# SAR Test Report

**Project Number:** 3374150
**Report Number:** 3374150EMC05 **Revision Level:** 4
**Client:** Medicalgorithmics S.A.

**Equipment Under Test:** Mobile Computer/ PocketECG transmitter
**Model Name:** PocketECG transmitter

**Applicable Standards:** IEEE STD 1528: 2013
EN 62209-2:2010

**Report issued on:** 31 October 2014
**Test Result:** Compliant

| Equipment Class | Mode | Band | Frequency (MHz) | Measured Conducted Power (dBm) | SAR | |
|---|---|---|---|---|---|---|
| | | | | | 1g Head W/kg | 1g Body W/kg |
| PCE | GSM | 850 | 824.2 - 848.8 | 32.3 | N/A | 1.437 |
| PCE | GSM | 1950 | 1850.2 - 1909.8 | 30.1 | N/A | 1.417 |
| PCE | WCDMA | Band V | 826.4 - 846.6 | 23.2 | N/A | 0.695 |
| PCE | WCDMA | Band II | 1852.4 - 1907.6 | 23.0 | N/A | 1.298 |
| DTS | WiFi | US | 2412 - 2462 | 17.4 | N/A | 0.346 |
| DSS/DTS | Bluetooth | US | 2402 - 2480 | 7.4 | N/A | |
| DTS/UNII | WiFi | US | 5150-5850 | 13.6 | N/A | 0.265 |

Tested by: Fendy Liauw, Engineering Technician

Reviewed by: David Schramm, EMC Manager

Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

# Table of Contents

# 1 GENERAL INFORMATION

## 1.1 CLIENT INFORMATION

| | |
|---|---|
| Name: | Medicalgorithmics S.A |
| Address: | Al. Jerozolimskie 81 |
| City, State, Zip, Country: | 02-001 Warsaw, Poland |

## 1.2 TEST LABORATORY

| | |
|---|---|
| Name: | SGS North America, Inc. |
| Address: | 620 Old Peachtree Road NW, Suite 100 |
| City, State, Zip, Country: | Suwanee, GA 30024, USA |
| | |
| Accrediting Body: | A2LA |
| Type of lab: | Testing Laboratory |
| Certificate Number: | 3212.01 |

## 1.3 GENERAL INFORMATION OF EUT

| | |
|---|---|
| Model Number: | PocketECG III |
| Hardware Version: | R904 |
| Software Version: | 10.001-6.000-8287 |
| Android Version: | 2.3.4 |
| Serial Number: | P3TR13-00002A(WiFi)<br>P3TR13-00004A(Cellular) |
| Build Version: | 10.001-6.000-8287(WiFi) |
| IMEI: | Not Provided |
| Antenna: | Integral |
| Rated Voltage: | 3.7 VDC 1700mAh Rechargeable Battery |
| | |
| Sample Received Date: | 10 December 2013 |
| Dates of testing: | 24 February to 11 March 2014 |

| Mode | Band | Frequency (MHz) | Operating Modes | Simultaneous with other modes? |
|---|---|---|---|---|
| GSM/GPRS/EGPRS | 850 | 824-849 | Data | No |
| GSM/GPRS/EGPRS | 1900 | 1850-1910 | Data | No |
| WCDMA | Band II | 1852-1907 | Data | No |
| WCDMA | Band V | 826-847 | Data | No |
| WiFi | 2.4 GHz / 5 GHz | 2412 - 5825 | Data | No |
| Bluetooth | 2.4 GHz | 2402 - 2480 | Data | No |

## 1.4 NOMINAL AND MAXIMUM POWER SPECIFICATIONS

| Mode / Band | | Type | Modulated Average dBm |
|---|---|---|---|
| GSM/GPRS/EGPRS | 850 | Maximum | 33.0 |
| | | Nominal | 32.0 |
| GSM/GPRS/EGPRS | 1900 | Maximum | 31.0 |
| | | Nominal | 30.0 |
| WCDMA | II | Maximum | 24.0 |
| | | Nominal | 23.0 |
| WCDMA | V | Maximum | 24.0 |
| | | Nominal | 23.0 |
| IEEE 802.11b | 2.4GHz | Maximum | 19.3 |
| | | Nominal | 18.3 |
| IEEE 802.11a | 5GHz | Maximum | 14.5 |
| | | Nominal | 13.5 |

## 1.5 EQUIPMENT UNDER TEST

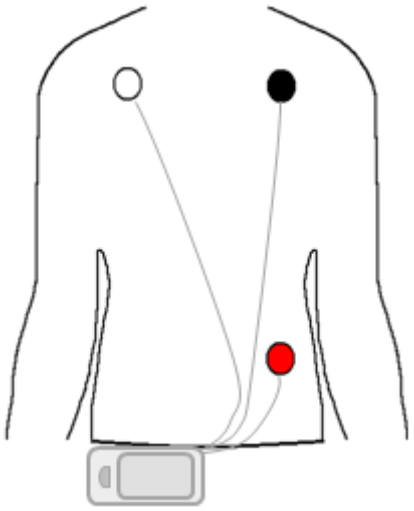
| | |
|---|---|
| EUT | Pocket ECG Transmitter |
| Normal operation: | Worn on body (LCD facing-up; LCD facing-down) |
| Body Worn Accessories: | B1 - Pouch provides 10mm spacing. Can be worn left or right side. Tests performed without pouch due to its non-metallic construction. |
| EUT Positioning: | EUT can be seated in Positions<br>P1 - screen towards body and<br>P2 - screen away from body |
| Device category: | Portable |
| Exposure category: | General Population/Uncontrolled Exposure |

## 1.6 DUT Accessories

No provided accessories

Per MedicAlgorithmics guidance.

The device is going to be attached to the belt as shown in the figure below. The assumed distance between its front/back to user body should be 10 mm during testing.



# 2 TEST METHODOLOGY

Testing was performed in accordance with the FCC OET Bulleting 65 Supplement C 01-01, IEEE STD 1528: 2003, IC RSS 102 Issue 4, as well as the following:

- IEC 62209-2
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01
- FCC KDB 865664 D02 RF Exposure Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r01
- FCC KDB 648474 D04 Handset SAR v01r01
- FCC KDB 941225 D01 SAR test for 3G devices v02
- FCC KDB 941225 D02 HSPA and 1x Advanced v02r02
- FCC KDB 941225 D03 SAR Test Reduction GSM GPRS EDGE vo1

## 2.1 EUT OPERATION CONDITIONS

Base station simulator was used to control the EUT for maximum power. For UMTS, 3GPP TS 34.121 was the guiding document to ensure all the setting were correct. In addition to using TPC with “All 1”, the WCDMA settings were as follows:

Subtests HSDPA

| Sub-test | βc | βd | βd (SF) | βc/βd | βHS (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: $?_{ACK}$, $?_{NACK}$ and $?_{CQI}$ = 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, $?_{ACK}$ and $?_{NACK}$ = 30/15 with $\beta_{hs}$ = 30/15 * $\beta_c$, and $?_{CQI}$ = 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.

Subtests HSUPA

| Subtest | Mode | Loopback Mode | Rel99 RMC | HSDPA FRC | HSUPA Test | Number of E-DPDCH Channels |
|---|---|---|---|---|---|---|
| 1 | Rel6 HSUPA | Test Mode 1 | 12.2kbps RMC | H-Set1 | HSUPA Loopback | 1 |
| 2 | Rel6 HSUPA | Test Mode 1 | 12.2kbps RMC | H-Set1 | HSUPA Loopback | 1 |
| 3 | Rel6 HSUPA | Test Mode 1 | 12.2kbps RMC | H-Set1 | HSUPA Loopback | 2 |
| 4 | Rel6 HSUPA | Test Mode 1 | 12.2kbps RMC | H-Set1 | HSUPA Loopback | 1 |
| 5 | Rel6 HSUPA | Test Mode 1 | 12.2kbps RMC | H-Set1 | HSUPA Loopback | 1 |

| Subtest | Max UL Data Rate (kb/s) | βc/βd | βhs | βed | CM |
|---|---|---|---|---|---|
| 1 | 242.1 | 11/15 | 22/15 | 1309/225 | 1 |
| 2 | 161.3 | 6/15 | 12/15 | 94/75 | 3 |
| 3 | 524.7 | 15/9 | 30/15 | 47/15 | 2 |
| 4 | 197.6 | 2/15 | 4/15 | 56/75 | 3 |
| 5 | 299.6 | 15/15 | 30/15 | 134/15 | 1 |

For WiFi, commands were sent through a serial communication port to control frequency, modulation, data rates, and power levels. The maximum power settings were used.

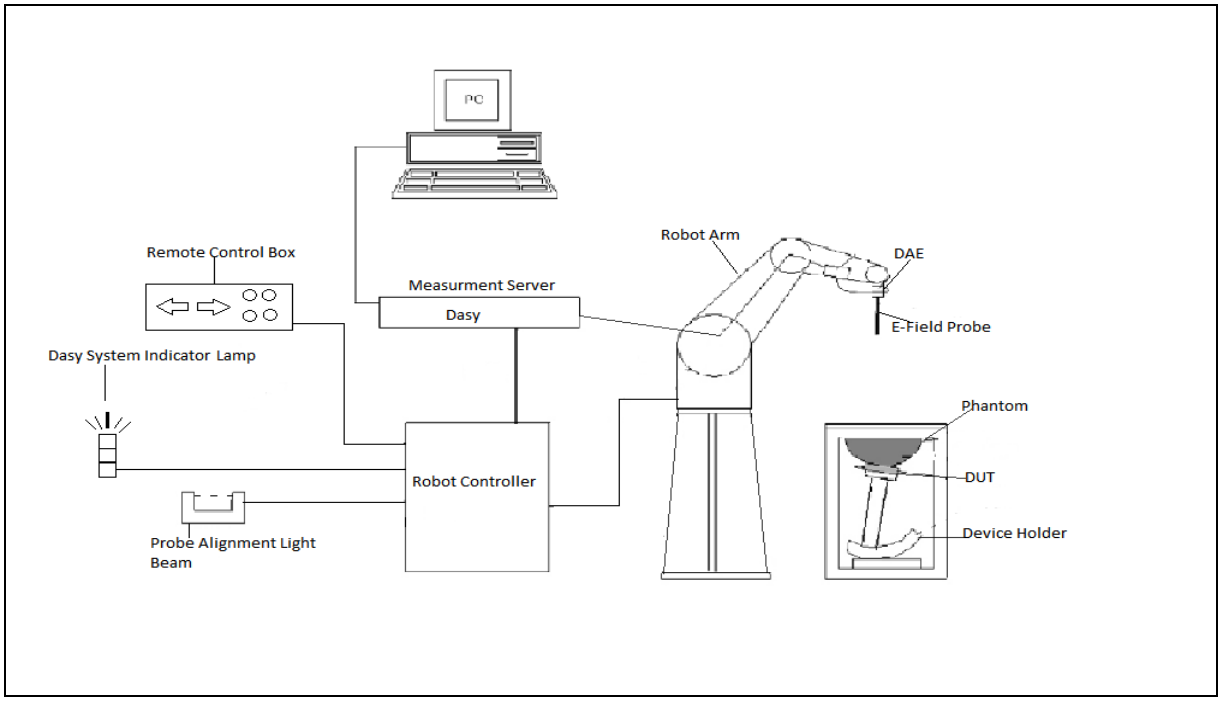
# 3 TEST EQUIPMENT

| Equipment | Model | Manufacturer | Serial Number | Cal Date | Cal Int |
|---|---|---|---|---|---|
| Dasy5 Controller | SP1D | Stäubli | S-1188 | NA | |
| PC | Compaq 8000 Elite | HP | CZC1231RWS | NA | |
| Probe Alignment Beam | LB5/80 | Speag | SEUKS030AA | NA | |
| Data Acquisition Electronics | DAE4 | Speag | 1287 | NA | |
| Oval Phantom | ELI5 | Speag | 1146 | NA | |
| Device Holder | SD 00 HO1 HA | Speag | NA | NA | |
| System Validation Dipole | D835V2 | Speag | 4d123 | 10/25/13 | 3yr |
| System Validation Dipole | D1900V2 | Speag | 5d144 | 10/23/13 | 3yr |
| System Validation Dipole | D2450V2 | Speag | 890 | 5/11/12 | 3yr |
| System Validation Dipole | D5GHZV2 | Speag | 1149 | 3/12/2013 | 3yr |
| E-Field Probe | EX3DV4 | Speag | 3812 | 1/24/14 | 1yr |
| RF Cable | HS84133232 | Huber & Suhner | 247436001 | 10/16/13 | 1yr |
| RF Cable | SF106 | Huber & Suhner | 247439001 | 8/6/13 | 1yr |
| Network Analyzer | E5062A | Agilent | MY44202574 | 7/26/13 | 1yr |
| Network Analyzer | ZVL | Rohde & Schwarz | 1303.6509K06-101584-DZ | 9/27/2013 | 1yr |
| Power Meter | E4419B | Agilent | G839511059 | 8/26/13 | 1yr |
| Power Sensor | E9300B | Agilent | 2702A61269 | 8/19/13 | 1yr |
| Power Sensor | E9300B | Agilent | MY41094585 | 8/19/13 | 1yr |
| Dual Directional Coupler | 778D | Hewlett Packard | 2604A13577 | 10/22/13 | 2yr |
| Dual Directional Coupler | 11692D | Hewlett Packard | 1212A02572 | 9/22/13 | 2yr |
| Signal Generator | SMB100A | Rohde & Schwarz | 104999 | 6/18/13 | 3yr |
| Thermometer | DTM3000 | LKM Electronic | 2952 | 6/5/13 | 1yr |
| Dielectric Probe Kit | Dak-3.5 | Speag | 1109 | 1/19/14 | 1yr |
| Communications System | CMW500 | Rohde & Schwarz | 127717 | 6/18/13 | 3yr |

Note: Calibration dates are specified in the mm/dd/yy format. The dipoles are validated annually according to FCC KDB 865664 Section 3.2.2. SAR values of the dipoles are referenced in system verification.

| Dipole Validation Log per KDB 865664 Dipole SAR validation Verfication v01r01 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Tester | Object | Serial Number | Temp °C | RH | Tissue Type | Reported Return Loss | Reported Impedance | Measured Return Loss dB | Measured Impedance | Within tolerance |
| 5/2/2014 | DJS | D2450V2 | 890 | 23.4 | 42% | Head | -28.6 | 53.8+j0.8 | -25.4 | 54.1+j0.5 | Yes |

## 3.1 TEST SYSTEM BLOCK DIAGRAM




The Dasy5 SAR test system consists of:

- 1 Stäubli Robot and system controller cabinet
- 1 Electro Optical Converter mounted on robots arm
- Robot stand
- Robot remote controller
- Light beam for E-field probe alignment
- DASY5 measurement server
- SAM Twin Phantom
- Hand-Held/ Laptop device holder
- HP PC with DASY5 software
- Data Acquisition Electronics(DAE)
- System validation dipole kit
- Head/Body simulating liquid
- E-field probe
- Warning lamps

| Specifications listed bellow correspond with defined parameters in IEEE 1528 and IEC 62209-1 | |
|---|---|
| | |
| **Twin SAM Phantom:** | Specific Anthropomorphic Mannequin |
| Material: | Vinylester, fiber glass reinforced |
| Shell Thickness: | 2 ± 0.2mm (6 ± 0.2mm at ear point) |
| Dimensions ( wooden support incl): | 1000mm length, 500mm width, adjustable feet for height |
| Filling Volume: | approx. 25L |
| | |
| **ELI Phantom** | |
| Material: | Vinylester, fiber glass reinforced |
| Shell Thickness: | 2.0 ± 0.2mm (bottom plate) |
| Dimensions: | Major axis: 600, Minor axis: 400 |
| Filling Volume: | approx. 30L |
| | |
| **EX3DV4 Probe:** | Isotropic E-Field Probe |
| Directivity: | ±0.3dB in TSL( rotation around probe axis), ±0.5 dB in TSL (roation normal to probe axis) |
| Dimensions: | Overall length: 337mm (tip 20mm), Tip diameter: 2.5mm (Body: 12mm), Typical distance from probe tip to dipole centers: 1mm |
| | |
| **Mounting Device for Hand-Held Transmitters:** | Enables mounting and enables rotation of the mounted transmitter to specified spherical coordinates |
| | Transmitter devices can be accurately positioned according to IEC 62209-1, IEEE 1528, FCC or other specifications |
| Material: | Polyoxymethylene |

# 4 LIQUID PARAMETERS CHECK

The tissue dielectric parameters shall be measured at the beginning of the test or within 24 hours of the first SAR test. All dielectric parameters should be within the tolerance values shown in Table 4-1. For frequencies in 300 MHz to just under 6 GHz, the measured conductivity and relative permittivity should be within ±5% of the target values in table 1. The measured permittivity tolerances can be relaxed to no more than the ±10%. All efforts should be made to obtain the target values as closely as possible.

**Table 4-1**

**Target dielectric properties of tissue equivalent material in the 300-6000 MHz frequency range**

| Frequency MHz | Relative permittivity ($\varepsilon_r$) | Conductivity(σ) (S/m) |
|---|---|---|
| 750 | 41.9 | 8.9 |
| 835 | 41.5 | 9.0 |
| 900 | 41.5 | 9.7 |
| 1450 | 40.5 | 3.0 |
| 1800 | 40.0 | 5.0 |
| 1900 | 40.0 | 5.0 |
| 1950 | 40.0 | 5.0 |
| 2000 | 40.0 | 5.0 |
| 2100 | 39.8 | 5.9 |
| 2450 | 39.2 | 9.0 |
| 2600 | 39.0 | 10.6 |
| 3000 | 38.5 | 6.0 |
| 3500 | 37.9 | 11.1 |
| 4000 | 37.4 | 7.3 |
| 4500 | 36.8 | 12.4 |
| 5000 | 36.2 | 8.5 |
| 5200 | 36.0 | 10.6 |
| 5400 | 35.8 | 12.6 |
| 5600 | 35.5 | 5.7 |
| 5800 | 35.3 | 7.7 |
| 6000 | 35.1 | 9.8 |

**Table 4-2**

**Tissue Simulating Liquid Formulations**

| | 835 MHz | | 1900 MHz | | 2450 MHz | | 5200-5800 MHz | |
|---|---|---|---|---|---|---|---|---|
| | Head | Body | Head | Body | Head | Body | Head | Body |
| Bactericide | 0.10 | 0.10 | | | | | See Note 1 | See Note 2 |
| DGBE | | | | | | | | |
| HEC | 1.00 | 1.00 | | | | | | |
| NaCL | 1.45 | 0.94 | 1.03 | 0.70 | 0.00 | 0.30 | | |
| Sucrose | 57.00 | 44.90 | | | | | | |
| Polysorbate (Tween) 20 | | | 46.10 | 28.00 | 45.25 | 28.00 | | |
| Water | 40.45 | 53.06 | 52.87 | 71.30 | 55.75 | 71.70 | | |

Note 1: Speag proprietary - Water 50-65%; Mineral Oil 10-30%; Emulsifiers 8-25%; NaCL 0-1.5%; Hexylene Glycol 1.0-2.8%
Note 2: Speag proprietary - Water 60-80%; Esters, Emulsifiers, Inhibitors 20-40%; NaCL 0-1.5%; Oleic acid 10-28%

## 4.1 TISSUE VERIFICATION MEASURED

Note: Per KDB 865564 Section 2.4, SAR error compensation algorithms have been implemented inclunding the guidance that the algorithm only scales the measurement upward.

| Date | Tissue Type | Frequency (MHz) | Measured Permittivity, ε | Measured Condcutivity, σ, S/m | Target Permittivity, ε | Target Condcutivity, σ, S/m | % dev, σ | % dev, ε |
|---|---|---|---|---|---|---|---|---|
| 2/7/2014 | 2450B | 2412 | 49.6 | 2.04 | 52.7 | 1.95 | -5.9% | 4.6% |
| 2/7/2014 | 2450B | 2442 | 49.5 | 2.01 | 52.7 | 1.95 | -6.1% | 3.1% |
| 2/7/2014 | 2450B | 2462 | 49.5 | 2.06 | 52.7 | 1.95 | -6.1% | 5.6% |
| 2/24/2014 | 1900B | 1850.2 | 50.9 | 1.57 | 53.3 | 1.5 | -4.6% | 3.0% |
| 2/24/2014 | 1900B | 1852.4 | 50.9 | 1.57 | 53.3 | 1.5 | -4.6% | 3.2% |
| 2/24/2014 | 1900B | 1880 | 50.8 | 1.60 | 53.3 | 1.5 | -4.7% | 5.1% |
| 2/24/2014 | 1900B | 1907.6 | 50.7 | 1.62 | 53.3 | 1.5 | -4.9% | 6.8% |
| 2/24/2014 | 1900B | 1909.8 | 50.7 | 1.63 | 53.3 | 1.5 | -4.9% | 7.0% |
| 2/25/2014 | 1900B | 1850.2 | 50.5 | 1.56 | 53.3 | 1.5 | -5.3% | 2.4% |
| 2/25/2014 | 1900B | 1852.4 | 50.5 | 1.56 | 53.3 | 1.5 | -5.3% | 2.5% |
| 2/25/2014 | 1900B | 1880 | 50.4 | 1.59 | 53.3 | 1.5 | -5.5% | 4.3% |
| 2/25/2014 | 1900B | 1907.6 | 50.3 | 1.61 | 53.3 | 1.5 | -5.7% | 6.0% |
| 2/25/2014 | 1900B | 1909.8 | 50.3 | 1.61 | 53.3 | 1.5 | -5.7% | 6.1% |
| 2/26/2014 | 850B | 824.2 | 54.2 | 0.97 | 55.2 | 1.0 | -1.8% | 0.2% |
| 2/26/2014 | 850B | 826.5 | 54.2 | 0.97 | 55.2 | 1.0 | -1.8% | 0.4% |
| 2/26/2014 | 850B | 836.4 | 54.1 | 0.98 | 55.2 | 1.0 | -2.0% | 1.4% |
| 2/26/2014 | 850B | 837.5 | 54.1 | 0.99 | 55.2 | 1.0 | -2.0% | 1.5% |
| 2/26/2014 | 850B | 846.6 | 54.0 | 0.99 | 55.2 | 1.0 | -2.2% | 2.4% |
| 2/26/2014 | 850B | 848.8 | 54.0 | 1.00 | 55.2 | 1.0 | -2.2% | 2.7% |
| 2/27/2014 | 850B | 824 | 53.8 | 0.97 | 55.2 | 1.0 | -2.5% | 0.0% |
| 2/27/2014 | 850B | 826 | 53.8 | 0.97 | 55.2 | 1.0 | -2.5% | 0.0% |
| 2/27/2014 | 850B | 836 | 53.7 | 0.98 | 55.2 | 1.0 | -2.7% | 1.3% |
| 2/27/2014 | 850B | 837 | 53.7 | 0.98 | 55.2 | 1.0 | -2.7% | 1.4% |
| 2/27/2014 | 850B | 846 | 53.6 | 0.99 | 55.2 | 1.0 | -2.9% | 2.3% |
| 2/27/2014 | 850B | 848 | 53.6 | 0.99 | 55.2 | 1.0 | -2.9% | 2.6% |
| 2/28/2014 | 850B | 824 | 52.6 | 0.97 | 55.2 | 1.0 | -4.7% | -0.4% |
| 2/28/2014 | 850B | 826 | 52.6 | 0.97 | 55.2 | 1.0 | -4.7% | -0.2% |
| 2/28/2014 | 850B | 836 | 52.5 | 0.98 | 55.2 | 1.0 | -4.9% | 0.9% |
| 2/28/2014 | 850B | 837 | 52.5 | 0.98 | 55.2 | 1.0 | -4.9% | 0.9% |
| 2/28/2014 | 850B | 846 | 52.4 | 0.99 | 55.2 | 1.0 | -5.1% | 1.8% |
| 2/28/2014 | 850B | 848 | 52.4 | 0.99 | 55.2 | 1.0 | -5.1% | 2.0% |

Tissue Verification Continued

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3/4/2014 | 5G-B | 5180 | 46.6 | 5.29 | 49.0 | 5.3 | -4.9% | -0.2% |
| 3/4/2014 | 5G-B | 5240 | 47.2 | 5.44 | 49.0 | 5.3 | -3.6% | 2.7% |
| 3/4/2014 | 5G-B | 5260 | 47.0 | 5.42 | 49.0 | 5.3 | -4.0% | 2.2% |
| 3/4/2014 | 5G-B | 5320 | 46.8 | 5.50 | 48.8 | 5.4 | -4.0% | 1.2% |
| 3/4/2014 | 5G-B | 5500 | 47.0 | 5.83 | 48.6 | 5.7 | -3.3% | 3.2% |
| 3/4/2014 | 5G-B | 5580 | 46.6 | 5.96 | 48.5 | 5.7 | -3.9% | 3.7% |
| 3/4/2014 | 5G-B | 5680 | 46.3 | 5.92 | 48.4 | 5.9 | -4.4% | 1.1% |
| 3/4/2014 | 5G-B | 5745 | 46.3 | 6.10 | 48.2 | 6.0 | -3.9% | 1.7% |
| 3/4/2014 | 5G-B | 5785 | 46.0 | 6.08 | 48.2 | 6.0 | -4.6% | 1.3% |
| 3/4/2014 | 5G-B | 5825 | 46.3 | 6.24 | 48.2 | 6.0 | -3.9% | 4.1% |
| 3/5/2014 | 5G-B | 5180 | 46.4 | 5.29 | 49.0 | 5.3 | -5.3% | -0.1% |
| 3/5/2014 | 5G-B | 5240 | 46.6 | 5.41 | 49.0 | 5.3 | -4.9% | 2.1% |
| 3/5/2014 | 5G-B | 5260 | 46.8 | 5.46 | 49.0 | 5.3 | -4.6% | 2.9% |
| 3/5/2014 | 5G-B | 5320 | 46.4 | 5.47 | 48.8 | 5.4 | -5.0% | 0.6% |
| 3/5/2014 | 5G-B | 5500 | 46.0 | 5.63 | 48.6 | 5.7 | -5.3% | -0.3% |
| 3/5/2014 | 5G-B | 5580 | 46.2 | 5.89 | 48.5 | 5.7 | -4.7% | 2.6% |
| 3/5/2014 | 5G-B | 5680 | 45.9 | 5.94 | 48.4 | 5.9 | -5.1% | 1.4% |
| 3/5/2014 | 5G-B | 5745 | 46.0 | 6.11 | 48.2 | 6.0 | -4.6% | 1.8% |
| 3/5/2014 | 5G-B | 5785 | 46.0 | 6.11 | 48.2 | 6.0 | -4.6% | 1.9% |
| 3/5/2014 | 5G-B | 5825 | 45.5 | 6.07 | 48.2 | 6.0 | -5.6% | 1.2% |
| 3/6/2014 | 5G-B | 5180 | 47.5 | 5.33 | 49.0 | 5.3 | -3.1% | 0.6% |
| 3/6/2014 | 5G-B | 5240 | 47.6 | 5.53 | 49.0 | 5.3 | -3.0% | 4.4% |
| 3/6/2014 | 5G-B | 5260 | 47.1 | 5.39 | 49.0 | 5.3 | -3.9% | 1.7% |
| 3/6/2014 | 5G-B | 5320 | 46.7 | 5.33 | 48.8 | 5.4 | -4.2% | -1.9% |
| 3/6/2014 | 5G-B | 5500 | 46.6 | 5.63 | 48.6 | 5.7 | -4.1% | -0.4% |
| 3/6/2014 | 5G-B | 5580 | 46.6 | 5.78 | 48.5 | 5.7 | -4.0% | 0.7% |
| 3/6/2014 | 5G-B | 5680 | 46.4 | 5.89 | 48.4 | 5.9 | -4.0% | 0.5% |
| 3/6/2014 | 5G-B | 5745 | 46.4 | 6.06 | 48.2 | 6.0 | -3.8% | 1.0% |
| 3/6/2014 | 5G-B | 5785 | 46.3 | 6.08 | 48.2 | 6.0 | -3.9% | 1.3% |
| 3/6/2014 | 5G-B | 5825 | 46.1 | 6.13 | 48.2 | 6.0 | -4.4% | 2.2% |
| 3/7/2014 | 5G-B | 5180 | 47.5 | 5.43 | 49.0 | 5.3 | -3.2% | 2.5% |
| 3/7/2014 | 5G-B | 5240 | 47.0 | 5.46 | 49.0 | 5.3 | -4.1% | 3.0% |
| 3/7/2014 | 5G-B | 5260 | 47.0 | 5.50 | 49.0 | 5.3 | -4.0% | 3.8% |
| 3/7/2014 | 5G-B | 5320 | 47.0 | 5.59 | 48.8 | 5.4 | -3.8% | 2.7% |
| 3/7/2014 | 5G-B | 5500 | 46.7 | 5.82 | 48.6 | 5.7 | -3.9% | 3.0% |
| 3/7/2014 | 5G-B | 5580 | 46.4 | 5.90 | 48.5 | 5.7 | -4.3% | 2.8% |
| 3/7/2014 | 5G-B | 5680 | 46.5 | 6.12 | 48.4 | 5.9 | -4.0% | 4.4% |
| 3/7/2014 | 5G-B | 5745 | 46.2 | 6.14 | 48.2 | 6.0 | -4.3% | 2.4% |
| 3/7/2014 | 5G-B | 5785 | 46.0 | 6.18 | 48.2 | 6.0 | -4.6% | 3.0% |
| 3/7/2014 | 5G-B | 5825 | 45.9 | 6.23 | 48.2 | 6.0 | -4.8% | 3.9% |

Tissue Verification Continued

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3/10/2014 | 5G-B | 5180 | 47.2 | 5.33 | 49.0 | 5.3 | -3.7% | 0.6% |
| 3/10/2014 | 5G-B | 5240 | 47.5 | 5.52 | 49.0 | 5.3 | -3.1% | 4.2% |
| 3/10/2014 | 5G-B | 5260 | 47.4 | 5.50 | 49.0 | 5.3 | -3.2% | 3.7% |
| 3/10/2014 | 5G-B | 5320 | 47.2 | 5.55 | 48.8 | 5.4 | -3.4% | 2.1% |
| 3/10/2014 | 5G-B | 5500 | 46.9 | 5.78 | 48.6 | 5.7 | -3.5% | 2.2% |
| 3/10/2014 | 5G-B | 5580 | 46.7 | 5.87 | 48.5 | 5.7 | -3.6% | 2.3% |
| 3/10/2014 | 5G-B | 5680 | 46.6 | 6.02 | 48.4 | 5.9 | -3.8% | 2.8% |
| 3/10/2014 | 5G-B | 5745 | 46.4 | 6.09 | 48.2 | 6.0 | -3.8% | 1.5% |
| 3/10/2014 | 5G-B | 5785 | 46.3 | 6.18 | 48.2 | 6.0 | -3.9% | 3.0% |
| 3/10/2014 | 5G-B | 5825 | 46.3 | 6.24 | 48.2 | 6.0 | -4.0% | 4.0% |
| 3/11/2014 | 5G-B | 5180 | 47.3 | 5.31 | 49.0 | 5.3 | -3.4% | 0.2% |
| 3/11/2014 | 5G-B | 5240 | 46.8 | 5.28 | 49.0 | 5.3 | -4.6% | -0.4% |
| 3/11/2014 | 5G-B | 5260 | 47.4 | 5.44 | 49.0 | 5.3 | -3.3% | 2.7% |
| 3/11/2014 | 5G-B | 5320 | 46.8 | 5.44 | 48.8 | 5.4 | -4.0% | -0.1% |
| 3/11/2014 | 5G-B | 5500 | 46.5 | 5.63 | 48.6 | 5.7 | -4.4% | -0.4% |
| 3/11/2014 | 5G-B | 5580 | 46.5 | 5.75 | 48.5 | 5.7 | -4.2% | 0.2% |
| 3/11/2014 | 5G-B | 5680 | 46.2 | 5.89 | 48.4 | 5.9 | -4.5% | 0.6% |
| 3/11/2014 | 5G-B | 5745 | 46.3 | 6.03 | 48.2 | 6.0 | -4.0% | 0.4% |
| 3/11/2014 | 5G-B | 5785 | 46.4 | 6.09 | 48.2 | 6.0 | -3.7% | 1.5% |
| 3/11/2014 | 5G-B | 5825 | 46.4 | 6.19 | 48.2 | 6.0 | -3.8% | 3.1% |

Per KDB 865564 Section 2.4, SAR error compensation algorithms have been implemented.

# 5 SAR MEASUREMENT SYSTEM VERIFICATION

The system performance verification verifies the system operates within the ±10% limit. Each performance check is performed prior to any SAR testing to measure accuracy.

## 5.1 PERFORMANCE CHECK MEASUREMENT CONDITIONS

- Measurements are performed in the flat section of the SAM phantom
- Phantom is filled with Head or Body simulating liquids
- DASY5 system parameters are tested using a Isotropic E-field probe
- The dipole is mounted on an extendable tripod that is positioned below the flat phantom center. The dipole is oriented parallel with the body's axis. The standard measuring distance is 10 mm above 1 GHz or 15 mm below 1 GHz from the dipole to the simulating liquids surface.
- A grid spacing of 15 mm is aligned with the dipole
- 7x7x7 cube is selected for a zoom scan
- A 2.5-3 mm distance is set between the probe and phantom surface
- Dipole input power(forward power) is set to 100 mW
- Results are normalized to 1 W input power

## 5.2 SYSTEM VERIFICATION

| System Check Target & Measured | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Ambient Temp (°C) | Liquid Temp (°C) | Input Power (W) | Tissue Frequency (MHz) | Dipole SN | Measured SAR1g (W/kg) Zoom | 1W Target SAR1g (W/kg) | Measured Normalized to 1W SAR1g (W/kg) | Dev. (%) |
| 2/6/2014 | 23.5 | 22.1 | 0.100 | 2450B | 890 | 5.39 | 50.60 | 53.90 | 6.5% |
| 2/10/2014 | 24.8 | 24.3 | 0.100 | 2450B | 890 | 5.36 | 50.60 | 53.60 | 5.9% |
| 2/24/2014 | 24.6 | 23.0 | 0.100 | 1900B | 5d144 | 4.21 | 40.90 | 42.10 | 2.9% |
| 2/25/2014 | 23.6 | 21.9 | 0.100 | 1900B | 5d144 | 4.18 | 40.90 | 41.80 | 2.2% |
| 2/26/2014 | 24.2 | 23.6 | 0.100 | 850B | 4d123 | 0.95 | 9.32 | 9.52 | 2.1% |
| 2/27/2014 | 23.4 | 22.8 | 0.100 | 850B | 4d123 | 0.99 | 9.32 | 9.94 | 6.7% |
| 3/4/2014 | 24.3 | 23.0 | 0.100 | 5G-B | 1149 | 7.90 | 74.70 | 79.00 | 5.8% |
| 3/5/2014 | 24.3 | 23.0 | 0.100 | 5G-B | 1149 | 7.88 | 76.40 | 78.80 | 3.1% |
| 3/6/2014 | 24.3 | 23.0 | 0.100 | 5G-B | 1149 | 8.26 | 82.10 | 82.60 | 0.6% |
| 3/7/2014 | 23.7 | 22.1 | 0.100 | 5G-B | 1149 | 7.94 | 74.70 | 79.40 | 6.3% |
| 3/10/2014 | 23.1 | 22.9 | 0.100 | 5G-B | 1149 | 7.55 | 76.40 | 75.50 | -1.2% |
| 3/11/2014 | 23.5 | 23.0 | 0.100 | 5G-B | 1149 | 8.23 | 76.40 | 82.30 | 7.7% |

# 6 SAR MEASUREMENT PROCEDURE

- Area Scan is used for a fast scan in two dimension to find the area of high field values before any finer measurement around the hotspot. The routines implemented in the DASY5 software can find the maximum locations.
- Zoom Scan is used to assess the peak spatial values within a cubic averaging volume containing 1g and 10g of simulated tissue. The scan measures a 7x7x7 area within the cube. Once measurement is done the values are displayed within the job's label.
- Power Drift will measure the field at the same location as the most recent power reference measurement within the same procedure and settings. The Power Drift Measurement gives the field difference in dB.
- Z- Scan measure points along a straight vertical line. The lines run along the z-axis of a one dimensial grid. To get a reasonable extrapolation the extrapolated distance should not be larger than the step size in z direction.

## 6.1 HEAD SAR CONFIGURATION

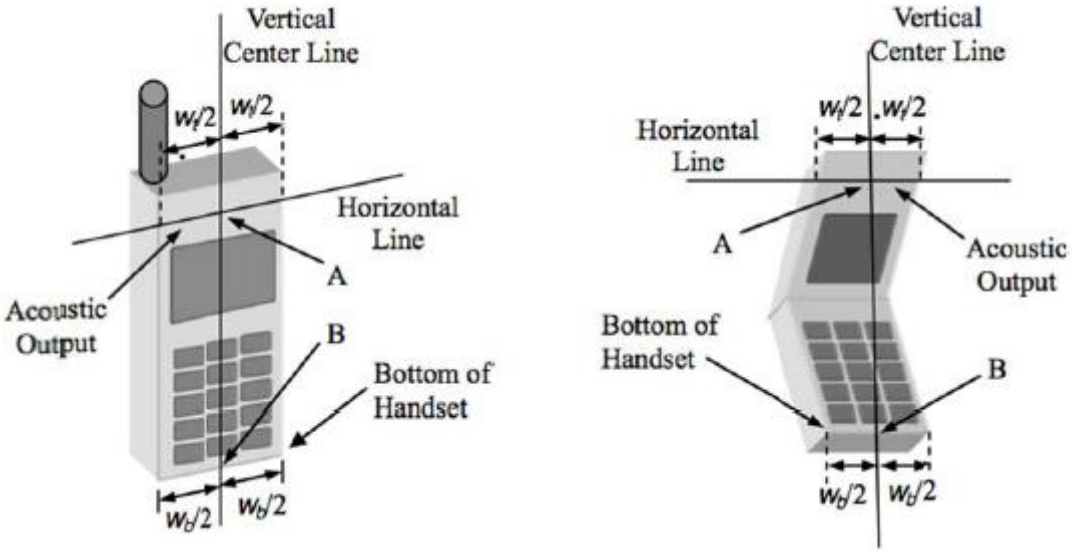
### 6.1.1 SAM SPECIFICATIONS

The Specific Anthropomorphic Mannequin (SAM) phantom corresponds to specifications defined in IEEE 1528 and IEC 62209-1. It allows dosimetric evaluation of the left, right, hand phone usage as well as body mounted usage at the flat region of the phantom

### 6.1.2 HANDSET REFERENCE POINTS

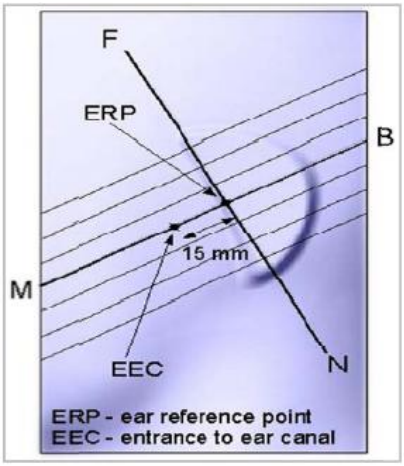
In order to identify reference points on the handset, define two imaginary lines on the handset

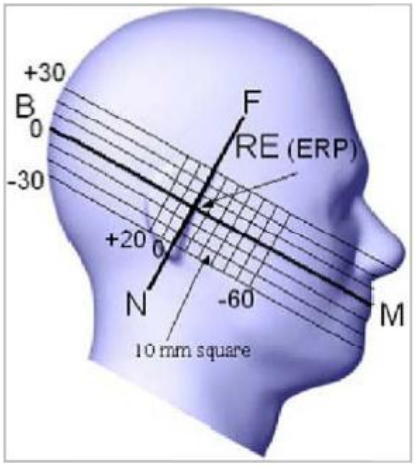
- The vertical centreline passes through two points on the front side of the handset. The midpoint of the width at the acoustic output and the midpoint of the width of the bottom of handset.
- The horizontal line is perpendicular to the vertical centreline and passes through the center of the acoustic output.
- The two lines intersect at point A.



### 6.1.3 EAR REFERENCE

This category includes most wireless handsets. The handset should have its earpieces located within the upper part of the device or along the centerline. The handset should be positioned with the earpiece region pressed against the ear spacer of the phantom.



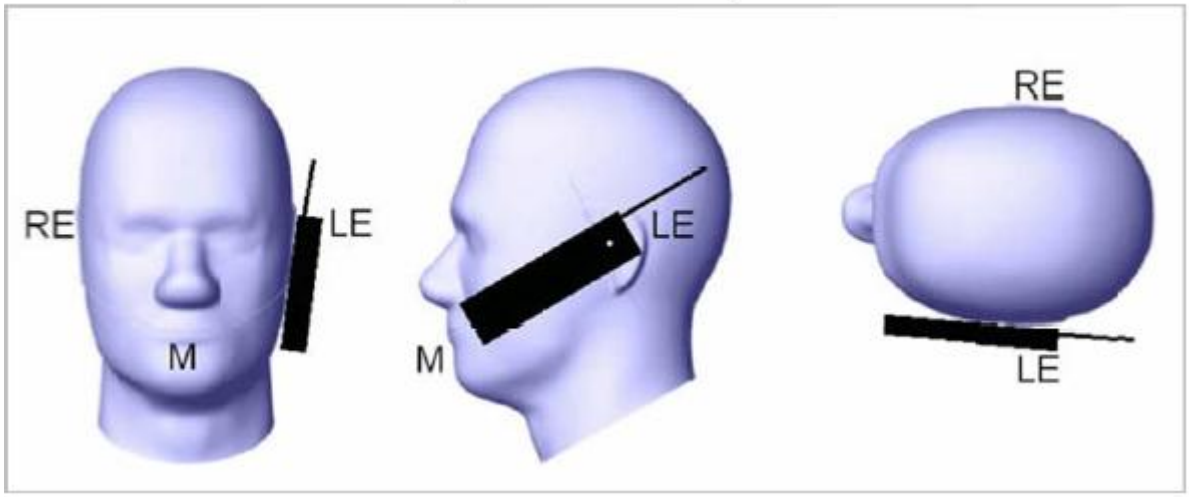

### 6.1.4 CHEEK POSITIONS

The device is attached toward the mouth part of the phantom by pivoting against the ear reference point

The test position is established when:

- Any point on the display, keypad or mouthpiece portion of the EUT is in contact with the phantom

Cheek / Touch Position

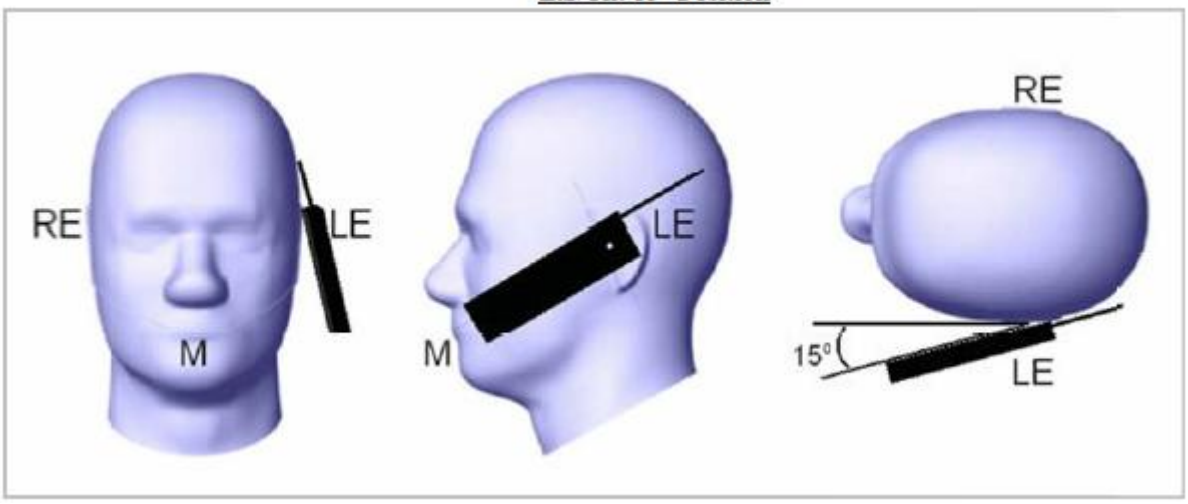


### 6.1.5 TILT POSITION

The test position is established when:

- Repeat the cheek touch position setup
- While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
- Rotate the handset around the horizontal line by 15°
- While maintain the orientation of the handset move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear.
- The tilt position is obtained when the contact point is on the pinna and the antenna is at the back of the phantoms head.

Ear/Tilt 15° Position



# 7 CONDUCTED OUTPUT POWER VERIFICATION

## 7.1 GSM

| Mode | Type | Test mode | Burst Average Power, dBm | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Cellular Band, GSM850 | | | PCS Band, GSM1900 | | |
| | | | 128 824.2MHz | 190 836.6MHz | 251 848.8MHz | 512 1850.2MHz | 661 1880MHz | 810 1909.8MHz |
| GPRS | Data | 1 slot | 32.48 | 32.49 | 32.39 | 30.11 | 30.01 | 29.95 |
| | | 2 slot | 32.20 | 32.29 | 32.15 | 30.04 | 29.93 | 29.86 |
| EDGE | Data | 1 slot | 26.70 | 26.34 | 26.39 | 25.60 | 25.80 | 25.25 |
| | | 2 slot | 26.55 | 26.24 | 26.17 | 25.78 | 25.59 | 24.66 |
| | | 3 slot | 26.43 | 26.00 | 26.24 | 25.82 | 25.25 | 25.60 |
| | | 4 slot | 26.00 | 25.92 | 26.07 | 25.75 | 24.95 | 24.89 |

| Mode | Type | Test mode | Frame Average Power, dBm | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Cellular Band, GSM850 | | | PCS Band, GSM1900 | | |
| | | | 128 824.2MHz | 190 836.6MHz | 251 848.8MHz | 512 1850.2MHz | 661 1880MHz | 810 1909.8MHz |
| GPRS | Data | 1 slot | 23.45 | 23.46 | 23.36 | 21.08 | 20.98 | 20.92 |
| | | 2 slot | 26.18 | 26.27 | 26.13 | 24.02 | 23.91 | 23.84 |
| EDGE | Data | 1 slot | 17.67 | 17.31 | 17.36 | 16.57 | 16.77 | 16.22 |
| | | 2 slot | 20.53 | 20.22 | 20.15 | 19.76 | 19.57 | 18.64 |
| | | 3 slot | 22.17 | 21.74 | 21.98 | 21.56 | 20.99 | 21.34 |
| | | 4 slot | 22.99 | 22.91 | 23.06 | 22.74 | 21.94 | 21.88 |

See Section 2.1 EUT OPERATION CONDITIONS for WCDMA settings.
R99 = RF Output Power Results for WCDMA R99
HSDPA = RF Output Power Results for HSDPA Rel6
HSPA = RF Output Power Results for HSPA (HSDPA & HSUPA) Rel6

## 7.2 WCDMA BAND 5

### 7.2.1 LOW CHANNEL

| Mode | Band | Frequency | Channel | Subtest | Mod. | Measured | Unit |
|---|---|---|---|---|---|---|---|
| R99 | Band 5 | 826.4 | 4132 | | | 22.92 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest1 | QPSK | 22.63 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest1 | 16QAM | 22.66 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest2 | QPSK | 22.74 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest2 | 16QAM | 22.28 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest3 | QPSK | 22.16 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest3 | 16QAM | 22.19 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest4 | QPSK | 22.22 | dBm |
| HSDPA | Band 5 | 826.4 | 4132 | Subtest4 | 16QAM | 22.31 | dBm |
| HSPA | Band 5 | 826.4 | 4132 | Subtest1 | | 22.74 | dBm |
| HSPA | Band 5 | 826.4 | 4132 | Subtest2 | | 21.67 | dBm |
| HSPA | Band 5 | 826.4 | 4132 | Subtest3 | | 22.14 | dBm |
| HSPA | Band 5 | 826.4 | 4132 | Subtest4 | | 21.92 | dBm |
| HSPA | Band 5 | 826.4 | 4132 | Subtest5 | | 22.76 | dBm |

### 7.2.2 MID CHANNEL

| Mode | Band | Frequency | Channel | Subtest | Mod. | Measured | Unit |
|---|---|---|---|---|---|---|---|
| R99 | Band 5 | 836.4 | 4182 | | | 23.06 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest1 | QPSK | 22.52 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest1 | 16QAM | 22.62 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest2 | QPSK | 22.27 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest2 | 16QAM | 22.71 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest3 | QPSK | 22.26 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest3 | 16QAM | 22.23 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest4 | QPSK | 22.25 | dBm |
| HSDPA | Band 5 | 836.4 | 4182 | Subtest4 | 16QAM | 22.19 | dBm |
| HSPA | Band 5 | 836.4 | 4182 | Subtest1 | | 22.27 | dBm |
| HSPA | Band 5 | 836.4 | 4182 | Subtest2 | | 21.97 | dBm |
| HSPA | Band 5 | 836.4 | 4182 | Subtest3 | | 22.15 | dBm |
| HSPA | Band 5 | 836.4 | 4182 | Subtest4 | | 22.05 | dBm |
| HSPA | Band 5 | 836.4 | 4182 | Subtest5 | | 22.42 | dBm |

### 7.2.3 HIGH CHANNEL

| Mode | Band | Frequency | Channel | Subtest | Mod. | Measured | Unit |
|---|---|---|---|---|---|---|---|
| R99 | Band 5 | 846.6 | 4233 | | | 23.19 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest1 | QPSK | 22.72 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest1 | 16QAM | 22.8 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest2 | QPSK | 22.83 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest2 | 16QAM | 22.28 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest3 | QPSK | 22.3 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest3 | 6QAM | 22.49 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest4 | QPSK | 22.29 | dBm |
| HSDPA | Band 5 | 846.6 | 4233 | Subtest4 | 16QAM | 22.27 | dBm |
| HSPA | Band 5 | 846.6 | 4233 | Subtest1 | | 22.78 | dBm |
| HSPA | Band 5 | 846.6 | 4233 | Subtest2 | | 21.97 | dBm |
| HSPA | Band 5 | 846.6 | 4233 | Subtest3 | | 22.07 | dBm |
| HSPA | Band 5 | 846.6 | 4233 | Subtest4 | | 21.95 | dBm |
| HSPA | Band 5 | 846.6 | 4233 | Subtest5 | | 22.73 | dBm |

## 7.3 WCDMA BAND 2

### 7.3.1 LOW CHANNEL

| Mode | Band | Frequency | Channel | Subtest | Mod. | Measured | Unit |
|---|---|---|---|---|---|---|---|
| R99 | Band 2 | 1852.4 | 9262 | | | 22.91 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest1 | QPSK | 22.05 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest1 | 16QAM | 22.06 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest2 | QPSK | 22.18 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest2 | 16QAM | 22.13 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest3 | QPSK | 19.3 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest3 | 6QAM | 21.49 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest4 | QPSK | 21.23 | dBm |
| HSDPA | Band 2 | 1852.4 | 9262 | Subtest4 | 16QAM | 21.19 | dBm |
| HSPA | Band 2 | 1852.4 | 9262 | Subtest1 | | 22.05 | dBm |
| HSPA | Band 2 | 1852.4 | 9262 | Subtest2 | | 20.73 | dBm |
| HSPA | Band 2 | 1852.4 | 9262 | Subtest3 | | 20.89 | dBm |
| HSPA | Band 2 | 1852.4 | 9262 | Subtest4 | | 21.4 | dBm |
| HSPA | Band 2 | 1852.4 | 9262 | Subtest5 | | 22.62 | dBm |

### 7.3.2 MID CHANNEL

| Mode | Band | Frequency | Channel | Subtest | Mod. | Measured | Unit |
|---|---|---|---|---|---|---|---|
| R99 | Band 2 | 1880.0 | 9400 | | | 22.96 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest1 | QPSK | 22.05 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest1 | 16QAM | 22.11 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest2 | QPSK | 22.35 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest2 | 16QAM | 22.3 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest3 | QPSK | 21.37 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest3 | 6QAM | 21.45 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest4 | QPSK | 21.18 | dBm |
| HSDPA | Band 2 | 1880.0 | 9400 | Subtest4 | 16QAM | 21.13 | dBm |
| HSPA | Band 2 | 1880.0 | 9400 | Subtest1 | | 21.71 | dBm |
| HSPA | Band 2 | 1880.0 | 9400 | Subtest2 | | 20.69 | dBm |
| HSPA | Band 2 | 1880.0 | 9400 | Subtest3 | | 20.78 | dBm |
| HSPA | Band 2 | 1880.0 | 9400 | Subtest4 | | 21.29 | dBm |
| HSPA | Band 2 | 1880.0 | 9400 | Subtest5 | | 21.94 | dBm |

### 7.3.3 HIGH CHANNEL

| Mode | Band | Frequency | Channel | Subtest | Mod. | Measured | Unit |
|---|---|---|---|---|---|---|---|
| R99 | Band 2 | 1907.6 | 9538 | | | 22.84 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest1 | QPSK | 22.35 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest1 | 16QAM | 22.31 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest2 | QPSK | 22.39 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest2 | 16QAM | 22.36 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest3 | QPSK | 21.68 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest3 | 6QAM | 21.63 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest4 | QPSK | 21.41 | dBm |
| HSDPA | Band 2 | 1907.6 | 9538 | Subtest4 | 16QAM | 21.47 | dBm |
| HSPA | Band 2 | 1907.6 | 9538 | Subtest1 | | 22.07 | dBm |
| HSPA | Band 2 | 1907.6 | 9538 | Subtest2 | | 20.89 | dBm |
| HSPA | Band 2 | 1907.6 | 9538 | Subtest3 | | 21.41 | dBm |
| HSPA | Band 2 | 1907.6 | 9538 | Subtest4 | | 21.22 | dBm |
| HSPA | Band 2 | 1907.6 | 9538 | Subtest5 | | 22.78 | dBm |

## 7.4 WLAN 2.4 GHz

| Mode | Freq (MHz) | Channel | Power | 802.11b Conducted Power (dBm) | | | |
|---|---|---|---|---|---|---|---|
| | | | | Data rate (Mbps) | | | |
| | | | | 1 | 2 | 5.5 | 11 |
| 802.11b | 2412 | 1 | dBm | 17.21 | 17.21 | 17.06 | 17.23 |
| 802.11b | 2437 | 6 | dBm | 17.39 | **17.40** | 17.14 | 17.37 |
| 802.11b | 2462 | 11 | dBm | 17.39 | 17.38 | 17.19 | 17.36 |

| Mode | Freq (MHz) | Channel | Power | 802.11g Conducted Power (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Data rate (Mbps) | | | | | | | |
| | | | | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 |
| 802.11g | 2412 | 1 | dBm | 17.15 | 17.16 | 17.13 | 17.14 | 17.17 | 17.14 | 13.26 | 11.16 |
| 802.11g | 2437 | 6 | dBm | 17.32 | 17.32 | **17.34** | 17.33 | 17.29 | 17.32 | 13.29 | 11.22 |
| 802.11g | 2462 | 11 | dBm | 17.30 | **17.34** | **17.34** | 17.31 | 17.28 | 17.32 | 13.31 | 11.26 |

| Mode | Freq (MHz) | Channel | Power | 802.11n, 2.4GHz 400ns GI, Conducted Power (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Data rate (Mbps) | | | | | | | |
| | | | | MCS0 | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| 802.11n | 2412 | 1 | dBm | 14.61 | 14.61 | 14.61 | 14.65 | 14.64 | 12.15 | 12.12 | 10.06 |
| 802.11n | 2437 | 6 | dBm | 14.71 | 14.72 | 14.83 | 14.79 | 14.76 | 12.32 | 12.23 | 10.20 |
| 802.11n | 2462 | 11 | dBm | 14.72 | 14.73 | **14.84** | 14.75 | 14.73 | 12.33 | 12.25 | 10.21 |

| | |
|---|---|
| | FCC Default Test Channels (802.11g and n modes testing not required for North America due to o/p < 0.25 dB higher than b mode) per KDB 248227 |
| | Additional testing required for Europe, South America and Japan (except 2472 MHz b mode n/a for Japan) |
| | Upper Channel for Japan only (802.11b only) |
| * | Mid channel for Europe and South America |

## 7.5 WLAN 5 GHz

| Mode | Freq (MHz) | Channel | 802.11a UNII Conducted Power (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Data rate (Mbps) | | | | | | | |
| | | | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 |
| 802.11a | 5180 | 36 | **9.89** | 9.72 | 9.74 | 9.74 | 9.74 | 9.75 | 9.75 | 9.73 |
| 802.11a | 5200 | 40 | 9.58 | 9.65 | 9.62 | 9.68 | 9.57 | 9.61 | 9.60 | 9.57 |
| 802.11a | 5220 | 44 | 9.68 | 9.74 | 9.68 | 9.65 | 9.67 | 9.72 | 9.69 | 9.64 |
| 802.11a | 5240 | 48 | 9.65 | 9.73 | 9.68 | 9.77 | 9.77 | 9.71 | 9.68 | 9.74 |

| Mode | Freq (MHz) | Channel | 802.11n, 20 MHz BW, 5GHz 400ns GI, Conducted Power (dBm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Data rate (Mbps) | | | | | | | |
| | | | MCS0 | MCS1 | MCS2 | MCS3 | MCS4 | MCS5 | MCS6 | MCS7 |
| 802.11n | 5180 | 36 | **8.45** | 8.41 | 8.36 | 8.40 | 8.40 | 8.44 | 8.38 | 7.65 |
| 802.11n | 5200 | 40 | 8.30 | 8.23 | 8.26 | 8.22 | 8.28 | 8.28 | 8.21 | 7.55 |
| 802.11n | 5220 | 44 | 8.39 | 8.30 | 8.24 | 8.29 | 8.25 | 8.25 | 8.26 | 7.63 |
| 802.11n | 5240 | 48 | 8.36 | 8.31 | 8.35 | 8.29 | 8.28 | 8.28 | 8.26 | 7.59 |

# 8 2G-3G BODY SAR MEASUREMENT RESULTS

| Frequency MHz | CH | Mode | Service | Data Rate Mbps | Max Pwr dBm | Meas Pwr dBm | Power Drift dB | Position | Duty Cycle | 1g SAR W/kg | Scaled SAR 1g W/kg | Plot # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1850.2 | 512 | GSM1900 | GPRS 2 slt | Data | 31.00 | 30.08 | 0.16 | P1 | 2:8 | 0.916 | 1.132 | |
| 1850.2 | 512 | GSM1900 | GPRS 2 slt | Data | 31.00 | 30.08 | 0.36 | P2 | 2:8 | 0.708 | 0.875 | |
| 1880.0 | 661 | GSM1900 | GPRS 2 slt | Data | 31.00 | 29.93 | 0.18 | P1 | 2:8 | 0.927 | 1.186 | |
| 1880.0 | 661 | GSM1900 | GPRS 2 slt | Data | 31.00 | 29.93 | 0.03 | P2 | 2:8 | 0.746 | 0.954 | |
| 1909.8 | 810 | GSM1900 | GPRS 2 slt | Data | 31.00 | 29.86 | 0.30 | P1 | 2:8 | 1.160 | 1.508 | 1 |
| 1909.8 | 810 | GSM1900 | GPRS 2 slt | Data | 31.00 | 29.86 | 0.39 | P1 | 2:8 | 1.090 | 1.417 | 2-zoom |
| 1909.8 | 810 | GSM1900 | GPRS 2 slt | Data | 31.00 | 29.86 | 0.29 | P2 | 2:8 | 0.744 | 0.967 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 824.2 | 128 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.20 | 0.23 | P1 | 2:8 | 0.901 | 1.083 | |
| 824.2 | 128 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.20 | 0.10 | P2 | 2:8 | 0.854 | 1.027 | |
| 836.4 | 190 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.29 | 0.01 | P1 | 2:8 | 1.100 | 1.295 | |
| 836.4 | 190 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.29 | 0.00 | P1 | 2:8 | 1.220 | 1.437 | 3 |
| 836.4 | 190 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.29 | 0.07 | P2 | 2:8 | 0.807 | 0.950 | |
| 848.8 | 251 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.15 | 0.03 | P1 | 2:8 | 0.892 | 1.085 | |
| 848.8 | 251 | GSM850 | GPRS 2 slt | Data | 33.00 | 32.15 | 0.19 | P2 | 2:8 | 0.875 | 1.064 | |

| Frequency MHz | CH | Mode | Service | Data Rate Mbps | Max Pwr dBm | Meas Pwr dBm | Power Drift dB | Position | Duty Cycle | 1g SAR W/kg | Scaled SAR 1g W/kg | Plot # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 836.4 | 4182 | Band V | UMTS | Data | 24.00 | 23.06 | 0.20 | P1 | 1:1 | 0.386 | 0.479 | |
| 836.4 | 4182 | Band V | UMTS | Data | 24.00 | 23.06 | 0.19 | P2 | 1:1 | 0.432 | 0.536 | |
| 826.5 | 782 | Band V | UMTS | Data | 24.00 | 22.92 | 0.02 | P2 | 1:1 | 0.516 | 0.662 | |
| 826.5 | 782 | Band V | UMTS | Data | 24.00 | 22.92 | 0.02 | P2 | 1:1 | 0.542 | 0.695 | 4 |
| 846.6 | 4233 | Band V | UMTS | Data | 24.00 | 23.19 | 0.11 | P2 | 1:1 | 0.459 | 0.553 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1880.0 | 9400 | Band II | UMTS | Data | 24.00 | 22.96 | 0.18 | P1 | 1:1 | 0.789 | 1.002 | |
| 1880.0 | 9400 | Band II | UMTS | Data | 24.00 | 22.96 | 0.21 | P2 | 1:1 | 0.544 | 0.691 | |
| 1852.4 | 9262 | Band II | UMTS | Data | 24.00 | 22.91 | 0.00 | P1 | 1:1 | 1.170 | 1.504 | 5 |
| 1852.4 | 9262 | Band II | UMTS | Data | 24.00 | 22.91 | 0.03 | P1 | 1:1 | 1.010 | 1.298 | 6-zoom |
| 1852.4 | 9262 | Band II | UMTS | Data | 24.00 | 22.91 | 0.13 | P2 | 1:1 | 0.802 | 1.031 | |
| 1907.6 | 9538 | Band II | UMTS | Data | 24.00 | 22.84 | 0.02 | P1 | 1:1 | 0.713 | 0.931 | |
| 1907.6 | 9538 | Band II | UMTS | Data | 24.00 | 22.84 | 0.23 | P2 | 1:1 | 0.464 | 0.606 | |

# 9 WI-FI BODY SAR MEASUREMENT RESULTS

| Frequency MHz | CH | Mode | Service | Data Rate Mbps | Max Pwr dBm | Meas Pwr dBm | Power Drift dB | Position | | Duty Cycle | 1g SAR W/kg | Scaling factor | Scaled SAR 1g W/kg | Plot # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2437.0 | 6 | 802.11b | DSSS | 1 | 19.30 | 17.39 | 0.31 | B1 | P1 | 1:1 | 0.173 | 1.552 | 0.269 | |
| 2437.0 | 6 | 802.11b | DSSS | 1 | 19.30 | 17.39 | 0.05 | B1 | P2 | 1:1 | 0.068 | 1.552 | 0.106 | |
| 2412.0 | 1 | 802.11b | DSSS | 1 | 19.30 | 17.21 | 0.32 | B1 | P1 | 1:1 | 0.117 | 1.618 | 0.189 | |
| 2462.0 | 11 | 802.11b | DSSS | 1 | 19.30 | 17.39 | 0.09 | B1 | P1 | 1:1 | 0.288 | 1.552 | 0.447 | 7 |
| 2462.0 | 11 | 802.11b | DSSS | 1 | 19.30 | 17.39 | 0.31 | B1 | P1 | 1:1 | 0.223 | 1.552 | 0.346 | 8-zoom |

Note 1: Drift measurement not required since area scan is less than 0.1 W/kg

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5180.0 | 36 | 802.11a | DSSS | 6 | 14.50 | 9.89 | 0.15 | B1 | P1 | 1:1 | 0.062 | 2.891 | 0.179 | 9 |
| 5180.0 | 36 | 802.11a | DSSS | 6 | 14.50 | 9.89 | 0.20 | B1 | P2 | 1:1 | 0.049 | 2.891 | 0.142 | |
| 5240.0 | 48 | 802.11a | DSSS | 6 | 14.50 | 9.65 | 0.33 | B1 | P1 | 1:1 | 0.052 | 3.055 | 0.159 | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5825.0 | 165 | 802.11a | DSSS | 24 | 14.50 | 13.14 | 0.25 | B1 | P1 | 1:1 | 0.147 | 1.368 | 0.201 | |
| 5825.0 | 165 | 802.11a | DSSS | 24 | 14.50 | 13.14 | 0.01 | B1 | P2 | 1:1 | 0.100 | 1.368 | 0.137 | |
| 5785.0 | 157 | 802.11a | DSSS | 24 | 14.50 | 12.91 | 0.09 | B1 | P1 | 1:1 | 0.184 | 1.442 | 0.265 | 12 |
| 5745.0 | 149 | 802.11a | DSSS | 6 | 14.50 | 12.84 | 0.06 | B1 | P1 | 1:1 | 0.172 | 1.466 | 0.252 | |

# 10 UNCERTAINTY BUDGET

| | |
|---|---|
| **Test Name:** | SAR 62209-2 (0.3 to 6 GHz range) |
| **Instrument(s) Used:** | SAR Measurement Sytem |
| **Standard(s) Reference:** | IEC 62209-2:2010 |

| Symbol | Source of Uncertainty | Value | Probability Distribution | Divisor | ci (1g) | ci (10g) | Std. Unc. (1g) | Std. Unc. (10g) | vi or veff |
|---|---|---|---|---|---|---|---|---|---|
| | **MEASUREMENT DESCRIPTION** | | | | | | | | |
| | Probe Calibration | 6.6% | N1 | 1 | 1 | 1 | 6.6% | 6.6% | inf |
| | Axial Isotropy | 4.7% | R | 1.732 | 0.7 | 0.7 | 1.9% | 1.9% | inf |
| | Hemispherical Isotropy | 9.6% | R | 1.732 | 0.7 | 0.7 | 3.9% | 3.9% | inf |
| | Linearity | 4.7% | R | 1.732 | 1 | 1 | 2.7% | 2.7% | inf |
| | System Detection Limits | 1.0% | R | 1.732 | 1 | 1 | 0.6% | 0.6% | inf |
| | Modulation Response | 2.4% | R | 1.732 | 1 | 1 | 1.4% | 1.4% | inf |
| | Boundary Effects | 2.0% | R | 1.732 | 1 | 1 | 1.2% | 1.2% | inf |
| | Readout Electronics | 0.3% | N1 | 1 | 1 | 1 | 0.3% | 0.3% | inf |
| | Response Time | 0.8% | R | 1.732 | 1 | 1 | 0.5% | 0.5% | inf |
| | Integration Time | 2.6% | R | 1.732 | 1 | 1 | 1.5% | 1.5% | inf |
| | RF Ambient Noise | 3.0% | R | 1.732 | 1 | 1 | 1.7% | 1.7% | inf |
| | RF Ambient Reflections | 3.0% | R | 1.732 | 1 | 1 | 1.7% | 1.7% | inf |
| | Probe Positioner | 0.8% | R | 1.732 | 1 | 1 | 0.5% | 0.5% | inf |
| | Probe Positioning | 6.7% | R | 1.732 | 1 | 1 | 3.9% | 3.9% | inf |
| | Post Processing | 4.0% | R | 1.732 | 1 | 1 | 2.3% | 2.3% | inf |
| | **TEST SAMPLE RELATED** | | | | | | | | |
| | Device Positioning | 2.9% | N1 | 1 | 1 | 1 | 2.9% | 2.9% | inf |
| | Device Holder | 3.6% | N1 | 1 | 1 | 1 | 3.6% | 3.6% | inf |
| | Power Drift | 5.0% | R | 1.732 | 1 | 1 | 2.9% | 2.9% | inf |
| | Power Scaling | 0.0% | R | 1.732 | 1 | 1 | 0.0% | 0.0% | inf |
| | **PHANTOM AND SETUP** | | | | | | | | |
| | Phantom Uncertainty | 7.9% | R | 1.732 | 1 | 1 | 4.6% | 4.6% | inf |
| | SAR correction | 1.9% | R | 1.732 | 1 | 0.84 | 1.1% | 0.9% | inf |
| | Liquid Conductivity(meas.) | 2.5% | N1 | 1 | 0.78 | 0.71 | 2.0% | 1.8% | inf |
| | Liquid Permittivity(meas.) | 2.5% | N1 | 1 | 0.26 | 0.26 | 0.7% | 0.7% | inf |
| | Temp. unc. - Conductivity | 1.7% | R | 1.732 | 0.78 | 0.71 | 0.8% | 0.7% | inf |
| | Temp. unc. - Permittivity | 0.3% | R | 1.732 | 0.23 | 0.26 | 0.0% | 0.0% | inf |
| | | | n1 | 1 | 1 | 1 | 0.0% | 0.0% | inf |
| uc(Fs) | Combined Standard Uncertainty | | N1 | 1 | | | 12.6% | 12.5% | |
| U(Fs) | Expanded Uncertainty | | Normal k= | 2 | | | **25.1%** | **25.1%** | |

**The Expanded Uncertainty is 25.1% for a Normal k factor equal to 2**

# 11 SAR PLOTS

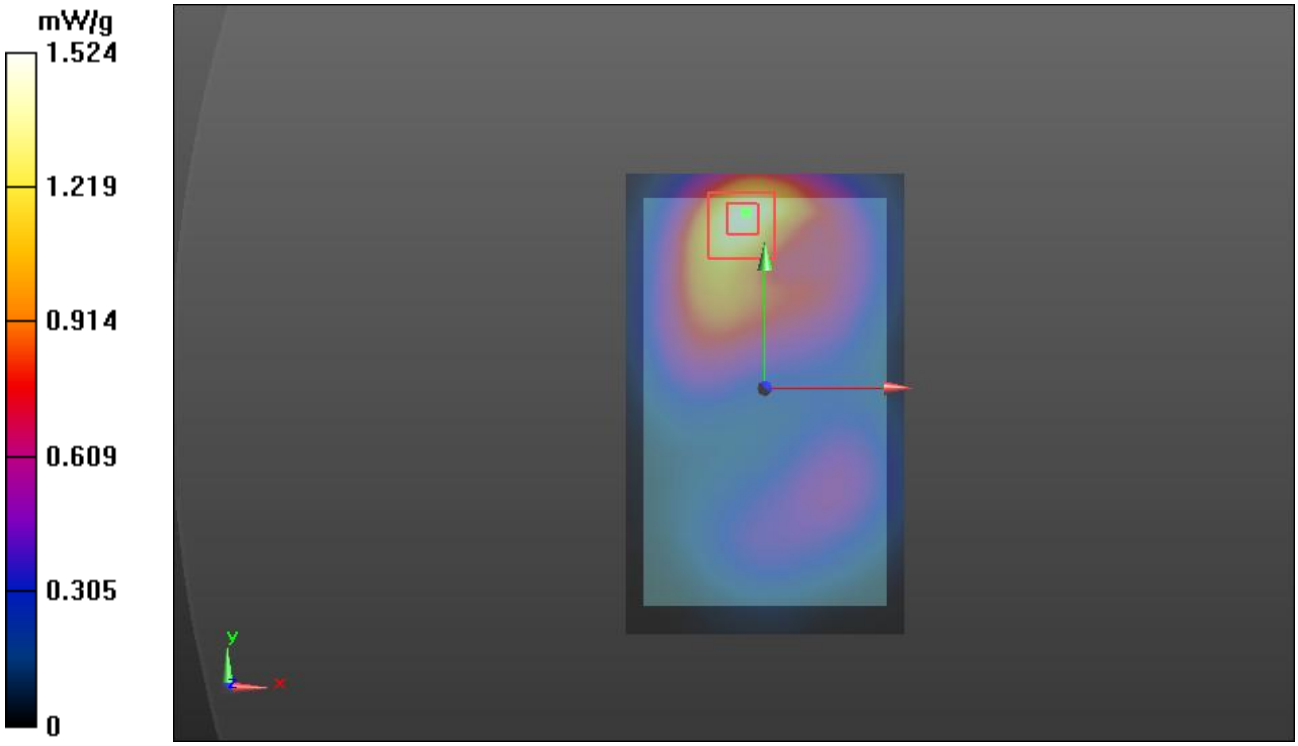
Plot # 1

Date/Time: 2/26/2014 8:17:30 AM

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);
Frequency: 1909.8 MHz;Communication System PAR: 9.191 dB; PMF: 2.88104
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.614 mho/m; $\varepsilon r$ = 50.25; $\rho$ = 1000 kg/m3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:
Probe: EX3DV4 - SN3812; ConvF(7.19, 7.19, 7.19); Calibrated: 1/24/2014;
Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0
Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/1909.8MHz BSL, BG5 P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm
Reference Value = 12.939 V/m; Power Drift = 0.30 dB
**Fast SAR: SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.659 mW/g** (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.52 mW/g



Plot #2

Date/Time: 2/26/2014 11:15:39 AM

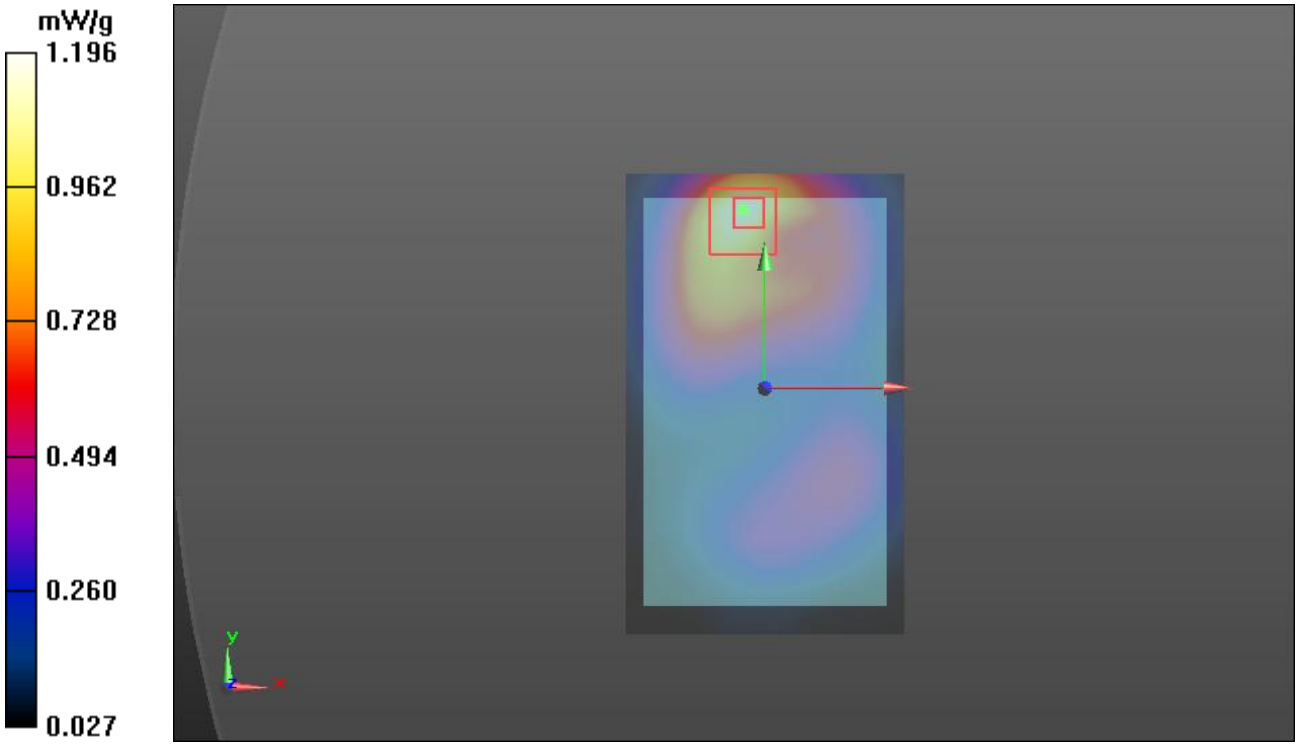
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);
Frequency: 1909.8 MHz;Communication System PAR: 9.191 dB; PMF: 2.88104
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.614 mho/m; $\varepsilon_r$ = 50.25; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

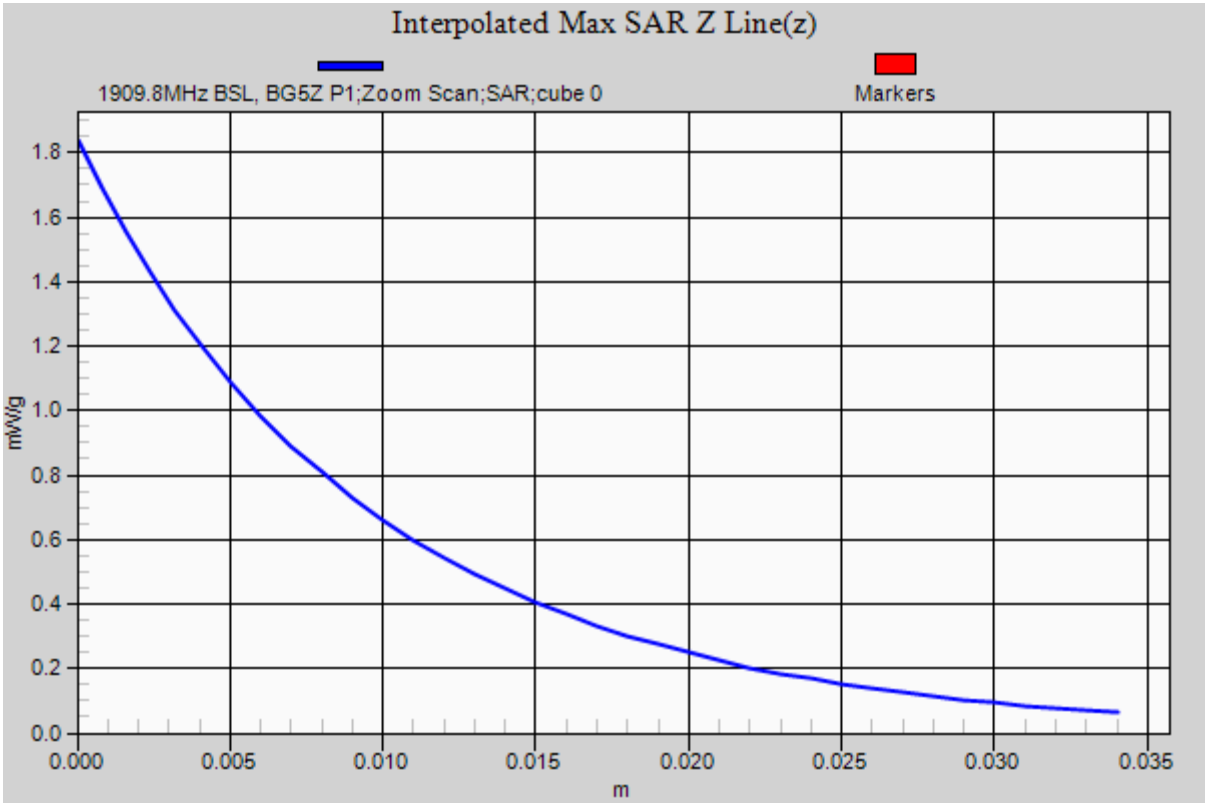
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.19, 7.19, 7.19); Calibrated: 1/24/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/1909.8MHz BSL, BG5Z P1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.263 V/m; Power Drift = 0.39 dB
Peak SAR (extrapolated) = 1.837 mW/g
**SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.633 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.20 mW/g

**Configuration/1909.8MHz BSL, BG5Z P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.33 mW/g




Interpolated Max SAR Z Line(z)
1909.8MHz BSL, BG5Z P1;Zoom Scan;SAR;cube 0
Markers
mW/g
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Plot #3

Date/Time: 2/28/2014 9:15:59 AM

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz);
Frequency: 836.4 MHz;Communication System PAR: 9.191 dB; PMF: 2.88104
Medium parameters used (interpolated): f = 836.4 MHz; $\sigma$ = 0.983 mho/m; $\varepsilon_r$ = 53.698; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

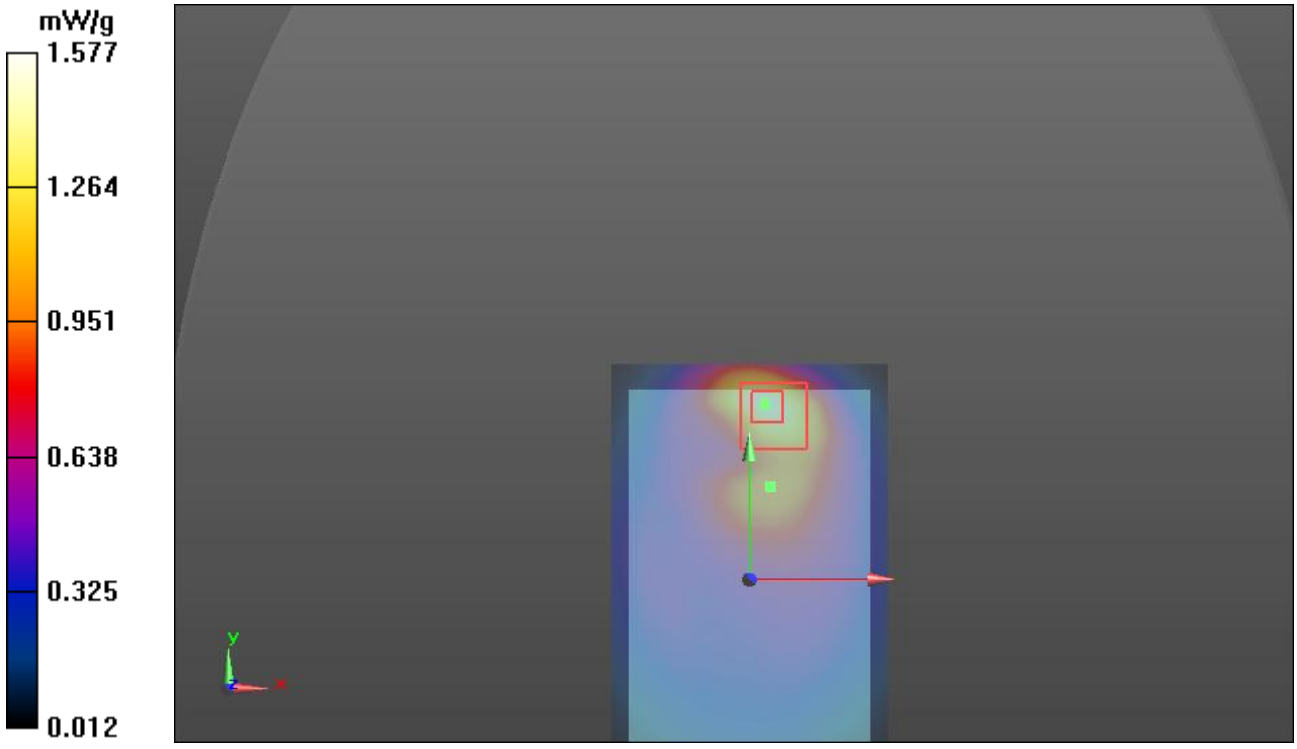
DASY Configuration:

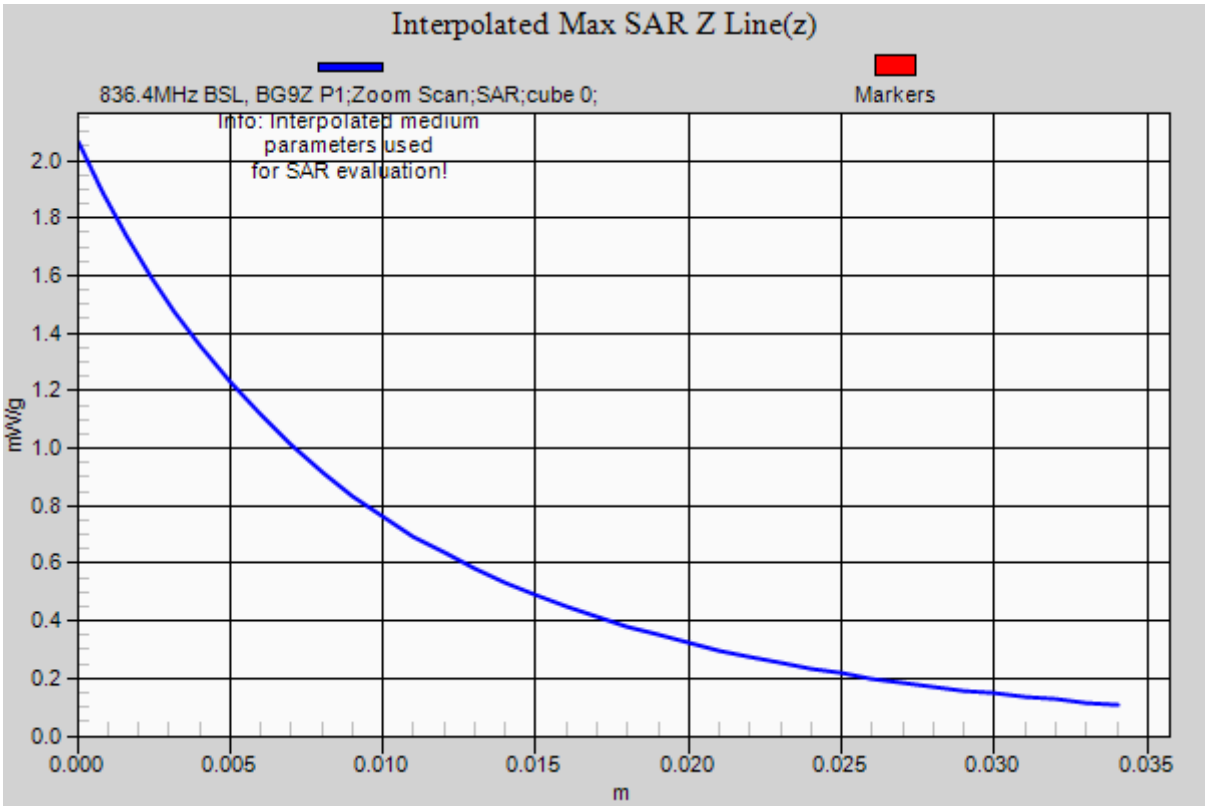
- Probe: EX3DV4 - SN3812; ConvF(8.91, 8.91, 8.91); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/836.4MHz BSL, BG9Z P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.58 mW/g

**Configuration/836.4MHz BSL, BG9Z P1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.972 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 2.065 mW/g
**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.718 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.35 mW/g




Interpolated Max SAR Z Line(z)
836.4MHz BSL, BG9Z P1;Zoom Scan;SAR;cube 0;
Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Plot #4

Date/Time: 2/28/2014 2:35:36 PM

Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 826.5 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 826.5 MHz; $\sigma$ = 0.969 mho/m; $\varepsilon_r$ = 52.59; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

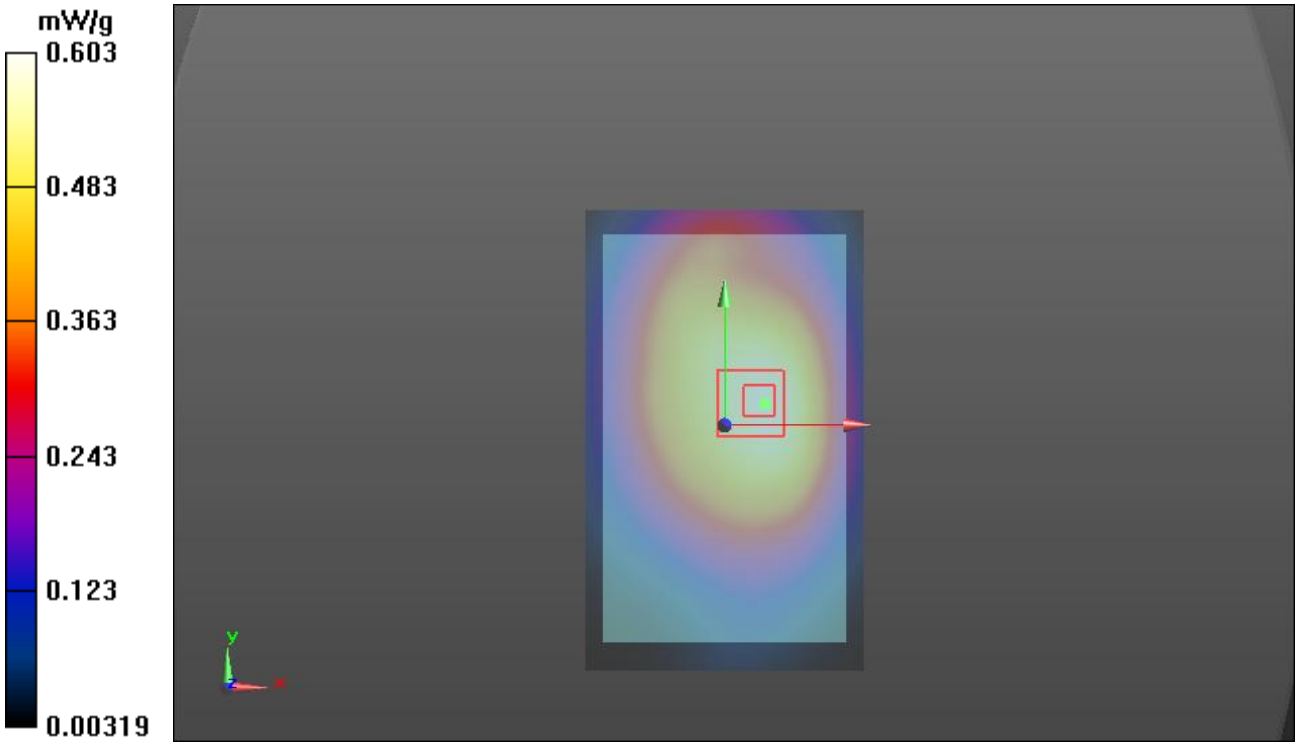
DASY Configuration:

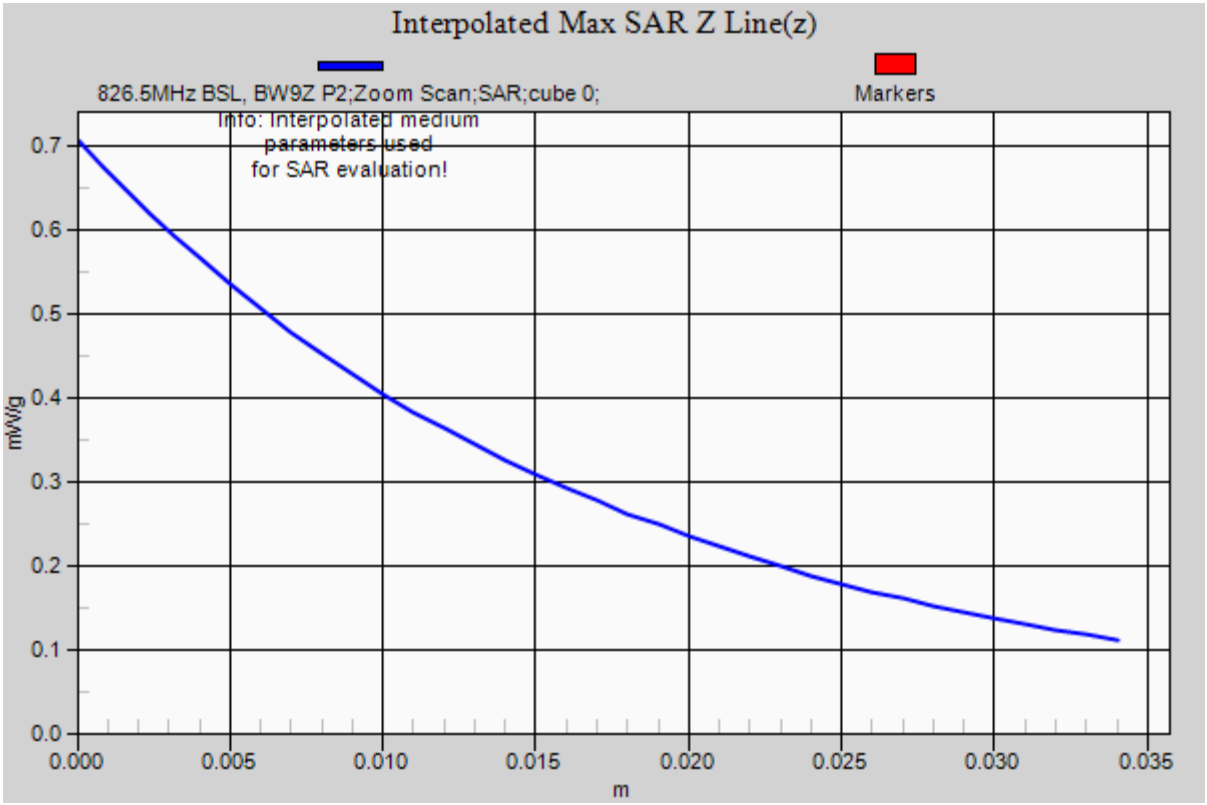
- Probe: EX3DV4 - SN3812; ConvF(8.91, 8.91, 8.91); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/826.5MHz BSL, BW9Z P2/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.603 mW/g

**Configuration/826.5MHz BSL, BW9Z P2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.830 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.705 mW/g
**SAR(1 g) = 0.542 mW/g; SAR(10 g) = 0.410 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.573 mW/g




Interpolated Max SAR Z Line(z)
826.5MHz BSL, BW9Z P2;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
mW/g
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Plot #5

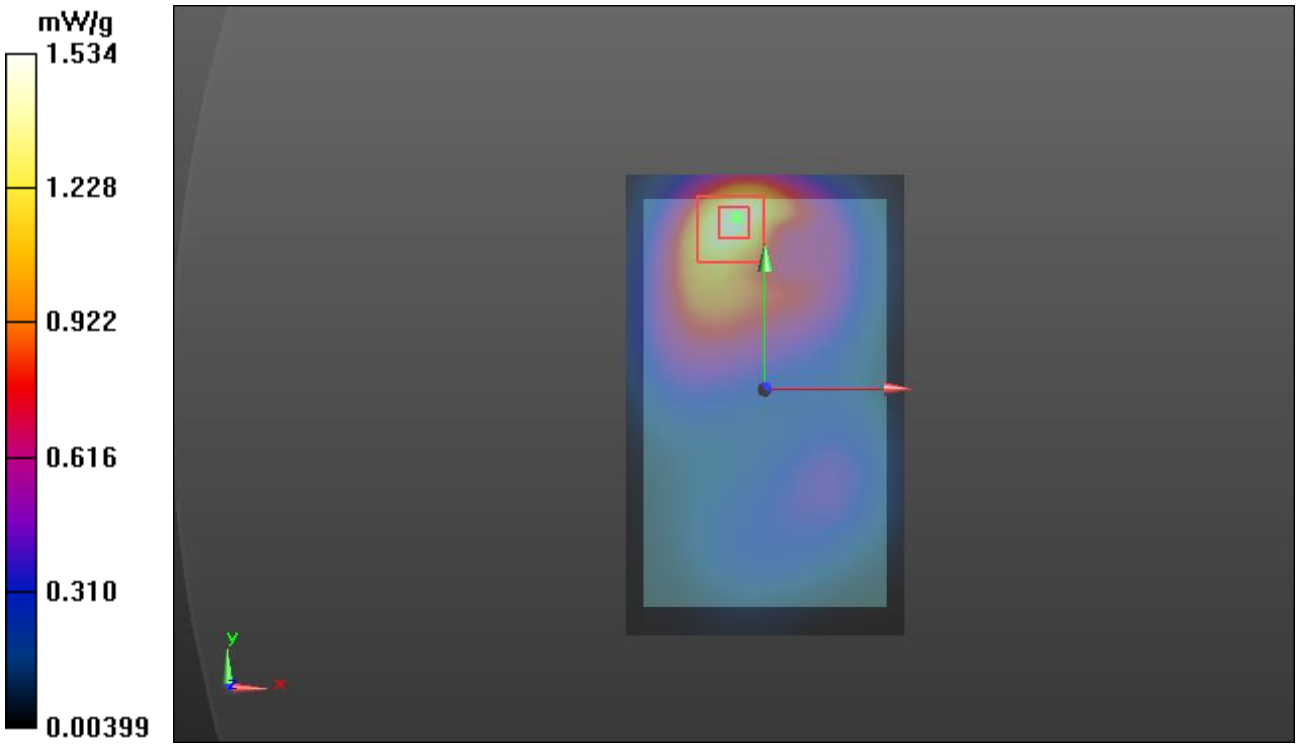
Date/Time: 2/25/2014 9:35:20 AM

Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 1852.4 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma$ = 1.569 mho/m; $\varepsilon_r$ = 50.866; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.19, 7.19, 7.19); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/1852.4MHz BSL, B3P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm
Reference Value = 13.841 V/m; Power Drift = -0.00 dB
**Fast SAR: SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.665 mW/g** (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.53 mW/g



Plot #6

Date/Time: 2/25/2014 11:13:06 AM

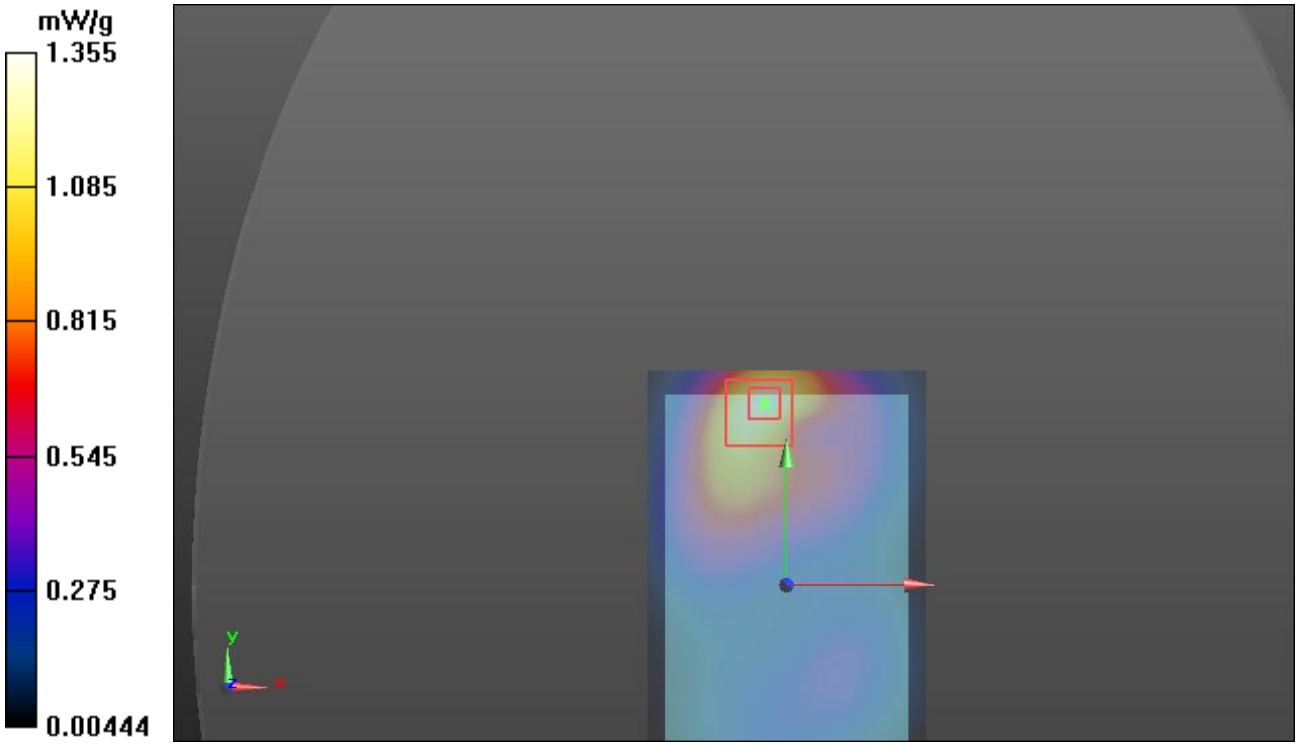
Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 1852.4 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma$ = 1.569 mho/m; $\varepsilon_r$ = 50.866; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

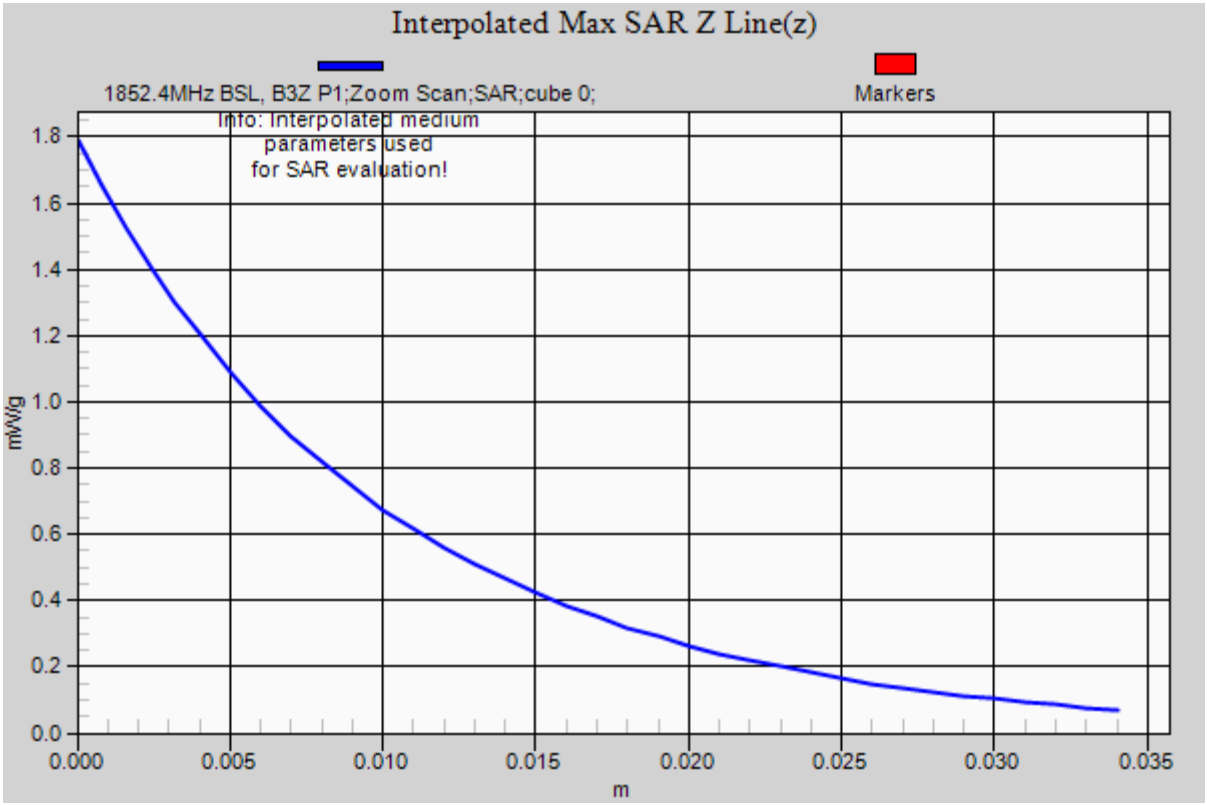
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.19, 7.19, 7.19); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/1852.4MHz BSL, B3Z P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.35 mW/g

**Configuration/1852.4MHz BSL, B3Z P1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.051 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.789 mW/g
**SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.633 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.21 mW/g




Interpolated Max SAR Z Line(z)
1852.4MHz BSL, B3Z P1;Zoom Scan;SAR;cube 0;
Info: Interpolated medium
parameters used
for SAR evaluation!
Markers
mW/g
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Plot #7

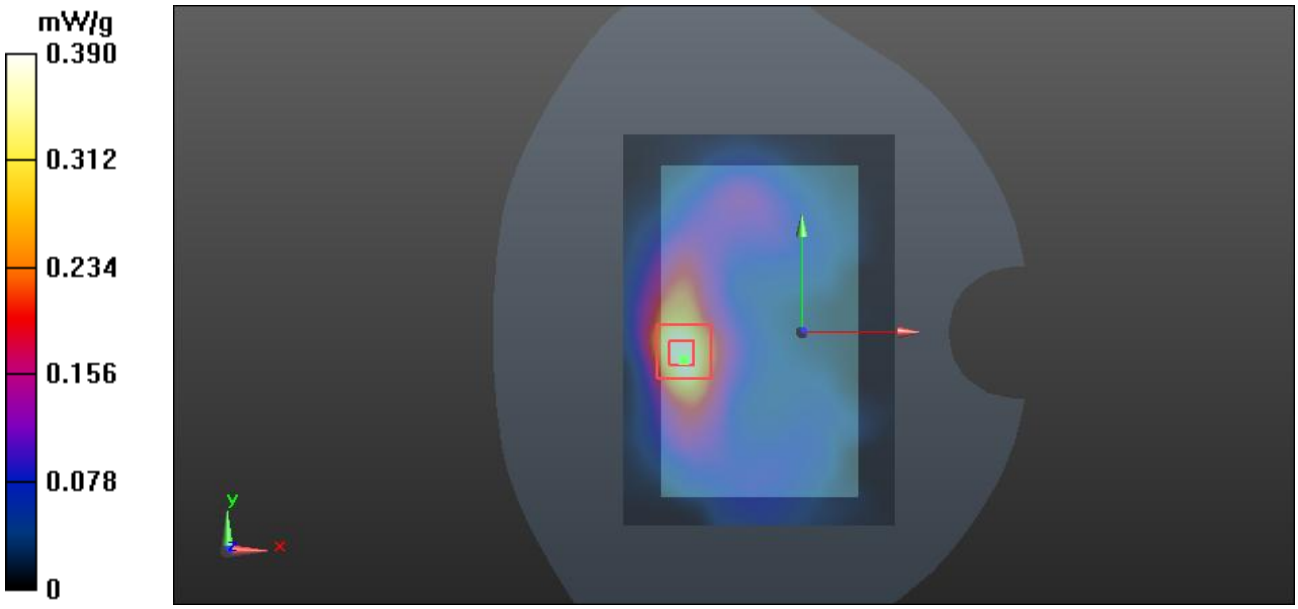
Date/Time: 2/7/2014 8:47:02 AM

Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 2462 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2462 MHz; $\sigma$ = 2.07 mho/m; $\varepsilon_r$ = 49.73; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/D5 P1/Area Scan (91x131x1):** Measurement grid: dx=12mm, dy=12mm
Reference Value = 5.508 V/m; Power Drift = 0.09 dB
**Fast SAR: SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.150 mW/g** (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 0.390 mW/g



Plot #8

Date/Time: 2/7/2014 10:31:40 AM

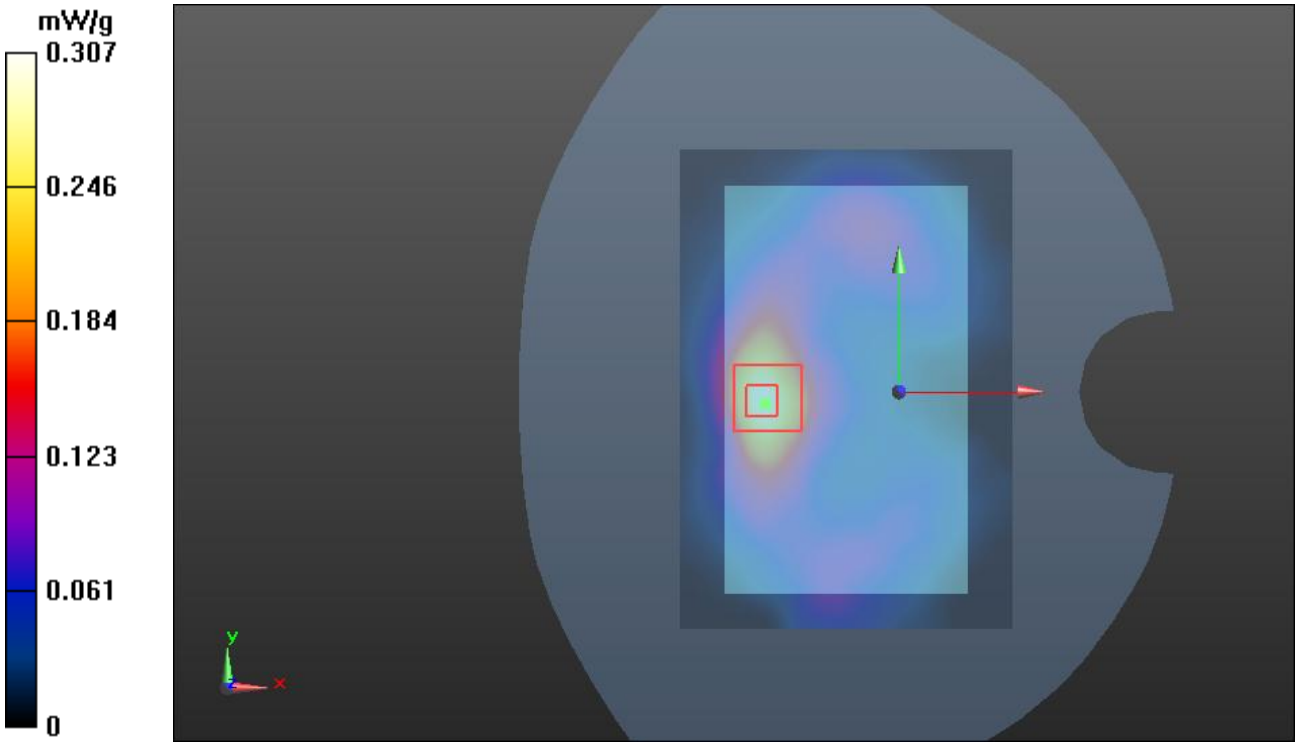
Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 2462 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2462 MHz; $\sigma$ = 2.07 mho/m; $\varepsilon_r$ = 49.73; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

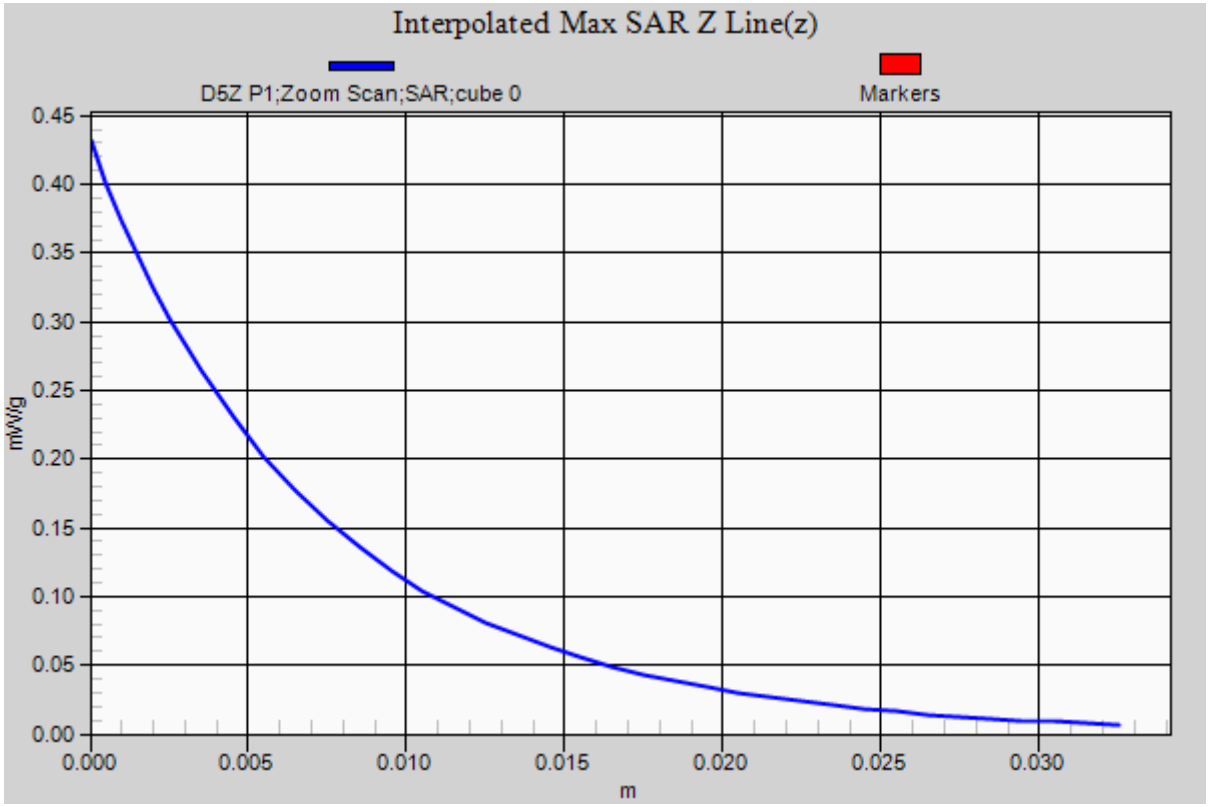
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/D5Z P1/Area Scan (91x131x1):** Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.307 mW/g

**Configuration/D5Z P1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.079 V/m; Power Drift = 0.31 dB
Peak SAR (extrapolated) = 0.432 mW/g
**SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.117 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.303 mW/g




Interpolated Max SAR Z Line(z)
D5Z P1;Zoom Scan;SAR;cube 0
Markers
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Plot #9

Date/Time: 3/7/2014 12:37:25 PM

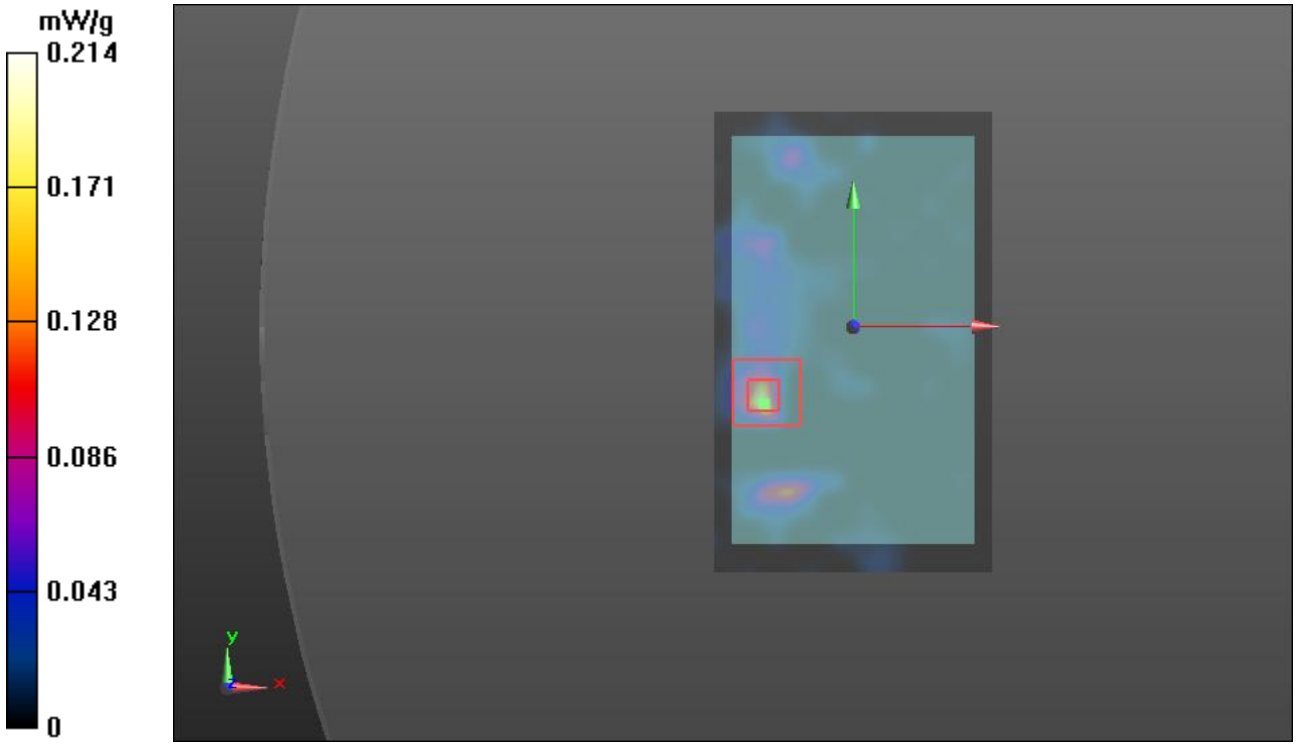
Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 5180 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5180 MHz; $\sigma$ = 5.434 mho/m; $\varepsilon_r$ = 47.453; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

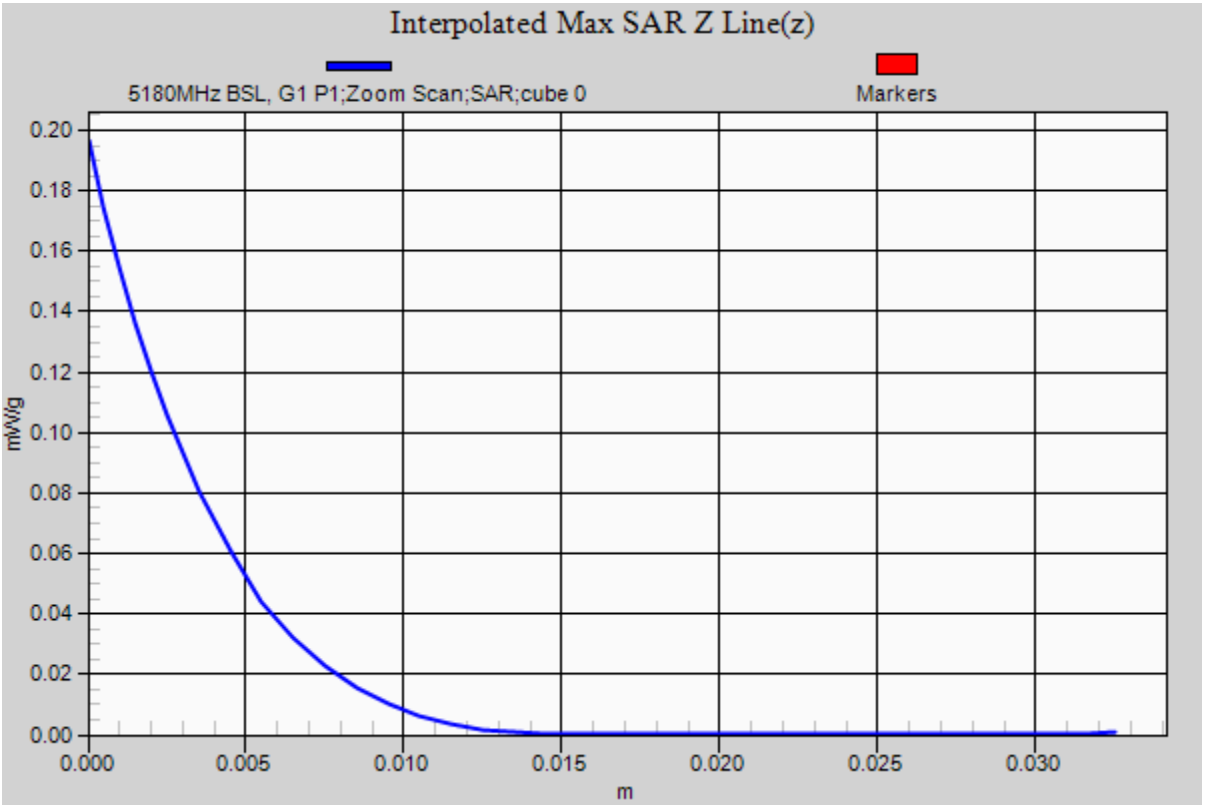
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.6, 4.6, 4.6); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/5180MHz BSL, G1 P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.214 mW/g

**Configuration/5180MHz BSL, G1 P1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.048 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.196 mW/g
**SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.020 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.106 mW/g




Interpolated Max SAR Z Line(z)
5180MHz BSL, G1 P1;Zoom Scan;SAR;cube 0
Markers
mW/g
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Plot #12

Date/Time: 3/11/2014 8:32:33 AM

Communication System: CW; Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 5785 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5785 MHz; $\sigma$ = 6.179 mho/m; $\varepsilon_r$ = 46.31; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

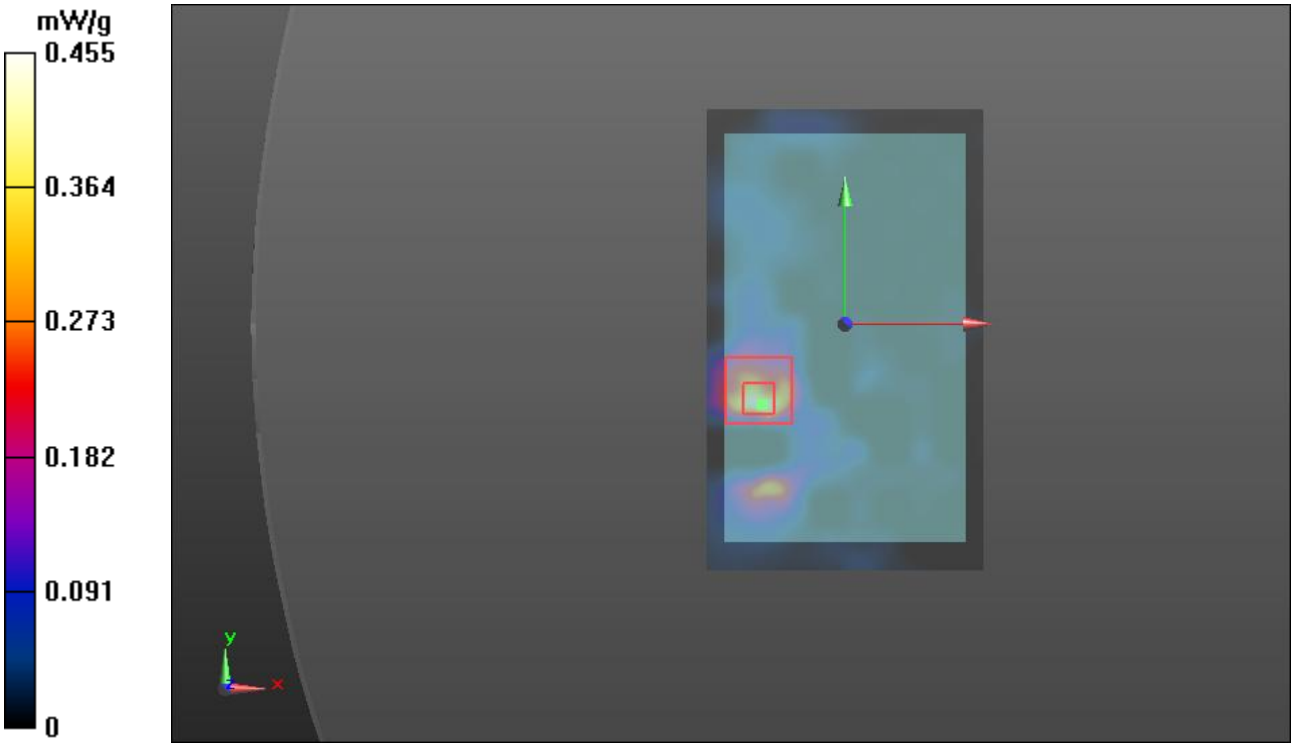
DASY Configuration:

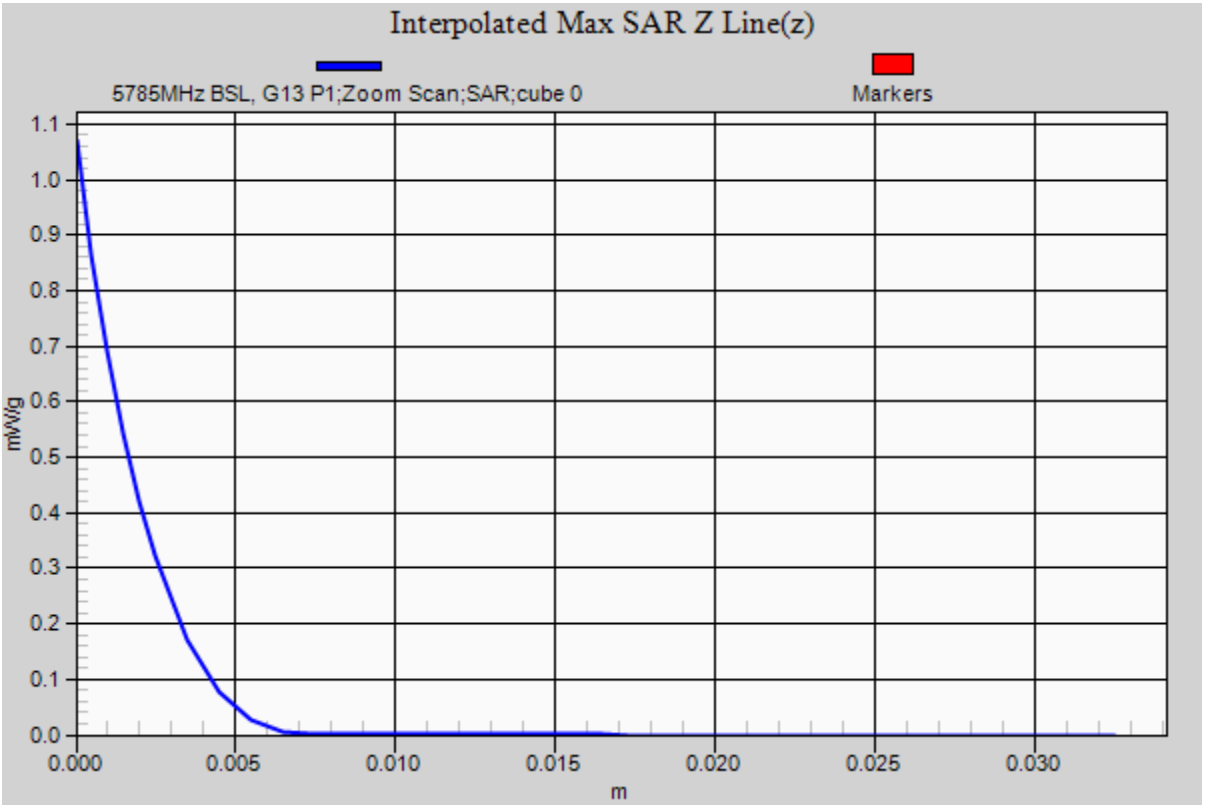
- Probe: EX3DV4 - SN3812; ConvF(4.23, 4.23, 4.23); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/5785MHz BSL, G13 P1/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.455 mW/g

**Configuration/5785MHz BSL, G13 P1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.251 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.070 mW/g
**SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.063 mW/g** (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.316 mW/g




Interpolated Max SAR Z Line(z)
5785MHz BSL, G13 P1;Zoom Scan;SAR;cube 0
Markers
mW/g
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

# 12 SYSTEM CHECK PLOTS

Plot #13

Date/Time: 2/24/2014 12:27:16 PM

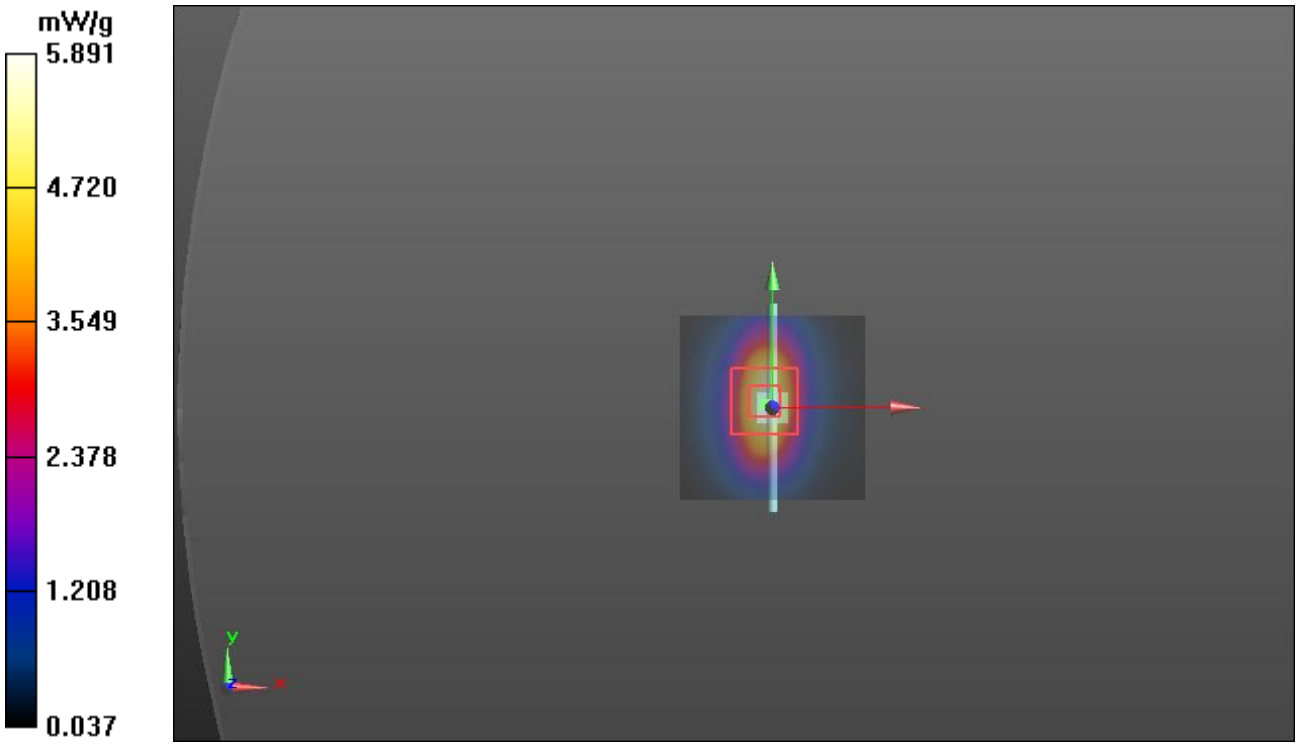
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.617 mho/m; $\varepsilon_r$ = 50.703; $\rho$ = 1000 kg/$m^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

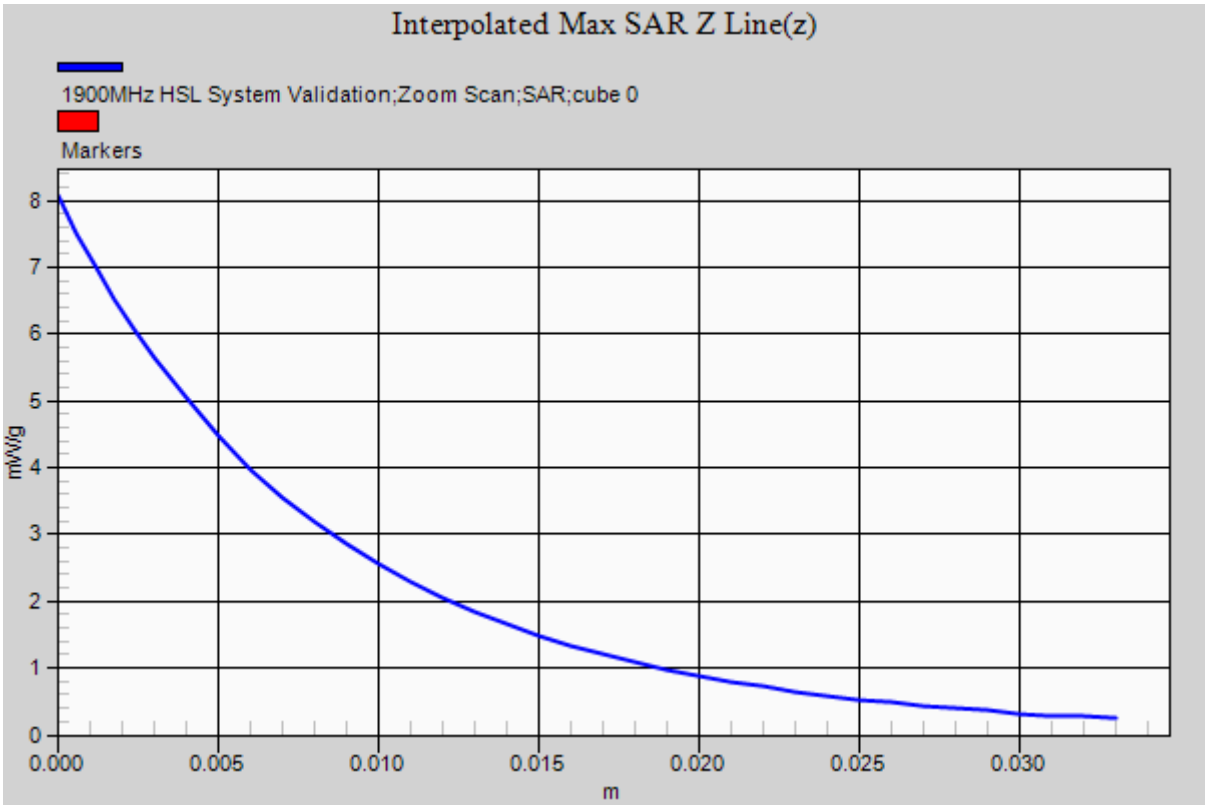
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.19, 7.19, 7.19); Calibrated: 1/24/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 16.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/1900MHz HSL System Validation/Area Scan (51x51x1):** Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 5.89 mW/g

**Configuration/1900MHz HSL System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.053 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 8.080 mW/g
**SAR(1 g) = 4.21 mW/g; SAR(10 g) = 2.22 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.65 mW/g


mW/g
5.891
4.720
3.549
2.378
1.208
0.037
y
x


Interpolated Max SAR Z Line(z)
1900MHz HSL System Validation;Zoom Scan;SAR;cube 0
Markers
mW/g
8
7
6
5
4
3
2
1
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Plot #14

Date/Time: 2/25/2014 1:02:44 PM

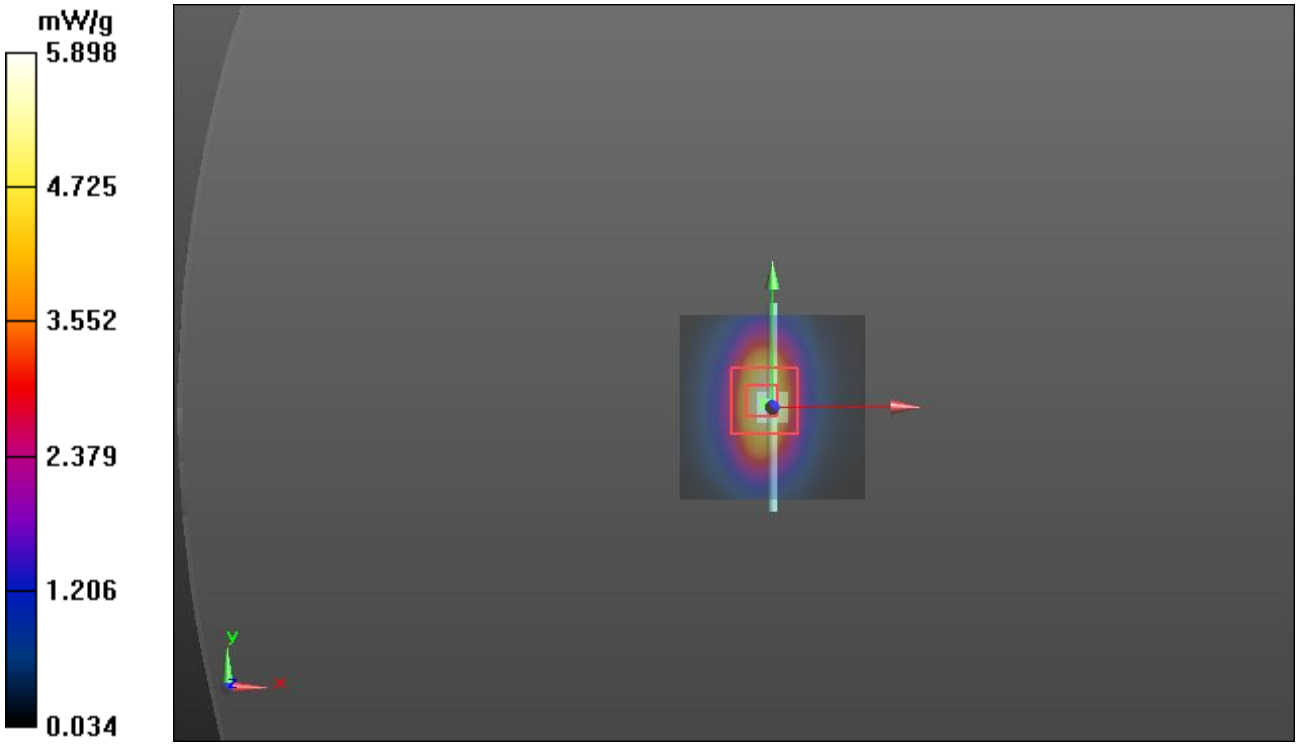
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.605 mho/m; $\varepsilon_r$ = 50.288; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

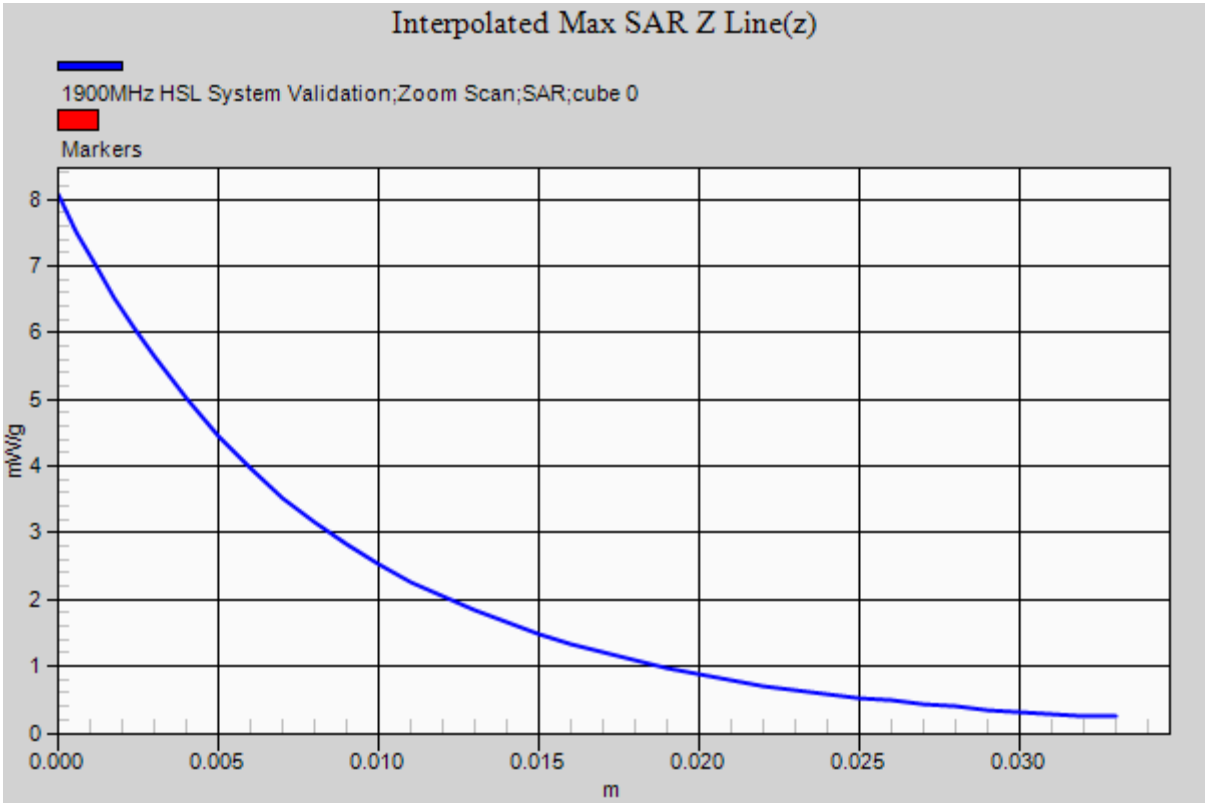
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.19, 7.19, 7.19); Calibrated: 1/24/2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 1.0, 16.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/1900MHz HSL System Validation/Area Scan (51x51x1):** Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 5.90 mW/g

**Configuration/1900MHz HSL System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.319 V/m; Power Drift = 0.30 dB
Peak SAR (extrapolated) = 8.078 mW/g
**SAR(1 g) = 4.18 mW/g; SAR(10 g) = 2.18 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.64 mW/g




Interpolated Max SAR Z Line(z)
1900MHz HSL System Validation;Zoom Scan;SAR;cube 0
Markers
mW/g
m
0
1
2
3
4
5
6
7
8
0.000
0.005
0.010
0.015
0.020
0.025
0.030

Plot #15

Date/Time: 2/27/2014 8:12:45 AM

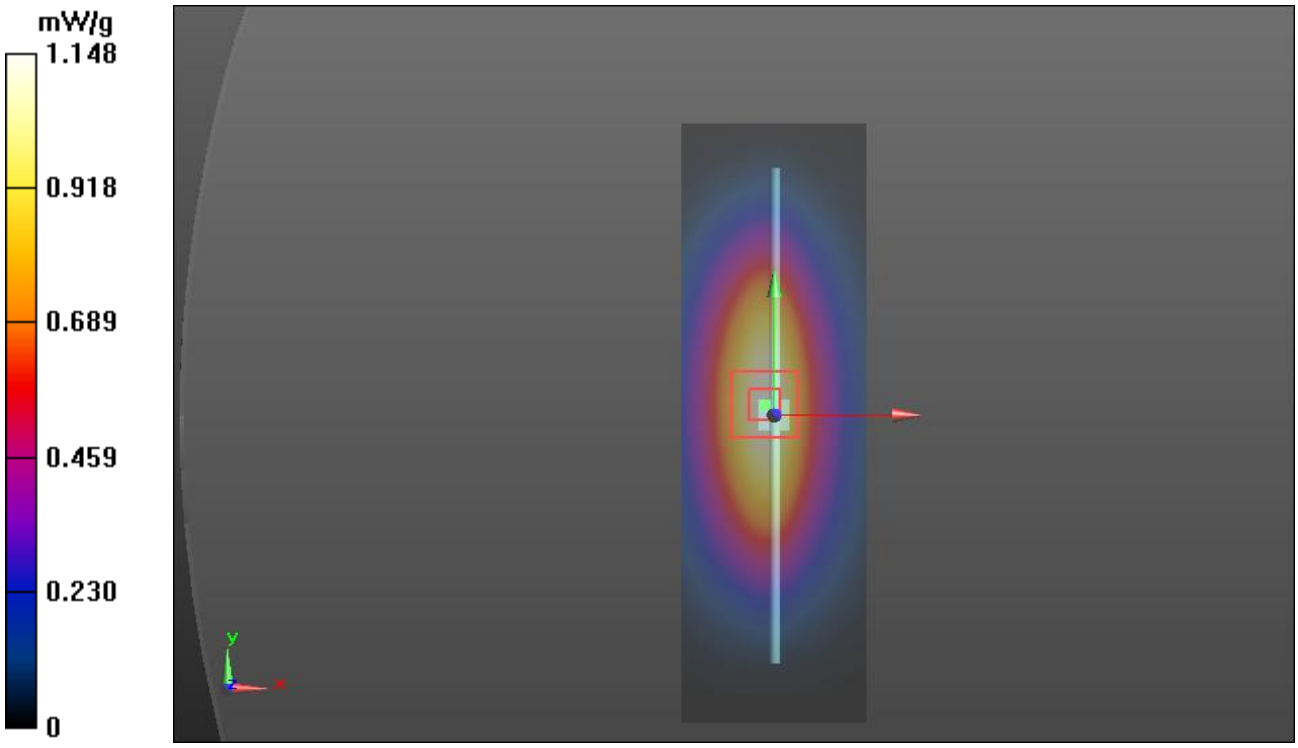
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; $\sigma$ = 0.983 mho/m; $\varepsilon_r$ = 54.097; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

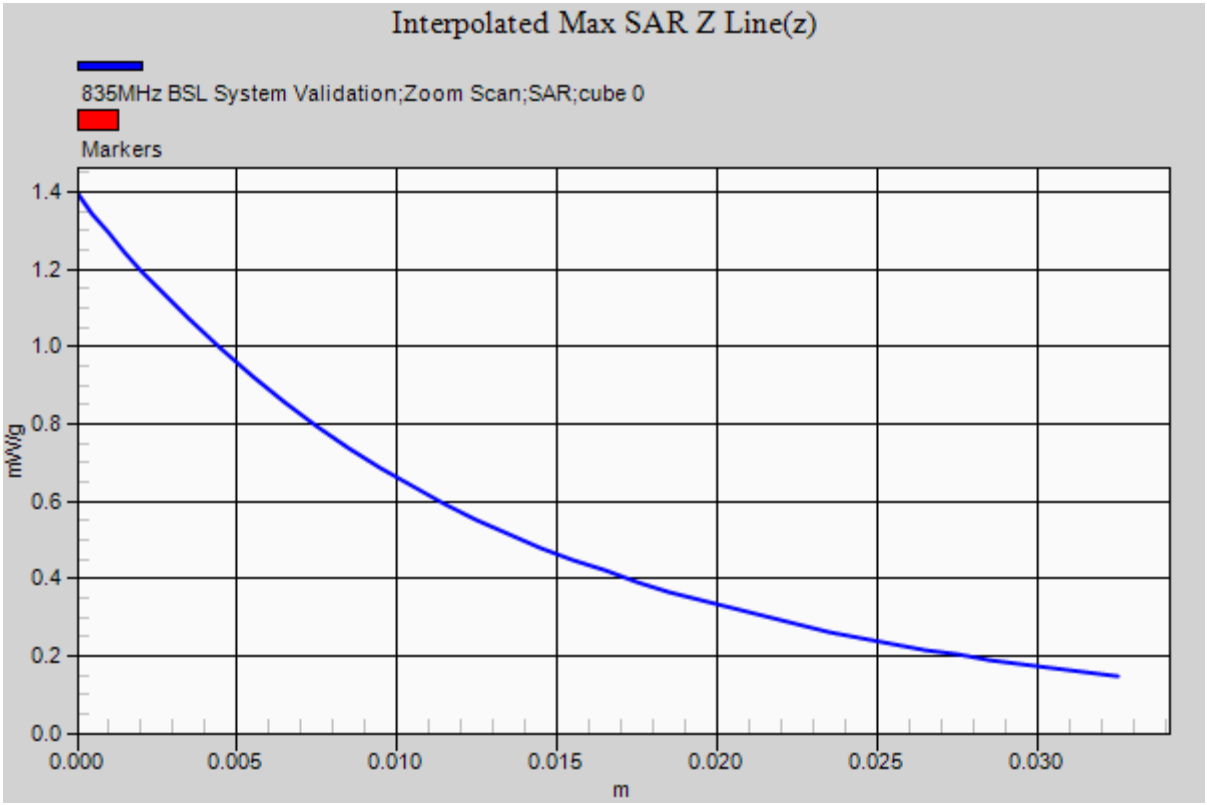
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(8.91, 8.91, 8.91); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/835MHz BSL System Validation/Area Scan (41x131x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.15 mW/g

**Configuration/835MHz BSL System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 34.189 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.394 mW/g
**SAR(1 g) = 0.952 mW/g; SAR(10 g) = 0.632 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.16 mW/g




Interpolated Max SAR Z Line(z)
835MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
mW/g
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Plot #16

Date/Time: 2/28/2014 8:09:58 AM

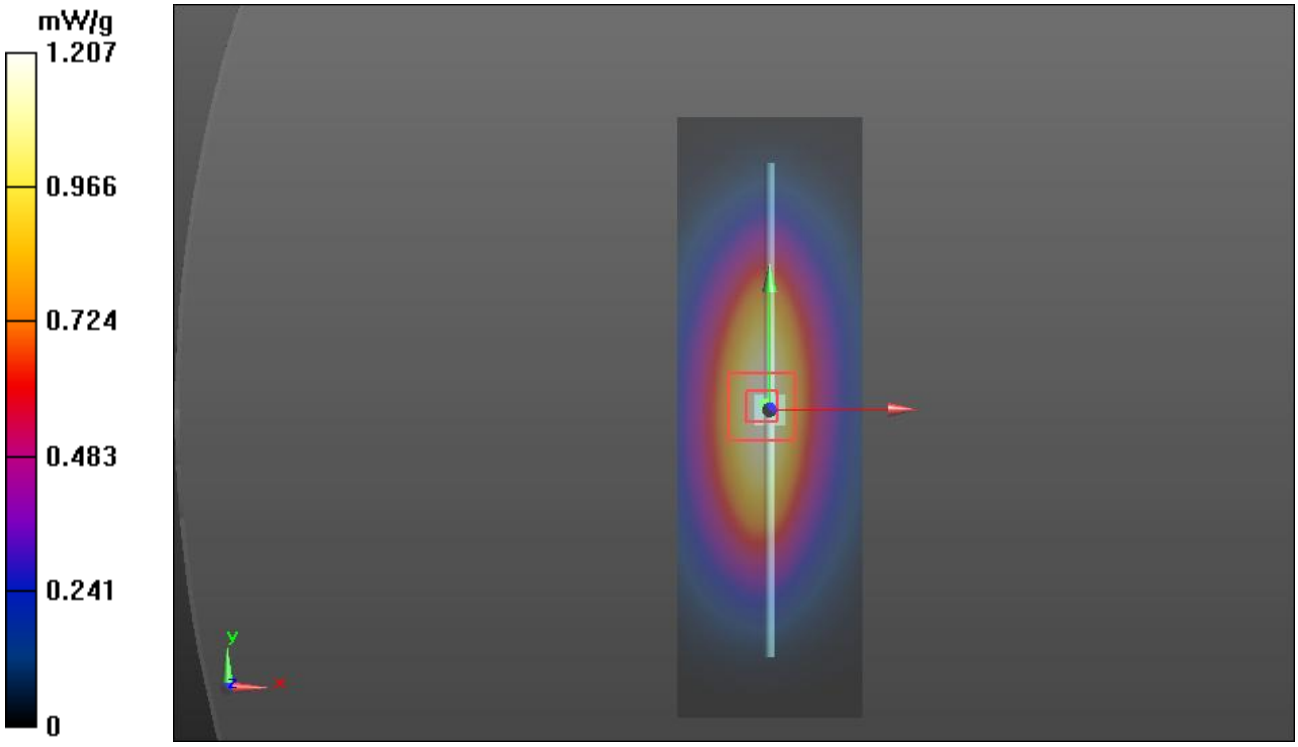
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; $\sigma$ = 0.982 mho/m; $\varepsilon_r$ = 53.714; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

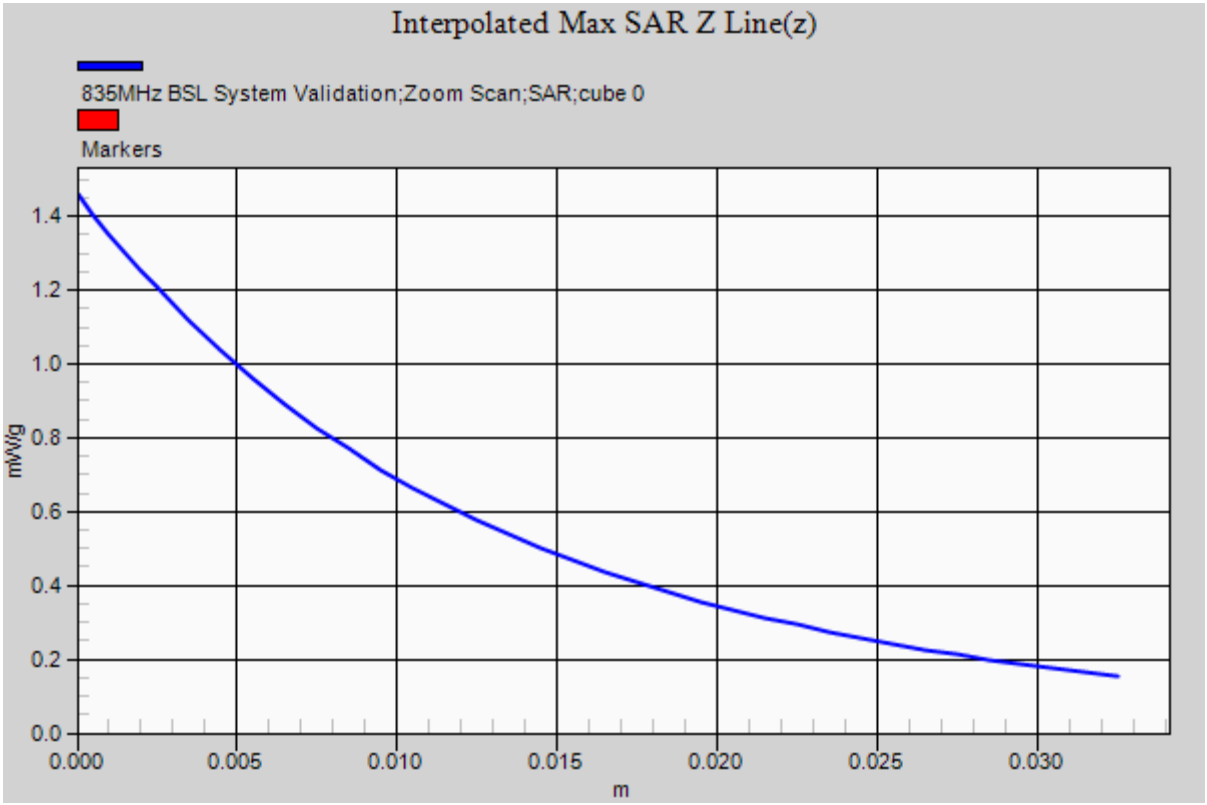
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(8.91, 8.91, 8.91); Calibrated: 1/24/2014;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/835MHz BSL System Validation/Area Scan (41x131x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 mW/g

**Configuration/835MHz BSL System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.335 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.461 mW/g
**SAR(1 g) = 0.994 mW/g; SAR(10 g) = 0.660 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.21 mW/g




Interpolated Max SAR Z Line(z)
835MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
mW/g
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Plot #17

Date/Time: 3/4/2014 1:56:13 PM

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5200 MHz; $\sigma$ = 5.38 mho/m; $\varepsilon_r$ = 47.063; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

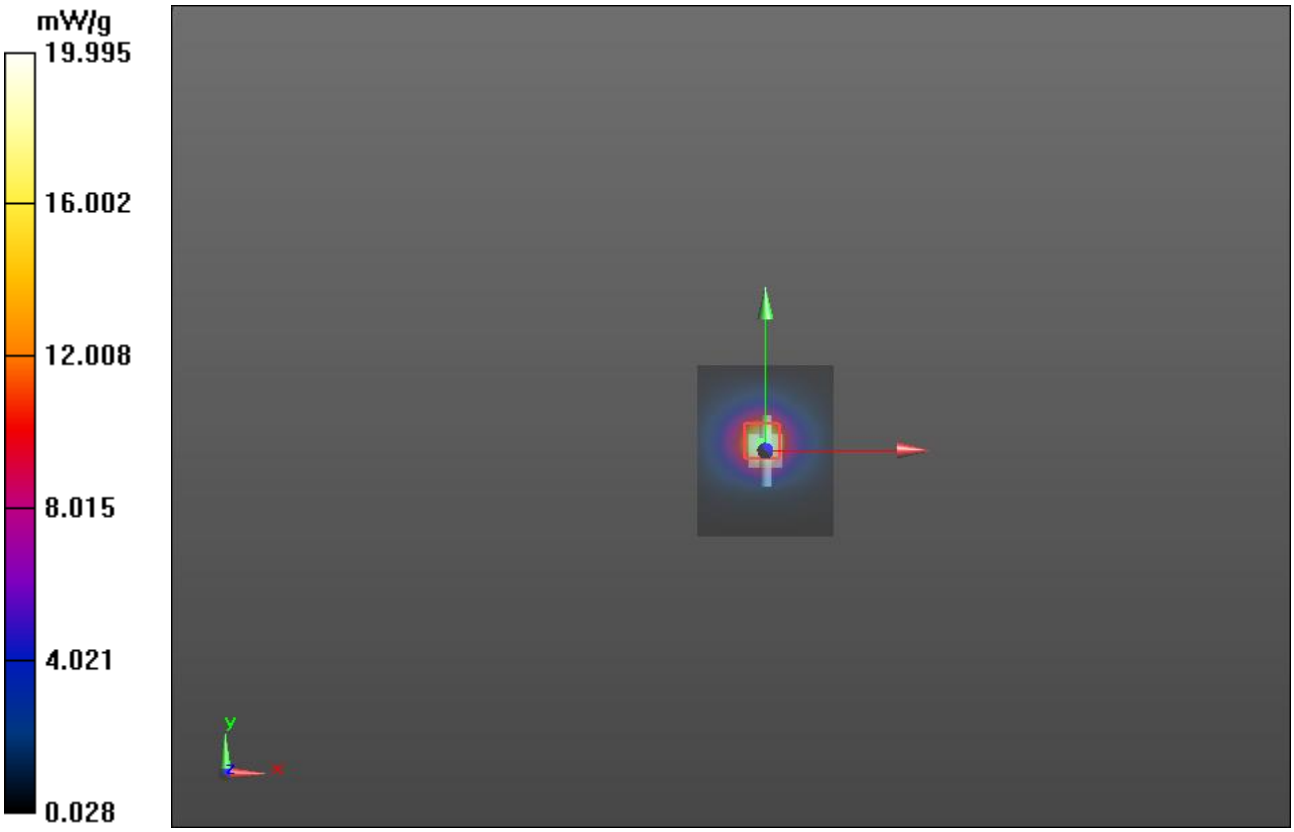
DASY Configuration:

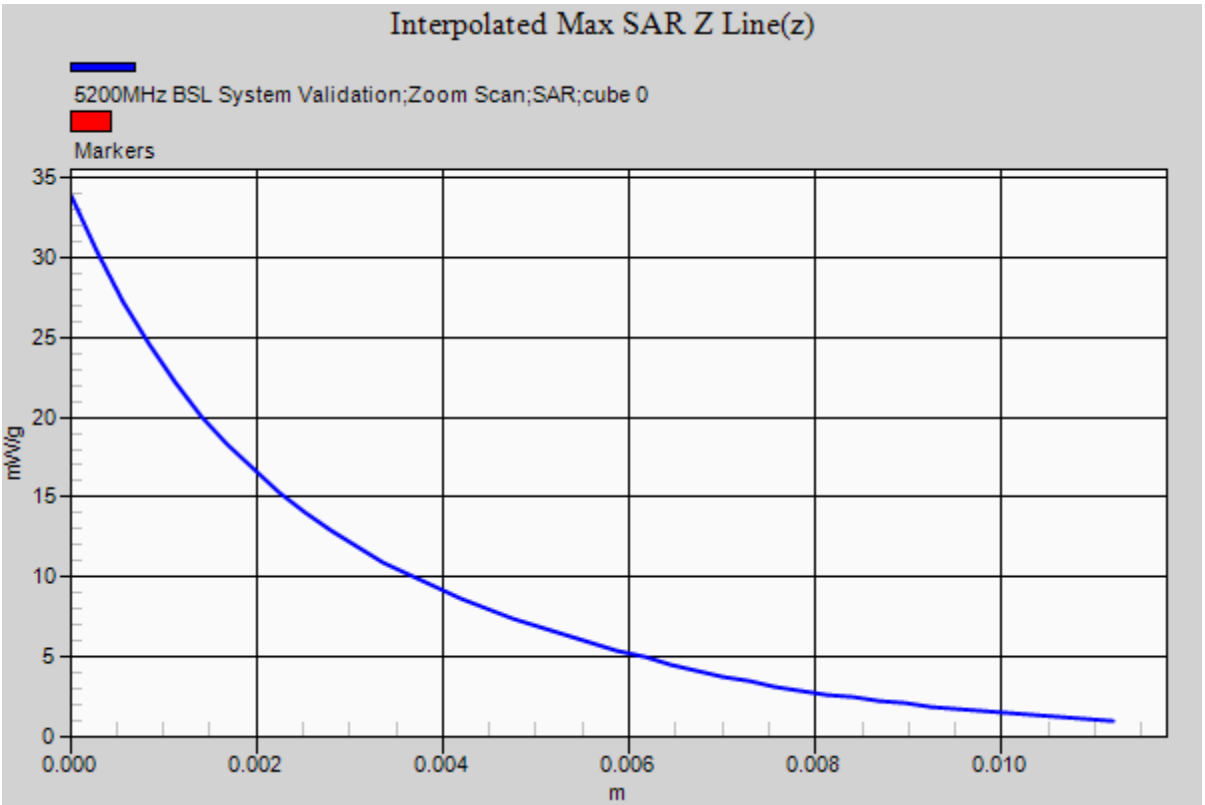
- Probe: EX3DV4 - SN3812; ConvF(4.6, 4.6, 4.6); Calibrated: 1/24/2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/5200MHz BSL System Validation/Zoom Scan (9x9x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 51.334 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 33.927 mW/g
**SAR(1 g) = 7.9 mW/g; SAR(10 g) = n.a.** (SAR corrected for target medium)

Maximum value of SAR (measured) = 20.0 mW/g

**Configuration/5200MHz BSL System Validation/Area Scan (41x51x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.6 mW/g


mW/g
19.995
16.002
12.008
8.015
4.021
0.028
y
x


Interpolated Max SAR Z Line(z)
5200MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
35
30
25
20
15
10
5
0
mW/g
0.000
0.002
0.004
0.006
0.008
0.010
m

Plot #20

Date/Time: 3/7/2014 11:07:21 AM

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5200 MHz; $\sigma$ = 5.391 mho/m; $\varepsilon_r$ = 46.928; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

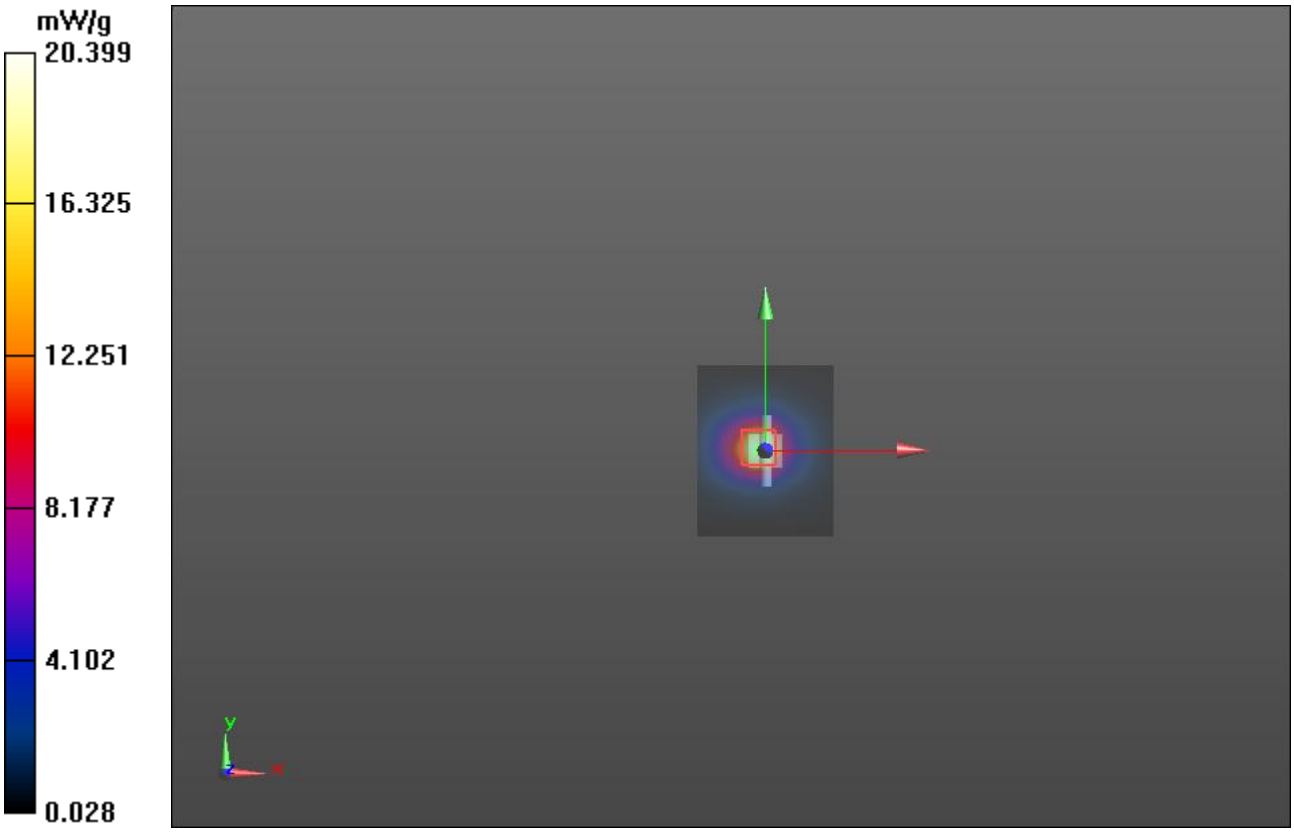
DASY Configuration:

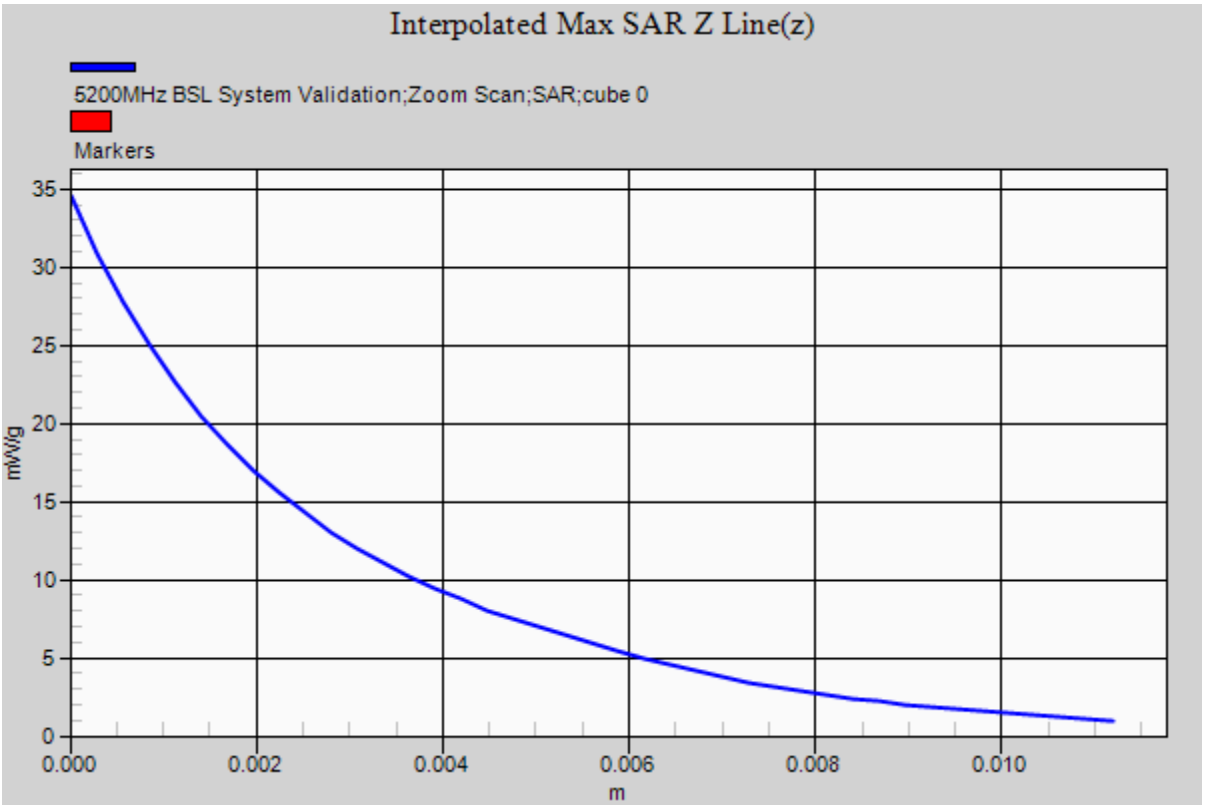
- Probe: EX3DV4 - SN3812; ConvF(4.6, 4.6, 4.6); Calibrated: 1/24/2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/5200MHz BSL System Validation/Zoom Scan (9x9x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 51.936 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 34.604 mW/g
**SAR(1 g) = 7.94 mW/g; SAR(10 g) = n.a.** (SAR corrected for target medium)

Maximum value of SAR (measured) = 20.4 mW/g

**Configuration/5200MHz BSL System Validation/Area Scan (41x51x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 21.3 mW/g


mW/g
20.399
16.325
12.251
8.177
4.102
0.028
y
x


Interpolated Max SAR Z Line(z)
5200MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
35
30
25
20
15
10
5
0
mW/g
0.000
0.002
0.004
0.006
0.008
0.010
m

Plot #21

Date/Time: 3/10/2014 10:50:21 AM

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5800 MHz; $\sigma$ = 6.233 mho/m; $\varepsilon_r$ = 46.72; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

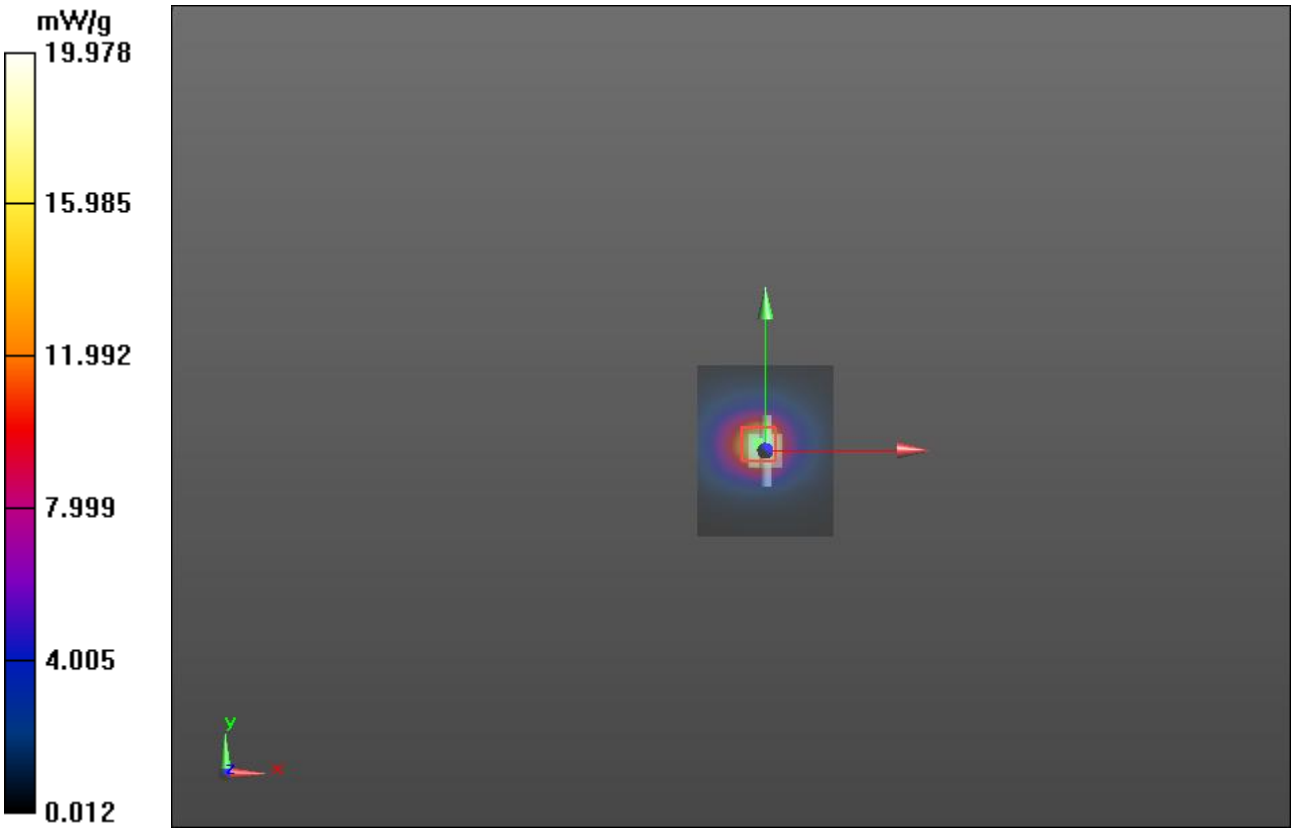
DASY Configuration:

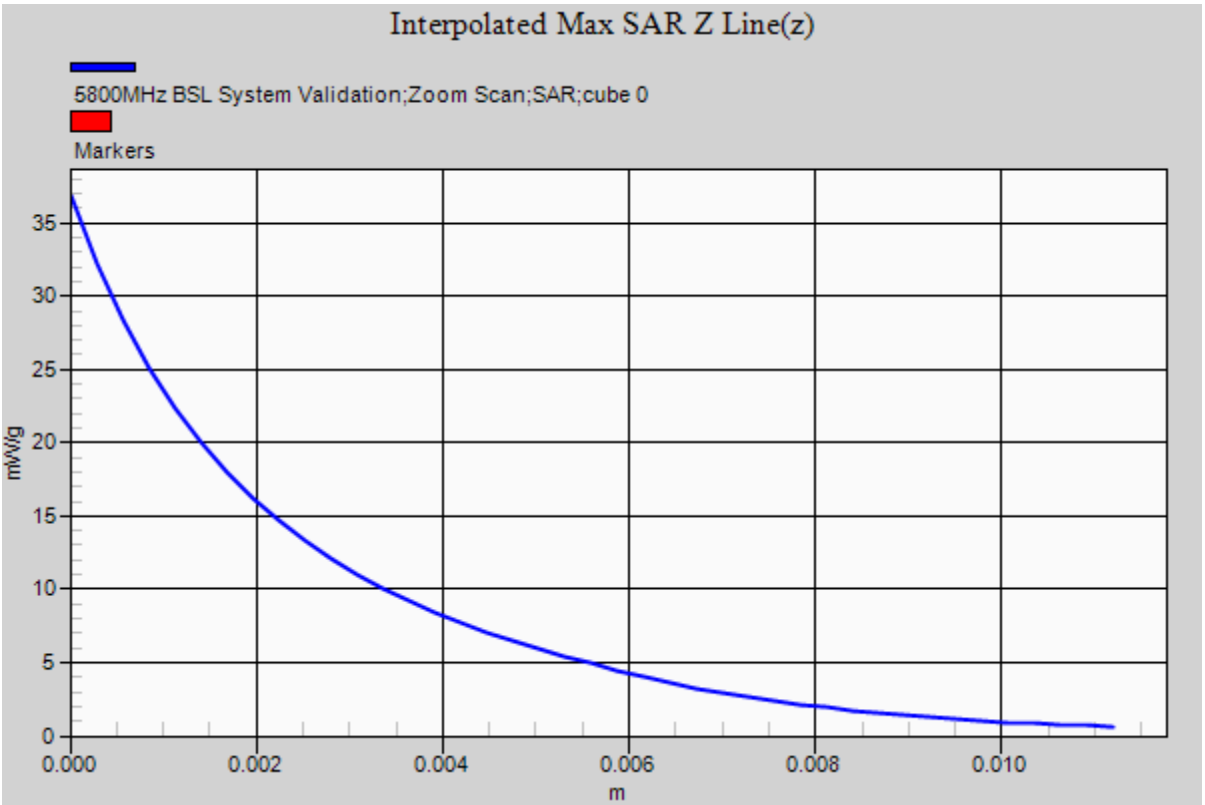
- Probe: EX3DV4 - SN3812; ConvF(4.23, 4.23, 4.23); Calibrated: 1/24/2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/5800MHz BSL System Validation/Zoom Scan (9x9x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 46.510 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 36.880 mW/g
**SAR(1 g) = 7.55 mW/g; SAR(10 g) = n.a.** (SAR corrected for target medium)

Maximum value of SAR (measured) = 20.0 mW/g

**Configuration/5800MHz BSL System Validation/Area Scan (41x51x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.2 mW/g


mW/g
19.978
15.985
11.992
7.999
4.005
0.012
y
x


Interpolated Max SAR Z Line(z)
5800MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
35
30
25
20
15
10
5
0
mW/g
0.000
0.002
0.004
0.006
0.008
0.010
m

Plot #23

Date/Time: 2/6/2014 8:47:52 AM

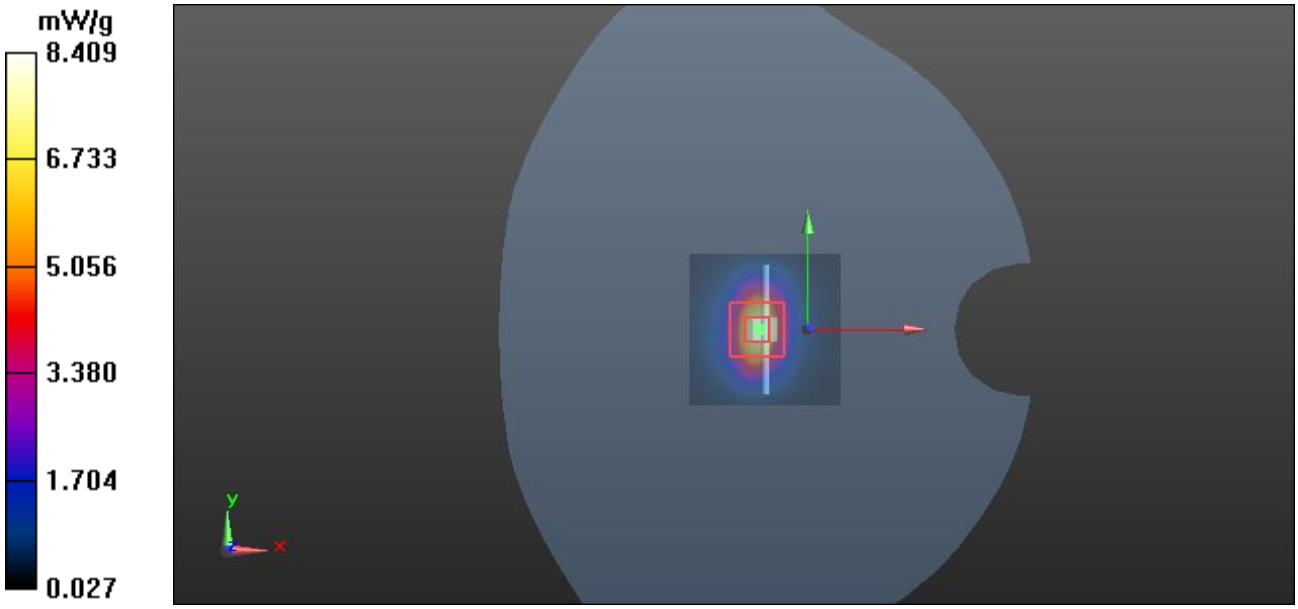
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2450 MHz; $\sigma$ = 2.062 mho/m; $\varepsilon_r$ = 50.085; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

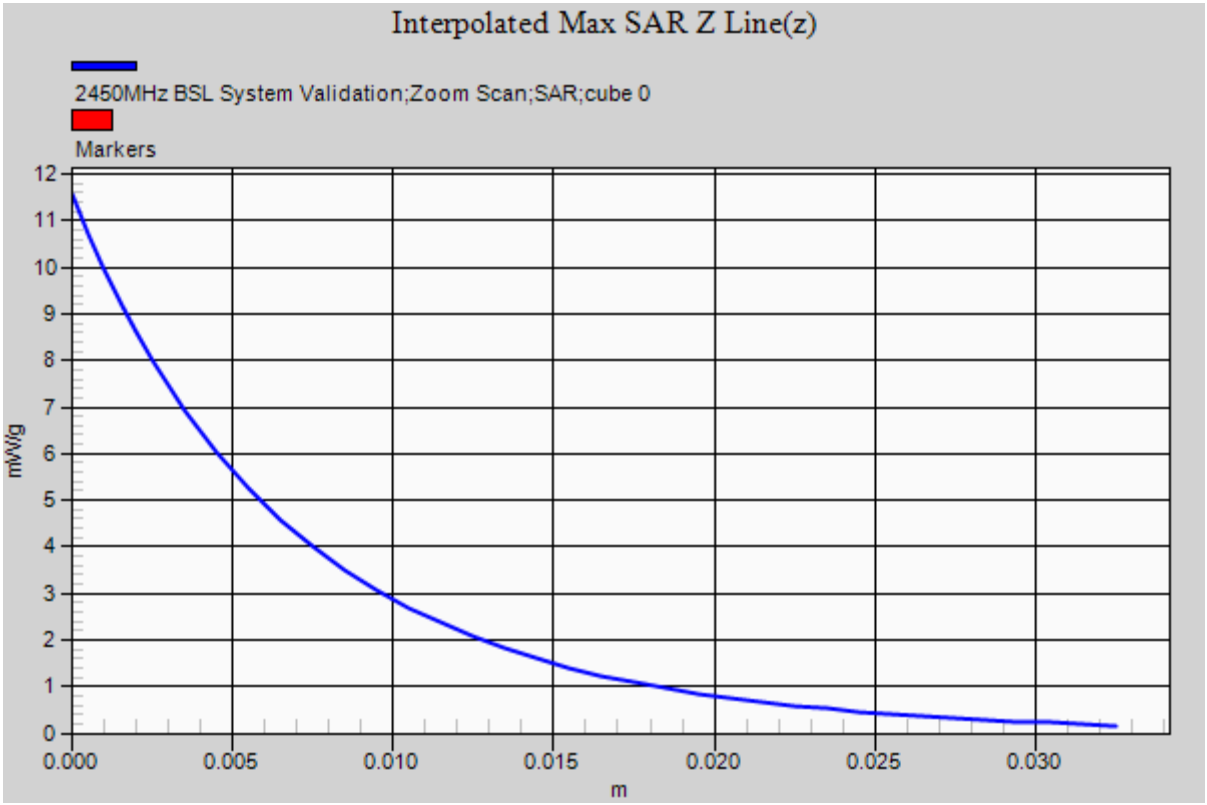
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 16.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/2450MHz BSL System Validation/Area Scan (51x51x1):** Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 8.41 mW/g

**Configuration/2450MHz BSL System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.145 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 11.576 mW/g
**SAR(1 g) = 5.39 mW/g; SAR(10 g) = 2.53 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 7.99 mW/g




Interpolated Max SAR Z Line(z)
2450MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
mW/g
12
11
10
9
8
7
6
5
4
3
2
1
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

Plot #24

Date/Time: 2/10/2014 10:05:16 AM

**2450MHz BSL System Check 10Feb2014**

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:890**

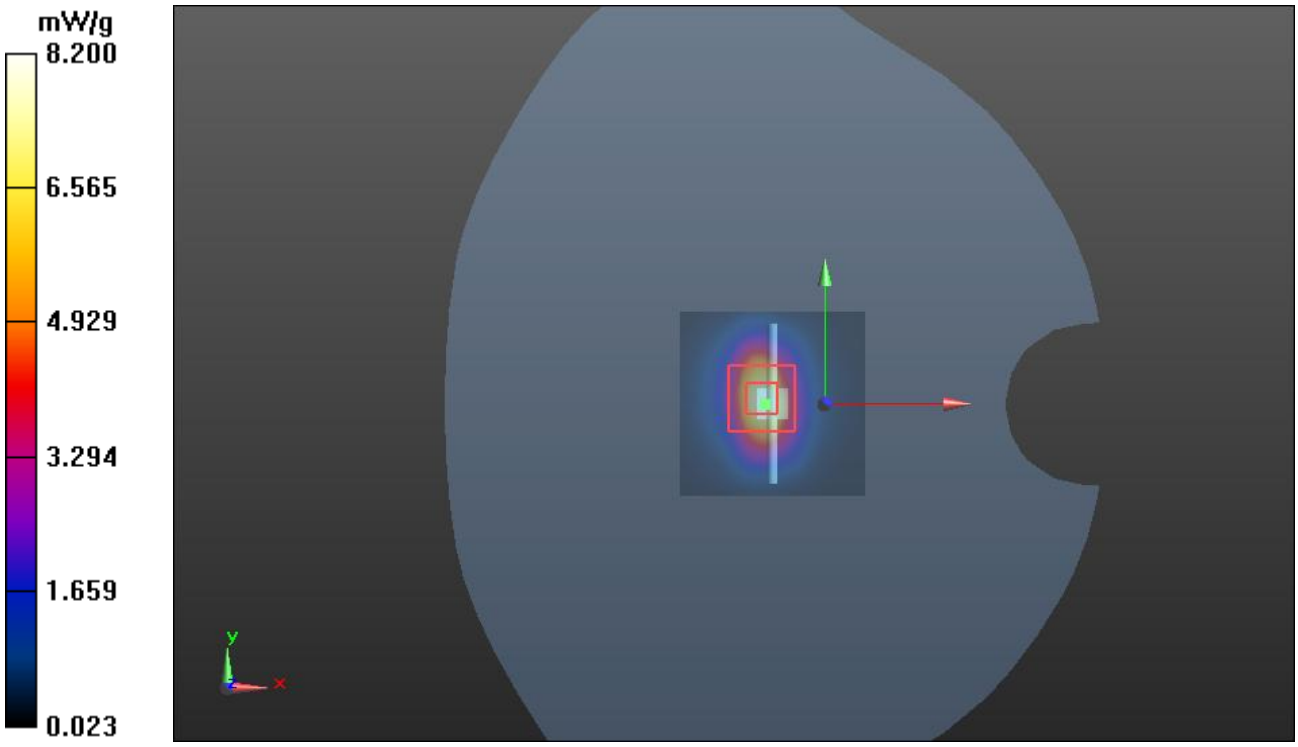
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2450 MHz; $\sigma$ = 2.022 mho/m; $\varepsilon_r$ = 49.289; $\rho$ = 1000 kg/$m^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

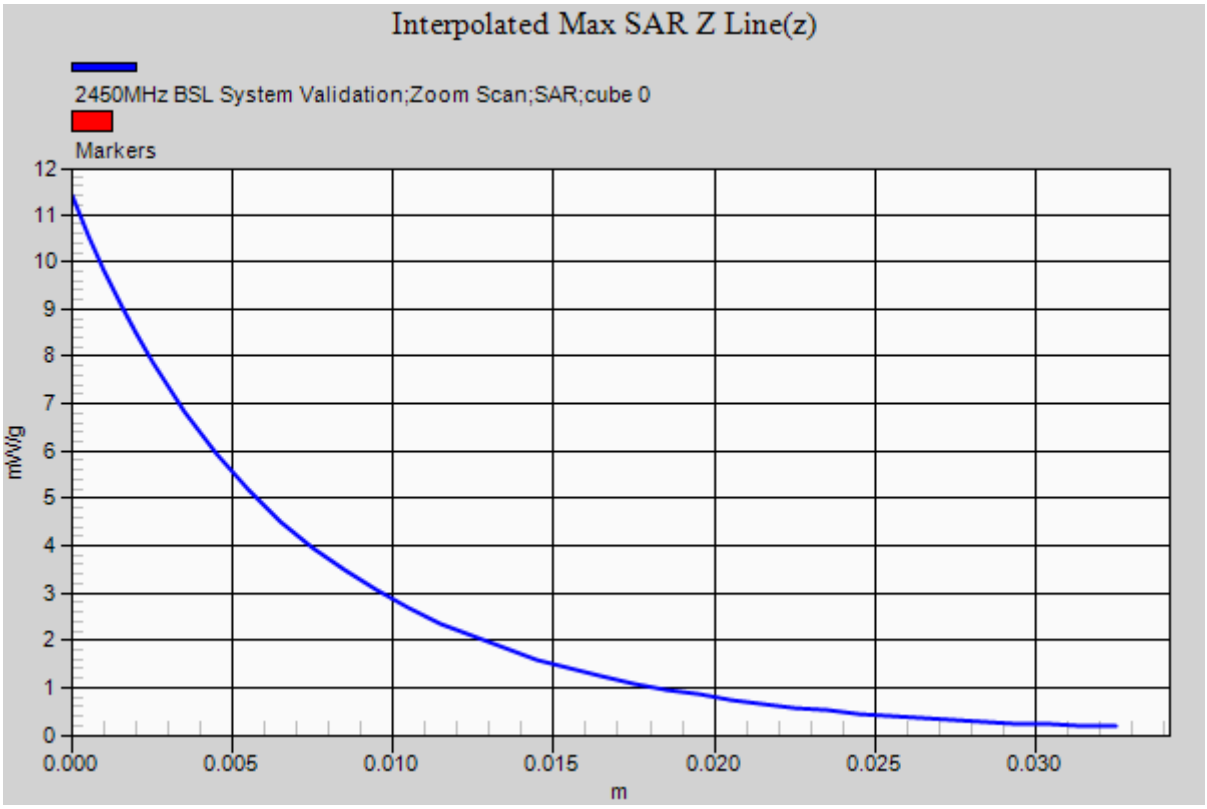
DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 2.5mm (Mechanical Surface Detection), z = 1.0, 16.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Configuration/2450MHz BSL System Validation/Area Scan (51x51x1):** Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 8.20 mW/g

**Configuration/2450MHz BSL System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.012 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 11.408 mW/g
**SAR(1 g) = 5.36 mW/g; SAR(10 g) = 2.51 mW/g** (SAR corrected for target medium)
Maximum value of SAR (measured) = 7.83 mW/g


mW/g
8.200
6.565
4.929
3.294
1.659
0.023
y
x


Interpolated Max SAR Z Line(z)
2450MHz BSL System Validation;Zoom Scan;SAR;cube 0
Markers
mW/g
m
0
1
2
3
4
5
6
7
8
9
10
11
12
0.000
0.005
0.010
0.015
0.020
0.025
0.030

# 13 REVISION HISTORY

| Revision Level | Description of changes | Revision Date |
|---|---|---|
| 0 | Initial release | 15 August 2014 |
| 1 | Addition of 5GHz dipole information to Test Equipment. Addition of 2450Body data to System Verification. | 15 October 2014 |
| 2 | Removed the data for 5GHz bands that have been disabled. Clarified simultaneous operation. Clarifed error compensation algorithm. Removed reference to old KDB. | 30 October 2014 |
| 3 | Added note regarding Bluetooth and simultaneous | 31 October 2014 |
| 4 | Corrected table on cover page. | 31 October 2014 |