Ch4182

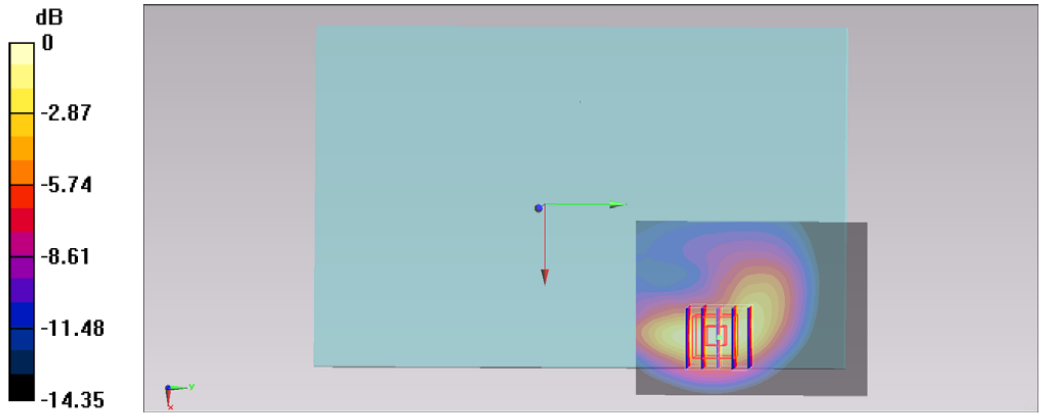
**DUT: 12-4-138**

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130112 Medium parameters used: f = 836.4 MHz; $\sigma$ = 0.969 mho/m; $\varepsilon_r$ = 54.845; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**Configuration/Ch4182/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 mW/g

**Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.853 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.750 mW/g
**SAR(1 g) = 0.922 mW/g; SAR(10 g) = 0.499 mW/g**
Maximum value of SAR (measured) = 1.20 mW/g




0 dB = 1.20 mW/g = 1.58 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/2/22

**#620_ WCDMA IV_HSDPA Subtest-1_Curved surface of Edge3_0cm_Ch1513**

**DUT: 311703**

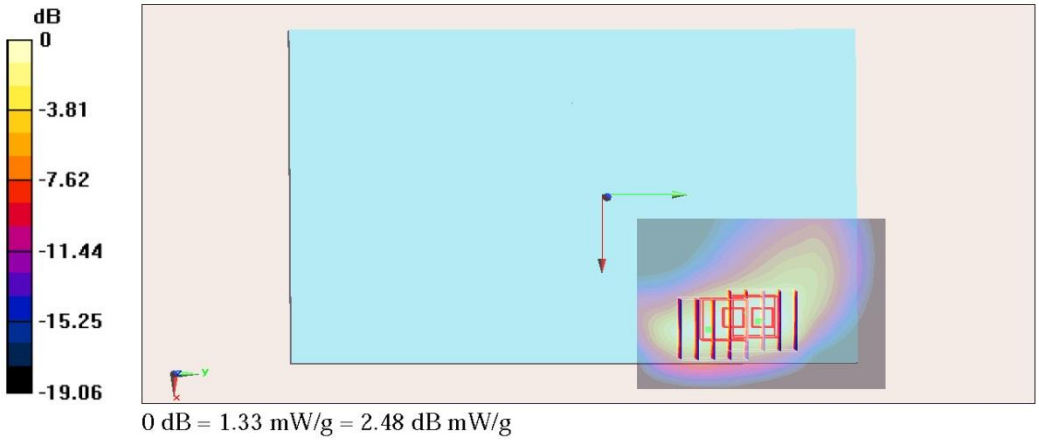
Communication System: WCDMA; Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium: MSL_1750_120222 Medium parameters used: f = 1753 MHz; $\sigma$ = 1.519 mho/m; $\varepsilon_r$ = 52.228; $\rho$ = 1000 kg/m$^3$
Ambient Temperature : 22.6℃; Liquid Temperature : 21.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.71, 7.71, 7.71); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch1513/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.82 mW/g

**Configuration/Ch1513/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.374 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.363 mW/g
**SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.619 mW/g**
Maximum value of SAR (measured) = 1.74 mW/g

**Configuration/Ch1513/Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.374 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.679 mW/g
**SAR(1 g) = 0.959 mW/g; SAR(10 g) = 0.516 mW/g**
Maximum value of SAR (measured) = 1.33 mW/g




0 dB = 1.33 mW/g = 2.48 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/11

**#92_WCDMA II_RMC 12.2Kbps_Curved surface of Edge3_0cm_Ch9538**

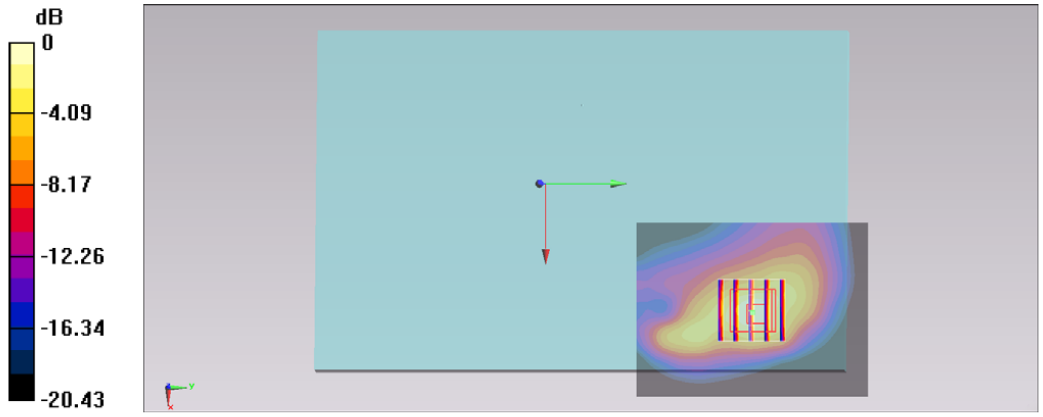
**DUT: 12-4-138**

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130111 Medium parameters used: f = 1908 MHz; $\sigma$ = 1.507 mho/m; $\varepsilon_r$ = 53.218; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**Configuration/Ch9538/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.34 mW/g

**Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.009 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 2.218 mW/g
**SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.507 mW/g**
Maximum value of SAR (measured) = 1.38 mW/g




0 dB = 1.38 mW/g = 2.80 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/2/20

**#457_CDMA BC10_RTAP 153.6kbps_Curved surface of Edge3_0cm_Ch476**

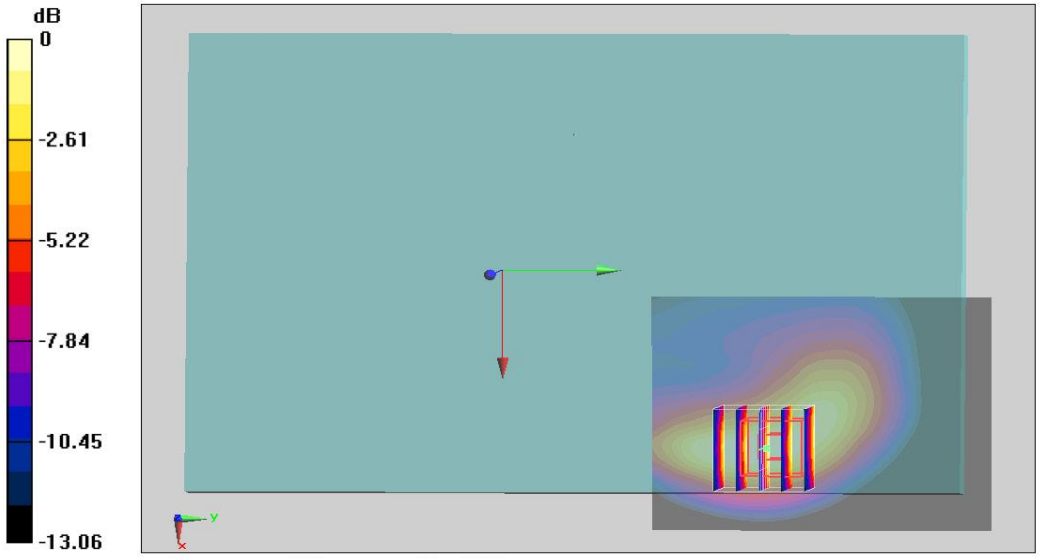
**DUT: 311703**

Communication System: CDMA ; Frequency: 817.9 MHz;Duty Cycle: 1:1
Medium: MSL_850_130220 Medium parameters used: f = 817.9 MHz; $\sigma$ = 0.936 mho/m; $\varepsilon_r$ = 52.765; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: ET3DV6 - SN1787; ConvF(6.08, 6.08, 6.08); Calibrated: 2012/5/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2012/4/23
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch476/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.36 mW/g

**Configuration/Ch476/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.833 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.900 mW/g
**SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.653 mW/g**
Maximum value of SAR (measured) = 1.32 mW/g




0 dB = 1.32 mW/g = 2.41 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/15

**#147_CDMA BC0_RTAP 153.6kbps_Curved surface of Edge3_0cm_Ch1013**

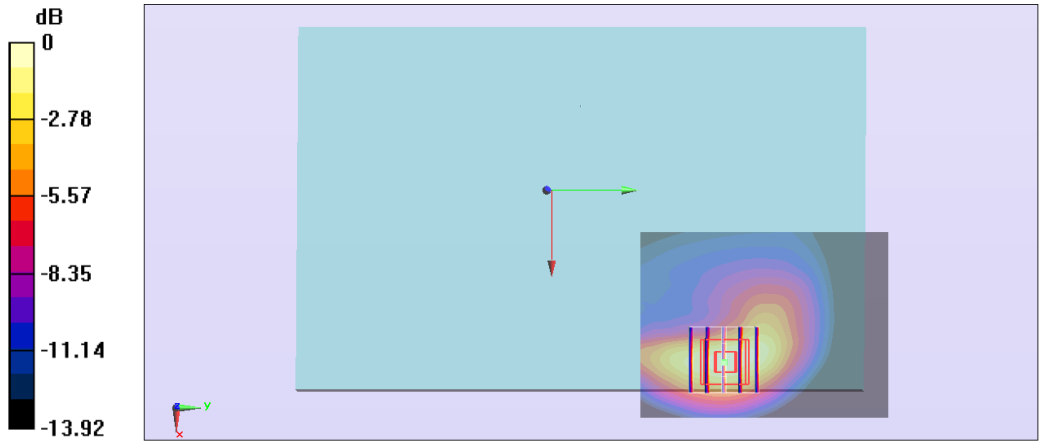
**DUT: 12-4-138**

Communication System: CDMA ; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium: MSL_850_130115 Medium parameters used: f = 825 MHz; $\sigma$ = 0.948 mho/m; $\varepsilon_r$ = 53.122; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(8.99, 8.99, 8.99); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch1013/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.62 mW/g

**Configuration/Ch1013/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.251 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 2.306 mW/g
**SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.645 mW/g**
Maximum value of SAR (measured) = 1.79 mW/g




0 dB = 1.79 mW/g = 5.06 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/11

**#83_CDMA BC1_RTAP 153.6kbps_Bottom Face_0cm_Ch600**

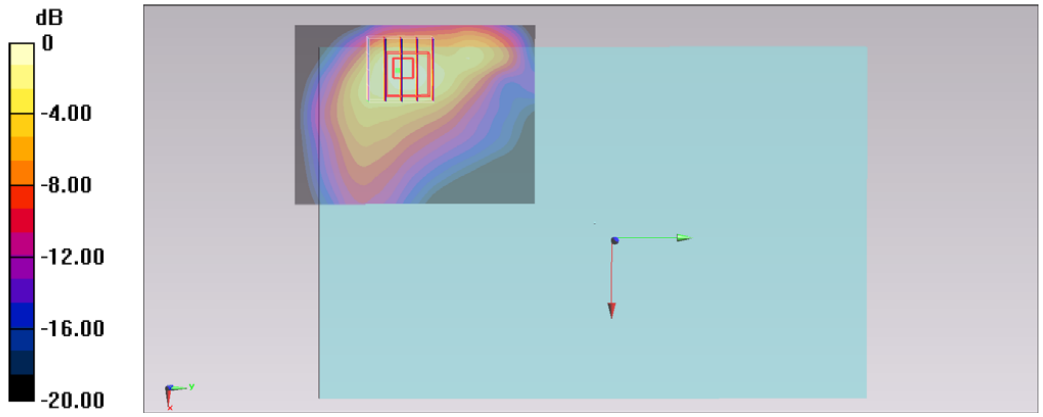
**DUT: 12-4-138**

Communication System: CDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130111 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.484 mho/m; $\varepsilon_r$ = 53.379; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**Configuration/Ch600/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.66 mW/g

**Configuration/Ch600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.289 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.717 mW/g
**SAR(1 g) = 1.31 mW/g; SAR(10 g) = 0.655 mW/g**
Maximum value of SAR (measured) = 1.70 mW/g




0 dB = 1.70 mW/g = 4.61 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/16

**#301_ LTE Band 17_10M_QPSK 1RB 24offset_Curved surface of Edge3_0cm_Ch23790**

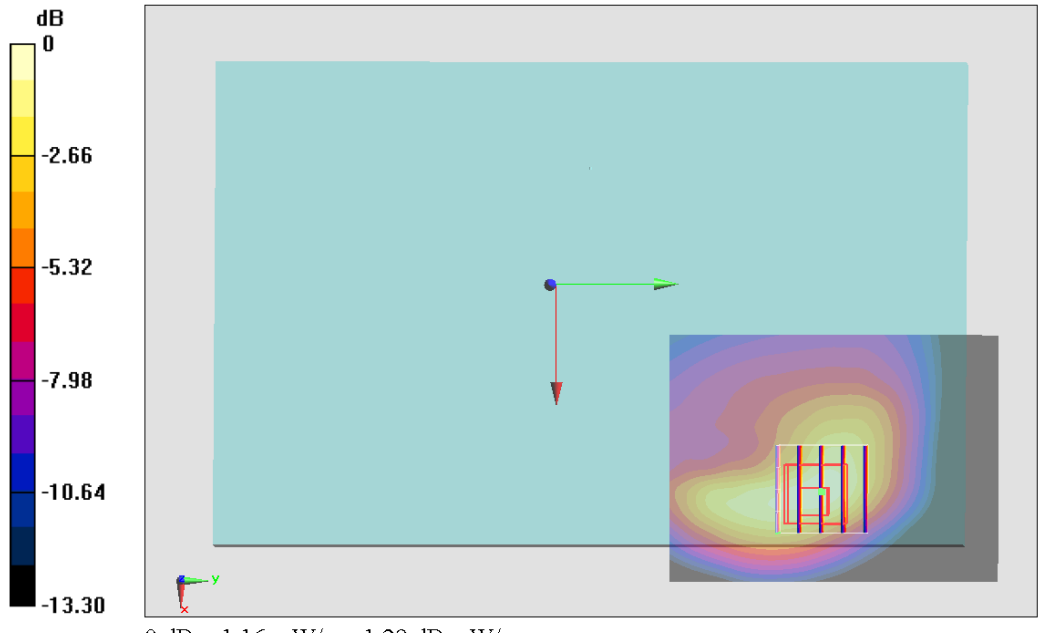
**DUT: 12-4-138**

Communication System: LTE; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: MSL_750_130116 Medium parameters used: f = 710 MHz; $\sigma$ = 0.927 mho/m; $\varepsilon_r$ = 55.135; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ET3DV6 - SN1787; ConvF(6.2, 6.2, 6.2); Calibrated: 2012/5/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2012/4/23
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch23790/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.13 mW/g

**Configuration/Ch23790/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 39.637 V/m; Power Drift = 0.125 dB
Peak SAR (extrapolated) = 1.880 mW/g
**SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.604 mW/g**
Maximum value of SAR (measured) = 1.16 mW/g




0 dB = 1.16 mW/g = 1.29 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/16

**#333_ LTE Band 13_10M_QPSK 25RB 0offset_Bottom Face_0cm_Ch23230**

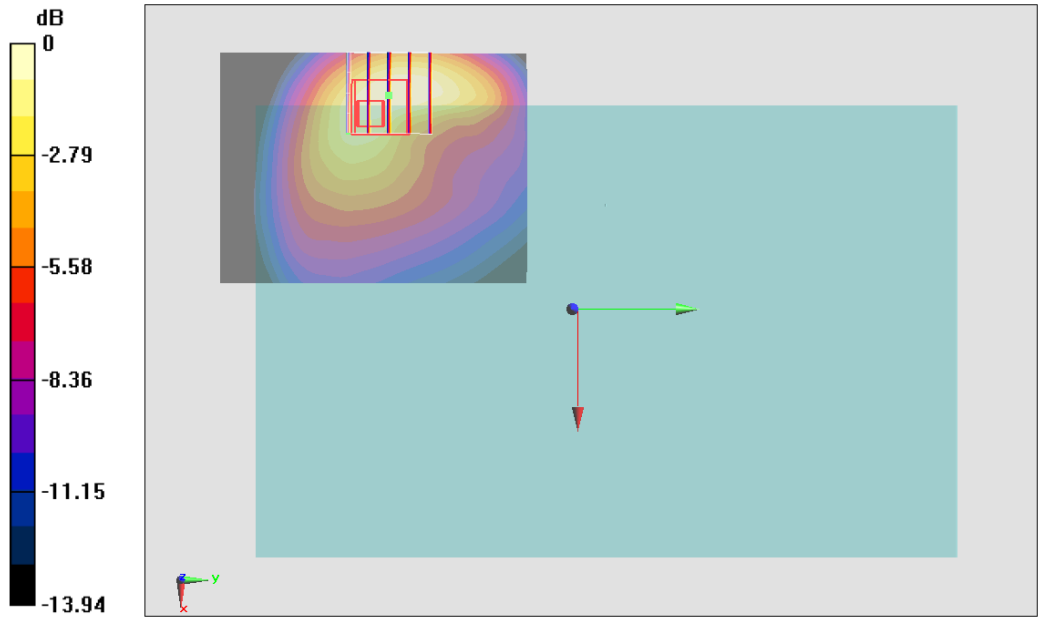
**DUT: 12-4-138**

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: MSL_750_130116 Medium parameters used: f = 782 MHz; $\sigma$ = 0.996 mho/m; $\varepsilon_r$ = 54.378; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ET3DV6 - SN1787; ConvF(6.2, 6.2, 6.2); Calibrated: 2012/5/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2012/4/23
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch23230/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.17 mW/g

**Configuration/Ch23230/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.014 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 1.699 mW/g
**SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.604 mW/g**
Maximum value of SAR (measured) = 1.12 mW/g




0 dB = 1.12 mW/g = 0.98 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/2/20

**#450_ LTE Band 5_10M_QPSK 50RB 0offset_Curved surface of Edge3_0cm_Ch20600**

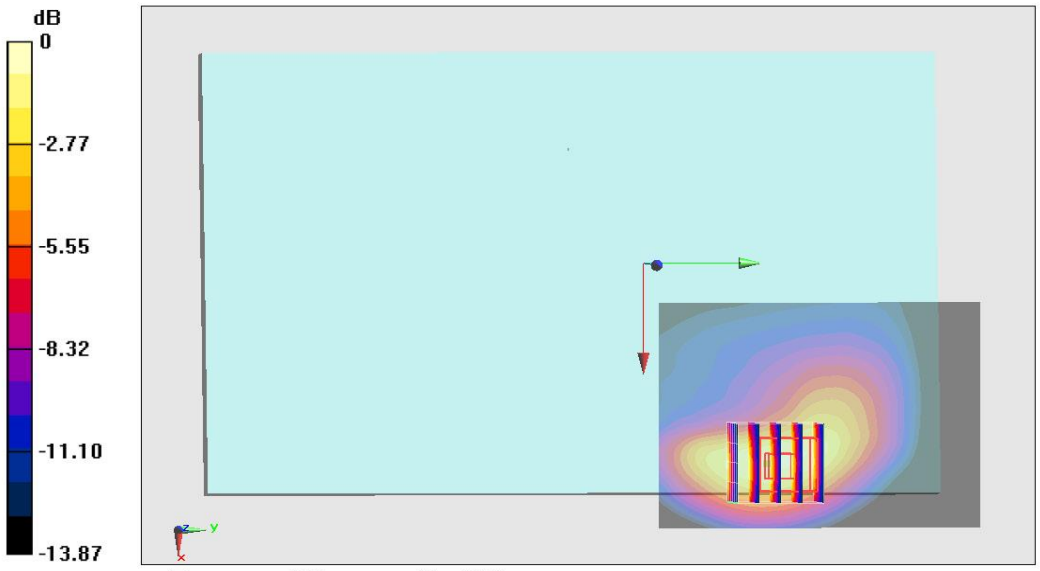
**DUT: 311703**

Communication System: LTE; Frequency: 844 MHz;Duty Cycle: 1:1
Medium: MSL_850_130220 Medium parameters used: f = 844 MHz; $\sigma$ = 0.962 mho/m; $\varepsilon_r$ = 52.519; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: ET3DV6 - SN1787; ConvF(6.08, 6.08, 6.08); Calibrated: 2012/5/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2012/4/23
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch20600/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.973 mW/g

**Configuration/Ch20600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.831 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.912 mW/g
**SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.542 mW/g**
Maximum value of SAR (measured) = 1.14 mW/g




0 dB = 1.14 mW/g = 1.14 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/17

**#346_ LTE Band 4_20M_QPSK 1RB 0offset_Curved surface of Edge3_0cm_Ch20175**

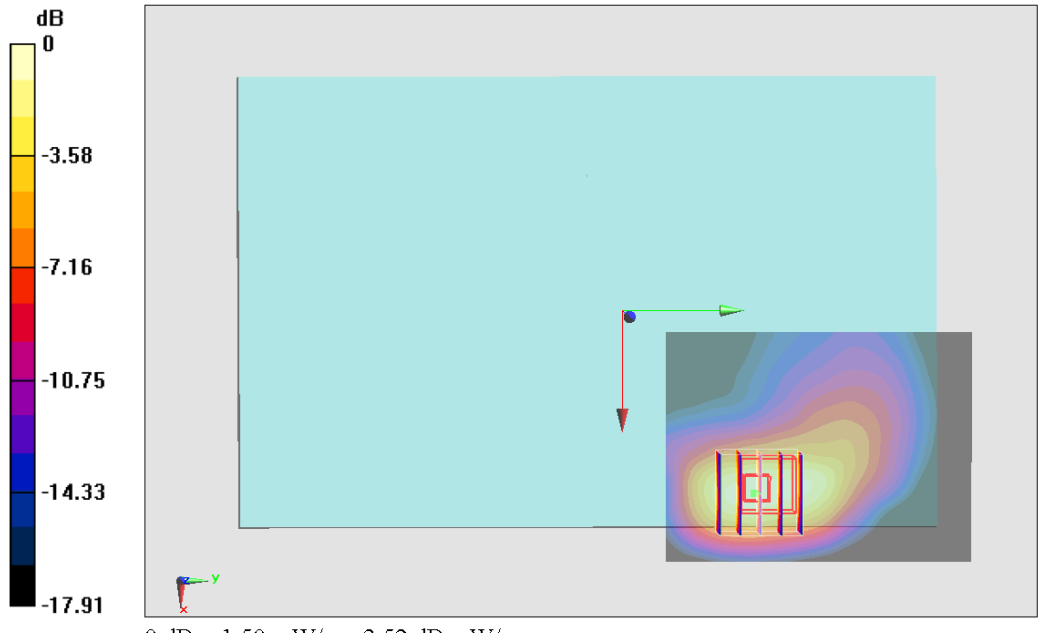
**DUT: 12-4-138**

Communication System: LTE; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: MSL_1750_130117 Medium parameters used: f = 1732.5 MHz; $\sigma$ = 1.528 mho/m; $\varepsilon_r$ = 51.561; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ET3DV6 - SN1787; ConvF(4.81, 4.81, 4.81); Calibrated: 2012/5/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2012/4/23
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch20175/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.43 mW/g

**Configuration/Ch20175/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.724 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.182 mW/g
**SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.703 mW/g**
Maximum value of SAR (measured) = 1.50 mW/g




0 dB = 1.50 mW/g = 3.52 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/2/21

**#516_LTE Band 2_20M_QPSK 1RB 99offset_Curved surface of Edge3_0cm_Ch18700**

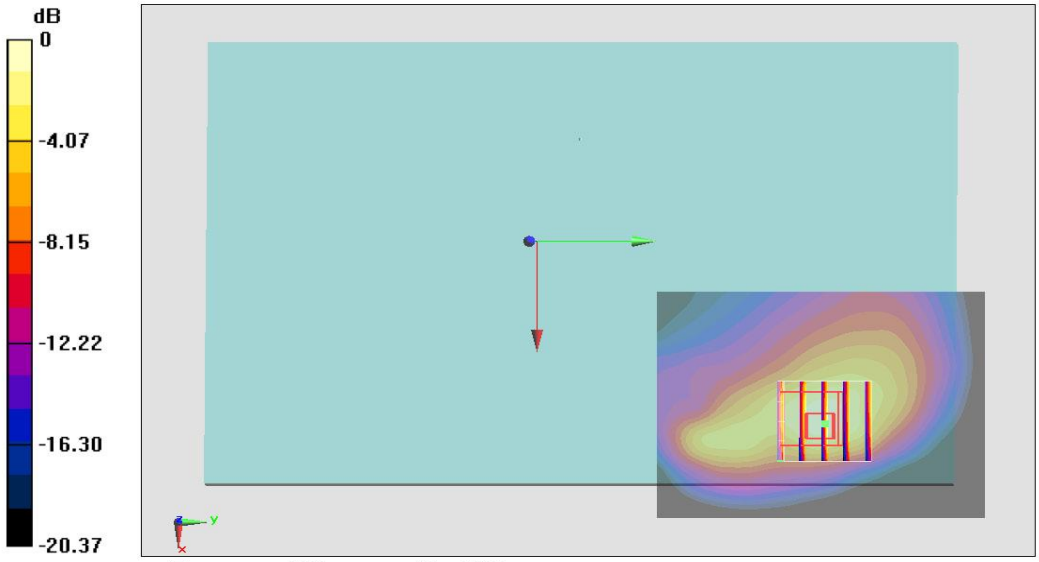
**DUT: 311703**

Communication System: LTE; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130221 Medium parameters used: f = 1860 MHz; $\sigma$ = 1.486 mho/m; $\varepsilon_r$ = 54.281; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ET3DV6 - SN1787; ConvF(4.58, 4.58, 4.58); Calibrated: 2012/5/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2012/4/23
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch18700/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.09 mW/g

**Configuration/Ch18700/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.951 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 2.352 mW/g
**SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.550 mW/g**
Maximum value of SAR (measured) = 1.23 mW/g




0 dB = 1.23 mW/g = 1.80 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/24

### #406_ LTE Band 25_20M_QPSK 100RB 0offset_Curved surface of Edge3_0cm_Ch26140

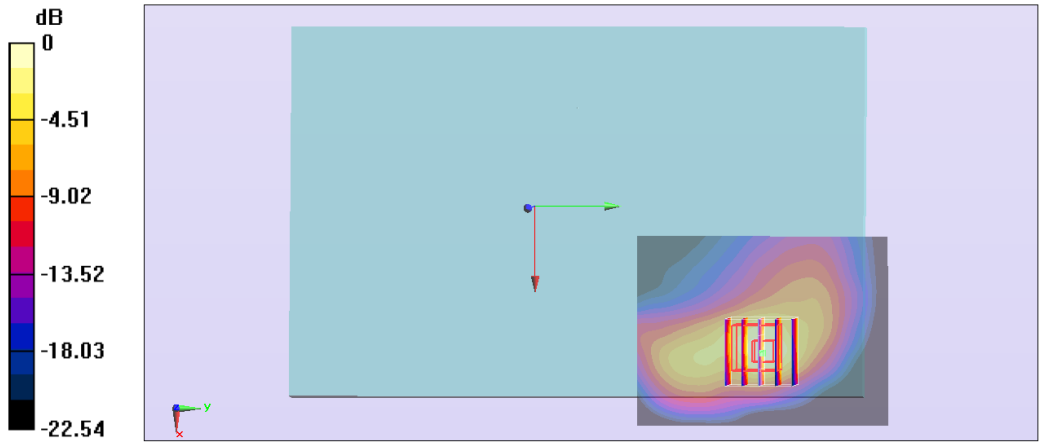
**DUT: 311703**

Communication System: LTE; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130124 Medium parameters used: f = 1860 MHz; $\sigma$ = 1.493 mho/m; $\varepsilon_r$ = 53.009; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.29, 7.29, 7.29); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch26140/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.66 mW/g

**Configuration/Ch26140/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.984 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.230 mW/g
**SAR(1 g) = 0.996 mW/g; SAR(10 g) = 0.509 mW/g**
Maximum value of SAR (measured) = 1.71 mW/g




0 dB = 1.71 mW/g = 4.66 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/2

**#24_WLAN2.4G_802.11b_Bottom Face_0cm_Ch1;Ant A**

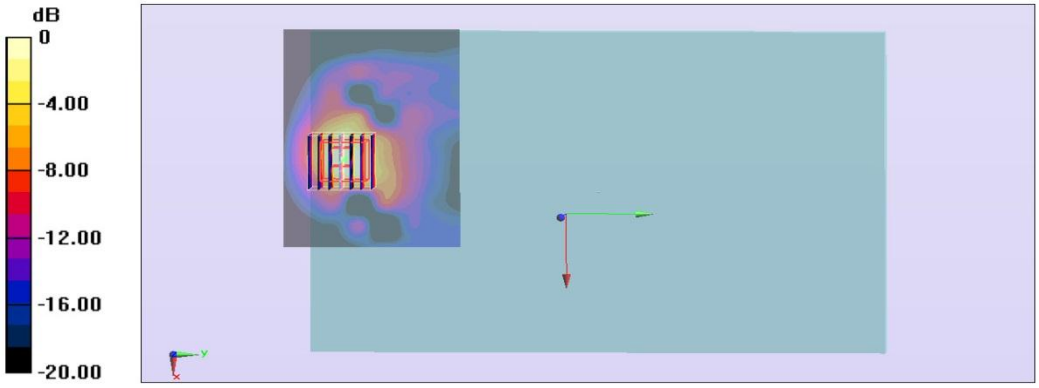
**DUT: 770629**

Communication System: 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_130102 Medium parameters used: f = 2412 MHz; $\sigma$ = 1.963 mho/m; $\varepsilon_r$ = 54.025; $\rho$ = 1000 kg/m$^3$
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch1/Area Scan (101x71x1):** Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 2.11 mW/g

**Configuration/Ch1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.644 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.413 mW/g
**SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.499 mW/g**
Maximum value of SAR (measured) = 1.77 mW/g




0 dB = 1.77 mW/g = 4.96 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/1/3

**#22_WLAN5G_802.11a_Bottom Face_0cm_Ch165_Ant B**

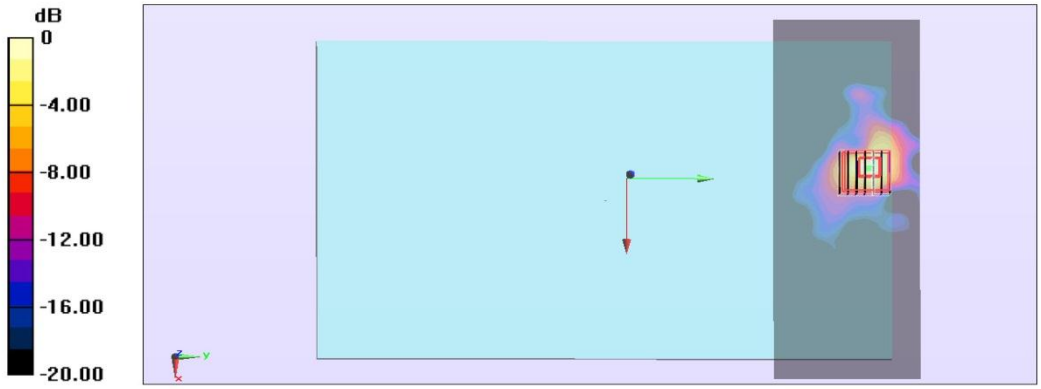
**DUT: 770629**

Communication System: 802.11a; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium: MSL_5G_130103 Medium parameters used: f = 5825 MHz; $\sigma$ = 6.054 mho/m; $\varepsilon_r$ = 46.462; $\rho$ = 1000 kg/m$^3$
Ambient Temperature : 22.4 ℃; Liquid Temperature : 21.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

**Configuration/Ch165/Area Scan (201x71x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.684 mW/g

**Configuration/Ch165/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 13.404 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.266 mW/g
**SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.072 mW/g**
Maximum value of SAR (measured) = 0.792 mW/g




0 dB = 0.792 mW/g = -2.03 dB mW/g