

## SAR Compliance Test Report

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|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test report no.:                                 | FCC_RM-898_01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date of report:         | 2012-08-27                                                                                                                                                                         |
| Template version:                                | 19.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Number of pages:        | 154                                                                                                                                                                                |
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| Tested device:                                   | RM-898                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                                                                                                                                                                                    |
| FCC ID:                                          | QTLRM-898                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | IC:                     | -                                                                                                                                                                                  |
| Supplement reports:                              | SAR_Photo_RM-898_02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |                                                                                                                                                                                    |
| Testing has been carried out in accordance with: | <b>47CFR §2.1093</b><br>Radiofrequency Radiation Exposure Evaluation: Portable Devices<br><b>FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)</b><br>Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields<br><b>RSS-102</b><br>Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields<br><b>IEEE 1528 - 2003</b><br>IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique |                         |                                                                                                                                                                                    |
| Documentation:                                   | The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                                                                                                                                                                                    |
| Test results:                                    | <b>The tested device complies with the requirements in respect of all parameters subject to the test.</b> The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.                                                                                                                                                                                                                                                                                                                                                                                                |                         |                                                                                                                                                                                    |
| Date and signatures:                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                                                                                                                                                                                    |
| For the contents:                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                         |                                                                                                                                                                                    |

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## 1. SUMMARY OF SAR TEST REPORT

### 1.1 Test Details

|                                        |                                                                                                                                                                                                                            |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Period of test                         | 2012-08-09 to 2012-08-27                                                                                                                                                                                                   |
| SN, HW and SW numbers of tested device | SN: 353661/05/000049/8, HW: 2000, SW: 1102.0000.8779.12290, DUT: 52795<br>SN: 353661/05/000046/4, HW: 2000, SW: 1102.0000.8779.12290, DUT: 52794<br>SN: 353661/05/000056/3, HW: 2000, SW: 1102.0000.8779.12290, DUT: 52793 |
| Batteries used in testing              | BP-3L LG, DUT: 52796, 52797, 52798, 52800, 52801<br>BP-3L Sony, DUT: 52803, 52802                                                                                                                                          |
| Headsets used in testing               | WH-108, DUT: 52805, 52806, 52807                                                                                                                                                                                           |
| Other accessories used in testing      | -                                                                                                                                                                                                                          |
| State of sample                        | Prototype unit                                                                                                                                                                                                             |
| Notes                                  | -                                                                                                                                                                                                                          |

### 1.2 Maximum Results

The maximum measured SAR values for Head, Body Worn and Wireless Router configuration are given in sections 1.2.1, 1.2.2 and 1.2.3 respectively. The device conforms to the requirements of the standard(s) when the maximum measured SAR value is less than or equal to the limit.

#### 1.2.1 Head Configuration

| Mode                       | Ch / f(MHz)   | Conducted power | Position    | Measured SAR value (1g avg) | Scaled* SAR Value (1g avg) | SAR limit (1g avg) | Result        |
|----------------------------|---------------|-----------------|-------------|-----------------------------|----------------------------|--------------------|---------------|
| 4-slot GPRS850             | 251 / 848.8   | 26.90 dBm       | Left, Cheek | 0.436 W/kg                  | <b>0.49 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA850                   | 4233 / 846.6  | 23.00 dBm       | Left, Cheek | 0.347 W/kg                  | <b>0.39 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 2-slot GPRS1900            | 512 / 1850.2  | 27.50 dBm       | Left, Cheek | 0.356 W/kg                  | <b>0.40 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA1900                  | 9538 / 1907.6 | 23.50 dBm       | Left, Cheek | 0.761 W/kg                  | <b>0.85 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WLAN2450                   | 1 / 2412.0    | 12.94 dBm       | Left, Cheek | 0.479 W/kg                  | <b>0.54 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 4-slot GPRS850 + WLAN2450  | -             | -               | Left, Cheek | 0.458 W/kg                  | <b>0.51 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA850 + WLAN2450        | -             | -               | Left, Cheek | 0.441 W/kg                  | <b>0.49 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 2-slot GPRS1900 + WLAN2450 | -             | -               | Left, Cheek | 0.450 W/kg                  | <b>0.50 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA1900 + WLAN2450       | -             | -               | Left, Cheek | 0.761 W/kg                  | <b>0.85 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |

### 1.2.2 Body Worn Configuration

| Mode                       | Ch / f(MHz)   | Conducted power | Separation distance | Measured SAR value (1g avg) | Scaled* SAR value (1g avg) | SAR limit (1g avg) | Result        |
|----------------------------|---------------|-----------------|---------------------|-----------------------------|----------------------------|--------------------|---------------|
| 4-slot GPRS850             | 251 / 848.8   | 26.90 dBm       | 1.5 cm              | 0.833 W/kg                  | <b>0.93 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA850                   | 4233 / 846.6  | 23.00 dBm       | 1.5 cm              | 0.701 W/kg                  | <b>0.79 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 2-slot GPRS1900            | 512 / 1850.2  | 27.50 dBm       | 1.5 cm              | 0.326 W/kg                  | <b>0.37 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA1900                  | 9400 / 1880.0 | 23.50 dBm       | 1.5 cm              | 0.541 W/kg                  | <b>0.61 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WLAN2450                   | 11 / 2462.0   | 13.65 dBm       | 1.5 cm              | 0.157 W/kg                  | <b>0.18 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 4-slot GPRS850 + WLAN2450  | -             | -               | 1.5 cm              | 0.861 W/kg                  | <b>0.96 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA850 + WLAN2450        | -             | -               | 1.5 cm              | 0.725 W/kg                  | <b>0.81 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 2-slot GPRS1900 + WLAN2450 | -             | -               | 1.5 cm              | 0.326 W/kg                  | <b>0.37 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA1900 + WLAN2450       | -             | -               | 1.5 cm              | 0.541 W/kg                  | <b>0.61 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |

### 1.2.3 Wireless Router Configuration

| Mode                       | Ch / f(MHz)   | Conducted power | Separation distance | Measured SAR value (1g avg) | Scaled* SAR value (1g avg) | SAR limit (1g avg) | Result        |
|----------------------------|---------------|-----------------|---------------------|-----------------------------|----------------------------|--------------------|---------------|
| 4-slot GPRS850             | 251 / 848.8   | 26.90 dBm       | 10.0 mm             | 1.11 W/kg                   | <b>1.24 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA850                   | 4233 / 846.6  | 23.00 dBm       | 10.0 mm             | 0.941 W/kg                  | <b>1.05 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 2-slot GPRS1900            | 512 / 1850.2  | 27.50 dBm       | 10.0 mm             | 0.625 W/kg                  | <b>0.70 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA1900                  | 9400 / 1880.0 | 23.50 dBm       | 10.0 mm             | 0.912 W/kg                  | <b>1.02 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WLAN2450                   | 11 / 2462.0   | 13.65 dBm       | 10.0 mm             | 0.396 W/kg                  | <b>0.44 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 4-slot GPRS850 + WLAN2450  | -             | -               | 10.0 mm             | 1.14 W/kg                   | <b>1.28 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA850 + WLAN2450        | -             | -               | 10.0 mm             | 0.976 W/kg                  | <b>1.09 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 2-slot GPRS1900 + WLAN2450 | -             | -               | 10.0 mm             | 0.625 W/kg                  | <b>0.70 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA1900 + WLAN2450       | -             | -               | 10.0 mm             | 0.919 W/kg                  | <b>1.03 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |

\* SAR values are scaled up by 12% to cover measurement drift. As a consequence of this upwards correction of the SAR values, the contribution of measurement drift to the overall measurement uncertainty (Section 6) is reduced to zero.

#### 1.2.4 Summary SAR data

|                                                             |          | FCC-defined SAR values for the Grants of Equipment Authorization |
|-------------------------------------------------------------|----------|------------------------------------------------------------------|
| <b>Maximum Cellular/AWS/PCS Head SAR value</b>              |          | <b>0.85W/kg</b>                                                  |
| <b>Maximum WLAN Head SAR value</b>                          |          | <b>0.54W/kg</b>                                                  |
| {Max + Max} Simultaneous Head SAR value                     | 1.39W/kg |                                                                  |
| <b>Maximum Cellular/AWS/PCS Body SAR value</b>              |          | <b>0.93W/kg</b>                                                  |
| <b>Maximum WLAN Body SAR value</b>                          |          | <b>0.18W/kg</b>                                                  |
| {Max + Max} Simultaneous Body SAR value                     | 1.11W/kg |                                                                  |
| <b>Maximum Product Specific (Wireless Router) SAR value</b> |          | <b>1.24W/kg</b>                                                  |
| <b>Maximum Simultaneous SAR value</b>                       |          | <b>1.50W/kg**</b>                                                |

\*\* The highest {Max+Max} Simultaneous SAR value is 1.505W/kg for 4-slot GPRS850+WLAN2450 in Wireless Router mode which, when scaled up by 12%, becomes 1.67W/kg. For this combination of transmitters the “Antenna Pair SAR to Peak Location Separation Ratio is 0.32 (see Section 7 for details), which is >0.3 and hence according to KDB648474 D01 SAR Handsets Multi Xmitter and Ant, V01r05, Simultaneous Transmission Procedures are required. Expanded zoom scans fully including the SAR distributions of 4-slot GPRS850 and WLAN2450 were performed. The resulting combined expanded zoom scan SAR value is 1.13 W/kg which, when scaled up by 12%, becomes 1.27 W/kg.

The second highest {Max+Max} Simultaneous SAR value is 1.336W/kg for WCDMA850+WLAN2450 Wireless Router mode which, when scaled up by 12%, becomes 1.50W/kg. Consequently, this value is quoted as Maximum Simultaneous SAR value.

#### 1.2.5 Maximum Drift

|                                                              |                                   |
|--------------------------------------------------------------|-----------------------------------|
| Maximum drift covered by<br>12% scaling up of the SAR values | Maximum drift during measurements |
| 0.5dB                                                        | 0.50dB                            |

#### 1.2.6 Measurement Uncertainty

|                                |         |
|--------------------------------|---------|
| Expanded Uncertainty (k=2) 95% | ± 25.8% |
|--------------------------------|---------|

## 2. DESCRIPTION OF THE DEVICE UNDER TEST

|                      |                                   |
|----------------------|-----------------------------------|
| Device category      | Portable                          |
| Exposure environment | General population / uncontrolled |

| Modes of Operation | Bands                          | Modulation Mode         | Duty Cycle | Transmitter Frequency Range (MHz) |
|--------------------|--------------------------------|-------------------------|------------|-----------------------------------|
| GSM                | 850                            | GMSK                    | 1/8        | 824 – 849                         |
| GPRS               | 850                            | GMSK                    | 1/8 to 4/8 | 824 – 849                         |
| EGPRS              | 850                            | GMSK / 8PSK             | 1/8 to 4/8 | 824 – 849                         |
| WCDMA              | 850 (Band V)<br>1900 (Band II) |                         | 1          | 826 – 847<br>1852 – 1908          |
| BT                 | 2450                           | GFSK                    | 1          | 2402 – 2480                       |
| WLAN b-mode        | 2450                           | Up to<br>11Mbps QPSK    | 1          | 2412 – 2462                       |
| WLAN g-mode        | 2450                           | Up to<br>54Mbps 64QAM   | 1          | 2412 – 2462                       |
| WLAN n-mode 20MHz  | 2450                           | Up to<br>72.2Mbps 64QAM | 1          | 2412 – 2462                       |

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM/GPRS/EGPRS900 and GSM/GPRS/EGPRS1800 bands which are not part of this filing.

This device has Voice-over-IP/Dual Transfer Mode capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom. Dual Transfer Mode is a feature that utilises the multi-slot GPRS capability in this device; it allows simultaneous transmission of voice and data during the same call, using the same transmitter and antenna.

8PSK EGPRS mode was not measured, because maximum averaged output power is lower in 8PSK EGPRS mode than in GPRS mode.

This is a BT Class 1 device; as its power tuning target is 6dBm (4mW), SAR testing was deemed unnecessary.

This device has Wireless Router "Hotspot" mode capability. No power reductions are operative in Wireless Router mode.

This device uses a single antenna for transmission of all the cellular and PCS bands; a separate single antenna is used for transmission of WLAN and BT. Simultaneous transmission of any singular cellular and PCS band is possible with either WLAN or BT in Head, Body-worn and

Wireless Router usages(as illustrated in the table below). This device does not feature any diversity antenna functionality when transmitting.

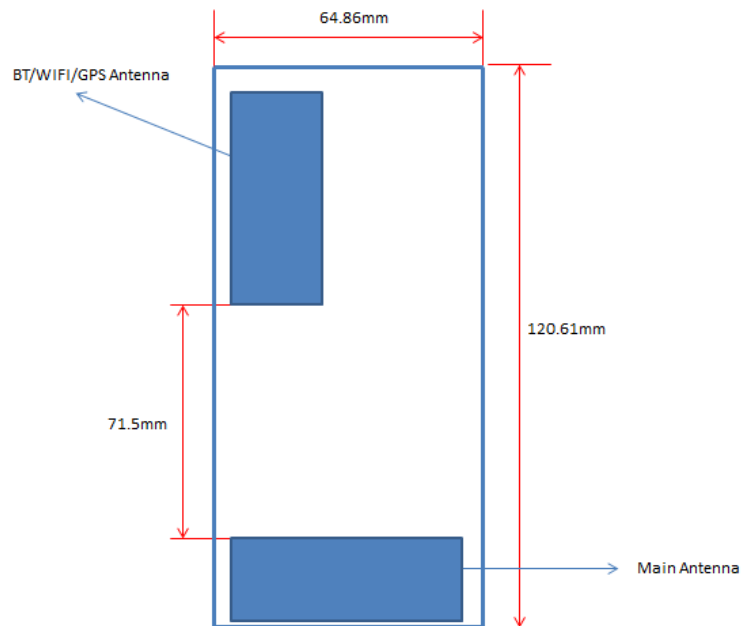
Simultaneous transmission capabilities in Head, Body-worn and Wireless Router uses

|                           | <b>WLAN2450</b> | <b>BT</b> | <b>WLAN2450+BT</b> |
|---------------------------|-----------------|-----------|--------------------|
| <b>GSM/GRPS/EGPRS850</b>  | Yes             | Yes       | No                 |
| <b>WCDMA850</b>           | Yes             | Yes       | No                 |
| <b>GSM/GRPS/EGPRS1900</b> | Yes             | Yes       | No                 |
| <b>WCDMA1900</b>          | Yes             | Yes       | No                 |

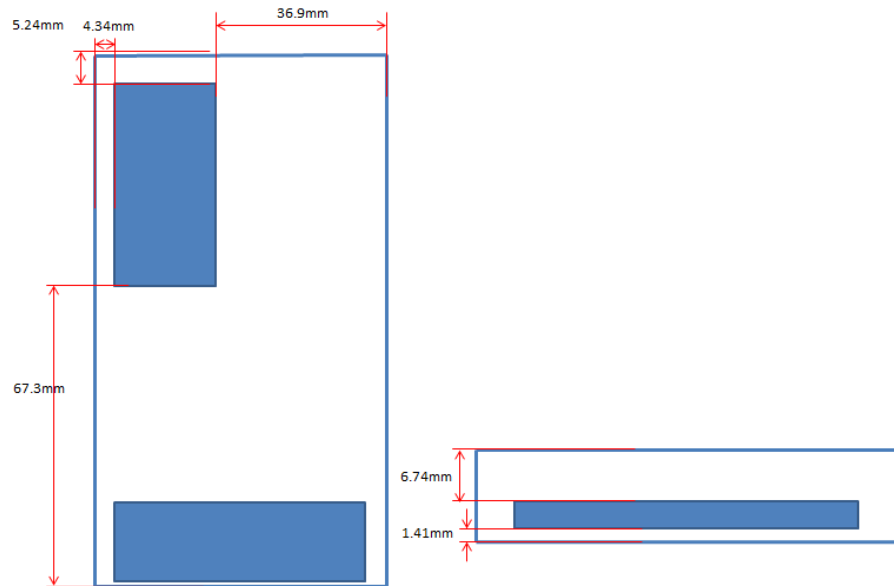
## 2.1 Description of the Antenna

The device has internal antennas for both cellular and WLAN use. The cellular antenna is located at the bottom underneath the back cover. The WLAN antenna is located at the top underneath the back cover.

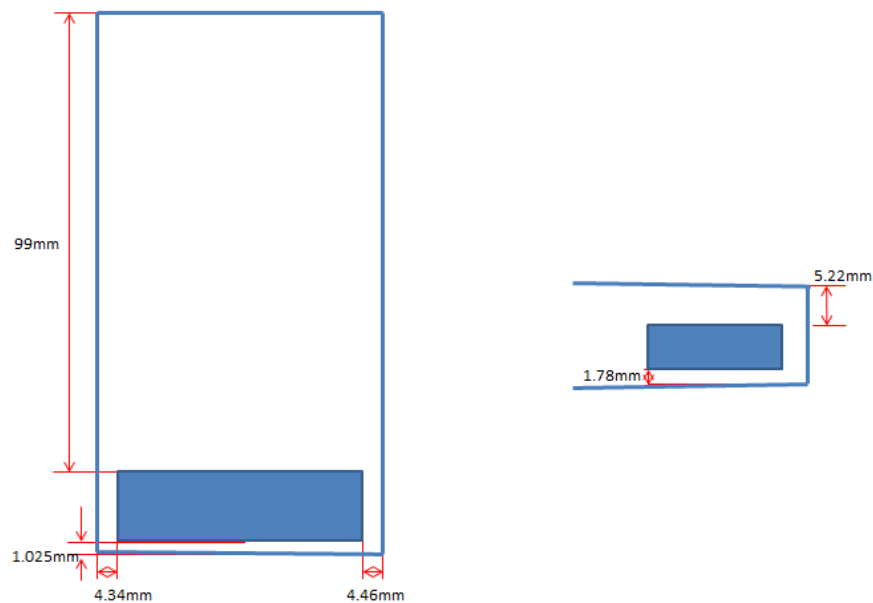
Phone Dimension and Distance Between Main antenna and BT/WIFI/GPS Antenna



### Distance between Out of Device and BT/WIFI/GPS Antenna



### Distance between Out of Device and Main Antenna



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### 3. TEST CONDITIONS

#### 3.1 Temperature and Humidity

|                           |             |
|---------------------------|-------------|
| Ambient temperature (°C): | 20.5 – 22.5 |
| Ambient humidity (RH %):  | 35 - 55     |

#### 3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester except for testing WLAN2450 where control software was used. Communication between the device and the call tester was established by air link.

The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.

This device was tested in all the available multi-slot GMSK GPRS modes; Dual Transfer Mode was not specifically tested as the average power in multi-slot GMSK GPRS mode is always greater than, or equal to, the average power in Dual Transfer Mode in Nokia devices.

The transmission mode of the device in all WCDMA tests was configured to 12.2kbps RMC with all TPC bits set as “1”. All WCDMA testing has been carried out in accordance with FCC KDB 941225: SAR Measurement Procedures for 3G Devices.

In all operating bands the measurements were performed on lowest, middle and highest channels.

The radiated output power of the device was measured by a separate test laboratory on the same unit(s) as used for SAR testing. The results are given in the EMC report supporting this application.

The transmission mode of the device in all WLAN b-mode tests was DSSS QPSK 11Mbps. This mode has the highest (or equal highest) time-averaged output power of all the WLAN b, g and n modulation modes. All WLAN testing has been carried out in accordance with FCC KDB 248227: SAR Measurement Procedures for 802.11 a/b/g Transmitters.

| Modulation mode                     | Measured averaged powers |       |       |
|-------------------------------------|--------------------------|-------|-------|
|                                     | Ch 1                     | Ch 6  | Ch 11 |
| b-mode WLAN DSSS 1 Mbps             | 12.94                    | 13.15 | 13.65 |
| b-mode WLAN DSSS 2 Mbps             | 12.99                    | 13.19 | 13.67 |
| b-mode WLAN DSSS 5.5 Mbps           | 13.10                    | 13.30 | 13.78 |
| b-mode WLAN DSSS 11 Mbps            | 12.98                    | 13.14 | 13.27 |
| g-mode WLAN OFDM 6 Mbps             | 11.07                    | 11.20 | 11.57 |
| g-mode WLAN OFDM 9 Mbps             | 11.01                    | 11.05 | 11.48 |
| g-mode WLAN OFDM 12 Mbps            | 10.88                    | 11.04 | 11.49 |
| g-mode WLAN OFDM 18 Mbps            | 10.83                    | 10.96 | 11.38 |
| g-mode WLAN OFDM 24 Mbps            | 10.42                    | 10.58 | 11.12 |
| g-mode WLAN OFDM 36 Mbps            | 10.21                    | 10.45 | 10.93 |
| g-mode WLAN OFDM 48 Mbps            | 10.06                    | 10.08 | 10.36 |
| g-mode WLAN OFDM 54 Mbps            | 10.03                    | 10.05 | 10.38 |
| n-mode MCS 0: OFDM 6.5 / 7.25 Mbps  | 8.31                     | 8.44  | 8.81  |
| n-mode MCS 1: OFDM 13.0 / 14.4 Mbps | 8.22                     | 8.37  | 8.77  |
| n-mode MCS 2: OFDM 19.5 / 21.7 Mbps | 8.17                     | 8.29  | 8.74  |
| n-mode MCS 3: OFDM 26.0 / 28.9 Mbps | 7.71                     | 7.45  | 7.88  |
| n-mode MCS 4: OFDM 39.0 / 43.3 Mbps | 7.63                     | 7.38  | 7.82  |
| n-mode MCS 5: OFDM 52.0 / 57.8 Mbps | 7.50                     | 7.28  | 7.72  |
| n-mode MCS 6: OFDM 58.5 / 65.0 Mbps | 7.41                     | 7.19  | 7.62  |
| n-mode MCS 7: OFDM 65.0 / 72.2 Mbps | 7.43                     | 7.21  | 7.60  |

### 3.3 Test Cases and Test Minimisation

The tested device examined in this report may not incorporate all of the features described in the text that follows, but its SAR evaluation will have been subjected to the same considerations and test logic described below.

Whilst it's possible to identify the maximum SAR test cases from inspection of the conducted power levels given in the Results tables (Section 7), different modes in the same band and multi-slot transmit GSM/GPRS modes can create some difficulties. Therefore the sequence of the SAR tests made in evaluating this device has used test logic that is based on measured SAR values. Comparison of measured SAR values in this way, can also allow some test minimization (i.e. test elimination) to be made.

For example, when SAR testing multi-slot GSM/GPRS/EGPRS modes, it is an inefficient use of test resources to fully SAR test every test configuration in each of the different modes as these modes have a fixed power relationship between them that is the same, irrespective of the test configuration. In the case of multi-slot GSM/GPRS modes, a single comparative SAR test - using the same test channel and test configuration - is made in each of the n-slot modes; the mode with the highest measured SAR value is then subjected to full SAR testing in all test

configurations. These comparative SAR tests (same frequency, same test configuration) are regarded as extremely accurate as they are relative tests in which the tested device changes neither its frequency nor its position between tests. For different modes that operate in the same band and use the same antenna e.g. GSM/GPRS850 and WCDMA850, full SAR testing is carried out in the GSM/GPRS850 mode but WCDMA850 testing is limited to 3 channel testing in the maximum SAR test configuration for GSM/GPRS850.

Multi-slot SAR testing against the Head is always performed whenever such a device offers Push to Talk over cellular with the internal earpiece active, Dual Transfer Mode (i.e. the ability to transmit voice and data simultaneously using the same transmitter) or has WLAN (which enables a Voice over IP call to take place whilst the device can simultaneously transmit data on a cellular band). Whenever a device has an intended multi-slot use against the head, it is also Head SAR tested in EGPRS mode. It should be noted that EGPRS transmit modes can have either GMSK or 8PSK modulation but, when tested, only 8PSK EGPRS will appear explicitly in the results tables, as GMSK EGPRS mode has identical time-averaged power to the reported GPRS mode.

Devices that have flips or slides are fully SAR tested in all device configurations consistent with their intended usage. For example, flip phones that can receive a call in closed mode are SAR tested against the head in both open and closed configurations. Similarly, slide phones are fully SAR tested in all slide configurations in which calls are intended to be made or received.

In the results tables in Section 7, the maximum SAR value for the 'basic' tests (i.e. left cheek, left tilt, right cheek and right tilt in Head SAR testing; with and without headset with the back &/or display side facing the flat phantom in Body SAR testing) is bolded for each band. In some cases, after full testing of the basic SAR test configurations has been completed, additional checking SAR tests are made. These checking tests are always based on the bolded result from the 'basic' testing. When the SAR value of a checking test exceeds the maximum value from the basic tests, it is also bolded and used as the basis for any further checking tests that might be needed.

Checking tests are largely voluntary and can cover optional batteries, different camera slide positions, optional covers, etc. In the case of optional batteries, if the construction of the optional battery is significantly different to the battery used in the full testing e.g. if the outer can is floating electrically rather than grounded, then the maximum SAR test configuration in each band is tested with the optional battery in 3 channels. For camera slides, if the slide material is metal, then checking tests in 3 channels are again run for the maximum SAR test configuration in each band. For plastic camera slides, SAR checking is only carried out in the channel that provided the maximum SAR value for the original. Optional front and back covers are tested if their shape differs significantly from the original or if their metallic content varies by more than 15% from the original; in the former case, the testing depends on the extent of the physical differences, whereas in the latter case, 3 channel SAR testing is performed in every band in the max SAR test configuration.

#### 4. DESCRIPTION OF THE TEST EQUIPMENT

##### 4.1 Measurement System and Components

The measurements were performed using an automated DASY near-field scanning system manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements was the 'advanced extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

| Test Equipment                 | Serial Number | Calibration date | Calibration expiry |
|--------------------------------|---------------|------------------|--------------------|
| DAE 4                          | 1324          | 2012-02          | 2013-02            |
| DAE 4                          | 1319          | 2012-02          | 2013-02            |
| DAE 4                          | 860           | 2011-10          | 2012-10            |
| E-field Probe EX3DV4           | 3838          | 2012-02          | 2013-02            |
| E-field Probe ES3DV3           | 3836          | 2012-02          | 2013-02            |
| E-field Probe EX3DV4           | 3574          | 2011-10          | 2012-10            |
| Dipole Validation Kit, D835V2  | 479           | 2011-03          | 2013-03            |
| Dipole Validation Kit, D1900V2 | 547           | 2011-10          | 2013-10            |
| Dipole Validation Kit, D2450V2 | 760           | 2011-03          | 2013-03            |
| DASY4 software                 | Version 4.7   | -                | -                  |

Additional test equipment used in testing:

| Test Equipment       | Model          | Serial Number | Calibration date | Calibration expiry |
|----------------------|----------------|---------------|------------------|--------------------|
| Signal Generator     | E4432B         | US40052231    | 2012-04          | 2013-04            |
| Signal Generator     | SME06          | 829445        | 2012-04          | 2013-04            |
| Call Tester          | CMU200         | 110735        | -                | -                  |
| Call Tester          | CMU200         | 835352/008    | -                | -                  |
| Amplifier            | AR 5SIG4M3     | 302339        | -                | -                  |
| Amplifier            | AR 5S1G4M1     | 306024        | -                | -                  |
| RF Network Analyzer  | 8753ES         | My40002096    | 2012-04          | 2013-04            |
| RF Network Analyzer  | 8753ES         | US39170317    | 2012-04          | 2013-04            |
| Dielectric Probe Kit | 85070C         | 2577          | -                | -                  |
| Dielectric Probe Kit | 85070C         | 653           | -                | -                  |
| Power Meter          | Agilent E4419B | My41291520    | 2012-04          | 2013-04            |
| Power Sensor         | Agilent 8482A  | US37295411    | 2012-04          | 2013-04            |
| Power Meter          | R&S NRP        | 101293        | 2012-04          | 2013-04            |
| Power Sensor         | R&S NRP-Z51    | 102842        | 2012-04          | 2013-04            |

#### 4.1.1 Isotropic E-field Probe Type ES3DV3

|                      |                                                                                                                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>  | Symmetrical design with triangular core<br>Interleaved sensors<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol) |
| <b>Calibration</b>   | Calibration certificate in Appendix E                                                                                                                                                        |
| <b>Frequency</b>     | 10 MHz to 4 GHz (dosimetry); Linearity: $\pm 0.2$ dB (30 MHz to 4 GHz)                                                                                                                       |
| <b>Directivity</b>   | $\pm 0.2$ dB in HSL (rotation around probe axis)<br>$\pm 0.3$ dB in HSL (rotation normal to probe axis)                                                                                      |
| <b>Dynamic Range</b> | 5 $\mu$ W/g to > 100 mW/g; Linearity: $\pm 0.2$ dB                                                                                                                                           |
| <b>Dimensions</b>    | Overall length: 330 mm<br>Tip length: 20 mm<br>Body diameter: 12 mm<br>Tip diameter: 3.9 mm                                                                                                  |
| <b>Application</b>   | Distance from probe tip to dipole centers: 2.0 mm<br>General dosimetry up to 4 GHz<br>Compliance tests of mobile phones<br>Fast automatic scanning in arbitrary phantoms                     |

#### 4.1.2 Isotropic E-field Probe Type EX3DV4

|                      |                                                                                                                                                             |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>  | Symmetrical design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| <b>Calibration</b>   | Calibration certificate in Appendix E                                                                                                                       |
| <b>Frequency</b>     | 10 MHz to >6 GHz (dosimetry); Linearity: $\pm 0.2$ dB (30 MHz to 6 GHz)                                                                                     |
| <b>Directivity</b>   | $\pm 0.3$ dB in HSL (rotation around probe axis)<br>$\pm 0.5$ dB in tissue material (rotation normal to probe axis)                                         |
| <b>Dynamic Range</b> | 10 $\mu$ W/g to > 100 mW/g, Linearity: $\pm 0.2$ dB                                                                                                         |
| <b>Dimensions</b>    | Overall length: 330 mm<br>Tip length: 10 mm<br>Body diameter: 12 mm<br>Tip diameter: 2.5 mm<br>Distance from probe tip to dipole centers: 1.0 mm            |
| <b>Application</b>   | General dosimetry up to 6 GHz<br>Compliance tests of mobile phones<br>Fast automatic scanning in arbitrary phantoms                                         |

#### 4.2 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin-headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528 - 2003.

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

The SPEAG device holder (see Section 5.1) was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

### 4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2003 and FCC Supplement C to OET Bulletin 65. All tests were carried out using simulants whose dielectric parameters were within  $\pm 5\%$  of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

The depth of the tissue simulant was at least 15.0 cm measured from the ear reference point during system checking and device measurements.

#### 4.3.1 Tissue Simulant Recipes

The following recipe(s) were used for Head and Body tissue simulant(s):

##### 800MHz band

| Ingredient      | Head<br>(% by weight) | Body<br>(% by weight) |
|-----------------|-----------------------|-----------------------|
| Deionised Water | 51.50                 | 69.25                 |
| Tween 20        | 47.35                 | 30.00                 |
| Salt            | 1.15                  | 0.75                  |

##### 1900MHz band

| Ingredient      | Head<br>(% by weight) | Body<br>(% by weight) |
|-----------------|-----------------------|-----------------------|
| Deionised Water | 54.50                 | 70.25                 |
| Tween 20        | 45.23                 | 29.41                 |
| Salt            | 0.27                  | 0.34                  |

##### 2450MHz band

| Ingredient      | Head<br>(% by weight) | Body<br>(% by weight) |
|-----------------|-----------------------|-----------------------|
| Deionised Water | 56.0                  | 70.20                 |
| Tween 20        | 44.0                  | 29.62                 |
| Salt            | -                     | 0.18                  |

#### 4.3.2 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below.

**System checking, head tissue simulant**

| f [MHz] | Description                             | SAR [W/kg],<br>1g | Dielectric Parameters |                | Temp<br>[°C] |
|---------|-----------------------------------------|-------------------|-----------------------|----------------|--------------|
|         |                                         |                   | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 835     | Reference result                        | 2.39              | 41.0                  | 0.89           |              |
|         | ± 10% window                            | 2.15 – 2.63       |                       |                |              |
|         | IEEE1528 / IEC62209<br>Standard targets |                   | 41.5                  | 0.90           |              |
|         | 2012-08-09                              | 2.47              | 40.6                  | 0.88           | 22.0         |
|         | 2012-08-10                              | 2.53              | 42.6                  | 0.92           | 22.0         |
| 1900    | Reference result                        | 10.4              | 39.5                  | 1.43           |              |
|         | ± 10% window                            | 9.4 – 11.44       |                       |                |              |
|         | IEEE1528 / IEC62209<br>Standard targets |                   | 40.0                  | 1.40           |              |
|         | 2012-08-10                              | 9.98              | 39.0                  | 1.44           | 21.4         |
|         | 2012-08-21                              | 10.1              | 38.6                  | 1.44           | 21.3         |
| 2450    | Reference result                        | 13.3              | 38.7                  | 1.72           |              |
|         | ± 10% window                            | 12.0 – 14.6       |                       |                |              |
|         | IEEE1528 / IEC62209<br>Standard targets |                   | 39.2                  | 1.80           |              |
|         | 2012-08-13                              | 12.9              | 38.3                  | 1.74           | 21.2         |
|         | 2012-08-14                              | 12.7              | 37.8                  | 1.74           | 21.8         |

**System checking, body tissue simulant**

| f [MHz] | Description                           | SAR [W/kg],<br>1g   | Dielectric Parameters |                | Temp<br>[°C] |
|---------|---------------------------------------|---------------------|-----------------------|----------------|--------------|
|         |                                       |                     | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 835     | Reference result<br>$\pm 10\%$ window | 2.52<br>2.27 – 2.77 | 54.3                  | 0.99           |              |
|         | FCC Supplement C /<br>RSS-102 targets |                     | 55.2                  | 0.97           |              |
|         | 2012-08-13                            | 2.56                | 54.5                  | 0.97           | 22.3         |
|         | 2012-08-14                            | 2.54                | 54.1                  | 0.97           | 22.3         |
|         | 2012-08-27                            | 2.54                | 54.4                  | 0.98           | 22.5         |
| 1900    | Reference result<br>$\pm 10\%$ window | 10.6<br>9.5 – 11.7  | 54.2                  | 1.59           |              |
|         | FCC Supplement C /<br>RSS-102 targets |                     | 53.3                  | 1.52           |              |
|         | 2012-08-14                            | 9.88                | 52.3                  | 1.55           | 21.3         |
|         | 2012-08-15                            | 10.3                | 52.3                  | 1.56           | 21.4         |
|         | 2012-08-22                            | 10.3                | 53.1                  | 1.56           | 22.0         |
| 2450    | Reference result<br>$\pm 10\%$ window | 13.3<br>12.0 – 14.6 | 51.7                  | 1.93           |              |
|         | FCC Supplement C /<br>RSS-102 targets |                     | 52.7                  | 1.95           |              |
|         | 2012-08-15                            | 12.6                | 52.3                  | 1.88           | 21.0         |
|         | 2012-08-27                            | 12.8                | 51.6                  | 1.89           | 22.0         |

Plots of the system checking scans are given in Appendix A.

#### 4.3.3 Tissue Simulants used in the Measurements

##### Head tissue simulant measurements

| f<br>[MHz] | Description       | Dielectric Parameters |                | Temp<br>[°C] |
|------------|-------------------|-----------------------|----------------|--------------|
|            |                   | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 835        | Recommended value | 41.5                  | 0.90           |              |
|            | $\pm 5\%$ window  | 39.4 – 43.6           | 0.86 – 0.95    |              |
|            | 2012-08-10        | 42.6                  | 0.92           | 22.0         |
| 836        | Recommended value | 41.5                  | 0.90           |              |
|            | $\pm 5\%$ window  | 39.4 – 43.6           | 0.86 – 0.95    |              |
|            | 2012-08-09        | 40.6                  | 0.88           | 22.0         |
| 1880       | Recommended value | 40.0                  | 1.40           |              |
|            | $\pm 5\%$ window  | 38.0 – 42.0           | 1.33 – 1.47    |              |
|            | 2012-08-10        | 39.1                  | 1.42           | 21.4         |
|            | 2012-08-21        | 38.6                  | 1.42           | 21.3         |
| 2437       | Recommended value | 39.2                  | 1.79           |              |
|            | $\pm 5\%$ window  | 37.3 – 41.2           | 1.70 – 1.88    |              |
|            | 2012-08-13        | 38.3                  | 1.73           | 21.2         |

**Body tissue simulant measurements**

| f<br>[MHz] | Description       | Dielectric Parameters |                | Temp<br>[°C] |
|------------|-------------------|-----------------------|----------------|--------------|
|            |                   | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 835        | Recommended value | 55.2                  | 0.97           |              |
|            | $\pm 5\%$ window  | 52.4 – 58.0           | 0.92 – 1.02    |              |
|            | 2012-08-13        | 54.5                  | 0.97           | 22.3         |
|            | 2012-08-14        | 54.1                  | 0.97           | 22.3         |
| 836        | Recommended value | 55.2                  | 0.97           |              |
|            | $\pm 5\%$ window  | 52.4 – 58.0           | 0.92 – 1.02    |              |
|            | 2012-08-13        | 54.5                  | 0.98           | 22.3         |
|            | 2012-08-14        | 54.1                  | 0.96           | 22.3         |
| 1880       | Recommended value | 53.3                  | 1.52           |              |
|            | $\pm 5\%$ window  | 50.6 – 56.0           | 1.44 – 1.60    |              |
|            | 2012-08-14        | 52.3                  | 1.53           | 21.3         |
|            | 2012-08-15        | 52.4                  | 1.54           | 21.4         |
| 2437       | Recommended value | 52.7                  | 1.94           |              |
|            | $\pm 5\%$ window  | 50.1 – 55.3           | 1.84 – 2.04    |              |
|            | 2012-08-15        | 52.4                  | 1.86           | 21.4         |
|            | 2012-08-27        | 51.7                  | 1.87           | 22.0         |

Dielectric parameter data for the band edges is given in Appendix C.

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## 5. DESCRIPTION OF THE TEST PROCEDURE

### 5.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.



Device holder supplied by SPEAG

A Nokia designed spacer (illustrated below) was used to position the device within the SPEAG holder. The spacer positions the device so that the holder has minimal effect on the test results but still holds the device securely. The spacer was removed before the tests.



Nokia spacer

### 5.2 Test Positions

#### 5.2.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2003 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

#### 5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed

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before the start of the measurements. The device was oriented with both sides facing the phantom to find the highest results.

Nokia body-worn accessories are commonly available for the separation distance used in this testing.

### 5.2.3 Wireless Router Configuration

The device was placed in the SPEAG holder using the Nokia spacer and positioned 10.0mm away from the flat phantom. The spacer was removed before the start of the measurements.

## 5.3 Scan Procedures

First, area scans were used for determination of the field distribution. Next, a zoom scan, a minimum of 5x5x7 points covering a volume of at least 30x30x30mm, was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

## 5.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within Dasy4 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation Of Large Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A trivariate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighbouring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

## 6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

| Uncertainty Component                                                           | Section in IEEE 1528 | Tol. (%) | Prob Dist | Div | $C_i$           | $C_i \cdot U_i$ (%) | $V_i$ |
|---------------------------------------------------------------------------------|----------------------|----------|-----------|-----|-----------------|---------------------|-------|
| <b>Measurement System</b>                                                       |                      |          |           |     |                 |                     |       |
| Probe Calibration                                                               | E2.1                 | ±5.9     | N         | 1   | 1               | ±5.9                | ∞     |
| Axial Isotropy                                                                  | E2.2                 | ±4.7     | R         | √3  | $(1-c_p)^{1/2}$ | ±1.9                | ∞     |
| Hemispherical Isotropy                                                          | E2.2                 | ±9.6     | R         | √3  | $(c_p)^{1/2}$   | ±3.9                | ∞     |
| Boundary Effect                                                                 | E2.3                 | ±1.0     | R         | √3  | 1               | ±0.6                | ∞     |
| Linearity                                                                       | E2.4                 | ±4.7     | R         | √3  | 1               | ±2.7                | ∞     |
| System Detection Limits                                                         | E2.5                 | ±1.0     | R         | √3  | 1               | ±0.6                | ∞     |
| Readout Electronics                                                             | E2.6                 | ±1.0     | N         | 1   | 1               | ±1.0                | ∞     |
| Response Time                                                                   | E2.7                 | ±0.8     | R         | √3  | 1               | ±0.5                | ∞     |
| Integration Time                                                                | E2.8                 | ±2.6     | R         | √3  | 1               | ±1.5                | ∞     |
| RF Ambient Conditions - Noise                                                   | E6.1                 | ±3.0     | R         | √3  | 1               | ±1.7                | ∞     |
| RF Ambient Conditions - Reflections                                             | E6.1                 | ±3.0     | R         | √3  | 1               | ±1.7                | ∞     |
| Probe Positioner Mechanical Tolerance                                           | E6.2                 | ±0.4     | R         | √3  | 1               | ±0.2                | ∞     |
| Probe Positioning with respect to Phantom Shell                                 | E6.3                 | ±2.9     | R         | √3  | 1               | ±1.7                | ∞     |
| Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation | E5                   | ±3.9     | R         | √3  | 1               | ±2.3                | ∞     |
| <b>Test sample Related</b>                                                      |                      |          |           |     |                 |                     |       |
| Test Sample Positioning                                                         | E4.2                 | ±6.0     | N         | 1   | 1               | ±6.0                | 11    |
| Device Holder Uncertainty                                                       | E4.1                 | ±5.0     | N         | 1   | 1               | ±5.0                | 7     |
| Output Power Variation - SAR drift measurement                                  | 6.6.3                | ±0.0     | R         | √3  | 1               | ±0.0                | ∞     |
| <b>Phantom and Tissue Parameters</b>                                            |                      |          |           |     |                 |                     |       |
| Phantom Uncertainty (shape and thickness tolerances)                            | E3.1                 | ±4.0     | R         | √3  | 1               | ±2.3                | ∞     |
| Conductivity Target - tolerance                                                 | E3.2                 | ±5.0     | R         | √3  | 0.64            | ±1.8                | ∞     |
| Conductivity - measurement uncertainty                                          | E3.3                 | ±5.5     | N         | 1   | 0.64            | ±3.5                | 5     |
| Permittivity Target - tolerance                                                 | E3.2                 | ±5.0     | R         | √3  | 0.6             | ±1.7                | ∞     |
| Permittivity - measurement uncertainty                                          | E3.3                 | ±2.9     | N         | 1   | 0.6             | ±1.7                | 5     |
| <b>Combined Standard Uncertainty</b>                                            |                      |          | RSS       |     |                 | ±12.9               | 116   |
| <b>Coverage Factor for 95%</b>                                                  |                      |          | k=2       |     |                 |                     |       |
| <b>Expanded Uncertainty</b>                                                     |                      |          |           |     |                 | ±25.8               |       |

## 7. RESULTS

The measured Head SAR values for the test device are tabulated below:

### 850MHz Head SAR results

| Mode                              | Test configuration     |       | SAR, averaged over 1g (W/kg) |                     |                     |
|-----------------------------------|------------------------|-------|------------------------------|---------------------|---------------------|
|                                   |                        |       | Ch 128<br>824.2 MHz          | Ch 190<br>836.6 MHz | Ch 251<br>848.8 MHz |
| <b>GSM</b>                        | <b>Conducted Power</b> |       | -                            | <b>32.0 dBm</b>     | -                   |
| BP-3L LG                          | Left                   | Cheek | -                            | 0.272               | -                   |
|                                   |                        | Tilt  | -                            | -                   | -                   |
|                                   | Right                  | Cheek | -                            | -                   | -                   |
|                                   |                        | Tilt  | -                            | -                   | -                   |
| <b>2-slot GPRS</b>                | <b>Conducted Power</b> |       | -                            | <b>29.9 dBm</b>     | -                   |
| BP-3L LG                          | Left                   | Cheek | -                            | 0.306               | -                   |
|                                   |                        | Tilt  | -                            | -                   | -                   |
|                                   | Right                  | Cheek | -                            | -                   | -                   |
|                                   |                        | Tilt  | -                            | -                   | -                   |
| <b>3-slot GPRS</b>                | <b>Conducted Power</b> |       | -                            | <b>28.1 dBm</b>     | -                   |
| BP-3L LG                          | Left                   | Cheek | -                            | 0.298               | -                   |
|                                   |                        | Tilt  | -                            | -                   | -                   |
|                                   | Right                  | Cheek | -                            | -                   | -                   |
|                                   |                        | Tilt  | -                            | -                   | -                   |
| <b>4-slot GPRS</b>                | <b>Conducted Power</b> |       | <b>26.9 dBm</b>              | <b>26.9 dBm</b>     | <b>26.9 dBm</b>     |
| BP-3L LG                          | Left                   | Cheek | 0.226                        | 0.306               | <b>0.415</b>        |
|                                   |                        | Tilt  | -                            | 0.231               | -                   |
|                                   | Right                  | Cheek | -                            | 0.282               | -                   |
|                                   |                        | Tilt  | -                            | 0.193               | -                   |
| <b>4-slot 8PSK EGPRS</b>          | <b>Conducted Power</b> |       | -                            | -                   | <b>21.9 dBm</b>     |
| BP-3L LG                          | Left                   | Cheek | -                            | -                   | 0.156               |
|                                   |                        | Tilt  |                              |                     |                     |
|                                   | Right                  | Cheek |                              |                     |                     |
|                                   |                        | Tilt  |                              |                     |                     |
| <b>4-slot GPRS<br/>BP-3L Sony</b> | Left Cheek             |       | 0.230                        | 0.313               | <b>0.436</b>        |

(Table continues)

(Table continues)

| Mode     | Test configuration |       | SAR, averaged over 1g (W/kg) |                      |                      |
|----------|--------------------|-------|------------------------------|----------------------|----------------------|
|          |                    |       | Ch 4132<br>826.4 MHz         | Ch 4175<br>835.0 MHz | Ch 4233<br>846.6 MHz |
| WCDMA    | Conducted Power    |       | 23.0 dBm                     | 23.0 dBm             | 23.0 dBm             |
| BP-3L LG | Left               | Cheek | 0.251                        | 0.252                | 0.347                |
|          |                    | Tilt  | -                            | 0.157                | -                    |
|          | Right              | Cheek | -                            | 0.235                | -                    |
|          |                    | Tilt  | -                            | 0.171                | -                    |

### 1900MHz Head SAR results

| Mode              | Test configuration |       | SAR, averaged over 1g (W/kg) |                      |                      |
|-------------------|--------------------|-------|------------------------------|----------------------|----------------------|
|                   |                    |       | Ch 512<br>1850.2 MHz         | Ch 661<br>1880.0 MHz | Ch 810<br>1909.8 MHz |
| GSM               | Conducted Power    |       | 29.5 dBm                     | 29.5 dBm             | 29.5 dBm             |
| BP-3L LG          | Left               | Cheek | -                            | 0.284                | -                    |
|                   |                    | Tilt  | -                            | -                    | -                    |
|                   | Right              | Cheek | -                            | -                    | -                    |
|                   |                    | Tilt  | -                            | -                    | -                    |
| 2-slot GPRS       | Conducted Power    |       | 27.5 dBm                     | 27.5 dBm             | 27.5 dBm             |
| BP-3L LG          | Left               | Cheek | 0.356                        | 0.334                | 0.299                |
|                   |                    | Tilt  | -                            | 0.233                | -                    |
|                   | Right              | Cheek | -                            | 0.326                | -                    |
|                   |                    | Tilt  | -                            | 0.214                | -                    |
| 3-slot GPRS       | Conducted Power    |       | 25.7 dBm                     | 25.7 dBm             | 25.7 dBm             |
| BP-3L LG          | Left               | Cheek | -                            | 0.295                | -                    |
|                   |                    | Tilt  | -                            | -                    | -                    |
|                   | Right              | Cheek | -                            | -                    | -                    |
|                   |                    | Tilt  | -                            | -                    | -                    |
| 4-slot GPRS       | Conducted Power    |       | 24.5 dBm                     | 24.5 dBm             | 24.5 dBm             |
| BP-3L LG          | Left               | Cheek | -                            | 0.304                | -                    |
|                   |                    | Tilt  | -                            | -                    | -                    |
|                   | Right              | Cheek | -                            | -                    | -                    |
|                   |                    | Tilt  | -                            | -                    | -                    |
| 2-slot 8PSK EGPRS | Conducted Power    |       | 21.5 dBm                     | -                    | -                    |
| BP-3L LG          | Left Cheek         |       | 0.171                        | -                    | -                    |

(Table continues)

(Table continues)

| Mode       | Test configuration |       | SAR, averaged over 1g (W/kg) |                       |                       |
|------------|--------------------|-------|------------------------------|-----------------------|-----------------------|
|            |                    |       | Ch 9262<br>1852.4 MHz        | Ch 9400<br>1880.0 MHz | Ch 9538<br>1907.6 MHz |
| WCDMA      | Conducted Power    |       | 23.5 dBm                     | 23.5 dBm              | 23.5 dBm              |
| BP-3L LG   | Left               | Cheek | 0.542                        | 0.704                 | <b>0.757</b>          |
|            |                    | Tilt  | -                            | 0.551                 | -                     |
|            | Right              | Cheek | -                            | 0.650                 | -                     |
|            |                    | Tilt  | -                            | 0.426                 | -                     |
| BP-3L Sony | Left Cheek         |       | 0.536                        | 0.738                 | <b>0.761</b>          |

### 2450MHz Head SAR results

| Mode        | Test configuration |       | SAR, averaged over 1g (W/kg) |                    |                     |
|-------------|--------------------|-------|------------------------------|--------------------|---------------------|
|             |                    |       | Ch 1<br>2412.0 MHz           | Ch 6<br>2437.0 MHz | Ch 11<br>2462.0 MHz |
| WLAN b-mode | Conducted Power    |       | 12.94 dBm                    | 13.15 dBm          | 13.65 dBm           |
| BP-3L LG    | Left               | Cheek | 0.442                        | 0.448              | 0.459               |
|             |                    | Tilt  | -                            | 0.317              | -                   |
|             | Right              | Cheek | -                            | 0.278              | -                   |
|             |                    | Tilt  | -                            | 0.244              | -                   |
| BP-3L Sony  | Left Cheek         |       | <b>0.479</b>                 | 0.436              | 0.436               |

### Simultaneous transmissions: Combined head SAR results – Individual band Max results

| Test configuration | Max. 1g SAR results |                       |              |                        |               |
|--------------------|---------------------|-----------------------|--------------|------------------------|---------------|
|                    | WLAN                | 4-slot<br>GPRS<br>850 | WCDMA<br>850 | 2-slot<br>GPRS<br>1900 | WCDMA<br>1900 |
| Head: Left, Cheek  | 0.479               | 0.436                 | 0.347        | 0.356                  | 0.761         |
| Head: Left, Tilt   | 0.317               | 0.231                 | 0.157        | 0.233                  | 0.551         |
| Head: Right, Cheek | 0.278               | 0.282                 | 0.235        | 0.326                  | 0.650         |
| Head: Right, Tilt  | 0.244               | 0.193                 | 0.180        | 0.214                  | 0.426         |

**Simultaneous transmissions: Combined head SAR results –  
Max + Max combined results**

| Test configuration | Max. 1g SAR results    |                  |                         |                   |
|--------------------|------------------------|------------------|-------------------------|-------------------|
|                    | 4-slot GPRS 850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS 1900 + WLAN | WCDMA 1900 + WLAN |
| Head: Left, Cheek  | 0.915                  | 0.826            | 0.835                   | 1.24              |
| Head: Left, Tilt   | 0.548                  | 0.474            | 0.550                   | 0.868             |
| Head: Right, Cheek | 0.560                  | 0.513            | 0.604                   | 0.928             |
| Head: Right, Tilt  | 0.437                  | 0.424            | 0.458                   | 0.670             |

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values.

**Simultaneous transmissions: Combined head SAR results –  
SPEAG Combined Multiband algorithm results**

| Test configuration | Max. 1g SAR results    |                  |                         |                   |
|--------------------|------------------------|------------------|-------------------------|-------------------|
|                    | 4-slot GPRS 850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS 1900 + WLAN | WCDMA 1900 + WLAN |
| Head: Left, Cheek  | 0.458                  | 0.441            | 0.450                   | 0.741             |
| Head: Left, Tilt   | -                      | -                | -                       | -                 |
| Head: Right, Cheek | -                      | -                | -                       | -                 |
| Head: Right, Tilt  | -                      | -                | -                       | -                 |

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

The measured Body SAR values for the test device are tabulated below:

**850MHz Body SAR results**

| Mode               | Device orientation     | Test configuration     | SAR, averaged over 1g (W/kg) |                      |                      |
|--------------------|------------------------|------------------------|------------------------------|----------------------|----------------------|
|                    |                        |                        | Ch 128<br>824.2 MHz          | Ch 190<br>836.6 MHz  | Ch 251<br>848.8 MHz  |
| <b>4-slot GPRS</b> |                        | <b>Conducted Power</b> | <b>26.9 dBm</b>              | <b>26.9 dBm</b>      | <b>26.9 dBm</b>      |
| BP-3L LG           | Display facing phantom | Without headset        | -                            | 0.336                | -                    |
|                    |                        | Headset WH-108         | -                            | 0.134                | -                    |
|                    | Back facing phantom    | Without headset        | 0.553                        | 0.730                | <b>0.833</b>         |
|                    |                        | Headset WH-108         | -                            | 0.455                | -                    |
| BP-3L Sony         | Back facing phantom    | Without headset        | 0.502                        | 0.668                | 0.779                |
| Mode               | Device orientation     | Test configuration     | SAR, averaged over 1g (W/kg) |                      |                      |
|                    |                        |                        | Ch 4132<br>826.4 MHz         | Ch 4175<br>835.0 MHz | Ch 4233<br>846.6 MHz |
| <b>WCDMA</b>       |                        | <b>Conducted Power</b> | <b>23.0 dBm</b>              | <b>23.0 dBm</b>      | <b>23.0 dBm</b>      |
| BP-3L LG           | Display facing phantom | Without headset        | -                            | 0.291                | -                    |
|                    |                        | Headset WH-108         | -                            | 0.103                | -                    |
|                    | Back facing phantom    | Without headset        | 0.562                        | 0.601                | <b>0.701</b>         |
|                    |                        | Headset WH-108         | -                            | 0.347                | -                    |

### 1900MHz Body SAR results

| Mode        | Device orientation     | Test configuration | SAR, averaged over 1g (W/kg) |                       |                       |
|-------------|------------------------|--------------------|------------------------------|-----------------------|-----------------------|
|             |                        |                    | Ch 512<br>1850.2 MHz         | Ch 661<br>1880.0 MHz  | Ch 810<br>1909.8 MHz  |
| 2-slot GPRS |                        | Conducted Power    | 27.5 dBm                     | 27.5 dBm              | 27.5 dBm              |
| BP-3L LG    | Display facing phantom | Without headset    | -                            | 0.234                 | -                     |
|             |                        | Headset WH-108     | -                            | 0.209                 | -                     |
|             | Back facing phantom    | Without headset    | 0.326                        | 0.240                 | 0.202                 |
|             |                        | Headset WH-108     | -                            | 0.207                 | -                     |
| Mode        | Device orientation     | Test configuration | SAR, averaged over 1g (W/kg) |                       |                       |
|             |                        |                    | Ch 9262<br>1852.4 MHz        | Ch 9400<br>1880.0 MHz | Ch 9538<br>1907.6 MHz |
| WCDMA       |                        | Conducted Power    | 23.5 dBm                     | 23.5 dBm              | 23.5 dBm              |
| BP-3L LG    | Display facing phantom | Without headset    | -                            | 0.508                 | -                     |
|             |                        | Headset WH-108     | 0.523                        | 0.521                 | 0.368                 |
|             | Back facing phantom    | Without headset    | -                            | 0.500                 | -                     |
|             |                        | Headset WH-108     | -                            | 0.463                 | -                     |
| BP-3L Sony  | Display facing phantom | Without headset    | 0.484                        | 0.541                 | 0.367                 |

### 2450MHz Body SAR results

| Mode        | Device orientation        | Test configuration | SAR, averaged over 1g (W/kg) |                    |                     |
|-------------|---------------------------|--------------------|------------------------------|--------------------|---------------------|
|             |                           |                    | Ch 1<br>2412.0 MHz           | Ch 6<br>2437.0 MHz | Ch 11<br>2462.0 MHz |
| WLAN b-mode |                           | Conducted Power    | 12.94 dBm                    | 13.15 dBm          | 13.65 dBm           |
| BP-3L LG    | Display facing<br>phantom | Without headset    | -                            | 0.063              | -                   |
|             |                           | Headset WH-108     | -                            | 0.054              | -                   |
|             | Back facing<br>Phantom    | Without headset    | -                            | 0.147              | -                   |
|             |                           | Headset WH-108     | 0.146                        | 0.152              | <b>0.157</b>        |
| BP-3L Sony  | Back facing<br>phantom    | Headset WH-108     | 0.131                        | 0.140              | 0.141               |

**Simultaneous transmissions: Combined body SAR results –  
Individual band Max results**

| Test configuration                            | Max. 1g SAR results |                 |           |                  |            |
|-----------------------------------------------|---------------------|-----------------|-----------|------------------|------------|
|                                               | WLAN                | 4-slot GPRS 850 | WCDMA 850 | 2-slot GPRS 1900 | WCDMA 1900 |
| Body: Display facing phantom, Without Headset | 0.063               | 0.336           | 0.291     | 0.234            | 0.508      |
| Body: Display facing phantom, Headset WH-108  | 0.054               | 0.134           | 0.103     | 0.209            | 0.521      |
| Body: Back facing phantom, Without Headset    | 0.157               | 0.833           | 0.701     | 0.326            | 0.541      |
| Body: Back facing phantom, Headset WH-108     | 0.152               | 0.455           | 0.347     | 0.207            | 0.463      |

**Simultaneous transmissions: Combined body SAR results –  
Max + Max combined results**

| Test configuration                            | Max. 1g SAR results    |                  |                         |                   |
|-----------------------------------------------|------------------------|------------------|-------------------------|-------------------|
|                                               | 4-slot GPRS 850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS 1900 + WLAN | WCDMA 1900 + WLAN |
| Body: Display facing phantom, Without Headset | 0.399                  | 0.354            | 0.297                   | 0.571             |
| Body: Display facing phantom, Headset WH-108  | 0.188                  | 0.157            | 0.263                   | 0.575             |
| Body: Back facing phantom, Without Headset    | <b>0.990</b>           | <b>0.858</b>     | <b>0.483</b>            | <b>0.698</b>      |
| Body: Back facing phantom, Headset WH-108     | 0.607                  | 0.499            | 0.359                   | 0.615             |

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values.

**Simultaneous transmissions: Combined body SAR results –  
SPEAG Combined Multiband algorithm results**

| Test configuration                            | Max. 1g SAR results    |                  |                         |                   |
|-----------------------------------------------|------------------------|------------------|-------------------------|-------------------|
|                                               | 4-slot GPRS 850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS 1900 + WLAN | WCDMA 1900 + WLAN |
| Body: Display facing phantom, Without Headset | -                      | -                | -                       | -                 |
| Body: Display facing phantom, Headset WH-108  | -                      | -                | -                       | -                 |
| Body: Back facing phantom, Without Headset    | <b>0.861</b>           | <b>0.725</b>     | <b>0.312</b>            | <b>0.515</b>      |
| Body: Back facing phantom, Headset WH-108     | -                      | -                | -                       | -                 |

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

Body SAR assessment of Wireless Router mode at 10.0mm separation distance

**850MHz Body SAR results**

| Mode                      | Device orientation         | SAR, averaged over 1g (W/kg) |                      |                      |
|---------------------------|----------------------------|------------------------------|----------------------|----------------------|
|                           |                            | Ch 128<br>824.2 MHz          | Ch 190<br>836.6 MHz  | Ch 251<br>848.8 MHz  |
| <b>4-slot<br/>GPRS850</b> | <b>Conducted Power</b>     | <b>26.9 dBm</b>              | <b>26.9 dBm</b>      | <b>26.9 dBm</b>      |
| BP-3L LG                  | Display facing phantom     | -                            | 0.388                | -                    |
|                           | Back facing phantom        | 0.798                        | 0.977                | <b>1.11</b>          |
|                           | Top edge facing phantom    | -                            | 0.017                | -                    |
|                           | Bottom edge facing phantom | -                            | 0.041                | -                    |
|                           | Left edge facing phantom   | -                            | 0.563                | -                    |
|                           | Right edge facing phantom  | -                            | 0.498                | -                    |
| BP-3L Sony                | Back facing phantom        | 0.786                        | 0.974                | 1.090                |
| Mode                      | Device orientation         | SAR, averaged over 1g (W/kg) |                      |                      |
|                           |                            | Ch 4132<br>826.4 MHz         | Ch 4175<br>835.0 MHz | Ch 4233<br>846.6 MHz |
| <b>WCDMA</b>              | <b>Conducted Power</b>     | <b>23.0 dBm</b>              | <b>23.0 dBm</b>      | <b>23.0 dBm</b>      |
| BP-3L LG                  | Display facing phantom     | -                            | 0.309                | -                    |
|                           | Back facing phantom        | 0.813                        | 0.791                | <b>0.941</b>         |
|                           | Top edge facing phantom    | -                            | 0.012                | -                    |
|                           | Bottom edge facing phantom | -                            | 0.038                | -                    |
|                           | Left edge facing phantom   | -                            | 0.419                | -                    |
|                           | Right edge facing phantom  | -                            | 0.385                | -                    |

**1900MHz Body SAR results**

| Mode                       | Device orientation         | SAR, averaged over 1g (W/kg) |                       |                       |
|----------------------------|----------------------------|------------------------------|-----------------------|-----------------------|
|                            |                            | Ch 512<br>1850.2 MHz         | Ch 661<br>1880.0 MHz  | Ch 810<br>1909.8 MHz  |
| <b>2-slot<br/>GPRS1900</b> | <b>Conducted Power</b>     | <b>27.5 dBm</b>              | <b>27.5 dBm</b>       | <b>27.5 dBm</b>       |
| <b>BP-3L LG</b>            | Display facing phantom     | <b>0.625</b>                 | 0.450                 | 0.344                 |
|                            | Back facing phantom        | -                            | 0.429                 | -                     |
|                            | Top edge facing phantom    | -                            | 0.022                 | -                     |
|                            | Bottom edge facing phantom | -                            | 0.167                 | -                     |
|                            | Left edge facing phantom   | -                            | 0.173                 | -                     |
|                            | Right edge facing phantom  | -                            | 0.147                 | -                     |
| Mode                       | Device orientation         | SAR, averaged over 1g (W/kg) |                       |                       |
|                            |                            | Ch 9262<br>1852.4 MHz        | Ch 9400<br>1880.0 MHz | Ch 9538<br>1907.6 MHz |
| <b>WCDMA</b>               | <b>Conducted Power</b>     | <b>23.5 dBm</b>              | <b>23.5 dBm</b>       | <b>23.5 dBm</b>       |
| <b>BP-3L LG</b>            | Display facing phantom     | 0.907                        | <b>0.912</b>          | 0.774                 |
|                            | Back facing phantom        | -                            | 0.876                 | -                     |
|                            | Top edge facing phantom    | -                            | 0.048                 | -                     |
|                            | Bottom edge facing phantom | -                            | 0.428                 | -                     |
|                            | Left edge facing phantom   | -                            | 0.370                 | -                     |
|                            | Right edge facing phantom  | -                            | 0.306                 | -                     |
| <b>BP-3L Sony</b>          | Display facing phantom     | 0.867                        | 0.883                 | 0.770                 |

### 2450MHz Body SAR results

| Mode                   | Device orientation         | SAR, averaged over 1g (W/kg) |                    |                     |
|------------------------|----------------------------|------------------------------|--------------------|---------------------|
|                        |                            | Ch 1<br>2412.0 MHz           | Ch 6<br>2437.0 MHz | Ch 11<br>2462.0 MHz |
| <b>WLAN<br/>b-mode</b> | <b>Conducted Power</b>     | <b>12.94 dBm</b>             | <b>13.15 dBm</b>   | <b>13.65 dBm</b>    |
| <b>BP-3L LG</b>        | Display facing phantom     | -                            | 0.095              | -                   |
|                        | Back facing phantom        | 0.361                        | 0.365              | <b>0.383</b>        |
|                        | Top edge facing phantom    | -                            | 0.091              | -                   |
|                        | Bottom edge facing phantom | -                            | 0.006              | -                   |
|                        | Left edge facing phantom   | -                            | 0.005              | -                   |
|                        | Right edge facing phantom  | -                            | 0.112              | -                   |
| <b>BP-3L Sony</b>      | <b>Back facing phantom</b> | <b>0.395</b>                 | 0.315              | 0.329               |

### Simultaneous transmissions: Combined SAR results – Individual band Max results

| Test configuration         | Max. 1g SAR results |                   |              |                    |               |
|----------------------------|---------------------|-------------------|--------------|--------------------|---------------|
|                            | WLAN                | 4-slot<br>GPRS850 | WCDMA<br>850 | 2-slot<br>GPRS1900 | WCDMA<br>1900 |
| Display facing phantom     | 0.095               | 0.388             | 0.309        | <b>0.625</b>       | 0.912         |
| Back facing phantom        | 0.395               | 1.11              | 0.941        | 0.429              | 0.876         |
| Top edge facing phantom    | 0.091               | 0.0168            | 0.012        | 0.022              | 0.048         |
| Bottom edge facing phantom | 0.006               | 0.041             | 0.038        | 0.167              | 0.428         |
| Left edge facing phantom   | 0.005               | 0.563             | 0.419        | 0.173              | 0.370         |
| Right edge facing phantom  | 0.112               | 0.498             | 0.385        | 0.147              | 0.306         |

**Simultaneous transmissions: Combined SAR results – Max + Max combined results**

| Test configuration         | Max. 1g SAR results   |                  |                        |                   |
|----------------------------|-----------------------|------------------|------------------------|-------------------|
|                            | 4-slot GPRS850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS1900 + WLAN | WCDMA 1900 + WLAN |
| Display facing phantom     | 0.483                 | 0.404            | 0.72                   | 1.007             |
| Back facing phantom        | <b>1.505</b>          | <b>1.336</b>     | <b>0.824</b>           | <b>1.271</b>      |
| Top edge facing phantom    | 0.1078                | 0.103            | 0.113                  | 0.139             |
| Bottom edge facing phantom | 0.047                 | 0.044            | 0.173                  | 0.434             |
| Left edge facing phantom   | 0.568                 | 0.424            | 0.178                  | 0.375             |
| Right edge facing phantom  | 0.61                  | 0.497            | 0.259                  | 0.418             |

The 1.505 W/kg Back facing phantom SAR value for 4-slot GPRS850+ WLAN 2450 comprises the individual values of 1.11 for 4-slot GPRS850, 0.395 for WLAN2450.

For the Back Facing phantom 4-slot GPRS850 + WLAN2450 case, the x,y coordinates (cm) of the locations of the SAR hot spots are 4-slot GPRS850: (-2.33, 6.48); WLAN2450: (1.20, 2.67). Hence the separation distance is: 5.19cm. The 1.505 W/kg becomes 1.686 W/kg when scaled up by 12%. The “Antenna Pair SAR to Peak Location Separation Ratio is  $1.686 / 5.19 = 0.32$  i.e.  $>0.3$ . Therefore, according to KDB648474 D01 SAR Handsets Multi Xmitter and Ant, v01r05, Simultaneous Transmission Procedures are required. Expanded zoom SAR scans (presented in Appendix B) fully including the Back facing phantom SAR distributions of 4-slot GPRS850+ WLAN 2450 were performed. The resulting combined SAR value was 1.13 W/kg which is 1.27 W/kg as scaled.

**Expanded Zoom Scans**

| Mode                  | Test configuration                        | SAR, averaged over 1g (W/kg) |   |                     |
|-----------------------|-------------------------------------------|------------------------------|---|---------------------|
|                       |                                           | -                            | - | Ch 251<br>848.8 MHz |
| <b>4-slot GPRS850</b> | Conducted Average Power                   | -                            | - | 26.9 dBm            |
| BP-3L LG              | Back facing phantom<br>Expanded Zoom scan | -                            | - | 1.09                |
| Mode                  | Test configuration                        | SAR, averaged over 1g (W/kg) |   |                     |
|                       |                                           | -                            | - | Ch 11<br>2462.0 MHz |
| <b>WLAN b-mode</b>    | Conducted Average Power                   | -                            | - | 13.65 dBm           |
| BP-3L LG              | Back facing phantom<br>Expanded Zoom scan | -                            | - | 0.396               |

**Simultaneous transmissions: Combined SAR results – Combined Expanded Zoom Scan results**

| Test configuration         | Max. 1g SAR results   |                  |                        |                   |
|----------------------------|-----------------------|------------------|------------------------|-------------------|
|                            | 4-slot GPRS850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS1900 + WLAN | WCDMA 1900 + WLAN |
| Display facing phantom     | -                     | -                | -                      | -                 |
| Back facing phantom        | <b>1.13</b>           | -                | -                      | -                 |
| Top edge facing phantom    | -                     | -                | -                      | -                 |
| Bottom edge facing phantom | -                     | -                | -                      | -                 |
| Left edge facing phantom   | -                     | -                | -                      | -                 |
| Right edge facing phantom  | -                     | -                | -                      | -                 |

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values.

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

**Simultaneous transmissions: Combined SAR results –  
SPEAG Combined Multiband algorithm results**

| Test configuration         | Max. 1g SAR results   |                  |                        |                   |
|----------------------------|-----------------------|------------------|------------------------|-------------------|
|                            | 4-slot GPRS850 + WLAN | WCDMA 850 + WLAN | 2-slot GPRS1900 + WLAN | WCDMA 1900 + WLAN |
| Display facing phantom     | -                     | -                | -                      | -                 |
| Back facing phantom        | <b>1.14</b>           | <b>0.976</b>     | <b>0.523</b>           | <b>0.919</b>      |
| Top edge facing phantom    | -                     | -                | -                      | -                 |
| Bottom edge facing phantom | -                     | -                | -                      | -                 |
| Left edge facing phantom   | -                     | -                | -                      | -                 |
| Right edge facing phantom  | -                     | -                | -                      | -                 |

Plots of the Measurement scans are given in Appendix B.

## APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2012-08-09 9:45:14 AM

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 479

### Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.882\text{ mho/m}$ ;  $\epsilon_r = 40.644$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

#### DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=15mm, Pin=250mW/Area Scan (61x121x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 2.67 mW/g

**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 55.286 V/m

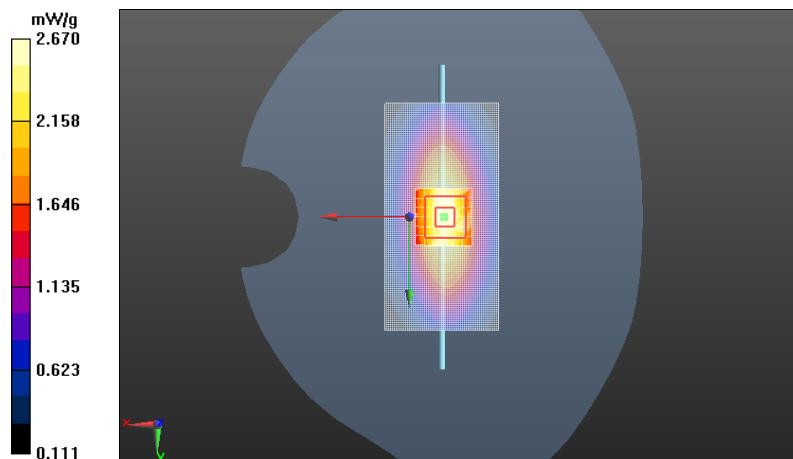
Peak SAR (extrapolated) = 3.764 mW/g

**SAR(1 g) = 2.47 mW/g**

**SAR(10 g) = 1.61 mW/g**

**Power Drift = -0.09 dB**

Maximum value of SAR (measured) = 2.67 mW/g



Date/Time: 2012-08-10 9:29:07 AM

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 479

**Communication System: CW835**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.919\text{ mho/m}$ ;  $\epsilon_r = 42.618$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=15mm, Pin=250mW/Area Scan (61x121x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 2.74 mW/g

**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 54.501 V/m

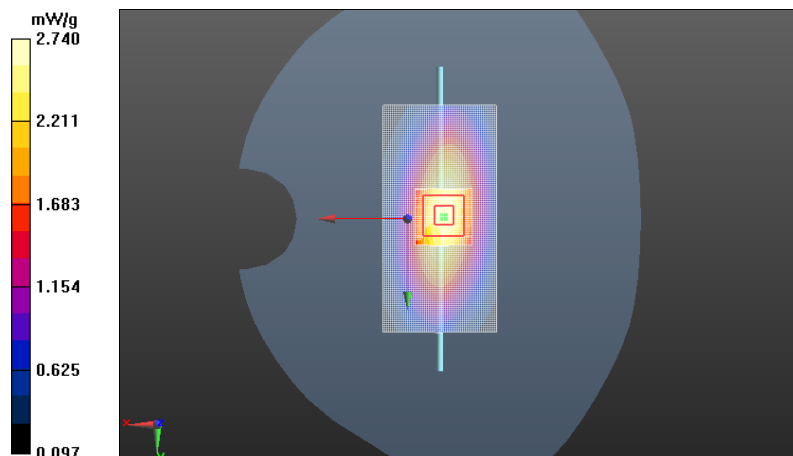
Peak SAR (extrapolated) = 3.841 mW/g

**SAR(1 g) = 2.53 mW/g**

**SAR(10 g) = 1.65 mW/g**

**Power Drift = -0.08 dB**

Maximum value of SAR (measured) = 2.73 mW/g



Date/Time: 2012-08-10 9:44:03 AM

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 547

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.441$  mho/m;  $\epsilon_r = 39.022$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 10.4 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.828 V/m

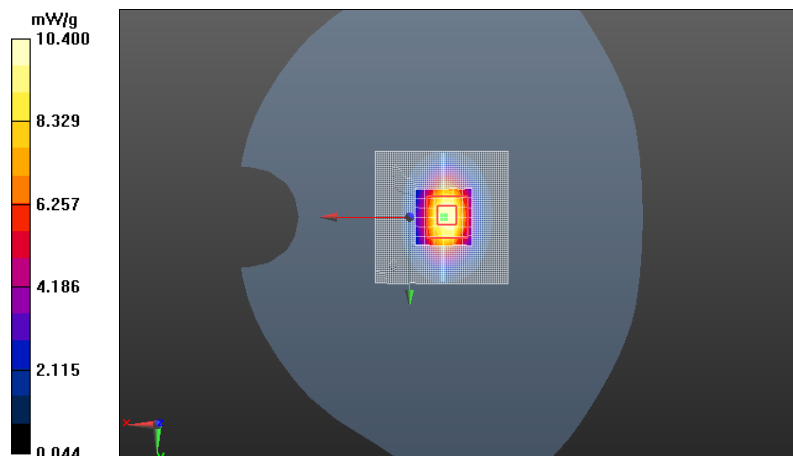
Peak SAR (extrapolated) = 18.938 mW/g

**SAR(1 g) = 9.98 mW/g**

**SAR(10 g) = 5.11 mW/g**

**Power Drift = -0.19 dB**

Maximum value of SAR (measured) = 11.2 mW/g



Date/Time: 2012-08-21 10:06:40 AM

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 547

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1900 MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 38.547$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 11.5 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 89.481 V/m

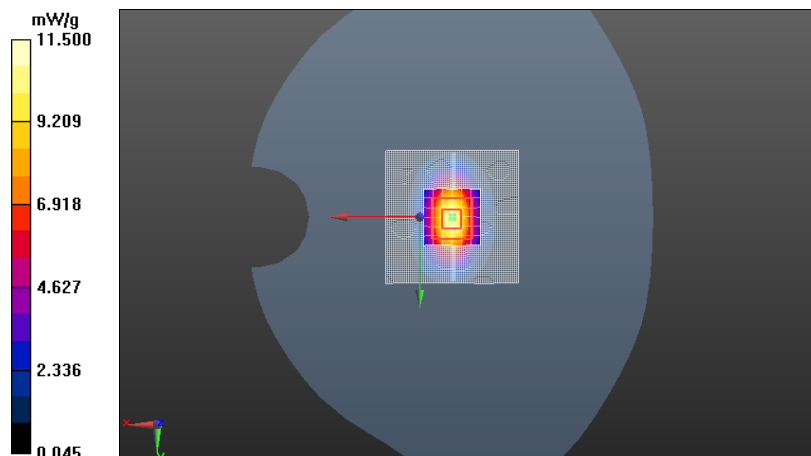
Peak SAR (extrapolated) = 19.038 mW/g

**SAR(1 g) = 10.1 mW/g**

**SAR(10 g) = 5.18 mW/g**

**Power Drift = -0.07 dB**

Maximum value of SAR (measured) = 11.4 mW/g



Date/Time: 2012-08-13 9:34:46 AM

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:760

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.2C

Medium parameters used: f = 2450 MHz;  $\sigma = 1.744$  mho/m;  $\epsilon_r = 38.313$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 15.9 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 79.525 V/m

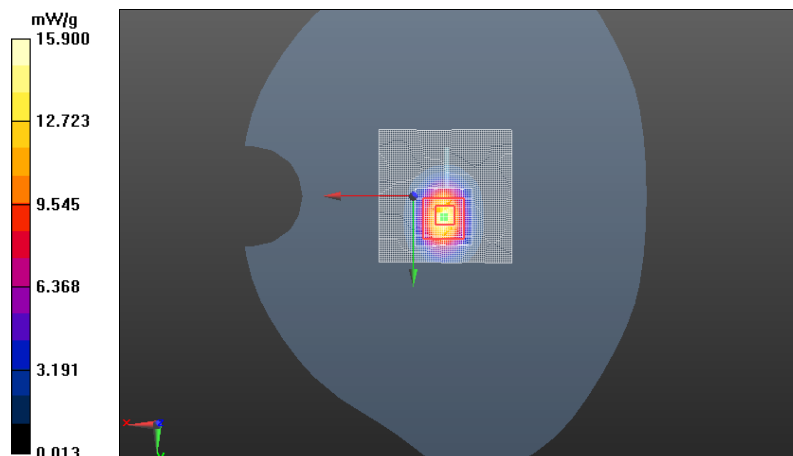
Peak SAR (extrapolated) = 30.435 mW/g

**SAR(1 g) = 12.9 mW/g**

**SAR(10 g) = 5.79 mW/g**

**Power Drift = -0.04 dB**

Maximum value of SAR (measured) = 15.0 mW/g



Date/Time: 2012-08-14 10:27:53 AM

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:760

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.8C

Medium parameters used: f = 2450 MHz;  $\sigma = 1.741$  mho/m;  $\epsilon_r = 37.822$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 15.4 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 78.380 V/m

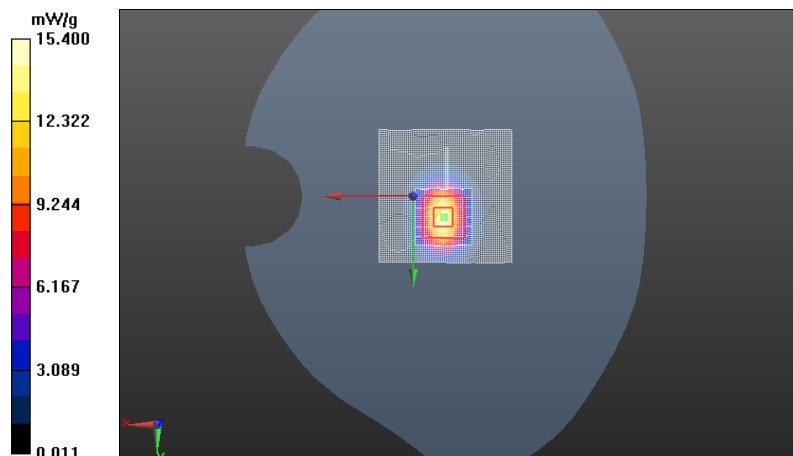
Peak SAR (extrapolated) = 28.149 mW/g

**SAR(1 g) = 12.7 mW/g**

**SAR(10 g) = 5.86 mW/g**

**Power Drift = 0.04 dB**

Maximum value of SAR (measured) = 14.9 mW/g



Date/Time: 2012-08-13 9:41:52 AM

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 479

**Communication System: CW835**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.975\text{ mho/m}$ ;  $\epsilon_r = 54.465$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=15mm, Pin=250mW/Area Scan (61x121x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 2.77 mW/g

**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 53.174 V/m

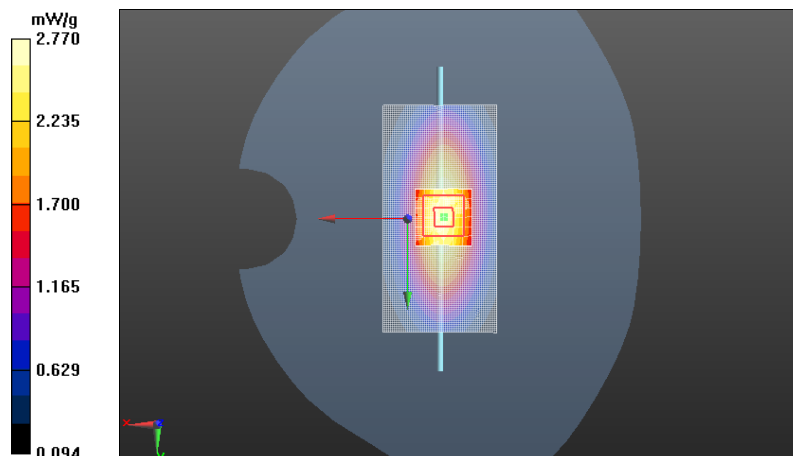
Peak SAR (extrapolated) = 3.822 mW/g

**SAR(1 g) = 2.56 mW/g**

**SAR(10 g) = 1.69 mW/g**

**Power Drift = -0.03 dB**

Maximum value of SAR (measured) = 2.76 mW/g



Date/Time: 2012-08-14 9:35:01 AM

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 479

**Communication System: CW835**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.064$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=15mm, Pin=250mW/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.76 mW/g

**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.426 V/m

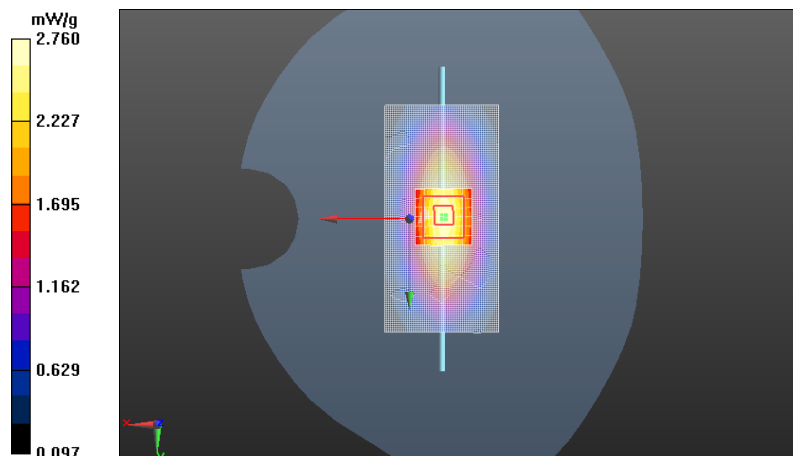
Peak SAR (extrapolated) = 3.791 mW/g

**SAR(1 g) = 2.54 mW/g**

**SAR(10 g) = 1.68 mW/g**

**Power Drift = -0.06 dB**

Maximum value of SAR (measured) = 2.74 mW/g



Date/Time: 2012-08-27 9:41:12 AM

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 479

**Communication System: CW835**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.5\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.977\text{ mho/m}$ ;  $\epsilon_r = 54.436$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=15mm, Pin=250mW/Area Scan (61x121x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 2.73 mW/g

**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 52.700 V/m

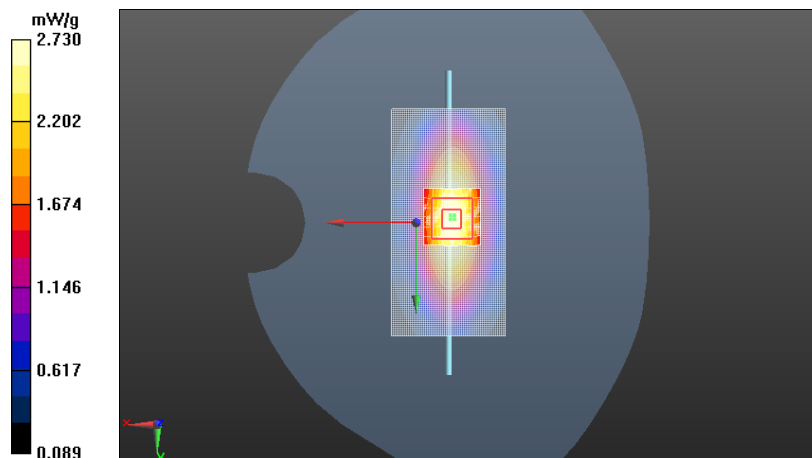
Peak SAR (extrapolated) = 3.805 mW/g

**SAR(1 g) = 2.54 mW/g**

**SAR(10 g) = 1.67 mW/g**

**Power Drift = -0.05 dB**

Maximum value of SAR (measured) = 2.74 mW/g



Date/Time: 2012-08-14 9:51:18 AM

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 547

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.546$  mho/m;  $\epsilon_r = 52.277$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 11.3 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 85.520 V/m

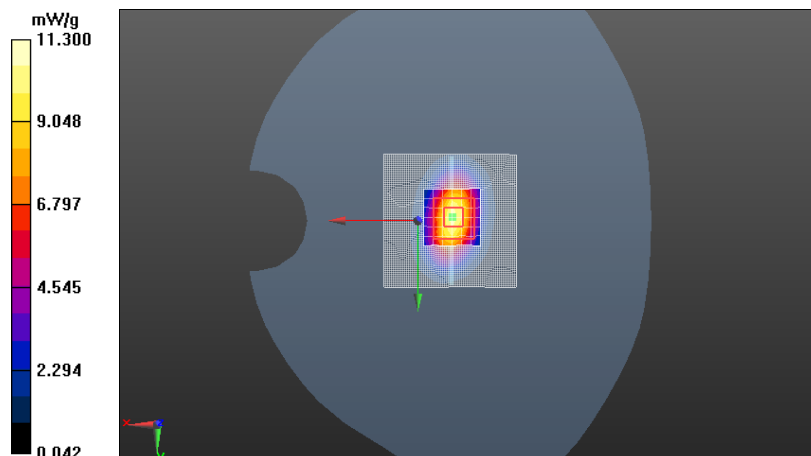
Peak SAR (extrapolated) = 18.187 mW/g

**SAR(1 g) = 9.88 mW/g**

**SAR(10 g) = 5.16 mW/g**

**Power Drift = -0.06 dB**

Maximum value of SAR (measured) = 11.1 mW/g



Date/Time: 2012-08-15 9:54:39 AM

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 547

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.557$  mho/m;  $\epsilon_r = 52.283$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 11.9 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 86.194 V/m

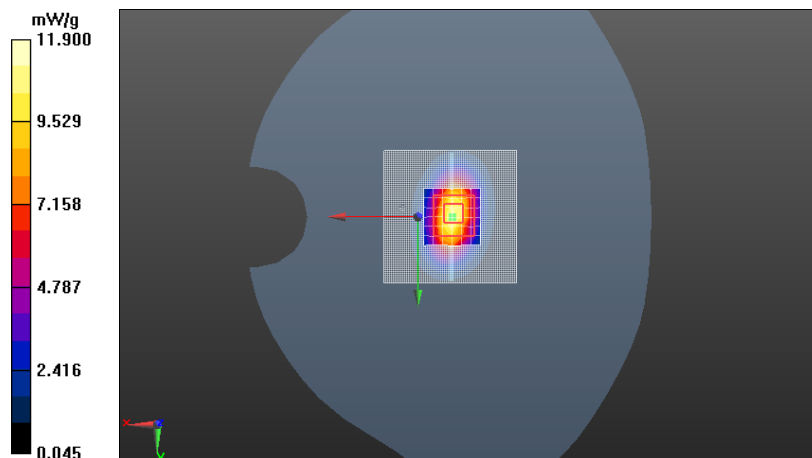
Peak SAR (extrapolated) = 19.080 mW/g

**SAR(1 g) = 10.3 mW/g**

**SAR(10 g) = 5.25 mW/g**

**Power Drift = -0.02 dB**

Maximum value of SAR (measured) = 11.5 mW/g



Date/Time: 2012-08-22 10:17:44 AM

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 547

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1900\text{ MHz}$ ;  $\sigma = 1.561\text{ mho/m}$ ;  $\epsilon_r = 53.143$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 12.0 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 85.644 V/m

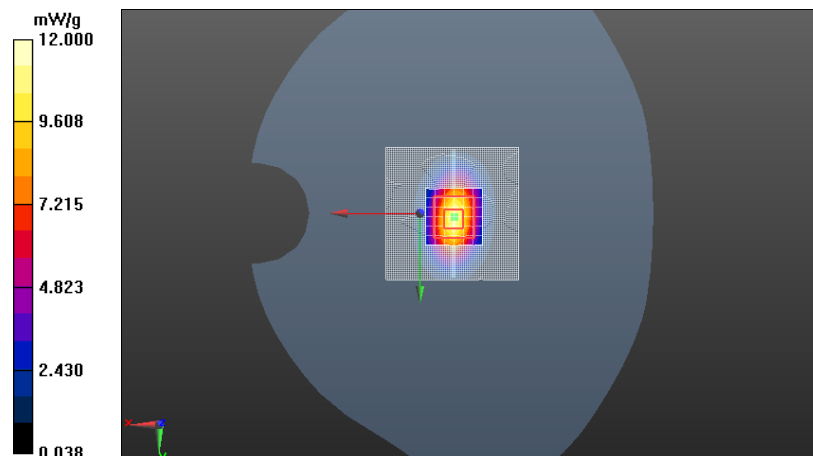
Peak SAR (extrapolated) = 18.553 mW/g

**SAR(1 g) = 10.3 mW/g**

**SAR(10 g) = 5.41 mW/g**

**Power Drift = -0.01 dB**

Maximum value of SAR (measured) = 11.7 mW/g



Date/Time: 2012-08-15 10:22:44 AM

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:760

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2450 MHz;  $\sigma = 1.881$  mho/m;  $\epsilon_r = 52.337$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 15.4 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 72.852 V/m

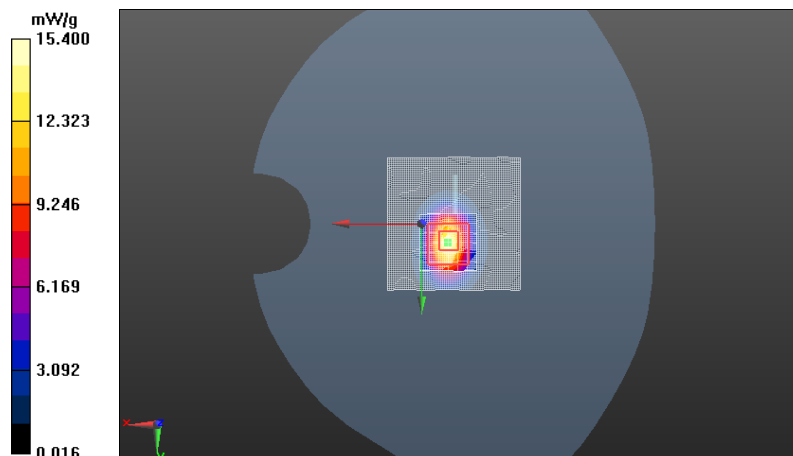
Peak SAR (extrapolated) = 25.069 mW/g

**SAR(1 g) = 12.6 mW/g**

**SAR(10 g) = 5.83 mW/g**

**Power Drift = 0.12 dB**

Maximum value of SAR (measured) = 14.9 mW/g



Date/Time: 2012-08-27 11:00:46 AM

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:760

**Communication System: Continuous Wave**

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2450 MHz;  $\sigma$  = 1.889 mho/m;  $\epsilon_r$  = 51.615;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**d=10mm, Pin=250mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 15.2 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 71.661 V/m

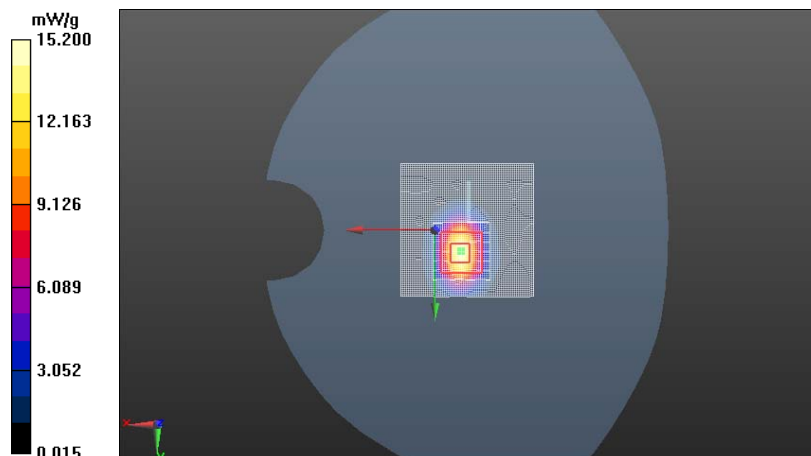
Peak SAR (extrapolated) = 25.426 mW/g

**SAR(1 g) = 12.8 mW/g**

**SAR(10 g) = 5.98 mW/g**

**Power Drift = -0.18 dB**

Maximum value of SAR (measured) = 14.8 mW/g



SAR Report

FCC\_RM-898\_01

Applicant: Nokia Corporation

Type: RM-898

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## APPENDIX B: MEASUREMENT SCANS

Date/Time: 2012-08-09 10:15:24 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

### Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 837\text{ MHz}$ ;  $\sigma = 0.882\text{ mho/m}$ ;  $\epsilon_r = 40.66$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

#### DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

### Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$ , $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.289 mW/g

### Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$ , $dy=7.5\text{mm}$ , $dz=5\text{mm}$

Reference Value = 5.751 V/m

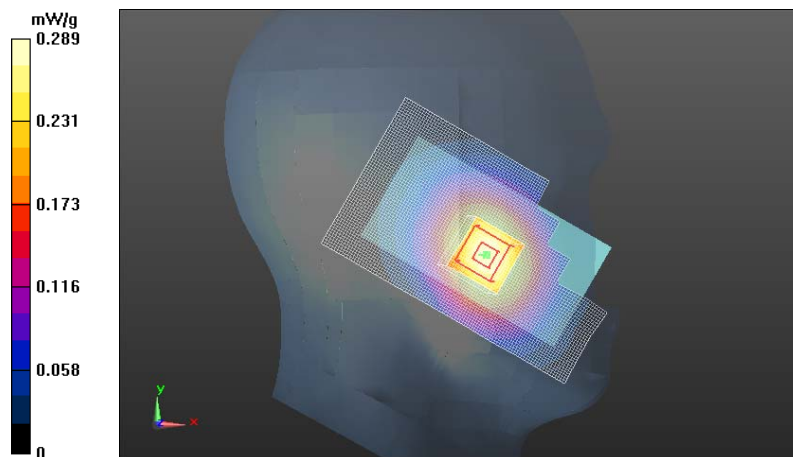
Peak SAR (extrapolated) = 0.342 mW/g

**SAR(1 g) = 0.272 mW/g**

**SAR(10 g) = 0.205 mW/g**

**Power Drift = -0.37 dB**

Maximum value of SAR (measured) = 0.289 mW/g



Date/Time: 2012-08-09 10:32:19 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used:  $f = 837\text{ MHz}$ ;  $\sigma = 0.882\text{ mho/m}$ ;  $\epsilon_r = 40.66$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) = 0.321 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value = 5.799 V/m

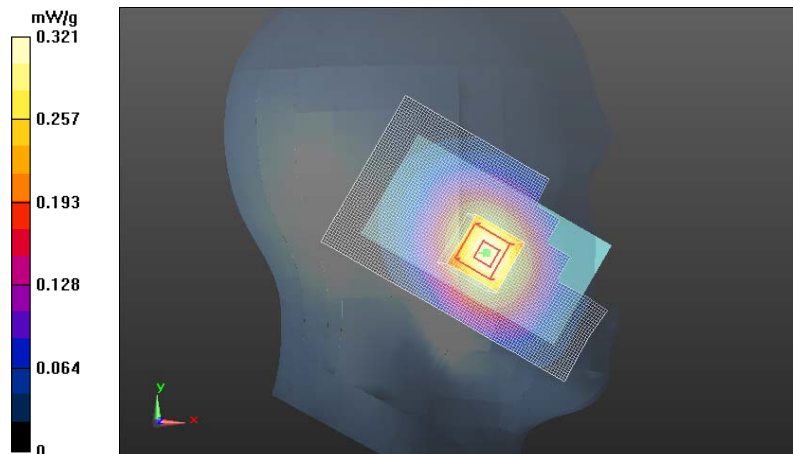
Peak SAR (extrapolated) = 0.383 mW/g

**SAR(1 g) = 0.306 mW/g**

**SAR(10 g) = 0.230 mW/g**

**Power Drift = 0.02 dB**

Maximum value of SAR (measured) = 0.324 mW/g



Date/Time: 2012-08-09 10:46:39 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 3-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used:  $f = 837\text{ MHz}$ ;  $\sigma = 0.882\text{ mho/m}$ ;  $\epsilon_r = 40.66$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) = 0.315 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value = 5.708 V/m

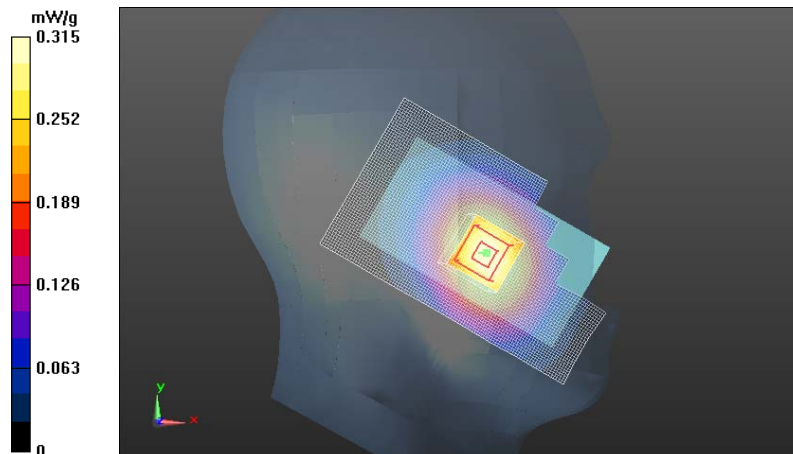
Peak SAR (extrapolated) = 0.373 mW/g

**SAR(1 g) = 0.298 mW/g**

**SAR(10 g) = 0.225 mW/g**

**Power Drift = 0.05 dB**

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



Date/Time: 2012-08-09 11:16:02 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 849\text{ MHz}$ ;  $\sigma = 0.891\text{ mho/m}$ ;  $\epsilon_r = 40.577$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.440\text{ mW/g}$

**Cheek - High - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $6.184\text{ V/m}$

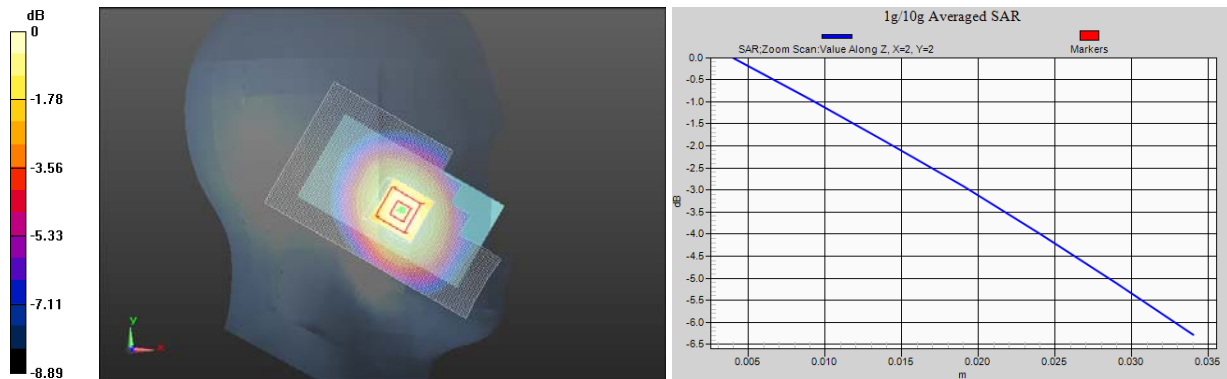
Peak SAR (extrapolated) =  $0.518\text{ mW/g}$

**SAR(1 g) =  $0.415\text{ mW/g}$**

**SAR(10 g) =  $0.312\text{ mW/g}$**

**Power Drift =  $0.26\text{ dB}$**

Maximum value of SAR (measured) =  $0.440\text{ mW/g}$



0 dB =  $0.440\text{ mW/g}$  =  $-7.13\text{ dB mW/g}$

Date/Time: 2012-08-09 11:41:21 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.882$  mho/m;  $\epsilon_r = 40.66$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle - BP-3L LG/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.242 mW/g

**Tilt - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.849 V/m

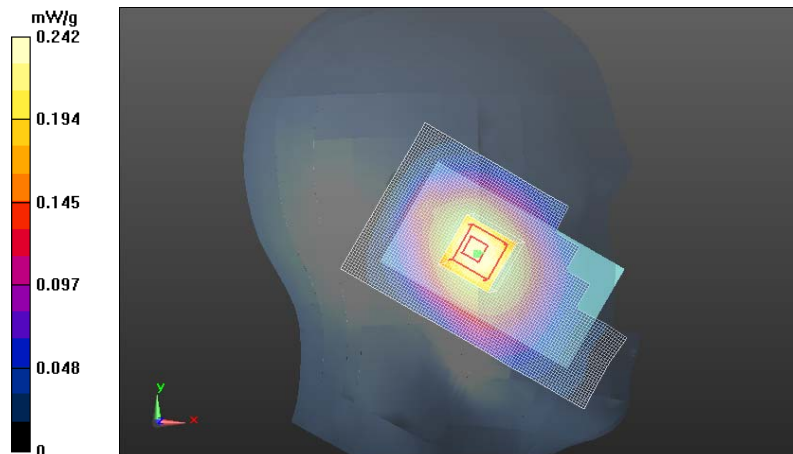
Peak SAR (extrapolated) = 0.291 mW/g

**SAR(1 g) = 0.231 mW/g**

**SAR(10 g) = 0.175 mW/g**

**Power Drift = -0.20 dB**

Maximum value of SAR (measured) = 0.240 mW/g



Date/Time: 2012-08-09 11:53:48 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used:  $f = 837\text{ MHz}$ ;  $\sigma = 0.882\text{ mho/m}$ ;  $\epsilon_r = 40.66$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) = 0.297 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value = 4.817 V/m

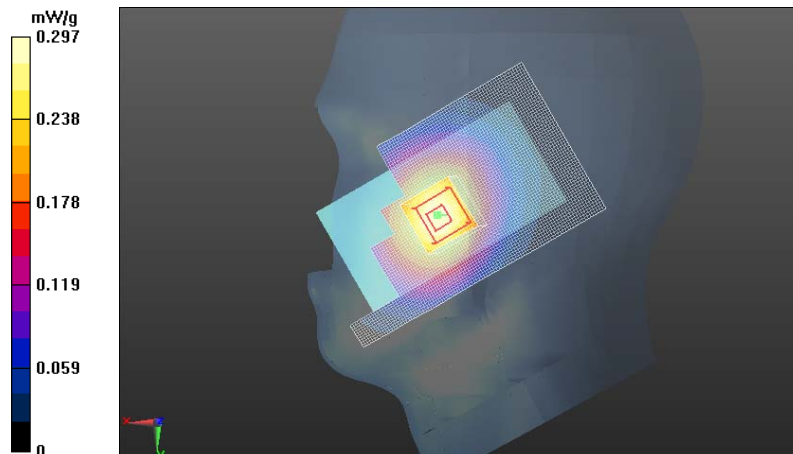
Peak SAR (extrapolated) = 0.347 mW/g

**SAR(1 g) = 0.282 mW/g**

**SAR(10 g) = 0.215 mW/g**

**Power Drift = 0.10 dB**

Maximum value of SAR (measured) = 0.297 mW/g



Date/Time: 2012-08-09 12:07:16 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used:  $f = 837\text{ MHz}$ ;  $\sigma = 0.882\text{ mho/m}$ ;  $\epsilon_r = 40.66$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.198\text{ mW/g}$

**Tilt - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $8.649\text{ V/m}$

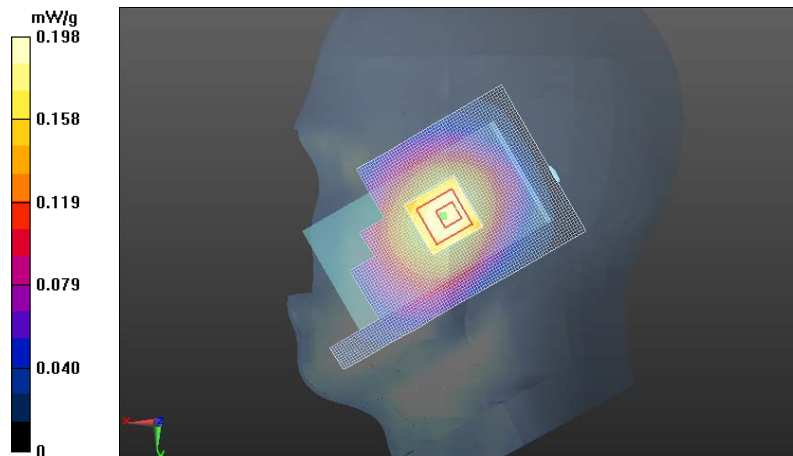
Peak SAR (extrapolated) =  $0.238\text{ mW/g}$

**SAR(1 g) =  $0.193\text{ mW/g}$**

**SAR(10 g) =  $0.148\text{ mW/g}$**

**Power Drift =  $0.09\text{ dB}$**

Maximum value of SAR (measured) =  $0.200\text{ mW/g}$



Date/Time: 2012-08-09 2:34:28 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot EGPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used:  $f = 849\text{ MHz}$ ;  $\sigma = 0.891\text{ mho/m}$ ;  $\epsilon_r = 40.577$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.164\text{ mW/g}$

**Cheek - High - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $3.118\text{ V/m}$

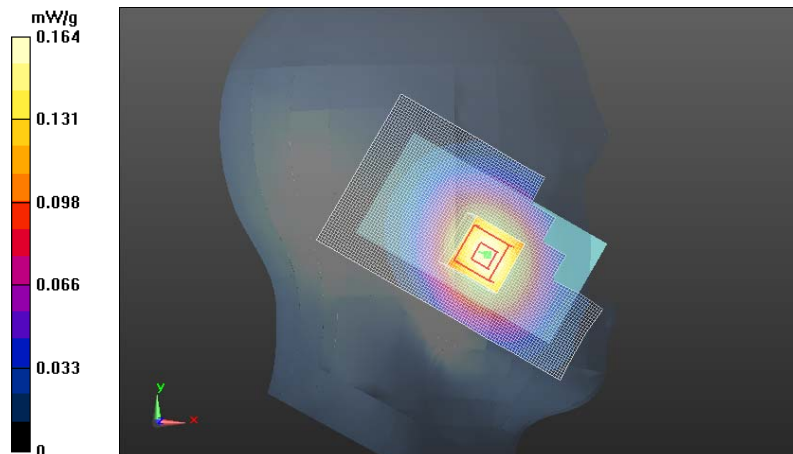
Peak SAR (extrapolated) =  $0.192\text{ mW/g}$

**SAR(1 g) =  $0.156\text{ mW/g}$**

**SAR(10 g) =  $0.118\text{ mW/g}$**

**Power Drift =  $-0.15\text{ dB}$**

Maximum value of SAR (measured) =  $0.165\text{ mW/g}$



Date/Time: 2012-08-09 1:59:45 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 849\text{ MHz}$ ;  $\sigma = 0.891\text{ mho/m}$ ;  $\epsilon_r = 40.577$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3838

- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;

- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15

- Phantom: SAM10; Type: SAM; Serial: TP - 1410

- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High - BP-3L Sony/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) =  $0.460\text{ mW/g}$

**Cheek - High - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value =  $5.017\text{ V/m}$

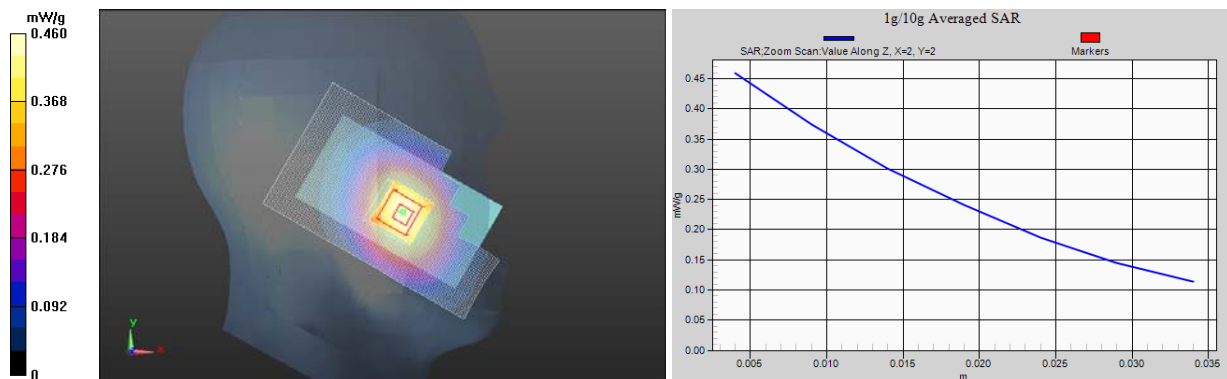
Peak SAR (extrapolated) =  $0.537\text{ mW/g}$

**SAR(1 g) =  $0.436\text{ mW/g}$**

**SAR(10 g) =  $0.330\text{ mW/g}$**

**Power Drift =  $0.14\text{ dB}$**

Maximum value of SAR (measured) =  $0.459\text{ mW/g}$



SAR Report

FCC\_RM-898\_01

Applicant: Nokia Corporation

Type: RM-898

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Date/Time: 2012-08-10 10:47:35 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 847\text{ MHz}$ ;  $\sigma = 0.927\text{ mho/m}$ ;  $\epsilon_r = 42.545$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High - BP-4L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) =  $0.368\text{ mW/g}$

**Cheek - High - BP-4L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value =  $5.105\text{ V/m}$

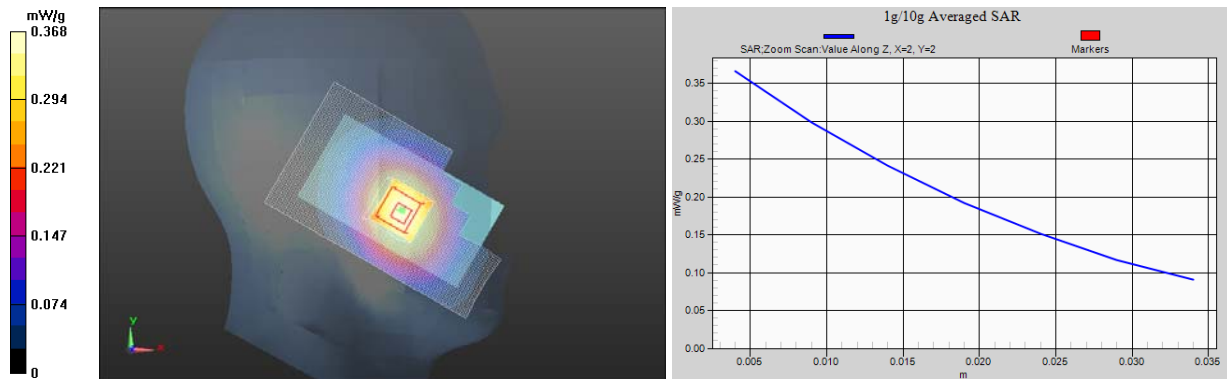
Peak SAR (extrapolated) =  $0.430\text{ mW/g}$

**SAR(1 g) =  $0.347\text{ mW/g}$**

**SAR(10 g) =  $0.263\text{ mW/g}$**

**Power Drift =  $0.30\text{ dB}$**

Maximum value of SAR (measured) =  $0.366\text{ mW/g}$



Date/Time: 2012-08-10 10:59:25 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.919\text{ mho/m}$ ;  $\epsilon_r = 42.618$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) =  $0.180\text{ mW/g}$

**Tilt - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value =  $8.080\text{ V/m}$

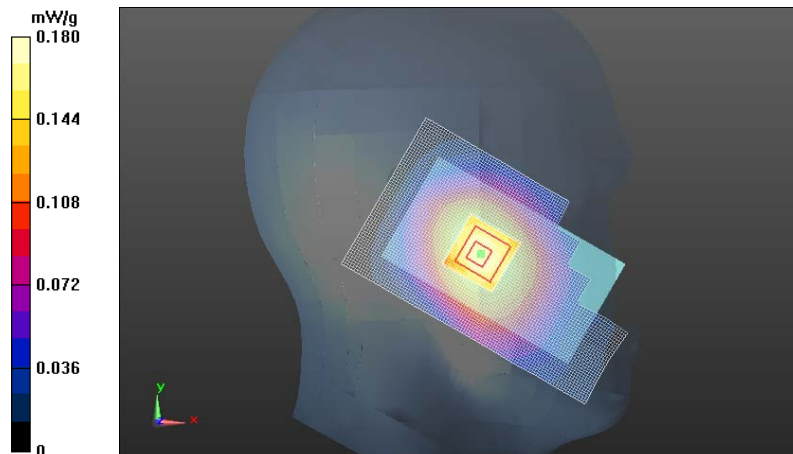
Peak SAR (extrapolated) =  $0.193\text{ mW/g}$

**SAR(1 g) =  $0.157\text{ mW/g}$**

**SAR(10 g) =  $0.121\text{ mW/g}$**

**Power Drift =  $-0.20\text{ dB}$**

Maximum value of SAR (measured) =  $0.164\text{ mW/g}$



Date/Time: 2012-08-10 9:56:17 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.919\text{ mho/m}$ ;  $\epsilon_r = 42.618$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) = 0.252 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value = 4.540 V/m

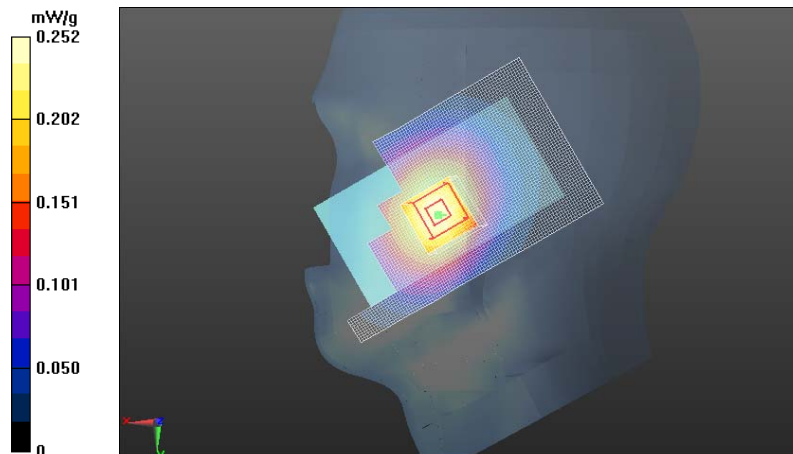
Peak SAR (extrapolated) = 0.292 mW/g

**SAR(1 g) = 0.235 mW/g**

**SAR(10 g) = 0.178 mW/g**

**Power Drift = -0.17 dB**

Maximum value of SAR (measured) = 0.247 mW/g



Date/Time: 2012-08-10 10:09:43 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 835 SAM10; Medium Notes: Medium Temperature:  $t = 22.0\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.919\text{ mho/m}$ ;  $\epsilon_r = 42.618$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM10; Type: SAM; Serial: TP - 1410
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$**

Maximum value of SAR (interpolated) =  $0.175\text{ mW/g}$

**Tilt - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$**

Reference Value =  $8.451\text{ V/m}$

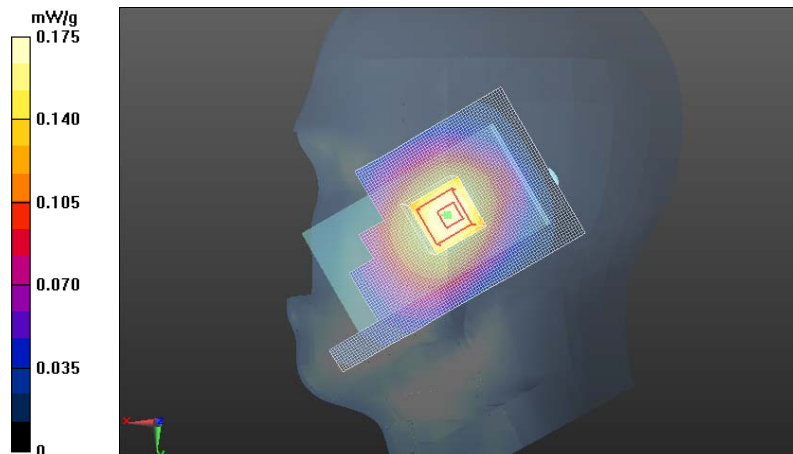
Peak SAR (extrapolated) =  $0.211\text{ mW/g}$

**SAR(1 g) =  $0.171\text{ mW/g}$**

**SAR(10 g) =  $0.130\text{ mW/g}$**

**Power Drift =  $0.07\text{ dB}$**

Maximum value of SAR (measured) =  $0.179\text{ mW/g}$



Date/Time: 2012-08-10 10:09:36 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: GSM1900**

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used: f = 1880 MHz;  $\sigma = 1.423$  mho/m;  $\epsilon_r = 39.089$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.302 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 4.685 V/m

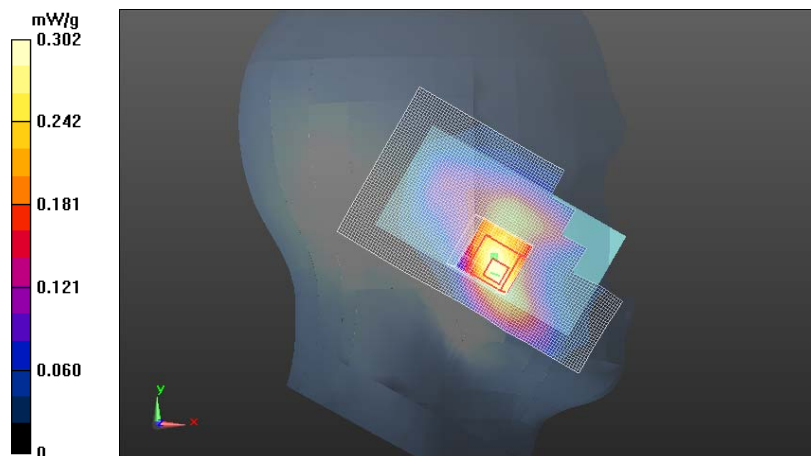
Peak SAR (extrapolated) = 0.435 mW/g

**SAR(1 g) = 0.284 mW/g**

**SAR(10 g) = 0.173 mW/g**

**Power Drift = 0.06 dB**

Maximum value of SAR (measured) = 0.309 mW/g



Date/Time: 2012-08-21 12:40:01 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.396$  mho/m;  $\epsilon_r = 38.757$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Low - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.405 mW/g

**Cheek - Low - BP-3L LG/Zoom Scan 3 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 4.463 V/m

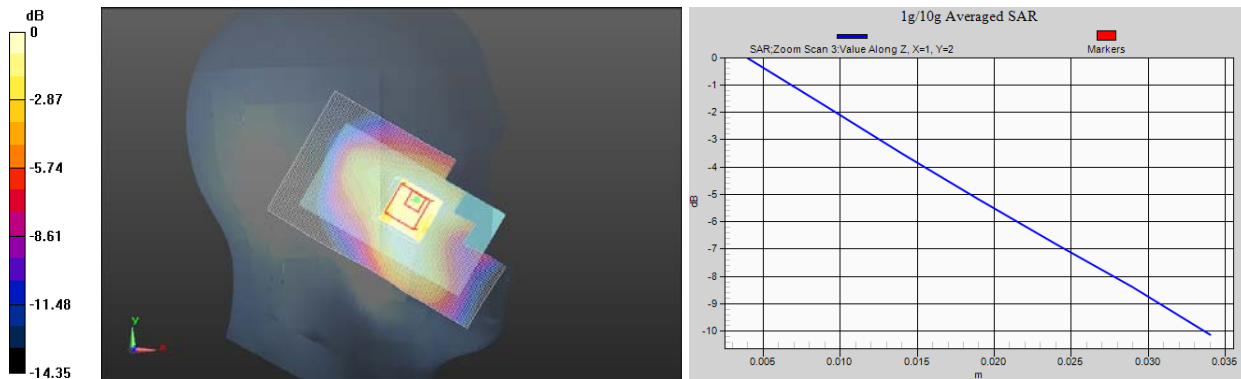
Peak SAR (extrapolated) = 0.528 mW/g

**SAR(1 g) = 0.356 mW/g**

**SAR(10 g) = 0.235 mW/g**

**Power Drift = 0.20 dB**

Maximum value of SAR (measured) = 0.380 mW/g



Date/Time: 2012-08-21 11:13:40 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma = 1.422$  mho/m;  $\epsilon_r = 38.611$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Tilt - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.287 mW/g

**Cheek - Tilt - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 7.937 V/m

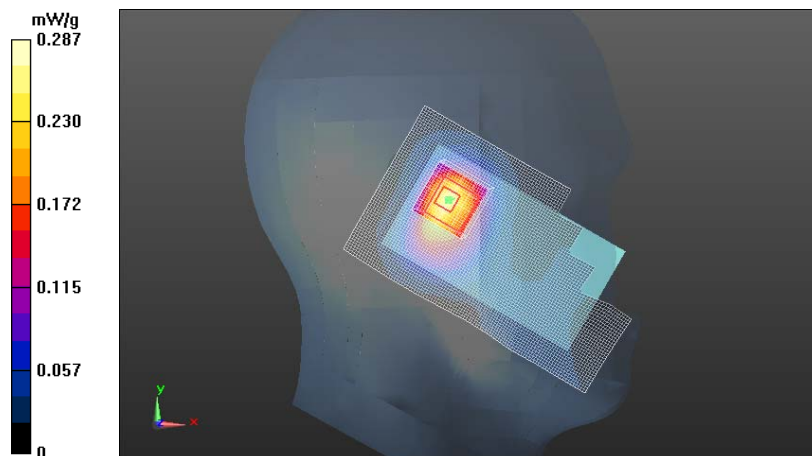
Peak SAR (extrapolated) = 0.353 mW/g

**SAR(1 g) = 0.233 mW/g**

**SAR(10 g) = 0.142 mW/g**

**Power Drift = -0.00 dB**

Maximum value of SAR (measured) = 0.253 mW/g



Date/Time: 2012-08-21 11:41:45 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.422 mho/m;  $\epsilon_r$  = 38.611;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle 2/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.347 mW/g

**Cheek - Middle 2/Zoom Scan 3 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.978 V/m

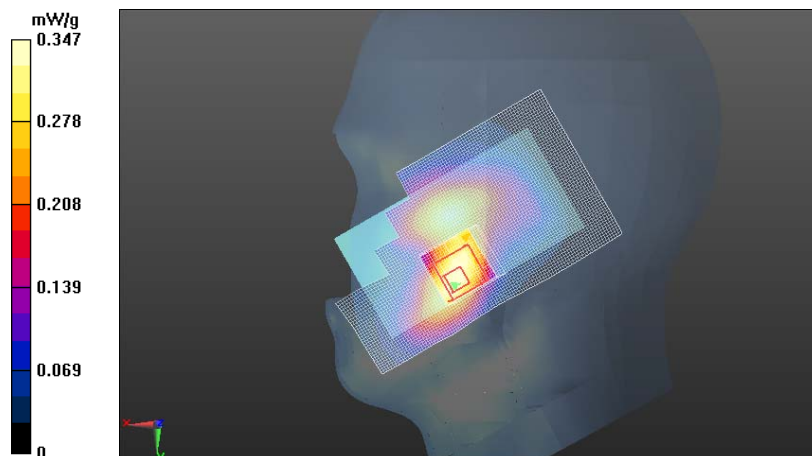
Peak SAR (extrapolated) = 0.499 mW/g

**SAR(1 g) = 0.326 mW/g**

**SAR(10 g) = 0.200 mW/g**

**Power Drift = 0.29 dB**

Maximum value of SAR (measured) = 0.352 mW/g



Date/Time: 2012-08-21 12:01:02 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.422 mho/m;  $\epsilon_r$  = 38.611;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.254 mW/g

**Tilt - Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.416 V/m

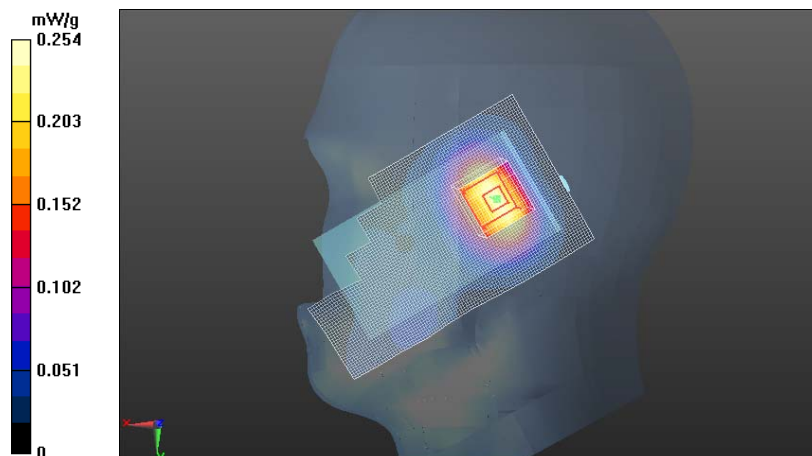
Peak SAR (extrapolated) = 0.320 mW/g

**SAR(1 g) = 0.214 mW/g**

**SAR(10 g) = 0.138 mW/g**

**Power Drift = 0.08 dB**

Maximum value of SAR (measured) = 0.229 mW/g



Date/Time: 2012-08-21 10:43:13 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 3-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.422$  mho/m;  $\epsilon_r = 38.611$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.305 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 3.544 V/m

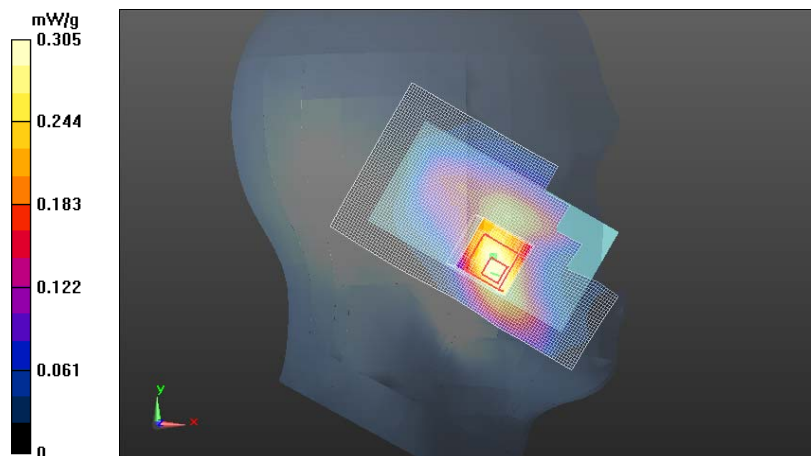
Peak SAR (extrapolated) = 0.454 mW/g

**SAR(1 g) = 0.295 mW/g**

**SAR(10 g) = 0.180 mW/g**

**Power Drift = 0.31 dB**

Maximum value of SAR (measured) = 0.319 mW/g



Date/Time: 2012-08-21 10:57:49 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.422$  mho/m;  $\epsilon_r = 38.611$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.313 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 3.703 V/m

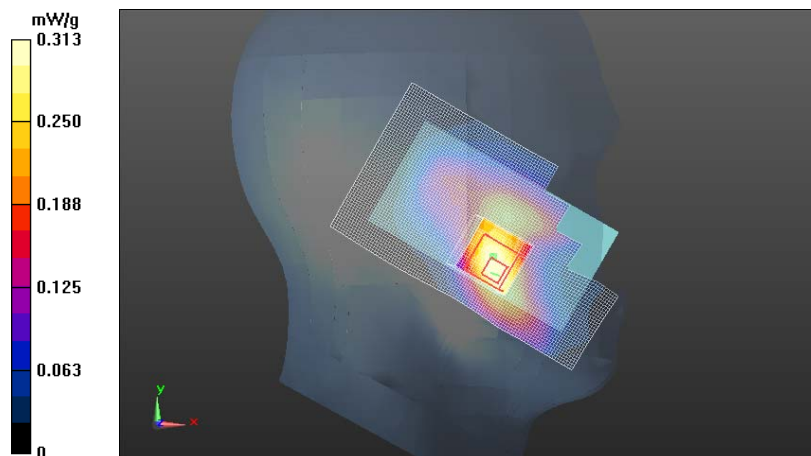
Peak SAR (extrapolated) = 0.467 mW/g

**SAR(1 g) = 0.304 mW/g**

**SAR(10 g) = 0.184 mW/g**

**Power Drift = 0.26 dB**

Maximum value of SAR (measured) = 0.327 mW/g



Date/Time: 2012-08-21 4:43:41 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot EGPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.396$  mho/m;  $\epsilon_r = 38.757$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Low - BP-3L LG/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.190 mW/g

**Cheek - Low - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.227 V/m

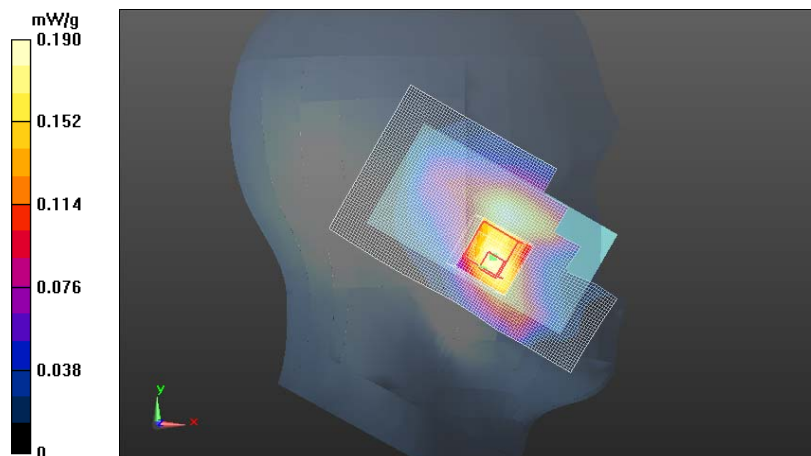
Peak SAR (extrapolated) = 0.265 mW/g

**SAR(1 g) = 0.171 mW/g**

**SAR(10 g) = 0.107 mW/g**

**Power Drift = -0.00 dB**

Maximum value of SAR (measured) = 0.183 mW/g



Date/Time: 2012-08-10 11:40:46 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.445$  mho/m;  $\epsilon_r = 38.98$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.808 mW/g

**Cheek - High - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 6.734 V/m

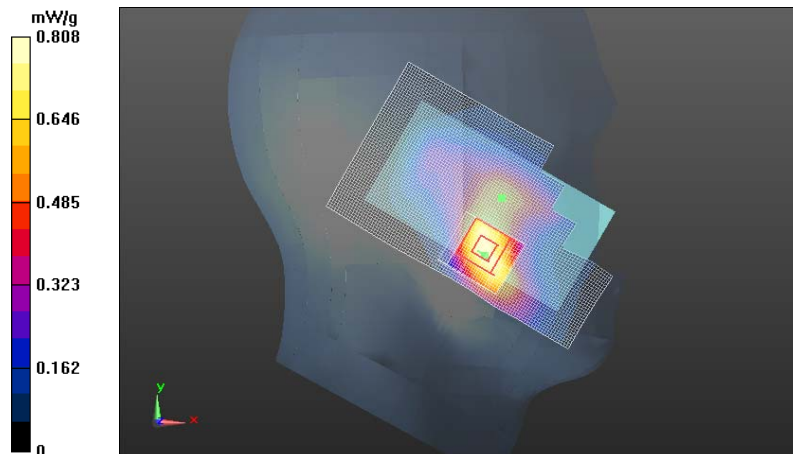
Peak SAR (extrapolated) = 1.163 mW/g

**SAR(1 g) = 0.757 mW/g**

**SAR(10 g) = 0.459 mW/g**

**Power Drift = -0.11 dB**

Maximum value of SAR (measured) = 0.824 mW/g



Date/Time: 2012-08-10 12:04:40 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used: f = 1880 MHz;  $\sigma = 1.423$  mho/m;  $\epsilon_r = 39.089$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle - BP-3L LG/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.649 mW/g

**Tilt - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 15.236 V/m

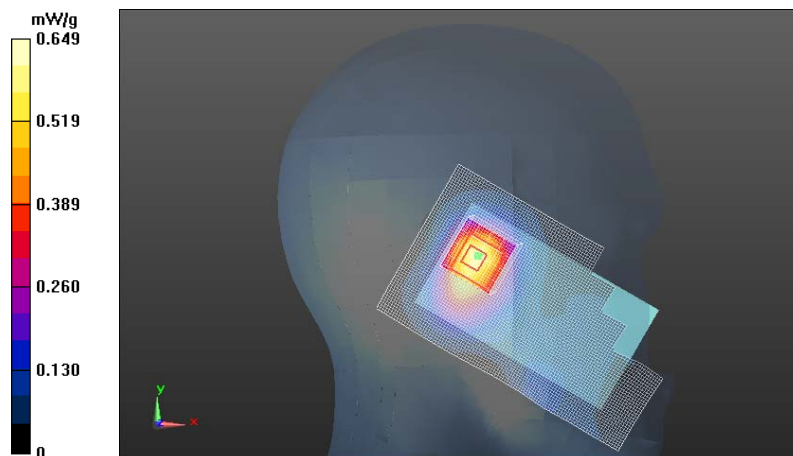
Peak SAR (extrapolated) = 0.838 mW/g

**SAR(1 g) = 0.551 mW/g**

**SAR(10 g) = 0.334 mW/g**

**Power Drift = -0.01 dB**

Maximum value of SAR (measured) = 0.590 mW/g



Date/Time: 2012-08-10 10:46:11 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used: f = 1880 MHz;  $\sigma = 1.423$  mho/m;  $\epsilon_r = 39.089$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.704 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 6.683 V/m

Peak SAR (extrapolated) = 0.999 mW/g

**SAR(1 g) = 0.650 mW/g**

**SAR(10 g) = 0.399 mW/g**

**Power Drift = -0.39 dB**

Maximum value of SAR (measured) = 0.709 mW/g

**Cheek - Middle - BP-3L LG/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 6.683 V/m

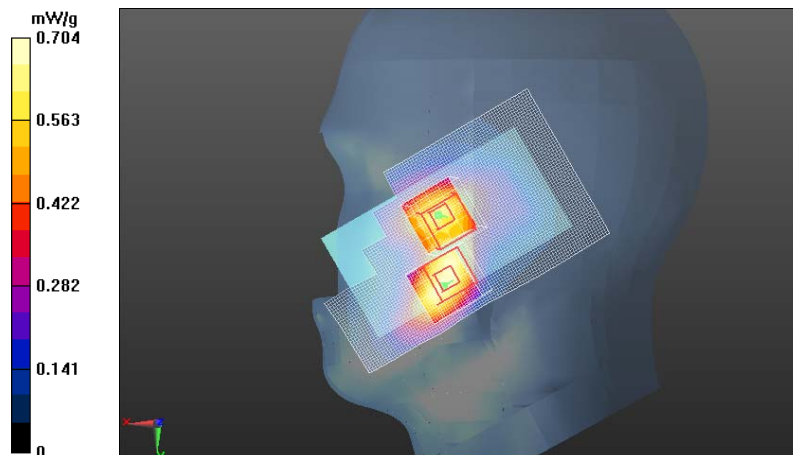
Peak SAR (extrapolated) = 0.872 mW/g

**SAR(1 g) = 0.576 mW/g**

**SAR(10 g) = 0.377 mW/g**

**Power Drift = -0.39 dB**

Maximum value of SAR (measured) = 0.624 mW/g



Date/Time: 2012-08-10 11:06:47 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.423 mho/m;  $\epsilon_r$  = 39.089;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.498 mW/g

**Tilt - Middle - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 12.221 V/m

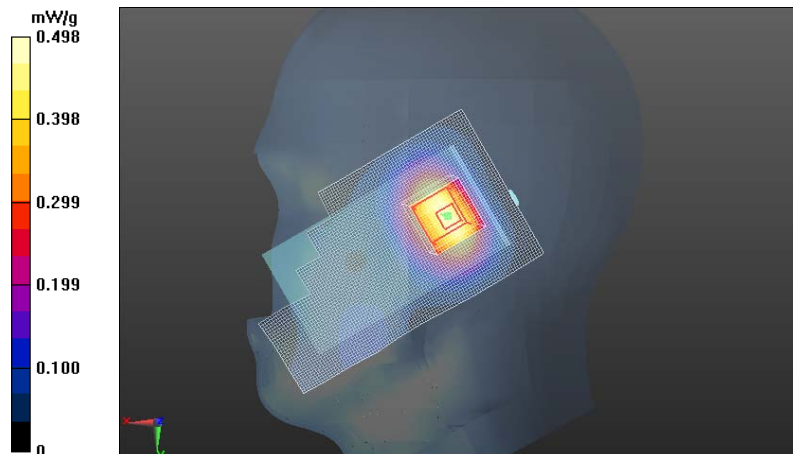
Peak SAR (extrapolated) = 0.636 mW/g

**SAR(1 g) = 0.426 mW/g**

**SAR(10 g) = 0.276 mW/g**

**Power Drift = 0.08 dB**

Maximum value of SAR (measured) = 0.457 mW/g



Date/Time: 2012-08-10 3:07:56 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used: f = 1908 MHz;  $\sigma$  = 1.445 mho/m;  $\epsilon_r$  = 38.98;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Left Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM4; Type: SAM; Serial: TP - 1427
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High - BP-3L Sony/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.793 mW/g

**Cheek - High - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 5.968 V/m

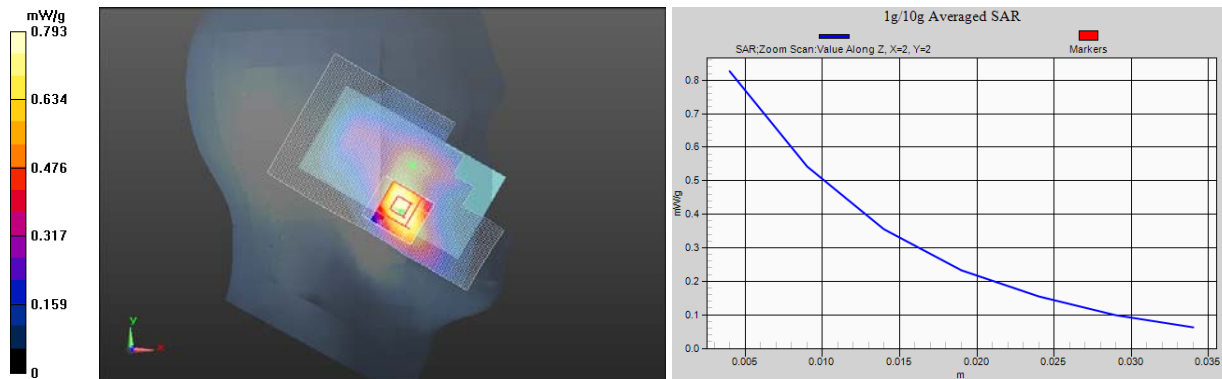
Peak SAR (extrapolated) = 1.160 mW/g

**SAR(1 g) = 0.761 mW/g**

**SAR(10 g) = 0.464 mW/g**

**Power Drift = 0.34 dB**

Maximum value of SAR (measured) = 0.826 mW/g



Date/Time: 2012-08-13 1:25:43 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.2C

Medium parameters used: f = 2462 MHz;  $\sigma$  = 1.759 mho/m;  $\epsilon_r$  = 38.304;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - High(US) - Bp-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.524 mW/g

**Cheek - High(US) - Bp-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 8.732 V/m

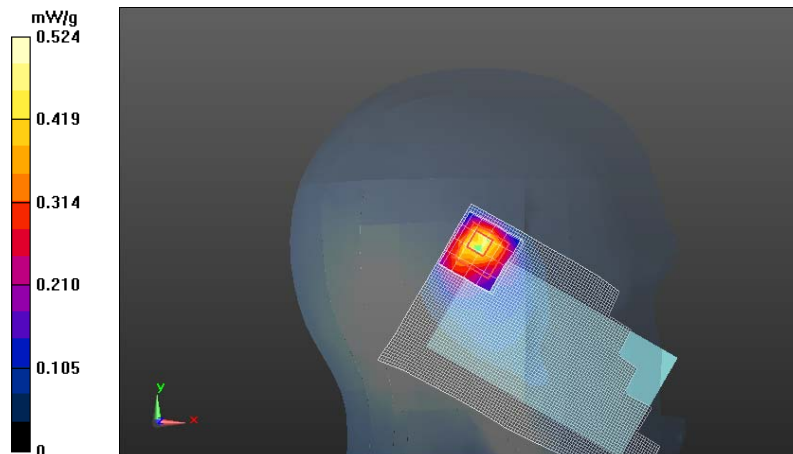
Peak SAR (extrapolated) = 1.041 mW/g

**SAR(1 g) = 0.459 mW/g**

**SAR(10 g) = 0.216 mW/g**

**Power Drift = -0.01 dB**

Maximum value of SAR (measured) = 0.480 mW/g



Date/Time: 2012-08-13 10:51:53 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.2C

Medium parameters used: f = 2437 MHz;  $\sigma = 1.726$  mho/m;  $\epsilon_r = 38.34$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle(US) - Bp-3L LG/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.328 mW/g

**Tilt - Middle(US) - Bp-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.143 V/m

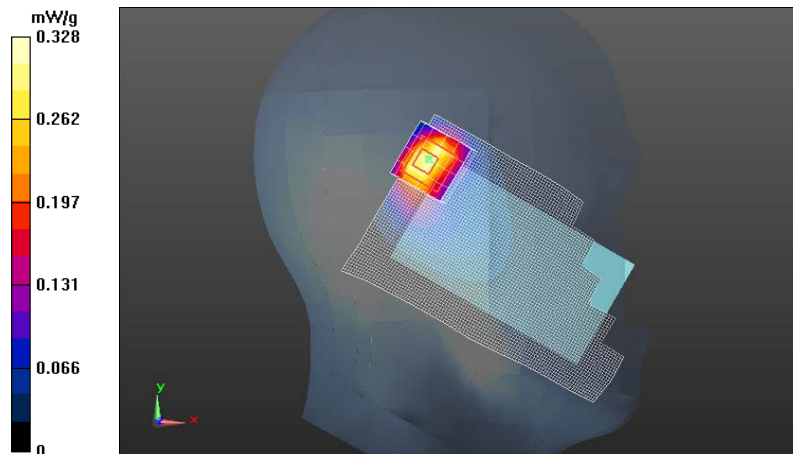
Peak SAR (extrapolated) = 0.706 mW/g

**SAR(1 g) = 0.317 mW/g**

**SAR(10 g) = 0.151 mW/g**

**Power Drift = 0.05 dB**

Maximum value of SAR (measured) = 0.332 mW/g



Date/Time: 2012-08-13 11:17:44 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.2C

Medium parameters used: f = 2437 MHz;  $\sigma = 1.726$  mho/m;  $\epsilon_r = 38.34$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Middle(US) - BP-3L LG/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.310 mW/g

**Cheek - Middle(US) - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 4.367 V/m

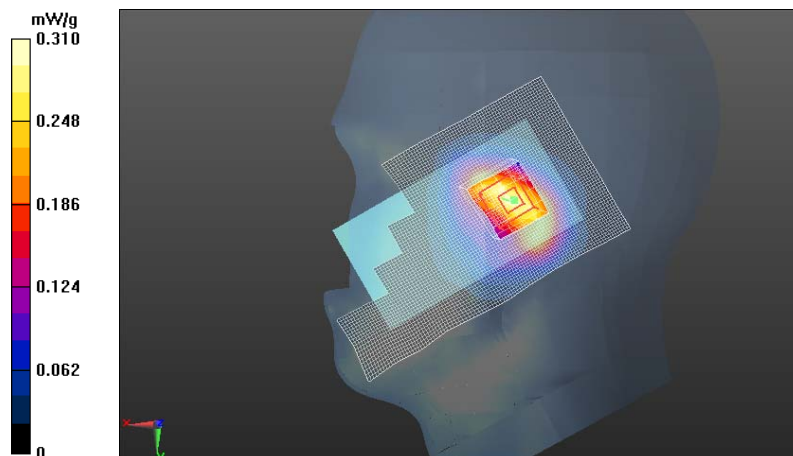
Peak SAR (extrapolated) = 0.511 mW/g

**SAR(1 g) = 0.278 mW/g**

**SAR(10 g) = 0.152 mW/g**

**Power Drift = 0.34 dB**

Maximum value of SAR (measured) = 0.307 mW/g



Date/Time: 2012-08-13 12:08:29 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.2C

Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.726 mho/m;  $\epsilon_r$  = 38.34;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Tilt - Middle(US) - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.284 mW/g

**Tilt - Middle(US) - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 4.481 V/m

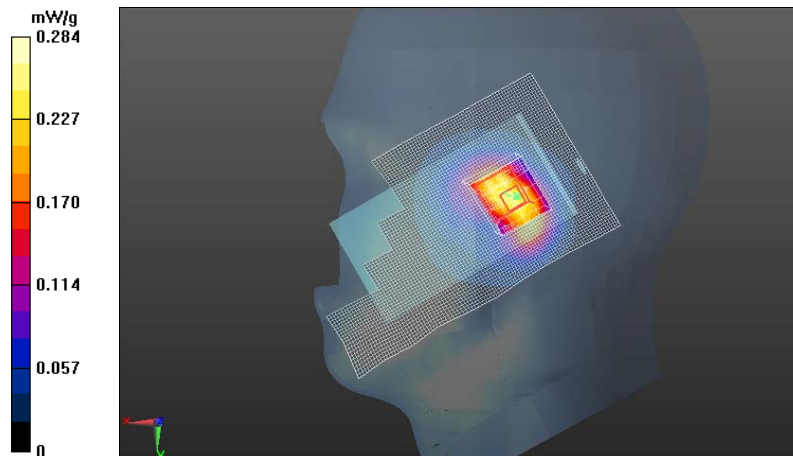
Peak SAR (extrapolated) = 0.478 mW/g

**SAR(1 g) = 0.244 mW/g**

**SAR(10 g) = 0.131 mW/g**

**Power Drift = 0.46 dB**

Maximum value of SAR (measured) = 0.266 mW/g



Date/Time: 2012-08-13 2:14:24 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=21.2C

Medium parameters used: f = 2412 MHz;  $\sigma = 1.695$  mho/m;  $\epsilon_r = 38.365$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM5; Type: SAM; Serial: TP - 1178
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Cheek - Low - Bp-3L Sony/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.499 mW/g

**Cheek - Low - Bp-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 8.082 V/m

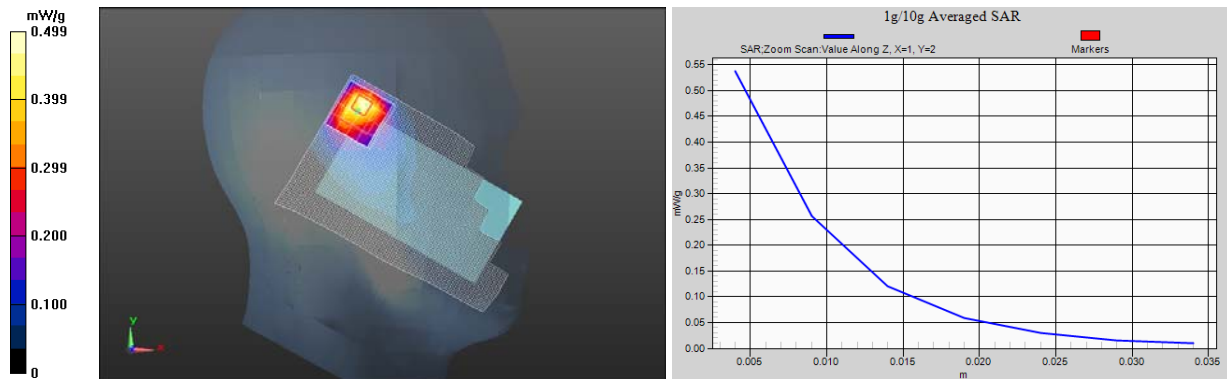
Peak SAR (extrapolated) = 1.127 mW/g

**SAR(1 g) = 0.479 mW/g**

**SAR(10 g) = 0.223 mW/g**

**Power Drift = 0.36 dB**

Maximum value of SAR (measured) = 0.537 mW/g



Date/Time: 2012-08-09 1:59:45 PM

**DASY Configuration for Cheek - High - BP-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: 4-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:2.08; PMF: 1.44222

Medium: Head 835 SAM10 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.891 \text{ mho/m}$ ;  $\epsilon_r = 40.577$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Probe: EX3DV4 - SN3838; ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM10; Type: SAM; Serial: TP - 1410  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-13 2:14:24 PM

**DASY Configuration for Cheek - Low - Bp-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

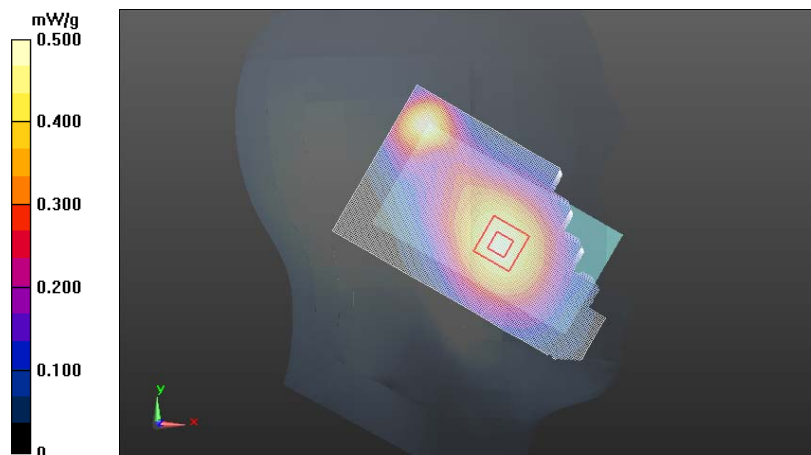
Medium: Head 2450 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.695 \text{ mho/m}$ ;  $\epsilon_r = 38.365$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Probe: EX3DV4 - SN3574; ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM5; Type: SAM; Serial: TP - 1178  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.458 mW/g; SAR(10 g) = 0.317 mW/g**

Maximum value of SAR (interpolated) = 0.500 mW/g



Date/Time: 2012-08-10 10:47:35 AM

**DASY Configuration for Cheek - High - BP-4L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: WCDMA850; Frequency: 846.6 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Head 835 SAM10 Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.927$  mho/m;  $\epsilon_r = 42.545$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Probe: EX3DV4 - SN3838; ConvF(8.67, 8.67, 8.67); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM10; Type: SAM; Serial: TP - 1410  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-13 2:14:24 PM

**DASY Configuration for Cheek - Low - Bp-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

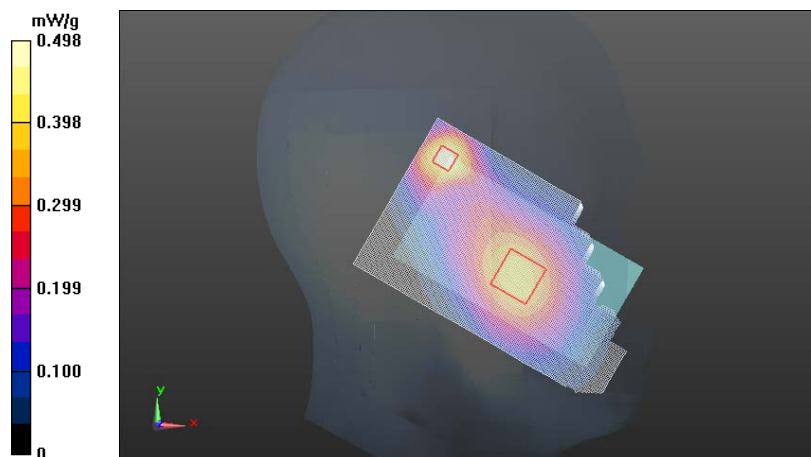
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.695$  mho/m;  $\epsilon_r = 38.365$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Probe: EX3DV4 - SN3574; ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM5; Type: SAM; Serial: TP - 1178  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.441 mW/g; SAR(10 g) = 0.257 mW/g**

Maximum value of SAR (interpolated) = 0.498 mW/g



Date/Time: 2012-08-21 12:40:01 PM

**DASY Configuration for Cheek - Low - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000056/3**

Communication System: 2-slot GPRS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.396 \text{ mho/m}$ ;  $\epsilon_r = 38.757$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Probe: EX3DV4 - SN3836; ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1319; Calibrated: 2012-02-15  
Phantom: SAM4; Type: SAM; Serial: TP - 1427  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-13 2:14:24 PM

**DASY Configuration for Cheek - Low - Bp-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

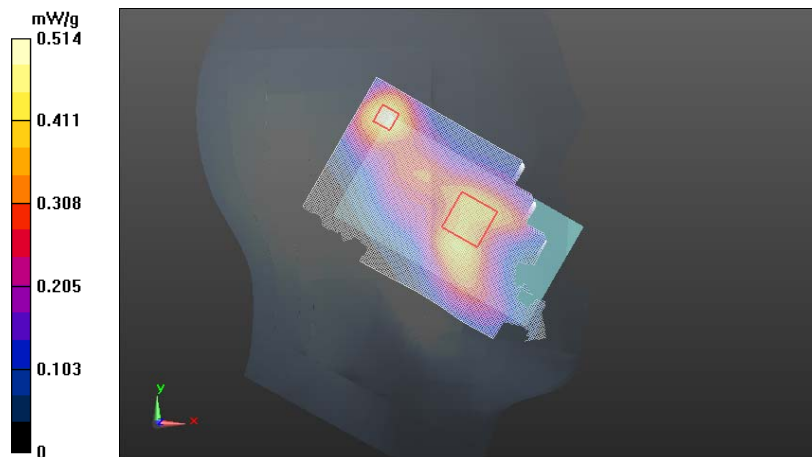
Medium: Head 2450 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.695 \text{ mho/m}$ ;  $\epsilon_r = 38.365$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Probe: EX3DV4 - SN3574; ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM5; Type: SAM; Serial: TP - 1178  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.450 mW/g; SAR(10 g) = 0.230 mW/g**

Maximum value of SAR (interpolated) = 0.514 mW/g



Date/Time: 2012-08-10 3:07:56 PM

**DASY Configuration for Cheek - High - BP-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000056/3**

Communication System: WCDMA1900; Frequency: 1907.6 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Head 1900 Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.445$  mho/m;  $\epsilon_r = 38.98$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Probe: EX3DV4 - SN3836; ConvF(7.66, 7.66, 7.66); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1319; Calibrated: 2012-02-15  
Phantom: SAM4; Type: SAM; Serial: TP - 1427  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-13 2:14:24 PM

**DASY Configuration for Cheek - Low - Bp-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

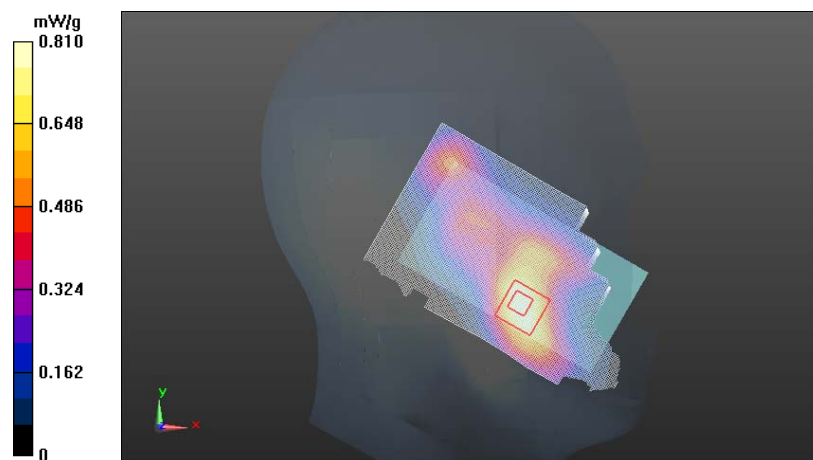
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.695$  mho/m;  $\epsilon_r = 38.365$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Probe: EX3DV4 - SN3574; ConvF(6.71, 6.71, 6.71); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM5; Type: SAM; Serial: TP - 1178  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.741 mW/g; SAR(10 g) = 0.436 mW/g**

Maximum value of SAR (interpolated) = 0.810 mW/g



Date/Time: 2012-08-14 10:02:12 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.038$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.351 mW/g

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.678 V/m

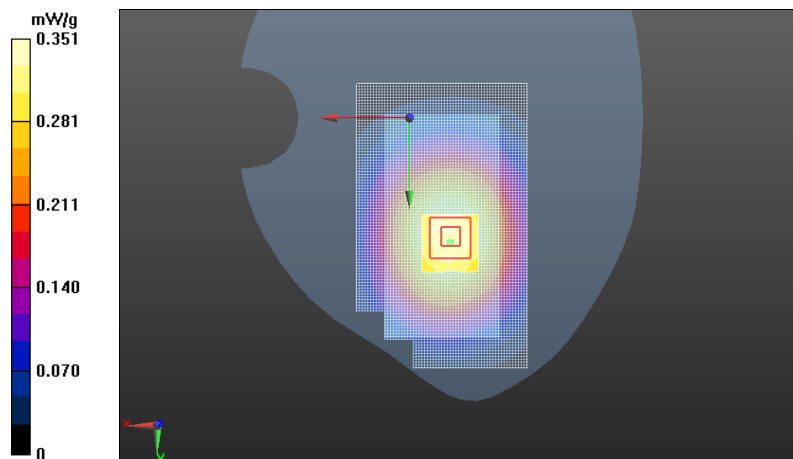
Peak SAR (extrapolated) = 0.424 mW/g

**SAR(1 g) = 0.336 mW/g**

**SAR(10 g) = 0.256 mW/g**

**Power Drift = -0.00 dB**

Maximum value of SAR (measured) = 0.353 mW/g



Date/Time: 2012-08-14 11:04:44 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.038$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.142 mW/g

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 3.606 V/m

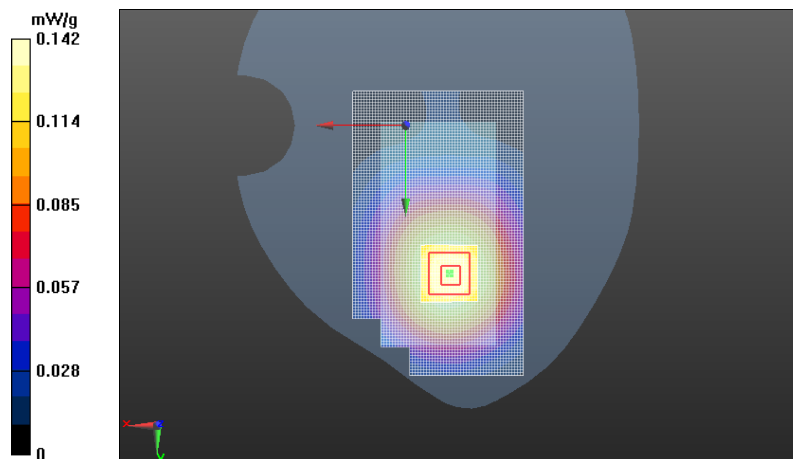
Peak SAR (extrapolated) = 0.170 mW/g

**SAR(1 g) = 0.134 mW/g**

**SAR(10 g) = 0.102 mW/g**

**Power Drift = -0.06 dB**

Maximum value of SAR (measured) = 0.141 mW/g



Date/Time: 2012-08-14 1:23:13 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.972$  mho/m;  $\epsilon_r = 53.998$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.881 mW/g

**Body - High - No Accessory - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 11.815 V/m

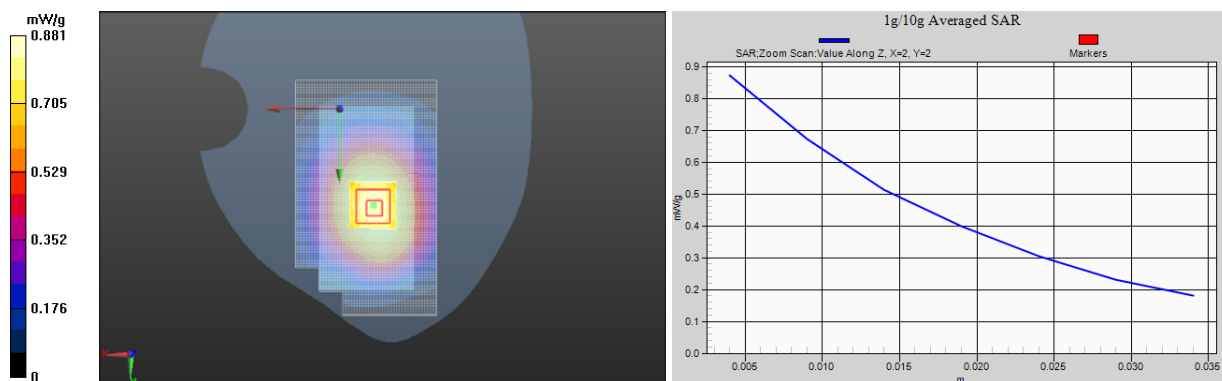
Peak SAR (extrapolated) = 1.081 mW/g

**SAR(1 g) = 0.833 mW/g**

**SAR(10 g) = 0.619 mW/g**

**Power Drift = -0.03 dB**

Maximum value of SAR (measured) = 0.873 mW/g



Date/Time: 2012-08-14 11:15:30 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.038$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.478 mW/g

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 6.022 V/m

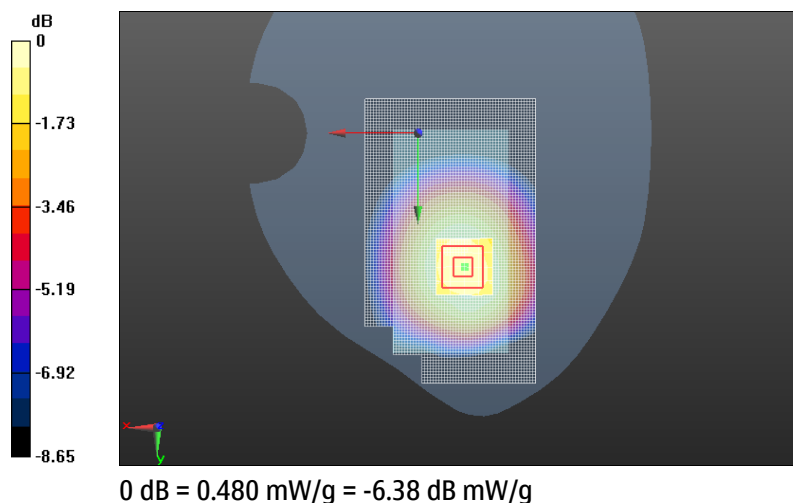
Peak SAR (extrapolated) = 0.595 mW/g

**SAR(1 g) = 0.455 mW/g**

**SAR(10 g) = 0.336 mW/g**

**Power Drift = 0.14 dB**

Maximum value of SAR (measured) = 0.480 mW/g



Date/Time: 2012-08-14 1:54:56 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.972$  mho/m;  $\epsilon_r = 53.998$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - No Accessory - Back Facing Phantom - BP-3L Sony/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.820 mW/g

**Body - High - No Accessory - Back Facing Phantom - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 11.966 V/m

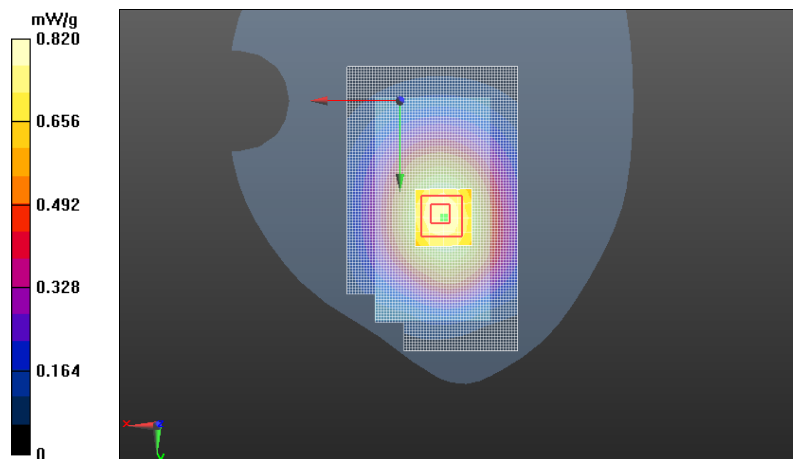
Peak SAR (extrapolated) = 1.020 mW/g

**SAR(1 g) = 0.779 mW/g**

**SAR(10 g) = 0.578 mW/g**

**Power Drift = -0.04 dB**

Maximum value of SAR (measured) = 0.820 mW/g



Date/Time: 2012-08-14 10:27:21 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.064$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.302 mW/g

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.409 V/m

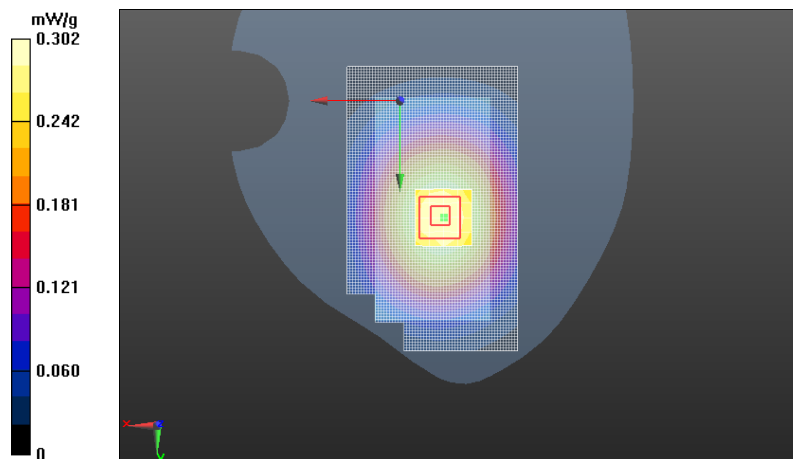
Peak SAR (extrapolated) = 0.365 mW/g

**SAR(1 g) = 0.291 mW/g**

**SAR(10 g) = 0.222 mW/g**

**Power Drift = 0.07 dB**

Maximum value of SAR (measured) = 0.305 mW/g



Date/Time: 2012-08-14 10:52:40 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.064$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.109 mW/g

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 3.318 V/m

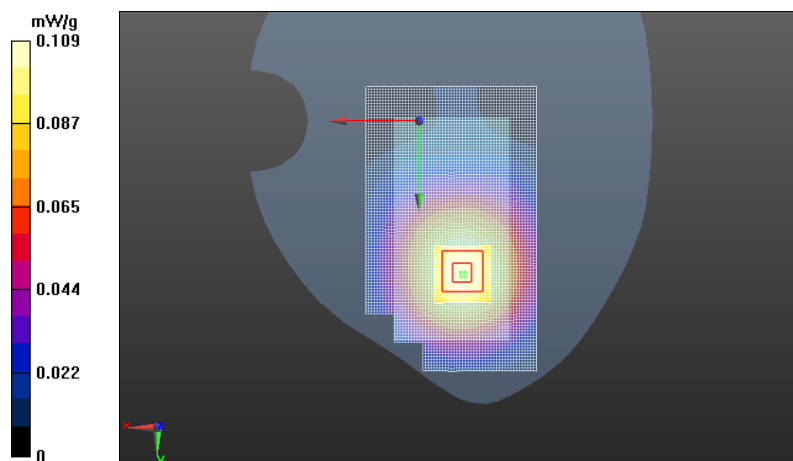
Peak SAR (extrapolated) = 0.130 mW/g

**SAR(1 g) = 0.103 mW/g**

**SAR(10 g) = 0.078 mW/g**

**Power Drift = -0.06 dB**

Maximum value of SAR (measured) = 0.109 mW/g



Date/Time: 2012-08-14 11:47:04 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 847\text{ MHz}$ ;  $\sigma = 0.972\text{ mho/m}$ ;  $\epsilon_r = 54.013$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.736 mW/g

**Body - High - No Accessory - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 10.862 V/m

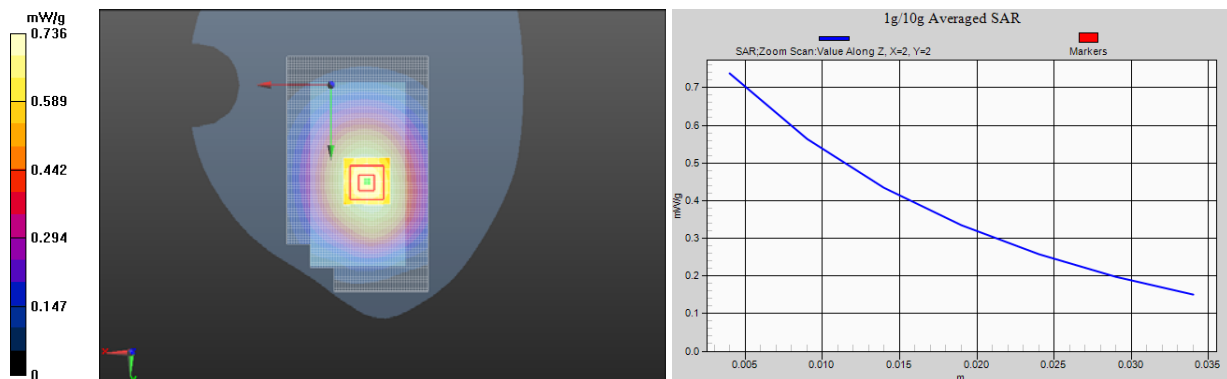
Peak SAR (extrapolated) = 0.907 mW/g

**SAR(1 g) = 0.701 mW/g**

**SAR(10 g) = 0.520 mW/g**

**Power Drift = -0.01 dB**

Maximum value of SAR (measured) = 0.737 mW/g



Date/Time: 2012-08-14 11:26:56 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.064$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.373 mW/g

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 5.230 V/m

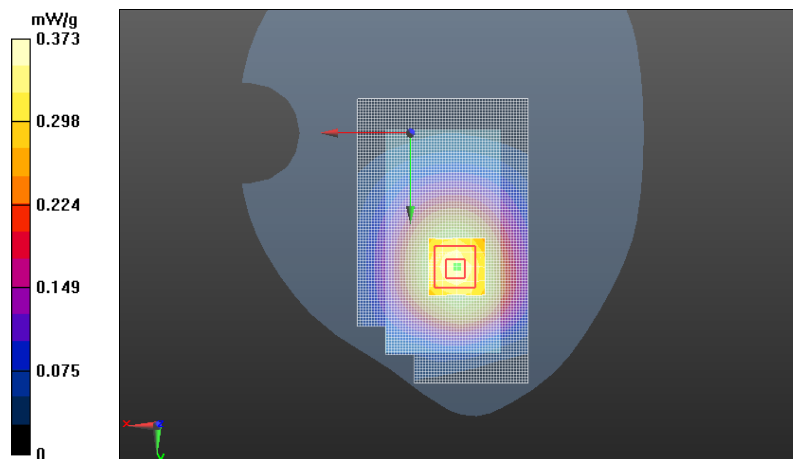
Peak SAR (extrapolated) = 0.452 mW/g

**SAR(1 g) = 0.347 mW/g**

**SAR(10 g) = 0.257 mW/g**

**Power Drift = 0.05 dB**

Maximum value of SAR (measured) = 0.367 mW/g



Date/Time: 2012-08-22 10:45:54 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
 $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.258 mW/g

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 7.760 V/m

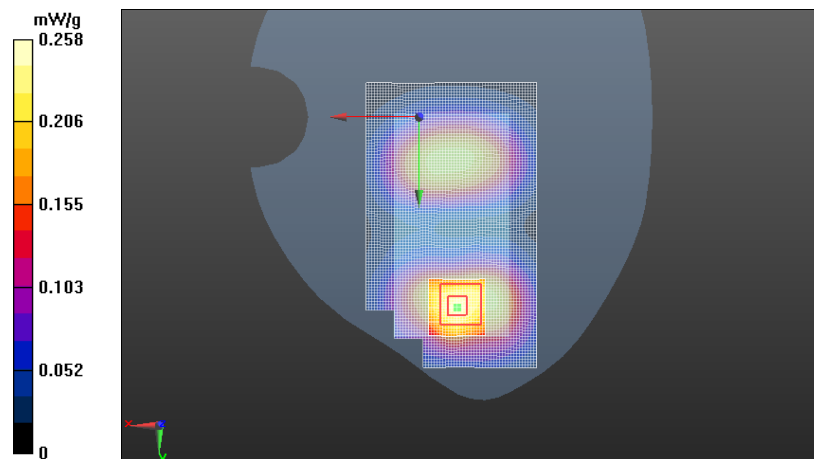
Peak SAR (extrapolated) = 0.376 mW/g

**SAR(1 g) = 0.234 mW/g**

**SAR(10 g) = 0.145 mW/g**

**Power Drift = 0.02 dB**

Maximum value of SAR (measured) = 0.253 mW/g



Date/Time: 2012-08-22 10:59:22 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.228 mW/g

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.810 V/m

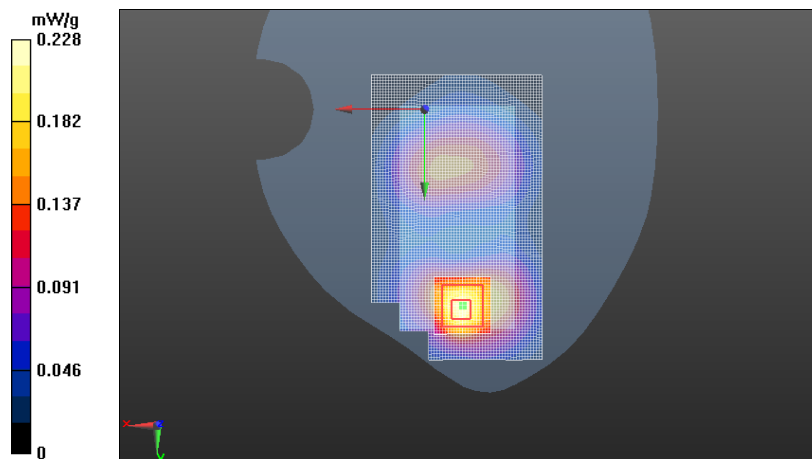
Peak SAR (extrapolated) = 0.362 mW/g

**SAR(1 g) = 0.209 mW/g**

**SAR(10 g) = 0.120 mW/g**

**Power Drift = 0.05 dB**

Maximum value of SAR (measured) = 0.229 mW/g



Date/Time: 2012-08-22 11:48:28 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0$  C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.502$  mho/m;  $\epsilon_r = 53.288$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Low - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.335 mW/g

**Body - Low - No Accessory - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 9.731 V/m

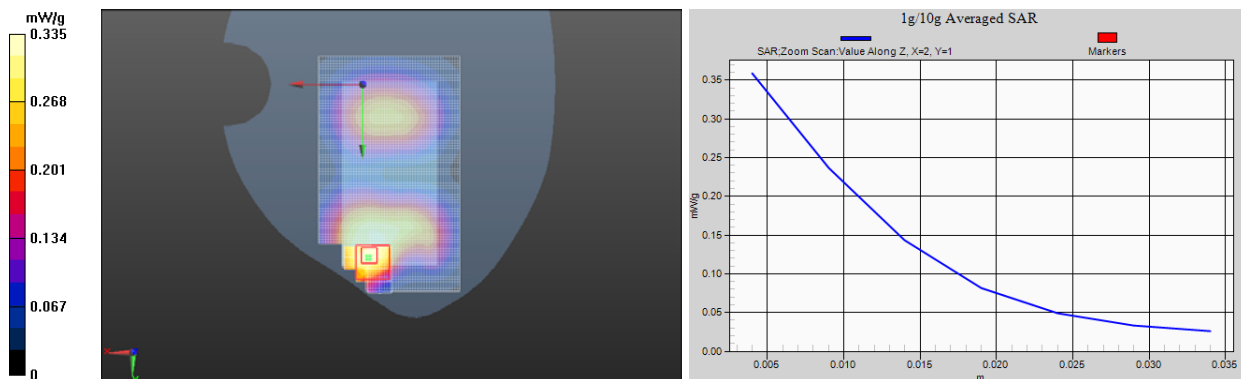
Peak SAR (extrapolated) = 0.505 mW/g

**SAR(1 g) = 0.326 mW/g**

**SAR(10 g) = 0.184 mW/g**

**Power Drift = 0.04 dB**

Maximum value of SAR (measured) = 0.359 mW/g



Date/Time: 2012-08-22 11:14:12 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.216 mW/g

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Zoom Scan 3 (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 7.980 V/m

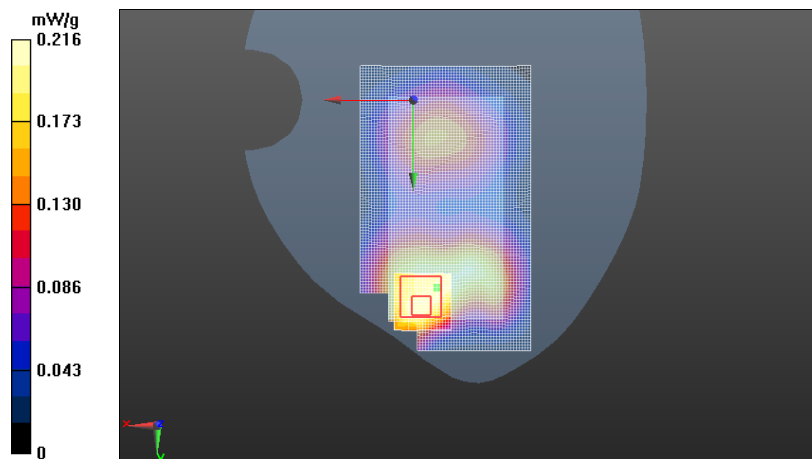
Peak SAR (extrapolated) = 0.323 mW/g

**SAR(1 g) = 0.207 mW/g**

**SAR(10 g) = 0.130 mW/g**

**Power Drift = 0.05 dB**

Maximum value of SAR (measured) = 0.215 mW/g



Date/Time: 2012-08-15 10:18:08 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.538 mho/m;  $\epsilon_r$  = 52.364;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.552 mW/g

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.003 V/m

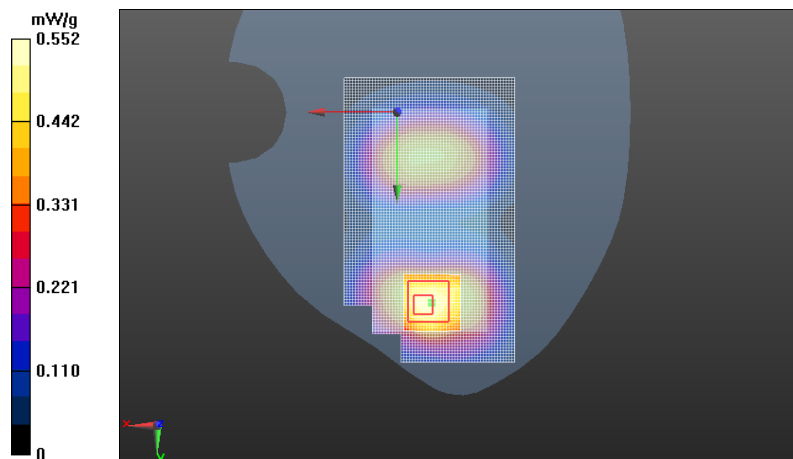
Peak SAR (extrapolated) = 0.854 mW/g

**SAR(1 g) = 0.508 mW/g**

**SAR(10 g) = 0.308 mW/g**

**Power Drift = 0.03 dB**

Maximum value of SAR (measured) = 0.545 mW/g



Date/Time: 2012-08-15 11:30:10 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.516$  mho/m;  $\epsilon_r = 52.516$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Low - WH-108 - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.554 mW/g

**Body - Low - WH-108 - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.087 V/m

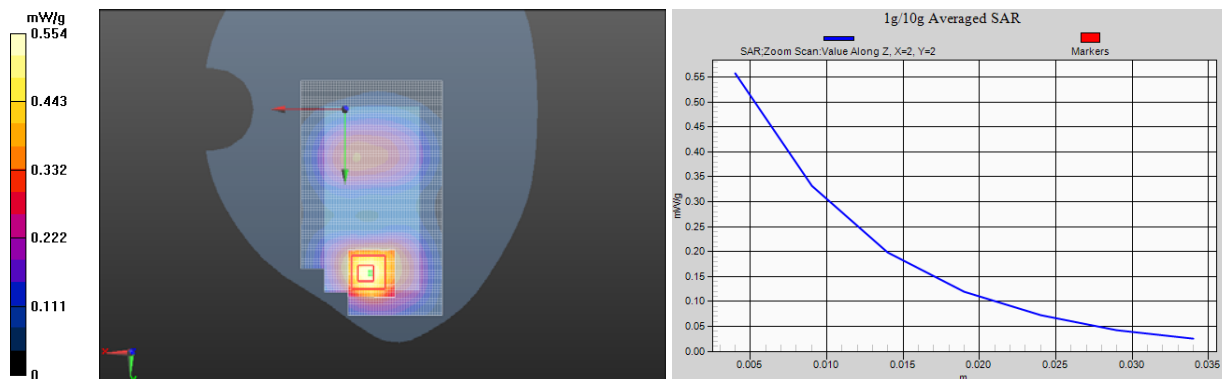
Peak SAR (extrapolated) = 0.905 mW/g

**SAR(1 g) = 0.523 mW/g**

**SAR(10 g) = 0.298 mW/g**

**Power Drift = -0.14 dB**

Maximum value of SAR (measured) = 0.557 mW/g



Date/Time: 2012-08-15 11:17:48 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.538$  mho/m;  $\epsilon_r = 52.364$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG 2/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.538 mW/g

**Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG 2/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13.081 V/m

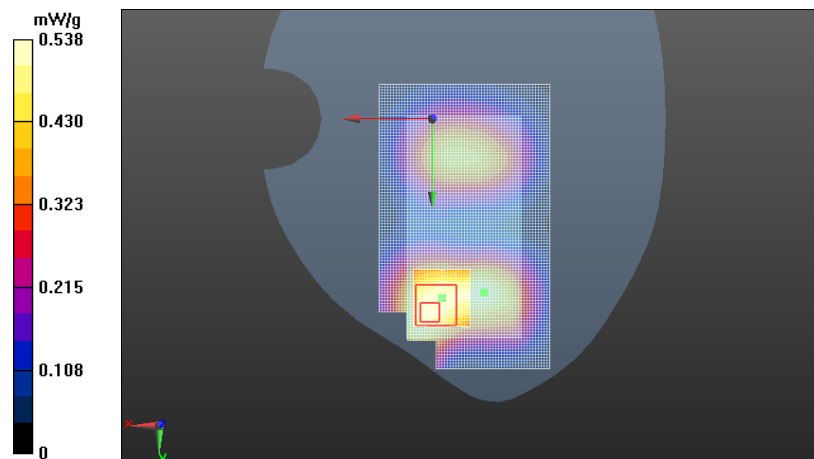
Peak SAR (extrapolated) = 0.808 mW/g

**SAR(1 g) = 0.500 mW/g**

**SAR(10 g) = 0.320 mW/g**

**Power Drift = -0.04 dB**

Maximum value of SAR (measured) = 0.538 mW/g



Date/Time: 2012-08-15 11:06:46 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.538$  mho/m;  $\epsilon_r = 52.364$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.508 mW/g

**Body - Middle - WH-108 - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.319 V/m

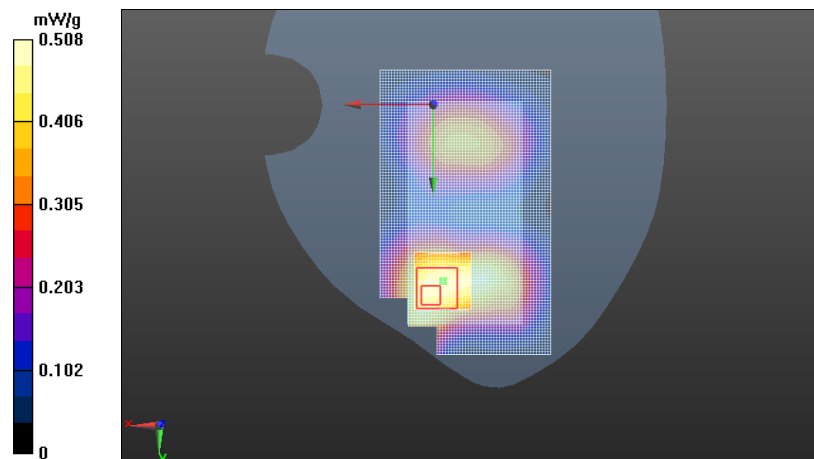
Peak SAR (extrapolated) = 0.743 mW/g

**SAR(1 g) = 0.463 mW/g**

**SAR(10 g) = 0.299 mW/g**

**Power Drift = -0.01 dB**

Maximum value of SAR (measured) = 0.495 mW/g



Date/Time: 2012-08-15 2:21:07 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.538$  mho/m;  $\epsilon_r = 52.364$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L Sony/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.593 mW/g

**Body - Middle - WH-108 - Display Facing Phantom - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.516 V/m

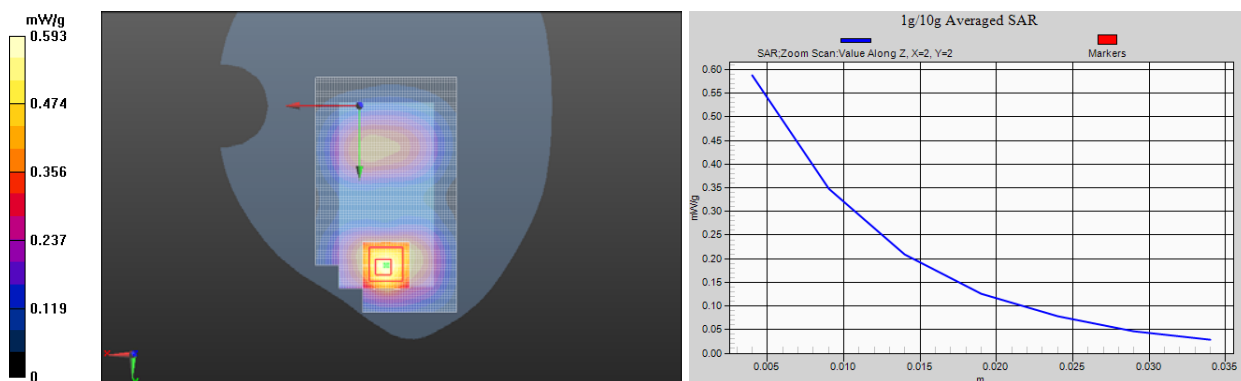
Peak SAR (extrapolated) = 0.927 mW/g

**SAR(1 g) = 0.541 mW/g**

**SAR(10 g) = 0.315 mW/g**

**Power Drift = -0.08 dB**

Maximum value of SAR (measured) = 0.588 mW/g



Date/Time: 2012-08-15 10:50:16 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.858 mho/m;  $\epsilon_r$  = 52.394;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0701 mW/g

**Body - Middle - No Accessory - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement  
grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.268 V/m

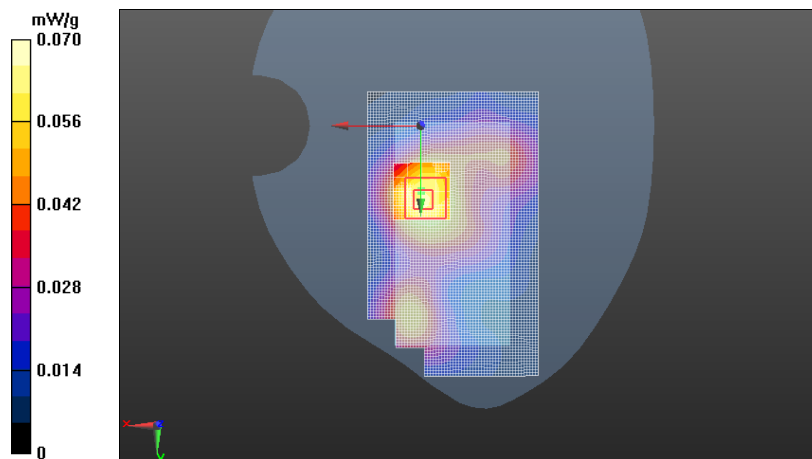
Peak SAR (extrapolated) = 0.108 mW/g

**SAR(1 g) = 0.063 mW/g**

**SAR(10 g) = 0.040 mW/g**

**Power Drift = 0.49 dB**

Maximum value of SAR (measured) = 0.0678 mW/g



Date/Time: 2012-08-15 11:08:48 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.858 mho/m;  $\epsilon_r$  = 52.394;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Headset WH-108 - Display Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.0609 mW/g

**Body - Middle - Headset WH-108 - Display Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.133 V/m

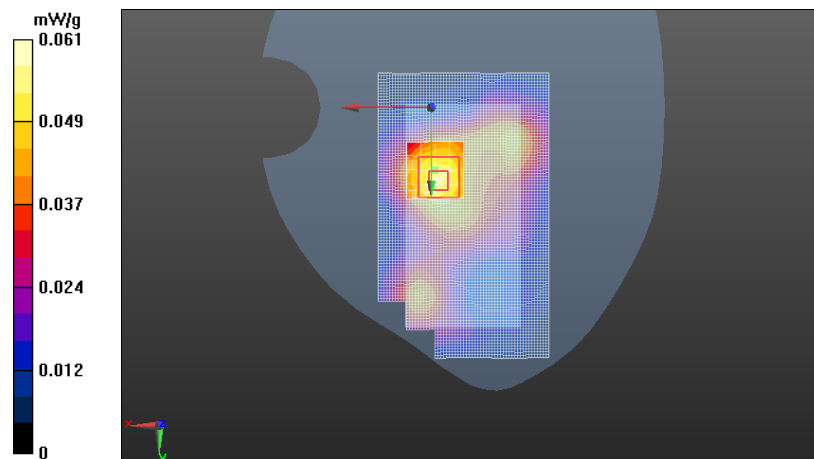
Peak SAR (extrapolated) = 0.082 mW/g

**SAR(1 g) = 0.054 mW/g**

**SAR(10 g) = 0.034 mW/g**

**Power Drift = -0.08 dB**

Maximum value of SAR (measured) = 0.0575 mW/g



Date/Time: 2012-08-15 11:27:52 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.171 mW/g

**Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.496 V/m

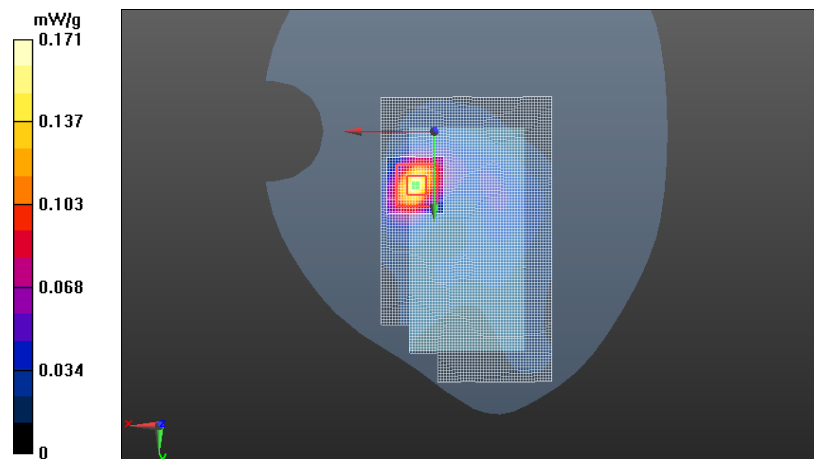
Peak SAR (extrapolated) = 0.285 mW/g

**SAR(1 g) = 0.147 mW/g**

**SAR(10 g) = 0.072 mW/g**

**Power Drift = 0.24 dB**

Maximum value of SAR (measured) = 0.169 mW/g



Date/Time: 2012-08-15 12:46:47 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.899$  mho/m;  $\epsilon_r = 52.297$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - Headset WH-108 - Back Facing Phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.171 mW/g

**Body - High - Headset WH-108 - Back Facing Phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.869 V/m

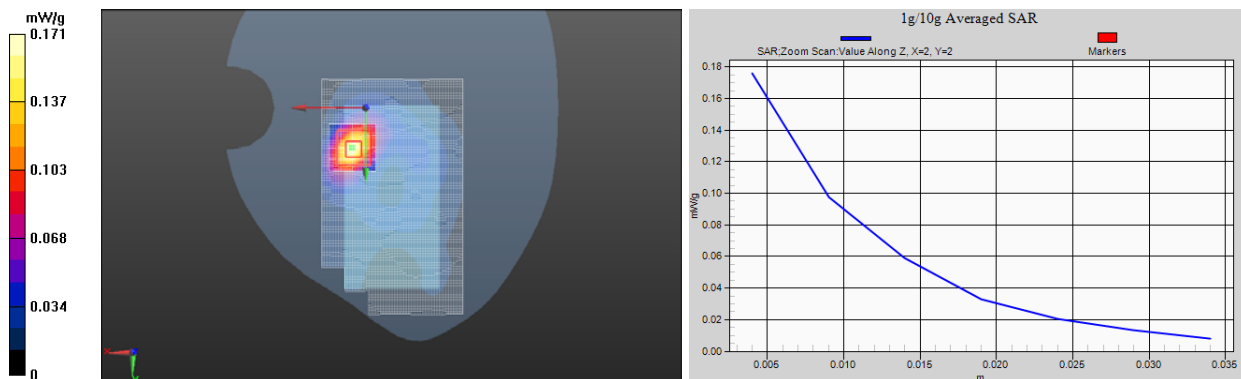
Peak SAR (extrapolated) = 0.299 mW/g

**SAR(1 g) = 0.157 mW/g**

**SAR(10 g) = 0.079 mW/g**

**Power Drift = -0.16 dB**

Maximum value of SAR (measured) = 0.176 mW/g



Date/Time: 2012-08-15 1:41:50 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.899$  mho/m;  $\epsilon_r = 52.297$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - Headset WH-108 - Back Facing Phantom - BP-3L Sony/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.160 mW/g

**Body - High - Headset WH-108 - Back Facing Phantom - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.997 V/m

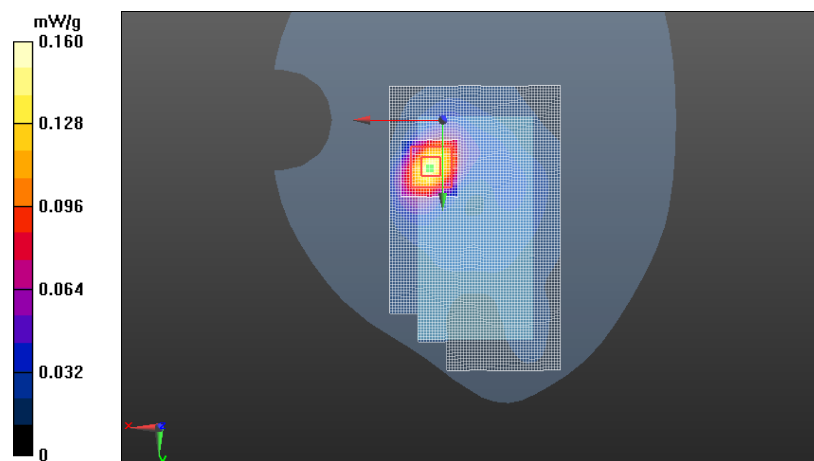
Peak SAR (extrapolated) = 0.262 mW/g

**SAR(1 g) = 0.141 mW/g**

**SAR(10 g) = 0.072 mW/g**

**Power Drift = -0.20 dB**

Maximum value of SAR (measured) = 0.159 mW/g



Date/Time: 2012-08-14 1:23:13 PM

**DASY Configuration for Body - High - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: 4-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:2.08; PMF: 1.44222

Medium: Body 835 SAM9 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.972$  mho/m;  $\epsilon_r = 53.998$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM9; Type: SAM; Serial: TP - 1693  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-15 11:27:52 AM

**DASY Configuration for Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

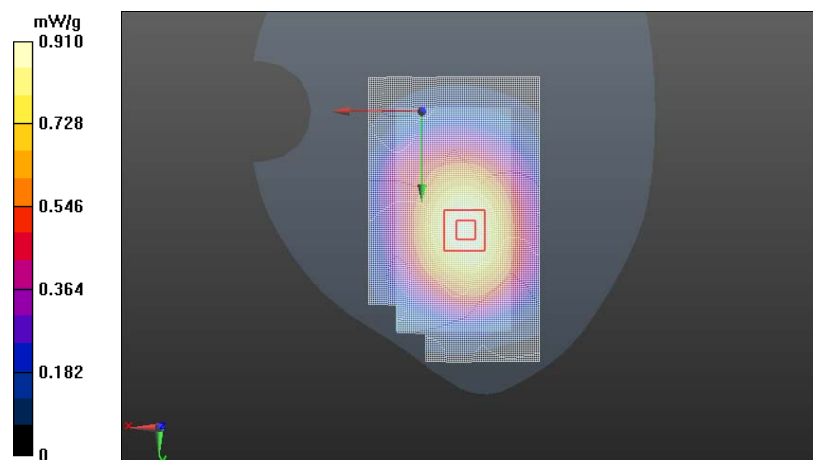
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.861 mW/g; SAR(10 g) = 0.608 mW/g**

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



Date/Time: 2012-08-14 11:47:04 AM

**DASY Configuration for Body - High - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: WCDMA850; Frequency: 846.6 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Body 835 SAM9 Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.972$  mho/m;  $\epsilon_r = 54.013$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM9; Type: SAM; Serial: TP - 1693  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-15 11:27:52 AM

**DASY Configuration for Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

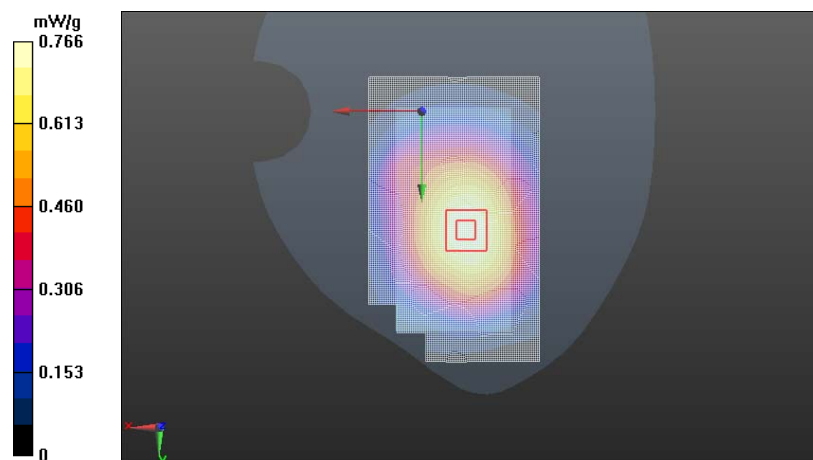
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.725 mW/g; SAR(10 g) = 0.511 mW/g**

Maximum value of SAR (interpolated) = 0.766 mW/g



Date/Time: 2012-08-22 11:48:28 AM

**DASY Configuration for Body - Low - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000056/3**

Communication System: 2-slot GPRS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

Medium: Body 1900 SAM8 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.502$  mho/m;  $\epsilon_r = 53.288$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM8; Type: SAM; Serial: TP - 1215  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-15 11:27:52 AM

**DASY Configuration for Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

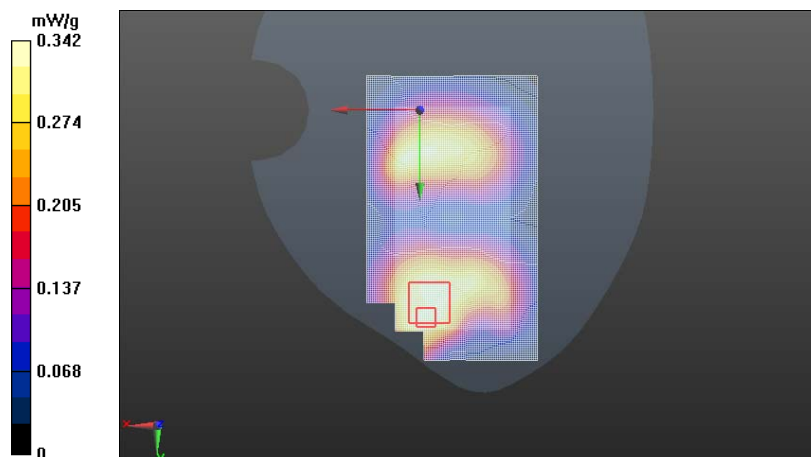
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.198 mW/g**

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



Date/Time: 2012-08-15 11:17:48 AM

**DASY Configuration for Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG 2/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000056/3**

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Body 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.538$  mho/m;  $\epsilon_r = 52.364$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3836; ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1319; Calibrated: 2012-02-15  
Phantom: SAM3; Type: SAM; Serial: TP - 1567  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-15 11:27:52 AM

**DASY Configuration for Body - Middle - No Accessory - Back Facing Phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

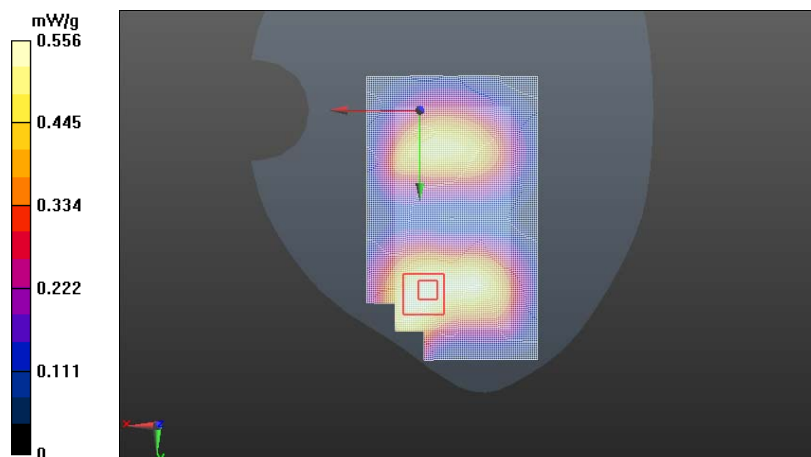
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.515 mW/g; SAR(10 g) = 0.319 mW/g**

Maximum value of SAR (interpolated) = 0.556 mW/g



Date/Time: 2012-08-13 1:11:02 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.977$  mho/m;  $\epsilon_r = 54.438$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.406 mW/g

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.297 V/m

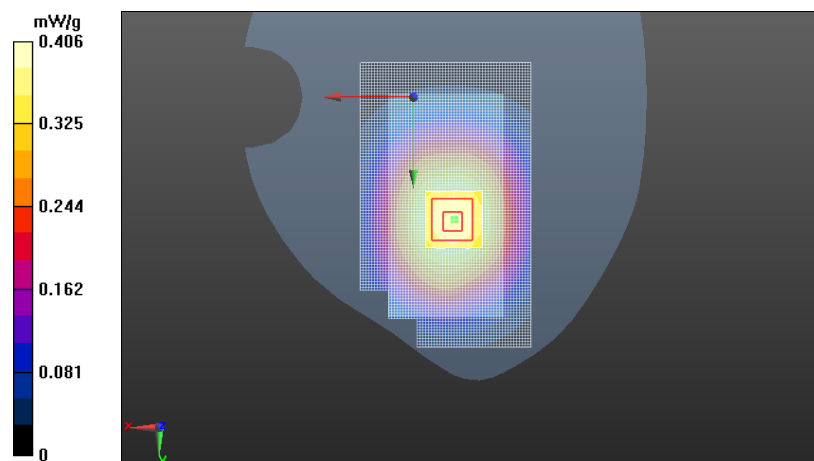
Peak SAR (extrapolated) = 0.486 mW/g

**SAR(1 g) = 0.388 mW/g**

**SAR(10 g) = 0.298 mW/g**

**Power Drift = -0.28 dB**

Maximum value of SAR (measured) = 0.406 mW/g



Date/Time: 2012-08-13 1:35:49 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 849\text{ MHz}$ ;  $\sigma = 0.985\text{ mho/m}$ ;  $\epsilon_r = 54.401$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.17 mW/g

**Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.291 V/m

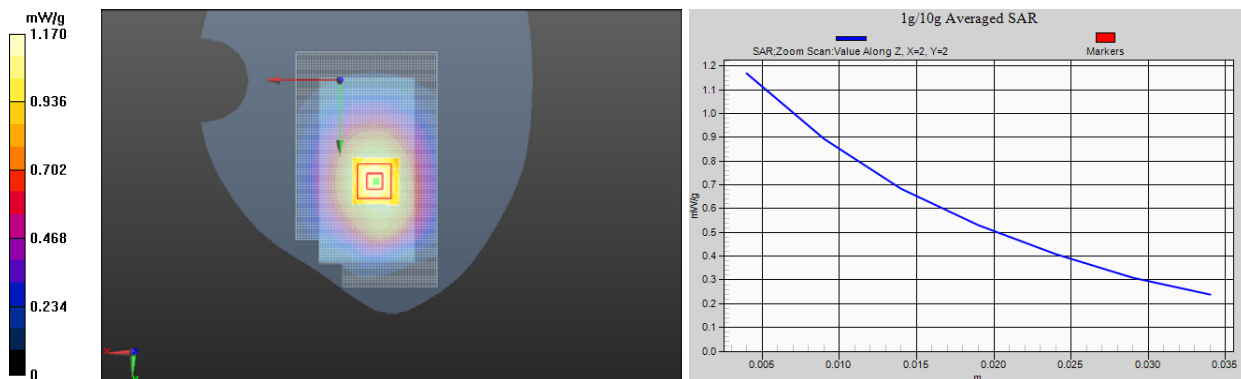
Peak SAR (extrapolated) = 1.425 mW/g

**SAR(1 g) = 1.11 mW/g**

**SAR(10 g) = 0.819 mW/g**

**Power Drift = 0.01 dB**

Maximum value of SAR (measured) = 1.17 mW/g



Date/Time: 2012-08-13 10:33:12 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.977$  mho/m;  $\epsilon_r = 54.438$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Area Scan (31x61x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.0178 mW/g

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 2.987 V/m

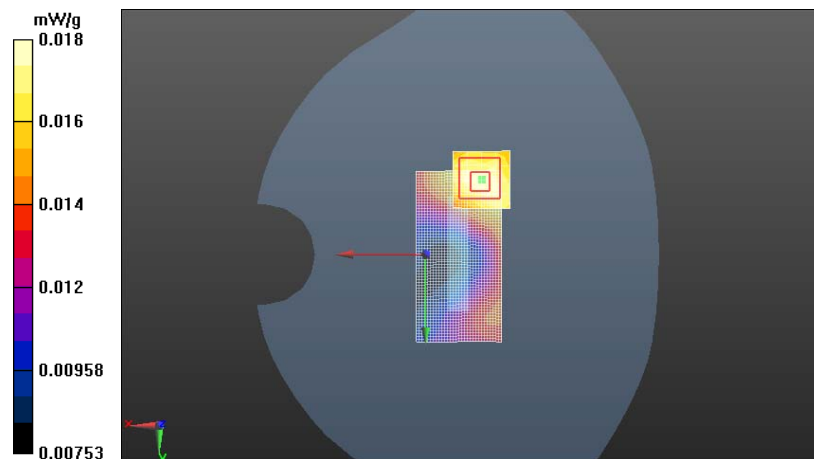
Peak SAR (extrapolated) = 0.024 mW/g

**SAR(1 g) = 0.017 mW/g**

**SAR(10 g) = 0.012 mW/g**

**Power Drift = 0.01 dB**

Maximum value of SAR (measured) = 0.0177 mW/g



Date/Time: 2012-08-13 10:50:46 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.977$  mho/m;  $\epsilon_r = 54.438$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Area Scan (31x61x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0452 mW/g

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.354 V/m

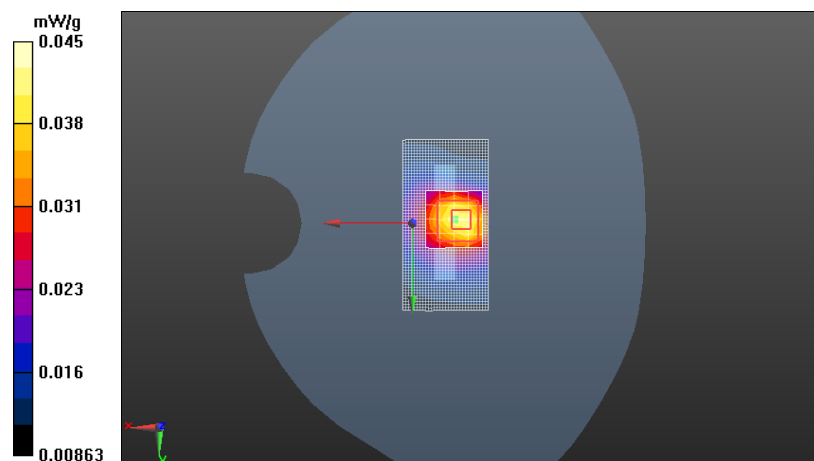
Peak SAR (extrapolated) = 0.064 mW/g

**SAR(1 g) = 0.041 mW/g**

**SAR(10 g) = 0.025 mW/g**

**Power Drift = -0.01 dB**

Maximum value of SAR (measured) = 0.0433 mW/g



Date/Time: 2012-08-13 11:35:47 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.977$  mho/m;  $\epsilon_r = 54.438$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Area Scan (31x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

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

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 10.007 V/m

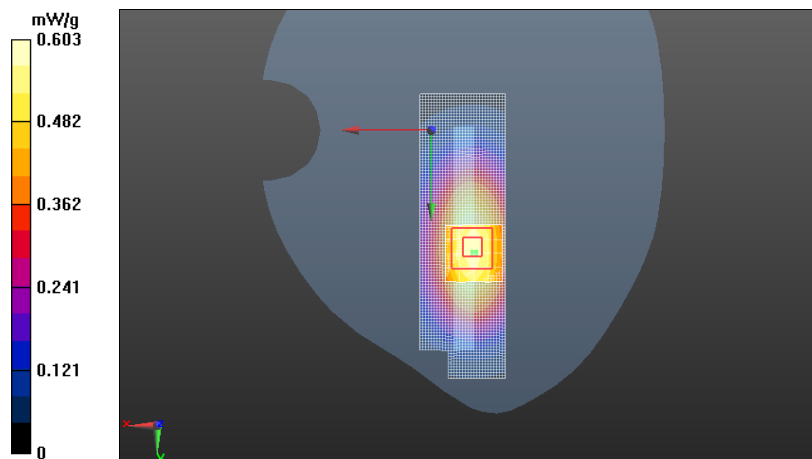
Peak SAR (extrapolated) = 0.778 mW/g

**SAR(1 g) = 0.563 mW/g**

**SAR(10 g) = 0.393 mW/g**

**Power Drift = -0.02 dB**

Maximum value of SAR (measured) = 0.598 mW/g



Date/Time: 2012-08-13 11:23:52 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 837\text{ MHz}$ ;  $\sigma = 0.977\text{ mho/m}$ ;  $\epsilon_r = 54.438$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Area Scan (31x101x1):** Measurement grid:  
 $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.530 mW/g

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 9.329 V/m

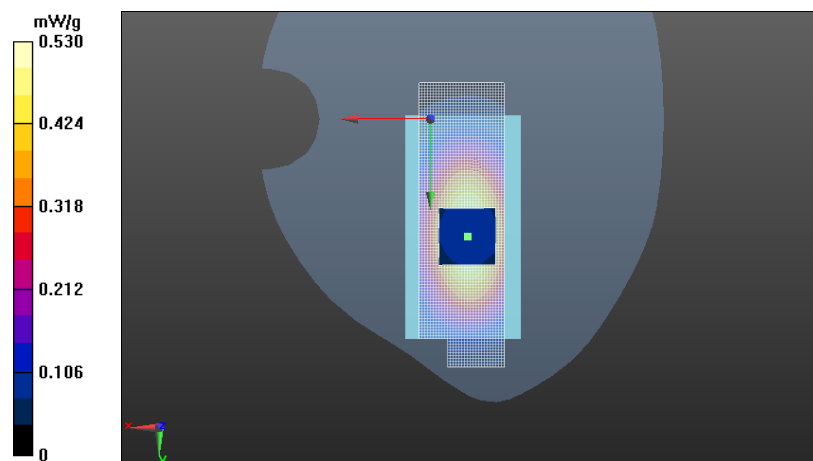
Peak SAR (extrapolated) = 0.698 mW/g

**SAR(1 g) = 0.498 mW/g**

**SAR(10 g) = 0.348 mW/g**

**Power Drift = -0.04 dB**

Maximum value of SAR (measured) = 0.528 mW/g



Date/Time: 2012-08-13 2:45:44 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: 4-slot GPRS850**

Frequency: 848.8 MHz; Duty Cycle: 1:2.08

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 849\text{ MHz}$ ;  $\sigma = 0.985\text{ mho/m}$ ;  $\epsilon_r = 54.401$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - Spacer 10mm - Back facing phantom - BP-3L Sony/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.15 mW/g

**Body - High - Spacer 10mm - Back facing phantom - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.166 V/m

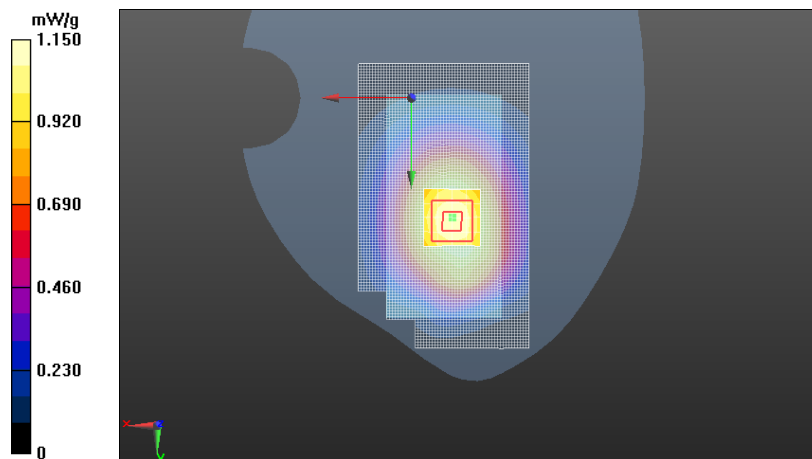
Peak SAR (extrapolated) = 1.408 mW/g

**SAR(1 g) = 1.09 mW/g**

**SAR(10 g) = 0.810 mW/g**

**Power Drift = -0.04 dB**

Maximum value of SAR (measured) = 1.15 mW/g



Date/Time: 2012-08-13 12:01:10 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.975\text{ mho/m}$ ;  $\epsilon_r = 54.465$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
 $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.323 mW/g

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.939 V/m

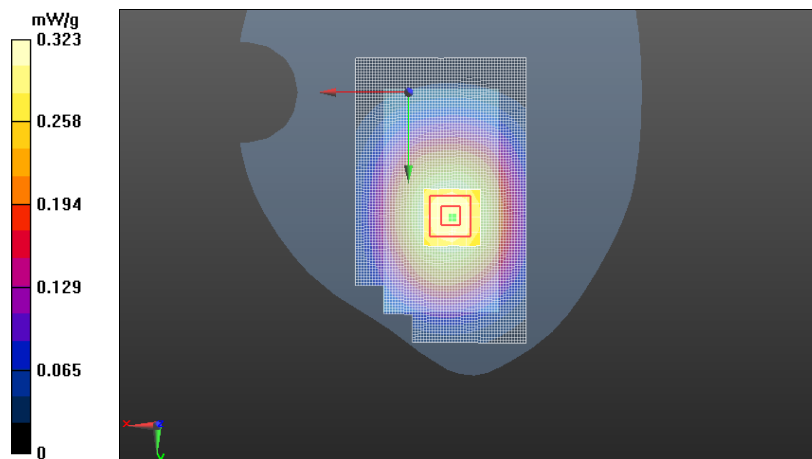
Peak SAR (extrapolated) = 0.383 mW/g

**SAR(1 g) = 0.309 mW/g**

**SAR(10 g) = 0.237 mW/g**

**Power Drift = 0.15 dB**

Maximum value of SAR (measured) = 0.322 mW/g



Date/Time: 2012-08-13 2:11:48 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.992 mW/g

**Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 10.383 V/m

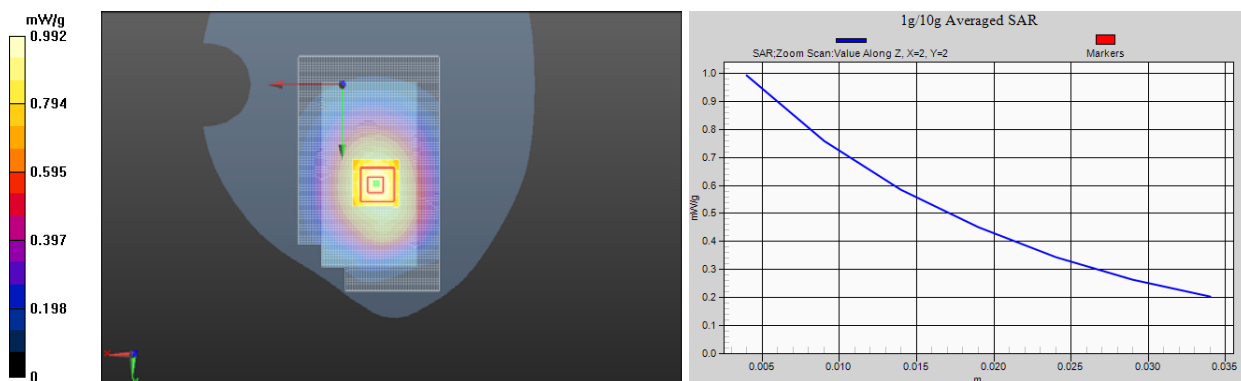
Peak SAR (extrapolated) = 1.225 mW/g

**SAR(1 g) = 0.941 mW/g**

**SAR(10 g) = 0.696 mW/g**

**Power Drift = -0.02 dB**

Maximum value of SAR (measured) = 0.994 mW/g



Date/Time: 2012-08-13 10:21:08 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 54.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Area Scan (31x61x1): Measurement grid:**

$dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.0132 mW/g

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 2.461 V/m

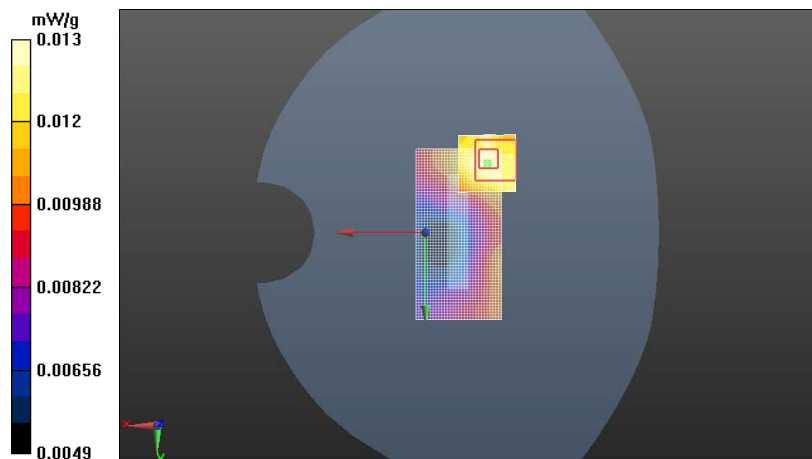
Peak SAR (extrapolated) = 0.017 mW/g

**SAR(1 g) = 0.012 mW/g**

**SAR(10 g) = 0.00895 mW/g**

**Power Drift = 0.16 dB**

Maximum value of SAR (measured) = 0.0130 mW/g



Date/Time: 2012-08-13 10:59:06 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 54.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Area Scan (31x61x1):** Measurement grid:  
 $dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.0418 mW/g

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 6.060 V/m

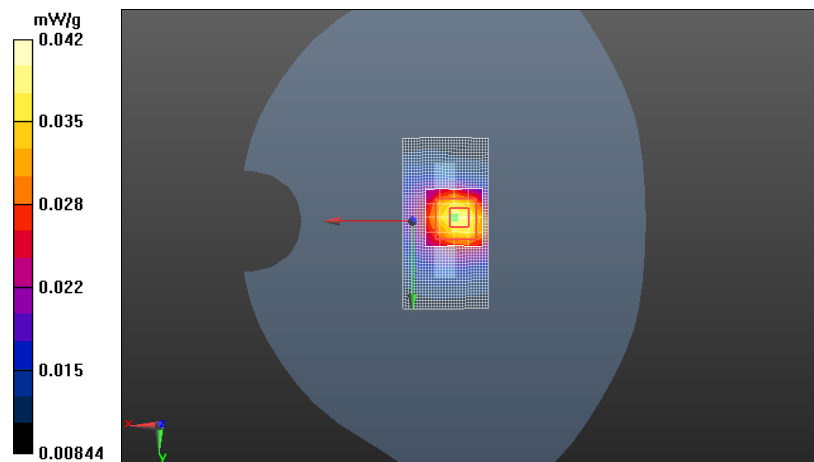
Peak SAR (extrapolated) = 0.061 mW/g

**SAR(1 g) = 0.038 mW/g**

**SAR(10 g) = 0.023 mW/g**

**Power Drift = 0.09 dB**

Maximum value of SAR (measured) = 0.0402 mW/g



Date/Time: 2012-08-13 11:48:02 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3\text{ C}$

Medium parameters used:  $f = 835\text{ MHz}$ ;  $\sigma = 0.975\text{ mho/m}$ ;  $\epsilon_r = 54.465$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Area Scan (31x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.448 mW/g

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.535 V/m

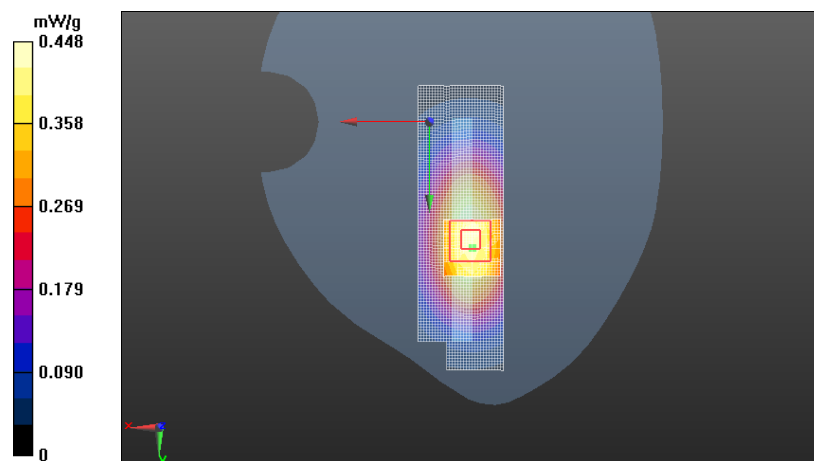
Peak SAR (extrapolated) = 0.587 mW/g

**SAR(1 g) = 0.419 mW/g**

**SAR(10 g) = 0.292 mW/g**

**Power Drift = -0.02 dB**

Maximum value of SAR (measured) = 0.446 mW/g



Date/Time: 2012-08-13 11:10:57 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000046/4

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 835 SAM9; Medium Notes: Medium Temperature:  $t = 22.3$  C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 54.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM9; Type: SAM; Serial: TP - 1693
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Area Scan (31x101x1):** Measurement grid:  
 $dx=15$ mm,  $dy=15$ mm

Maximum value of SAR (interpolated) = 0.407 mW/g

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5$ mm,  $dy=7.5$ mm,  $dz=5$ mm

Reference Value = 8.058 V/m

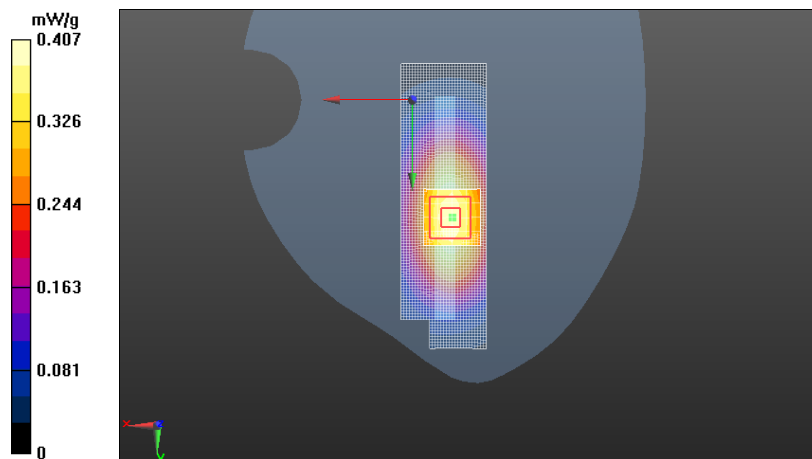
Peak SAR (extrapolated) = 0.537 mW/g

**SAR(1 g) = 0.385 mW/g**

**SAR(10 g) = 0.268 mW/g**

**Power Drift = 0.00 dB**

Maximum value of SAR (measured) = 0.410 mW/g



Date/Time: 2012-08-22 1:38:55 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used (interpolated):  $f = 1850.2\text{ MHz}$ ;  $\sigma = 1.502\text{ mho/m}$ ;  $\epsilon_r = 53.288$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Low - Spacer 10mm - Display facing phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.691 mW/g

**Body - Low - Spacer 10mm - Display facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.036 V/m

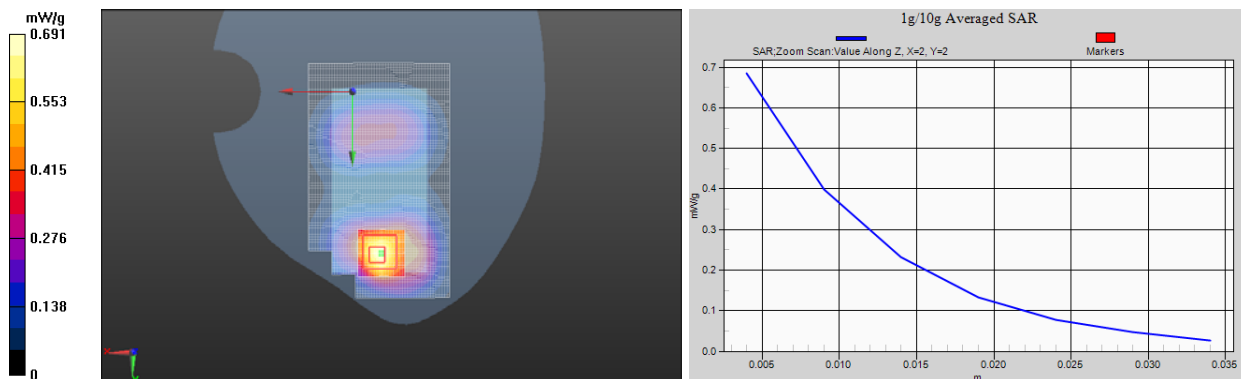
Peak SAR (extrapolated) = 1.103 mW/g

**SAR(1 g) = 0.625 mW/g**

**SAR(10 g) = 0.348 mW/g**

**Power Drift = -0.05 dB**

Maximum value of SAR (measured) = 0.685 mW/g



Date/Time: 2012-08-22 12:11:32 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.480\text{ mW/g}$

**Body - Middle - Spacer 10mm - Back facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $9.386\text{ V/m}$

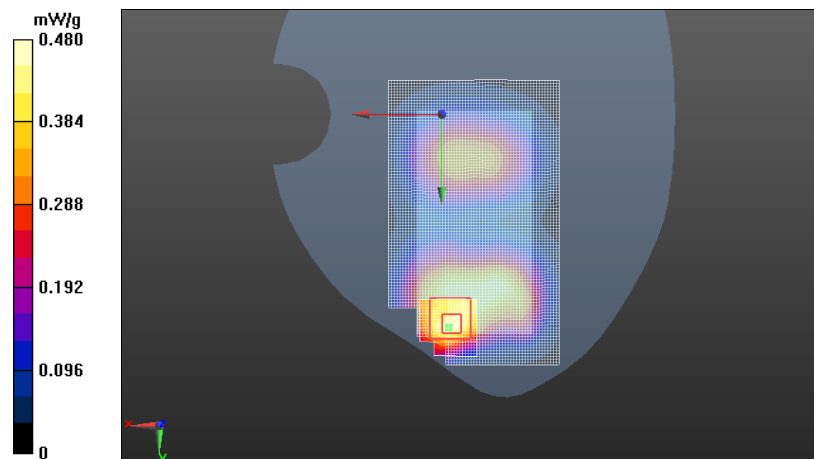
Peak SAR (extrapolated) =  $0.704\text{ mW/g}$

**SAR(1 g) =  $0.429\text{ mW/g}$**

**SAR(10 g) =  $0.266\text{ mW/g}$**

**Power Drift =  $-0.05\text{ dB}$**

Maximum value of SAR (measured) =  $0.471\text{ mW/g}$



Date/Time: 2012-08-22 2:59:05 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Area Scan (31x61x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.0235 mW/g

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 2.249 V/m

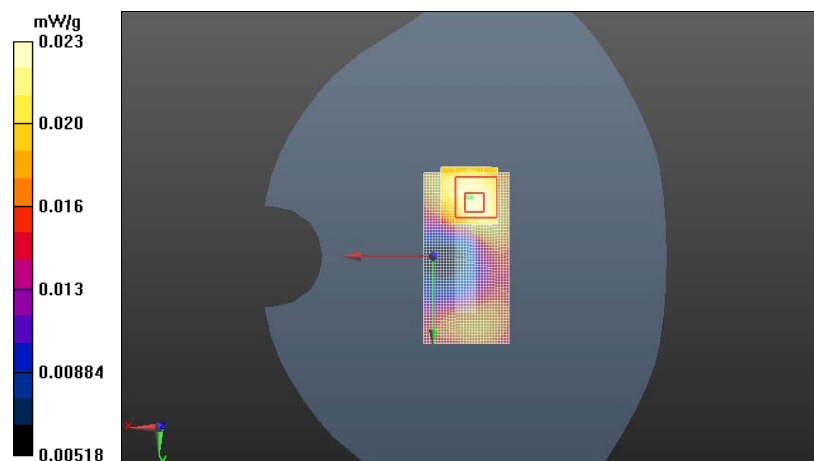
Peak SAR (extrapolated) = 0.034 mW/g

**SAR(1 g) = 0.022 mW/g**

**SAR(10 g) = 0.014 mW/g**

**Power Drift = 0.33 dB**

Maximum value of SAR (measured) = 0.0237 mW/g



Date/Time: 2012-08-22 3:09:48 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Area Scan (31x61x1):** Measurement grid:  
 $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.183 mW/g

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 7.167 V/m

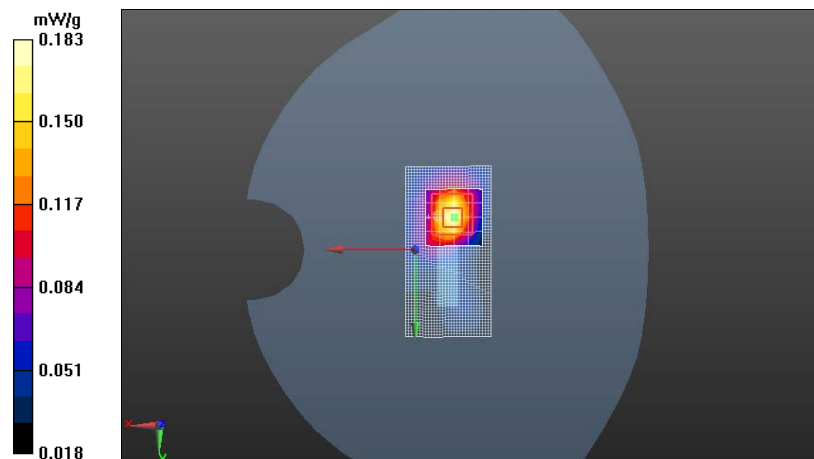
Peak SAR (extrapolated) = 0.278 mW/g

**SAR(1 g) = 0.167 mW/g**

**SAR(10 g) = 0.091 mW/g**

**Power Drift = -0.03 dB**

Maximum value of SAR (measured) = 0.190 mW/g



Date/Time: 2012-08-22 3:30:32 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Area Scan (31x101x1): Measurement grid:**

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.192 mW/g

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

$dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.788 V/m

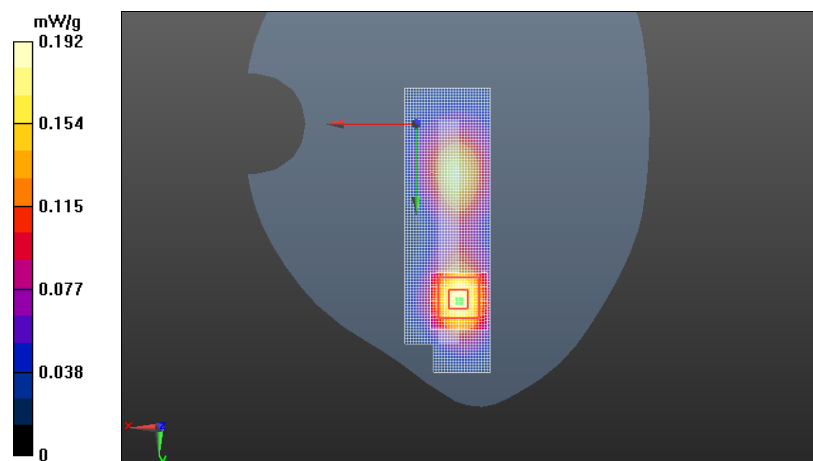
Peak SAR (extrapolated) = 0.280 mW/g

**SAR(1 g) = 0.173 mW/g**

**SAR(10 g) = 0.102 mW/g**

**Power Drift = -0.07 dB**

Maximum value of SAR (measured) = 0.190 mW/g



Date/Time: 2012-08-22 3:19:08 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900 SAM8; Medium Notes: Medium Temperature:  $t=22.0\text{ C}$

Medium parameters used:  $f = 1880\text{ MHz}$ ;  $\sigma = 1.54\text{ mho/m}$ ;  $\epsilon_r = 53.217$ ;  $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3838
- ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1324; Calibrated: 2012-02-15
- Phantom: SAM8; Type: SAM; Serial: TP - 1215
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Area Scan (31x101x1):** Measurement grid:  
 $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.166 mW/g

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.884 V/m

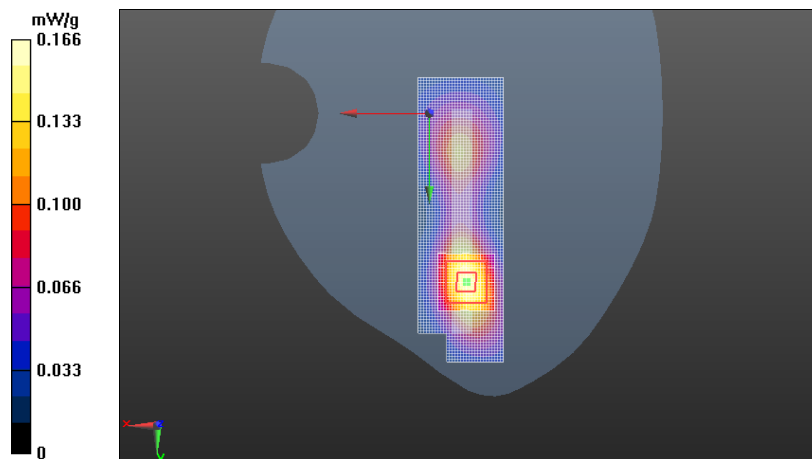
Peak SAR (extrapolated) = 0.232 mW/g

**SAR(1 g) = 0.147 mW/g**

**SAR(10 g) = 0.087 mW/g**

**Power Drift = -0.06 dB**

Maximum value of SAR (measured) = 0.161 mW/g



Date/Time: 2012-08-14 12:57:16 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.528 mho/m;  $\epsilon_r$  = 52.337;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.898 mW/g

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.772 V/m

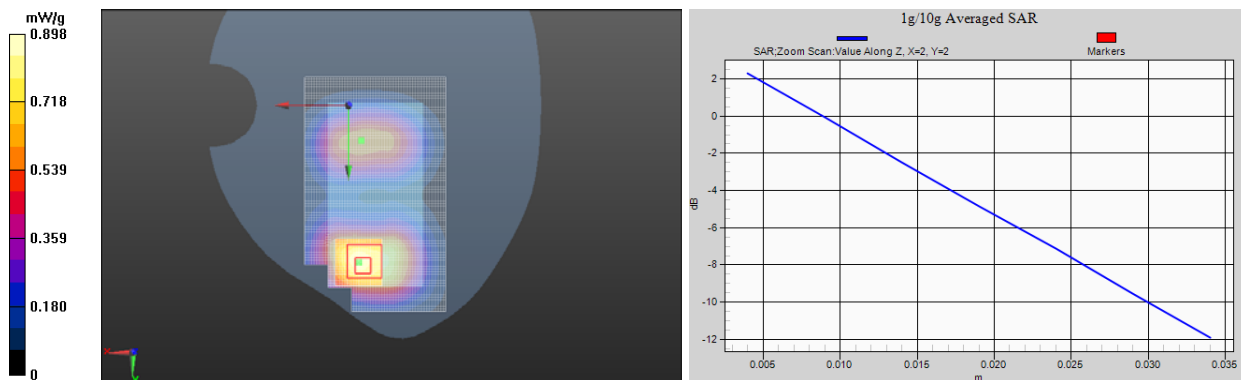
Peak SAR (extrapolated) = 1.654 mW/g

**SAR(1 g) = 0.912 mW/g**

**SAR(10 g) = 0.513 mW/g**

**Power Drift = -0.03 dB**

Maximum value of SAR (measured) = 0.989 mW/g



Date/Time: 2012-08-14 1:17:50 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.528$  mho/m;  $\epsilon_r = 52.337$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.989 mW/g

**Body - Middle - Spacer 10mm - Back facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 16.528 V/m

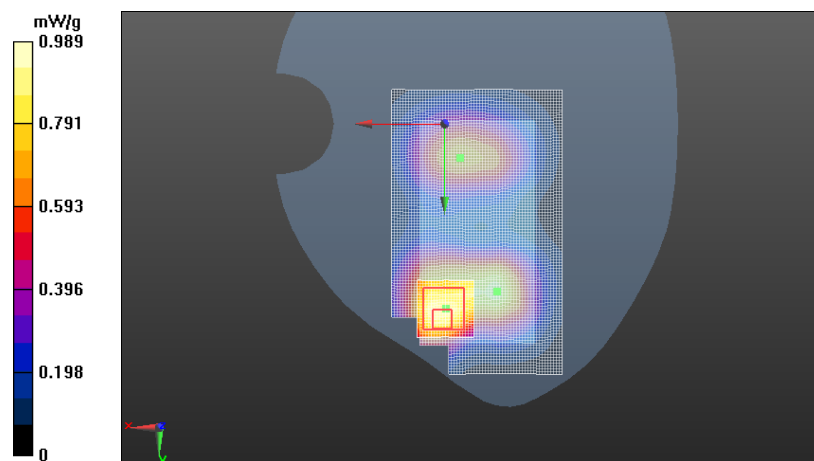
Peak SAR (extrapolated) = 1.386 mW/g

**SAR(1 g) = 0.876 mW/g**

**SAR(10 g) = 0.541 mW/g**

**Power Drift = -0.00 dB**

Maximum value of SAR (measured) = 0.956 mW/g



Date/Time: 2012-08-14 11:50:00 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.528 mho/m;  $\epsilon_r$  = 52.337;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Area Scan (31x61x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0534 mW/g

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.347 V/m

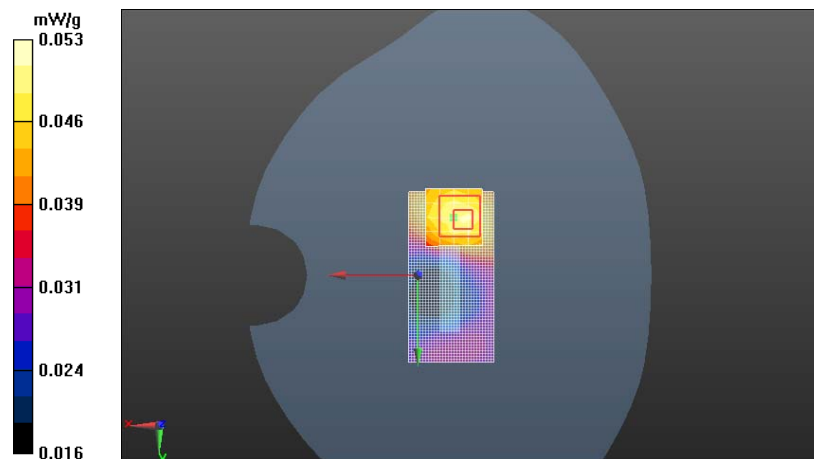
Peak SAR (extrapolated) = 0.075 mW/g

**SAR(1 g) = 0.048 mW/g**

**SAR(10 g) = 0.031 mW/g**

**Power Drift = -0.00 dB**

Maximum value of SAR (measured) = 0.0520 mW/g



Date/Time: 2012-08-14 11:40:17 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.528 mho/m;  $\epsilon_r$  = 52.337;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Area Scan (31x61x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.490 mW/g

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.081 V/m

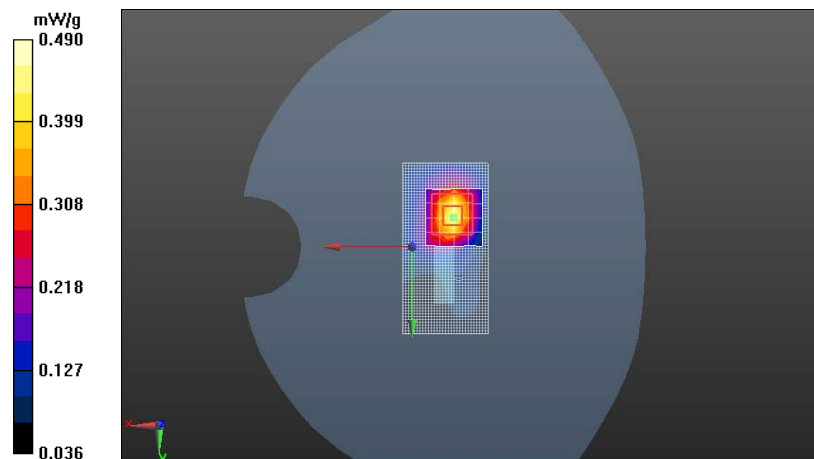
Peak SAR (extrapolated) = 0.719 mW/g

**SAR(1 g) = 0.428 mW/g**

**SAR(10 g) = 0.229 mW/g**

**Power Drift = 0.04 dB**

Maximum value of SAR (measured) = 0.492 mW/g



Date/Time: 2012-08-14 12:11:07 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used: f = 1880 MHz;  $\sigma$  = 1.528 mho/m;  $\epsilon_r$  = 52.337;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Area Scan (31x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.414 mW/g

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.345 V/m

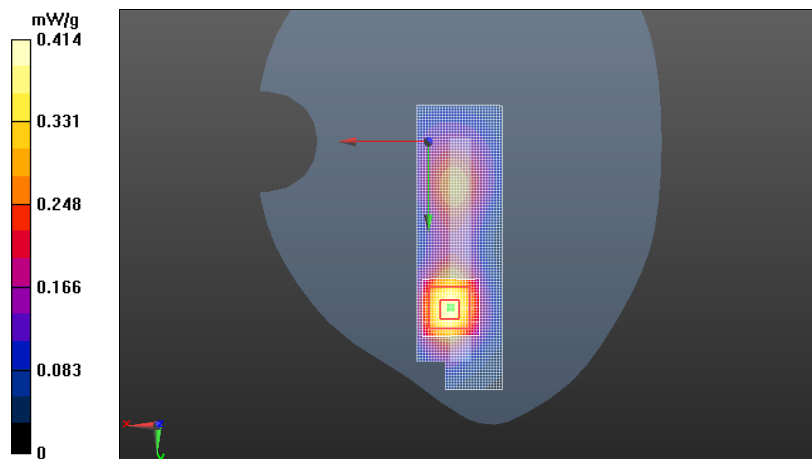
Peak SAR (extrapolated) = 0.609 mW/g

**SAR(1 g) = 0.370 mW/g**

**SAR(10 g) = 0.215 mW/g**

**Power Drift = 0.05 dB**

Maximum value of SAR (measured) = 0.406 mW/g



Date/Time: 2012-08-14 11:59:10 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.528$  mho/m;  $\epsilon_r = 52.337$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Area Scan (31x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.356 mW/g

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.760 V/m

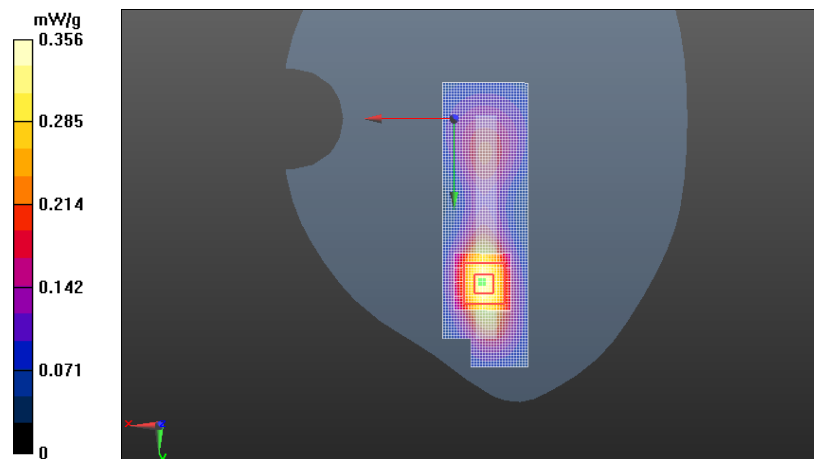
Peak SAR (extrapolated) = 0.495 mW/g

**SAR(1 g) = 0.306 mW/g**

**SAR(10 g) = 0.180 mW/g**

**Power Drift = -0.04 dB**

Maximum value of SAR (measured) = 0.335 mW/g



Date/Time: 2012-08-14 3:06:32 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000056/3

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.528$  mho/m;  $\epsilon_r = 52.337$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3836
- ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2012-02-15
- Phantom: SAM3; Type: SAM; Serial: TP - 1567
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L Sony/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.899 mW/g

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.976 V/m

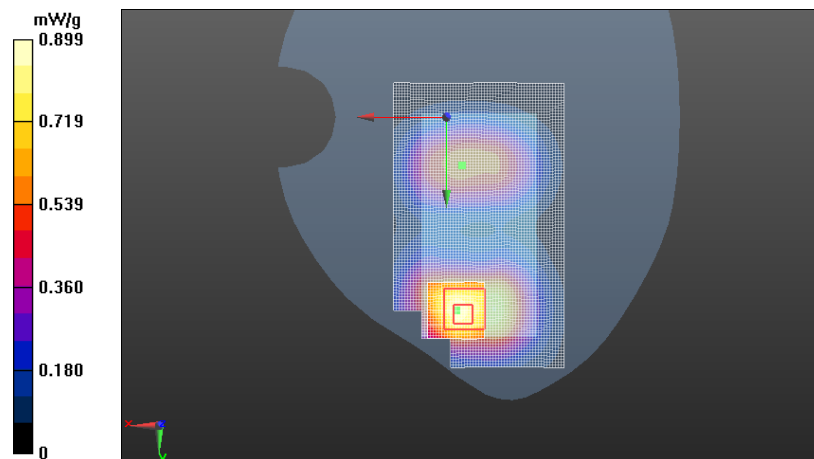
Peak SAR (extrapolated) = 1.613 mW/g

**SAR(1 g) = 0.883 mW/g**

**SAR(10 g) = 0.498 mW/g**

**Power Drift = -0.03 dB**

Maximum value of SAR (measured) = 0.940 mW/g



Date/Time: 2012-08-15 2:21:19 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Area Scan (61x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.104 mW/g

**Body - Middle - Spacer 10mm - Display facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 4.309 V/m

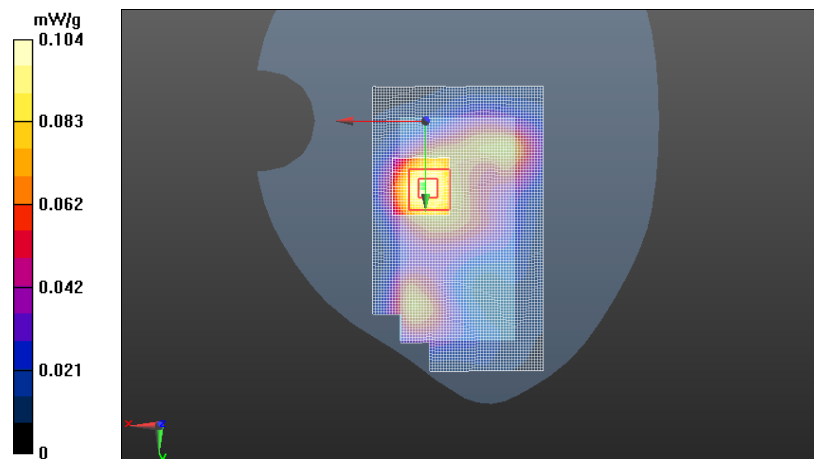
Peak SAR (extrapolated) = 0.150 mW/g

**SAR(1 g) = 0.095 mW/g**

**SAR(10 g) = 0.059 mW/g**

**Power Drift = 0.16 dB**

Maximum value of SAR (measured) = 0.101 mW/g



Date/Time: 2012-08-15 4:59:28 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.899$  mho/m;  $\epsilon_r = 52.297$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.442 mW/g

**Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.466 V/m

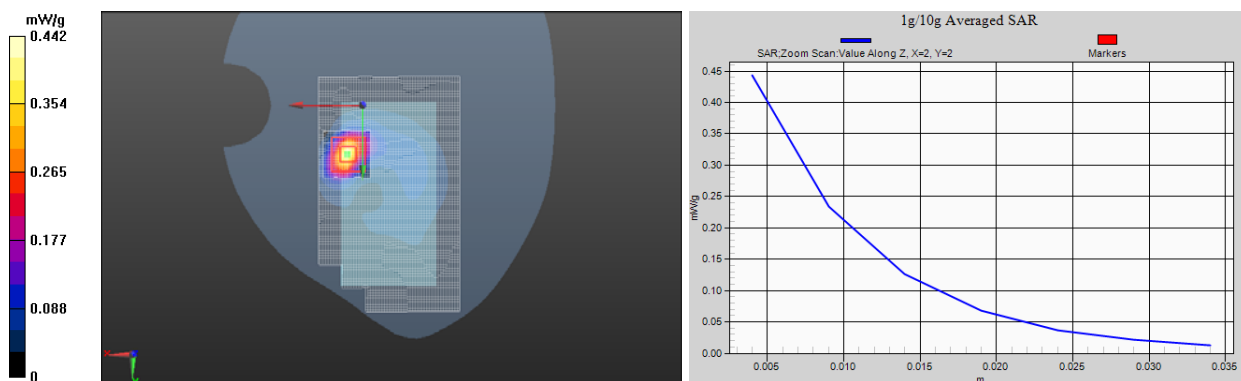
Peak SAR (extrapolated) = 0.807 mW/g

**SAR(1 g) = 0.383 mW/g**

**SAR(10 g) = 0.166 mW/g**

**Power Drift = -0.28 dB**

Maximum value of SAR (measured) = 0.443 mW/g



SAR Report

FCC\_RM-898\_01

Applicant: Nokia Corporation

Type: RM-898

Copyright © 2012 TCC Nokia

Date/Time: 2012-08-15 5:18:19 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.858 mho/m;  $\epsilon_r$  = 52.394;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG 2/Area Scan (31x61x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.103 mW/g

**Body - Middle - Spacer 10mm - Top facing phantom - BP-3L LG 2/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.575 V/m

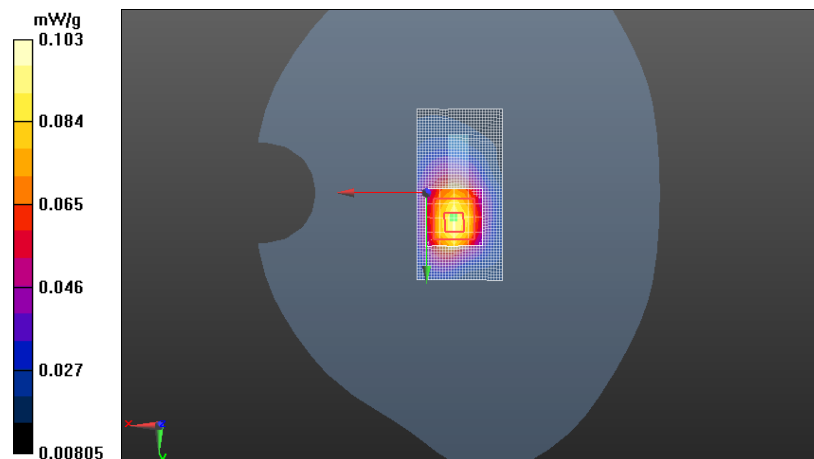
Peak SAR (extrapolated) = 0.160 mW/g

**SAR(1 g) = 0.091 mW/g**

**SAR(10 g) = 0.052 mW/g**

**Power Drift = -0.03 dB**

Maximum value of SAR (measured) = 0.0987 mW/g



Date/Time: 2012-08-15 4:07:04 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.858$  mho/m;  $\epsilon_r = 52.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Area Scan (31x61x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00538 mW/g

**Body - Middle - Spacer 10mm - Bottom facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.487 V/m

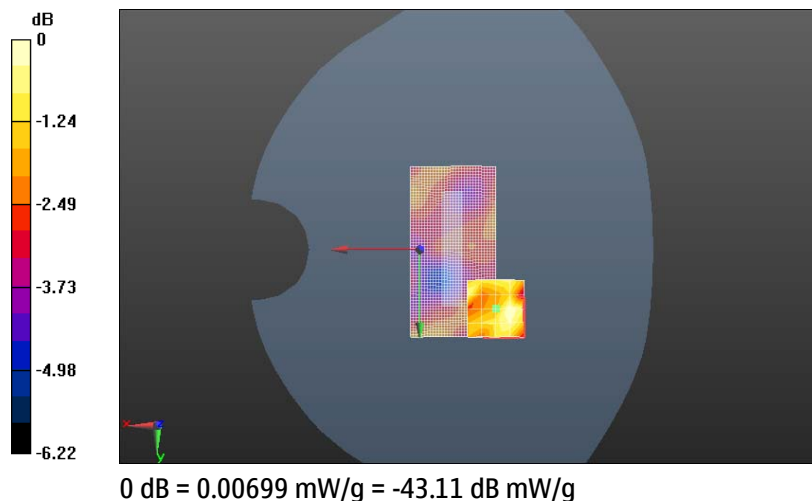
Peak SAR (extrapolated) = 0.010 mW/g

**SAR(1 g) = 0.00607 mW/g**

**SAR(10 g) = 0.00503 mW/g**

**Power Drift = 0.18 dB**

Maximum value of SAR (measured) = 0.00699 mW/g



Date/Time: 2012-08-15 3:38:39 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.858 mho/m;  $\epsilon_r$  = 52.394;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY Configuration:**

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Area Scan (31x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00557 mW/g

**Body - Middle - Spacer 10mm - Left facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.386 V/m

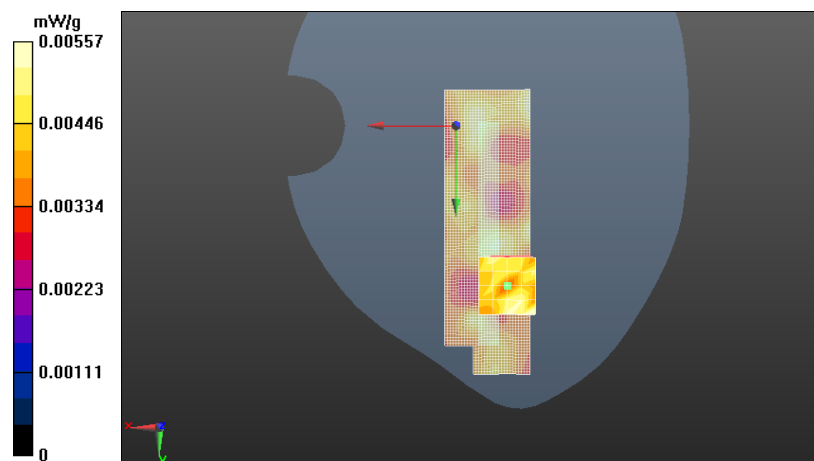
Peak SAR (extrapolated) = 0.00842 mW/g

**SAR(1 g) = 0.00539 mW/g**

**SAR(10 g) = 0.00442 mW/g**

**Power Drift = -0.12 dB**

Maximum value of SAR (measured) = 0.00645 mW/g



Date/Time: 2012-08-15 2:49:27 PM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.858 mho/m;  $\epsilon_r$  = 52.394;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Area Scan (31x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.130 mW/g

**Body - Middle - Spacer 10mm - Right facing phantom - BP-3L LG/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.379 V/m

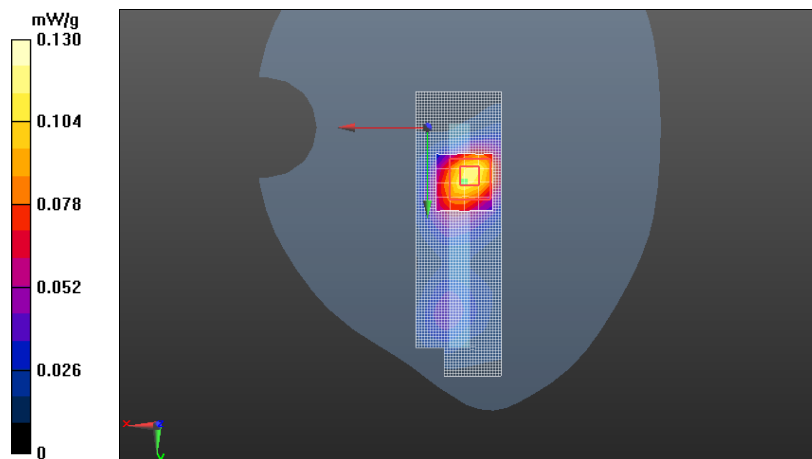
Peak SAR (extrapolated) = 0.204 mW/g

**SAR(1 g) = 0.112 mW/g**

**SAR(10 g) = 0.060 mW/g**

**Power Drift = 0.35 dB**

Maximum value of SAR (measured) = 0.120 mW/g



Date/Time: 2012-08-16 9:15:46 AM

Test Laboratory: TCC Nokia

Type: RM-898; Serial: 353661/05/000049/8

**Communication System: WLAN2450 b-mode**

Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.0C

Medium parameters used: f = 2412 MHz;  $\sigma$  = 1.803 mho/m;  $\epsilon_r$  = 52.448;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3574
- ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2011-10-19
- Phantom: SAM6; Type: SAM; Serial: TP - 1426
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

**Body - Low - Spacer 10mm - Back facing phantom - BP-3L Sony/Area Scan (61x101x1): Measurement grid:**

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.467 mW/g

**Body - Low - Spacer 10mm - Back facing phantom - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid:**

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.859 V/m

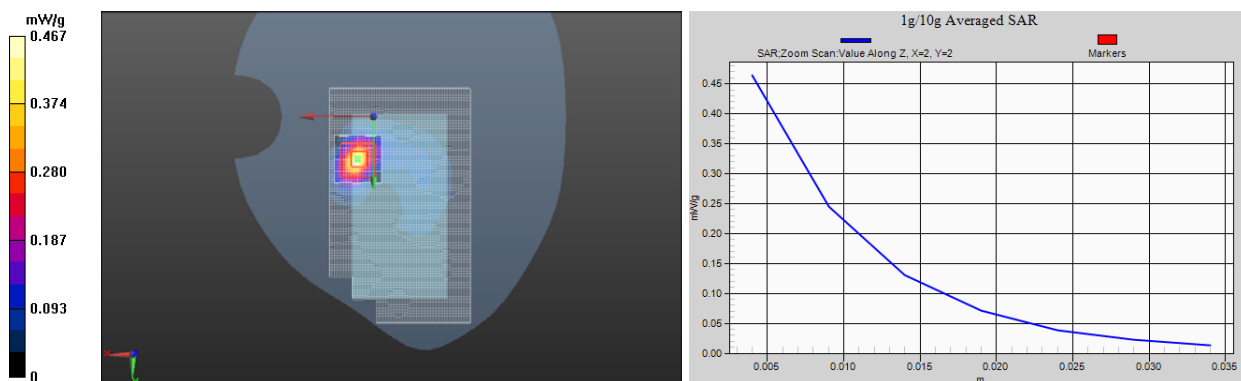
Peak SAR (extrapolated) = 0.838 mW/g

**SAR(1 g) = 0.395 mW/g**

**SAR(10 g) = 0.169 mW/g**

**Power Drift = -0.32 dB**

Maximum value of SAR (measured) = 0.464 mW/g



Date/Time: 2012-08-13 1:35:49 PM

**DASY Configuration for Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: 4-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:2.08; PMF: 1.44222

Medium: Body 835 SAM9 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.985$  mho/m;  $\epsilon_r = 54.401$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1324; Calibrated: 2012-02-15

Phantom: SAM9; Type: SAM; Serial: TP - 1693

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-16 9:15:46 AM

**DASY Configuration for Body - Low - Spacer 10mm - Back facing phantom - BP-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Body 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.803$  mho/m;  $\epsilon_r = 52.448$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

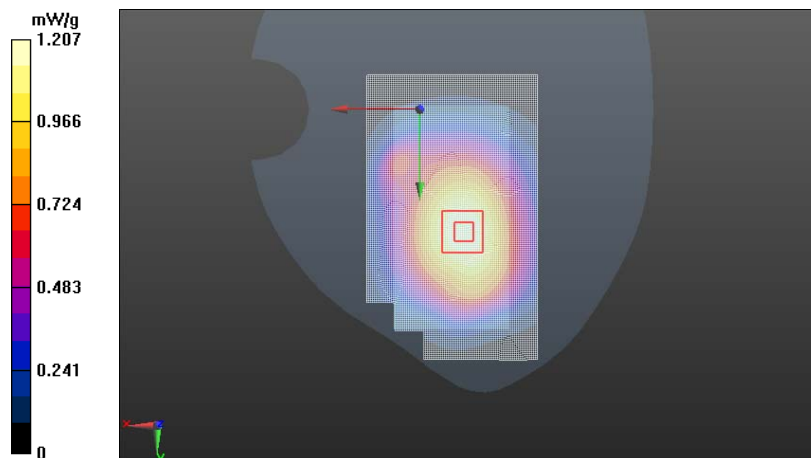
Electronics: DAE4 Sn860; Calibrated: 2011-10-19

Phantom: SAM6; Type: SAM; Serial: TP - 1426

Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.803 mW/g**

Maximum value of SAR (interpolated) = 1.21 mW/g



SAR Report

FCC\_RM-898\_01

Applicant: Nokia Corporation

Type: RM-898

Copyright © 2012 TCC Nokia

Date/Time: 2012-08-13 2:11:48 PM

**DASY Configuration for Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: WCDMA850; Frequency: 846.6 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Body 835 SAM9 Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54.394$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM9; Type: SAM; Serial: TP - 1693  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-16 9:15:46 AM

**DASY Configuration for Body - Low - Spacer 10mm - Back facing phantom - BP-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

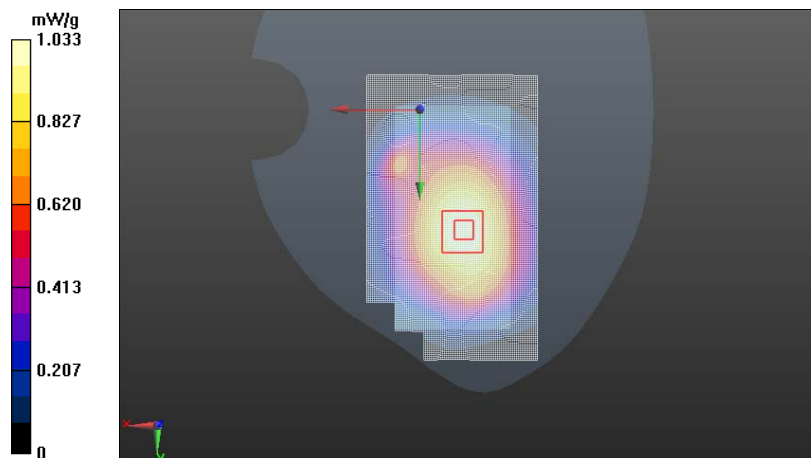
Medium: Body 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.803$  mho/m;  $\epsilon_r = 52.448$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.976 mW/g; SAR(10 g) = 0.686 mW/g**

Maximum value of SAR (interpolated) = 1.03 mW/g



Date/Time: 2012-08-22 12:11:32 PM

**DASY Configuration for Body - Middle - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000056/3**

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

Medium: Body 1900 SAM8 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 53.217$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(7.35, 7.35, 7.35); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1324; Calibrated: 2012-02-15  
Phantom: SAM8; Type: SAM; Serial: TP - 1215  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-15 4:59:28 PM

**DASY Configuration for Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

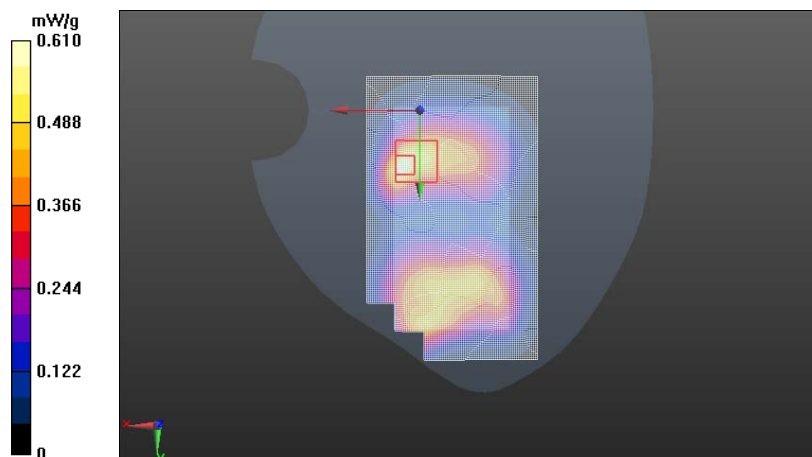
Medium: Body 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.899$  mho/m;  $\epsilon_r = 52.297$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.274 mW/g**

Maximum value of SAR (interpolated) = 0.610 mW/g



Date/Time: 2012-08-14 1:17:50 PM

**DASY Configuration for Body - Middle - Spacer 10mm - Back facing phantom - BP-3L LG/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000056/3**

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Body 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.528$  mho/m;  $\epsilon_r = 52.337$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3836; ConvF(7.2, 7.2, 7.2); Calibrated: 2012-02-20;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn1319; Calibrated: 2012-02-15  
Phantom: SAM3; Type: SAM; Serial: TP - 1567  
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-16 9:15:46 AM

**DASY Configuration for Body - Low - Spacer 10mm - Back facing phantom - BP-3L Sony/Area Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2412 MHz; Duty Cycle: 1:1; PMF: 1

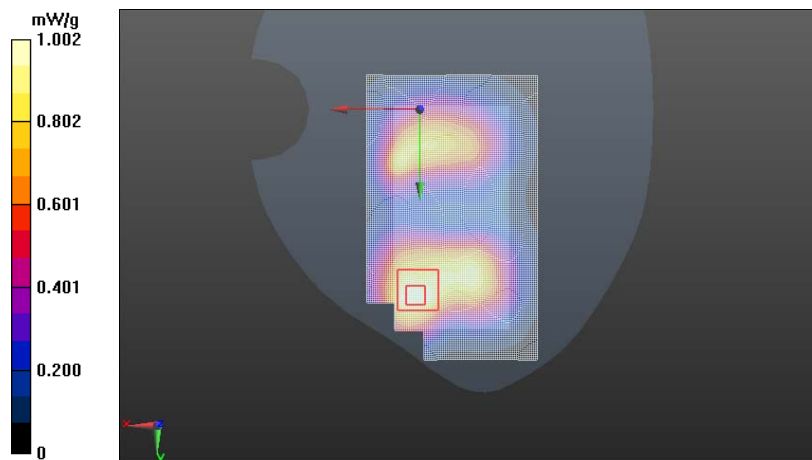
Medium: Body 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.803$  mho/m;  $\epsilon_r = 52.448$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;  
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))  
Electronics: DAE4 Sn860; Calibrated: 2011-10-19  
Phantom: SAM6; Type: SAM; Serial: TP - 1426  
Measurement SW: DASY4, Version 4.7 (80)

**Fast SAR of Combined Scans: SAR(1 g) = 0.919 mW/g; SAR(10 g) = 0.550 mW/g**

Maximum value of SAR (interpolated) = 1.00 mW/g



Date/Time: 2012-08-27 11:21:39 AM

**DASY Configuration for Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Volume Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000046/4**

Communication System: 4-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:2.08; PMF: 1.44222

Medium: Body 835 SAM9 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.986$  mho/m;  $\epsilon_r = 54.367$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3838; ConvF(8.86, 8.86, 8.86); Calibrated: 2012-02-20;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1324; Calibrated: 2012-02-15

Phantom: SAM9; Type: SAM; Serial: TP - 1693

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-27 1:36:31 PM

**DASY Configuration for Body - High - Spacer 10mm - Back facing phantom - BP-3L LG/Volume Scan:**

Test Laboratory: TCC Nokia

**Type: RM-898; Serial: 353661/05/000049/8**

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: Body 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.901$  mho/m;  $\epsilon_r = 51.555$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Probe: EX3DV4 - SN3574; ConvF(6.47, 6.47, 6.47); Calibrated: 2011-10-25;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn860; Calibrated: 2011-10-19

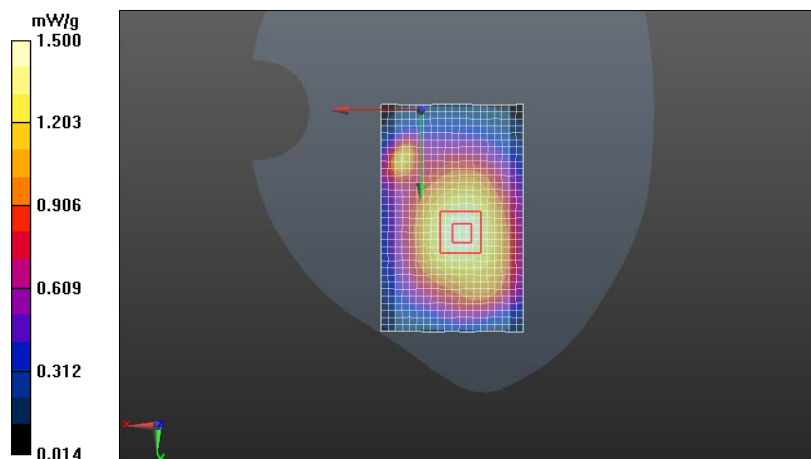
Phantom: SAM6; Type: SAM; Serial: TP - 1426

Measurement SW: DASY4, Version 4.7 (80)

**Multi Band Result:**

**SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.834 mW/g**

Maximum value of SAR (interpolated) = 1.50 mW/g



## APPENDIX C: DIELECTRIC PARAMETERS OF THE TISSUE SIMULANTS

Head tissue simulant dielectric parameters used in the measurements:

| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|------------------------|------------|-----------------------|----------------|--------------|----------------|--------------|----------------|
|                        |            | 824.2MHz              |                | 837.0MHz     |                | 849.0MHz     |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| GSM/GPRS/<br>EGPRS850  | 2012-08-09 | 40.7                  | 0.87           | 40.7         | 0.88           | 40.6         | 0.89           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 826.0MHz              |                | 835.0MHz     |                | 847.0MHz     |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| WCDMA850               | 2012-08-10 | 42.7                  | 0.91           | 42.6         | 0.92           | 42.5         | 0.93           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 1850.0MHz             |                | 1880.0MHz    |                | 1910.0MHz    |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| GSM/GPRS/<br>EGPRS1900 | 2012-08-10 | 39.2                  | 1.39           | 39.1         | 1.42           | 39.0         | 1.45           |
|                        | 2012-08-21 | 38.8                  | 1.39           | 38.6         | 1.42           | 38.5         | 1.45           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 1852.4MHz             |                | 1880.0MHz    |                | 1908.0MHz    |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| WCDMA1900              | 2012-08-13 | 39.6                  | 1.42           | 39.4         | 1.44           | 39.3         | 1.46           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 2412.0MHz             |                | 2442.0MHz    |                | 2462.0MHz    |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| WLAN2450               | 2012-08-13 | 38.4                  | 1.69           | 38.3         | 1.72           | 38.3         | 1.76           |
|                        | 2012-08-14 | 38.0                  | 1.69           | 37.9         | 1.72           | 37.8         | 1.75           |

**Body tissue simulant dielectric parameters used in the measurements:**

| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|------------------------|------------|-----------------------|----------------|--------------|----------------|--------------|----------------|
|                        |            | 824.2MHz              |                | 837.0MHz     |                | 849.0MHz     |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| GSM/GPRS/<br>EGPRS850  | 2012-08-13 | 54.5                  | 0.97           | 54.4         | 0.98           | 54.4         | 0.98           |
|                        | 2012-08-14 | 54.1                  | 0.96           | 54.0         | 0.96           | 54.0         | 0.97           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 826.0MHz              |                | 835.0MHz     |                | 847.0MHz     |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| WCDMA850               | 2012-08-13 | 54.5                  | 0.97           | 54.5         | 0.97           | 54.4         | 0.98           |
|                        | 2012-08-14 | 54.1                  | 0.96           | 54.1         | 0.96           | 54.0         | 0.97           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 1850.0MHz             |                | 1880.0MHz    |                | 1910.0MHz    |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| GSM/GPRS/<br>EGPRS1900 | 2012-08-22 | 53.3                  | 1.50           | 53.2         | 1.54           | 53.1         | 1.57           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 1852.4MHz             |                | 1880.0MHz    |                | 1908.0MHz    |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| WCDMA1900              | 2012-08-14 | 52.5                  | 1.50           | 52.3         | 1.53           | 52.2         | 1.55           |
|                        | 2012-08-15 | 52.5                  | 1.51           | 52.4         | 1.54           | 52.2         | 1.56           |
| f<br>(MHz)             | Date       | Dielectric Parameters |                |              |                |              |                |
|                        |            | 2412.0MHz             |                | 2442.0MHz    |                | 2462.0MHz    |                |
|                        |            | $\epsilon_r$          | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] | $\epsilon_r$ | $\sigma$ [S/m] |
| WLAN2450               | 2012-08-15 | 52.4                  | 1.80           | 52.4         | 1.86           | 52.3         | 1.90           |

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**APPENDIX D: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)**



Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Beijing TCC**

Certificate No: **EX3-3838\_Feb12**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3838**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4**  
**Calibration procedure for dosimetric E-field probes**

Calibration date: **February 20, 2012**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID              | Cal Date (Certificate No.)        | Scheduled Calibration  |
|----------------------------|-----------------|-----------------------------------|------------------------|
| Power meter E4419B         | GB41293874      | 31-Mar-11 (No. 217-01372)         | Apr-12                 |
| Power sensor E4412A        | MY41498087      | 31-Mar-11 (No. 217-01372)         | Apr-12                 |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 29-Mar-11 (No. 217-01369)         | Apr-12                 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 29-Mar-11 (No. 217-01367)         | Apr-12                 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 29-Mar-11 (No. 217-01370)         | Apr-12                 |
| Reference Probe ES3DV2     | SN: 3013        | 29-Dec-11 (No. ES3-3013_Dec11)    | Dec-12                 |
| DAE4                       | SN: 654         | 3-May-11 (No. DAE4-654_May11)     | May-12                 |
| Secondary Standards        | ID              | Check Date (in house)             | Scheduled Check        |
| RF generator HP 8648C      | US3642U01700    | 4-Aug-99 (in house check Apr-11)  | In house check: Apr-13 |
| Network Analyzer HP 8753E  | US37390585      | 18-Oct-01 (in house check Oct-11) | In house check: Oct-12 |

|                                                                                                                 | Name           | Function              | Signature |
|-----------------------------------------------------------------------------------------------------------------|----------------|-----------------------|-----------|
| Calibrated by:                                                                                                  | Jeton Kastrati | Laboratory Technician |           |
| Approved by:                                                                                                    | Katja Pokovic  | Technical Manager     |           |
| Issued: February 21, 2012                                                                                       |                |                       |           |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                |                       |           |

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3838

### Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|-----------------------------------------------------------|----------|----------|----------|-----------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.37     | 0.60     | 0.53     | ± 10.1 %  |
| DCP (mV) <sup>B</sup>                                     | 105.4    | 99.8     | 99.8     |           |

### Modulation Calibration Parameters

| UID   | Communication System Name | PAR  |   | A<br>dB | B<br>dB | C<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-------|---------------------------|------|---|---------|---------|---------|----------|---------------------------|
| 10000 | CW                        | 0.00 | X | 0.00    | 0.00    | 1.00    | 102.8    | ±1.9 %                    |
|       |                           |      | Y | 0.00    | 0.00    | 1.00    | 97.2     |                           |
|       |                           |      | Z | 0.00    | 0.00    | 1.00    | 87.7     |                           |

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3838

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 835                  | 41.5                               | 0.90                            | 8.67    | 8.67    | 8.67    | 0.53  | 0.72       | ± 12.0 %    |
| 1750                 | 40.1                               | 1.37                            | 7.81    | 7.81    | 7.81    | 0.57  | 0.72       | ± 12.0 %    |
| 1900                 | 40.0                               | 1.40                            | 7.57    | 7.57    | 7.57    | 0.62  | 0.69       | ± 12.0 %    |

<sup>C</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3838

### Calibration Parameter Determined in Body Tissue Simulating Media

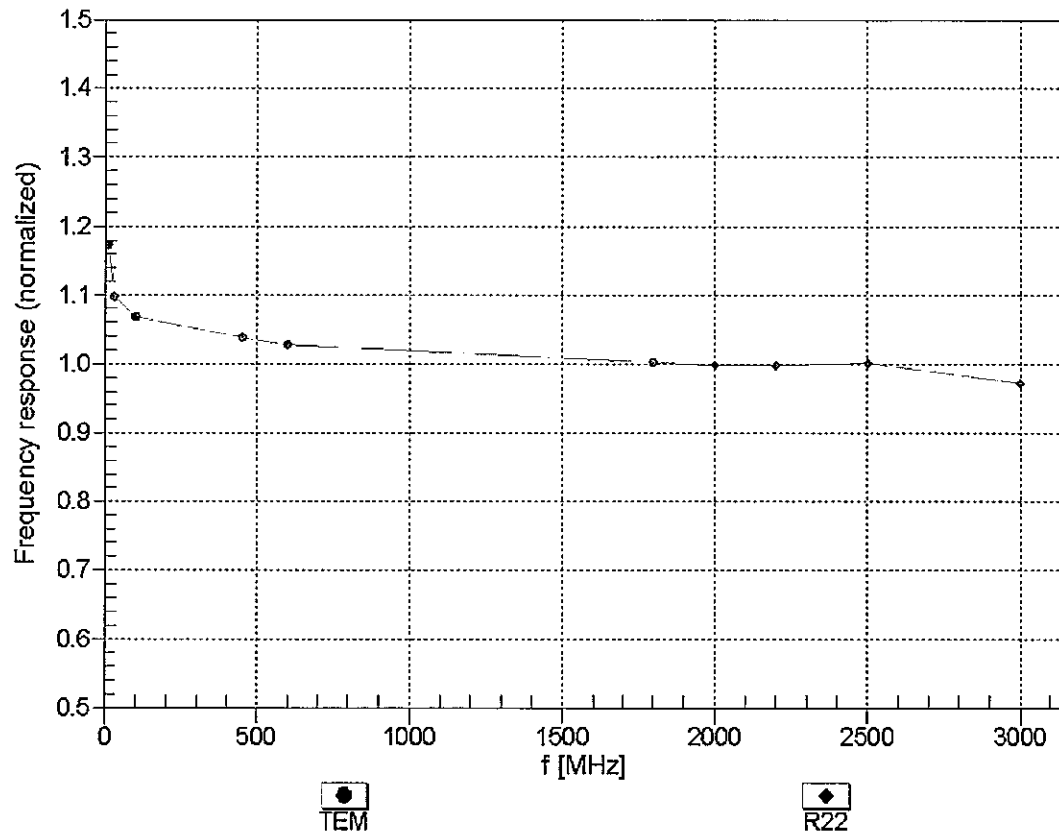
| f (MHz) <sup>c</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 835                  | 55.2                               | 0.97                            | 8.86    | 8.86    | 8.86    | 0.52  | 0.76       | ± 12.0 %    |
| 1750                 | 53.4                               | 1.49                            | 7.72    | 7.72    | 7.72    | 0.49  | 0.86       | ± 12.0 %    |
| 1900                 | 53.3                               | 1.52                            | 7.35    | 7.35    | 7.35    | 0.30  | 1.08       | ± 12.0 %    |

<sup>c</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

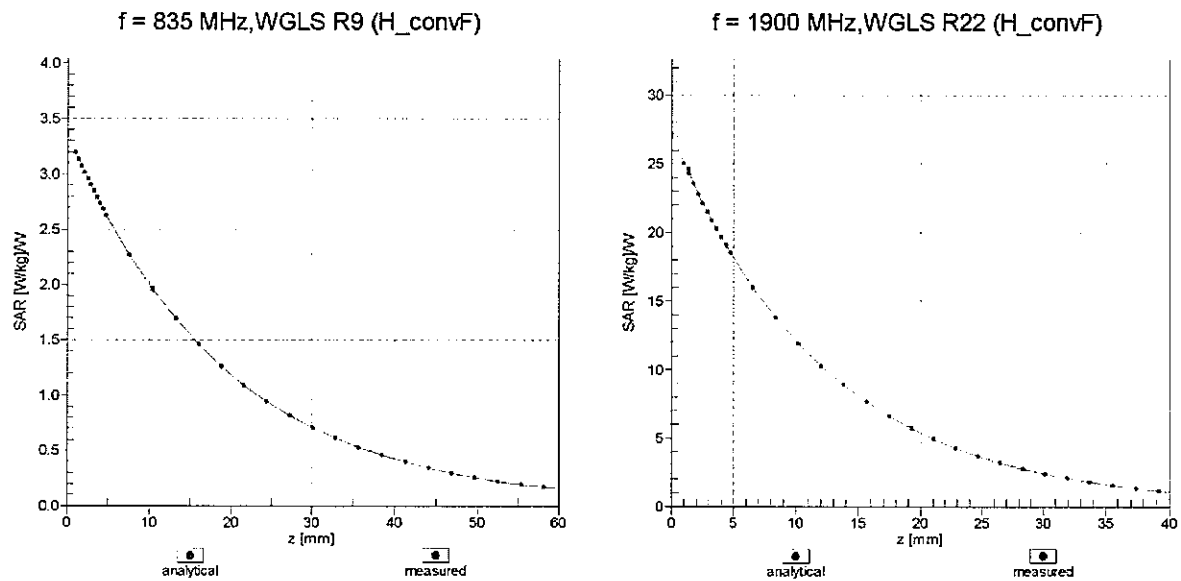
## Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



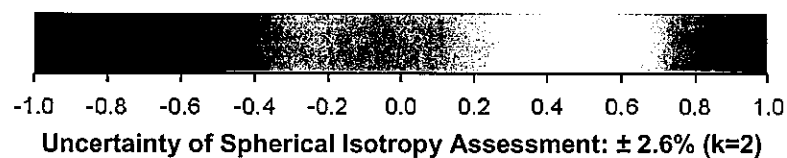
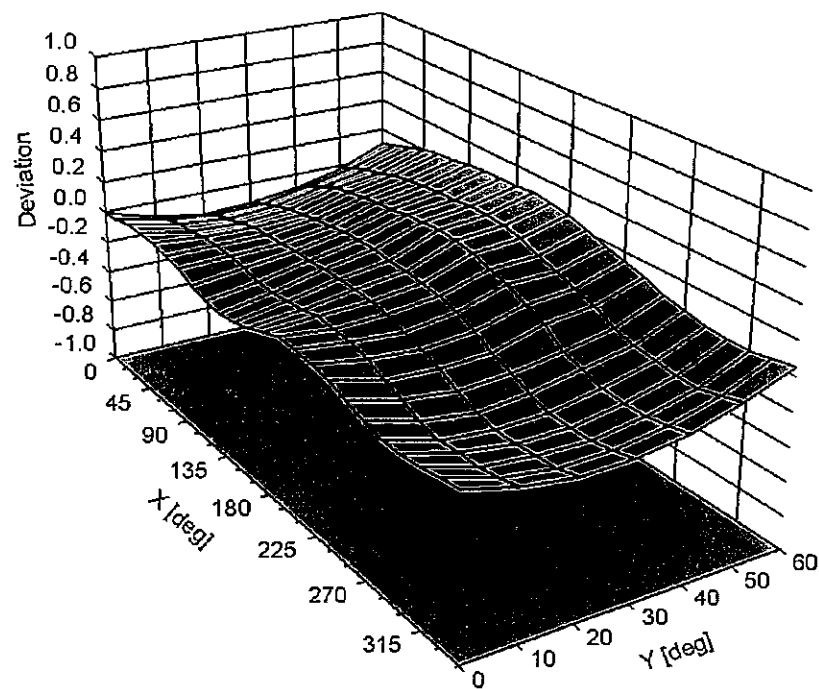
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

Error ( $\phi, \theta$ ),  $f = 900 \text{ MHz}$





Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Client **Nokia Beijing TCC**

Certificate No: **EX3-3836\_Feb12**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3836**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4**  
**Calibration procedure for dosimetric E-field probes**

Calibration date: **February 20, 2012**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID              | Cal Date (Certificate No.)        | Scheduled Calibration  |
|----------------------------|-----------------|-----------------------------------|------------------------|
| Power meter E4419B         | GB41293874      | 31-Mar-11 (No. 217-01372)         | Apr-12                 |
| Power sensor E4412A        | MY41498087      | 31-Mar-11 (No. 217-01372)         | Apr-12                 |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 29-Mar-11 (No. 217-01369)         | Apr-12                 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 29-Mar-11 (No. 217-01367)         | Apr-12                 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 29-Mar-11 (No. 217-01370)         | Apr-12                 |
| Reference Probe ES3DV2     | SN: 3013        | 29-Dec-11 (No. ES3-3013_Dec11)    | Dec-12                 |
| DAE4                       | SN: 654         | 3-May-11 (No. DAE4-654_May11)     | May-12                 |
| Secondary Standards        | ID              | Check Date (in house)             | Scheduled Check        |
| RF generator HP 8648C      | US3642U01700    | 4-Aug-99 (in house check Apr-11)  | In house check: Apr-13 |
| Network Analyzer HP 8753E  | US37390585      | 18-Oct-01 (in house check Oct-11) | In house check: Oct-12 |

|                                                                                                                 | Name           | Function              | Signature |
|-----------------------------------------------------------------------------------------------------------------|----------------|-----------------------|-----------|
| Calibrated by:                                                                                                  | Jeton Kastrati | Laboratory Technician |           |
| Approved by:                                                                                                    | Katja Pokovic  | Technical Manager     |           |
| Issued: February 21, 2012                                                                                       |                |                       |           |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                |                       |           |

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3836

### Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|-----------------------------------------------------------|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.40     | 0.47     | 0.45     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                                     | 89.1     | 99.3     | 95.9     |               |

### Modulation Calibration Parameters

| UID   | Communication System Name | PAR  |   | A<br>dB | B<br>dB | C<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-------|---------------------------|------|---|---------|---------|---------|----------|---------------------------|
| 10000 | CW                        | 0.00 | X | 0.00    | 0.00    | 1.00    | 101.5    | $\pm 3.0 \%$              |
|       |                           |      | Y | 0.00    | 0.00    | 1.00    | 111.8    |                           |
|       |                           |      | Z | 0.00    | 0.00    | 1.00    | 105.9    |                           |

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3836

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 835                  | 41.5                               | 0.90                            | 8.54    | 8.54    | 8.54    | 0.67  | 0.68       | ± 12.0 %    |
| 1750                 | 40.1                               | 1.37                            | 7.92    | 7.92    | 7.92    | 0.38  | 0.91       | ± 12.0 %    |
| 1900                 | 40.0                               | 1.40                            | 7.66    | 7.66    | 7.66    | 0.74  | 0.66       | ± 12.0 %    |

<sup>C</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3836

### Calibration Parameter Determined in Body Tissue Simulating Media

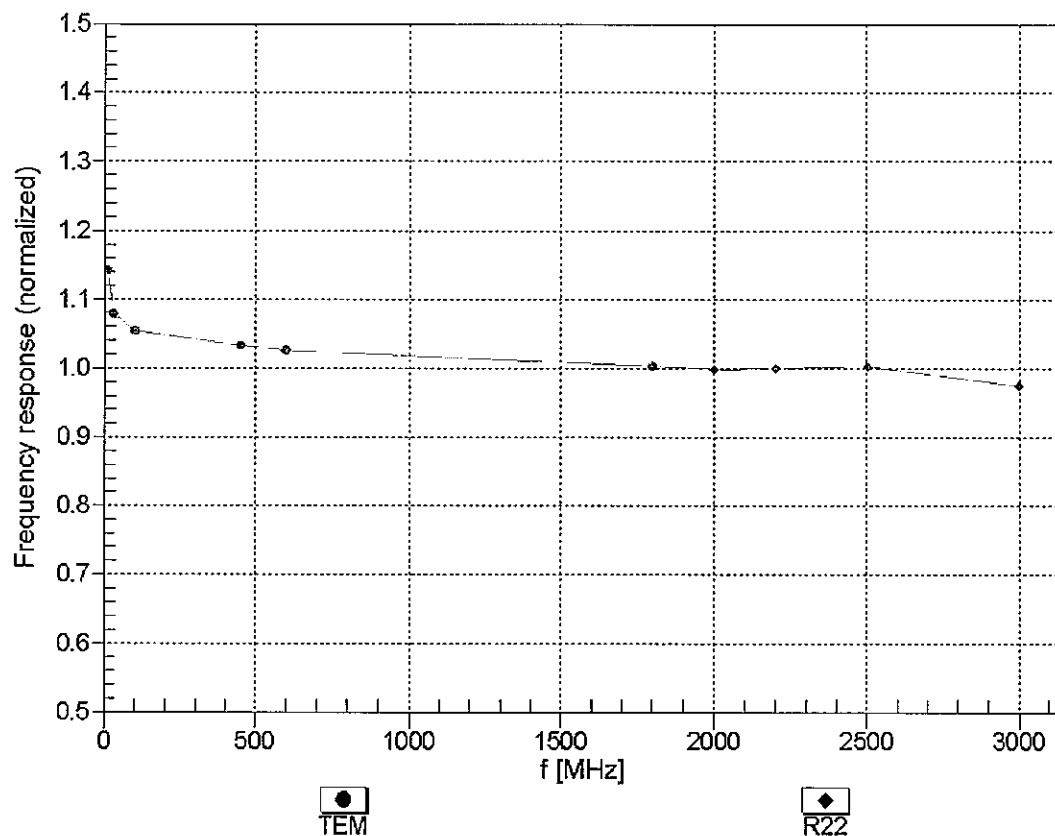
| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 835                  | 55.2                               | 0.97                            | 8.83    | 8.83    | 8.83    | 0.80  | 0.65       | ± 12.0 %    |
| 1750                 | 53.4                               | 1.49                            | 7.64    | 7.64    | 7.64    | 0.49  | 0.81       | ± 12.0 %    |
| 1900                 | 53.3                               | 1.52                            | 7.20    | 7.20    | 7.20    | 0.42  | 0.82       | ± 12.0 %    |

<sup>C</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

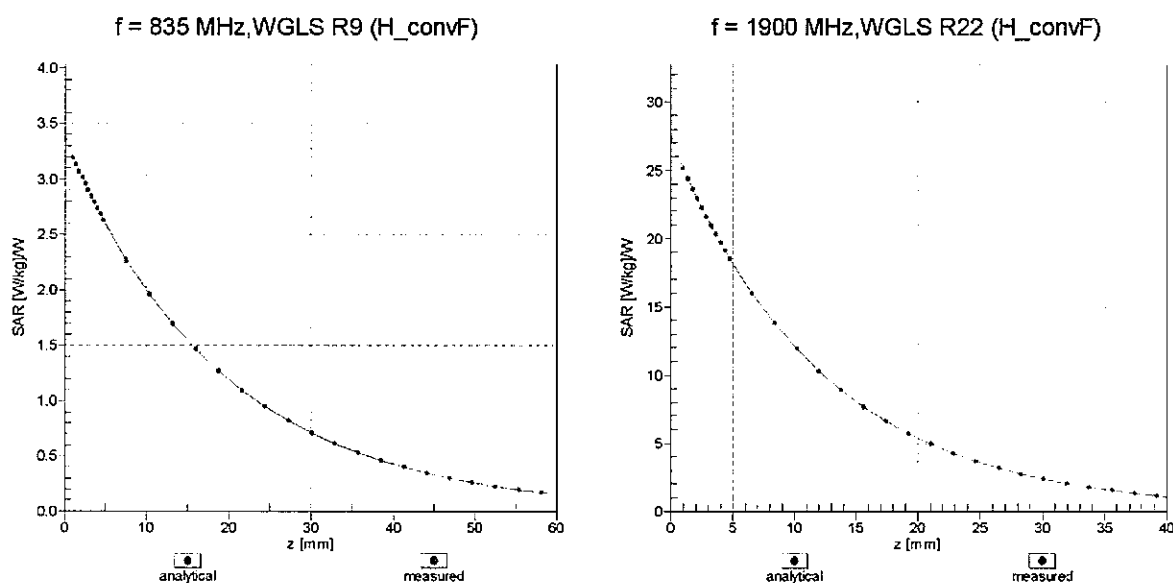
## Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



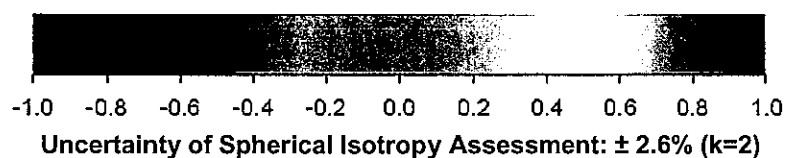
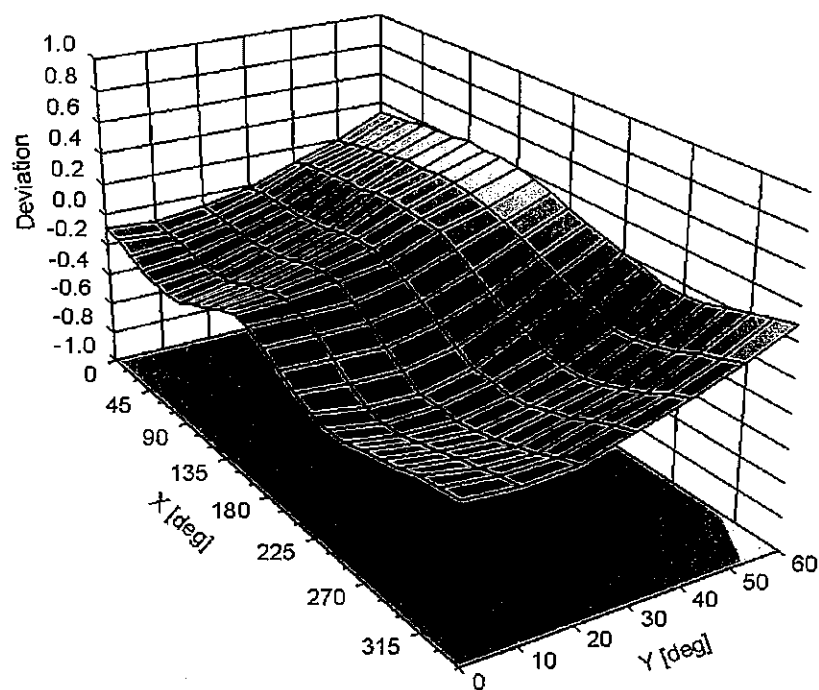
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

Error ( $\phi, \theta$ ),  $f = 900 \text{ MHz}$



Uncertainty of Spherical Isotropy Assessment:  $\pm 2.6\%$  ( $k=2$ )



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 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Beijing TCC**

Certificate No: **EX3-3574\_Oct11**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3574**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4**  
**Calibration procedure for dosimetric E-field probes**

Calibration date: **October 25, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID              | Cal Date (Certificate No.)        | Scheduled Calibration  |
|----------------------------|-----------------|-----------------------------------|------------------------|
| Power meter E4419B         | GB41293874      | 31-Mar-11 (No. 217-01372)         | Apr-12                 |
| Power sensor E4412A        | MY41498087      | 31-Mar-11 (No. 217-01372)         | Apr-12                 |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 29-Mar-11 (No. 217-01369)         | Apr-12                 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 29-Mar-11 (No. 217-01367)         | Apr-12                 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 29-Mar-11 (No. 217-01370)         | Apr-12                 |
| Reference Probe ES3DV2     | SN: 3013        | 29-Dec-10 (No. ES3-3013_Dec10)    | Dec-11                 |
| DAE4                       | SN: 654         | 3-May-11 (No. DAE4-654_May11)     | May-12                 |
| Secondary Standards        | ID              | Check Date (in house)             | Scheduled Check        |
| RF generator HP 8648C      | US3642U01700    | 4-Aug-99 (in house check Apr-11)  | In house check: Apr-13 |
| Network Analyzer HP 8753E  | US37390585      | 18-Oct-01 (in house check Oct-11) | In house check: Oct-12 |

|                                                                                                                 |                 |                       |                          |
|-----------------------------------------------------------------------------------------------------------------|-----------------|-----------------------|--------------------------|
| Calibrated by:                                                                                                  | Name            | Function              | Signature                |
|                                                                                                                 | Claudio Leubler | Laboratory Technician |                          |
| Approved by:                                                                                                    | Name            | Function              | Signature                |
|                                                                                                                 | Katja Pokovic   | Technical Manager     |                          |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                 |                       | Issued: October 27, 2011 |

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3574

### Basic Calibration Parameters

|                                                           | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|-----------------------------------------------------------|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.53     | 0.48     | 0.43     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                                     | 97.2     | 98.5     | 101.8    |               |

### Modulation Calibration Parameters

| UID   | Communication System Name | PAR  |   | A<br>dB | B<br>dB | C<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-------|---------------------------|------|---|---------|---------|---------|----------|---------------------------|
| 10000 | CW                        | 0.00 | X | 0.00    | 0.00    | 1.00    | 117.3    | $\pm 2.5 \%$              |
|       |                           |      | Y | 0.00    | 0.00    | 1.00    | 116.3    |                           |
|       |                           |      | Z | 0.00    | 0.00    | 1.00    | 109.8    |                           |

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3574

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 835                  | 41.5                               | 0.90                            | 8.22    | 8.22    | 8.22    | 0.80  | 0.67       | ± 12.0 %    |
| 1750                 | 40.1                               | 1.37                            | 7.95    | 7.95    | 7.95    | 0.68  | 0.71       | ± 12.0 %    |
| 1900                 | 40.0                               | 1.40                            | 7.57    | 7.57    | 7.57    | 0.80  | 0.64       | ± 12.0 %    |
| 1950                 | 40.0                               | 1.40                            | 7.30    | 7.30    | 7.30    | 0.80  | 0.63       | ± 12.0 %    |
| 2450                 | 39.2                               | 1.80                            | 6.71    | 6.71    | 6.71    | 0.80  | 0.61       | ± 12.0 %    |

<sup>C</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

## DASY/EASY - Parameters of Probe: EX3DV4- SN:3574

### Calibration Parameter Determined in Body Tissue Simulating Media

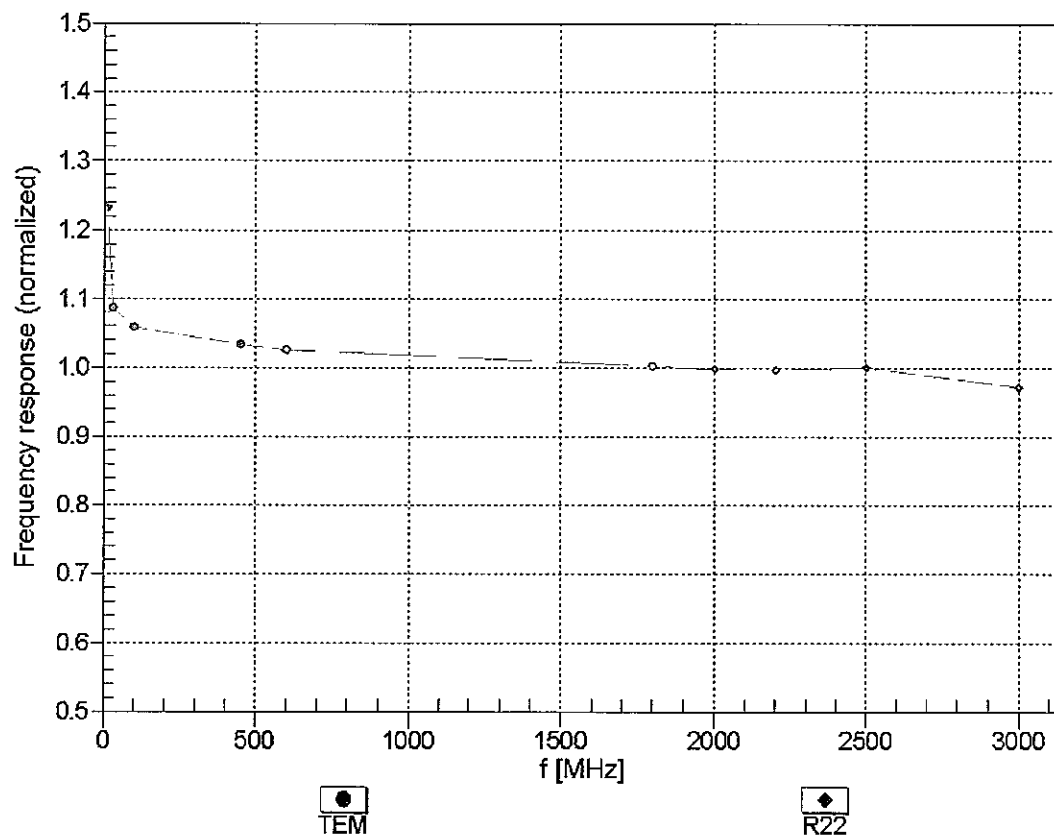
| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 835                  | 55.2                               | 0.97                            | 8.38    | 8.38    | 8.38    | 0.80  | 0.70       | ± 12.0 %    |
| 1750                 | 53.4                               | 1.49                            | 6.94    | 6.94    | 6.94    | 0.78  | 0.62       | ± 12.0 %    |
| 1900                 | 53.3                               | 1.52                            | 6.72    | 6.72    | 6.72    | 0.80  | 0.62       | ± 12.0 %    |
| 1950                 | 53.3                               | 1.52                            | 6.93    | 6.93    | 6.93    | 0.72  | 0.68       | ± 12.0 %    |
| 2450                 | 52.7                               | 1.95                            | 6.47    | 6.47    | 6.47    | 0.80  | 0.59       | ± 12.0 %    |

<sup>C</sup> Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

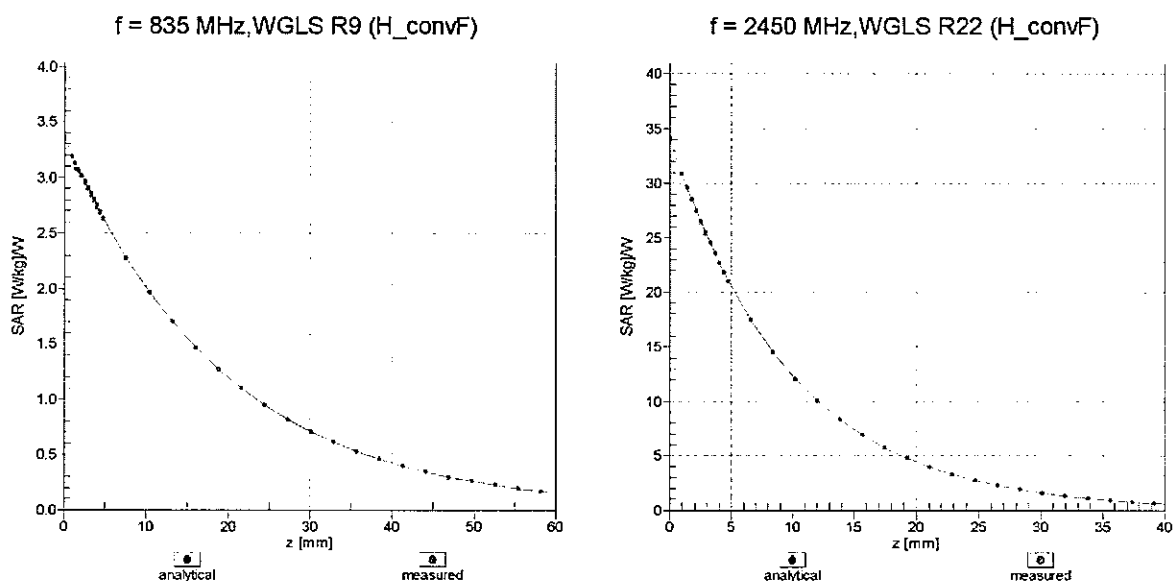
## Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



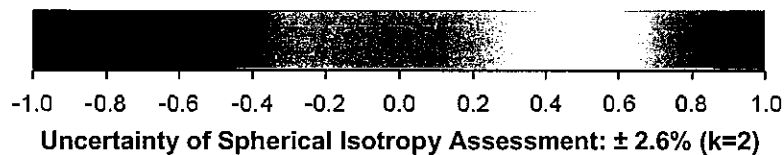
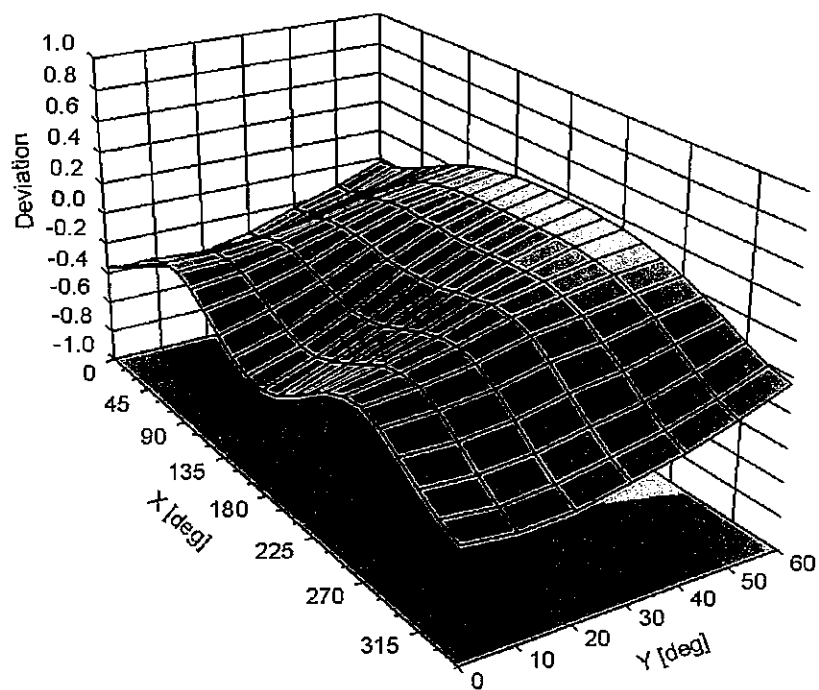
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

Error ( $\phi$ ,  $\theta$ ),  $f = 900 \text{ MHz}$



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**APPENDIX E: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)**

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Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Beijing TCC**

Certificate No: **D835V2-479\_Mar11**

## CALIBRATION CERTIFICATE

Object **D835V2 - SN: 479**

Calibration procedure(s) **QA CAL-05.v8**  
**Calibration procedure for dipole validation kits**

Calibration date: **March 9, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter EPM-442A        | GB37480704         | 06-Oct-10 (No. 217-01266)         | Oct-11                 |
| Power sensor HP 8481A       | US37292783         | 06-Oct-10 (No. 217-01266)         | Oct-11                 |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 30-Mar-10 (No. 217-01158)         | Mar-11                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 30-Mar-10 (No. 217-01162)         | Mar-11                 |
| Reference Probe ES3DV3      | SN: 3205           | 30-Apr-10 (No. ES3-3205_Apr10)    | Apr-11                 |
| DAE4                        | SN: 601            | 10-Jun-10 (No. DAE4-601_Jun10)    | Jun-11                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| Power sensor HP 8481A       | MY41092317         | 18-Oct-02 (in house check Oct-09) | In house check: Oct-11 |
| RF generator R&S SMT-06     | 100005             | 4-Aug-99 (in house check Oct-09)  | In house check: Oct-11 |
| Network Analyzer HP 8753E   | US37390585 S4206   | 18-Oct-01 (in house check Oct-10) | In house check: Oct-11 |

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: March 10, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## Appendix

### Antenna Parameters with Head TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 51.2 $\Omega$ - 3.3 j $\Omega$ |
| Return Loss                          | - 29.2 dB                      |

### Antenna Parameters with Body TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 47.0 $\Omega$ - 5.2 j $\Omega$ |
| Return Loss                          | - 24.2 dB                      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.388 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                  |
|-----------------|------------------|
| Manufactured by | SPEAG            |
| Manufactured on | January 28, 2003 |

## DASY5 Validation Report for Head TSL

Date/Time: 09.03.2011 14:54:54

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:479**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.89 \text{ mho/m}$ ;  $\epsilon_r = 41$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6 Build 2, Version 52.6.2 (424)
- Postprocessing SW: SEMCAD X, V14.4 Build 4, Version 14.4.4 (2829)

**Head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe) 2/Zoom Scan (7x7x7) (7x7x7)/Cube**

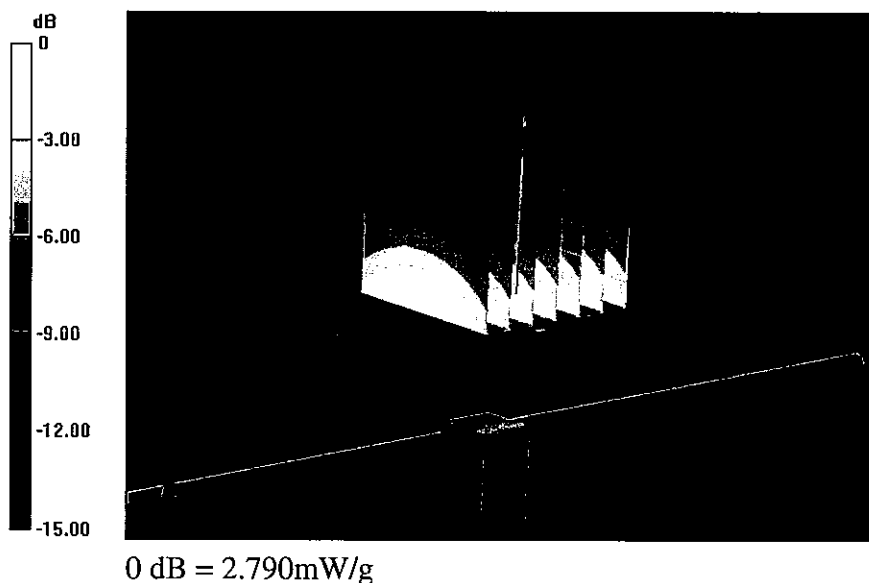
**0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 57.436 V/m; Power Drift = 0.0071 dB

Peak SAR (extrapolated) = 3.602 W/kg

**SAR(1 g) = 2.39 mW/g; SAR(10 g) = 1.56 mW/g**

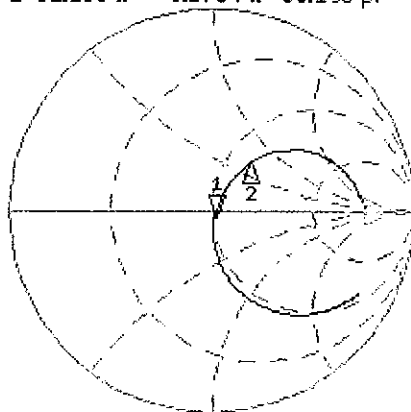
Maximum value of SAR (measured) = 2.795 mW/g



# Impedance Measurement Plot for Head TSL

9 Mar 2011 09:54:00  
 [CH1] S11 1 U FS 1: 51.205  $\Omega$  -3.2754  $\Omega$  58.193 pF 835.000 000 MHz

\*  
 Del  
 Cor



CH1 Markers  
 2: 63.471  $\Omega$   
 32.488  $\Omega$   
 900.000 MHz

Avg  
 16

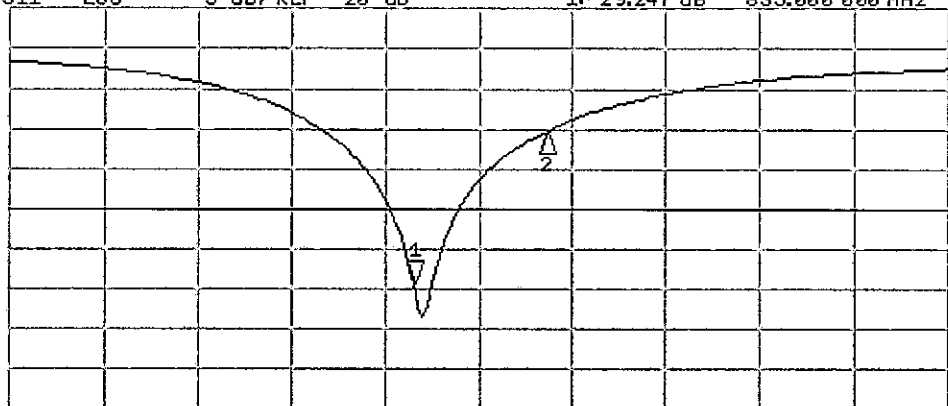
↑

CH2 S11 LOG 5 dB/REF -20 dB 1: -29.247 dB 835.000 000 MHz

Cor

Avg  
 16

↑



CH2 Markers  
 2: -10.516 dB  
 900.000 MHz

START 635.000 000 MHz

STOP 1 100.000 000 MHz

## DASY5 Validation Report for Body TSL

Date/Time: 09.03.2011 10:34:32

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:479**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.99 \text{ mho/m}$ ;  $\epsilon_r = 54.3$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6 Build 2, Version 52.6.2 (424)
- Postprocessing SW: SEMCAD X, V14.4 Build 4, Version 14.4.4 (2829)

**Body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

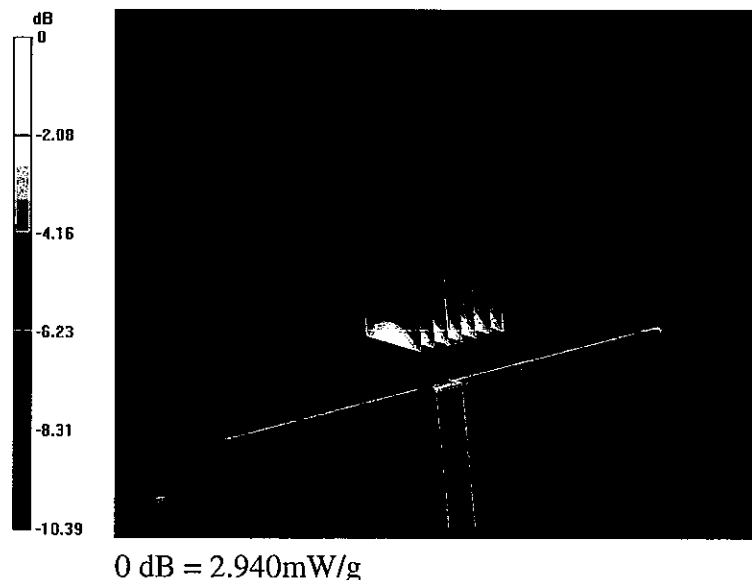
Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 56.238 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.717 W/kg

**SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.65 mW/g**

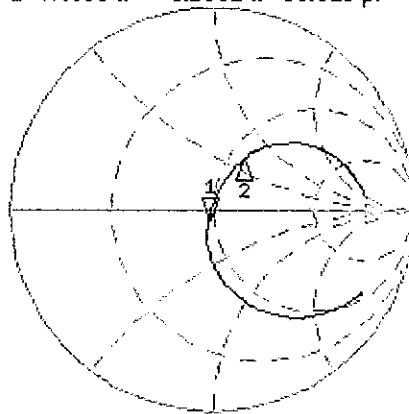
Maximum value of SAR (measured) = 2.938 mW/g



# Impedance Measurement Plot for Body TSL

9 Mar 2011 10:25:30  
 CH1 S11 1 U FS 1: 47.039  $\Omega$  -5.2051  $\Omega$  36.619 pF 835.000 000 MHz

\*  
 De1  
 Cor

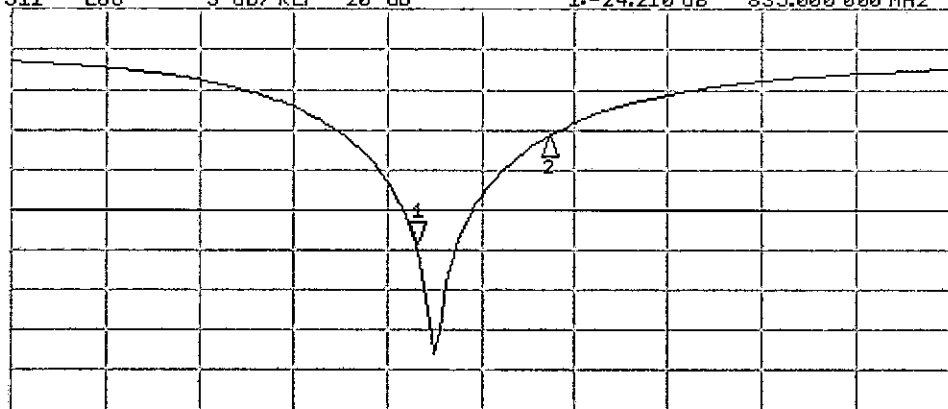


CH1 Markers  
 2: 58.002  $\Omega$   
 30.787  $\Omega$   
 900.000 MHz

Avg  
 16  
 ↑

CH2 S11 LOG 5 dB/REF -20 dB 1: -24.210 dB 835.000 000 MHz

Cor



CH2 Markers  
 2: -10.956 dB  
 900.000 MHz

Avg  
 16  
 ↑

START 635.000 000 MHz

STOP 1 100.000 000 MHz

## Dipole D835V2 – SN: 479 Antenna Parameters

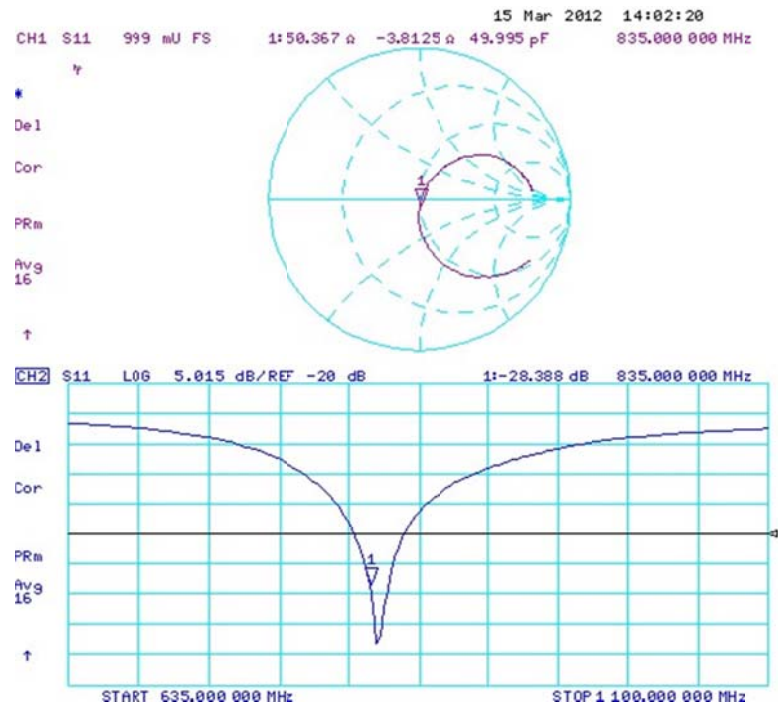
### Antenna Parameters with Head TSL

|                                      | Calibration<br>certificate     | Annual<br>measurement<br>2012-03-15 |
|--------------------------------------|--------------------------------|-------------------------------------|
| Impedance, transformed to feed point | 51.2 $\Omega$ - 3.3 j $\Omega$ | 50.4 $\Omega$ - 3.8 j $\Omega$      |
| Return loss                          | - 29.2 dB                      | - 28.4 dB                           |

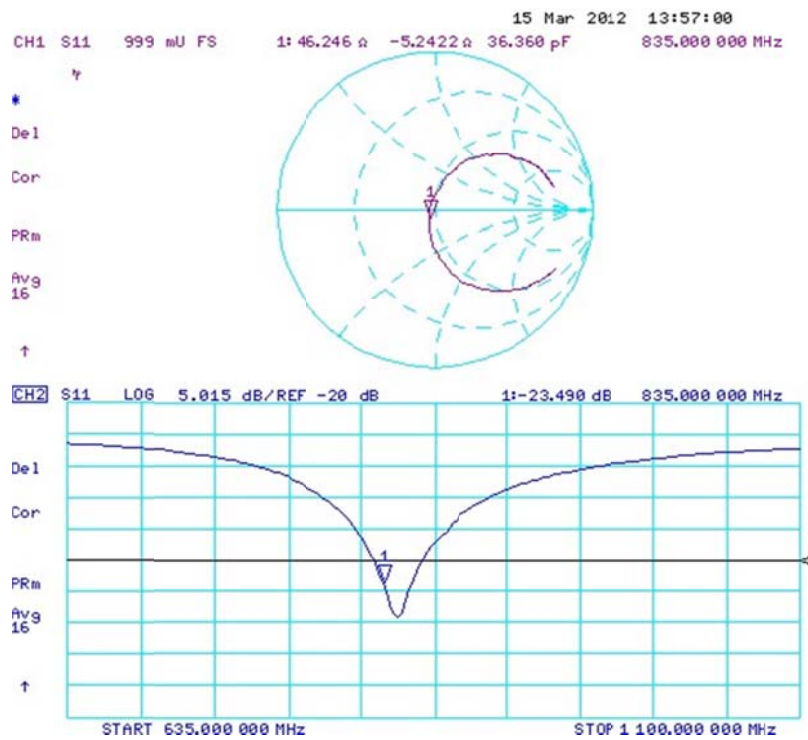
### Antenna Parameters with Body TSL

|                                      | Calibration<br>certificate     | Annual<br>measurement<br>2012-03-15 |
|--------------------------------------|--------------------------------|-------------------------------------|
| Impedance, transformed to feed point | 47.0 $\Omega$ - 5.2 j $\Omega$ | 46.2 $\Omega$ - 5.2 j $\Omega$      |
| Return loss                          | - 24.2 dB                      | - 23.5 dB                           |

## Impedance Measurement plot for Head TSL 835



## Impedance Measurement plot for Body TSL 835





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Beijing TCC**

Certificate No: **D1900V2-547\_Oct11**

## CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 547**

Calibration procedure(s) **QA CAL-05.v8  
Calibration procedure for dipole validation kits above 700 MHz**

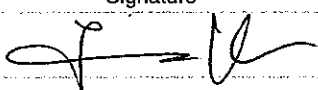
Calibration date: **October 20, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter EPM-442A        | GB37480704         | 05-Oct-11 (No. 217-01451)         | Oct-12                 |
| Power sensor HP 8481A       | US37292783         | 05-Oct-11 (No. 217-01451)         | Oct-12                 |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 29-Mar-11 (No. 217-01368)         | Apr-12                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 29-Mar-11 (No. 217-01371)         | Apr-12                 |
| Reference Probe ES3DV3      | SN: 3205           | 29-Apr-11 (No. ES3-3205_Apr11)    | Apr-12                 |
| DAE4                        | SN: 601            | 04-Jul-11 (No. DAE4-601_Jul11)    | Jul-12                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| Power sensor HP 8481A       | MY41092317         | 18-Oct-02 (in house check Oct-11) | In house check: Oct-13 |
| RF generator R&S SMT-06     | 100005             | 04-Aug-99 (in house check Oct-11) | In house check: Oct-13 |
| Network Analyzer HP 8753E   | US37390585 S4206   | 18-Oct-01 (in house check Oct-11) | In house check: Oct-12 |

|                |                       |                              |                                                                                       |
|----------------|-----------------------|------------------------------|---------------------------------------------------------------------------------------|
|                | <b>Name</b>           | <b>Function</b>              | <b>Signature</b>                                                                      |
| Calibrated by: | <b>Jeton Kastrati</b> | <b>Laboratory Technician</b> |  |
| Approved by:   | <b>Katja Pokovic</b>  | <b>Technical Manager</b>     |  |

Issued: October 20, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## Appendix

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.5 \Omega + 4.3 j\Omega$ |
| Return Loss                          | - 27.4 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $46.8 \Omega + 3.5 j\Omega$ |
| Return Loss                          | - 26.1 dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.191 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Design Modification by End User

The dipole has been modified with Teflon Rings (TR) placed within identified markings close to the end of each dipole arm. Calibration has been performed with TR attached to the dipole.

### Additional EUT Data

|                 |                   |
|-----------------|-------------------|
| Manufactured by | SPEAG             |
| Manufactured on | November 15, 2001 |

## DASY5 Validation Report for Head TSL

Date: 20.10.2011

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 547**

Communication System: CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

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

Reference Value = 99.072 V/m; Power Drift = 0.04 dB

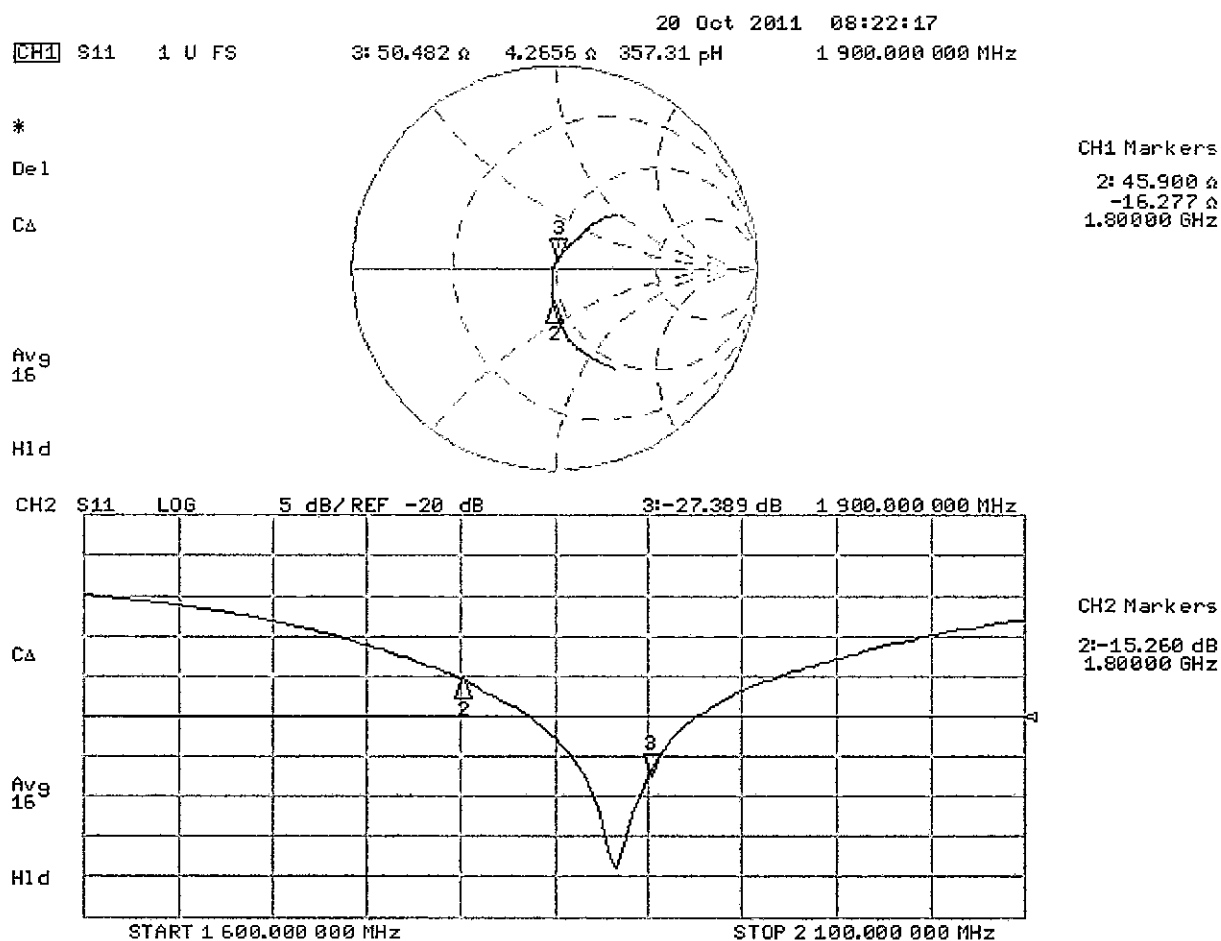
Peak SAR (extrapolated) = 19.037 W/kg

**SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.4 mW/g**

Maximum value of SAR (measured) = 13.012 mW/g



# Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 18.10.2011

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 547**

Communication System: CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.59$  mho/m;  $\epsilon_r = 54.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

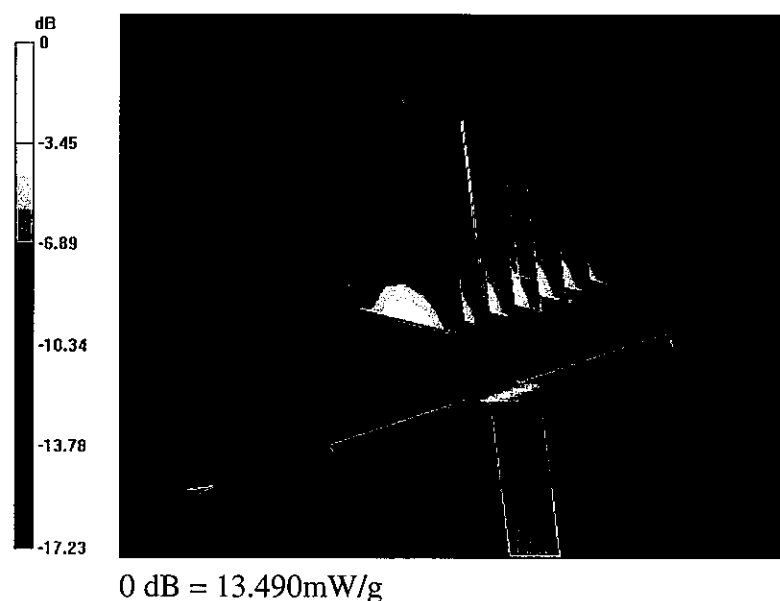
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.823 V/m; Power Drift = 0.0092 dB

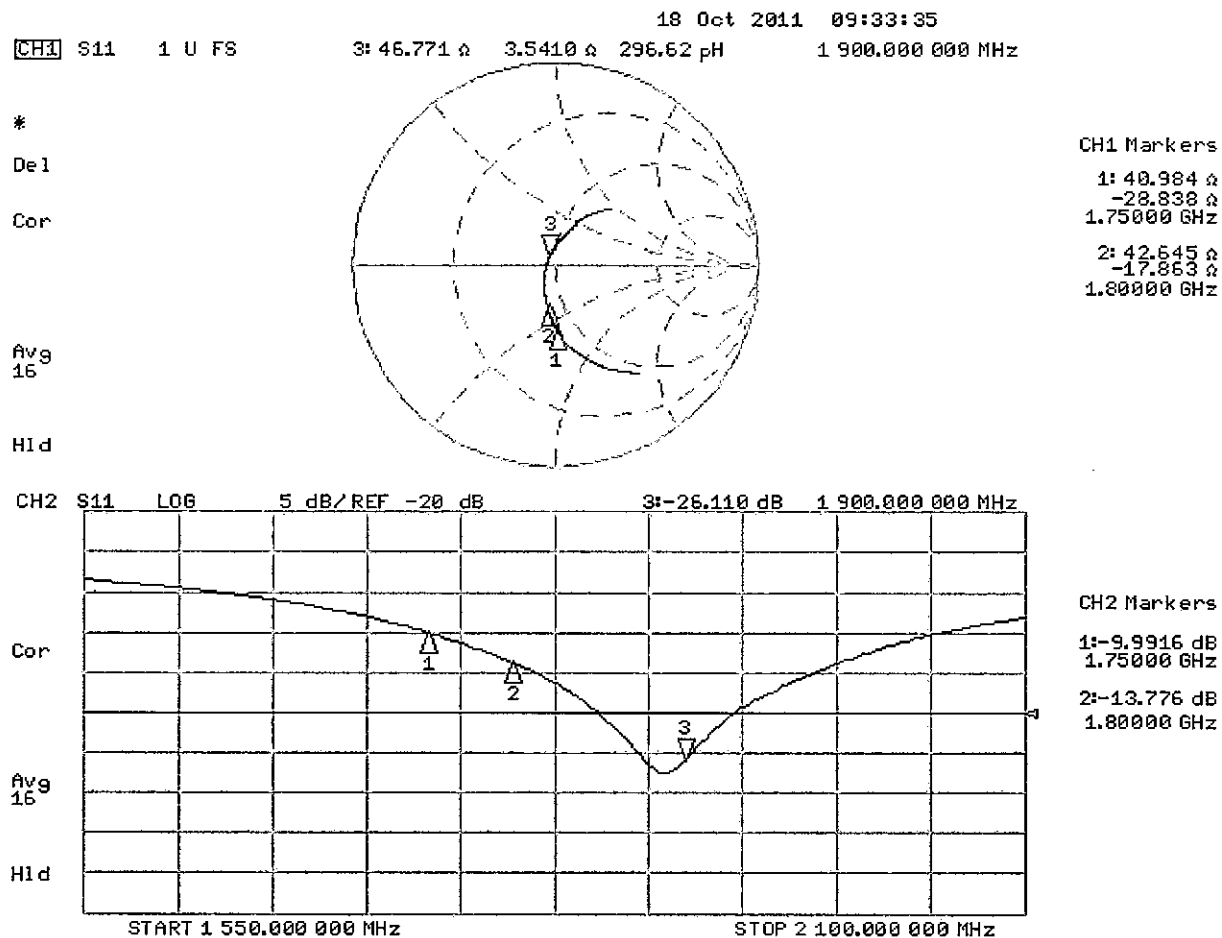
Peak SAR (extrapolated) = 18.788 W/kg

**SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.5 mW/g**

Maximum value of SAR (measured) = 13.491 mW/g



# Impedance Measurement Plot for Body TSL



## Dipole D1900V2 – SN: 547 Antenna Parameters

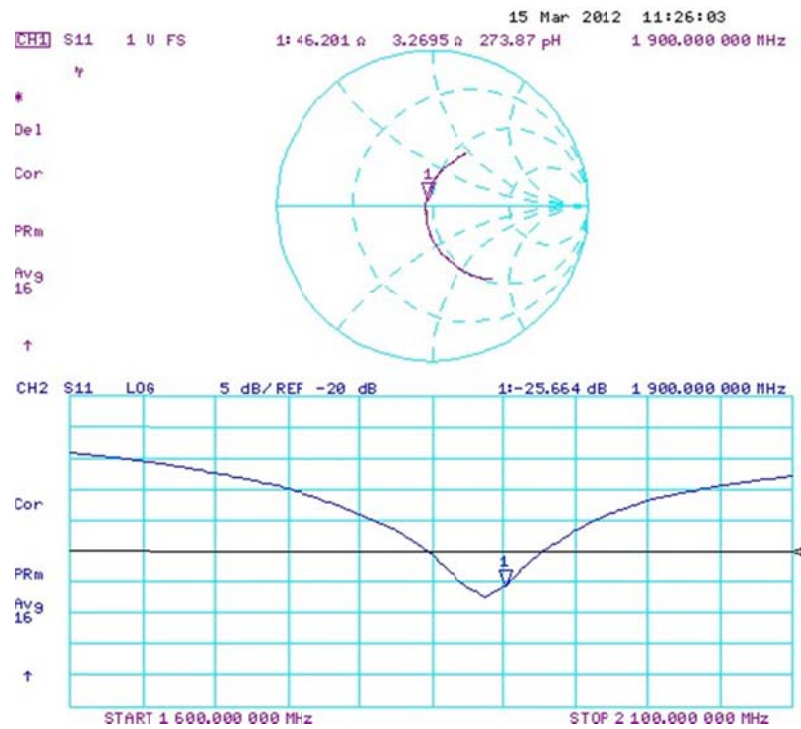
### Antenna Parameters with Head TSL

|                                      | Calibration<br>certificate  | Annual<br>measurement<br>2012-03-15 |
|--------------------------------------|-----------------------------|-------------------------------------|
| Impedance, transformed to feed point | $50.5 \Omega + 4.3 j\Omega$ | $46.2 \Omega + 3.3 j\Omega$         |
| Return loss                          | - 27.4 dB                   | - 25.7 dB                           |

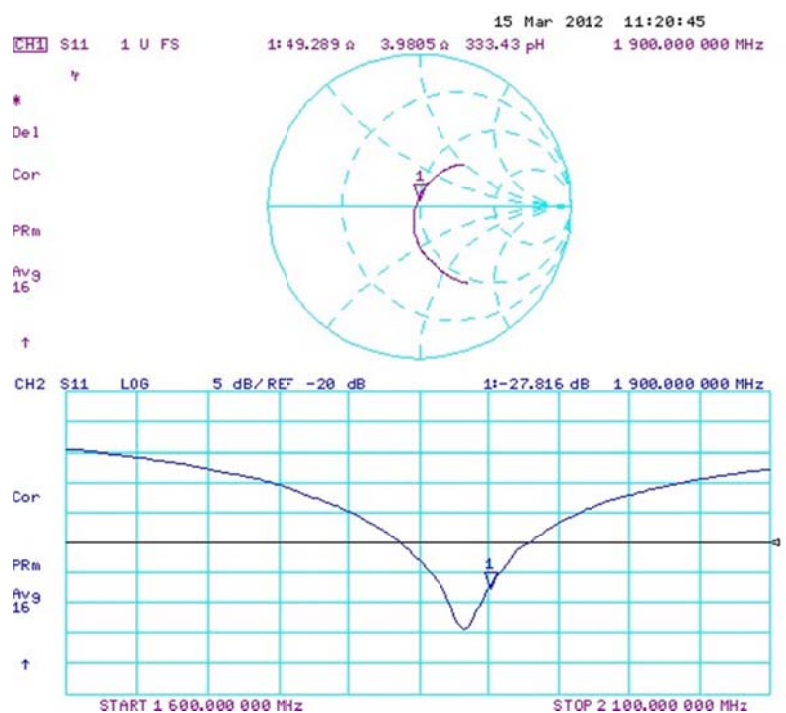
### Antenna Parameters with Body TSL

|                                      | Calibration<br>certificate  | Annual<br>measurement<br>2012-03-15 |
|--------------------------------------|-----------------------------|-------------------------------------|
| Impedance, transformed to feed point | $46.8 \Omega + 3.5 j\Omega$ | $49.2 \Omega + 4.0 j\Omega$         |
| Return loss                          | - 26.1 dB                   | - 27.8 dB                           |

## Impedance Measurement plot for Head TSL 1900



## Impedance Measurement plot for Body TSL 1900





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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Beijing TCC**

Certificate No: **D2450V2-760\_Mar11**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 760**

Calibration procedure(s) **QA CAL-05.v8**  
**Calibration procedure for dipole validation kits**

Calibration date: **March 17, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)     | Scheduled Calibration |
|-----------------------------|--------------------|--------------------------------|-----------------------|
| Power meter EPM-442A        | GB37480704         | 06-Oct-10 (No. 217-01266)      | Oct-11                |
| Power sensor HP 8481A       | US37292783         | 06-Oct-10 (No. 217-01266)      | Oct-11                |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 30-Mar-10 (No. 217-01158)      | Mar-11                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 30-Mar-10 (No. 217-01162)      | Mar-11                |
| Reference Probe ES3DV3      | SN: 3205           | 30-Apr-10 (No. ES3-3205_Apr10) | Apr-11                |
| DAE4                        | SN: 601            | 10-Jun-10 (No. DAE4-601_Jun10) | Jun-11                |

| Secondary Standards       | ID #             | Check Date (in house)             | Scheduled Check        |
|---------------------------|------------------|-----------------------------------|------------------------|
| Power sensor HP 8481A     | MY41092317       | 18-Oct-02 (in house check Oct-09) | In house check: Oct-11 |
| RF generator R&S SMT-06   | 100005           | 4-Aug-99 (in house check Oct-09)  | In house check: Oct-11 |
| Network Analyzer HP 8753E | US37390585 S4206 | 18-Oct-01 (in house check Oct-10) | In house check: Oct-11 |

|                |                    |                              |                  |
|----------------|--------------------|------------------------------|------------------|
|                | <b>Name</b>        | <b>Function</b>              | <b>Signature</b> |
| Calibrated by: | <b>Dimce Iliev</b> | <b>Laboratory Technician</b> |                  |

|              |                      |                          |
|--------------|----------------------|--------------------------|
|              | <b>Name</b>          | <b>Function</b>          |
| Approved by: | <b>Katja Pokovic</b> | <b>Technical Manager</b> |

Issued: March 17, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## Appendix

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $55.3 \Omega + 2.7 j\Omega$ |
| Return Loss                          | - 25.0 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.3 \Omega + 5.6 j\Omega$ |
| Return Loss                          | - 25.0 dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.159 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                |
|-----------------|----------------|
| Manufactured by | SPEAG          |
| Manufactured on | April 22, 2004 |

## DASY5 Validation Report for Head TSL

Date/Time: 17.03.2011 12:48:58

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:760**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U12 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.72$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

**Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.2 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 27.253 W/kg

**SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.25 mW/g**

Maximum value of SAR (measured) = 17.126 mW/g

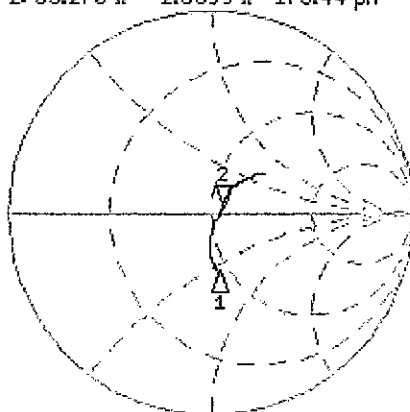


# Impedance Measurement Plot for Head TSL

17 Mar 2011 10:49:39  
 CH1 S11 1 U FS 2: 55.270  $\Omega$  2.6699  $\Omega$  173.44  $\mu\text{H}$  2 450.000 000 MHz

\*  
 Del  
 CA

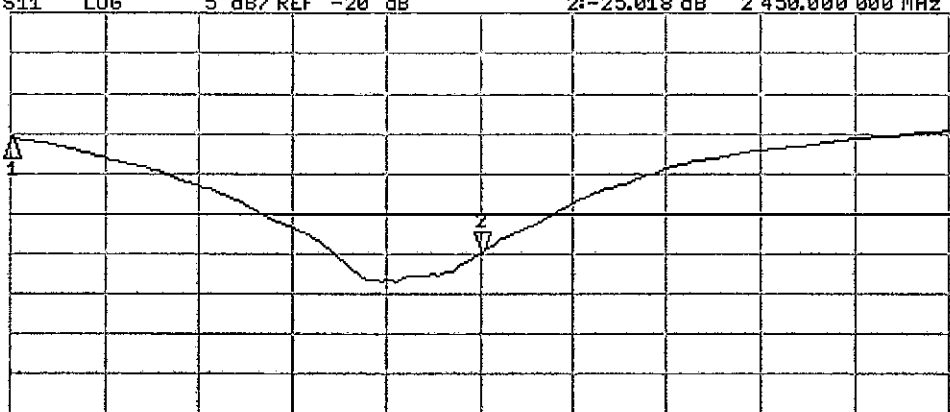
Avg  
 16



CH1 Markers  
 1: 45.100  $\Omega$   
 -29.139  $\Omega$   
 2.25000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 2: -25.018 dB 2 450.000 000 MHz

CA  
 Avg  
 16



CH2 Markers  
 1: -10.543 dB  
 2.25000 GHz

## DASY5 Validation Report for Body TSL

Date/Time: 08.03.2011 14:08:11

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:760**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U12 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.93$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

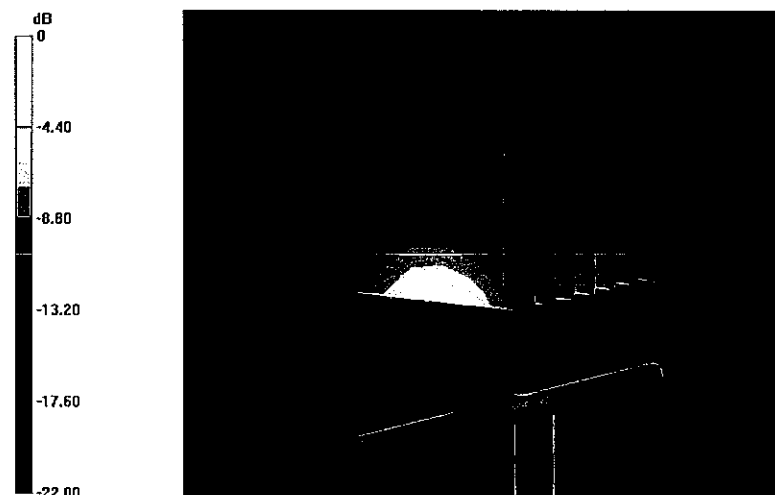
**Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.844 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 27.853 W/kg

**SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.14 mW/g**

Maximum value of SAR (measured) = 17.439 mW/g



0 dB = 17.440mW/g

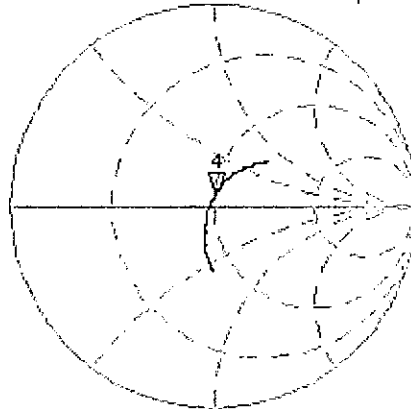
# Impedance Measurement Plot for Body TSL

8 Mar 2011 10:20:36  
 CH1 S11 1 U FS 4: 50.318  $\Omega$  5.6465  $\Omega$  366.80 pH 2 450.000 000 MHz

\*  
 De1  
 C $\Delta$

Avg  
 15

↑

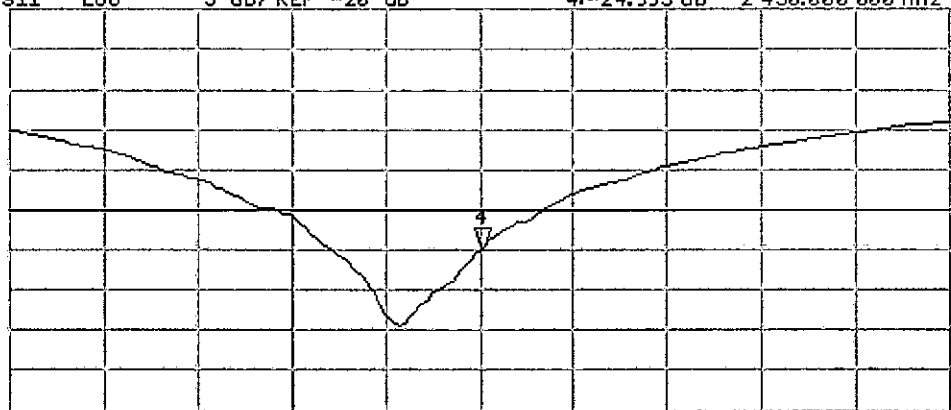


CH2 S11 LOG 5 dB/ REF -20 dB 4: -24.993 dB 2 450.000 000 MHz

C $\Delta$

Avg  
 15

↑



START 2 250.000 000 MHz

STOP 2 650.000 000 MHz

## Dipole D2450V2 – SN: 760 Antenna Parameters

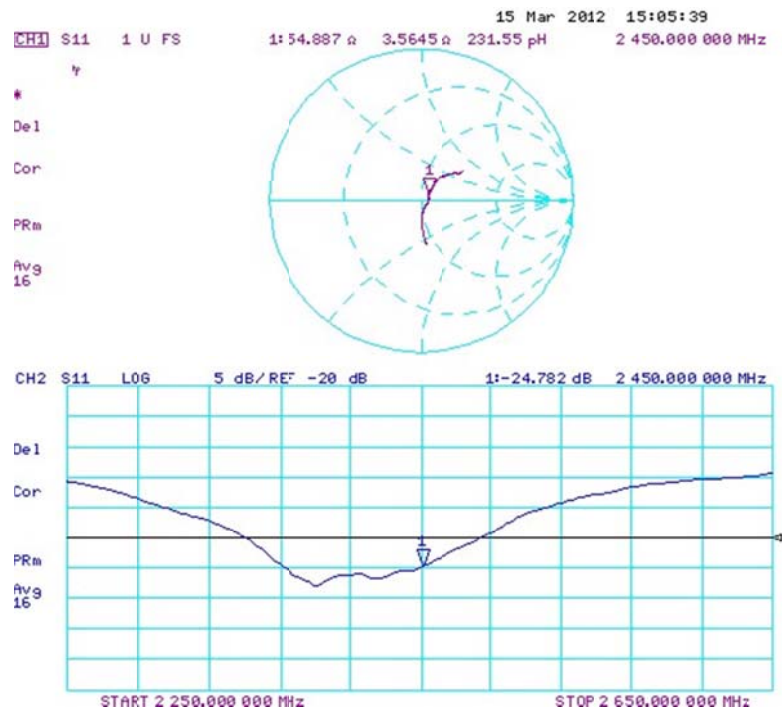
### Antenna Parameters with Head TSL

|                                      | Calibration<br>certificate  | Annual<br>measurement<br>2012-03-15 |
|--------------------------------------|-----------------------------|-------------------------------------|
| Impedance, transformed to feed point | $55.3 \Omega + 2.7 j\Omega$ | $54.9 \Omega + 3.6 j\Omega$         |
| Return loss                          | - 25.0 dB                   | - 24.8 dB                           |

### Antenna Parameters with Body TSL

|                                      | Calibration<br>certificate  | Annual<br>measurement<br>2012-03-15 |
|--------------------------------------|-----------------------------|-------------------------------------|
| Impedance, transformed to feed point | $50.3 \Omega + 5.6 j\Omega$ | $51.8 \Omega + 6.3 j\Omega$         |
| Return loss                          | - 25.0 dB                   | - 23.9 dB                           |

## Impedance Measurement plot for Head TSL 2450



## Impedance Measurement plot for Body TSL 2450

