

## SAR Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                                                                                                          |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test report no.:</b>                                 | FCC_RM-696_02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Date of report:</b>         | 2011-06-30                                                                                                                               |
| <b>Template version:</b>                                | 18.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Number of pages:</b>        | 173                                                                                                                                      |
| <b>Testing laboratory:</b>                              | TCC Nokia Copenhagen<br>Laboratory<br>Frederikskaj<br>1790 COPENHAGEN V<br>DENMARK<br>Tel. +45 33 292929<br>Fax. +45 33 292934                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Client:</b>                 | Nokia Corporation<br>P.O. Box 300<br>Yrttipellontie 6<br>FIN-90230 OULU, FINLAND<br>Tel. +358 (0) 7180 08000<br>Fax. +358 (0) 7180 58300 |
| <b>Responsible test engineer:</b>                       | Jesper Nielsen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Product contact person:</b> | Timo Ta Peltola                                                                                                                          |
| <b>Measurements made by:</b>                            | Preben Runchel, Leif Klysner and Jesper Nielsen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                                                                                                          |
| <b>Tested device:</b>                                   | RM-696                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                |                                                                                                                                          |
| <b>FCC ID:</b>                                          | LJPK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>IC:</b>                     | -                                                                                                                                        |
| <b>Supplement reports:</b>                              | SAR_Photo_RM-696_04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |                                                                                                                                          |
| <b>Testing has been carried out in accordance with:</b> | <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 |                                |                                                                                                                                          |
| <b>Documentation:</b>                                   | The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                |                                                                                                                                          |
| <b>Test results:</b>                                    | <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:

## CONTENTS

|                                                                                  |            |
|----------------------------------------------------------------------------------|------------|
| <b>1. SUMMARY OF SAR TEST REPORT .....</b>                                       | <b>3</b>   |
| 1.1 TEST DETAILS.....                                                            | 3          |
| 1.2 MAXIMUM RESULTS.....                                                         | 3          |
| 1.2.1 Head Configuration.....                                                    | 3          |
| 1.2.2 Body Worn Configuration .....                                              | 5          |
| 1.2.3 Maximum Drift .....                                                        | 7          |
| 1.2.4 Measurement Uncertainty.....                                               | 7          |
| <b>2. DESCRIPTION OF THE DEVICE UNDER TEST.....</b>                              | <b>7</b>   |
| 2.1 DESCRIPTION OF THE ANTENNA.....                                              | 8          |
| <b>3. TEST CONDITIONS .....</b>                                                  | <b>9</b>   |
| 3.1 TEMPERATURE AND HUMIDITY.....                                                | 9          |
| 3.2 TEST SIGNAL, FREQUENCIES AND OUTPUT POWER.....                               | 9          |
| 3.3 TEST CASES AND TEST MINIMISATION .....                                       | 10         |
| <b>4. DESCRIPTION OF THE TEST EQUIPMENT .....</b>                                | <b>12</b>  |
| 4.1 MEASUREMENT SYSTEM AND COMPONENTS .....                                      | 12         |
| 4.1.1 Isotropic E-field Probe Type ES3DV3 .....                                  | 14         |
| 4.1.2 Isotropic E-field Probe Type EX3DV4 .....                                  | 14         |
| 4.2 PHANTOMS .....                                                               | 15         |
| 4.3 TISSUE SIMULANTS.....                                                        | 15         |
| 4.3.1 Tissue Simulant Recipes.....                                               | 15         |
| 4.3.2 System Checking .....                                                      | 16         |
| 4.3.3 Tissue Simulants used in the Measurements.....                             | 19         |
| <b>5. DESCRIPTION OF THE TEST PROCEDURE .....</b>                                | <b>23</b>  |
| 5.1 DEVICE HOLDER.....                                                           | 23         |
| 5.2 TEST POSITIONS.....                                                          | 23         |
| 5.2.1 Against Phantom Head.....                                                  | 23         |
| 5.2.2 Body Worn Configuration .....                                              | 24         |
| 5.3 SCAN PROCEDURES.....                                                         | 24         |
| 5.4 SAR AVERAGING METHODS.....                                                   | 24         |
| <b>6. MEASUREMENT UNCERTAINTY .....</b>                                          | <b>25</b>  |
| <b>7. RESULTS.....</b>                                                           | <b>26</b>  |
| <b>APPENDIX A: SYSTEM CHECKING SCANS.....</b>                                    | <b>41</b>  |
| <b>APPENDIX B: MEASUREMENT SCANS.....</b>                                        | <b>64</b>  |
| <b>APPENDIX C: CONDUCTED AVERAGE POWER MEASUREMENTS FOR WCDMA AND HSUPA.....</b> | <b>169</b> |
| <b>APPENDIX D: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S).....</b>          | <b>172</b> |
| <b>APPENDIX E: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S) .....</b>     | <b>173</b> |

## 1. SUMMARY OF SAR TEST REPORT

### 1.1 Test Details

|                                        |                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Period of test                         | 2011-05-16 to 2011-06-30                                                                                                             |
| SN, HW and SW numbers of tested device | SN: 004402/13/548019/6, HW: 1501, SW: 0.2011.21-5_TA, DUT: 23606<br>SN: 004402/13/548065/9, HW: 1501, SW: 0.2011.21-5_TA, DUT: 23611 |
| Batteries used in testing              | BV-5JW, HW: 00-04A(PWB)                                                                                                              |
| Headsets used in testing               | WH-901, DUT: 23603                                                                                                                   |
| Other accessories used in testing      | -                                                                                                                                    |
| State of sample                        | Prototype unit                                                                                                                       |
| Notes                                  | -                                                                                                                                    |

### 1.2 Maximum Results

The maximum measured SAR values for Head configuration and Body Worn configuration are given in section 1.2.1 and 1.2.2 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        |
|-----------------|---------------|-----------------|-------------|-----------------------------|----------------------------|--------------------|---------------|
| 2-slot GPRS850  | 190 / 836.6   | 31.5 dBm        | Left, Cheek | 0.837 W/kg                  | <b>0.94 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA 850       | 4175 / 835.0  | 23.5 dBm        | Left, Cheek | 0.641 W/kg                  | <b>0.72 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA 1700/2100 | 1312 / 1712.4 | 22.5 dBm        | Left, Cheek | 0.829 W/kg                  | <b>0.93 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| 4-slot GPRS1900 | 512 / 1850.2  | 26.5 dBm        | Left, Cheek | 0.914 W/kg                  | <b>1.02 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WCDMA 1900      | 9262 / 1852.4 | 22.5 dBm        | Left, Cheek | 0.969 W/kg                  | <b>1.09 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WLAN 2450       | 7 / 2442.0    | 18.0 dBm        | Left, Cheek | 0.879 W/kg                  | <b>0.98 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |
| WLAN 5000       | 36 / 5180.0   | 14.5 dBm        | Left, Cheek | 1.05 W/kg                   | <b>1.18 W/kg</b>           | 1.6 W/kg           | <b>PASSED</b> |

Table continues

| Mode                             | Ch / f<br>(MHz) | Conducted<br>power | Position       | Measured<br>SAR value<br>(1g avg) | Scaled*<br>SAR value<br>(1g avg) | SAR limit<br>(1g avg) | Result        |
|----------------------------------|-----------------|--------------------|----------------|-----------------------------------|----------------------------------|-----------------------|---------------|
| 2-slot<br>GPRS850<br>+ WLAN2450  | -               | -                  | Left,<br>Cheek | 0.852 W/kg                        | <b>0.95 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>850<br>+ WLAN2450       | -               | -                  | Left,<br>Cheek | 0.677 W/kg                        | <b>0.76 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1700/2100<br>+ WLAN2450 | -               | -                  | Left,<br>Cheek | 0.904 W/kg                        | <b>1.01 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 4-slot<br>GPRS1900<br>+ WLAN2450 | -               | -                  | Left,<br>Cheek | 0.996 W/kg                        | <b>1.12 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1900<br>+ WLAN2450      | -               | -                  | Left,<br>Cheek | 1.02 W/kg                         | <b>1.14 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 2-slot<br>GPRS850<br>+ WLAN5000  | -               | -                  | Left,<br>Cheek | 0.839 W/kg                        | <b>0.94 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>850<br>+ WLAN5000       | -               | -                  | Left,<br>Cheek | 0.672 W/kg                        | <b>0.75 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1700/2100<br>+ WLAN5000 | -               | -                  | Left,<br>Cheek | 0.999 W/kg                        | <b>1.12 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 4-slot<br>GPRS1900<br>+ WLAN5000 | -               | -                  | Left,<br>Cheek | 1.04 W/kg                         | <b>1.16 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1900<br>+ WLAN5000      | -               | -                  | Left,<br>Cheek | 1.00 W/kg                         | <b>1.12 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |

### 1.2.2 Body Worn Configuration

| Mode               | Ch / f<br>(MHz)  | Conducted<br>power | Separation<br>distance | Measured<br>SAR value<br>(1g avg) | Scaled*<br>SAR value<br>(1g avg) | SAR limit<br>(1g avg) | Result        |
|--------------------|------------------|--------------------|------------------------|-----------------------------------|----------------------------------|-----------------------|---------------|
| 2-slot<br>GPRS850  | 128 /<br>824.4   | 31.5 dBm           | 1.5 cm                 | 1.03 W/kg                         | <b>1.15 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>850       | 4175 /<br>835.0  | 23.5 dBm           | 1.5 cm                 | 0.735 W/kg                        | <b>0.82 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1700/2100 | 1513 /<br>1752.6 | 22.5 dBm           | 1.5 cm                 | 0.554 W/kg                        | <b>0.62 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 4-slot<br>GPRS1900 | 512 /<br>1850.2  | 26.5 dBm           | 1.5 cm                 | 0.758 W/kg                        | <b>0.85 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1900      | 9262 /<br>1852.4 | 22.5 dBm           | 1.5 cm                 | 0.733 W/kg                        | <b>0.82 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WLAN<br>2450       | 7 /<br>2442.0    | 18.0 dBm           | 1.5 cm                 | 0.134 W/kg                        | <b>0.15 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WLAN<br>5000       | 52 /<br>5260.0   | 17.5 dBm           | 1.5 cm                 | 0.248 W/kg                        | <b>0.28 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |

Table continues

| Mode                             | Ch /<br>f (MHz) | Conducted<br>power | Separation<br>distance | Measured<br>SAR value<br>(1g avg) | Scaled*<br>SAR value<br>(1g avg) | SAR limit<br>(1g avg) | Result        |
|----------------------------------|-----------------|--------------------|------------------------|-----------------------------------|----------------------------------|-----------------------|---------------|
| 2-slot<br>GPRS850<br>+ WLAN2450  | -               | -                  | 1.5 cm                 | 1.04 W/kg                         | <b>1.16 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>850<br>+ WLAN2450       | -               | -                  | 1.5 cm                 | 0.743 W/kg                        | <b>0.83 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1700/2100<br>+ WLAN2450 | -               | -                  | 1.5 cm                 | 0.559 W/kg                        | <b>0.63 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 4-slot<br>GPRS1900<br>+ WLAN2450 | -               | -                  | 1.5 cm                 | 0.758 W/kg                        | <b>0.85 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1900<br>+ WLAN2450      | -               | -                  | 1.5 cm                 | 0.733 W/kg                        | <b>0.82 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 2-slot<br>GPRS850<br>+ WLAN5000  | -               | -                  | 1.5 cm                 | 1.05 W/kg                         | <b>1.18 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>850<br>+ WLAN5000       | -               | -                  | 1.5 cm                 | 0.756 W/kg                        | <b>0.85 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1700/2100<br>+ WLAN5000 | -               | -                  | 1.5 cm                 | 0.585 W/kg                        | <b>0.66 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| 4-slot<br>GPRS1900<br>+ WLAN5000 | -               | -                  | 1.5 cm                 | 0.758 W/kg                        | <b>0.85 W/kg</b>                 | 1.6 W/kg              | <b>PASSED</b> |
| WCDMA<br>1900<br>+ WLAN5000      | -               | -                  | 1.5 cm                 | 0.733 W/kg                        | <b>0.82 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.

### 1.2.3 Maximum Drift

| Maximum drift covered by<br>12% scaling up of the SAR values | Maximum drift during measurements |
|--------------------------------------------------------------|-----------------------------------|
| 0.5dB                                                        | 0.49 dB                           |

### 1.2.4 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<br>1900                                           | GMSK                    | 1/8        | 824 – 849<br>1850 – 1910                |
| GPRS               | 850<br>1900                                           | GMSK                    | 1/8 to 4/8 | 824 – 849<br>1850 – 1910                |
| EGPRS              | 850<br>1900                                           | GMSK / 8PSK             | 1/8 to 4/8 | 824 – 849<br>1850 – 1910                |
| WCDMA              | 850 (Band V)<br>1700/2100 (Band IV)<br>1900 (Band II) |                         | 1          | 826 – 847<br>1712 – 1753<br>1852 – 1908 |
| HSUPA              | 850 (Band V)<br>1700/2100 (Band IV)<br>1900 (Band II) |                         | 1          | 826 – 847<br>1712 – 1753<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                             |
| WLAN a-mode 20MHz  | 5000                                                  | Up to<br>72.2Mbps 64QAM | 1          | 5150 – 5825                             |

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM/GPRS/EGPRS900, GSM/GPRS/EGPRS1800, WCDMA900 and WCDMA2100 bands which are not part of this filing.

This device has Dual Transfer Mode/Voice over IP 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.

This is a WCDMA HSUPA device, but SAR tests for HSUPA mode have not been performed as no HSUPA Sub-test mode has an average power > 0.25dB above the basic WCDMA 12.2kbps RMC mode. Appendix C of this report gives a summary of the measured WCDMA and HSUPA average powers; a detailed report of these WCDMA and HSUPA conducted power tests is submitted separately.

This is a BT Class 1 device; as its power tuning target is 9 dBm (7.9 mW), SAR testing was deemed unnecessary.

## **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 bottom underneath the back cover.



### 3. TEST CONDITIONS

#### 3.1 Temperature and Humidity

|                           |             |
|---------------------------|-------------|
| Ambient temperature (°C): | 20.9 – 22.9 |
| 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 and WLAN5000 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.

The transmission mode of the device in all WCDMA tests was configured to 12.2kbps RMC with all TPC bits set as “1”.

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 and g modulation modes in Nokia devices. In WLAN 2450 n-mode, BPSK 6.5Mbps with 20MHz bandwidth was used. In WLAN 5000 6.5Mbps was used.

The device incorporates a Software algorithm that reduces the transmitted power in WLAN2450 and WLAN5000 when either one of these modes transmits simultaneously with a Cellular band. Consequently, SAR results are presented for both full and reduced power modes in these bands; SAR values for simultaneous transmission of Cellular + WLAN have been evaluated using these reduced power WLAN measurements.

### 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 near-field scanning system, DASY4, 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 interval | Calibration expiry |
|--------------------------------|---------------|----------------------|--------------------|
| DAE 4                          | 710           | 12 months            | 2011-09            |
| DAE 4                          | 682           | 12 months            | 2011-07            |
| DAE 4                          | 501           | 12 months            | 2012-02            |
| E-field Probe EX3DV4           | 3581          | 12 months            | 2011-07            |
| E-field Probe ES3DV3           | 3117          | 12 months            | 2011-07            |
| E-field Probe ES3DV3           | 3116          | 12 months            | 2012-02            |
| Dipole Validation Kit, D835V2  | 4d042         | 24 months            | 2012-07            |
| Dipole Validation Kit, D1800V2 | 2d075         | 24 months            | 2012-02            |
| Dipole Validation Kit, D1900V2 | 5d063         | 24 months            | 2012-02            |
| Dipole Validation Kit, D2450V2 | 750           | 24 months            | 2012-02            |
| Dipole Validation Kit, D5GHzV2 | 1014          | 24 months            | 2012-11            |
| Dipole Validation Kit, D5GHzV2 | 1045          | 24 months            | 2012-02            |
| DASY4 software                 | Version 4.7   | -                    | -                  |

Additional test equipment used in testing:

| Test Equipment          | Model     | Serial Number | Calibration interval | Calibration expiry |
|-------------------------|-----------|---------------|----------------------|--------------------|
| Signal Generator        | SME06     | 848650/011    | 36 months            | 2011-08            |
| Signal Generator        | SME06     | 829445/008    | 36 months            | 2012-02            |
| Signal Generator        | SMIQ03    | 826046/034    | 36 months            | 2011-08            |
| Amplifier               | ZHL-42W   | E012903       | -                    | -                  |
| Amplifier               | AR-551G4  | 306024        | -                    | -                  |
| Amplifier               | ZHL-4240W | E060204/1     | -                    | -                  |
| Power Meter             | NRP       | 100808        | 24 months            | 2012-04            |
| Power Meter             | NRP       | 101293        | 24 months            | 2011-08            |
| Power Meter             | NRVD      | 833696/030    | 24 months            | 2013-03            |
| Power Sensor            | NRP-Z51   | 100410        | 24 months            | 2012-04            |
| Power Sensor            | NRP-Z51   | 100830        | 24 months            | 2011-08            |
| Power Sensor            | NRV-Z51   | 100184        | 24 months            | 2013-03            |
| Call Tester             | CMU200    | 105900        | -                    | -                  |
| Call Tester             | CMU200    | 110735        | -                    | -                  |
| Call Tester             | CMU200    | 831593        | -                    | -                  |
| Vector Network Analyzer | AT8753ES  | MY40001091    | 12 months            | 2011-08            |
| Dielectric Probe Kit    | HP85070B  | US33020403    | -                    | -                  |

#### 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 D                                                                                                                                                        |
| <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 D                                                                                                                                    |
| <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                                                                              |
| <b>Application</b>   | Distance from probe tip to dipole centers: 1.0 mm<br>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 | 39.74                 | 55.97                 |
| HEC             | 0.25                  | 1.21                  |
| Sugar           | 58.31                 | 41.76                 |
| Preservative    | 0.15                  | 0.27                  |
| Salt            | 1.55                  | 0.79                  |

#### 1800MHz band

| Ingredient      | Head<br>(% by weight) | Body<br>(% by weight) |
|-----------------|-----------------------|-----------------------|
| Deionised Water | 54.0                  | 70.20                 |
| Tween 20        | 45.6                  | 29.37                 |
| Salt            | 0.4                   | 0.43                  |

**1900MHz band**

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

**2450MHz band**

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

**5000MHz band †**

| <b>Ingredient</b> | <b>Head<br/>(% by weight)</b> | <b>Body<br/>(% by weight)</b> |
|-------------------|-------------------------------|-------------------------------|
| Oil               | -                             | -                             |
| Water             | -                             | -                             |
| Additives         | -                             | -                             |

† Recipe is proprietary to SPEAG. The proportions of the constituents have not been disclosed.

#### 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 | 2.38              | 42.1                  | 0.90           |              |
|         | ± 10% window     | 2.14 - 2.62       |                       |                |              |
|         | 2011-05-18       | 2.55              | 40.2                  | 0.88           | 22.3         |
|         | 2011-05-26       | 2.55              | 40.3                  | 0.89           | 22.0         |
| 1800    | Reference result | 9.50              | 39.4                  | 1.37           |              |
|         | ± 10% window     | 8.55 - 10.45      |                       |                |              |
|         | 2011-05-27       | 9.46              | 39.4                  | 1.37           | 21.6         |
| 1900    | Reference result | 9.98              | 39.2                  | 1.42           |              |
|         | ± 10% window     | 8.98 - 10.98      |                       |                |              |
|         | 2011-05-16       | 10.1              | 38.9                  | 1.38           | 21.5         |
|         | 2011-05-17       | 10.5              | 38.6                  | 1.46           | 22.2         |
|         | 2011-05-18       | 10.5              | 38.7                  | 1.44           | 21.9         |
|         | 2011-06-12       | 10.5              | 38.3                  | 1.40           | 22.2         |
| 2450    | Reference result | 13.5              | 38.7                  | 1.77           |              |
|         | ± 10% window     | 12.1 - 14.9       |                       |                |              |
|         | 2011-06-14       | 13.8              | 39.4                  | 1.86           | 21.8         |
|         | 2011-06-15       | 13.7              | 37.8                  | 1.85           | 21.8         |
|         | 2011-06-16       | 13.8              | 38.9                  | 1.86           | 21.8         |
|         | 2011-06-17       | 14.0              | 38.9                  | 1.85           | 22.4         |
| 5200    | Reference result | 7.81              | 34.8                  | 4.54           |              |
|         | ± 10% window     | 7.03 - 8.59       |                       |                |              |
|         | 2011-06-16       | 8.07              | 35.4                  | 4.77           | 21.9         |
|         | 2011-06-21       | 8.47              | 36.2                  | 4.95           | 21.5         |
| 5500    | Reference result | 8.08              | 34.3                  | 4.81           |              |
|         | ± 10% window     | 7.27 - 8.89       |                       |                |              |
|         | 2011-06-16       | 8.52              | 34.8                  | 5.12           | 21.9         |
|         | 2011-06-21       | 8.35              | 35.6                  | 5.30           | 21.5         |
| 5800    | Reference result | 8.17              | 36.3                  | 5.22           |              |
|         | ± 10% window     | 7.35 - 8.99       |                       |                |              |
|         | 2011-06-29       | 8.49              | 34.9                  | 5.70           | 21.5         |

System checking, body tissue simulant

| f [MHz] | Description      | SAR [W/kg],<br>1g | Dielectric Parameters |                | Temp<br>[°C] |
|---------|------------------|-------------------|-----------------------|----------------|--------------|
|         |                  |                   | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 2450    | Reference result | 12.9              | 51.8                  | 2.01           |              |
|         | ± 10% window     | 11.6 - 14.2       |                       |                |              |
|         | 2011-05-24       | 13.3              | 50.2                  | 1.96           | 21.6         |
| 5200    | Reference result | 7.91              | 47.4                  | 5.30           |              |
|         | ± 10% window     | 7.12 - 8.70       |                       |                |              |
|         | 2011-06-25       | 7.90              | 49.7                  | 5.95           | 22.3         |
|         | 2011-06-28       | 7.35              | 48.7                  | 5.80           | 22.1         |
| 5500    | Reference result | 8.52              | 46.9                  | 5.68           |              |
|         | ± 10% window     | 7.67 - 9.37       |                       |                |              |
|         | 2011-06-25       | 8.55              | 49.0                  | 6.42           | 22.3         |
|         | 2011-06-28       | 8.78              | 48.0                  | 6.25           | 22.1         |
| 5800    | Reference result | 7.60              | 46.5                  | 6.08           |              |
|         | ± 10% window     | 6.84 - 8.36       |                       |                |              |
|         | 2011-06-29       | 7.73              | 47.4                  | 6.71           | 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    |              |
|            | 2011-05-26        | 40.3                  | 0.89           | 22.0         |
| 836        | Recommended value | 41.5                  | 0.90           |              |
|            | $\pm 5\%$ window  | 39.4 – 43.6           | 0.86 – 0.95    |              |
|            | 2011-05-18        | 40.3                  | 0.88           | 22.3         |
| 1732       | Recommended value | 40.1                  | 1.36           |              |
|            | $\pm 5\%$ window  | 38.1 – 42.1           | 1.29 – 1.43    |              |
|            | 2011-05-27        | 39.6                  | 1.30           | 21.6         |
| 1880       | Recommended value | 40.0                  | 1.40           |              |
|            | $\pm 5\%$ window  | 38.0 – 42.0           | 1.33 – 1.47    |              |
|            | 2011-05-17        | 38.7                  | 1.44           | 22.2         |
|            | 2011-05-18        | 38.8                  | 1.42           | 21.9         |
| 2442       | 2011-06-12        | 38.3                  | 1.38           | 22.2         |
|            | Recommended value | 39.2                  | 1.79           |              |
|            | $\pm 5\%$ window  | 37.3 – 41.2           | 1.70 – 1.88    |              |
|            | 2011-06-14        | 39.5                  | 1.85           | 21.8         |
|            | 2011-06-15        | 37.8                  | 1.84           | 21.8         |
|            | 2011-06-16        | 38.9                  | 1.84           | 21.8         |
|            | 2011-06-17        | 38.9                  | 1.84           | 22.4         |

**Head tissue simulant measurements - continued**

| f<br>[MHz] | Description       | Dielectric Parameters |                | Temp<br>[°C] |
|------------|-------------------|-----------------------|----------------|--------------|
|            |                   | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 5250       | Recommended value | 35.6                  | 4.71           |              |
|            | $\pm 5\%$ window  | 32.0 – 39.2           | 4.24 – 5.18    |              |
|            | 2011-06-16        | 35.3                  | 4.83           | 21.9         |
|            | 2011-06-21        | 36.0                  | 5.01           | 21.5         |
| 5598       | Recommended value | 35.5                  | 5.07           |              |
|            | $\pm 5\%$ window  | 32.0 – 39.1           | 4.56 – 5.58    |              |
|            | 2011-06-16        | 34.7                  | 5.23           | 21.9         |
|            | 2011-06-21        | 35.4                  | 5.42           | 21.5         |
| 5788       | Recommended value | 35.3                  | 5.27           |              |
|            | $\pm 5\%$ window  | 31.8 – 38.8           | 4.74 – 5.80    |              |
|            | 2011-06-23        | 35.0                  | 5.70           | 21.5         |

**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    |              |
|            | 2011-05-26        | 53.6                  | 0.97           | 22.0         |
| 836        | Recommended value | 55.2                  | 0.97           |              |
|            | $\pm 5\%$ window  | 52.4 – 58.0           | 0.92 – 1.02    |              |
|            | 2011-05-26        | 53.6                  | 0.97           | 22.0         |
| 1732       | Recommended value | 53.5                  | 1.48           |              |
|            | $\pm 5\%$ window  | 50.8 – 56.2           | 1.40 – 1.55    |              |
|            | 2011-05-27        | 51.6                  | 1.43           | 21.9         |
| 1880       | Recommended value | 53.3                  | 1.52           |              |
|            | $\pm 5\%$ window  | 50.6 – 56.0           | 1.44 – 1.60    |              |
|            | 2011-05-16        | 51.6                  | 1.48           | 22.2         |
|            | 2011-06-12        | 51.2                  | 1.50           | 22.5         |
| 2442       | Recommended value | 52.7                  | 1.94           |              |
|            | $\pm 5\%$ window  | 50.1 – 55.3           | 1.85 – 2.04    |              |
|            | 2011-05-24        | 50.2                  | 1.95           | 21.6         |
|            | 2011-06-14        | 50.2                  | 1.96           | 22.1         |
|            | 2011-06-15        | 50.1                  | 1.96           | 21.6         |
|            | 2011-06-16        | 50.1                  | 1.94           | 21.8         |
|            | 2011-06-17        | 50.5                  | 1.96           | 22.9         |

**Body tissue simulant measurements - continued**

| f<br>[MHz] | Description       | Dielectric Parameters |                | Temp<br>[°C] |
|------------|-------------------|-----------------------|----------------|--------------|
|            |                   | $\epsilon_r$          | $\sigma$ [S/m] |              |
| 5250       | Recommended value | 49.0                  | 5.30           |              |
|            | $\pm 10\%$ window | 44.1 – 53.9           | 4.77 – 5.83    |              |
|            | 2011-06-25        | 49.6                  | 6.03           | 22.3         |
|            | 2011-06-28        | 48.6                  | 5.88           | 22.1         |
| 5598       | Recommended value | 48.5                  | 5.76           |              |
|            | $\pm 10\%$ window | 43.7 – 53.4           | 5.18 – 6.34    |              |
|            | 2011-06-25        | 48.8                  | 6.57           | 22.3         |
|            | 2011-06-28        | 47.8                  | 6.40           | 22.3         |
| 5788       | Recommended value | 48.2                  | 6.00           |              |
|            | $\pm 10\%$ window | 43.4 – 53.0           | 5.40 – 6.60    |              |
|            | 2011-06-29        | 47.4                  | 6.70           | 22.1         |

## 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 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.

### 5.3 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 | $C_i$           | $C_i \cdot U_i$ (%) | $\nu_i$ |
|---------------------------------------------------------------------------------|----------------------|----------|-----------|-----|-----------------|---------------------|---------|
| <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>32.5 dBm</b>     | -                   |
|                          | Left                   | Cheek | -                            | 0.529               | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
|                          | Right                  | Cheek | -                            | -                   | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
| <b>2-slot GPRS</b>       | <b>Conducted Power</b> |       | <b>31.5 dBm</b>              | <b>31.5 dBm</b>     | <b>31.5 dBm</b>     |
|                          | Left                   | Cheek | 0.800                        | <b>0.837</b>        | 0.816               |
|                          |                        | Tilt  | -                            | 0.474               | -                   |
|                          | Right                  | Cheek | -                            | 0.753               | -                   |
|                          |                        | Tilt  | -                            | 0.527               | -                   |
| <b>3-slot GPRS</b>       | <b>Conducted Power</b> |       | -                            | <b>29.5 dBm</b>     | -                   |
|                          | Left                   | Cheek | -                            | 0.794               | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
|                          | Right                  | Cheek | -                            | -                   | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
| <b>4-slot GPRS</b>       | <b>Conducted Power</b> |       | -                            | <b>28.5 dBm</b>     | -                   |
|                          | Left                   | Cheek | -                            | 0.829               | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
|                          | Right                  | Cheek | -                            | -                   | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
| <b>2-slot 8PSK EGPRS</b> | <b>Conducted Power</b> |       | -                            | <b>27.0 dBm</b>     | -                   |
|                          | Left                   | Cheek | -                            | 0.166               | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |
|                          | Right                  | Cheek | -                            | -                   | -                   |
|                          |                        | Tilt  | -                            | -                   | -                   |

(850MHz Table continues)

(850MHz 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    |       | 23.5 dBm                     | 23.5 dBm             | 23.5 dBm             |
|       | Left               | Cheek | 0.507                        | <b>0.641</b>         | 0.483                |
|       |                    | Tilt  | -                            | 0.393                | -                    |
|       | Right              | Cheek | -                            | 0.551                | -                    |
|       |                    | Tilt  | -                            | 0.368                | -                    |

1700/2100MHz Head SAR results

| Mode  | Test configuration |       | SAR, averaged over 1g (W/kg) |                       |                       |
|-------|--------------------|-------|------------------------------|-----------------------|-----------------------|
|       |                    |       | Ch 1312<br>1712.4 MHz        | Ch 1412<br>1732.4 MHz | Ch 1513<br>1752.6 MHz |
| WCDMA | Conducted Power    |       | 22.5 dBm                     | 22.5 dBm              | 22.5 dBm              |
|       | Left               | Cheek | <b>0.829</b>                 | 0.748                 | 0.781                 |
|       |                    | Tilt  | -                            | 0.338                 | -                     |
|       | Right              | Cheek | -                            | 0.445                 | -                     |
|       |                    | Tilt  | -                            | 0.373                 | -                     |

### 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  |
| <b>GSM</b>               | <b>Conducted Power</b> |       | -                            | <b>30.5 dBm</b>       | -                     |
|                          | Left                   | Cheek | -                            | 0.567                 | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
|                          | Right                  | Cheek | -                            | -                     | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
| <b>2-slot GPRS</b>       | <b>Conducted Power</b> |       | -                            | <b>29.5 dBm</b>       | -                     |
|                          | Left                   | Cheek | -                            | 0.854                 | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
|                          | Right                  | Cheek | -                            | -                     | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
| <b>3-slot GPRS</b>       | <b>Conducted Power</b> |       | -                            | <b>27.5 dBm</b>       | -                     |
|                          | Left                   | Cheek | -                            | 0.835                 | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
|                          | Right                  | Cheek | -                            | -                     | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
| <b>4-slot GPRS</b>       | <b>Conducted Power</b> |       | <b>26.5 dBm</b>              | <b>26.5 dBm</b>       | <b>26.5 dBm</b>       |
|                          | Left                   | Cheek | <b>0.914</b>                 | 0.890                 | 0.829                 |
|                          |                        | Tilt  | -                            | 0.416                 | -                     |
|                          | Right                  | Cheek | -                            | 0.537                 | -                     |
|                          |                        | Tilt  | -                            | 0.479                 | -                     |
| <b>4-slot 8PSK EGPRS</b> | <b>Conducted Power</b> |       | <b>26.0 dBm</b>              | -                     | -                     |
|                          | Left                   | Cheek | 0.671                        | -                     | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
|                          | Right                  | Cheek | -                            | -                     | -                     |
|                          |                        | Tilt  | -                            | -                     | -                     |
| Mode                     | Test configuration     |       | 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>22.5 dBm</b>              | <b>22.5 dBm</b>       | <b>22.5 dBm</b>       |
|                          | Left                   | Cheek | <b>0.969</b>                 | 0.879                 | 0.776                 |
|                          |                        | Tilt  | -                            | 0.294                 | -                     |
|                          | Right                  | Cheek | -                            | 0.491                 | -                     |
|                          |                        | Tilt  | -                            | 0.426                 | -                     |

### 2450MHz Head SAR results

| Mode                         | Test configuration     |       | SAR, averaged over 1g (W/kg) |                    |                     |
|------------------------------|------------------------|-------|------------------------------|--------------------|---------------------|
|                              |                        |       | Ch 1<br>2412.0 MHz           | Ch 7<br>2442.0 MHz | Ch 11<br>2462.0 MHz |
| <b>WLAN b-mode</b>           | <b>Conducted Power</b> |       | <b>17.5 dBm</b>              | <b>18.0 dBm</b>    | <b>17.5 dBm</b>     |
|                              | Left                   | Cheek | <b>0.678</b>                 | 0.465              | 0.311               |
|                              |                        | Tilt  | -                            | 0.081              | -                   |
|                              | Right                  | Cheek | -                            | 0.280              | -                   |
|                              |                        | Tilt  | -                            | 0.113              | -                   |
| <b>WLAN b-mode</b>           | <b>Conducted Power</b> |       | <b>12.0 dBm</b>              | <b>12.0 dBm</b>    | <b>12.0 dBm</b>     |
| <b>Reduced Power</b>         | Left                   | Cheek | 0.099                        | 0.104              | 0.012               |
|                              |                        | Tilt  | -                            | 0.016              | -                   |
|                              | Right                  | Cheek | -                            | 0.059              | -                   |
|                              |                        | Tilt  | -                            | 0.026              | -                   |
| <b>WLAN n-mode<br/>20MHz</b> | <b>Conducted Power</b> |       | <b>15.0 dBm</b>              | <b>18.0 dBm</b>    | <b>15.0 dBm</b>     |
|                              | Left                   | Cheek | 0.194                        | <b>0.879</b>       | 0.253               |
|                              |                        | Tilt  | -                            | -                  | -                   |
|                              | Right                  | Cheek | -                            | -                  | -                   |
|                              |                        | Tilt  | -                            | -                  | -                   |
| <b>WLAN n-mode<br/>20MHz</b> | <b>Conducted Power</b> |       | <b>12.0 dBm</b>              | <b>12.0 dBm</b>    | <b>12.0 dBm</b>     |
| <b>Reduced Power</b>         | Left                   | Cheek | 0.031                        | 0.024              | 0.014               |
|                              |                        | Tilt  | -                            | -                  | -                   |
|                              | Right                  | Cheek | -                            | -                  | -                   |
|                              |                        | Tilt  | -                            | -                  | -                   |

### 5000MHz Head SAR results

| Mode          | Test configuration |       | SAR, averaged over 1g (W/kg) |                        |                        |                        |                         |                         |                         |                         |
|---------------|--------------------|-------|------------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|               |                    |       | Ch 36<br>5180.0<br>MHz       | Ch 48<br>5240.0<br>MHz | Ch 52<br>5260.0<br>MHz | Ch 64<br>5320.0<br>MHz | Ch 104<br>5520.0<br>MHz | Ch 116<br>5580.0<br>MHz | Ch 124<br>5620.0<br>MHz | Ch 136<br>5680.0<br>MHz |
| WLAN a-mode   | Conducted Power    |       | 14.5<br>dBm                  | 14.5<br>dBm            | 17.5<br>dBm            | 17.5<br>dBm            | 17.5<br>dBm             | 17.5<br>dBm             | 17.5<br>dBm             | 17.5<br>dBm             |
|               | Left               | Cheek | 1.05                         | 0.355                  | 1.01                   | 0.956                  | 0.745                   | 0.671                   | 0.748                   | 0.604                   |
|               |                    | Tilt  | 0.054                        | -                      | 0.192                  | -                      | 0.230                   | -                       | 0.147                   | -                       |
|               | Right              | Cheek | 0.149                        | -                      | 0.512                  | -                      | 0.270                   | -                       | 0.244                   | -                       |
|               |                    | Tilt  | 0.041                        | -                      | 0.132                  | -                      | 0.095                   | -                       | 0.087                   | -                       |
| WLAN a-mode   | Conducted Power    |       | 12.0<br>dBm                  | 12.0<br>dBm            | 12.0<br>dBm            | 12.0<br>dBm            | 12.0<br>dBm             | 12.0<br>dBm             | 12.0<br>dBm             | 12.0<br>dBm             |
| Reduced Power | Left               | Cheek | 0.232                        | 0.202                  | 0.227                  | 0.218                  | 0.309                   | 0.232                   | 0.200                   | 0.174                   |
|               |                    | Tilt  | 0.026                        | -                      | 0.039                  | -                      | 0.122                   | -                       | -                       | -                       |
|               | Right              | Cheek | 0.060                        | -                      | 0.095                  | -                      | 0.093                   | -                       | -                       | -                       |
|               |                    | Tilt  | 0.013                        | -                      | 0.031                  | -                      | 0.099                   | -                       | -                       | -                       |

### 5000MHz Head SAR results - continued

| Mode          | Test configuration |       | SAR, averaged over 1g (W/kg) |                         |                         |
|---------------|--------------------|-------|------------------------------|-------------------------|-------------------------|
|               |                    |       | Ch 149<br>5745.0<br>MHz      | Ch 157<br>5785.0<br>MHz | Ch 165<br>5825.0<br>MHz |
| WLAN a-mode   | Conducted Power    |       | 17.5<br>dBm                  | 17.5<br>dBm             | 17.5<br>dBm             |
|               | Left               | Cheek | 0.385                        | 0.307                   | 0.290                   |
|               |                    | Tilt  | 0.081                        | -                       | -                       |
|               | Right              | Cheek | 0.160                        | -                       | -                       |
|               |                    | Tilt  | 0.062                        | -                       | -                       |
| WLAN a-mode   | Conducted Power    |       | 12.0<br>dBm                  | 12.0<br>dBm             | 12.0<br>dBm             |
| Reduced Power | Left               | Cheek | 0.118                        | 0.100                   | 0.073                   |
|               |                    | Tilt  | 0.030                        | -                       | -                       |
|               | Right              | Cheek | 0.046                        | -                       | -                       |
|               |                    | Tilt  | 0.014                        | -                       | -                       |

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  |
| 2-slot GPRS |                        | Conducted Power    | 31.5 dBm                     | 31.5 dBm             | 31.5 dBm             |
|             | Display facing phantom | Without headset    | 0.828                        | 0.839                | 0.799                |
|             |                        | Headset WH-901     | -                            | 0.577                | -                    |
|             | Back facing phantom    | Without headset    | 1.03                         | 1.02                 | 0.975                |
|             |                        | Headset WH-901     | 0.723                        | 0.829                | 0.674                |
| Mode        | Device orientation     | Test configuration | Ch 4132<br>826.4 MHz         | Ch 4175<br>835.0 MHz | Ch 4233<br>846.6 MHz |
| WCDMA       |                        | Conducted Power    | 23.5 dBm                     | 23.5 dBm             | 23.5 dBm             |
|             | Display facing phantom | Without headset    | -                            | 0.622                | -                    |
|             |                        | Headset WH-901     | -                            | 0.428                | -                    |
|             | Back facing phantom    | Without headset    | 0.567                        | 0.735                | 0.565                |
|             |                        | Headset WH-901     | -                            | 0.571                | -                    |

**1700/2100MHz Body SAR results**

| Mode  | Device orientation     | Test configuration | SAR, averaged over 1g (W/kg) |                       |                       |
|-------|------------------------|--------------------|------------------------------|-----------------------|-----------------------|
|       |                        |                    | Ch 1312<br>1712.4 MHz        | Ch 1412<br>1732.4 MHz | Ch 1513<br>1752.6 MHz |
| WCDMA |                        | Conducted Power    | 22.5 dBm                     | 22.5 dBm              | 22.5 dBm              |
|       | Display facing phantom | Without headset    | -                            | 0.282                 | -                     |
|       |                        | Headset WH-901     | -                            | 0.258                 | -                     |
|       | Back facing phantom    | Without headset    | 0.540                        | 0.479                 | 0.554                 |
|       |                        | Headset WH-901     | -                            | 0.451                 | -                     |

### 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  |
| 4-slot GPRS |                        | Conducted Power    | 26.5 dBm                     | 26.5 dBm              | 26.5 dBm              |
|             | Display facing phantom | Without headset    | -                            | 0.406                 | -                     |
|             |                        | Headset WH-901     | -                            | 0.354                 | -                     |
|             | Back facing phantom    | Without headset    | 0.758                        | 0.731                 | 0.644                 |
|             |                        | Headset WH-901     | -                            | 0.671                 | -                     |
| Mode        | Device orientation     | Test configuration | Ch 9262<br>1852.4 MHz        | Ch 9400<br>1880.0 MHz | Ch 9538<br>1907.6 MHz |
| WCDMA       |                        | Conducted Power    | 22.5 dBm                     | 22.5 dBm              | 22.5 dBm              |
|             | Display facing phantom | Without headset    | -                            | 0.375                 | -                     |
|             |                        | Headset WH-901     | -                            | 0.331                 | -                     |
|             | Back facing phantom    | Without headset    | 0.733                        | 0.690                 | 0.571                 |
|             |                        | Headset WH-901     | -                            | 0.647                 | -                     |



### 2450MHz Body SAR results

| Mode              | Device orientation     | Test configuration | SAR, averaged over 1g (W/kg) |                    |                     |
|-------------------|------------------------|--------------------|------------------------------|--------------------|---------------------|
|                   |                        |                    | Ch 1<br>2412.0 MHz           | Ch 7<br>2442.0 MHz | Ch 11<br>2462.0 MHz |
| WLAN b-mode       |                        | Conducted Power    | 17.5 dBm                     | 18.0 dBm           | 17.5 dBm            |
|                   | Display facing phantom | Without headset    | -                            | 0.108              | -                   |
|                   |                        | Headset WH-901     | -                            | 0.108              | -                   |
|                   | Back facing Phantom    | Without headset    | -                            | 0.120              | -                   |
|                   |                        | Headset WH-901     | 0.123                        | 0.128              | 0.102               |
| WLAN b-mode       |                        | Conducted Power    | 12.0 dBm                     | 12.0 dBm           | 12.0 dBm            |
| Reduced Power     | Display facing phantom | Without headset    | -                            | 0.007              | -                   |
|                   |                        | Headset WH-901     | -                            | 0.006              | -                   |
|                   | Back facing Phantom    | Without headset    | 0.003                        | 0.009              | 0.007               |
|                   |                        | Headset WH-901     | -                            | 0.007              | -                   |
| WLAN n-mode 20MHz |                        | Conducted Power    | 15.0 dBm                     | 18.0 dBm           | 15.0 dBm            |
|                   | Display facing phantom | Without headset    | -                            | -                  | -                   |
|                   |                        | Headset WH-901     | -                            | -                  | -                   |
|                   | Back facing phantom    | Without headset    | -                            | -                  | -                   |
|                   |                        | Headset WH-901     | 0.132                        | 0.134              | 0.094               |
| WLAN n-mode 20MHz |                        | Conducted Power    | 12.0 dBm                     | 12.0 dBm           | 12.0 dBm            |
| Reduced Power     | Display facing phantom | Without headset    | -                            | -                  | -                   |
|                   |                        | Headset WH-901     | -                            | -                  | -                   |
|                   | Back facing phantom    | Without headset    | 0.031                        | 0.008              | 0.019               |
|                   |                        | Headset WH-901     | -                            | -                  | -                   |

### 5000MHz Body SAR results

| Mode          | Device orientation        | Test configuration | SAR, averaged over 1g (W/kg) |                        |                        |                        |                         |                         |                         |                         |
|---------------|---------------------------|--------------------|------------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|               |                           |                    | Ch 36<br>5180.0<br>MHz       | Ch 48<br>5240.0<br>MHz | Ch 52<br>5260.0<br>MHz | Ch 64<br>5320.0<br>MHz | Ch 104<br>5520.0<br>MHz | Ch 116<br>5580.0<br>MHz | Ch 124<br>5620.0<br>MHz | Ch 136<br>5680.0<br>MHz |
| WLAN a-mode   |                           | Conducted Power    | 14.5<br>dBm                  | 14.5<br>dBm            | 17.5<br>dBm            | 17.5<br>dBm            | 17.5<br>dBm             | 17.5<br>dBm             | 17.5<br>dBm             | 17.5<br>dBm             |
|               | Display facing<br>phantom | Without headset    | 0.057                        | -                      | 0.166                  | -                      | 0.170                   | -                       | -                       | -                       |
|               |                           | Headset WH-901     | 0.058                        | -                      | 0.163                  | -                      | 0.163                   | -                       | -                       | -                       |
|               | Back facing<br>Phantom    | Without headset    | 0.074                        | -                      | 0.240                  | -                      | 0.213                   | -                       | -                       | -                       |
|               |                           | Headset WH-901     | 0.076                        | 0.107                  | <b>0.248</b>           | 0.235                  | 0.215                   | 0.247                   | 0.214                   | 0.198                   |
| WLAN a-mode   |                           | Conducted Power    | 12.0<br>dBm                  | 12.0<br>dBm            | 12.0<br>dBm            | 12.0<br>dBm            | 12.0<br>dBm             | 12.0<br>dBm             | 12.0<br>dBm             | 12.0<br>dBm             |
| Reduced Power | Display facing<br>phantom | Without headset    | 0.016                        | -                      | 0.055                  | -                      | 0.056                   | -                       | -                       | -                       |
|               |                           | Headset WH-901     | 0.013                        | -                      | 0.052                  | -                      | 0.055                   | -                       | -                       | -                       |
|               | Back facing<br>Phantom    | Without headset    | 0.017                        | -                      | 0.073                  | -                      | 0.067                   | -                       | -                       | -                       |
|               |                           | Headset WH-901     | 0.017                        | 0.067                  | 0.073                  | 0.060                  | 0.074                   | 0.073                   | 0.071                   | 0.064                   |

**5000MHz Body SAR results - continued**

| Mode          | Device orientation     | Test configuration | SAR, averaged over 1g (W/kg) |                         |                         |
|---------------|------------------------|--------------------|------------------------------|-------------------------|-------------------------|
|               |                        |                    | Ch 149<br>5745.0<br>MHz      | Ch 157<br>5785.0<br>MHz | Ch 165<br>5825.0<br>MHz |
| WLAN a-mode   |                        | Conducted Power    | 17.5<br>dBm                  | 17.5<br>dBm             | 17.5<br>dBm             |
|               | Display facing phantom | Without headset    | 0.102                        | -                       | -                       |
|               |                        | Headset WH-901     | 0.096                        | -                       | -                       |
|               | Back facing Phantom    | Without headset    | 0.105                        | 0.093                   | 0.075                   |
|               |                        | Headset WH-901     | 0.103                        | -                       | -                       |
| WLAN a-mode   |                        | Conducted Power    | 12.0<br>dBm                  | 12.0<br>dBm             | 12.0<br>dBm             |
| Reduced Power | Display facing phantom | Without headset    | 0.006                        | -                       | -                       |
|               |                        | Headset WH-901     | 0.018                        | -                       | -                       |
|               | Back facing Phantom    | Without headset    | 0.069                        | 0.019                   | 0.013                   |
|               |                        | Headset WH-901     | 0.066                        | -                       | -                       |

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

| Test configuration                             | Max. 1g SAR results |                    |              |                    |                     |               |
|------------------------------------------------|---------------------|--------------------|--------------|--------------------|---------------------|---------------|
|                                                | WLAN<br>2450        | 2-slot<br>GPRS 850 | WCDMA<br>850 | WCDMA<br>1700/2100 | 4-slot<br>GPRS 1900 | WCDMA<br>1900 |
| Head: Left, Cheek                              | 0.104               | 0.837              | 0.641        | 0.829              | 0.914               | 0.969         |
| Head: Left, Tilt                               | 0.016               | 0.474              | 0.393        | 0.338              | 0.416               | 0.294         |
| Head: Right, Cheek                             | 0.059               | 0.753              | 0.551        | 0.445              | 0.537               | 0.491         |
| Head: Right, Tilt                              | 0.026               | 0.527              | 0.368        | 0.373              | 0.479               | 0.426         |
| Body:Display facing phantom<br>Without Headset | 0.007               | 0.839              | 0.622        | 0.282              | 0.406               | 0.375         |
| Body:Display facing phantom<br>Headset WH-901  | 0.006               | 0.577              | 0.428        | 0.258              | 0.354               | 0.331         |
| Body:Back facing phantom<br>Without Headset    | 0.031               | 1.03               | 0.735        | 0.554              | 0.758               | 0.733         |
| Body:Back facing phantom<br>Headset WH-901     | 0.007               | 0.829              | 0.571        | 0.451              | 0.671               | 0.647         |

| Test configuration                             | Max. 1g SAR results |                    |              |                    |                     |               |
|------------------------------------------------|---------------------|--------------------|--------------|--------------------|---------------------|---------------|
|                                                | WLAN<br>5000        | 2-slot<br>GPRS 850 | WCDMA<br>850 | WCDMA<br>1700/2100 | 4-slot<br>GPRS 1900 | WCDMA<br>1900 |
| Head: Left, Cheek                              | 0.309               | 0.837              | 0.641        | 0.829              | 0.914               | 0.969         |
| Head: Left, Tilt                               | 0.122               | 0.474              | 0.393        | 0.338              | 0.416               | 0.294         |
| Head: Right, Cheek                             | 0.095               | 0.753              | 0.551        | 0.445              | 0.537               | 0.491         |
| Head: Right, Tilt                              | 0.099               | 0.527              | 0.368        | 0.373              | 0.479               | 0.426         |
| Body:Display facing phantom<br>Without Headset | 0.056               | 0.839              | 0.622        | 0.282              | 0.406               | 0.375         |
| Body:Display facing phantom<br>Headset WH-901  | 0.055               | 0.577              | 0.428        | 0.258              | 0.354               | 0.331         |
| Body:Back facing phantom<br>Without Headset    | 0.073               | 1.03               | 0.735        | 0.554              | 0.758               | 0.733         |
| Body:Back facing phantom<br>Headset WH-901     | 0.074               | 0.829              | 0.571        | 0.451              | 0.671               | 0.647         |

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

| Test configuration                             | Max. 1g SAR results               |                             |                                   |                                    |                              |
|------------------------------------------------|-----------------------------------|-----------------------------|-----------------------------------|------------------------------------|------------------------------|
|                                                | 2-slot<br>GPRS 850<br>+ WLAN 2450 | WCDMA<br>850<br>+ WLAN 2450 | WCDMA<br>1700/2100<br>+ WLAN 2450 | 4-slot<br>GPRS 1900<br>+ WLAN 2450 | WCDMA<br>1900<br>+ WLAN 2450 |
| Head: Left, Cheek                              | <b>0.941</b>                      | <b>0.745</b>                | <b>0.933</b>                      | <b>1.018</b>                       | <b>1.073</b>                 |
| Head: Left, Tilt                               | 0.490                             | 0.409                       | 0.354                             | 0.432                              | 0.310                        |
| Head: Right, Cheek                             | 0.812                             | 0.610                       | 0.504                             | 0.596                              | 0.550                        |
| Head: Right, Tilt                              | 0.553                             | 0.394                       | 0.399                             | 0.505                              | 0.452                        |
| Body:Display facing phantom<br>Without Headset | 0.846                             | 0.629                       | 0.289                             | 0.413                              | 0.382                        |
| Body:Display facing phantom<br>Headset WH-901  | 0.583                             | 0.434                       | 0.264                             | 0.360                              | 0.337                        |
| Body:Back facing phantom<br>Without Headset    | <b>1.061</b>                      | <b>0.766</b>                | <b>0.585</b>                      | <b>0.789</b>                       | <b>0.764</b>                 |
| Body:Back facing phantom<br>Headset WH-901     | 0.836                             | 0.578                       | 0.458                             | 0.678                              | 0.654                        |

| Test configuration                             | Max. 1g SAR results               |                             |                                   |                                    |                              |
|------------------------------------------------|-----------------------------------|-----------------------------|-----------------------------------|------------------------------------|------------------------------|
|                                                | 2-slot<br>GPRS 850<br>+ WLAN 5000 | WCDMA<br>850<br>+ WLAN 5000 | WCDMA<br>1700/2100<br>+ WLAN 5000 | 4-slot<br>GPRS 1900<br>+ WLAN 5000 | WCDMA<br>1900<br>+ WLAN 5000 |
| Head: Left, Cheek                              | <b>1.146</b>                      | <b>0.950</b>                | <b>1.138</b>                      | <b>1.223</b>                       | <b>1.278</b>                 |
| Head: Left, Tilt                               | 0.596                             | 0.515                       | 0.460                             | 0.538                              | 0.416                        |
| Head: Right, Cheek                             | 0.848                             | 0.646                       | 0.540                             | 0.632                              | 0.586                        |
| Head: Right, Tilt                              | 0.626                             | 0.467                       | 0.472                             | 0.578                              | 0.525                        |
| Body:Display facing phantom<br>Without Headset | 0.895                             | 0.678                       | 0.338                             | 0.462                              | 0.431                        |
| Body:Display facing phantom<br>Headset WH-901  | 0.632                             | 0.483                       | 0.313                             | 0.409                              | 0.386                        |
| Body:Back facing phantom<br>Without Headset    | <b>1.103</b>                      | <b>0.808</b>                | <b>0.627</b>                      | <b>0.831</b>                       | <b>0.806</b>                 |
| Body:Back facing phantom<br>Headset WH-901     | 0.903                             | 0.645                       | 0.525                             | 0.745                              | 0.721                        |

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 SAR results –  
SPEAG Combined Multiband algorithm results**

| Test configuration                             | Max. 1g SAR results               |                             |                                   |                                    |                              |
|------------------------------------------------|-----------------------------------|-----------------------------|-----------------------------------|------------------------------------|------------------------------|
|                                                | 2-slot<br>GPRS 850<br>+ WLAN 2450 | WCDMA<br>850<br>+ WLAN 2450 | WCDMA<br>1700/2100<br>+ WLAN 2450 | 4-slot<br>GPRS 1900<br>+ WLAN 2450 | WCDMA<br>1900<br>+ WLAN 2450 |
| Head: Left, Cheek                              | 0.852                             | 0.677                       | 0.904                             | 0.996                              | 1.02                         |
| Head: Left, Tilt                               | -                                 | -                           | -                                 | -                                  | -                            |
| Head: Right, Cheek                             | -                                 | -                           | -                                 | -                                  | -                            |
| Head: Right, Tilt                              | -                                 | -                           | -                                 | -                                  | -                            |
| Body:Display facing phantom<br>Without Headset | -                                 | -                           | -                                 | -                                  | -                            |
| Body:Display facing phantom<br>Headset WH-901  | -                                 | -                           | -                                 | -                                  | -                            |
| Body:Back facing phantom<br>Without Headset    | 1.04                              | 0.743                       | 0.559                             | 0.745                              | 0.707                        |
| Body:Back facing phantom<br>Headset WH-901     | -                                 | -                           | -                                 | -                                  | -                            |

| Test configuration                             | Max. 1g SAR results               |                             |                                   |                                    |                              |
|------------------------------------------------|-----------------------------------|-----------------------------|-----------------------------------|------------------------------------|------------------------------|
|                                                | 2-slot<br>GPRS 850<br>+ WLAN 5000 | WCDMA<br>850<br>+ WLAN 5000 | WCDMA<br>1700/2100<br>+ WLAN 5000 | 4-slot<br>GPRS 1900<br>+ WLAN 5000 | WCDMA<br>1900<br>+ WLAN 5000 |
| Head: Left, Cheek                              | 0.839                             | 0.672                       | 0.999                             | 1.04                               | 1.00                         |
| Head: Left, Tilt                               | -                                 | -                           | -                                 | -                                  | -                            |
| Head: Right, Cheek                             | -                                 | -                           | -                                 | -                                  | -                            |
| Head: Right, Tilt                              | -                                 | -                           | -                                 | -                                  | -                            |
| Body:Display facing phantom<br>Without Headset | -                                 | -                           | -                                 | -                                  | -                            |
| Body:Display facing phantom<br>Headset WH-901  | -                                 | -                           | -                                 | -                                  | -                            |
| Body:Back facing phantom<br>Without Headset    | 1.05                              | 0.756                       | 0.585                             | 0.754                              | 0.712                        |
| Body:Back facing phantom<br>Headset WH-901     | -                                 | -                           | -                                 | -                                  | -                            |

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.

Note: Simultaneous Transmission Procedures as described in KDB648474 are not required for this product. The Combined SAR data given in the tables above has been voluntarily calculated.

Plots of the Measurement scans are given in Appendix B.



---

## APPENDIX A: SYSTEM CHECKING SCANS

See the following pages

I Date/Time: 2011-05-18 08:29:42

Test Laboratory: TCC Nokia  
Type: D835V2; Serial: 4d042

**Communication System: CW835**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.883$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 2.75 mW/g

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

Reference Value = 55.4 V/m

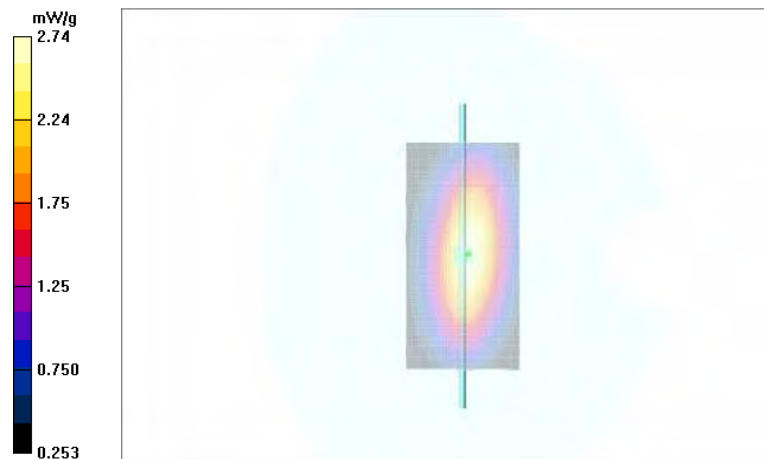
Peak SAR (extrapolated) = 3.84 W/kg

**SAR(1 g) = 2.55 mW/g**

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

**Power Drift = -0.056 dB**

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



Date/Time: 2011-05-26 09:37:47

Test Laboratory: TCC Nokia  
Type: D835V2; Serial: 4d042

**Communication System: CW835**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.69, 5.69, 5.69); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 2.75 mW/g

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

Reference Value = 55.8 V/m

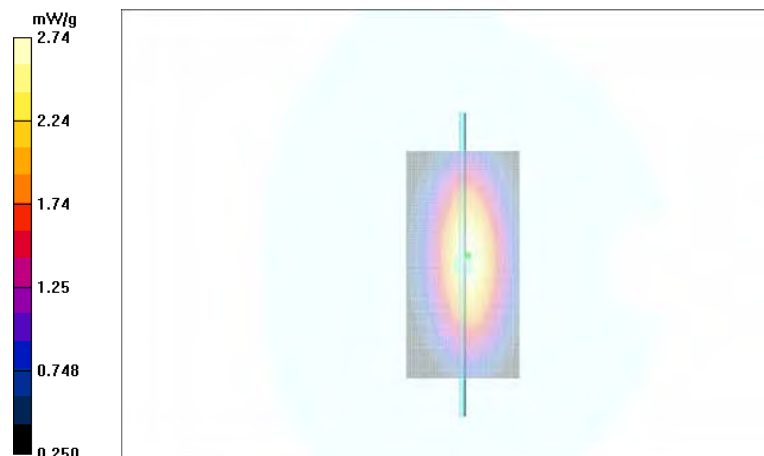
Peak SAR (extrapolated) = 3.81 W/kg

**SAR(1 g) = 2.55 mW/g**

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

**Power Drift = -0.023 dB**

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



Date/Time: 2011-05-27 09:29:52

Test Laboratory: TCC Nokia  
Type: D1800V2; Serial: 2d075

**Communication System: CW1800**

Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Head 1800; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used:  $f = 1800$  MHz;  $\sigma = 1.37$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 10.7 mW/g

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

Reference Value = 86.2 V/m

Peak SAR (extrapolated) = 17.1 W/kg

**SAR(1 g) = 9.46 mW/g**

**SAR(10 g) = 4.98 mW/g**

**Power Drift = -0.016 dB**

Maximum value of SAR (measured) = 10.6 mW/g



Date/Time: 2011-05-16 09:37:11

Test Laboratory: TCC Nokia  
Type: **D1900V2**; Serial: **5d063**

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.38$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.08, 5.08, 5.08); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2010-09-17
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 11.6 mW/g

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

Reference Value = 90.5 V/m

Peak SAR (extrapolated) = 18.8 W/kg

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

**SAR(10 g) = 5.26 mW/g**

**Power Drift = -0.180 dB**

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



Date/Time: 2011-05-17 07:51:39

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 5d063

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.46$  mho/m;  $\epsilon_r = 38.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**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 = 88.5 V/m

Peak SAR (extrapolated) = 19.2 W/kg

**SAR(1 g) = 10.5 mW/g**

**SAR(10 g) = 5.44 mW/g**

**Power Drift = 0.054 dB**

Maximum value of SAR (measured) = 11.8 mW/g



Date/Time: 2011-05-18 08:03:48

Test Laboratory: TCC Nokia  
Type: D1900V2; Serial: 5d063

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**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 = 86.5 V/m

Peak SAR (extrapolated) = 19.4 W/kg

**SAR(1 g) = 10.5 mW/g**

**SAR(10 g) = 5.42 mW/g**

**Power Drift = 0.074 dB**

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



Date/Time: 2011-06-12 17:43:13

Test Laboratory: TCC Nokia  
Type: **D1900V2**; Serial: **5d063**

**Communication System: CW1900**

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.4$  mho/m;  $\epsilon_r = 38.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**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 = 86.0 V/m

Peak SAR (extrapolated) = 19.4 W/kg

**SAR(1 g) = 10.5 mW/g**

**SAR(10 g) = 5.44 mW/g**

**Power Drift = -0.025 dB**

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





Date/Time: 2011-06-14 09:27:36

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 16.1 mW/g

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

Reference Value = 94.7 V/m

Peak SAR (extrapolated) = 28.6 W/kg

**SAR(1 g) = 13.8 mW/g**

**SAR(10 g) = 6.44 mW/g**

**Power Drift = -0.112 dB**

Maximum value of SAR (measured) = 15.8 mW/g



Date/Time: 2011-06-15 11:55:22

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 37.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 15.8 mW/g

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

Reference Value = 92.5 V/m

Peak SAR (extrapolated) = 28.1 W/kg

**SAR(1 g) = 13.7 mW/g**

**SAR(10 g) = 6.42 mW/g**

**Power Drift = -0.053 dB**

Maximum value of SAR (measured) = 15.6 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-16 09:37:41

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 16.1 mW/g

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

Reference Value = 94.3 V/m

Peak SAR (extrapolated) = 28.3 W/kg

**SAR(1 g) = 13.8 mW/g**

**SAR(10 g) = 6.47 mW/g**

**Power Drift = -0.039 dB**

Maximum value of SAR (measured) = 15.8 mW/g



Date/Time: 2011-06-17 09:10:18

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: 22.4 C

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 16.2 mW/g

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

Reference Value = 95.7 V/m

Peak SAR (extrapolated) = 28.7 W/kg

**SAR(1 g) = 14 mW/g**

**SAR(10 g) = 6.57 mW/g**

**Power Drift = -0.015 dB**

Maximum value of SAR (measured) = 16.1 mW/g



Date/Time: 2011-06-16 18:29:06

Test Laboratory: TCC Nokia  
Type: D5GHzV2; Serial: 1045

**Communication System: CW5200**

Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 4.77$  mho/m;  $\epsilon_r = 35.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.54, 4.54, 4.54); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5200 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 16.6 mW/g

**d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (9x9x11)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 51.4 V/m

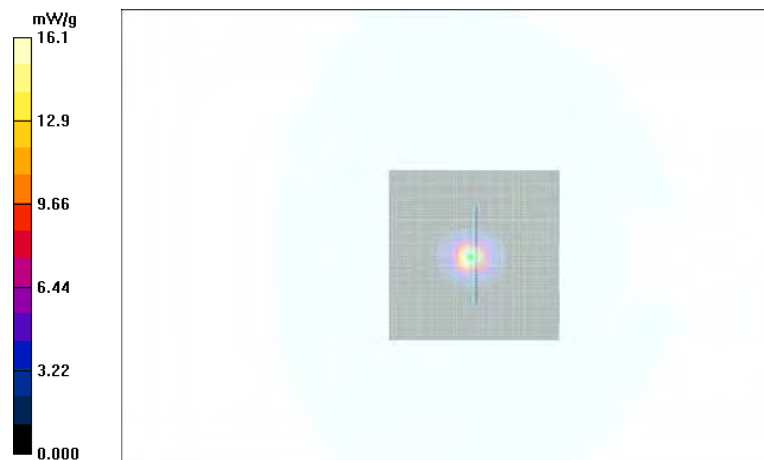
Peak SAR (extrapolated) = 33.2 W/kg

**SAR(1 g) = 8.07 mW/g**

**SAR(10 g) = 2.29 mW/g**

**Power Drift = 0.013 dB**

Maximum value of SAR (measured) = 16.1 mW/g



Date/Time: 2011-06-21 09:27:13

Test Laboratory: TCC Nokia  
Type: D5GHzV2; Serial: 1045

**Communication System: CW5200**

Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 4.95$  mho/m;  $\epsilon_r = 36.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.54, 4.54, 4.54); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5200 MHz idag/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.2 mW/g

**d=10mm, Pin=100mW, f=5200 MHz idag/Zoom Scan (4.3x4.3x3mm), dist=2mm (9x9x11)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 53.3 V/m

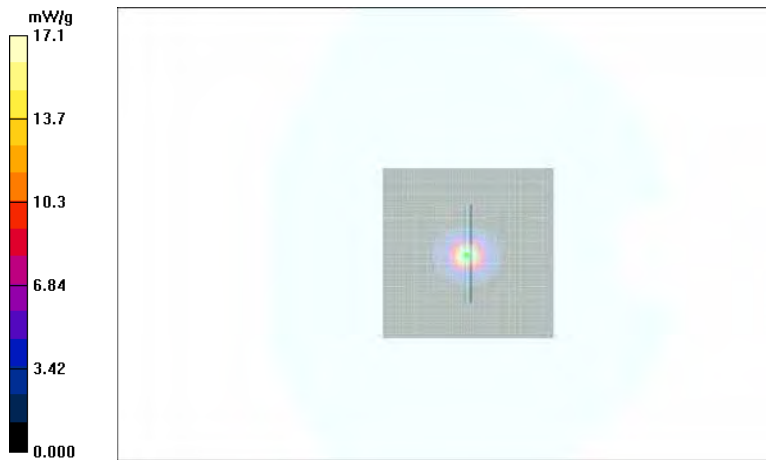
Peak SAR (extrapolated) = 35.1 W/kg

**SAR(1 g) = 8.47 mW/g**

**SAR(10 g) = 2.4 mW/g**

**Power Drift = -0.115 dB**

Maximum value of SAR (measured) = 17.1 mW/g



Date/Time: 2011-06-16 20:53:24

Test Laboratory: TCC Nokia  
Type: D5GHzV2; Serial: 1045

**Communication System: CW5500**

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.12$  mho/m;  $\epsilon_r = 34.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5500 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 18.1 mW/g

**d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (8x8x11)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=2.5mm

Reference Value = 50.7 V/m

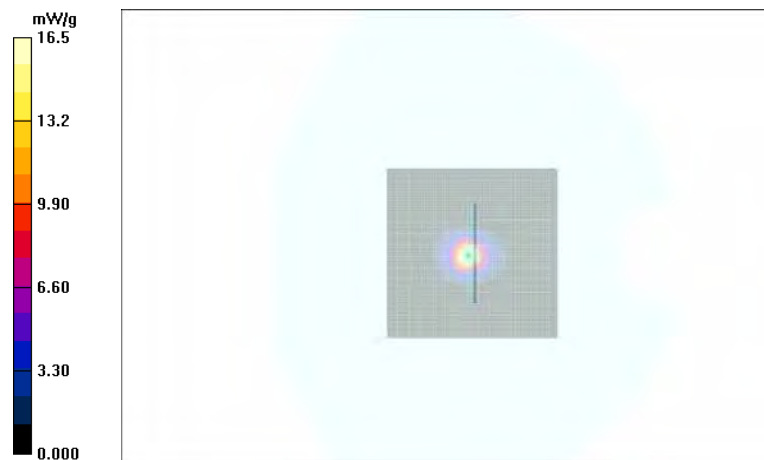
Peak SAR (extrapolated) = 34.9 W/kg

**SAR(1 g) = 8.52 mW/g**

**SAR(10 g) = 2.39 mW/g**

**Power Drift = 0.055 dB**

Maximum value of SAR (measured) = 16.5 mW/g



Date/Time: 2011-06-21 10:26:18

Test Laboratory: TCC Nokia  
Type: **D5GHzV2; Serial: 1045**

**Communication System: CW5500**

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.3$  mho/m;  $\epsilon_r = 35.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5500 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.4 mW/g

**d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (8x8x11)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=2.5mm

Reference Value = 50.6 V/m

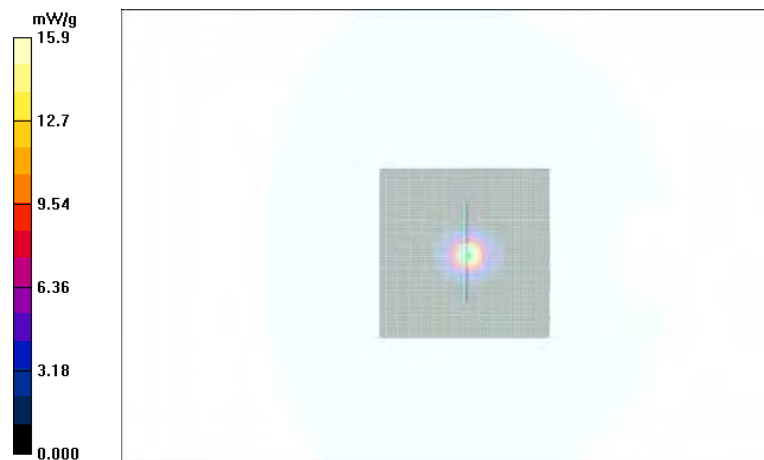
Peak SAR (extrapolated) = 34.1 W/kg

**SAR(1 g) = 8.35 mW/g**

**SAR(10 g) = 2.34 mW/g**

**Power Drift = 0.031 dB**

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





Date/Time: 2011-06-23 15:01:52

Test Laboratory: TCC Nokia  
Type: **D5GHzV2; Serial: 1014**

**Communication System: CW5800**

Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5800$  MHz;  $\sigma = 5.7$  mho/m;  $\epsilon_r = 34.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.75, 3.75, 3.75); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5800 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.2 mW/g

**d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (8x8x11)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=2.5mm

Reference Value = 46.8 V/m

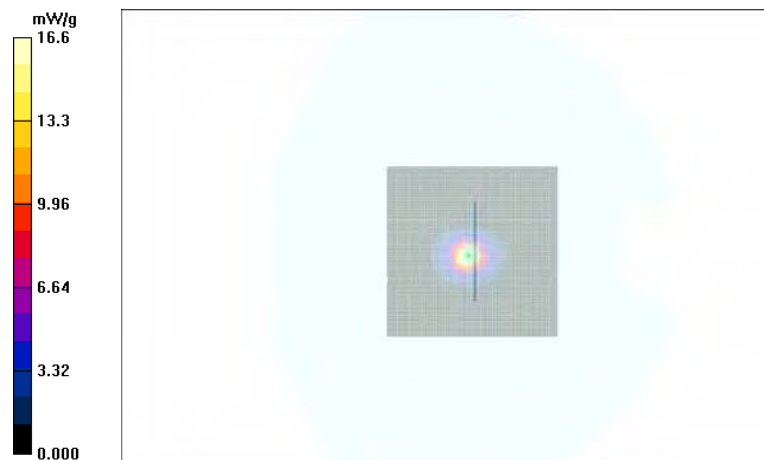
Peak SAR (extrapolated) = 34.9 W/kg

**SAR(1 g) = 8.49 mW/g**

**SAR(10 g) = 2.39 mW/g**

**Power Drift = 0.033 dB**

Maximum value of SAR (measured) = 16.6 mW/g



Date/Time: 2011-05-24 09:40:19

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

**Communication System: CW2450**

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.96$  mho/m;  $\epsilon_r = 50.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (interpolated) = 16.3 mW/g

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

Reference Value = 59.8 V/m

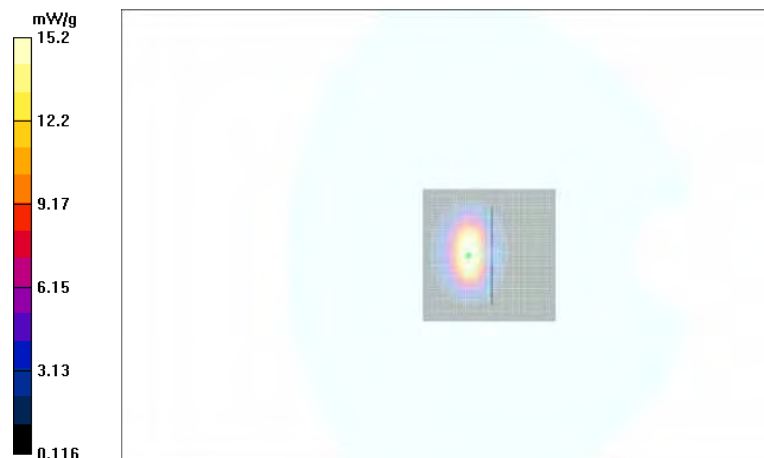
Peak SAR (extrapolated) = 27.1 W/kg

**SAR(1 g) = 13.3 mW/g**

**SAR(10 g) = 6.18 mW/g**

**Power Drift = -0.129 dB**

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



Date/Time: 2011-06-25 17:59:29

Test Laboratory: TCC Nokia  
Type: **D5GHzV2; Serial: 1014**

**Communication System: CW5200**

Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.95$  mho/m;  $\epsilon_r = 49.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5200 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.3 mW/g

**d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (9x9x11)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 43.3 V/m

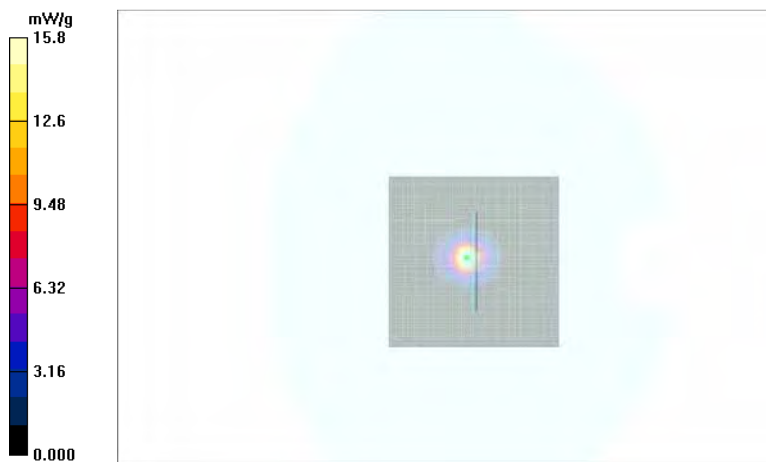
Peak SAR (extrapolated) = 29.4 W/kg

**SAR(1 g) = 7.9 mW/g**

**SAR(10 g) = 2.24 mW/g**

**Power Drift = 0.059 dB**

Maximum value of SAR (measured) = 15.8 mW/g



Date/Time: 2011-06-28 19:14:56

Test Laboratory: TCC Nokia  
Type: D5GHzV2; Serial: 1014

**Communication System: CW5200**

Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.1C

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.8$  mho/m;  $\epsilon_r = 48.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5200 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 16.0 mW/g

**d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (9x9x11)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 39.4 V/m

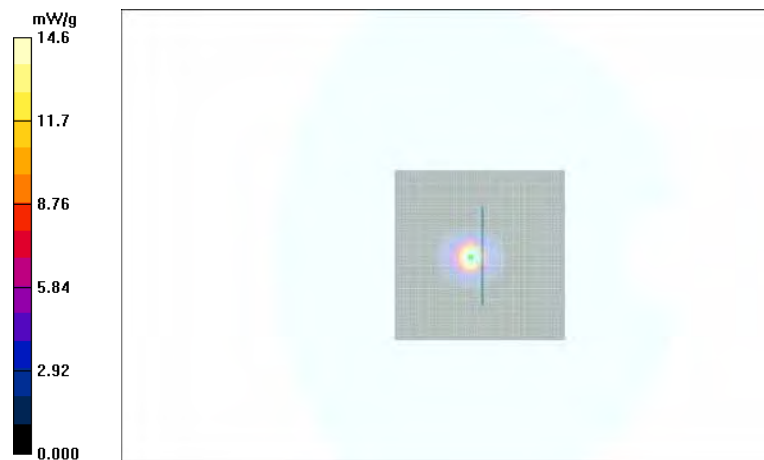
Peak SAR (extrapolated) = 27.0 W/kg

**SAR(1 g) = 7.35 mW/g**

**SAR(10 g) = 2.08 mW/g**

**Power Drift = 0.157 dB**

Maximum value of SAR (measured) = 14.6 mW/g



Date/Time: 2011-06-25 18:44:43

Test Laboratory: TCC Nokia  
Type: **D5GHzV2; Serial: 1014**

**Communication System: CW5500**

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 6.42$  mho/m;  $\epsilon_r = 49$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.4, 3.4, 3.4); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5500 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 19.0 mW/g

**d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (8x8x11)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=2.5mm

Reference Value = 44.1 V/m

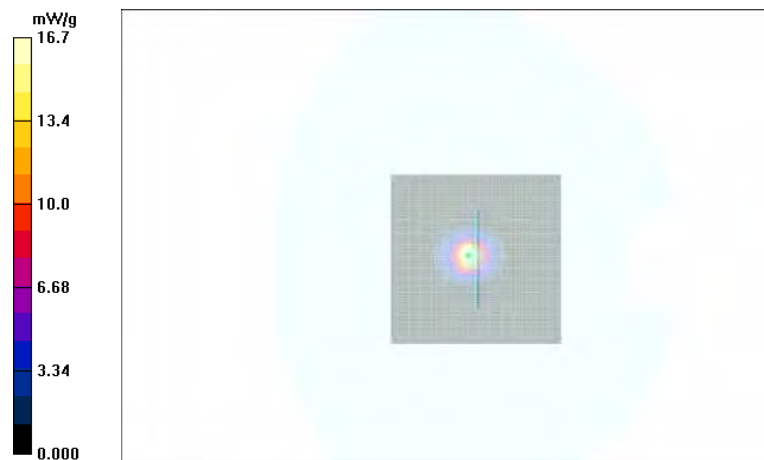
Peak SAR (extrapolated) = 31.9 W/kg

**SAR(1 g) = 8.55 mW/g**

**SAR(10 g) = 2.39 mW/g**

**Power Drift = 0.048 dB**

Maximum value of SAR (measured) = 16.7 mW/g



Date/Time: 2011-06-28 20:04:06

Test Laboratory: TCC Nokia  
Type: D5GHzV2; Serial: 1014

**Communication System: CW5500**

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.1C

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 6.25$  mho/m;  $\epsilon_r = 48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.4, 3.4, 3.4); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5500 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 19.7 mW/g

**d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (8x8x11)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=2.5mm

Reference Value = 41.6 V/m

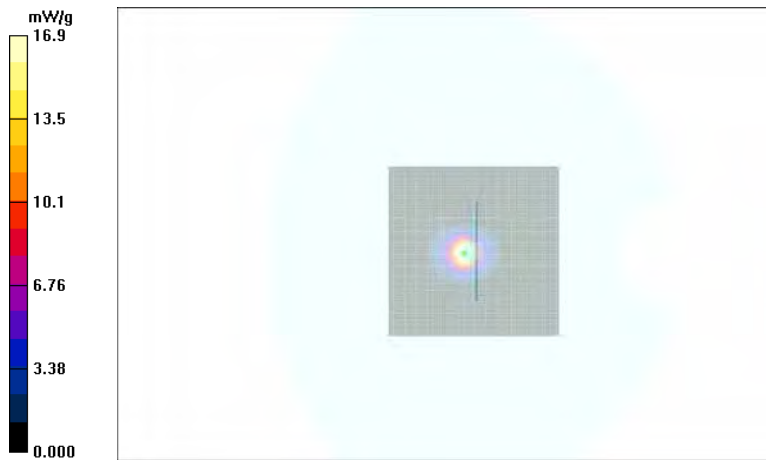
Peak SAR (extrapolated) = 33.4 W/kg

**SAR(1 g) = 8.78 mW/g**

**SAR(10 g) = 2.43 mW/g**

**Power Drift = 0.028 dB**

Maximum value of SAR (measured) = 16.9 mW/g



Date/Time: 2011-06-29 03:52:46

Test Laboratory: TCC Nokia  
Type: **D5GHzV2; Serial: 1014**

**Communication System: CW5800**

Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.1C

Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.71$  mho/m;  $\epsilon_r = 47.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.45, 3.45, 3.45); Calibrated: 2010-07-19
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=100mW, f=5800 MHz/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

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

**d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4.3x4.3x3mm), dist=2mm (8x8x11)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=2.5mm

Reference Value = 27.1 V/m

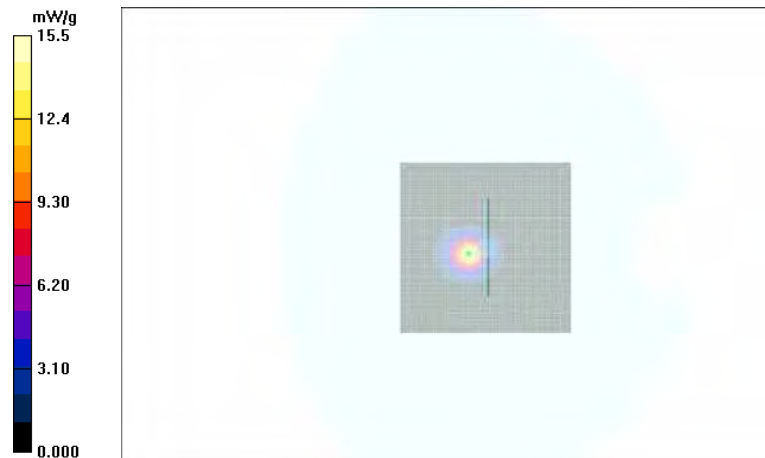
Peak SAR (extrapolated) = 31.3 W/kg

**SAR(1 g) = 7.73 mW/g**

**SAR(10 g) = 2.15 mW/g**

**Power Drift = 0.045 dB**

Maximum value of SAR (measured) = 15.5 mW/g



---

## APPENDIX B: MEASUREMENT SCANS

See the following pages



Date/Time: 2011-05-18 13:13:33

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: GSM850**

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.565 mW/g

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

Reference Value = 5.90 V/m

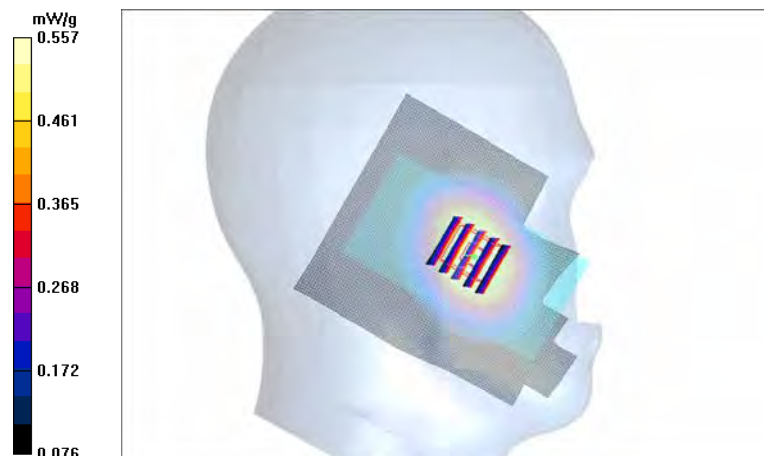
Peak SAR (extrapolated) = 0.671 W/kg

**SAR(1 g) = 0.529 mW/g**

**SAR(10 g) = 0.396 mW/g**

**Power Drift = 0.016 dB**

Maximum value of SAR (measured) = 0.557 mW/g



Date/Time: 2011-05-18 14:09:22

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.885 mW/g

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

Reference Value = 7.37 V/m

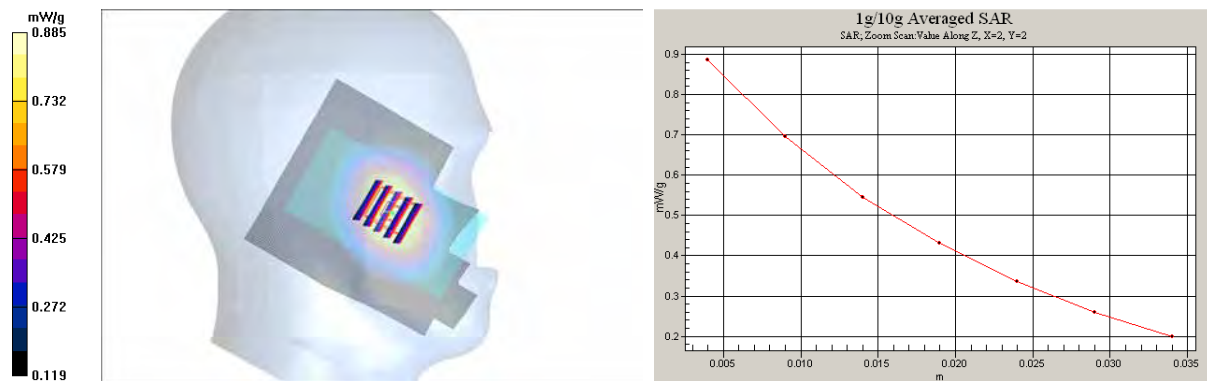
Peak SAR (extrapolated) = 1.08 W/kg

**SAR(1 g) = 0.837 mW/g**

**SAR(10 g) = 0.623 mW/g**

**Power Drift = 0.034 dB**

Maximum value of SAR (measured) = 0.885 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-05-18 15:51:39

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.502 mW/g

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

Reference Value = 11.4 V/m

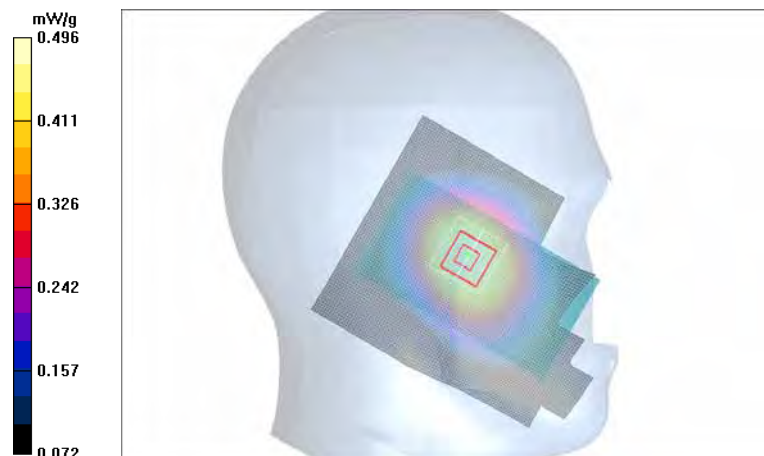
Peak SAR (extrapolated) = 0.582 W/kg

**SAR(1 g) = 0.474 mW/g**

**SAR(10 g) = 0.364 mW/g**

**Power Drift = -0.069 dB**

Maximum value of SAR (measured) = 0.496 mW/g



Date/Time: 2011-05-18 16:32:42

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.802 mW/g

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

Reference Value = 7.29 V/m

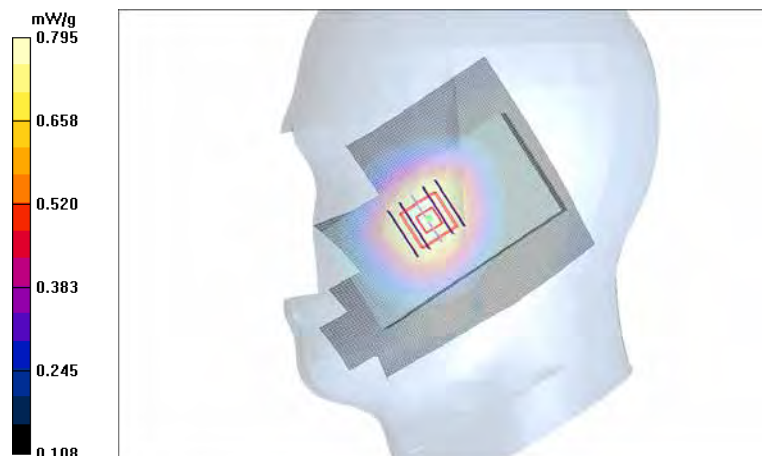
Peak SAR (extrapolated) = 0.930 W/kg

**SAR(1 g) = 0.753 mW/g**

**SAR(10 g) = 0.564 mW/g**

**Power Drift = -0.123 dB**

Maximum value of SAR (measured) = 0.795 mW/g



Date/Time: 2011-05-18 16:53:47

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.559 mW/g

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

Reference Value = 13.6 V/m

Peak SAR (extrapolated) = 0.668 W/kg

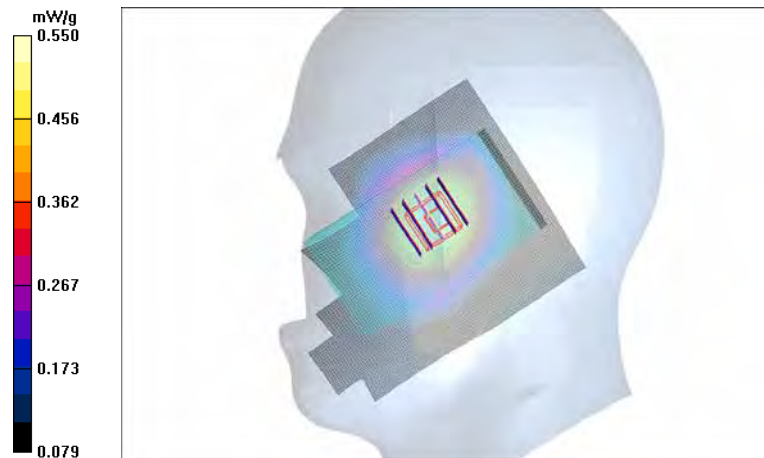
**SAR(1 g) = 0.527 mW/g**

**SAR(10 g) = 0.395 mW/g**

**Power Drift = 0.144 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.550 mW/g



Date/Time: 2011-05-18 13:51:36

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 3-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.834 mW/g

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

Reference Value = 7.21 V/m

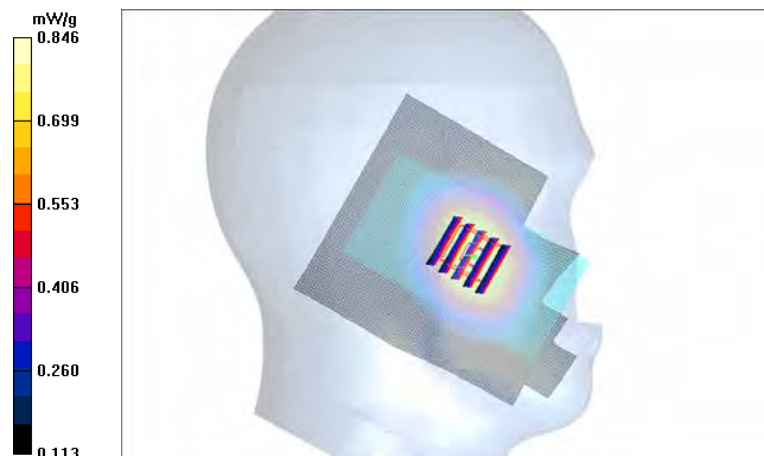
Peak SAR (extrapolated) = 1.01 W/kg

**SAR(1 g) = 0.794 mW/g**

**SAR(10 g) = 0.591 mW/g**

**Power Drift = -0.015 dB**

Maximum value of SAR (measured) = 0.846 mW/g



Date/Time: 2011-05-18 15:08:11

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.880 mW/g

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

Reference Value = 7.43 V/m

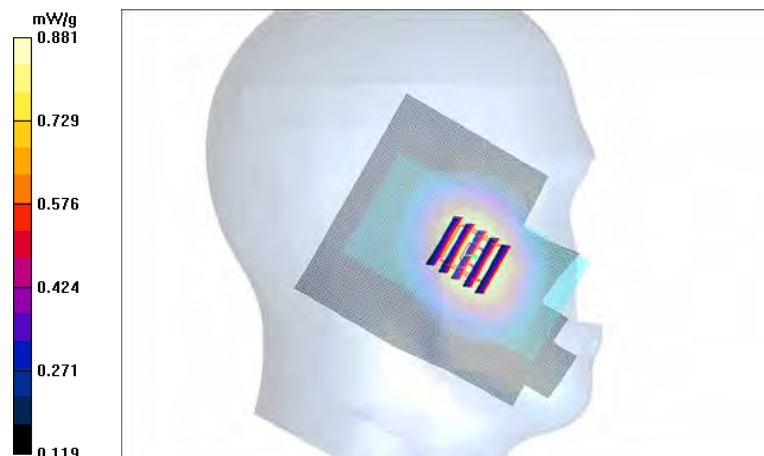
Peak SAR (extrapolated) = 1.05 W/kg

**SAR(1 g) = 0.829 mW/g**

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

**Power Drift = -0.173 dB**

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





Date/Time: 2011-05-18 16:07:28

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 2-slot 8PSK EGPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.44, 8.44, 8.44); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.162 mW/g

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

Reference Value = 6.62 V/m

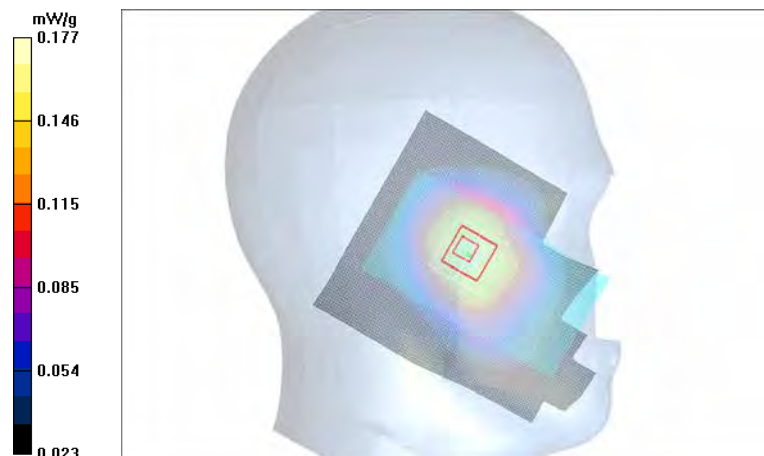
Peak SAR (extrapolated) = 0.222 W/kg

**SAR(1 g) = 0.166 mW/g**

**SAR(10 g) = 0.124 mW/g**

**Power Drift = -0.003 dB**

Maximum value of SAR (measured) = 0.177 mW/g





Date/Time: 2011-05-26 10:11:29

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.69, 5.69, 5.69); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.685 mW/g

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

Reference Value = 7.05 V/m

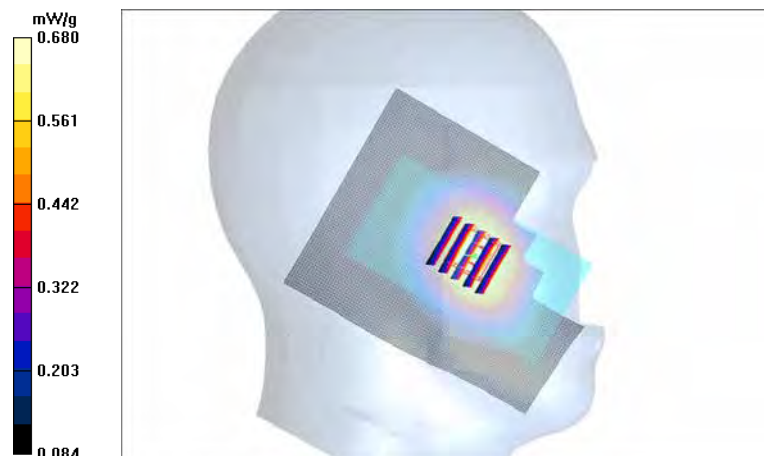
Peak SAR (extrapolated) = 0.808 W/kg

**SAR(1 g) = 0.641 mW/g**

**SAR(10 g) = 0.476 mW/g**

**Power Drift = -0.203 dB**

Maximum value of SAR (measured) = 0.680 mW/g



Date/Time: 2011-05-26 10:28:21

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.69, 5.69, 5.69); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.410 mW/g

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

Reference Value = 10.2 V/m

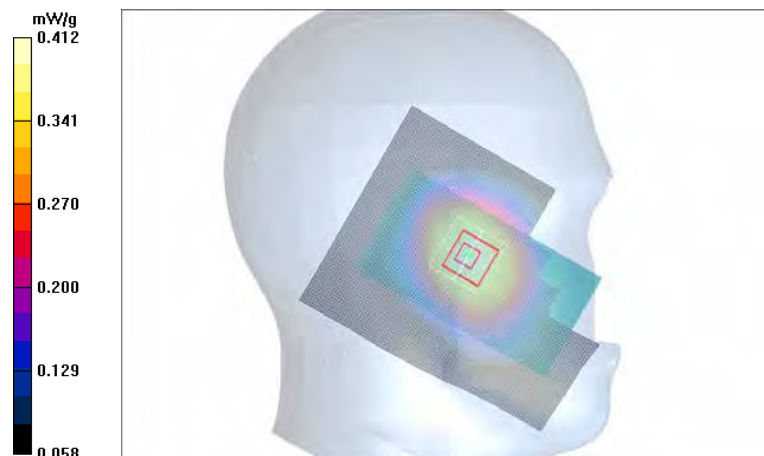
Peak SAR (extrapolated) = 0.480 W/kg

**SAR(1 g) = 0.393 mW/g**

**SAR(10 g) = 0.301 mW/g**

**Power Drift = 0.054 dB**

Maximum value of SAR (measured) = 0.412 mW/g



Date/Time: 2011-05-26 10:44:17

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

### Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.69, 5.69, 5.69); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

### Cheek - Middle/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.585 mW/g

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

Reference Value = 7.31 V/m

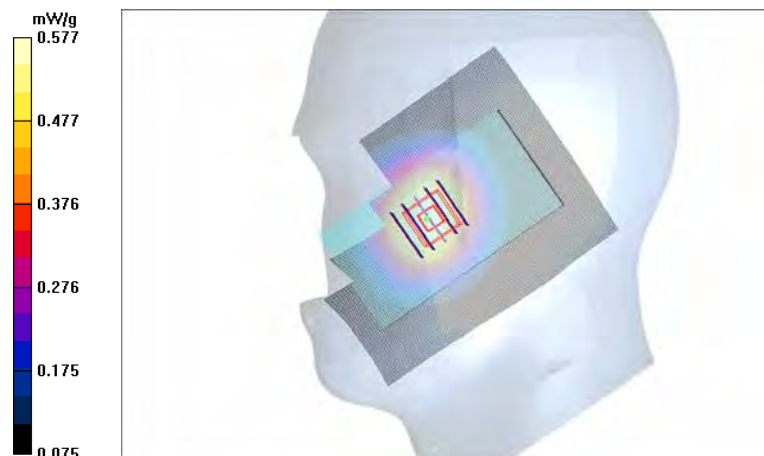
Peak SAR (extrapolated) = 0.687 W/kg

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

**SAR(10 g) = 0.411 mW/g**

**Power Drift = -0.140 dB**

Maximum value of SAR (measured) = 0.577 mW/g



Date/Time: 2011-05-26 11:21:56

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.69, 5.69, 5.69); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.389 mW/g

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

Reference Value = 11.2 V/m

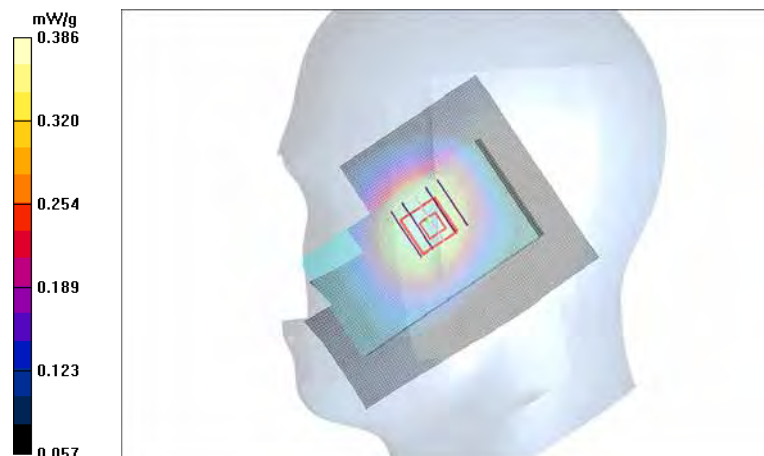
Peak SAR (extrapolated) = 0.460 W/kg

**SAR(1 g) = 0.368 mW/g**

**SAR(10 g) = 0.280 mW/g**

**Power Drift = 0.342 dB**

Maximum value of SAR (measured) = 0.386 mW/g



Date/Time: 2011-05-27 20:48:55

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1700/2100**

Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: Head 1800; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used (interpolated):  $f = 1712.4$  MHz;  $\sigma = 1.28$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Low/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.939 mW/g

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

Reference Value = 6.91 V/m

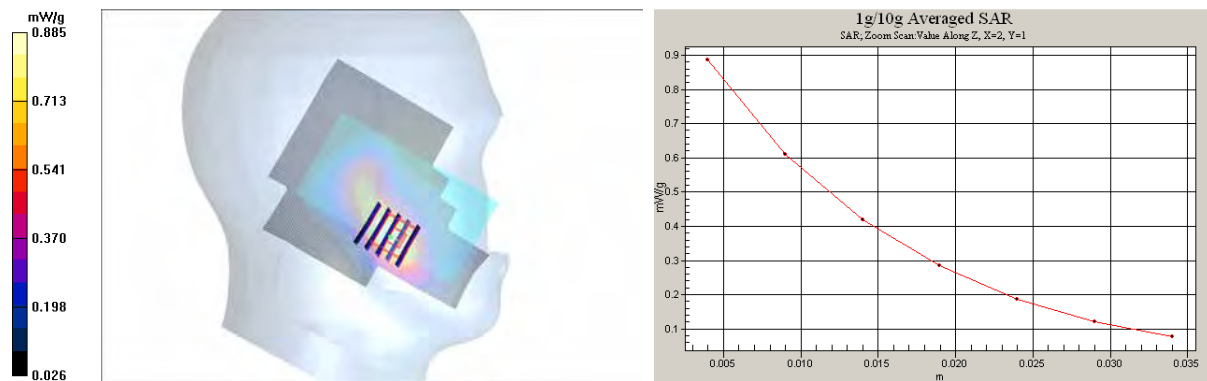
Peak SAR (extrapolated) = 1.20 W/kg

**SAR(1 g) = 0.829 mW/g**

**SAR(10 g) = 0.528 mW/g**

**Power Drift = 0.043 dB**

Maximum value of SAR (measured) = 0.885 mW/g



Date/Time: 2011-05-27 21:25:36

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1700/2100**

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Head 1800; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.3$  mho/m;  $\epsilon_r = 39.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.377 mW/g

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

Reference Value = 10.5 V/m

Peak SAR (extrapolated) = 0.483 W/kg

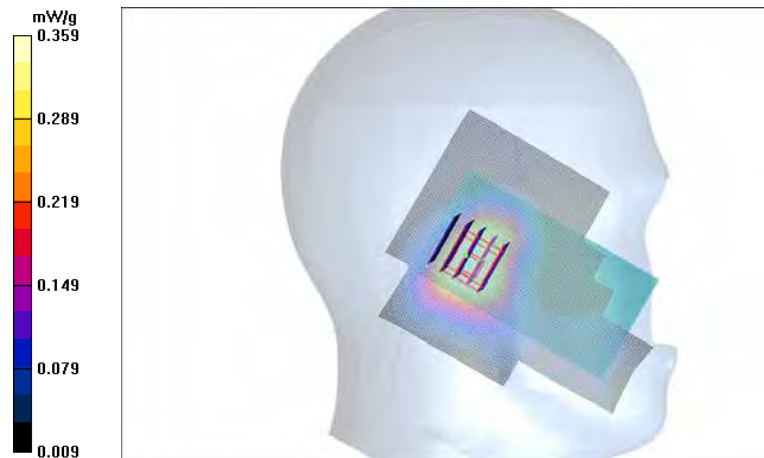
**SAR(1 g) = 0.338 mW/g**

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

**Power Drift = -0.162 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.359 mW/g



Date/Time: 2011-05-27 23:03:54

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1700/2100**

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Head 1800; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.3$  mho/m;  $\epsilon_r = 39.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.518 mW/g

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

Reference Value = 6.05 V/m

Peak SAR (extrapolated) = 0.634 W/kg

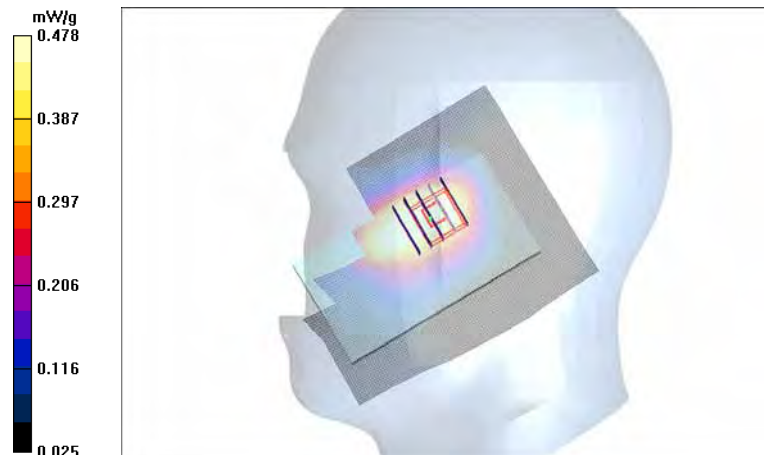
**SAR(1 g) = 0.445 mW/g**

**SAR(10 g) = 0.297 mW/g**

**Power Drift = -0.455 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

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





Date/Time: 2011-05-27 23:16:23

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1700/2100**

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Head 1800; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.3$  mho/m;  $\epsilon_r = 39.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.429 mW/g

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

Reference Value = 9.75 V/m

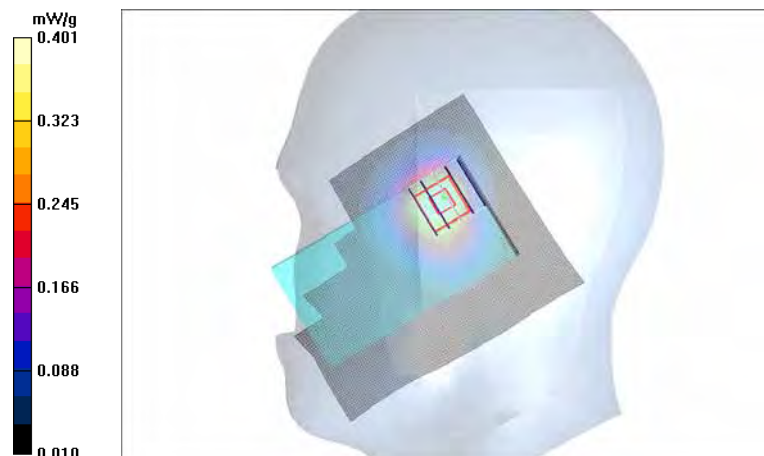
Peak SAR (extrapolated) = 0.548 W/kg

**SAR(1 g) = 0.373 mW/g**

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

**Power Drift = 0.078 dB**

Maximum value of SAR (measured) = 0.401 mW/g





Date/Time: 2011-05-17 12:29:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: GSM 1900**

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.660 mW/g

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

Reference Value = 5.82 V/m

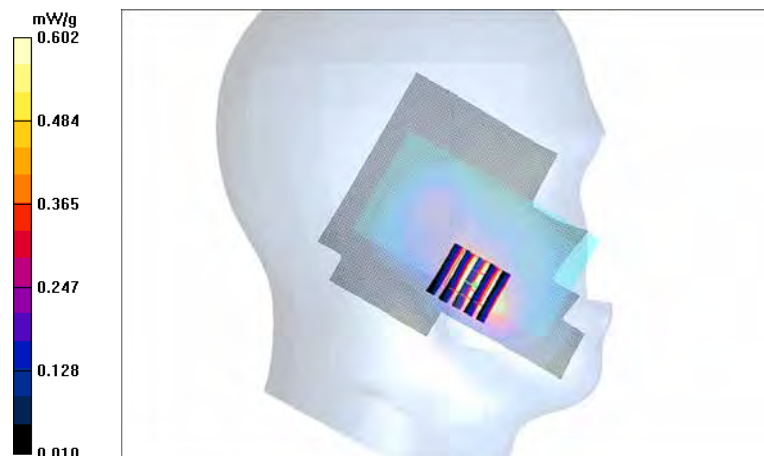
Peak SAR (extrapolated) = 0.857 W/kg

**SAR(1 g) = 0.567 mW/g**

**SAR(10 g) = 0.347 mW/g**

**Power Drift = -0.270 dB**

Maximum value of SAR (measured) = 0.602 mW/g



Date/Time: 2011-05-17 08:35:55

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.01 mW/g

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

Reference Value = 6.99 V/m

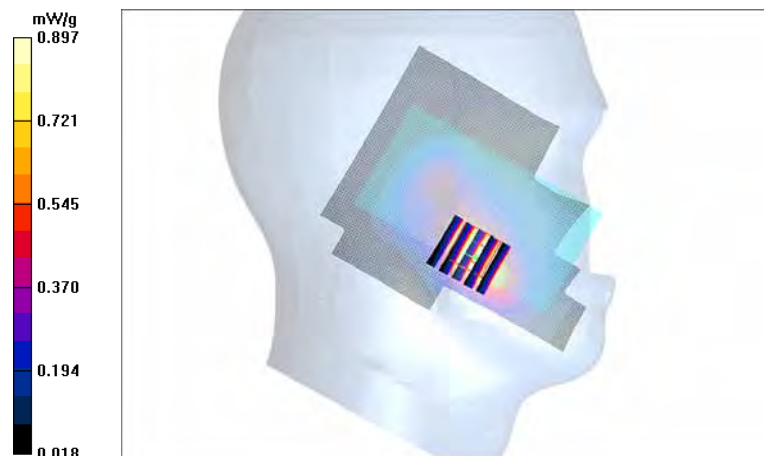
Peak SAR (extrapolated) = 1.30 W/kg

**SAR(1 g) = 0.854 mW/g**

**SAR(10 g) = 0.527 mW/g**

**Power Drift = 0.322 dB**

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



Date/Time: 2011-05-17 10:52:58

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 3-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.980 mW/g

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

Reference Value = 7.16 V/m

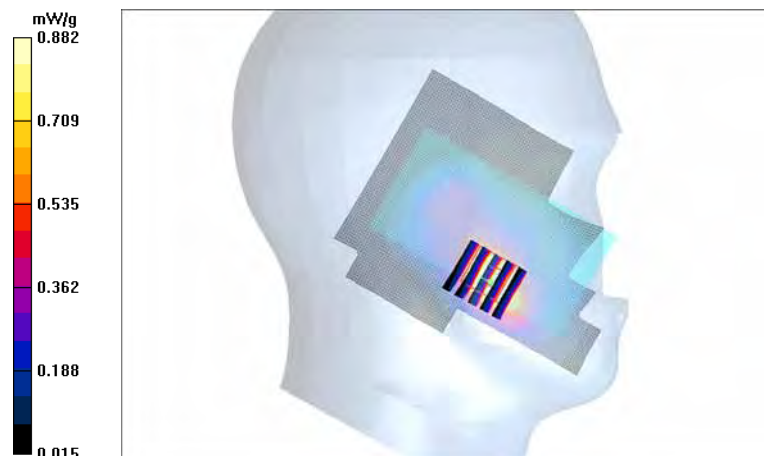
Peak SAR (extrapolated) = 1.27 W/kg

**SAR(1 g) = 0.835 mW/g**

**SAR(10 g) = 0.509 mW/g**

**Power Drift = 0.125 dB**

Maximum value of SAR (measured) = 0.882 mW/g



Date/Time: 2011-05-17 12:04:54

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 4-slot GPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 38.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek -Low/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.08 mW/g

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

Reference Value = 7.42 V/m

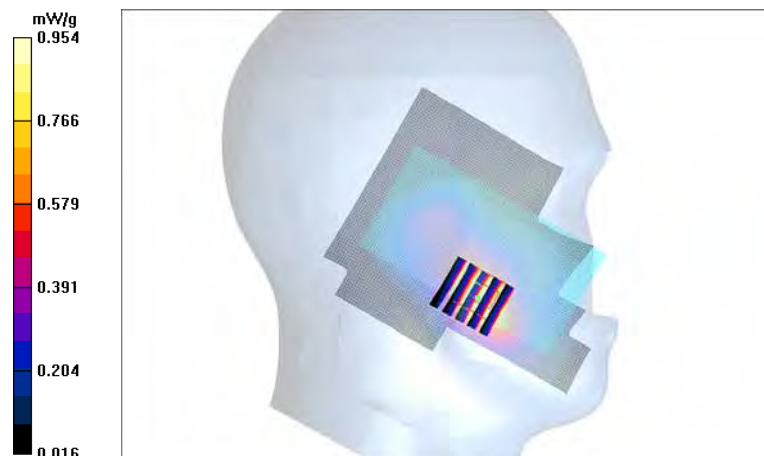
Peak SAR (extrapolated) = 1.38 W/kg

**SAR(1 g) = 0.914 mW/g**

**SAR(10 g) = 0.563 mW/g**

**Power Drift = 0.014 dB**

Maximum value of SAR (measured) = 0.954 mW/g



Date/Time: 2011-06-12 20:34:43

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.38$  mho/m;  $\epsilon_r = 38.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.464 mW/g

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

Reference Value = 13.7 V/m

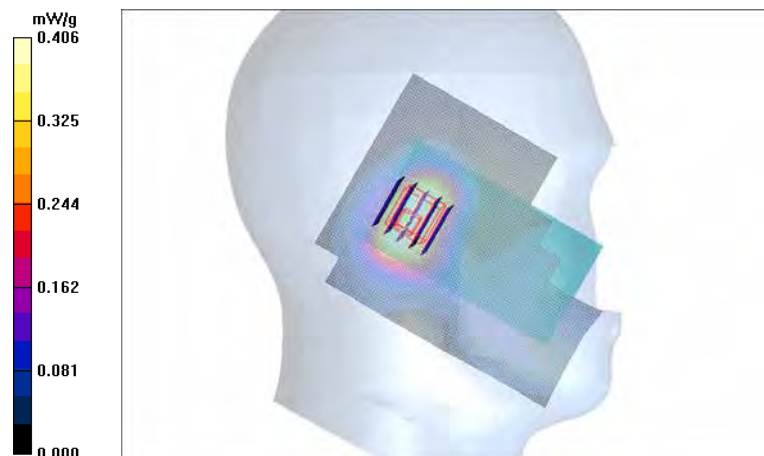
Peak SAR (extrapolated) = 0.674 W/kg

**SAR(1 g) = 0.416 mW/g**

**SAR(10 g) = 0.259 mW/g**

**Power Drift = -0.151 dB**

Maximum value of SAR (measured) = 0.406 mW/g



Date/Time: 2011-06-12 20:50:59

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.38$  mho/m;  $\epsilon_r = 38.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.594 mW/g

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

Reference Value = 5.85 V/m

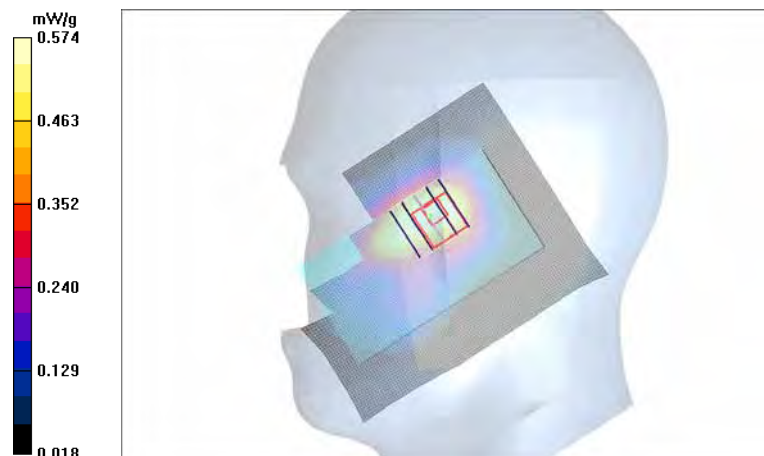
Peak SAR (extrapolated) = 0.868 W/kg

**SAR(1 g) = 0.537 mW/g**

**SAR(10 g) = 0.341 mW/g**

**Power Drift = -0.169 dB**

Maximum value of SAR (measured) = 0.574 mW/g



Date/Time: 2011-06-12 21:25:25

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.38$  mho/m;  $\epsilon_r = 38.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.568 mW/g

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

Reference Value = 14.6 V/m

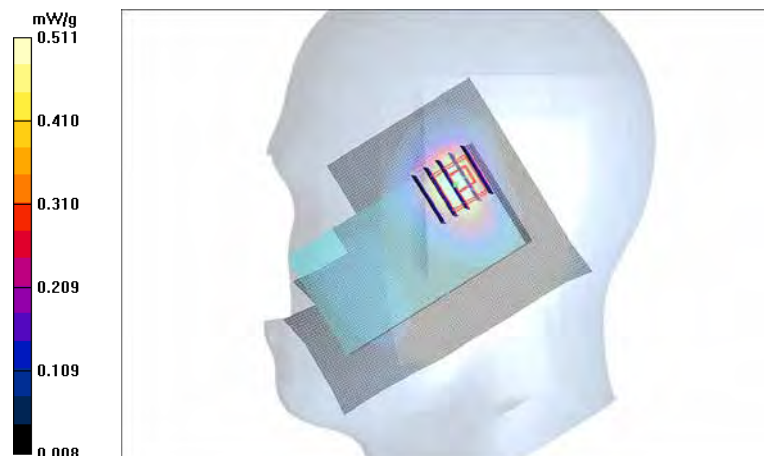
Peak SAR (extrapolated) = 0.736 W/kg

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

**SAR(10 g) = 0.288 mW/g**

**Power Drift = -0.013 dB**

Maximum value of SAR (measured) = 0.511 mW/g





Date/Time: 2011-06-12 23:33:16

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 4-slot 8PSK EGPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.35$  mho/m;  $\epsilon_r = 38.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Low/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.957 mW/g

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

Reference Value = 7.35 V/m

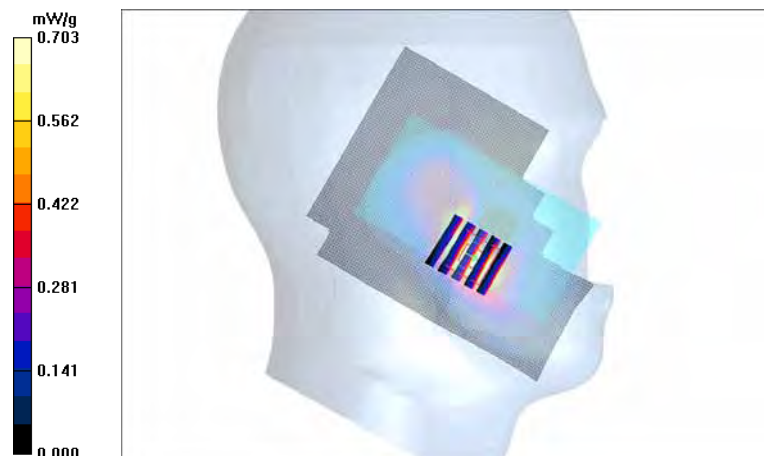
Peak SAR (extrapolated) = 1.03 W/kg

**SAR(1 g) = 0.671 mW/g**

**SAR(10 g) = 0.393 mW/g**

**Power Drift = -0.335 dB**

Maximum value of SAR (measured) = 0.703 mW/g





Date/Time: 2011-05-18 09:37:02

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1900**

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.4$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Low/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.10 mW/g

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

Reference Value = 6.24 V/m

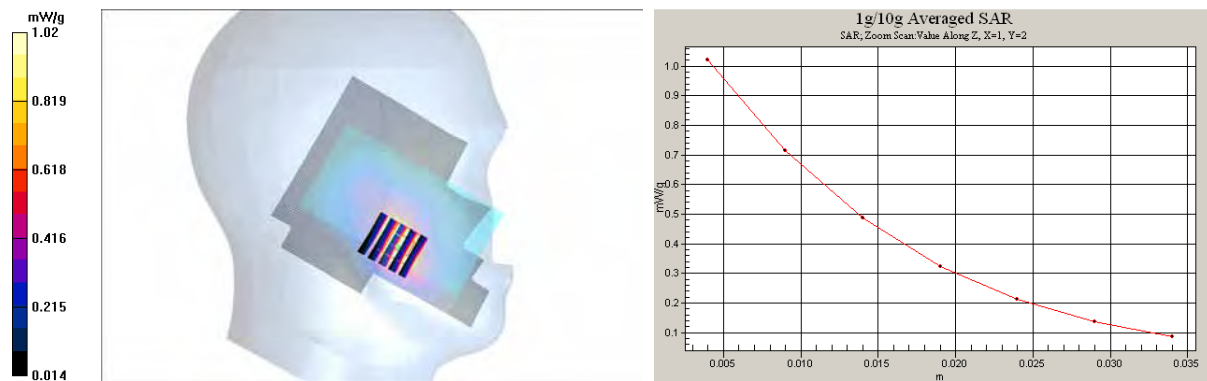
Peak SAR (extrapolated) = 1.45 W/kg

**SAR(1 g) = 0.969 mW/g**

**SAR(10 g) = 0.592 mW/g**

**Power Drift = 0.020 dB**

Maximum value of SAR (measured) = 1.02 mW/g



Date/Time: 2011-05-18 10:02:53

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 38.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 8.45 V/m

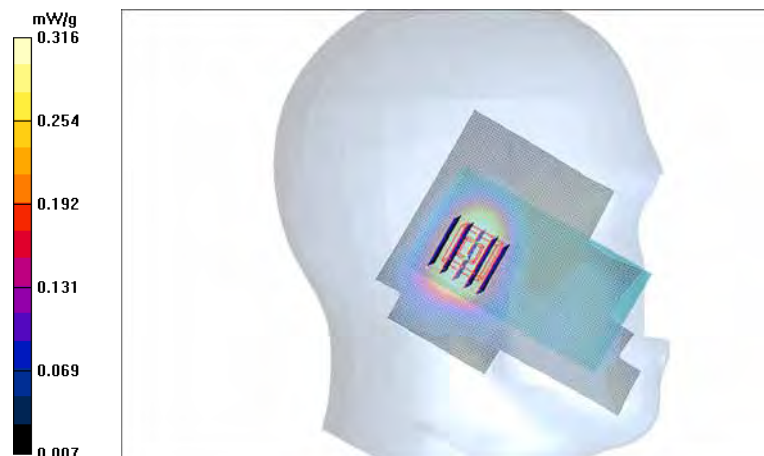
Peak SAR (extrapolated) = 0.441 W/kg

**SAR(1 g) = 0.294 mW/g**

**SAR(10 g) = 0.193 mW/g**

**Power Drift = 0.151 dB**

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



Date/Time: 2011-05-18 10:48:35

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 38.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.574 mW/g

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

Reference Value = 6.20 V/m

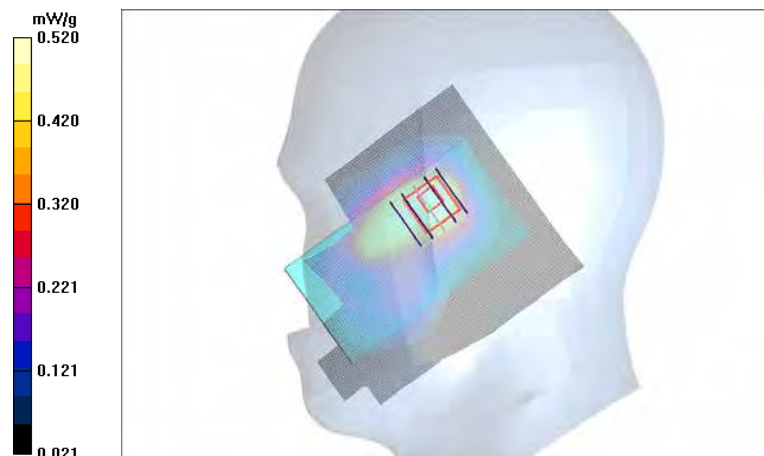
Peak SAR (extrapolated) = 0.712 W/kg

**SAR(1 g) = 0.491 mW/g**

**SAR(10 g) = 0.311 mW/g**

**Power Drift = -0.132 dB**

Maximum value of SAR (measured) = 0.520 mW/g



Date/Time: 2011-05-18 11:06:27

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 38.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.466 mW/g

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

Reference Value = 10.1 V/m

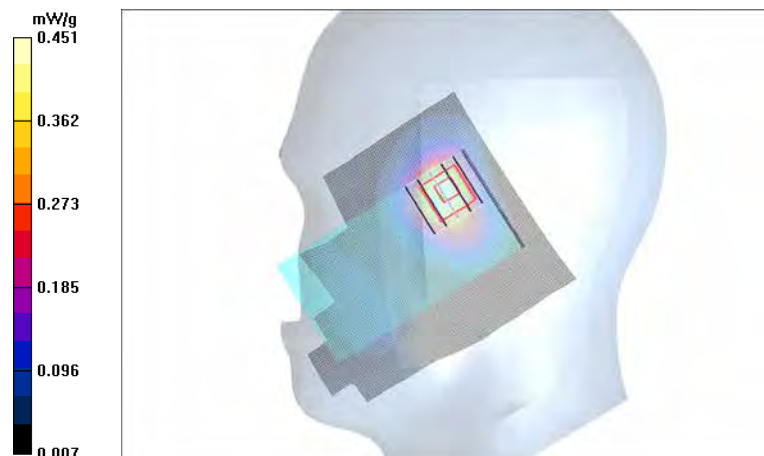
Peak SAR (extrapolated) = 0.656 W/kg

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

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

**Power Drift = 0.079 dB**

Maximum value of SAR (measured) = 0.451 mW/g



Date/Time: 2011-06-14 12:14:41

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2412 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.82$  mho/m;  $\epsilon_r = 39.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Low/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.806 mW/g

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

Reference Value = 4.42 V/m

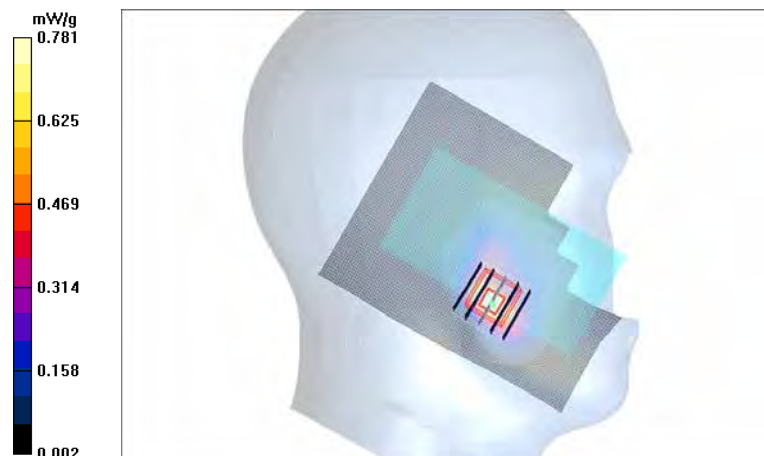
Peak SAR (extrapolated) = 1.52 W/kg

**SAR(1 g) = 0.678 mW/g**

**SAR(10 g) = 0.307 mW/g**

**Power Drift = -0.238 dB**

Maximum value of SAR (measured) = 0.781 mW/g



Date/Time: 2011-06-14 11:03:52

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.090 mW/g

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

Reference Value = 6.01 V/m

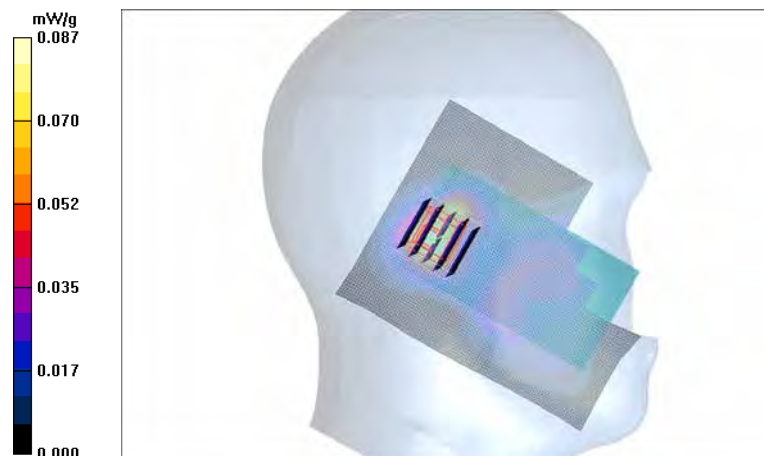
Peak SAR (extrapolated) = 0.150 W/kg

**SAR(1 g) = 0.081 mW/g**

**SAR(10 g) = 0.042 mW/g**

**Power Drift = 0.223 dB**

Maximum value of SAR (measured) = 0.087 mW/g



Date/Time: 2011-06-14 11:24:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.330 mW/g

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

Reference Value = 3.48 V/m

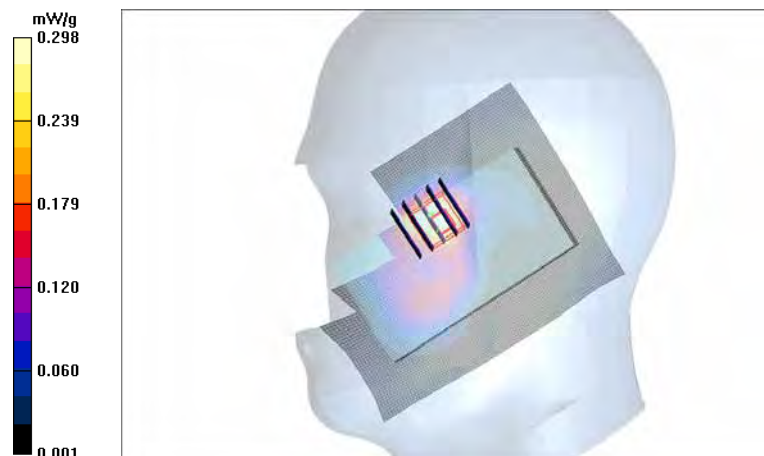
Peak SAR (extrapolated) = 0.516 W/kg

**SAR(1 g) = 0.280 mW/g**

**SAR(10 g) = 0.140 mW/g**

**Power Drift = -0.104 dB**

Maximum value of SAR (measured) = 0.298 mW/g





Date/Time: 2011-06-14 11:46:25

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.131 mW/g

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

Reference Value = 6.50 V/m

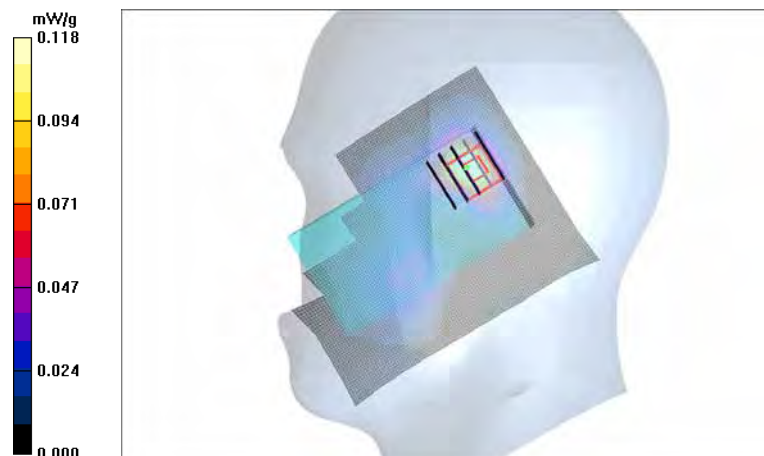
Peak SAR (extrapolated) = 0.211 W/kg

**SAR(1 g) = 0.113 mW/g**

**SAR(10 g) = 0.056 mW/g**

**Power Drift = 0.154 dB**

Maximum value of SAR (measured) = 0.118 mW/g





Date/Time: 2011-06-14 23:55:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.119 mW/g

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

Reference Value = 1.59 V/m

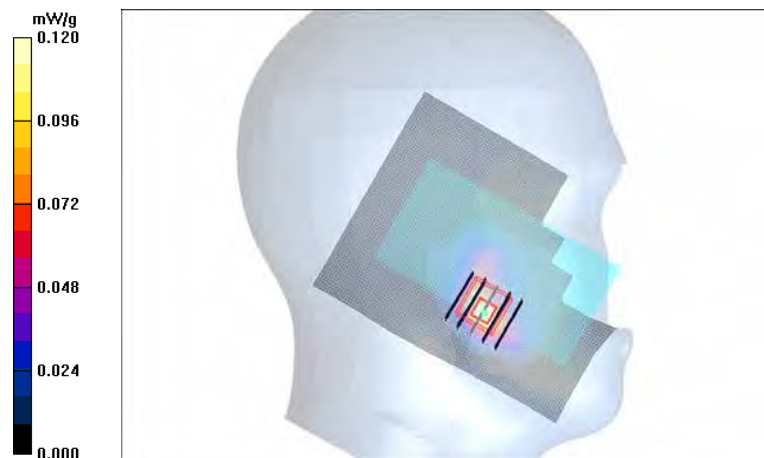
Peak SAR (extrapolated) = 0.225 W/kg

**SAR(1 g) = 0.104 mW/g**

**SAR(10 g) = 0.047 mW/g**

**Power Drift = 0.445 dB**

Maximum value of SAR (measured) = 0.120 mW/g



Date/Time: 2011-06-15 00:20:11

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.022 mW/g

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

Reference Value = 2.95 V/m

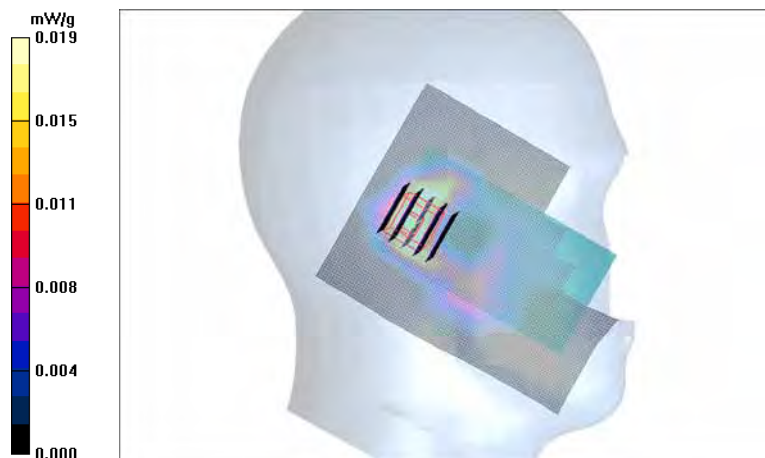
Peak SAR (extrapolated) = 0.035 W/kg

**SAR(1 g) = 0.016 mW/g**

**SAR(10 g) = 0.00702 mW/g**

**Power Drift = 0.442 dB**

Maximum value of SAR (measured) = 0.019 mW/g



Date/Time: 2011-06-15 00:42:48

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.069 mW/g

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

Reference Value = 1.06 V/m

Peak SAR (extrapolated) = 0.188 W/kg

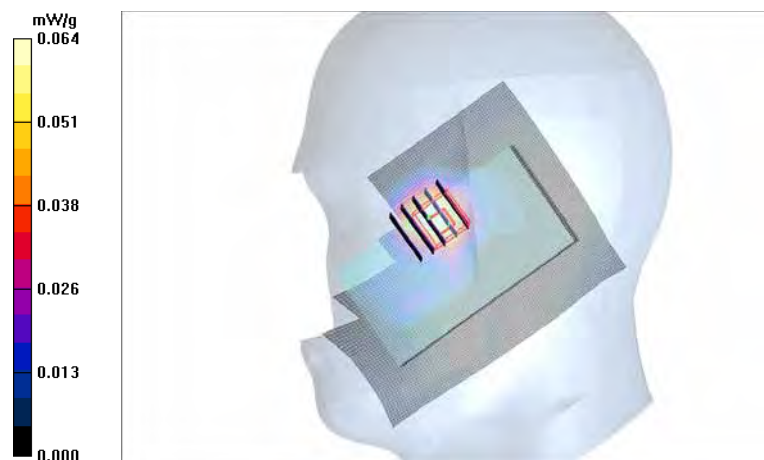
**SAR(1 g) = 0.059 mW/g**

**SAR(10 g) = 0.031 mW/g**

**Power Drift = 0.176 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.064 mW/g



Date/Time: 2011-06-15 01:02:05

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt - Middle – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.044 mW/g

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

Reference Value = 3.30 V/m

Peak SAR (extrapolated) = 0.046 W/kg

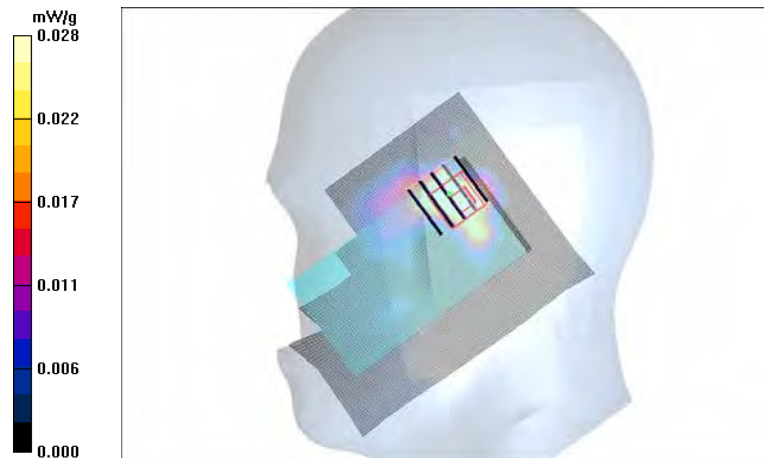
**SAR(1 g) = 0.026 mW/g**

**SAR(10 g) = 0.012 mW/g**

**Power Drift = -0.489 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.028 mW/g



Date/Time: 2011-06-14 15:05:54

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 n-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek - Middle/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.684 mW/g

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

Reference Value = 4.10 V/m

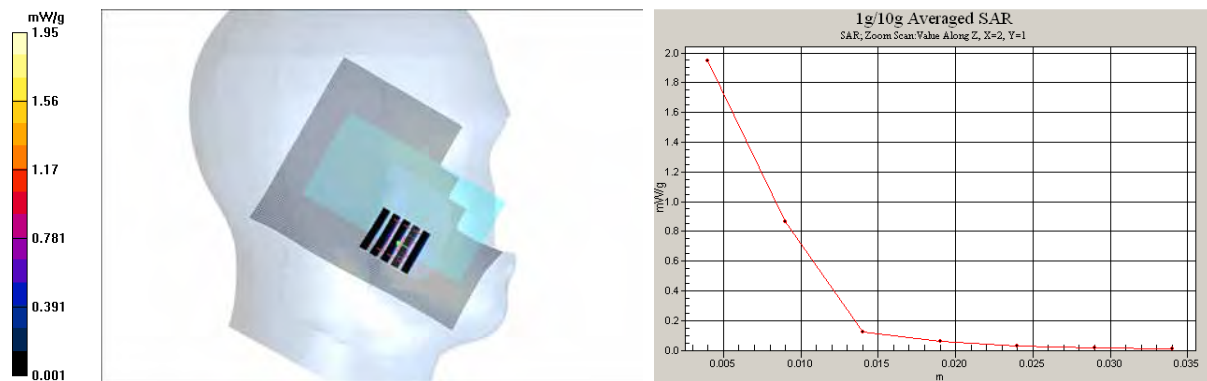
Peak SAR (extrapolated) = 2.07 W/kg

**SAR(1 g) = 0.879 mW/g**

**SAR(10 g) = 0.301 mW/g**

**Power Drift = 0.475 dB**

Maximum value of SAR (measured) = 1.95 mW/g



Date/Time: 2011-06-16 10:51:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN2450 n-mode**

Frequency: 2412 MHz; Duty Cycle: 1:1

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

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.81$  mho/m;  $\epsilon_r = 39$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek – Low – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.041 mW/g

**Cheek – Low – Reduced Power/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.869 V/m

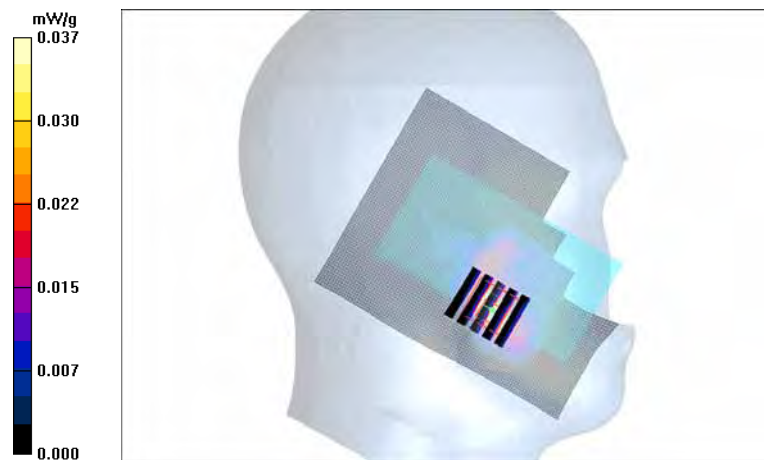
Peak SAR (extrapolated) = 0.072 W/kg

**SAR(1 g) = 0.031 mW/g**

**SAR(10 g) = 0.013 mW/g**

**Power Drift = 0.323 dB**

Maximum value of SAR (measured) = 0.037 mW/g



Date/Time: 2011-06-17 01:24:15

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 5180$  MHz;  $\sigma = 4.76$  mho/m;  $\epsilon_r = 35.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.54, 4.54, 4.54); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek – ch 36/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.651 mW/g

**Cheek - ch 36/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.64 V/m

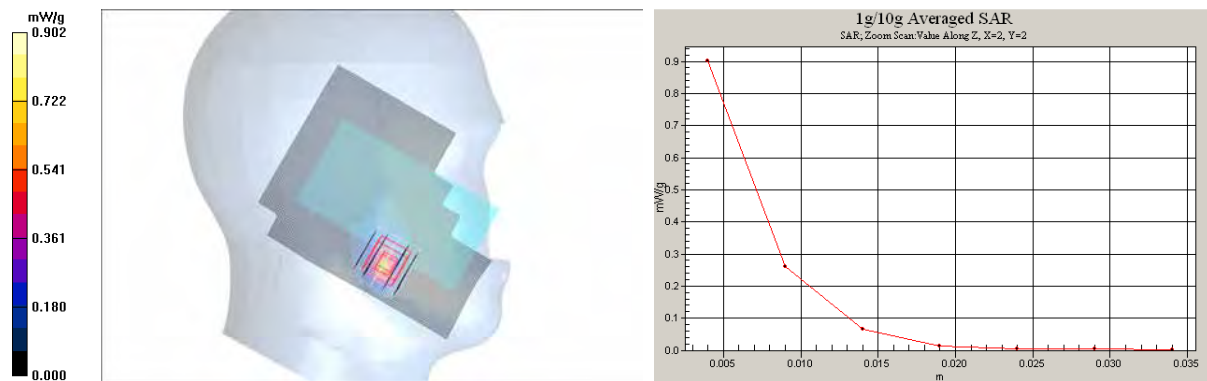
Peak SAR (extrapolated) = 5.61 W/kg

**SAR(1 g) = 1.05 mW/g**

**SAR(10 g) = 0.298 mW/g**

**Power Drift = -0.435 dB**

Maximum value of SAR (measured) = 0.902 mW/g





Date/Time: 2011-06-22 02:28:48

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.33$  mho/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt – ch 104/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.256 mW/g

**Tilt – ch 104/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.528 V/m

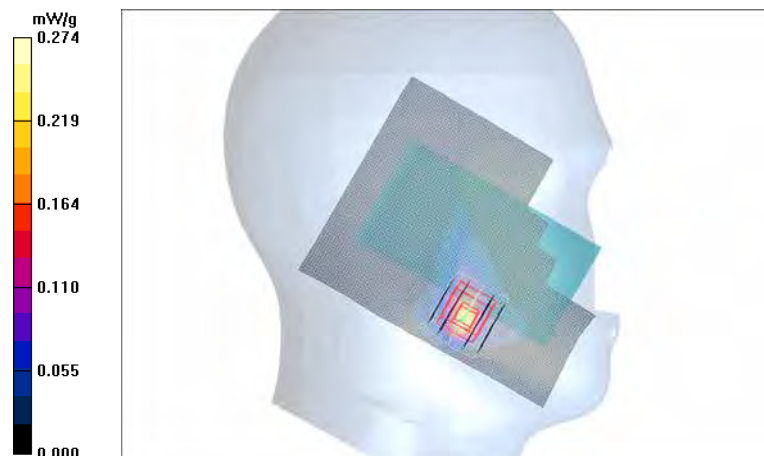
Peak SAR (extrapolated) = 0.692 W/kg

**SAR(1 g) = 0.230 mW/g**

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

**Power Drift = 0.002 dB**

Maximum value of SAR (measured) = 0.274 mW/g





Date/Time: 2011-06-17 05:06:10

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 4.84$  mho/m;  $\epsilon_r = 35.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.54, 4.54, 4.54); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek – ch 52/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.518 mW/g

**Cheek – ch 52/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm**

Reference Value = 1.25 V/m

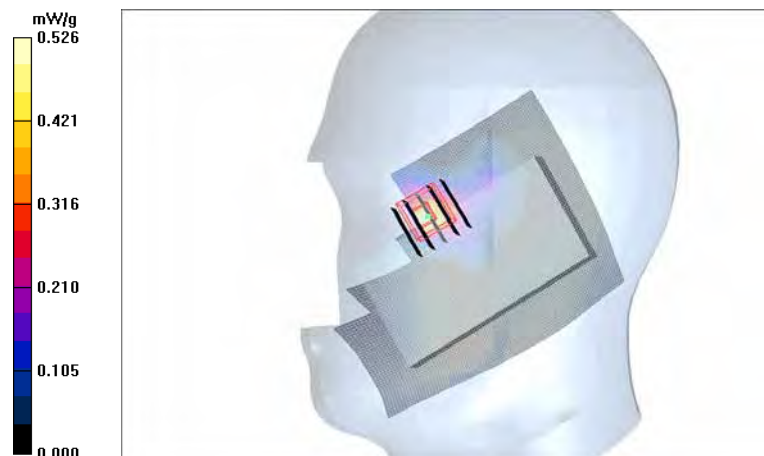
Peak SAR (extrapolated) = 2.52 W/kg

**SAR(1 g) = 0.512 mW/g**

**SAR(10 g) = 0.179 mW/g**

**Power Drift = 0.438 dB**

Maximum value of SAR (measured) = 0.526 mW/g



Date/Time: 2011-06-17 05:19:57

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 4.84$  mho/m;  $\epsilon_r = 35.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.54, 4.54, 4.54); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt – ch 52/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.143 mW/g

**Tilt – ch 52/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.03 V/m

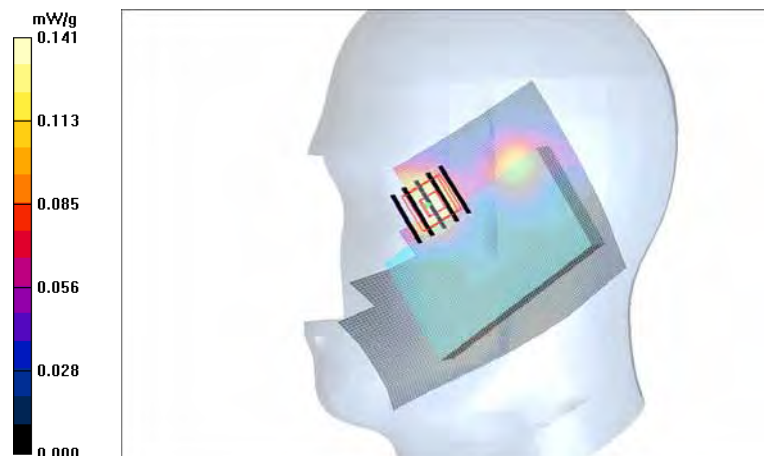
Peak SAR (extrapolated) = 0.362 W/kg

**SAR(1 g) = 0.132 mW/g**

**SAR(10 g) = 0.056 mW/g**

**Power Drift = 0.450 dB**

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



Date/Time: 2011-06-21 23:45:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.33$  mho/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek – ch 104 - Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.311 mW/g

**Cheek – ch 104 - Reduced Power/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.708 V/m

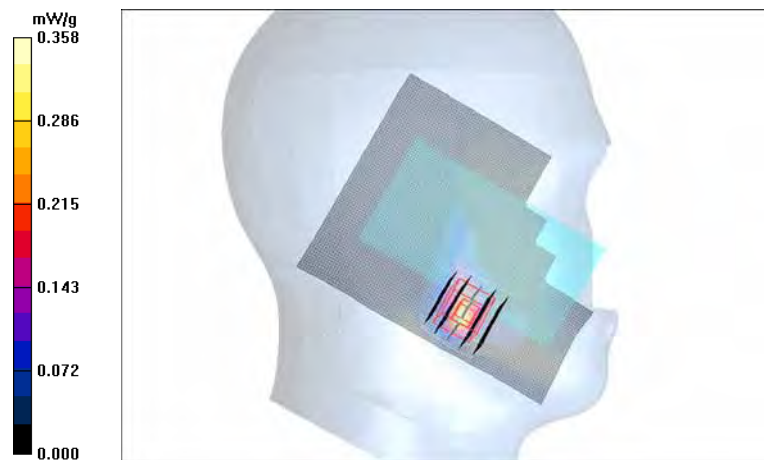
Peak SAR (extrapolated) = 1.20 W/kg

**SAR(1 g) = 0.309 mW/g**

**SAR(10 g) = 0.094 mW/g**

**Power Drift = 0.089 dB**

Maximum value of SAR (measured) = 0.358 mW/g



Date/Time: 2011-06-17 14:27:36

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.13$  mho/m;  $\epsilon_r = 34.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt – ch 104 – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.140 mW/g

**Tilt – ch 104 – Reduced Power/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.80 V/m

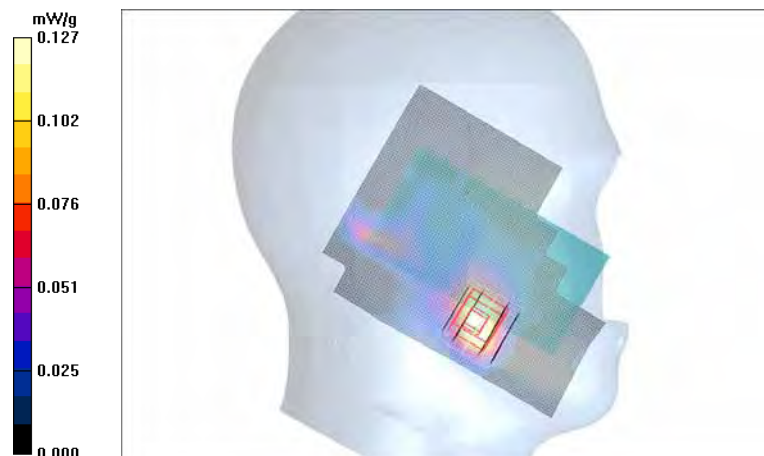
Peak SAR (extrapolated) = 0.307 W/kg

**SAR(1 g) = 0.122 mW/g**

**SAR(10 g) = 0.050 mW/g**

**Power Drift = -0.149 dB**

Maximum value of SAR (measured) = 0.127 mW/g



Date/Time: 2011-06-21 16:35:23

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 5.02$  mho/m;  $\epsilon_r = 36$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.54, 4.54, 4.54); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Cheek – ch 52 – Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.129 mW/g

**Cheek – ch 52 – Reduced Power/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.786 V/m

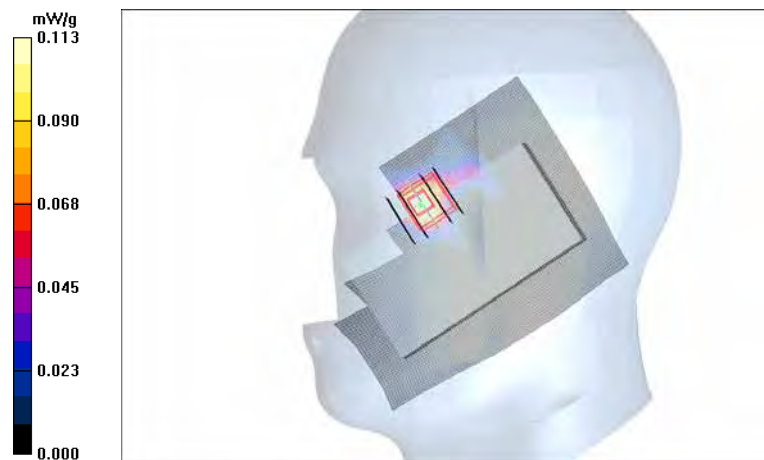
Peak SAR (extrapolated) = 0.296 W/kg

**SAR(1 g) = 0.095 mW/g**

**SAR(10 g) = 0.035 mW/g**

**Power Drift = 0.458 dB**

Maximum value of SAR (measured) = 0.113 mW/g



Date/Time: 2011-06-22 03:14:16

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.5 C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.33$  mho/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Tilt – ch 104 - Reduced Power/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.107 mW/g

**Tilt – ch 104 - Reduced Power/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.07 V/m

Peak SAR (extrapolated) = 0.302 W/kg

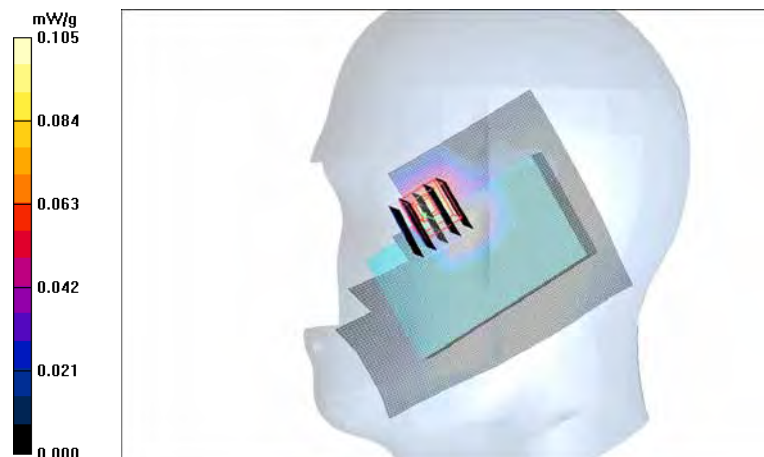
**SAR(1 g) = 0.099 mW/g**

**SAR(10 g) = 0.038 mW/g**

**Power Drift = 0.015 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.105 mW/g



Date/Time: 2011-05-26 14:40:59

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.97$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.879 mW/g

**Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 15.3 V/m

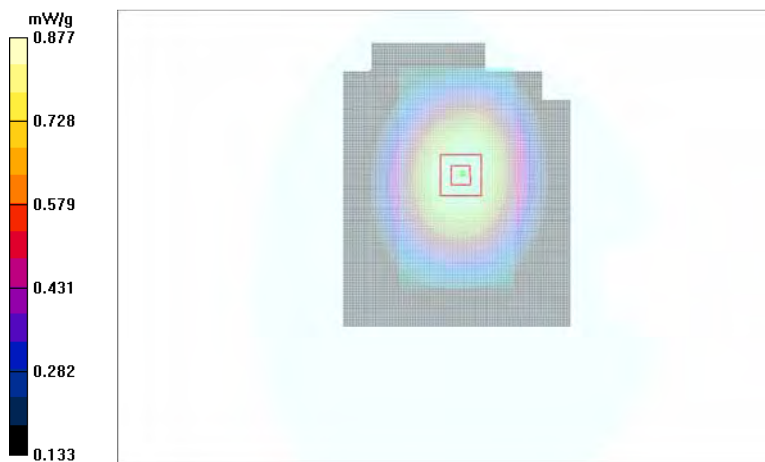
Peak SAR (extrapolated) = 1.05 W/kg

**SAR(1 g) = 0.839 mW/g**

**SAR(10 g) = 0.634 mW/g**

**Power Drift = -0.149 dB**

Maximum value of SAR (measured) = 0.877 mW/g





Date/Time: 2011-05-26 14:57:37

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.97$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.609 mW/g

**Body - Middle - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.0 V/m

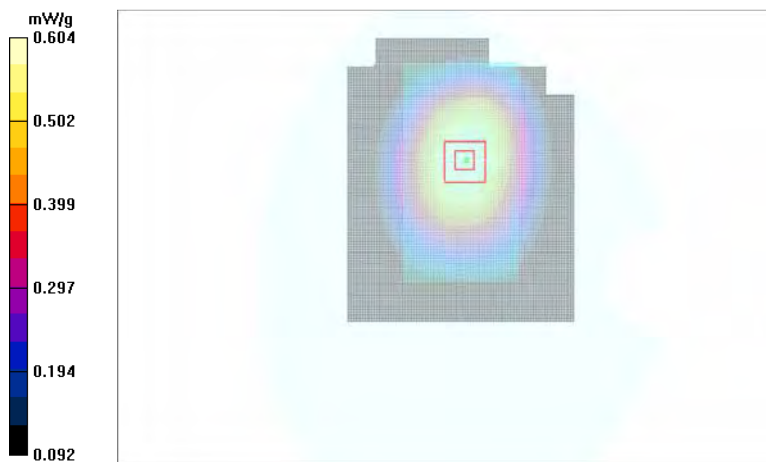
Peak SAR (extrapolated) = 0.733 W/kg

**SAR(1 g) = 0.577 mW/g**

**SAR(10 g) = 0.435 mW/g**

**Power Drift = 0.049 dB**

Maximum value of SAR (measured) = 0.604 mW/g





Date/Time: 2011-05-26 15:34:55

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS850**

Frequency: 824.2 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.958$  mho/m;  $\epsilon_r = 53.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Low - No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.10 mW/g

**Body - Low - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 16.6 V/m

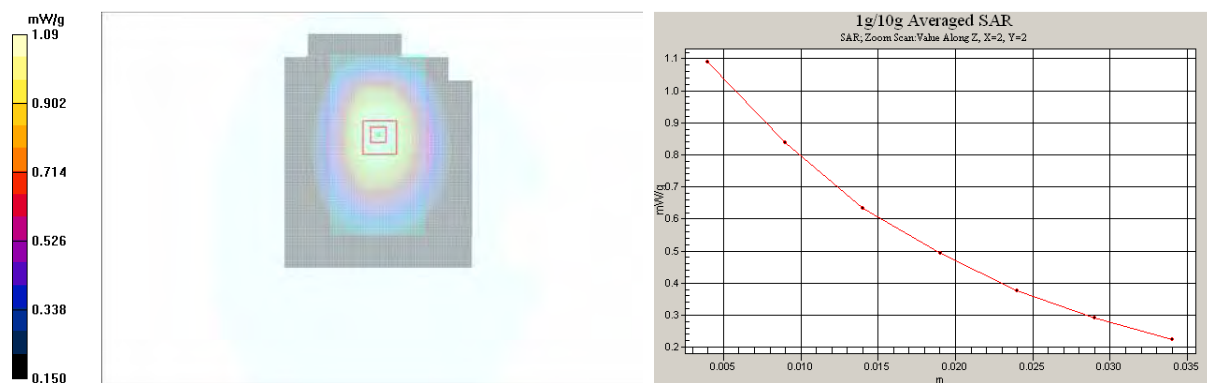
Peak SAR (extrapolated) = 1.32 W/kg

**SAR(1 g) = 1.03 mW/g**

**SAR(10 g) = 0.765 mW/g**

**Power Drift = -0.059 dB**

Maximum value of SAR (measured) = 1.09 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-05-26 15:22:11

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS850**

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.97$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.885 mW/g

**Body - Middle - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 14.1 V/m

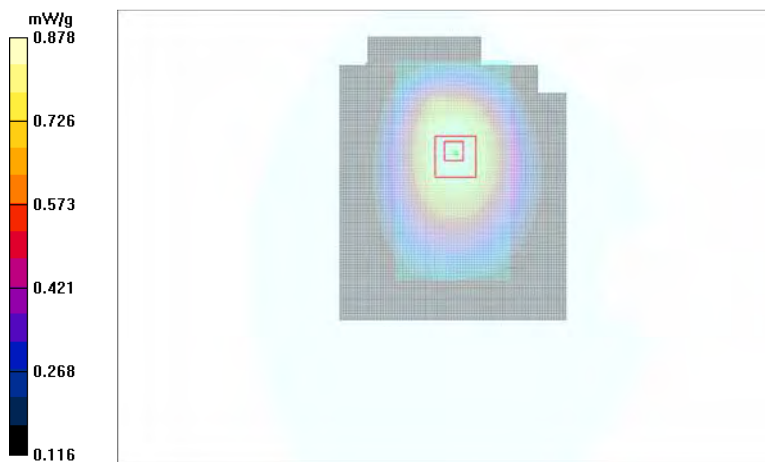
Peak SAR (extrapolated) = 1.08 W/kg

**SAR(1 g) = 0.829 mW/g**

**SAR(10 g) = 0.608 mW/g**

**Power Drift = -0.108 dB**

Maximum value of SAR (measured) = 0.878 mW/g



Date/Time: 2011-05-26 12:24:59

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.654 mW/g

**Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 13.3 V/m

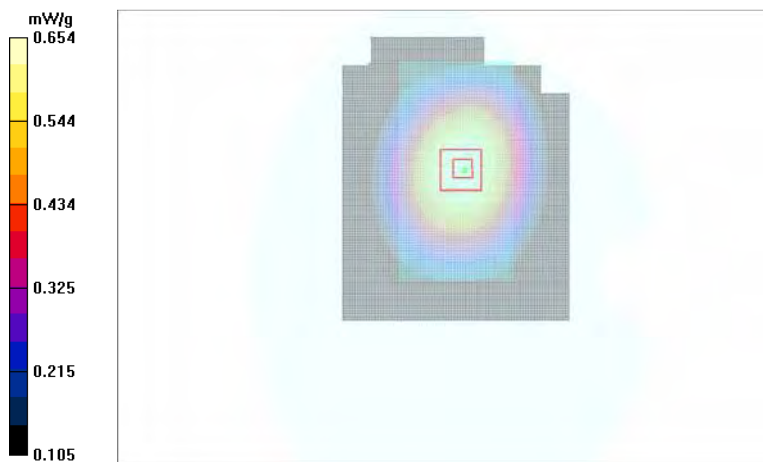
Peak SAR (extrapolated) = 0.786 W/kg

**SAR(1 g) = 0.622 mW/g**

**SAR(10 g) = 0.468 mW/g**

**Power Drift = -0.089 dB**

Maximum value of SAR (measured) = 0.654 mW/g



Date/Time: 2011-05-26 12:58:05

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.454 mW/g

**Body - Middle - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.66 V/m

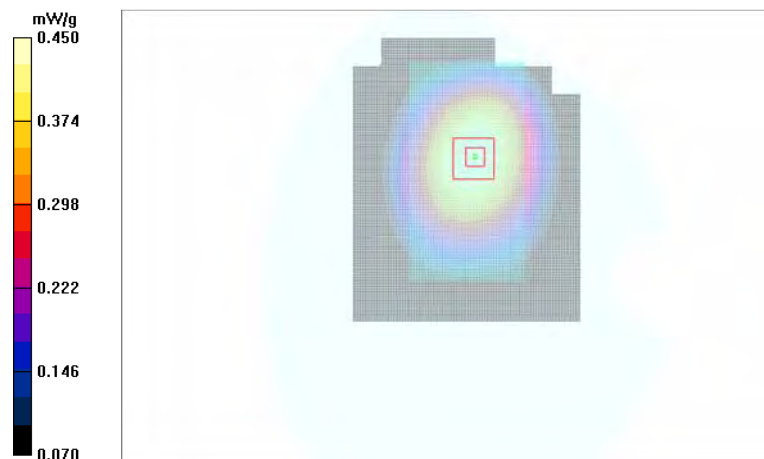
Peak SAR (extrapolated) = 0.542 W/kg

**SAR(1 g) = 0.428 mW/g**

**SAR(10 g) = 0.323 mW/g**

**Power Drift = 0.215 dB**

Maximum value of SAR (measured) = 0.450 mW/g



Date/Time: 2011-05-26 13:10:55

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.784 mW/g

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

Reference Value = 14.1 V/m

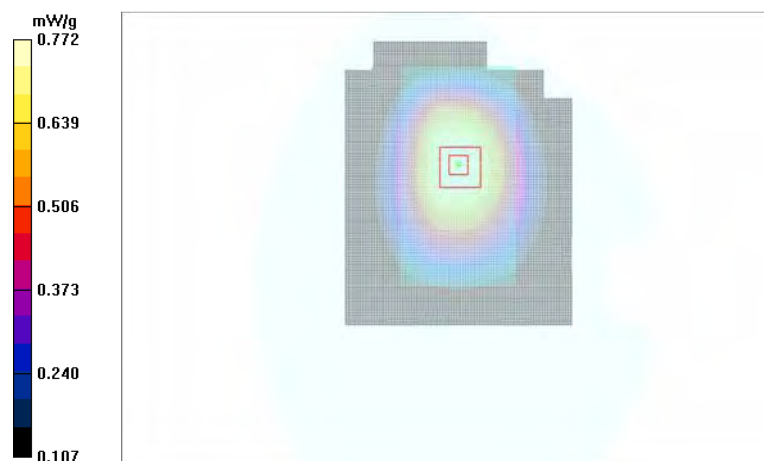
Peak SAR (extrapolated) = 0.948 W/kg

**SAR(1 g) = 0.735 mW/g**

**SAR(10 g) = 0.545 mW/g**

**Power Drift = -0.039 dB**

Maximum value of SAR (measured) = 0.772 mW/g



Date/Time: 2011-05-26 13:24:59

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA850**

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.607 mW/g

**Body - Middle - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.0 V/m

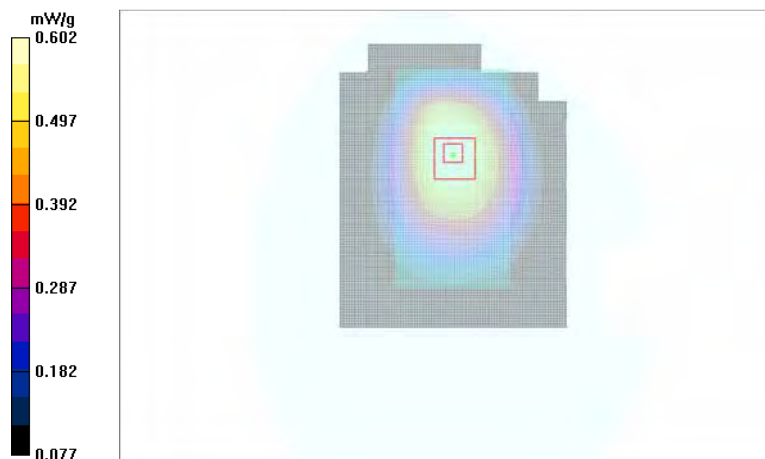
Peak SAR (extrapolated) = 0.756 W/kg

**SAR(1 g) = 0.571 mW/g**

**SAR(10 g) = 0.419 mW/g**

**Power Drift = -0.250 dB**

Maximum value of SAR (measured) = 0.602 mW/g



Date/Time: 2011-05-27 18:56:00

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1700/2100**

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Body1800; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.318 mW/g

**Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 8.67 V/m

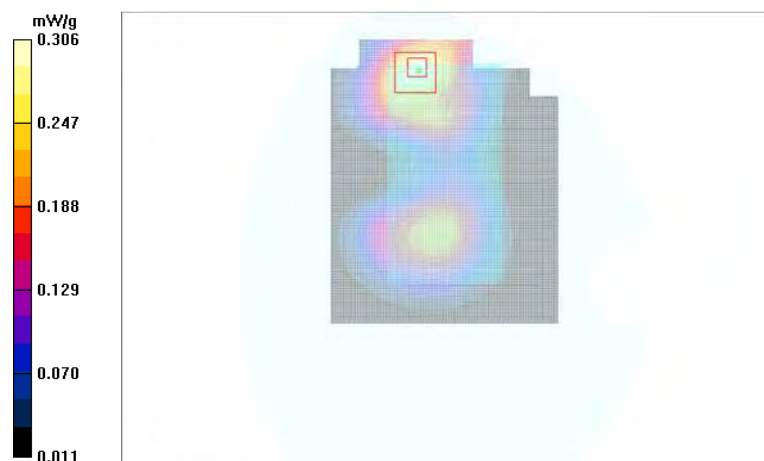
Peak SAR (extrapolated) = 0.442 W/kg

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

**SAR(10 g) = 0.170 mW/g**

**Power Drift = -0.148 dB**

Maximum value of SAR (measured) = 0.306 mW/g



Date/Time: 2011-05-27 19:07:17

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1700/2100**

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Body1800; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.285 mW/g

**Body - Middle - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.45 V/m

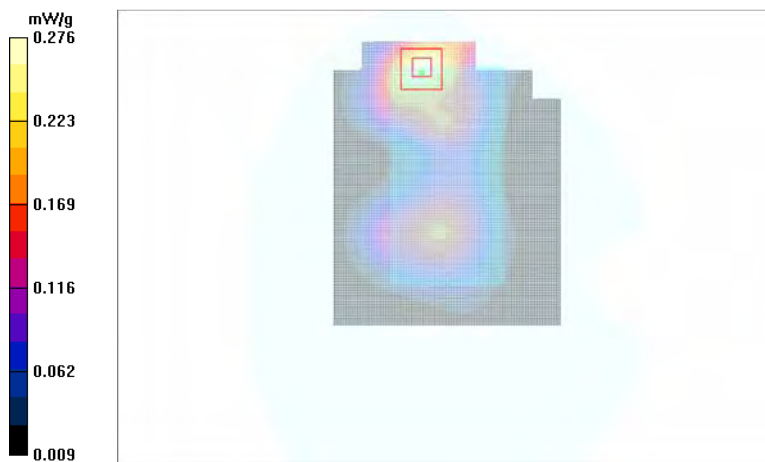
Peak SAR (extrapolated) = 0.415 W/kg

**SAR(1 g) = 0.258 mW/g**

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

**Power Drift = -0.016 dB**

Maximum value of SAR (measured) = 0.276 mW/g





Date/Time: 2011-05-27 19:44:25

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1700/2100**

Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: Body1800; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used:  $f = 1753$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 51.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - High - No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.636 mW/g

**Body - High - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.29 V/m

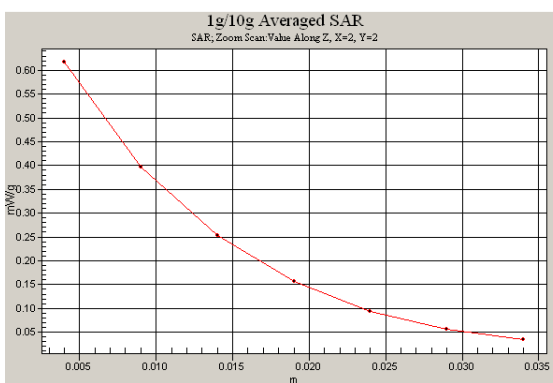
Peak SAR (extrapolated) = 0.890 W/kg

**SAR(1 g) = 0.554 mW/g**

**SAR(10 g) = 0.317 mW/g**

**Power Drift = 0.075 dB**

Maximum value of SAR (measured) = 0.617 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-05-27 19:55:40

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1700/2100**

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Body1800; Medium Notes: Medium Temperature: 21.9 C

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.520 mW/g

**Body - Middle - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.05 V/m

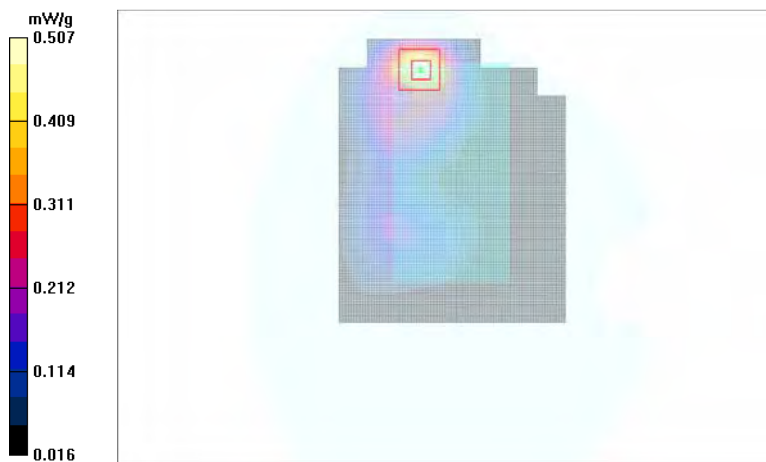
Peak SAR (extrapolated) = 0.739 W/kg

**SAR(1 g) = 0.451 mW/g**

**SAR(10 g) = 0.253 mW/g**

**Power Drift = 0.236 dB**

Maximum value of SAR (measured) = 0.507 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-12 23:55:55

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 22.5 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.442 mW/g

**Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 14.0 V/m

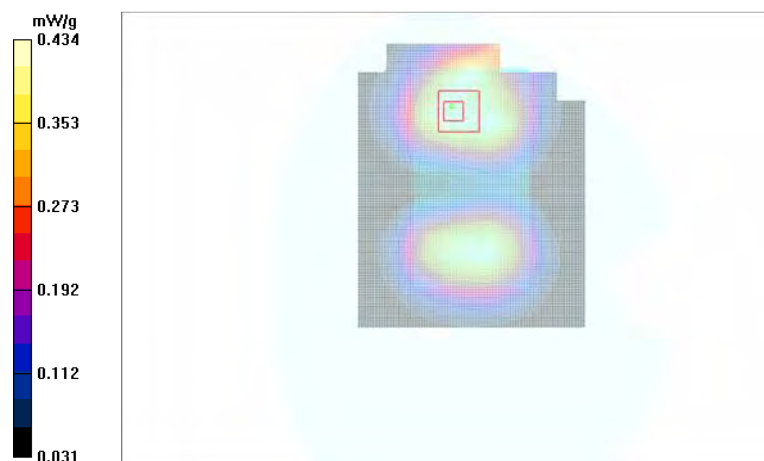
Peak SAR (extrapolated) = 0.600 W/kg

**SAR(1 g) = 0.406 mW/g**

**SAR(10 g) = 0.270 mW/g**

**Power Drift = -0.378 dB**

Maximum value of SAR (measured) = 0.434 mW/g



Date/Time: 2011-06-13 00:14:53

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 22.5 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.396 mW/g

**Body - Middle - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.5 V/m

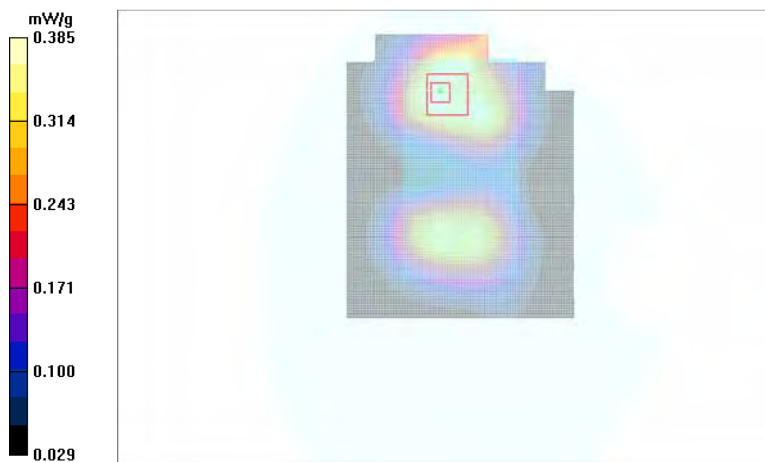
Peak SAR (extrapolated) = 0.541 W/kg

**SAR(1 g) = 0.354 mW/g**

**SAR(10 g) = 0.232 mW/g**

**Power Drift = 0.117 dB**

Maximum value of SAR (measured) = 0.385 mW/g



Date/Time: 2011-06-13 00:41:12

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS1900**

Frequency: 1850.2 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 22.5 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Low - No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.839 mW/g

**Body - Low - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.6 V/m

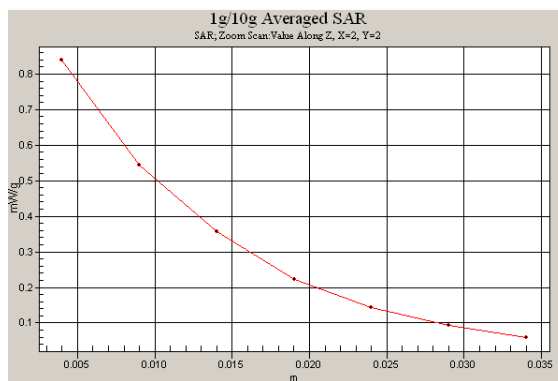
Peak SAR (extrapolated) = 1.19 W/kg

**SAR(1 g) = 0.758 mW/g**

**SAR(10 g) = 0.448 mW/g**

**Power Drift = 0.036 dB**

Maximum value of SAR (measured) = 0.839 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-13 01:06:14

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS1900**

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 22.5 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.723 mW/g

**Body - Middle - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.18 V/m

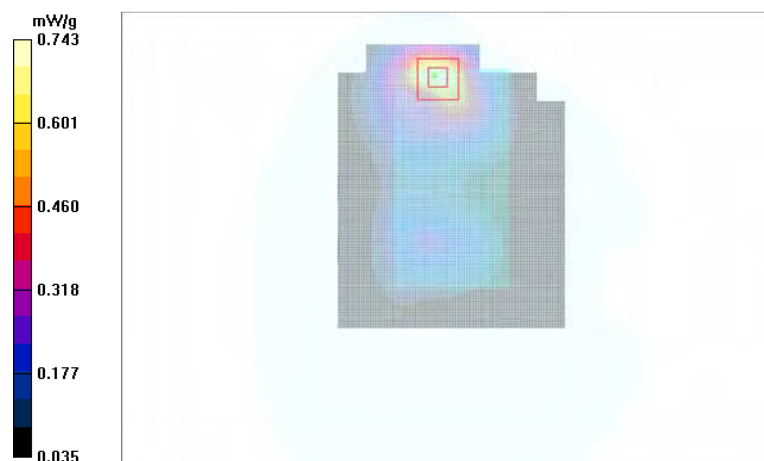
Peak SAR (extrapolated) = 1.09 W/kg

**SAR(1 g) = 0.671 mW/g**

**SAR(10 g) = 0.384 mW/g**

**Power Drift = -0.066 dB**

Maximum value of SAR (measured) = 0.743 mW/g



Date/Time: 2011-05-16 16:08:54

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.48$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2010-09-17
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.422 mW/g

**Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 12.0 V/m

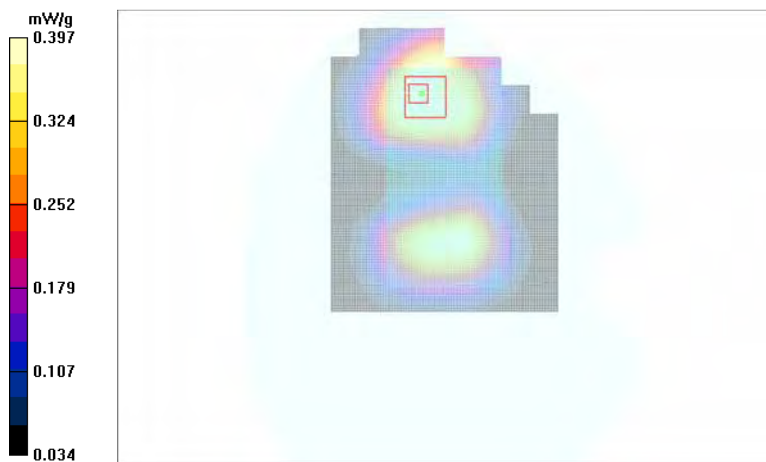
Peak SAR (extrapolated) = 0.591 W/kg

**SAR(1 g) = 0.375 mW/g**

**SAR(10 g) = 0.248 mW/g**

**Power Drift = -0.440 dB**

Maximum value of SAR (measured) = 0.397 mW/g



Date/Time: 2011-05-16 16:26:54

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.48$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2010-09-17
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.364 mW/g

**Body - Middle - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.39 V/m

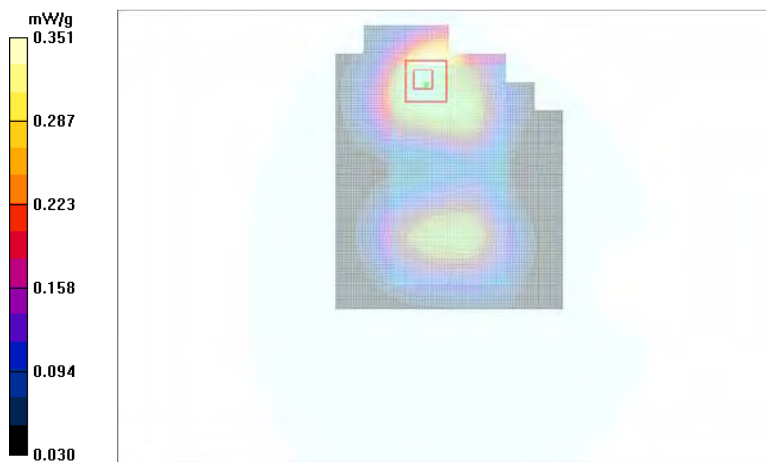
Peak SAR (extrapolated) = 0.530 W/kg

**SAR(1 g) = 0.331 mW/g**

**SAR(10 g) = 0.213 mW/g**

**Power Drift = 0.154 dB**

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



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia



Date/Time: 2011-05-16 17:09:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900**

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2010-09-17
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Low- No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.785 mW/g

**Body - Low- No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.9 V/m

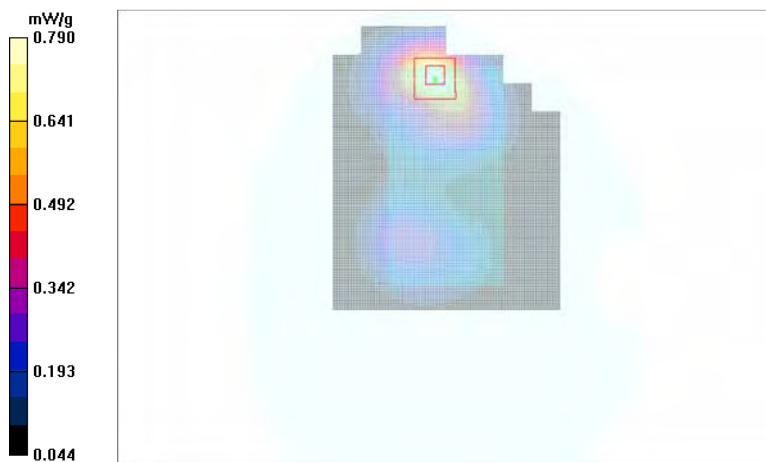
Peak SAR (extrapolated) = 1.16 W/kg

**SAR(1 g) = 0.733 mW/g**

**SAR(10 g) = 0.435 mW/g**

**Power Drift = 0.146 dB**

Maximum value of SAR (measured) = 0.790 mW/g



Date/Time: 2011-05-16 16:57:13

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900**

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 22.2 C

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.48$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.68, 4.68, 4.68); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2010-09-17
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901- BackFacing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.688 mW/g

**Body - Middle - WH-901- BackFacing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.99 V/m

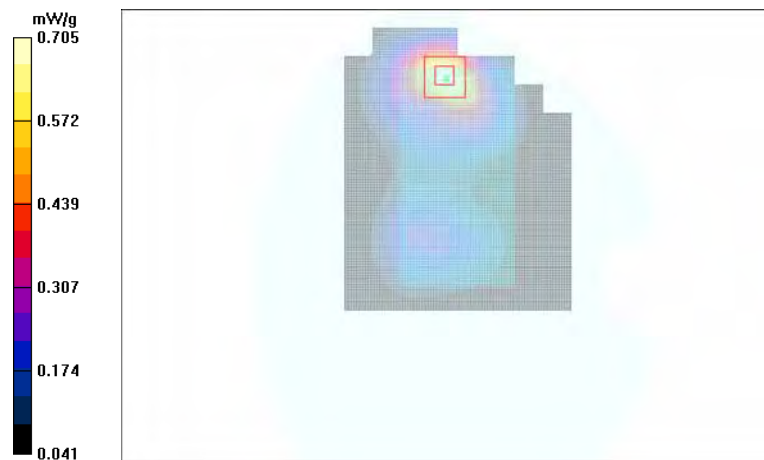
Peak SAR (extrapolated) = 1.05 W/kg

**SAR(1 g) = 0.647 mW/g**

**SAR(10 g) = 0.378 mW/g**

**Power Drift = -0.199 dB**

Maximum value of SAR (measured) = 0.705 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-14 16:39:34

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.96$  mho/m;  $\epsilon_r = 50.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.117 mW/g

**Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 3.94 V/m

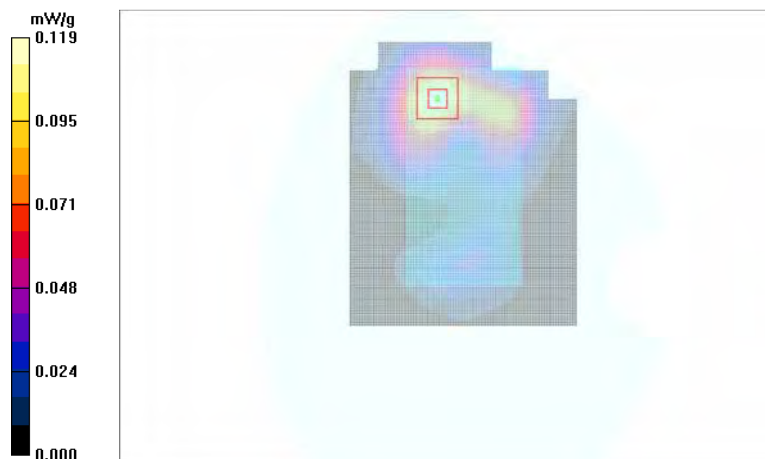
Peak SAR (extrapolated) = 0.186 W/kg

**SAR(1 g) = 0.108 mW/g**

**SAR(10 g) = 0.062 mW/g**

**Power Drift = -0.461 dB**

Maximum value of SAR (measured) = 0.119 mW/g



Date/Time: 2011-06-14 16:55:26

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.96$  mho/m;  $\epsilon_r = 50.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.118 mW/g

**Body - Middle - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.92 V/m

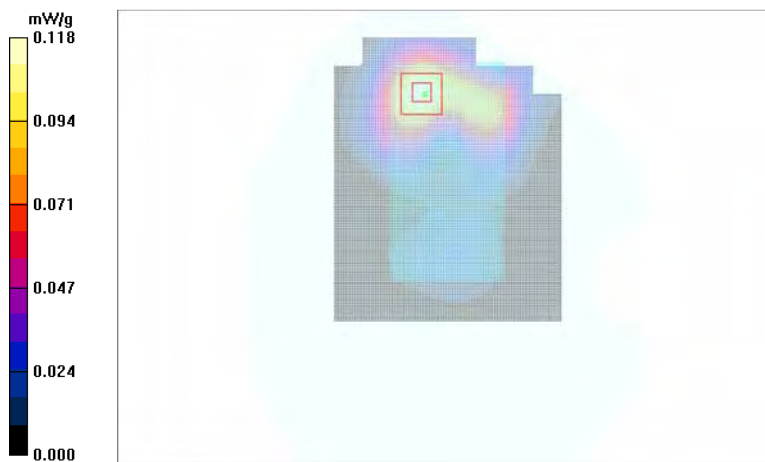
Peak SAR (extrapolated) = 0.184 W/kg

**SAR(1 g) = 0.108 mW/g**

**SAR(10 g) = 0.061 mW/g**

**Power Drift = 0.099 dB**

Maximum value of SAR (measured) = 0.118 mW/g



Date/Time: 2011-06-14 17:22:53

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.96$  mho/m;  $\epsilon_r = 50.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.121 mW/g

**Body - Middle - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 3.35 V/m

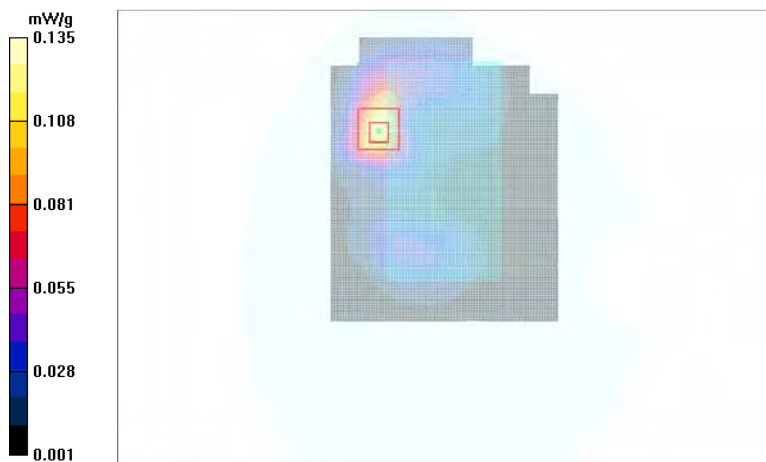
Peak SAR (extrapolated) = 0.238 W/kg

**SAR(1 g) = 0.120 mW/g**

**SAR(10 g) = 0.059 mW/g**

**Power Drift = 0.411 dB**

Maximum value of SAR (measured) = 0.135 mW/g



Date/Time: 2011-06-14 17:08:12

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.96$  mho/m;  $\epsilon_r = 50.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.131 mW/g

**Body - Middle - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.88 V/m

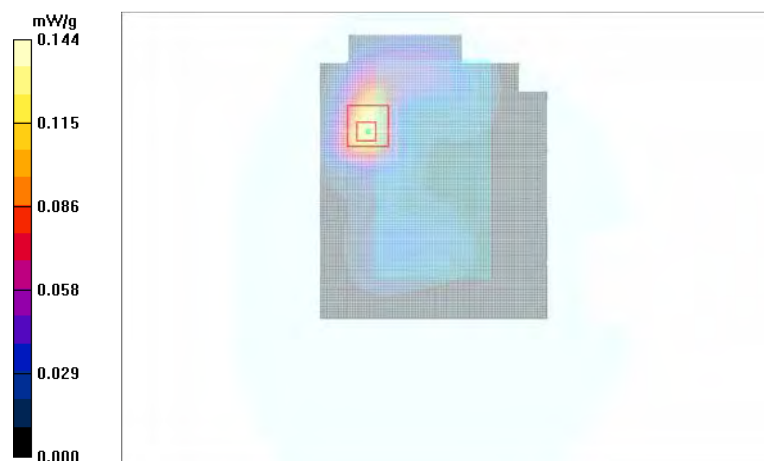
Peak SAR (extrapolated) = 0.251 W/kg

**SAR(1 g) = 0.128 mW/g**

**SAR(10 g) = 0.064 mW/g**

**Power Drift = 0.168 dB**

Maximum value of SAR (measured) = 0.144 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-16 13:45:13

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.94$  mho/m;  $\epsilon_r = 50.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory – Reduced Power - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.014 mW/g

**Body - Middle - No Accessory – Reduced Power - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.654 V/m

Peak SAR (extrapolated) = 0.027 W/kg

**SAR(1 g) = 0.00656 mW/g**

**SAR(10 g) = 0.00208 mW/g**

**Power Drift = -0.428 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.010 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-16 14:16:46

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.94$  mho/m;  $\epsilon_r = 50.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 – Reduced Power - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.011 mW/g

**Body - Middle - WH-901 – Reduced Power- Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.443 V/m

Peak SAR (extrapolated) = 0.026 W/kg

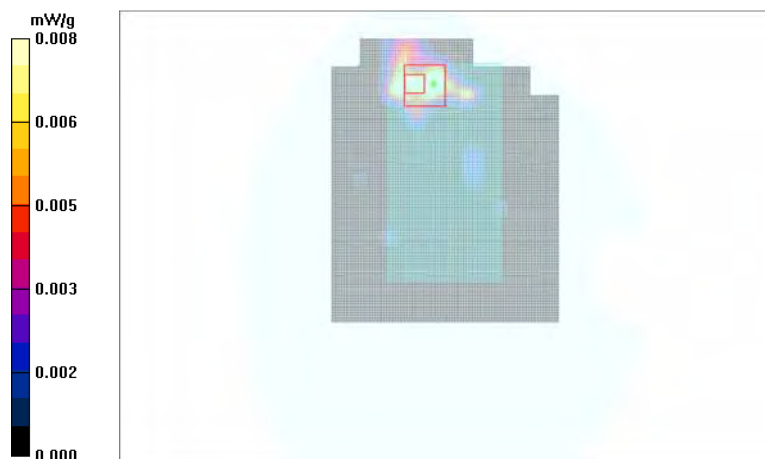
**SAR(1 g) = 0.0061 mW/g**

**SAR(10 g) = 0.00187 mW/g**

**Power Drift = -0.163 dB**

Warning: Maximum averaged SAR over 1 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement. Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.008 mW/g





Date/Time: 2011-06-16 15:10:15

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.94$  mho/m;  $\epsilon_r = 50.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - No Accessory – Reduced Power - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.008 mW/g

**Body - Middle - No Accessory – Reduced Power - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.422 V/m

Peak SAR (extrapolated) = 0.020 W/kg

**SAR(1 g) = 0.00901 mW/g**

**SAR(10 g) = 0.00333 mW/g**

**Power Drift = 0.044 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.013 mW/g



Date/Time: 2011-06-16 14:42:50

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 b-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.94$  mho/m;  $\epsilon_r = 50.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 – Reduced Power - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.018 mW/g

**Body - Middle - WH-901 – Reduced Power - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.251 V/m

Peak SAR (extrapolated) = 0.019 W/kg

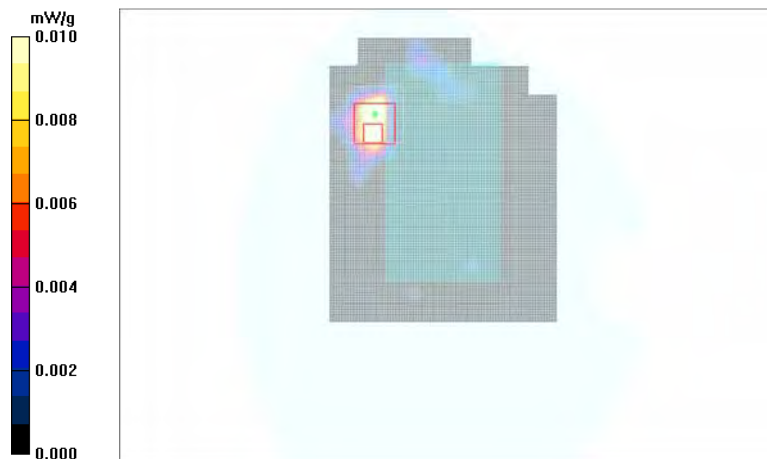
**SAR(1 g) = 0.00684 mW/g**

**SAR(10 g) = 0.00322 mW/g**

**Power Drift = -0.076 dB**

Warning: Maximum averaged SAR over 1 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement. Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.010 mW/g



Date/Time: 2011-06-15 13:05:24

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 n-mode**

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.96$  mho/m;  $\epsilon_r = 50.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Middle - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

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

**Body - Middle - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.49 V/m

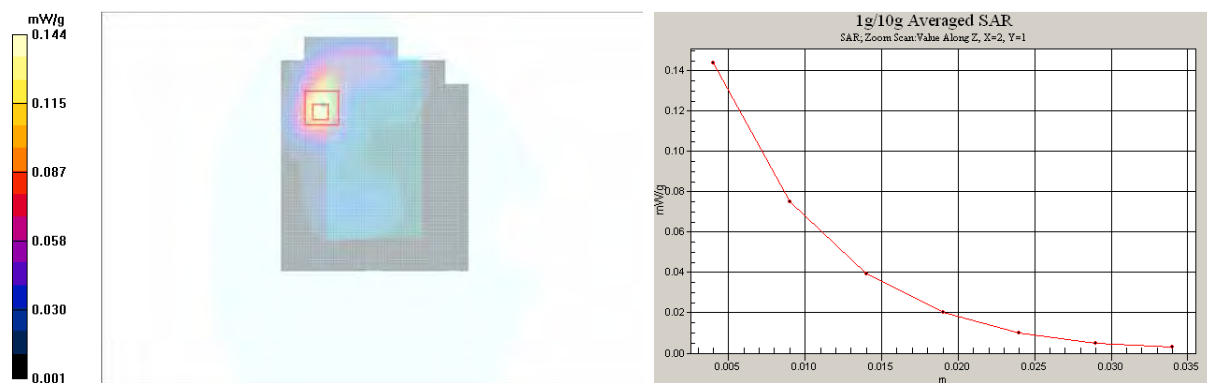
Peak SAR (extrapolated) = 0.267 W/kg

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

**SAR(10 g) = 0.066 mW/g**

**Power Drift = 0.393 dB**

Maximum value of SAR (measured) = 0.144 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia

Date/Time: 2011-06-17 20:15:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN2450 n-mode**

Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: 22.9 C

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.92$  mho/m;  $\epsilon_r = 50.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1328
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - Low – No Accessory – Reduced Power - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.036 mW/g

**Body - Low – No Accessory – Reduced Power - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.60 V/m

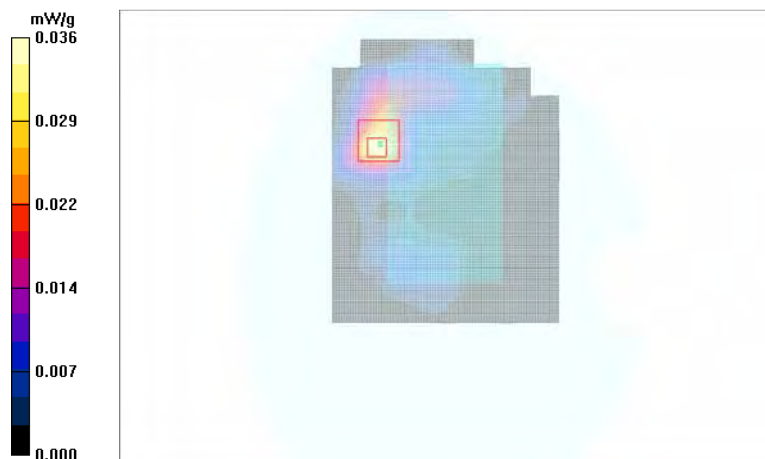
Peak SAR (extrapolated) = 0.054 W/kg

**SAR(1 g) = 0.031 mW/g**

**SAR(10 g) = 0.015 mW/g**

**Power Drift = 0.361 dB**

Maximum value of SAR (measured) = 0.036 mW/g



Date/Time: 2011-06-25 23:46:42

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 6.45$  mho/m;  $\epsilon_r = 48.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.4, 3.4, 3.4); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 104 - No Accessory - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.188 mW/g

**Body - ch 104 - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:

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

Reference Value = 2.33 V/m

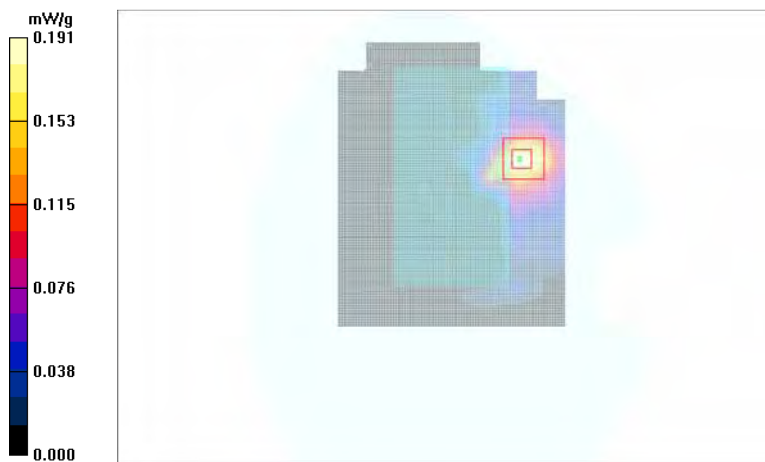
Peak SAR (extrapolated) = 0.464 W/kg

**SAR(1 g) = 0.170 mW/g**

**SAR(10 g) = 0.069 mW/g**

**Power Drift = 0.301 dB**

Maximum value of SAR (measured) = 0.191 mW/g



Date/Time: 2011-06-25 21:35:07

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 52 - WH-901 - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.171 mW/g

**Body - ch 52 - WH-901 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.86 V/m

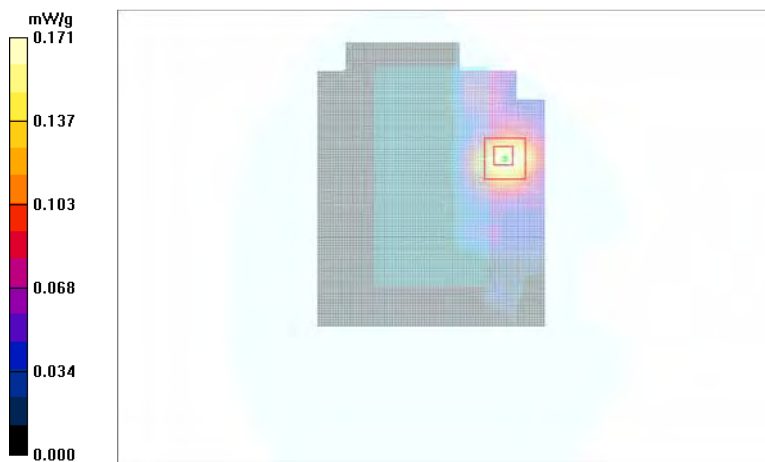
Peak SAR (extrapolated) = 0.560 W/kg

**SAR(1 g) = 0.163 mW/g**

**SAR(10 g) = 0.067 mW/g**

**Power Drift = -0.197 dB**

Maximum value of SAR (measured) = 0.171 mW/g



Date/Time: 2011-06-25 21:47:12

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 52 - No Accessory - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.274 mW/g

**Body - ch 52 - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.55 V/m

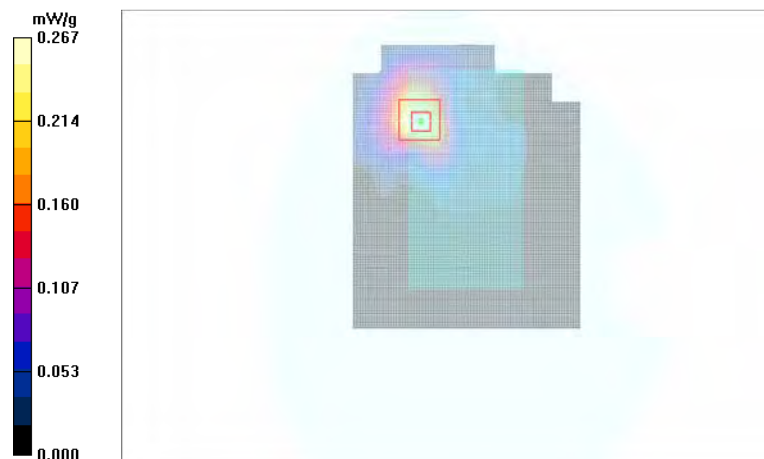
Peak SAR (extrapolated) = 0.650 W/kg

**SAR(1 g) = 0.240 mW/g**

**SAR(10 g) = 0.100 mW/g**

**Power Drift = 0.349 dB**

Maximum value of SAR (measured) = 0.267 mW/g



Date/Time: 2011-06-25 23:27:51

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 52 - WH-901 - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.277 mW/g

**Body - ch 52 - WH-901 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.86 V/m

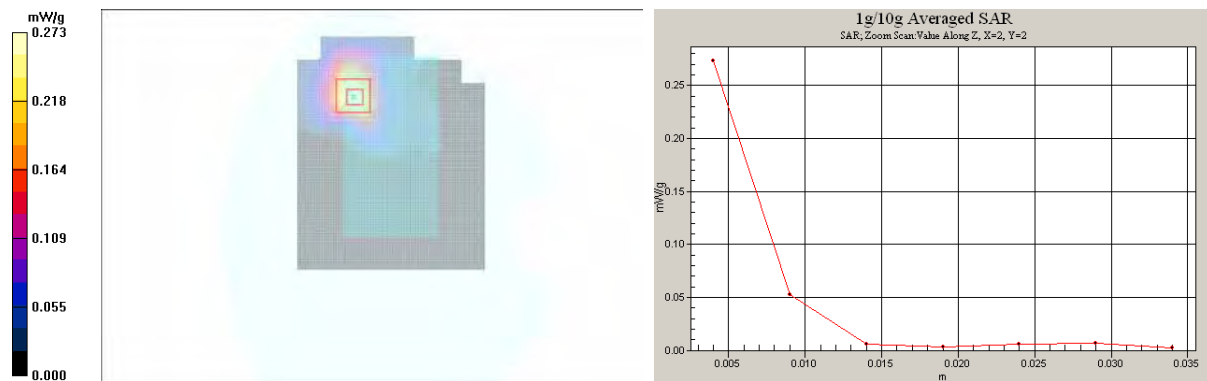
Peak SAR (extrapolated) = 0.688 W/kg

**SAR(1 g) = 0.248 mW/g**

**SAR(10 g) = 0.104 mW/g**

**Power Drift = -0.248 dB**

Maximum value of SAR (measured) = 0.273 mW/g



SAR Report

FCC\_RM-696\_02

Applicant: Nokia Corporation

Type: RM-696

Copyright © 2011 TCC Nokia



Date/Time: 2011-06-26 01:49:29

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 6.45$  mho/m;  $\epsilon_r = 48.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.4, 3.4, 3.4); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 104 - No Accessory - Reduced Power - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.067 mW/g

**Body - ch 104 - No Accessory - Reduced Power - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 0.740 V/m

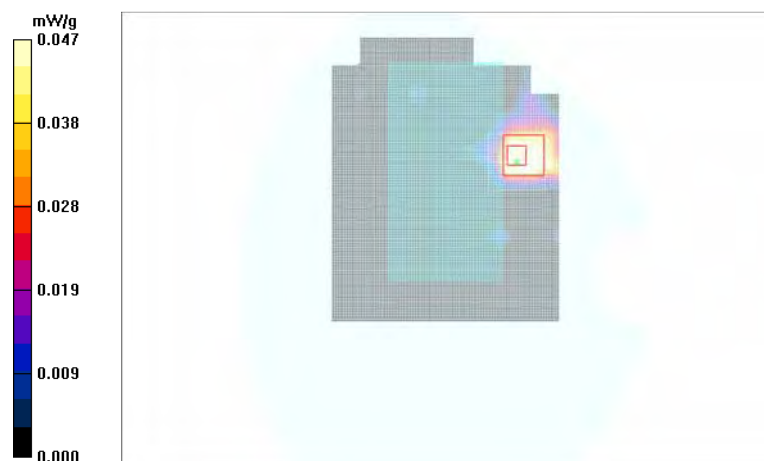
Peak SAR (extrapolated) = 0.256 W/kg

**SAR(1 g) = 0.056 mW/g**

**SAR(10 g) = 0.021 mW/g**

**Power Drift = -0.473 dB**

Maximum value of SAR (measured) = 0.047 mW/g



Date/Time: 2011-06-29 01:57:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.1C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 6.28$  mho/m;  $\epsilon_r = 48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.4, 3.4, 3.4); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 104 - WH-901 - Reduced Power - Display Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.085 mW/g

**Body - ch 104 - WH-901 - Reduced Power - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.13 V/m

Peak SAR (extrapolated) = 0.223 W/kg

**SAR(1 g) = 0.055 mW/g**

**SAR(10 g) = 0.021 mW/g**

**Power Drift = -0.416 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.050 mW/g



Date/Time: 2011-06-26 06:15:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C

Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.084 mW/g

**Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.22 V/m

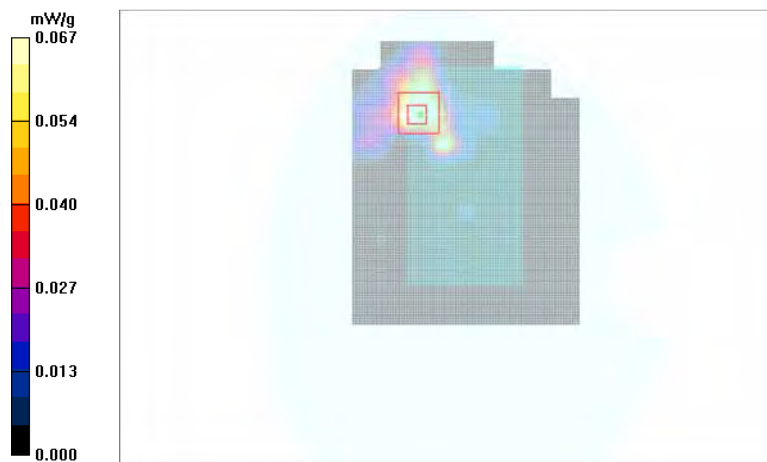
Peak SAR (extrapolated) = 0.317 W/kg

**SAR(1 g) = 0.073 mW/g**

**SAR(10 g) = 0.029 mW/g**

**Power Drift = -0.415 dB**

Maximum value of SAR (measured) = 0.067 mW/g



Date/Time: 2011-06-29 02:26:04

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WLAN5000 a-mode**

Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.1C

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 6.28$  mho/m;  $\epsilon_r = 48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(3.4, 3.4, 3.4); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2010-07-16
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Body - ch 104 - WH-901 - Reduced Power - Back Facing Phantom/Area Scan (81x101x1):** Measurement grid:  
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.076 mW/g

**Body - ch 104 - WH-901 - Reduced Power - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.40 V/m

Peak SAR (extrapolated) = 0.350 W/kg

**SAR(1 g) = 0.074 mW/g**

**SAR(10 g) = 0.028 mW/g**

**Power Drift = 0.196 dB**

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.061 mW/g



Date/Time: 2011-05-18 14:09:22, Date/Time: 2011-06-14 23:55:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9, Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS850, Communication System: WLAN2450 b-mode**

Frequency: 836.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:4.2, Duty Cycle: 1:1

Medium: Head 850, Medium: Head 2450; Medium Notes: Medium Temperature: 22.3 C, Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581, Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(8.44, 8.44, 8.44), ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682, Electronics: DAE4 Sn501; Calibrated: 2010-07-16, Calibrated: 2011-02-18
- Phantom: SAM 3, Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1302, Serial: TP-1408
- ; SEMCAD X Version 14.0 Build 61

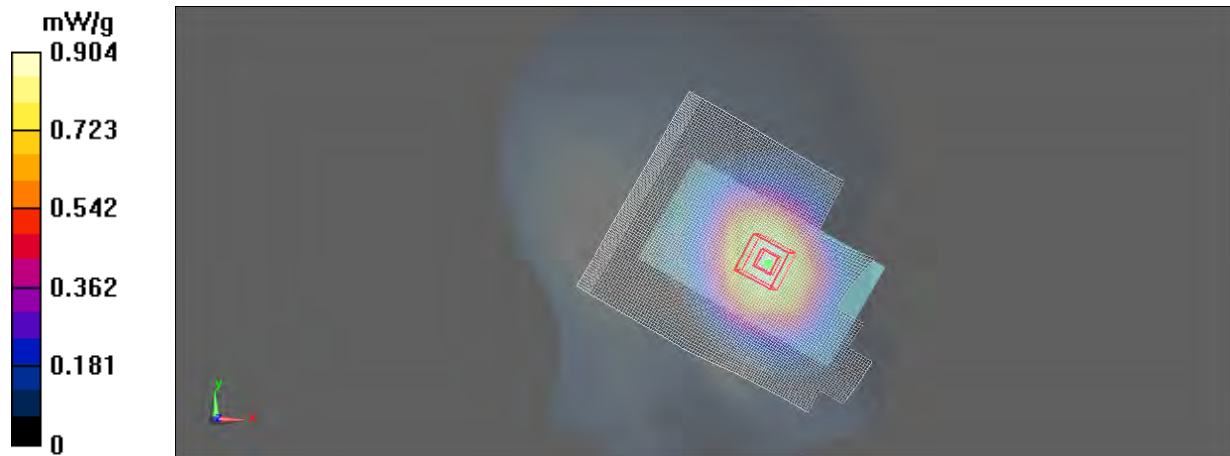
**Configuration/Cheek - Middle/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - Middle - Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.852 mW/g**

**SAR(10 g) = 0.595 mW/g**

Maximum value of SAR (measured) = 0.904 mW/g



Date/Time: 2011-05-26 10:11:29, Date/Time: 2011-06-14 23:55:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA850, Communication System: WLAN2450 b-mode**

Frequency: 835 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 850, Medium: Head 2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: Medium Temperature: 21.8 C

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.886 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 2442 \text{ MHz}$ ;  $\sigma = 1.85 \text{ mho/m}$ ;  $\epsilon_r = 39.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.69, 5.69, 5.69), ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3, Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1302, Serial: TP-1408
- ; SEMCAD X Version 14.0 Build 61

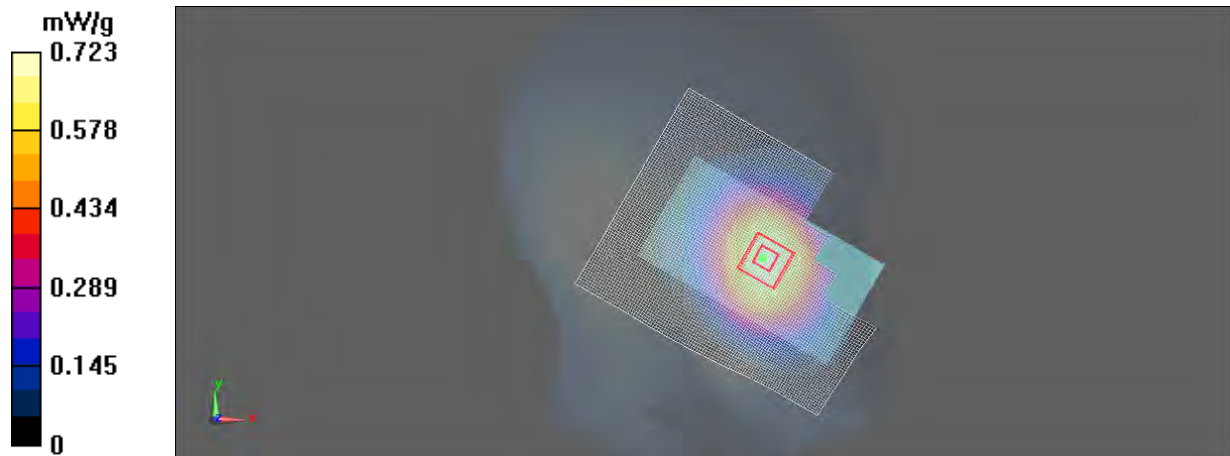
**Configuration/Cheek - Middle/Area Scan (9x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Configuration/Cheek - Middle - Reduced Power/Area Scan (9x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.677 mW/g**

**SAR(10 g) = 0.468 mW/g**

Maximum value of SAR (measured) = 0.723 mW/g



Date/Time: 2011-05-27 20:48:55, Date/Time: 2011-06-14 23:55:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9, Serial: 004402/13/548019/6

**Communication System: WCDMA1700/2100, Communication System: WLAN2450 b-mode**

Frequency: 1712.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 1800, Medium: Head 2450; Medium Notes: Medium Temperature: 21.6 C, Medium Notes:

Medium Temperature: 21.8 C

Medium parameters used (interpolated):  $f = 1712.4$  MHz;  $\sigma = 1.28$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.94, 4.94, 4.94), ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5, Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1408
- ; SEMCAD X Version 14.0 Build 61

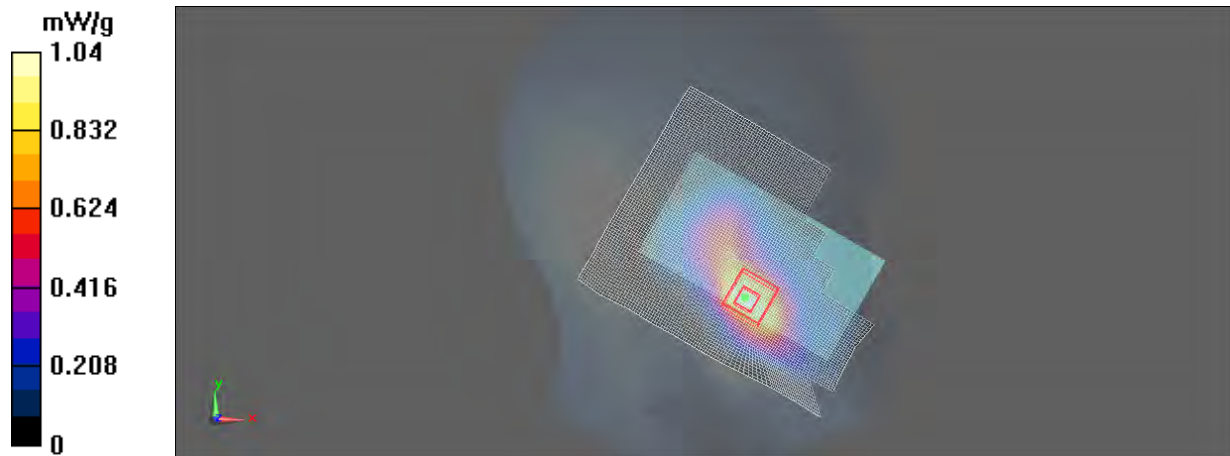
**Configuration/Cheek - Low/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - Middle – Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.904 mW/g**

**SAR(10 g) = 0.527 mW/g**

Maximum value of SAR (measured) = 1.04 mW/g





Date/Time: 2011-05-17 12:04:54, Date/Time: 2011-06-14 23:55:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 4-slot GPRS1900, Communication System: WLAN2450 b-mode**

Frequency: 1850.2 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.08, Duty Cycle: 1:1

Medium: Head 1900, Medium: Head 2450; Medium Notes: Medium Temperature: 22.2 C, Medium Notes:

Medium Temperature: 21.8 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 38.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71), ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5, Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1408
- ; SEMCAD X Version 14.0 Build 61

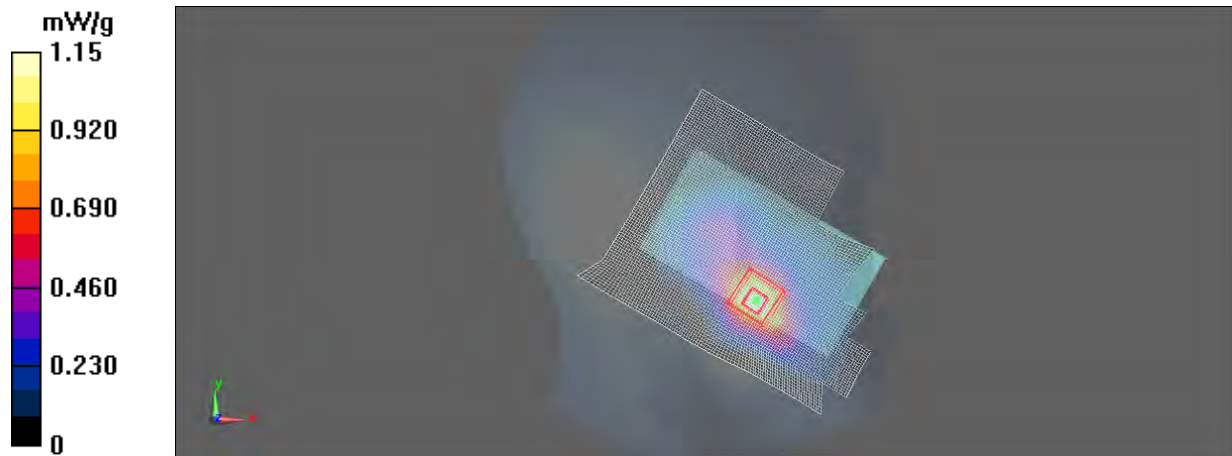
**Configuration/Cheek -Low/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - Middle – Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.996 mW/g**

**SAR(10 g) = 0.560 mW/g**

Maximum value of SAR (measured) = 1.15 mW/g





Date/Time: 2011-05-18 09:37:02, Date/Time: 2011-06-14 23:55:18

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9, Serial: 004402/13/548019/6

**Communication System: WCDMA1900, Communication System: WLAN2450 b-mode**

Frequency: 1852.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 1900, Medium: Head 2450; Medium Notes: Medium Temperature: 21.9 C, Medium Notes:

Medium Temperature: 21.8 C

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.4$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2442$  MHz;  $\sigma = 1.85$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.71, 4.71, 4.71), ConvF(4.22, 4.22, 4.22); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 4.5, Phantom: SAM 9; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1408
- ; SEMCAD X Version 14.0 Build 61

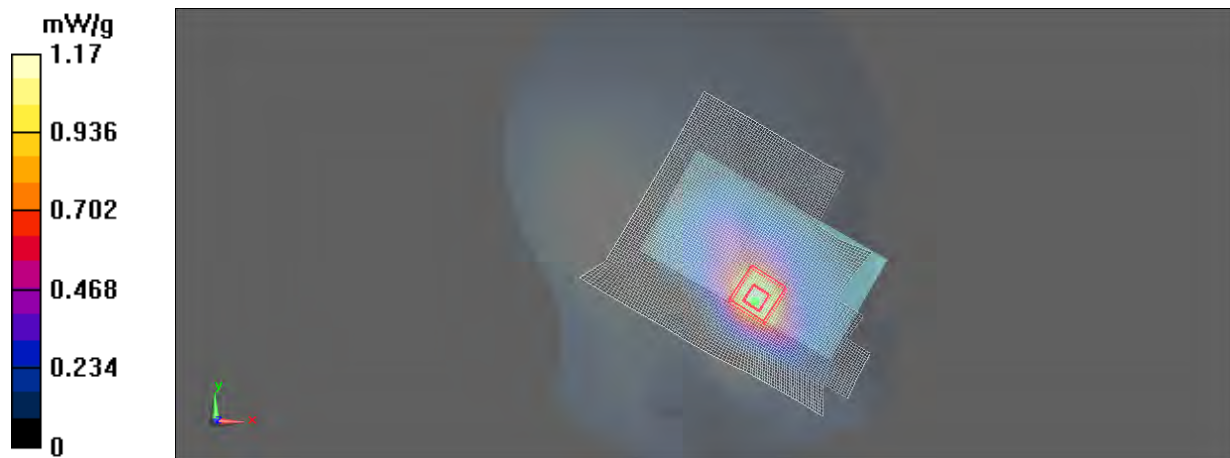
**Configuration/Cheek - Low/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - Middle – Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.02 mW/g**

**SAR(10 g) = 0.574 mW/g**

Maximum value of SAR (measured) = 1.17 mW/g



Date/Time: 2011-05-18 14:09:22, Date/Time: 2011-06-21 23:45:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 2-slot GPRS850, Communication System: WLAN5000 a-mode**

Frequency: 836.6 MHz, Frequency: 5520 MHz; Duty Cycle: 1:4.2, Duty Cycle: 1:1

Medium: Head 850, Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 22.3 C, Medium Notes:

Medium Temperature: 21.5 C

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.885 \text{ mho/m}$ ;  $\epsilon_r = 40.2$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:

$f = 5520 \text{ MHz}$ ;  $\sigma = 5.33 \text{ mho/m}$ ;  $\epsilon_r = 35.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3581; Probe Notes:

- ConvF(8.44, 8.44, 8.44), ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19

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

- Electronics: DAE4 Sn682; Calibrated: 2010-07-16

- Phantom: SAM 3, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1302, Serial: TP-1410

-; SEMCAD X Version 14.0 Build 61

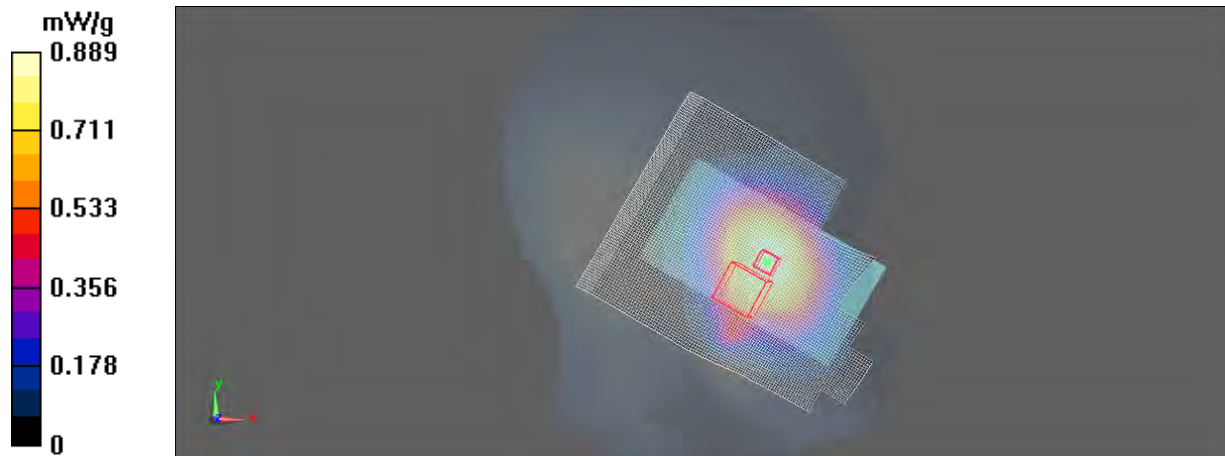
**Configuration/Cheek - Middle/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - ch 104 - Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.839 mW/g**

**SAR(10 g) = 0.645 mW/g**

Maximum value of SAR (measured) = 0.889 mW/g



Date/Time: 2011-05-26 10:11:29, Date/Time: 2011-06-21 23:45:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6, Serial: 004402/13/548065/9

**Communication System: WCDMA850, Communication System: WLAN5000 a-mode**

Frequency: 835 MHz, Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 850, Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 22.0 C, Medium Notes:

Medium Temperature: 21.5 C

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.886 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:

$f = 5520 \text{ MHz}$ ;  $\sigma = 5.33 \text{ mho/m}$ ;  $\epsilon_r = 35.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:

- ConvF(5.69, 5.69, 5.69), ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19

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

- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16

- Phantom: SAM 3, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1302, Serial: TP-1410

-; SEMCAD X Version 14.0 Build 61

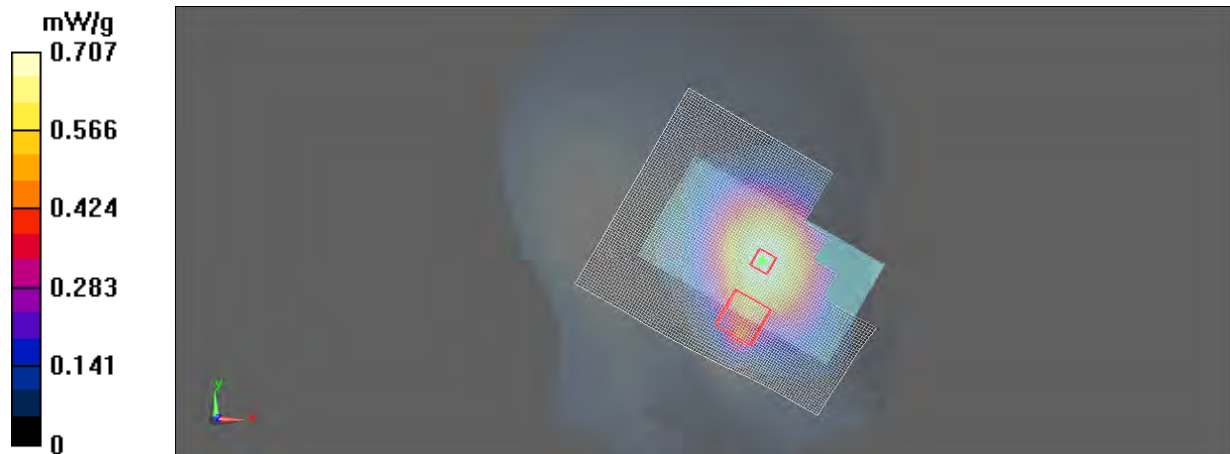
**Configuration/Cheek - Middle/Area Scan (9x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Configuration/Cheek - ch 104 - Reduced Power/Area Scan (9x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.672 mW/g**

**SAR(10 g) = 0.579 mW/g**

Maximum value of SAR (measured) = 0.707 mW/g



Date/Time: 2011-05-27 20:48:55, Date/Time: 2011-06-21 23:45:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1700/2100, Communication System: WLAN5000 a-mode**

Frequency: 1712.4 MHz, Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 1800, Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.6 C, Medium Notes: Medium Temperature: 21.5 C

Medium parameters used (interpolated):  $f = 1712.4$  MHz;  $\sigma = 1.28$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.33$  mho/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.94, 4.94, 4.94), ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

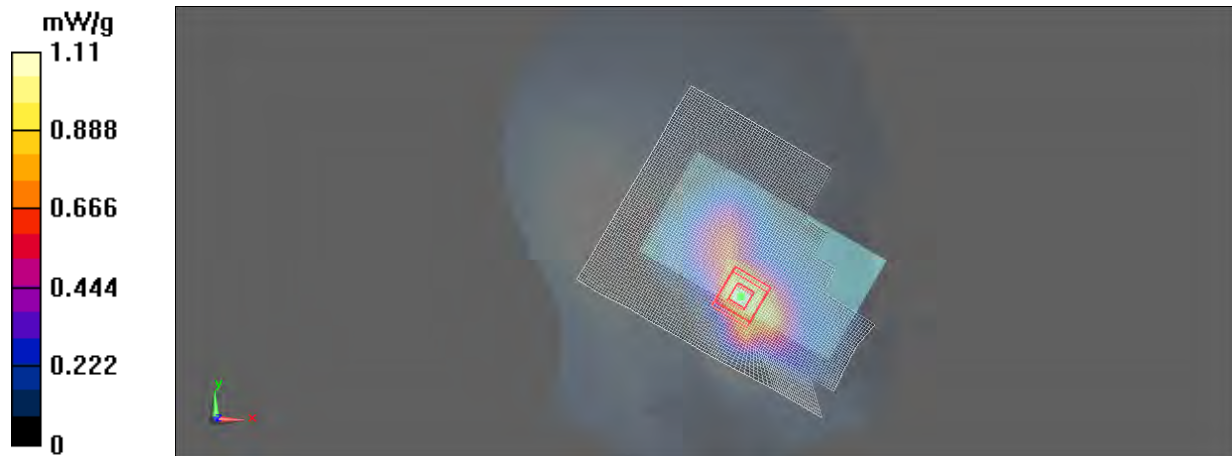
**Configuration/Cheek - Low/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - ch 104 - Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.999 mW/g**

**SAR(10 g) = 0.823 mW/g**

Maximum value of SAR (measured) = 1.11 mW/g



Date/Time: 2011-05-17 12:04:54, Date/Time: 2011-06-21 23:45:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6, Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS1900, Communication System: WLAN5000 a-mode**

Frequency: 1850.2 MHz, Frequency: 5520 MHz; Duty Cycle: 1:2.08, Duty Cycle: 1:1

Medium: Head 1900, Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 22.2 C, Medium Notes: Medium Temperature: 21.5 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 38.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.33$  mho/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.71, 4.71, 4.71), ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

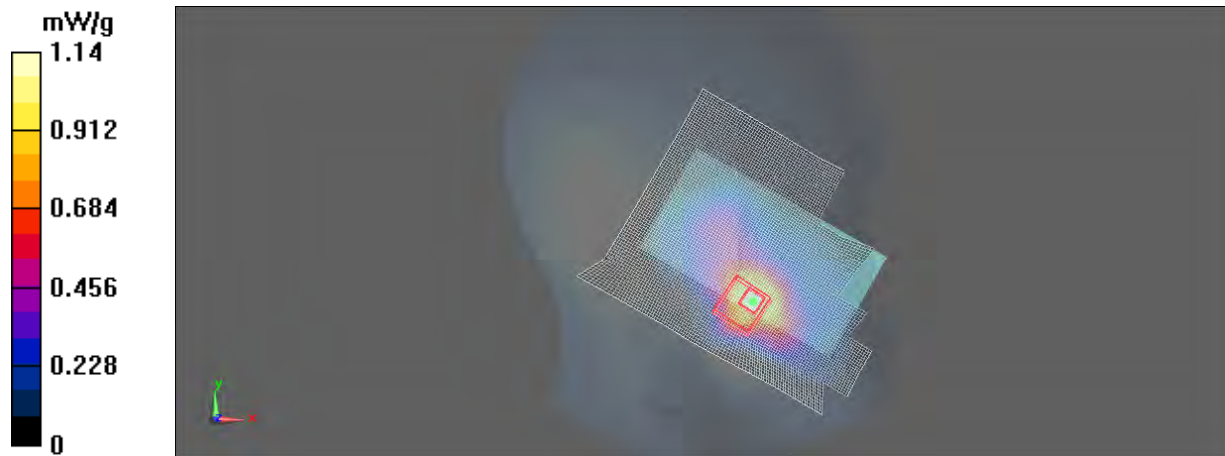
**Configuration/Cheek -Low/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - ch 104 - Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.04 mW/g**

**SAR(10 g) = 0.824 mW/g**

Maximum value of SAR (measured) = 1.14 mW/g



Date/Time: 2011-05-18 09:37:02, Date/Time: 2011-06-21 23:45:06

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA1900, Communication System: WLAN5000 a-mode**

Frequency: 1852.4 MHz, Frequency: 5520 MHz; Duty Cycle: 1:1

Medium: Head 1900, Medium: Head 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C, Medium Notes: Medium Temperature: 21.5 C

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.4$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.33$  mho/m;  $\epsilon_r = 35.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.71, 4.71, 4.71), ConvF(3.9, 3.9, 3.9); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

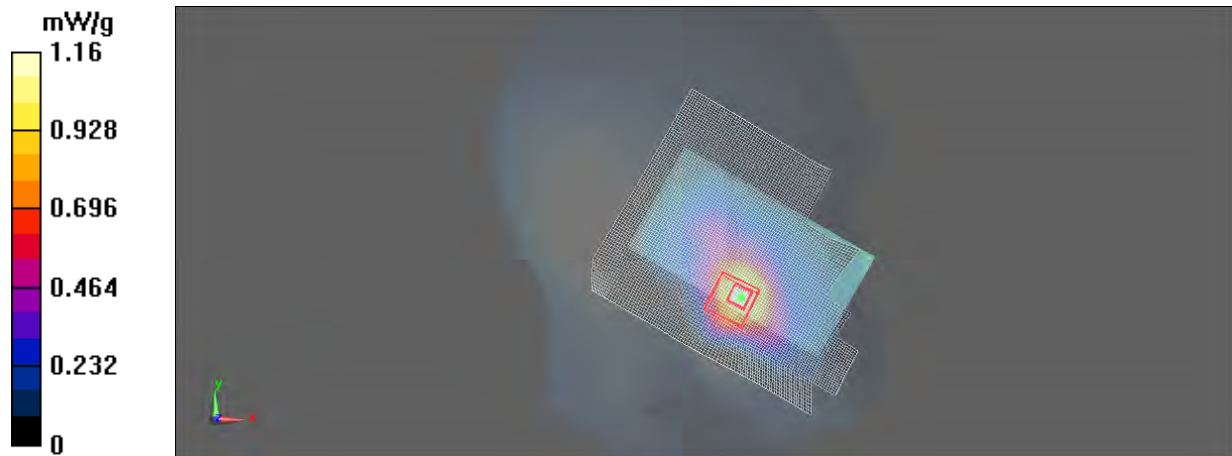
**Configuration/Cheek - Low/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Cheek - ch 104 - Reduced Power/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 1 mW/g**

**SAR(10 g) = 0.801 mW/g**

Maximum value of SAR (measured) = 1.16 mW/g





Date/Time: 2011-05-26 15:34:55, Date/Time: 2011-06-17 20:15:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6, Serial: 004402/13/548065/9

**Communication System: 2-slot GPRS850, Communication System: WLAN2450 n-mode**

Frequency: 824.2 MHz, Frequency: 2412 MHz; Duty Cycle: 1:4.2, Duty Cycle: 1:1

Medium: Body 850, Medium: Body 2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: Medium Temperature: 22.9 C

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.958$  mho/m;  $\epsilon_r = 53.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.92$  mho/m;  $\epsilon_r = 50.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

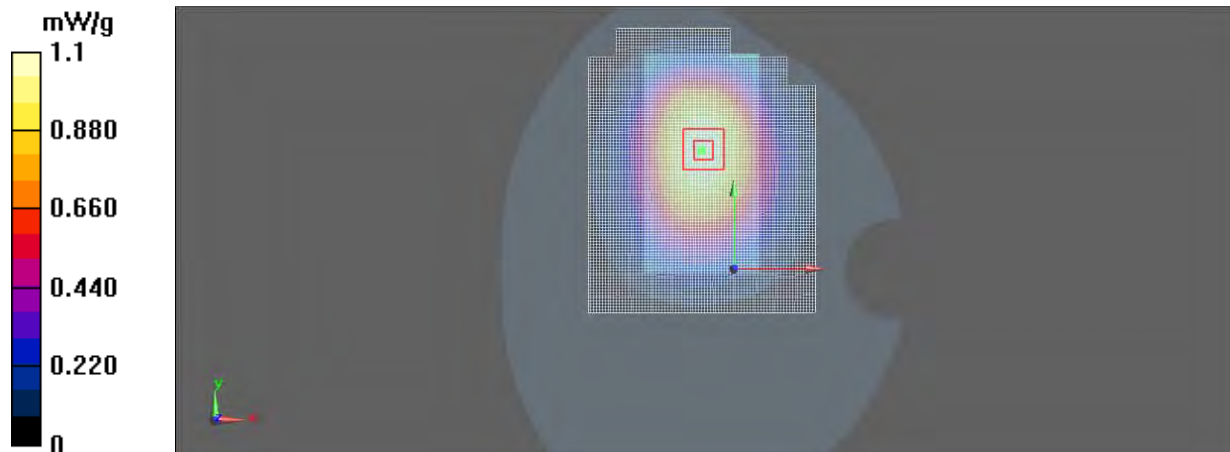
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7), ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2, Phantom: SAM 8; Type: Twin Phantom, Type: SAM Twin Phantom; Serial: TP-1037, Serial: TP-1328
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Low - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - Low - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.04 mW/g**  
**SAR(10 g) = 0.738 mW/g**

Maximum value of SAR (measured) = 1.1 mW/g



Date/Time: 2011-05-26 13:10:55, Date/Time: 2011-06-17 20:15:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: WCDMA850, Communication System: WLAN2450 n-mode**

Frequency: 835 MHz, Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Body 850, Medium: Body 2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: Medium Temperature: 22.9 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.92$  mho/m;  $\epsilon_r = 50.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

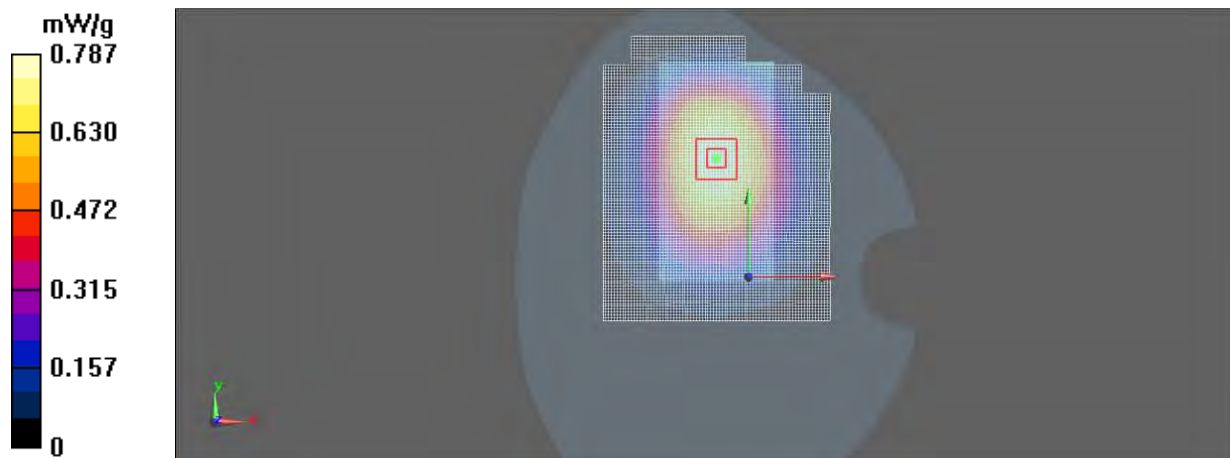
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(5.7, 5.7, 5.7), ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2, Phantom: SAM 8; Type: Twin Phantom, Type: SAM Twin Phantom; Serial: TP-1037, Serial: TP-1328
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - Low - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.743 mW/g**  
**SAR(10 g) = 0.528 mW/g**

Maximum value of SAR (measured) = 0.787 mW/g





Date/Time: 2011-05-27 19:44:25, Date/Time: 2011-06-17 20:15:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6, Serial: 004402/13/548065/9

**Communication System: WCDMA1700/2100, Communication System: WLAN2450 n-mode**

Frequency: 1752.6 MHz, Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Body1800, Medium: Body 2450; Medium Notes: Medium Temperature: 21.9 C, Medium Notes: Medium Temperature: 22.9 C

Medium parameters used:  $f = 1753 \text{ MHz}$ ;  $\sigma = 1.45 \text{ mho/m}$ ;  $\epsilon_r = 51.5$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.92 \text{ mho/m}$ ;  $\epsilon_r = 50.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

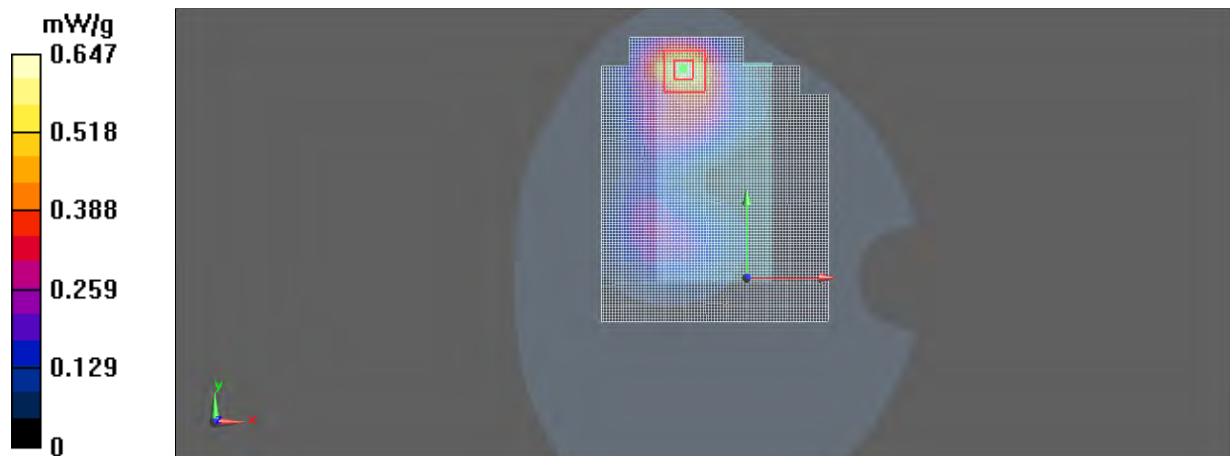
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.68, 4.68, 4.68), ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 5, Phantom: SAM 8; Type: Twin Phantom, Type: SAM Twin Phantom; Serial: TP-1302, Serial: TP-1328
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - High - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Configuration/Body - Low - NoAccessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.559 mW/g**  
**SAR(10 g) = 0.308 mW/g**

Maximum value of SAR (measured) = 0.647 mW/g



Date/Time: 2011-06-13 00:41:12, Date/Time: 2011-06-17 20:15:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9

**Communication System: 4-slot GPRS1900, Communication System: WLAN2450 n-mode**

Frequency: 1850.2 MHz, Frequency: 2412 MHz; Duty Cycle: 1:2.08, Duty Cycle: 1:1

Medium: Body 1900, Medium: Body 2450; Medium Notes: Medium Temperature: 22.5 C, Medium Notes:

Medium Temperature: 22.9 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.92$  mho/m;  $\epsilon_r = 50.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

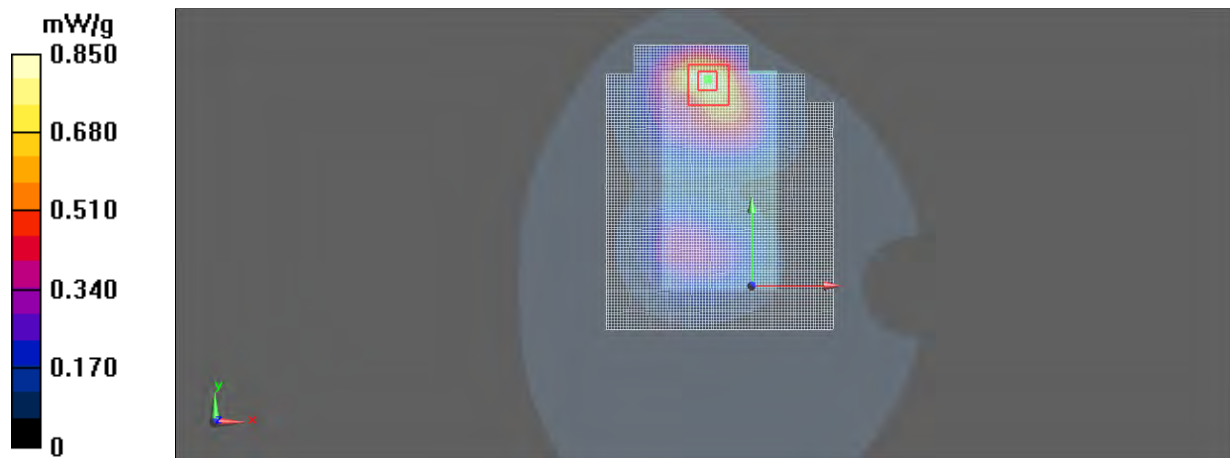
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.46, 4.46, 4.46), ConvF(4.12, 4.12, 4.12); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 1, Phantom: SAM 8; Type: Twin Phantom, Type: SAM Twin Phantom; Serial: TP-1215, Serial: TP-1328
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Low - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - Low - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.745 mW/g**  
**SAR(10 g) = 0.423 mW/g**

Maximum value of SAR (measured) = 0.850 mW/g



Date/Time: 2011-05-16 17:09:03, Date/Time: 2011-06-17 20:15:45

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6, Serial: 004402/13/548065/9

**Communication System: WCDMA1900, Communication System: WLAN2450 n-mode**

Frequency: 1852.4 MHz, Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Body 1900, Medium: Body 2450; Medium Notes: Medium Temperature: 22.2 C, Medium Notes:

Medium Temperature: 22.9 C

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.92$  mho/m;  $\epsilon_r = 50.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116, Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.68, 4.68, 4.68), ConvF(4.12, 4.12, 4.12); Calibrated: 2011-02-17, Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn710, Electronics: DAE4 Sn501; Calibrated: 2010-09-17, Calibrated: 2011-02-18
- Phantom: SAM 1, Phantom: SAM 8; Type: Twin Phantom, Type: SAM Twin Phantom; Serial: TP-1215, Serial: TP-1328
- ; SEMCAD X Version 14.0 Build 61

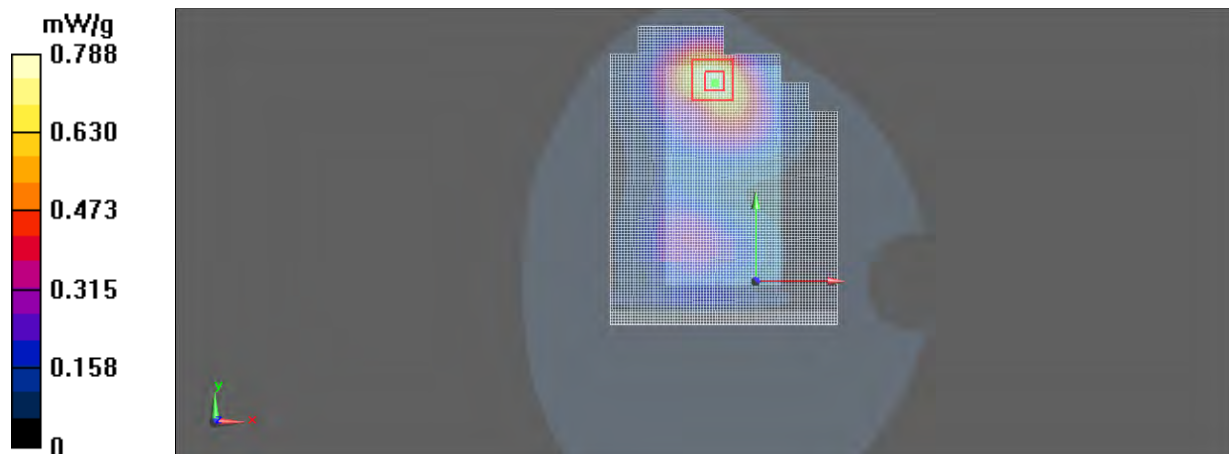
**Configuration/Body - Low- No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - Low – No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.707 mW/g**

**SAR(10 g) = 0.412 mW/g**

Maximum value of SAR (measured) = 0.788 mW/g



Date/Time: 2011-05-26 15:34:55, Date/Time: 2011-06-26 06:15:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: 2-slot GPRS850, Communication System: WLAN5000 a-mode**

Frequency: 824.2 MHz, Frequency: 5260 MHz; Duty Cycle: 1:4.2, Duty Cycle: 1:1

Medium: Body 850, Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: Medium Temperature: 22.3 C

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.958$  mho/m;  $\epsilon_r = 53.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

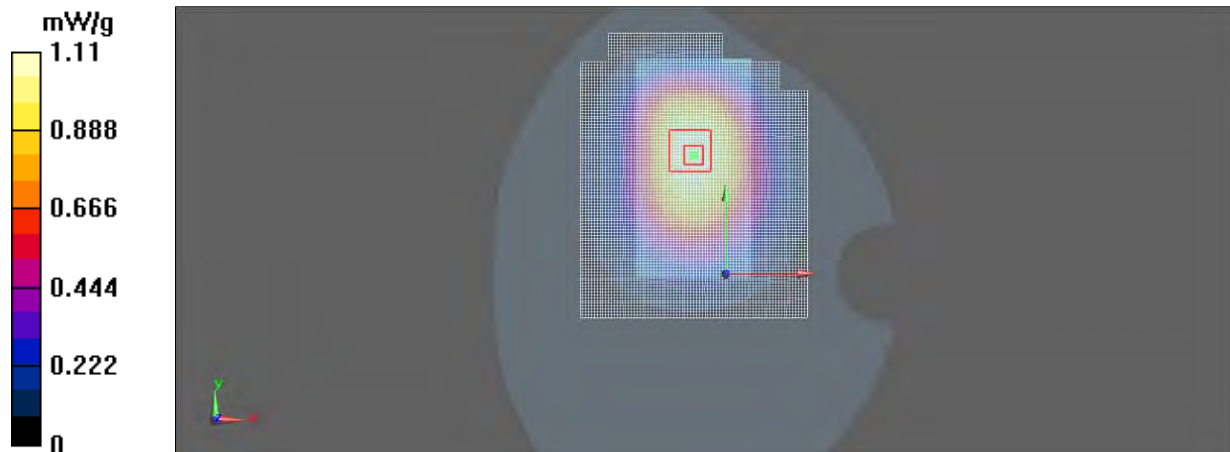
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(5.7, 5.7, 5.7), ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 2, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1037, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Low - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.05 mW/g**  
**SAR(10 g) = 0.782 mW/g**

Maximum value of SAR (measured) = 1.11 mW/g



Date/Time: 2011-05-26 13:10:55, Date/Time: 2011-06-26 06:15:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9, Serial: 004402/13/548019/6

**Communication System: WCDMA850, Communication System: WLAN5000 a-mode**

Frequency: 835 MHz, Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body 850, Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.0 C, Medium Notes:

Medium Temperature: 22.3 C

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:

$f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

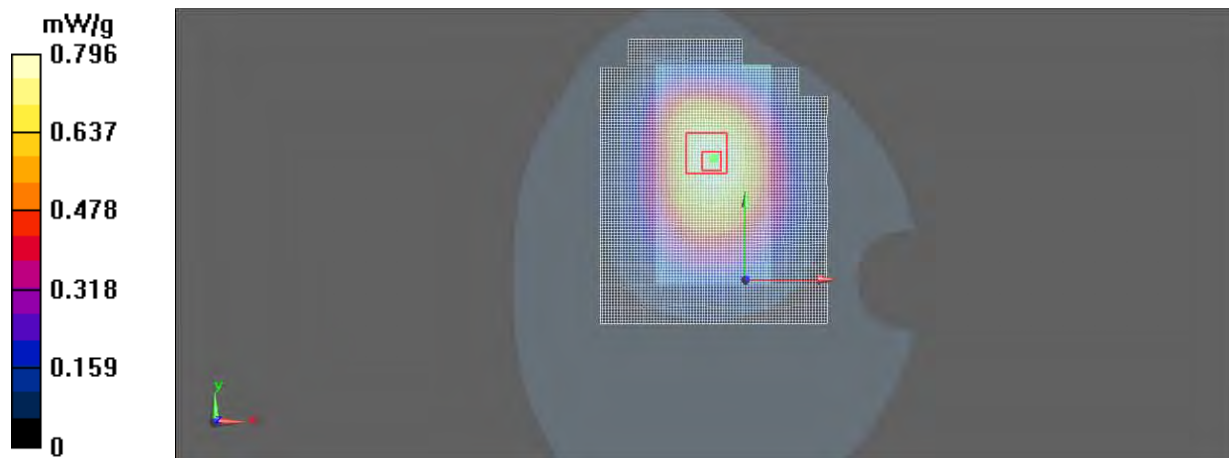
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(5.7, 5.7, 5.7), ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 2, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1037, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.756 mW/g**  
**SAR(10 g) = 0.575 mW/g**

Maximum value of SAR (measured) = 0.796 mW/g



Date/Time: 2011-05-27 19:44:25, Date/Time: 2011-06-26 06:15:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1700/2100, Communication System: WLAN5000 a-mode**

Frequency: 1752.6 MHz, Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body1800, Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 21.9 C, Medium Notes:

Medium Temperature: 22.3 C

Medium parameters used:  $f = 1753 \text{ MHz}$ ;  $\sigma = 1.45 \text{ mho/m}$ ;  $\epsilon_r = 51.5$ ;  $\rho = 1000 \text{ kg/m}^3$ , Medium parameters used:

$f = 5260 \text{ MHz}$ ;  $\sigma = 6.04 \text{ mho/m}$ ;  $\epsilon_r = 49.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

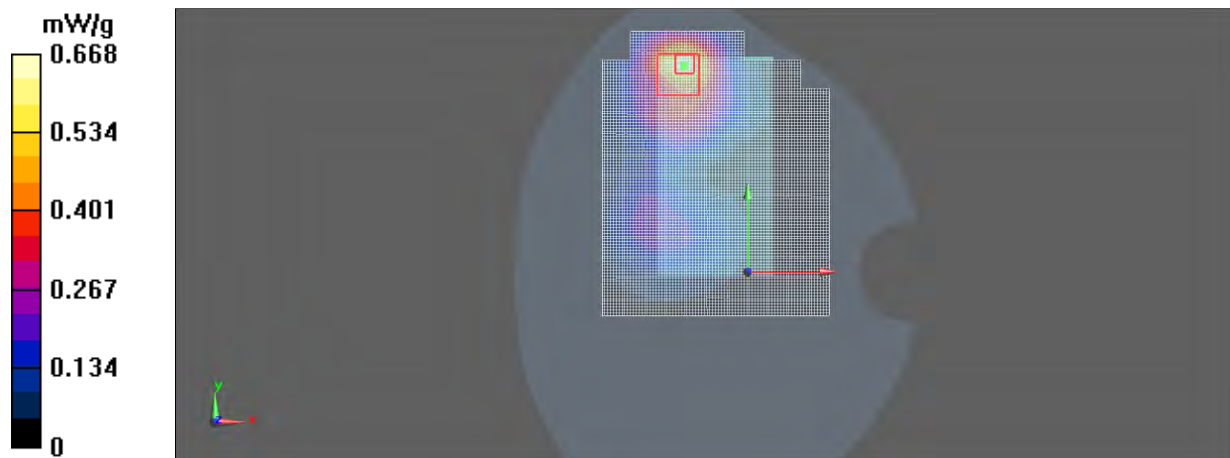
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.68, 4.68, 4.68), ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 5, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1302, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - High - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.585 mW/g**  
**SAR(10 g) = 0.409 mW/g**

Maximum value of SAR (measured) = 0.668 mW/g





Date/Time: 2011-06-13 00:41:12, Date/Time: 2011-06-26 06:15:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548065/9, Serial: 004402/13/548019/6

**Communication System: 4-slot GPRS1900, Communication System: WLAN5000 a-mode**

Frequency: 1850.2 MHz, Frequency: 5260 MHz; Duty Cycle: 1:2.08, Duty Cycle: 1:1

Medium: Body 1900, Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.5 C, Medium Notes: Medium Temperature: 22.3 C

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

**DASY4 Configuration:**

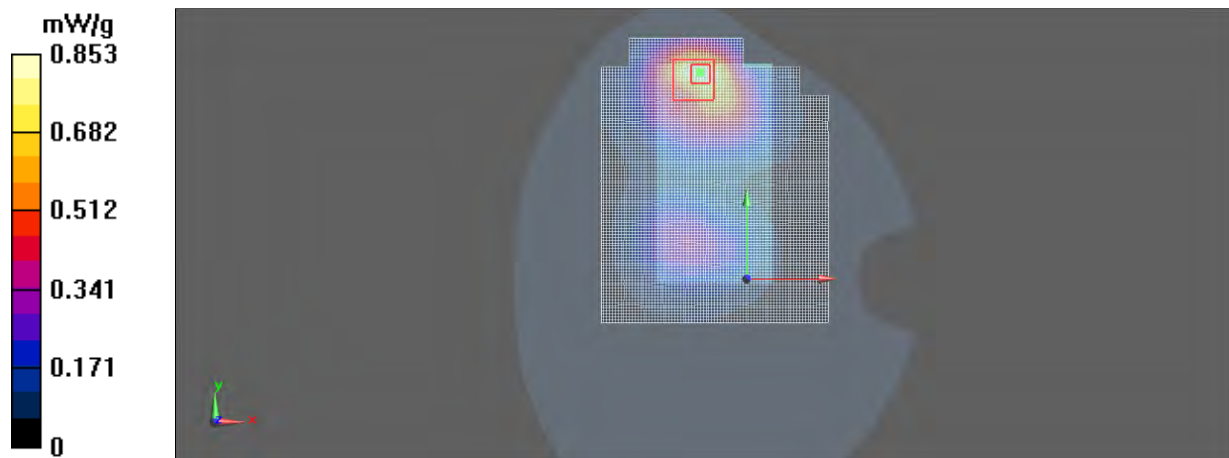
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.46, 4.46, 4.46), ConvF(3.84, 3.84, 3.84); Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn682; Calibrated: 2011-02-18, Calibrated: 2010-07-16
- Phantom: SAM 1, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Low - No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.754 mW/g**  
**SAR(10 g) = 0.482 mW/g**

Maximum value of SAR (measured) = 0.853 mW/g



Date/Time: 2011-05-16 17:09:03, Date/Time: 2011-06-26 06:15:03

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 004402/13/548019/6

**Communication System: WCDMA1900, Communication System: WLAN5000 a-mode**

Frequency: 1852.4 MHz, Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: Body 1900, Medium: Body 5-6 GHz; Medium Notes: Medium Temperature: 22.2 C, Medium Notes: Medium Temperature: 22.3 C

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5260$  MHz;  $\sigma = 6.04$  mho/m;  $\epsilon_r = 49.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

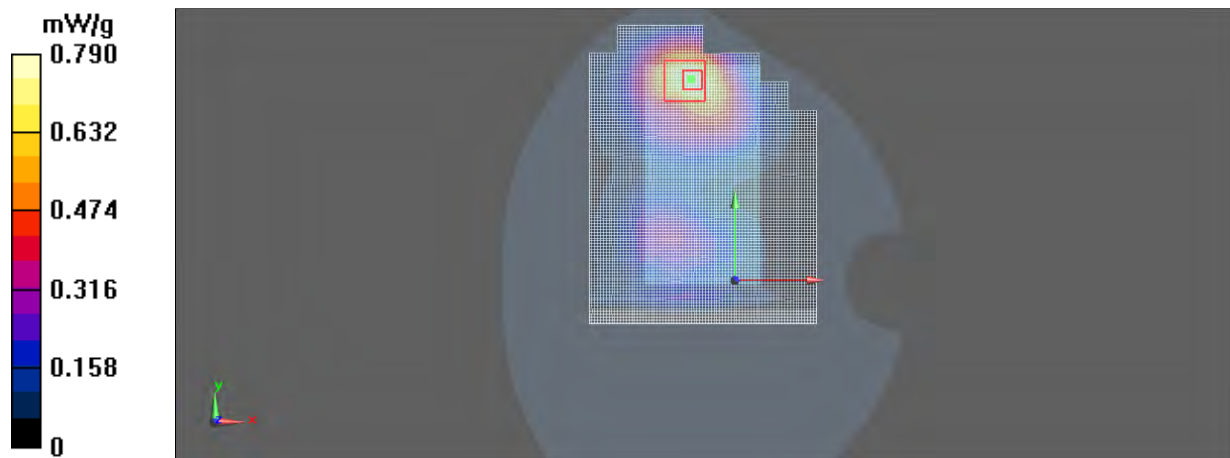
- Probe: ES3DV3 - SN3116, Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(4.68, 4.68, 4.68), ConvF(3.84, 3.84, 3.84); Calibrated: 2011-02-17, Calibrated: 2010-07-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn710, Electronics: DAE4 Sn682; Calibrated: 2010-09-17, Calibrated: 2010-07-16
- Phantom: SAM 1, Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1215, Serial: TP-1410
- ; SEMCAD X Version 14.0 Build 61

**Configuration/Body - Low- No Accessory - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Configuration/Body - ch 52 - No Accessory - Reduced Power - Back Facing Phantom/Area Scan (9x11x1):** Measurement grid: dx=15mm, dy=15mm

**Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.712 mW/g**  
**SAR(10 g) = 0.456 mW/g**

Maximum value of SAR (measured) = 0.790 mW/g





## APPENDIX C: CONDUCTED AVERAGE POWER MEASUREMENTS FOR WCDMA AND HSUPA

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 699703/69/467886/3, HW: 1501, SW: 0.2011.21-1\_TA

### C.1. WCDMA 850 Test results

#### Average power

| Ch / f (MHz) | P [dBm] |
|--------------|---------|
| 4133         | 23.51   |
| 4175         | 23.20   |
| 4232         | 23.35   |

### C.2. HSUPA 850 Test results

#### Average power

| Ch / f (MHz) | P [dBm]        |                |                |                |                |
|--------------|----------------|----------------|----------------|----------------|----------------|
|              | Subtest mode 1 | Subtest mode 2 | Subtest mode 3 | Subtest mode 4 | Subtest mode 5 |
| 4133         | 20.28          | 20.16          | 20.93          | 20.17          | 21.88          |
| 4175         | 19.49          | 19.31          | 20.43          | 19.59          | 21.22          |
| 4232         | 19.92          | 19.54          | 20.61          | 19.58          | 21.45          |

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. In addition, to ensure linearity of the PA output, a further 1.5dB power reduction for all Subtest modes is implemented. As a result, the MPR for each of the Subtest modes is as follows:

| Maximum Power Reduction (MPR) |                |                |                |                |
|-------------------------------|----------------|----------------|----------------|----------------|
| Subtest mode 1                | Subtest mode 2 | Subtest mode 3 | Subtest mode 4 | Subtest mode 5 |
| 3.0 dB                        | 3.5 dB         | 2.5 dB         | 3.5 dB         | 1.5 dB         |

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 699703/69/467886/3, HW: 1501, SW: 0.2011.21-1\_TA

### C.3. WCDMA 1700/2100 Test results

#### Average power

| Ch / f (MHz) | P [dBm] |
|--------------|---------|
| 1313         | 22.16   |
| 1450         | 22.21   |
| 1512         | 22.04   |

### C.4. HSUPA 1700/2100 Test results

#### Average power

| Ch / f (MHz) | P [dBm]        |                |                |                |                |
|--------------|----------------|----------------|----------------|----------------|----------------|
|              | Subtest mode 1 | Subtest mode 2 | Subtest mode 3 | Subtest mode 4 | Subtest mode 5 |
| 1313         | 19.97          | 20.19          | 21.19          | 20.17          | 22.02          |
| 1450         | 19.78          | 20.29          | 21.27          | 20.26          | 22.13          |
| 1512         | 19.71          | 20.01          | 20.99          | 20.17          | 21.85          |

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. As a result, the MPR for each of the Subtest modes is as follows:

| Maximum Power Reduction (MPR) |                |                |                |                |
|-------------------------------|----------------|----------------|----------------|----------------|
| Subtest mode 1                | Subtest mode 2 | Subtest mode 3 | Subtest mode 4 | Subtest mode 5 |
| 1.5 dB                        | 2.0 dB         | 1.0 dB         | 2.0 dB         | 0.0 dB         |

Test Laboratory: TCC Nokia

Type: RM-696; Serial: 699703/69/467886/3, HW: 1501, SW: 0.2011.21-1\_TA

### C.5. WCDMA 1900 Test results

#### Average power

| Ch / f (MHz) | P [dBm] |
|--------------|---------|
| 9263         | 22.45   |
| 9400         | 22.42   |
| 9537         | 22.10   |

### C.6. HSUPA 1900 Test results

#### Average power

| Ch / f (MHz) | P [dBm]        |                |                |                |                |
|--------------|----------------|----------------|----------------|----------------|----------------|
|              | Subtest mode 1 | Subtest mode 2 | Subtest mode 3 | Subtest mode 4 | Subtest mode 5 |
| 9263         | 19.88          | 20.36          | 21.13          | 20.32          | 22.21          |
| 9400         | 19.47          | 20.10          | 21.10          | 19.81          | 22.15          |
| 9537         | 19.54          | 19.73          | 20.86          | 19.36          | 21.80          |

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. As a result, the MPR for each of the Subtest modes is as follows:

| Maximum Power Reduction (MPR) |                |                |                |                |
|-------------------------------|----------------|----------------|----------------|----------------|
| Subtest mode 1                | Subtest mode 2 | Subtest mode 3 | Subtest mode 4 | Subtest mode 5 |
| 1.5 dB                        | 2.0 dB         | 1.0 dB         | 2.0 dB         | 0.0 dB         |

---

**APPENDIX D: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)**

See the following pages



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 Denmark A/S**

Certificate No: **EX3-3581\_Jul10**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3581**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-14.v3, QA CAL-23.v3 and QA CAL-25.v2  
Calibration procedure for dosimetric E-field probes**

Calibration date: **July 19, 2010**

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      | 1-Apr-10 (No. 217-01136)          | Apr-11                 |
| Power sensor E4412A        | MY41495277      | 1-Apr-10 (No. 217-01136)          | Apr-11                 |
| Power sensor E4412A        | MY41498087      | 1-Apr-10 (No. 217-01136)          | Apr-11                 |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 30-Mar-10 (No. 217-01159)         | Mar-11                 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 30-Mar-10 (No. 217-01161)         | Mar-11                 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 30-Mar-10 (No. 217-01160)         | Mar-11                 |
| Reference Probe ES3DV2     | SN: 3013        | 30-Dec-09 (No. ES3-3013_Dec09)    | Dec-10                 |
| DAE4                       | SN: 660         | 20-Apr-10 (No. DAE4-660_Apr10)    | Apr-11                 |
| Secondary Standards        | ID #            | Check Date (in house)             | Scheduled Check        |
| RF generator HP 8648C      | US3642U01700    | 4-Aug-99 (in house check Oct-09)  | In house check: Oct-11 |
| Network Analyzer HP 8753E  | US37390585      | 18-Oct-01 (in house check Oct-09) | In house check: Oct-10 |

|                |               |                   |           |
|----------------|---------------|-------------------|-----------|
|                | Name          | Function          | Signature |
| Calibrated by: | Katja Pokovic | Technical Manager |           |
| Approved by:   | Niels Kuster  | Quality Manager   |           |

Issued: July 20, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## DASY/EASY - Parameters of Probe: EX3DV4 SN:3581

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] | Validity [MHz] <sup>c</sup> | Permittivity | Conductivity | ConvF X | ConvF Y | ConvF Z | Alpha | Depth Unc (k=2) |
|---------|-----------------------------|--------------|--------------|---------|---------|---------|-------|-----------------|
| 835     | ± 50 / ± 100                | 41.5 ± 5%    | 0.90 ± 5%    | 8.44    | 8.44    | 8.44    | 0.72  | 0.65 ± 11.0%    |
| 1750    | ± 50 / ± 100                | 40.1 ± 5%    | 1.37 ± 5%    | 7.42    | 7.42    | 7.42    | 0.96  | 0.54 ± 11.0%    |
| 1900    | ± 50 / ± 100                | 40.0 ± 5%    | 1.40 ± 5%    | 7.08    | 7.08    | 7.08    | 0.99  | 0.52 ± 11.0%    |
| 2450    | ± 50 / ± 100                | 39.2 ± 5%    | 1.80 ± 5%    | 6.51    | 6.51    | 6.51    | 0.69  | 0.62 ± 11.0%    |
| 2600    | ± 50 / ± 100                | 39.0 ± 5%    | 1.96 ± 5%    | 6.48    | 6.48    | 6.48    | 0.48  | 0.73 ± 11.0%    |
| 5200    | ± 50 / ± 100                | 36.0 ± 5%    | 4.66 ± 5%    | 4.54    | 4.54    | 4.54    | 0.32  | 1.80 ± 13.1%    |
| 5500    | ± 50 / ± 100                | 35.6 ± 5%    | 4.96 ± 5%    | 3.90    | 3.90    | 3.90    | 0.45  | 1.80 ± 13.1%    |
| 5800    | ± 50 / ± 100                | 35.3 ± 5%    | 5.27 ± 5%    | 3.75    | 3.75    | 3.75    | 0.50  | 1.80 ± 13.1%    |

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.



## DASY/EASY - Parameters of Probe: EX3DV4 SN:3581

### Calibration Parameter Determined in Body Tissue Simulating Media

| f [MHz] | Validity [MHz] <sup>c</sup> | Permittivity | Conductivity | ConvF X | ConvF Y | ConvF Z | Alpha | Depth Unc (k=2) |
|---------|-----------------------------|--------------|--------------|---------|---------|---------|-------|-----------------|
| 835     | ± 50 / ± 100                | 55.2 ± 5%    | 0.97 ± 5%    | 8.61    | 8.61    | 8.61    | 0.67  | 0.68 ± 11.0%    |
| 1750    | ± 50 / ± 100                | 53.4 ± 5%    | 1.49 ± 5%    | 7.12    | 7.12    | 7.12    | 0.96  | 0.56 ± 11.0%    |
| 1900    | ± 50 / ± 100                | 53.3 ± 5%    | 1.52 ± 5%    | 6.86    | 6.86    | 6.86    | 0.89  | 0.57 ± 11.0%    |
| 2450    | ± 50 / ± 100                | 52.7 ± 5%    | 1.95 ± 5%    | 6.81    | 6.81    | 6.81    | 0.45  | 0.75 ± 11.0%    |
| 2600    | ± 50 / ± 100                | 52.5 ± 5%    | 2.16 ± 5%    | 6.76    | 6.76    | 6.76    | 0.36  | 0.85 ± 11.0%    |
| 5200    | ± 50 / ± 100                | 49.0 ± 5%    | 5.30 ± 5%    | 3.84    | 3.84    | 3.84    | 0.50  | 1.90 ± 13.1%    |
| 5500    | ± 50 / ± 100                | 48.6 ± 5%    | 5.65 ± 5%    | 3.40    | 3.40    | 3.40    | 0.60  | 1.90 ± 13.1%    |
| 5800    | ± 50 / ± 100                | 48.2 ± 5%    | 6.00 ± 5%    | 3.45    | 3.45    | 3.45    | 0.60  | 1.90 ± 13.1%    |

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.



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 Denmark A/S**

Certificate No: **ES3-3117\_Jul10**

## CALIBRATION CERTIFICATE

Object: **ES3DV3 - SN:3117**

Calibration procedure(s): **QA CAL-01.v6, QA CAL-23.v3 and QA CAL-25.v2  
Calibration procedure for dosimetric E-field probes**

Calibration date: **July 19, 2010**

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      | 1-Apr-10 (No. 217-01136)       | Apr-11                |
| Power sensor E4412A        | MY41495277      | 1-Apr-10 (No. 217-01136)       | Apr-11                |
| Power sensor E4412A        | MY41498087      | 1-Apr-10 (No. 217-01136)       | Apr-11                |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 30-Mar-10 (No. 217-01159)      | Mar-11                |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 30-Mar-10 (No. 217-01161)      | Mar-11                |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 30-Mar-10 (No. 217-01160)      | Mar-11                |
| Reference Probe ES3DV2     | SN: 3013        | 30-Dec-09 (No. ES3-3013_Dec09) | Dec-10                |
| DAE4                       | SN: 660         | 20-Apr-10 (No. DAE4-660_Apr10) | Apr-11                |

| Secondary Standards       | ID #         | Check Date (in house)             | Scheduled Check        |
|---------------------------|--------------|-----------------------------------|------------------------|
| RF generator HP 8648C     | US3642U01700 | 4-Aug-99 (in house check Oct-09)  | In house check: Oct-11 |
| Network Analyzer HP 8753E | US37390585   | 18-Oct-01 (in house check Oct-09) | In house check: Oct10  |

Calibrated by: **Name: Jeton Kastrati** **Function: Laboratory Technician**

Approved by: **Kalja Pokovic** **Technical Manager**

Issued: July 19, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



## DASY/EASY - Parameters of Probe: ES3DV3 SN:3117

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] | Validity [MHz] <sup>c</sup> | Permittivity | Conductivity | ConvF X | ConvF Y | ConvF Z | Alpha | Depth Unc (k=2) |
|---------|-----------------------------|--------------|--------------|---------|---------|---------|-------|-----------------|
| 835     | ± 50 / ± 100                | 41.5 ± 5%    | 0.90 ± 5%    | 5.69    | 5.69    | 5.69    | 0.77  | 1.13 ± 11.0%    |
| 1750    | ± 50 / ± 100                | 40.1 ± 5%    | 1.37 ± 5%    | 4.94    | 4.94    | 4.94    | 0.45  | 1.56 ± 11.0%    |
| 1900    | ± 50 / ± 100                | 40.0 ± 5%    | 1.40 ± 5%    | 4.71    | 4.71    | 4.71    | 0.42  | 1.65 ± 11.0%    |
| 2450    | ± 50 / ± 100                | 39.2 ± 5%    | 1.80 ± 5%    | 4.22    | 4.22    | 4.22    | 0.46  | 1.64 ± 11.0%    |

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band

## DASY/EASY - Parameters of Probe: ES3DV3 SN:3117

### Calibration Parameter Determined in Body Tissue Simulating Media

| f [MHz] | Validity [MHz] <sup>c</sup> | Permittivity | Conductivity | ConvF X | ConvF Y | ConvF Z | Alpha | Depth Unc (k=2) |
|---------|-----------------------------|--------------|--------------|---------|---------|---------|-------|-----------------|
| 835     | ± 50 / ± 100                | 55.2 ± 5%    | 0.97 ± 5%    | 5.70    | 5.70    | 5.70    | 0.91  | 1.12 ± 11.0%    |
| 1750    | ± 50 / ± 100                | 53.4 ± 5%    | 1.49 ± 5%    | 4.68    | 4.68    | 4.68    | 0.42  | 1.74 ± 11.0%    |
| 1900    | ± 50 / ± 100                | 53.3 ± 5%    | 1.52 ± 5%    | 4.46    | 4.46    | 4.46    | 0.35  | 2.10 ± 11.0%    |
| 2450    | ± 50 / ± 100                | 52.7 ± 5%    | 1.95 ± 5%    | 4.12    | 4.12    | 4.12    | 0.70  | 1.31 ± 11.0%    |

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.



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 Denmark A/S**

Certificate No: **ES3-3116\_Feb11**

## CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3116**

Calibration procedure(s) **QA CAL-01.v7, QA CAL-23.v4, QA CAL-25.v3  
Calibration procedure for dosimetric E-field probes**

Calibration date: **February 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 E4419B         | GB41293874      | 01-Apr-10 (No. 217-01136)         | Apr-11                 |
| Power sensor E4412A        | MY41495277      | 01-Apr-10 (No. 217-01136)         | Apr-11                 |
| Power sensor E4412A        | MY41498087      | 01-Apr-10 (No. 217-01136)         | Apr-11                 |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 30-Mar-10 (No. 217-01159)         | Mar-11                 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 30-Mar-10 (No. 217-01161)         | Mar-11                 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 30-Mar-10 (No. 217-01160)         | Mar-11                 |
| Reference Probe ES3DV2     | SN: 3013        | 29-Dec-10 (No. ES3-3013_Dec10)    | Dec-11                 |
| DAE4                       | SN: 654         | 23-Apr-10 (No. DAE4-654_Apr10)    | Apr-11                 |
| Secondary Standards        | ID              | Check Date (in house)             | Scheduled Check        |
| RF generator HP 8648C      | US3642U01700    | 4-Aug-99 (in house check Oct-09)  | In house check: Oct-11 |
| Network Analyzer HP 8753E  | US37390585      | 18-Oct-01 (in house check Oct-10) | In house check: Oct-11 |

|                                                                                                                 | Name           | Function              | Signature |
|-----------------------------------------------------------------------------------------------------------------|----------------|-----------------------|-----------|
| Calibrated by:                                                                                                  | Jeton Kastrati | Laboratory Technician |           |
| Approved by:                                                                                                    | Katja Pokovic  | Technical Manager     |           |
| Issued: February 22, 2011                                                                                       |                |                       |           |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                |                       |           |



## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3116

### 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                            | 6.01    | 6.01    | 6.01    | 0.99  | 1.14       | ± 12.0 %    |
| 1750                 | 40.1                               | 1.37                            | 5.29    | 5.29    | 5.29    | 0.96  | 1.17       | ± 12.0 %    |
| 1900                 | 40.0                               | 1.40                            | 5.08    | 5.08    | 5.08    | 0.88  | 1.21       | ± 12.0 %    |
| 2450                 | 39.2                               | 1.80                            | 4.50    | 4.50    | 4.50    | 0.78  | 1.31       | ± 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: ES3DV3- SN:3116

### 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                            | 5.96    | 5.96    | 5.96    | 0.99  | 1.13       | ± 12.0 %    |
| 1750                 | 53.4                               | 1.49                            | 4.93    | 4.93    | 4.93    | 0.99  | 1.23       | ± 12.0 %    |
| 1900                 | 53.3                               | 1.52                            | 4.68    | 4.68    | 4.68    | 0.89  | 1.29       | ± 12.0 %    |
| 2450                 | 52.7                               | 1.95                            | 4.29    | 4.29    | 4.29    | 0.99  | 1.03       | ± 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.

---

**APPENDIX E: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)**

.

See the following pages



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 Denmark A/S**

Certificate No: **D835V2-4d042\_Jul10**

## CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d042**

Calibration procedure(s) **QA CAL-05.v7**  
**Calibration procedure for dipole validation kits**

Calibration date: **July 20, 2010**

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 EPM-442A        | GB37480704         | 06-Oct-09 (No. 217-01086)      | Oct-10                |
| Power sensor HP 8481A       | US37292783         | 06-Oct-09 (No. 217-01086)      | Oct-10                |
| 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-09) | In house check: Oct-10 |

|                |             |                       |           |
|----------------|-------------|-----------------------|-----------|
|                | Name        | Function              | Signature |
| Calibrated by: | Dimce Iliev | Laboratory Technician |           |

|              |               |                   |
|--------------|---------------|-------------------|
| Approved by: | Katja Pokovic | Technical Manager |
|--------------|---------------|-------------------|

Issued: July 20, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



## DASY5 Validation Report for Head TSL

Date/Time: 12.07.2010 10:35:49

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 42.1$ ;  $\rho = 1000 \text{ kg/m}^3$

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, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

**Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement**  
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 3.56 W/kg

**SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.55 mW/g**

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





## DASY5 Validation Report for Body

Date/Time: 20.07.2010 11:38:55

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 55$ ;  $\rho = 1000 \text{ kg/m}^3$

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, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

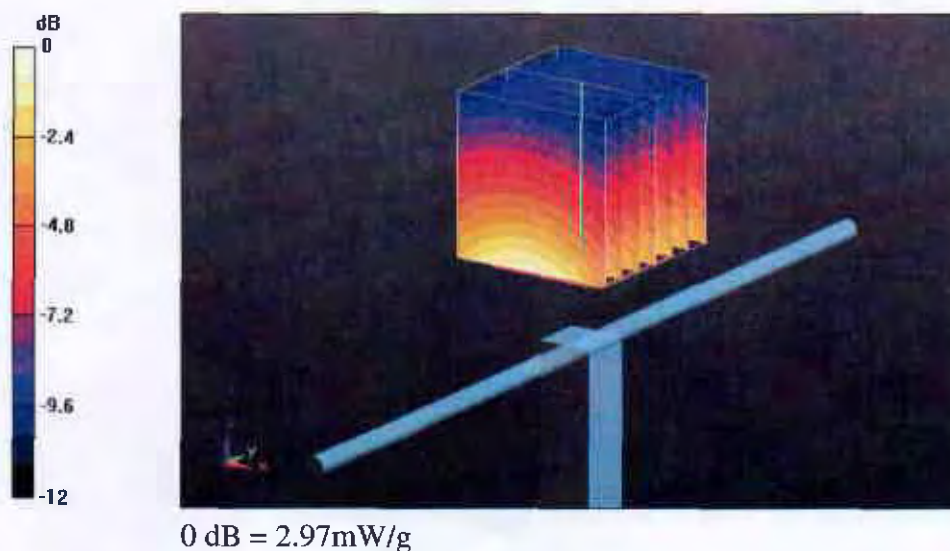
**Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 56.1 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 3.78 W/kg

**SAR(1 g) = 2.56 mW/g; SAR(10 g) = 1.68 mW/g**

Maximum value of SAR (measured) = 2.97 mW/g





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 Denmark A/S**

Certificate No: **D1800V2\_2d075\_Feb10**

## CALIBRATION CERTIFICATE

Object **D1800V2 - SN: 2d075**

Calibration procedure(s) **QA CAL-05.v7**  
**Calibration procedure for dipole validation kits**

Calibration date: **February 23, 2010**

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-09 (No. 217-01086)         | Oct-10                 |
| Power sensor HP 8481A       | US37292783         | 06-Oct-09 (No. 217-01086)         | Oct-10                 |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 31-Mar-09 (No. 217-01025)         | Mar-10                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 31-Mar-09 (No. 217-01029)         | Mar-10                 |
| Reference Probe ES3DV3      | SN: 3205           | 26-Jun-09 (No. ES3-3205_Jun09)    | Jun-10                 |
| DAE4                        | SN: 601            | 07-Mar-09 (No. DAE4-601_Mar09)    | Mar-10                 |
| 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-09) | In house check: Oct-10 |

Calibrated by: **Jeton Kastrati** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: February 23, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## DASY5 Validation Report for Head TSL

Date/Time: 23.02.2010 11:16:34

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d075**

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used:  $f = 1800$  MHz;  $\sigma = 1.37$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.25, 5.25, 5.25); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

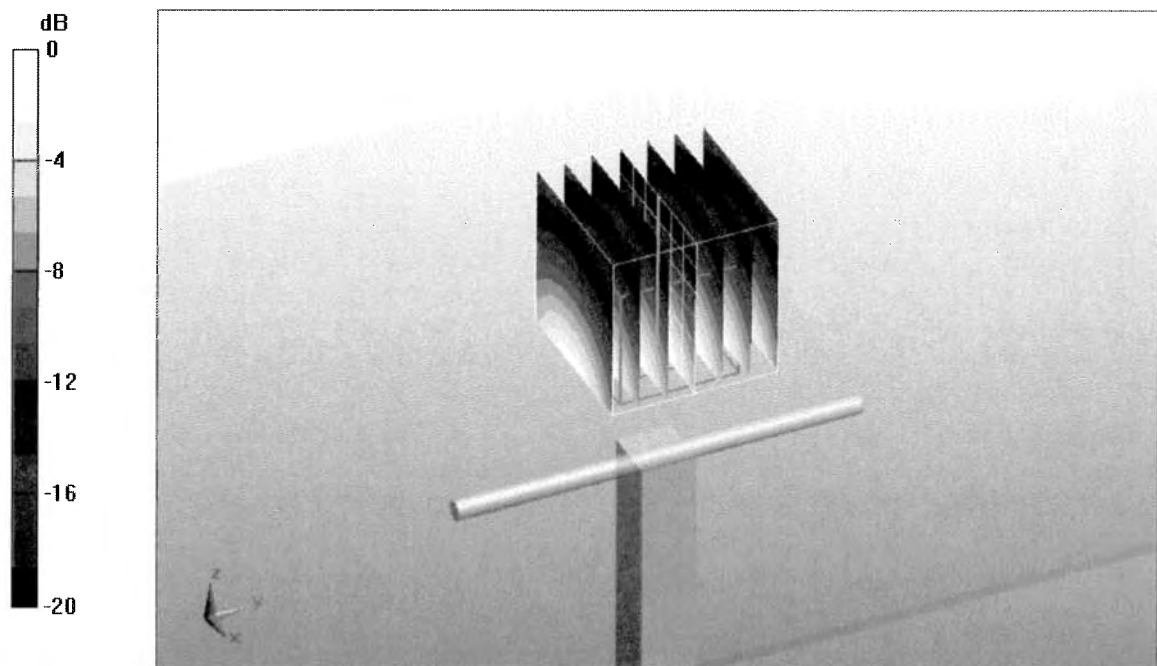
**Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.3 V/m; Power Drift = 0.050 dB

Peak SAR (extrapolated) = 17.2 W/kg

**SAR(1 g) = 9.5 mW/g; SAR(10 g) = 5.01 mW/g**

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



0 dB = 11.9mW/g

## DASY5 Validation Report for Body

Date/Time: 16.02.2010 10:42:30

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d075**

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used:  $f = 1800 \text{ MHz}$ ;  $\sigma = 1.49 \text{ mho/m}$ ;  $\epsilon_r = 52.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

### DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.8, 4.8, 4.8); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

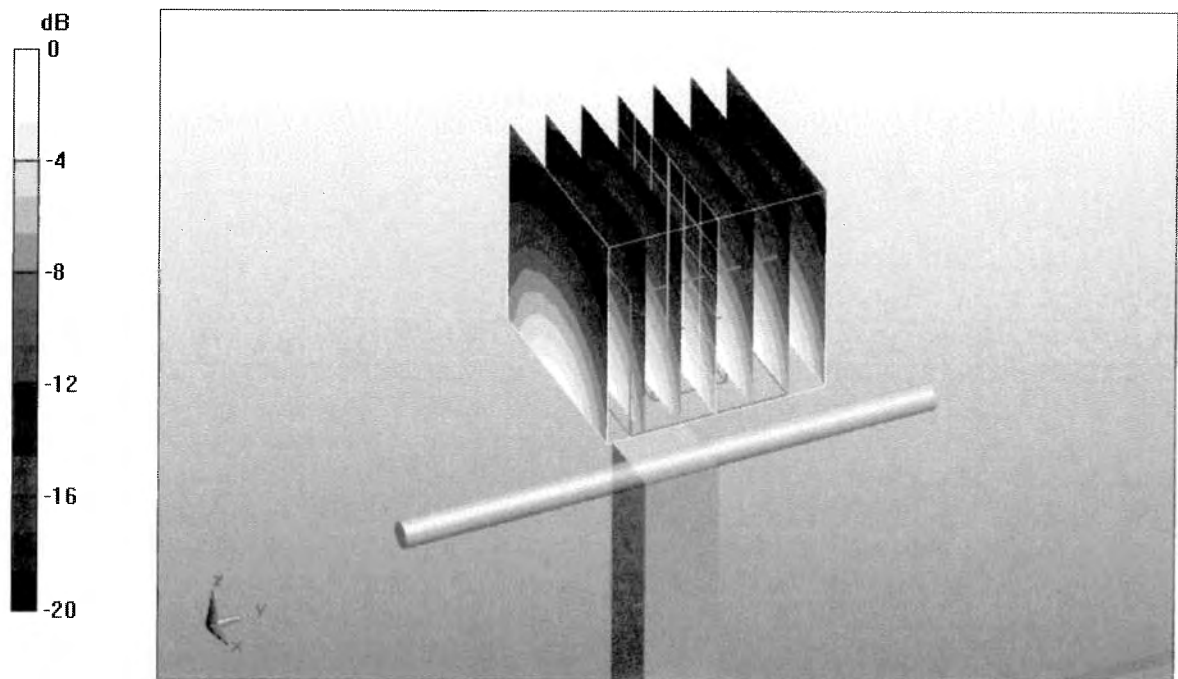
**Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement**  
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.5 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 16.7 W/kg

**SAR(1 g) = 9.55 mW/g; SAR(10 g) = 5.07 mW/g**

Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 12.1mW/g



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 Denmark A/S**

Certificate No: **D1900V2-5d063\_Feb10**

## CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d063**

Calibration procedure(s) **QA CAL-05.v7**  
**Calibration procedure for dipole validation kits**

Calibration date: **February 23, 2010**

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 EPM-442A        | GB37480704         | 06-Oct-09 (No. 217-01086)         | Oct-10                 |
| Power sensor HP 8481A       | US37292783         | 06-Oct-09 (No. 217-01086)         | Oct-10                 |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 31-Mar-09 (No. 217-01025)         | Mar-10                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 31-Mar-09 (No. 217-01029)         | Mar-10                 |
| Reference Probe ES3DV3      | SN: 3205           | 26-Jun-09 (No. ES3-3205_Jun09)    | Jun-10                 |
| DAE4                        | SN: 601            | 07-Mar-09 (No. DAE4-601_Mar09)    | Mar-10                 |
| 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-09) | In house check: Oct-10 |

Calibrated by: **Jeton Kastrati**

Name  
Function  
Laboratory Technician

Signature

Approved by: **Katja Pokovic**

Technical Manager

Issued: February 25, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## DASY5 Validation Report for Head TSL

Date/Time: 23.02.2010 13:21:31

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d063**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 39.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

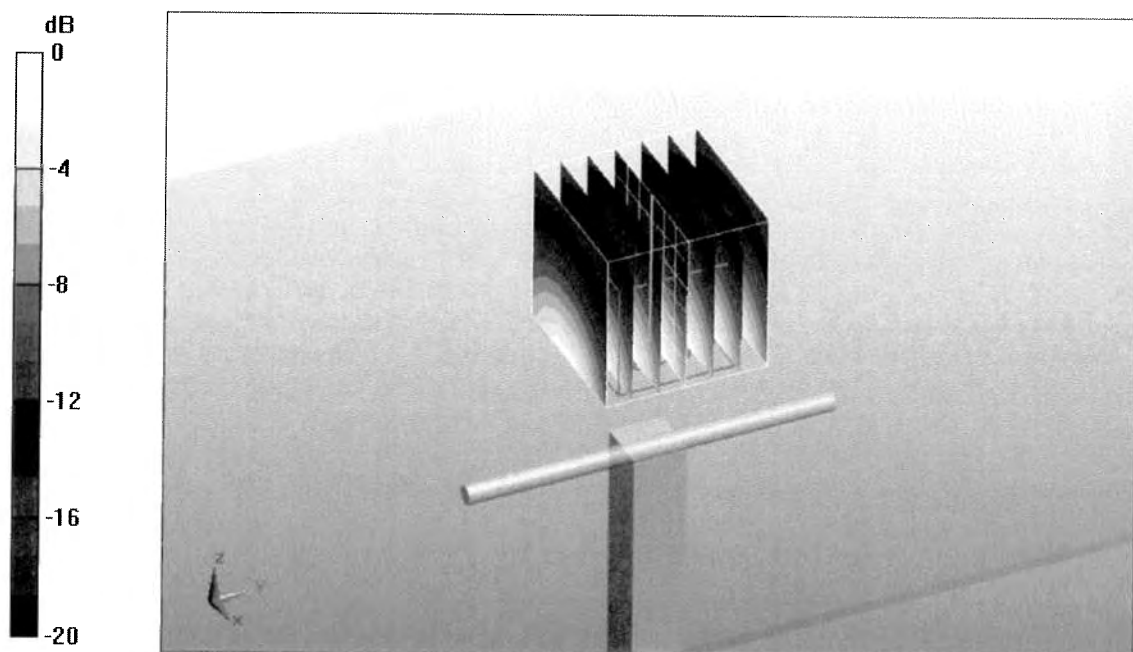
**Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.1 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 18.3 W/kg

**SAR(1 g) = 9.98 mW/g; SAR(10 g) = 5.2 mW/g**

Maximum value of SAR (measured) = 12.4 mW/g



0 dB = 12.4mW/g

## DASY5 Validation Report for Body

Date/Time: 16.02.2010 13:00:42

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d063**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.56$  mho/m;  $\epsilon_r = 52.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

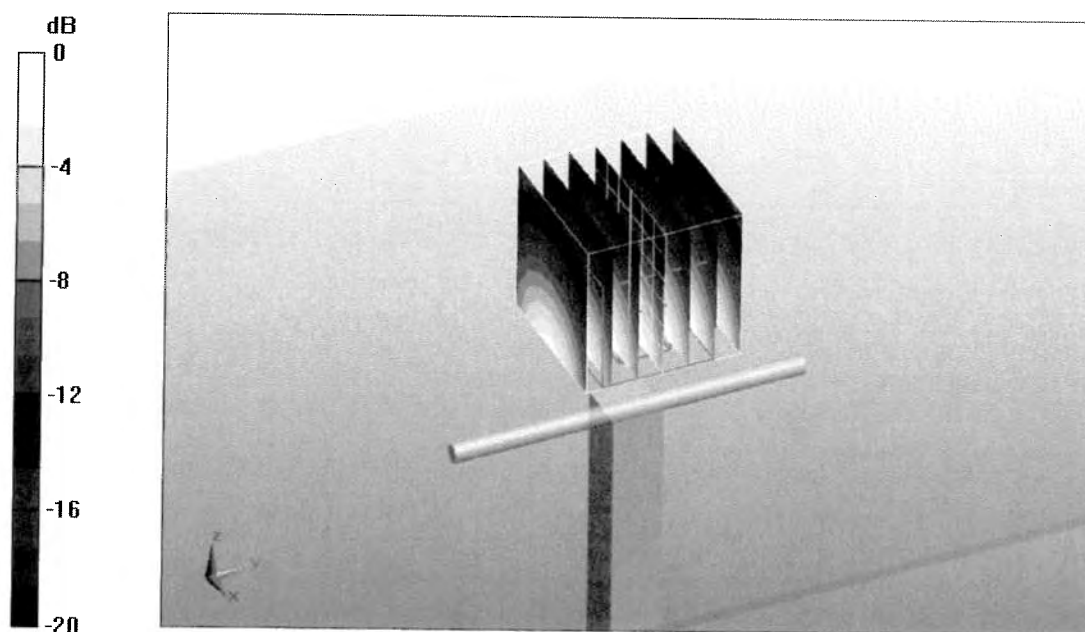
**Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement**  
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.1 V/m; Power Drift = 0.078 dB

Peak SAR (extrapolated) = 16.7 W/kg

**SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.31 mW/g**

Maximum value of SAR (measured) = 12.8 mW/g



0 dB = 12.8mW/g





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 Denmark A/S**

Certificate No: **D2450V2-750\_Feb10**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 750**

Calibration procedure(s) **QA CAL-05.v7**  
**Calibration procedure for dipole validation kits**

Calibration date: **February 19, 2010**

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-09 (No. 217-01086)         | Oct-10                 |
| Power sensor HP 8481A       | US37292783         | 06-Oct-09 (No. 217-01086)         | Oct-10                 |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 31-Mar-09 (No. 217-01025)         | Mar-10                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 31-Mar-09 (No. 217-01029)         | Mar-10                 |
| Reference Probe ES3DV3      | SN: 3205           | 26-Jun-09 (No. ES3-3205_Jun09)    | Jun-10                 |
| DAE4                        | SN: 601            | 07-Mar-09 (No. DAE4-601_Mar09)    | Mar-10                 |
| 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-09) | In house check: Oct-10 |

Calibrated by: **Jeton Kastrati**      Name: **Jeton Kastrati**      Function: **Laboratory Technician**

Approved by: **Katja Pokovic**      Name: **Katja Pokovic**      Function: **Technical Manager**

Signature




Issued: February 22, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

## DASY5 Validation Report for Head TSL

Date/Time: 17.02.2010 14:26:37

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:750**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.77$  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: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement**

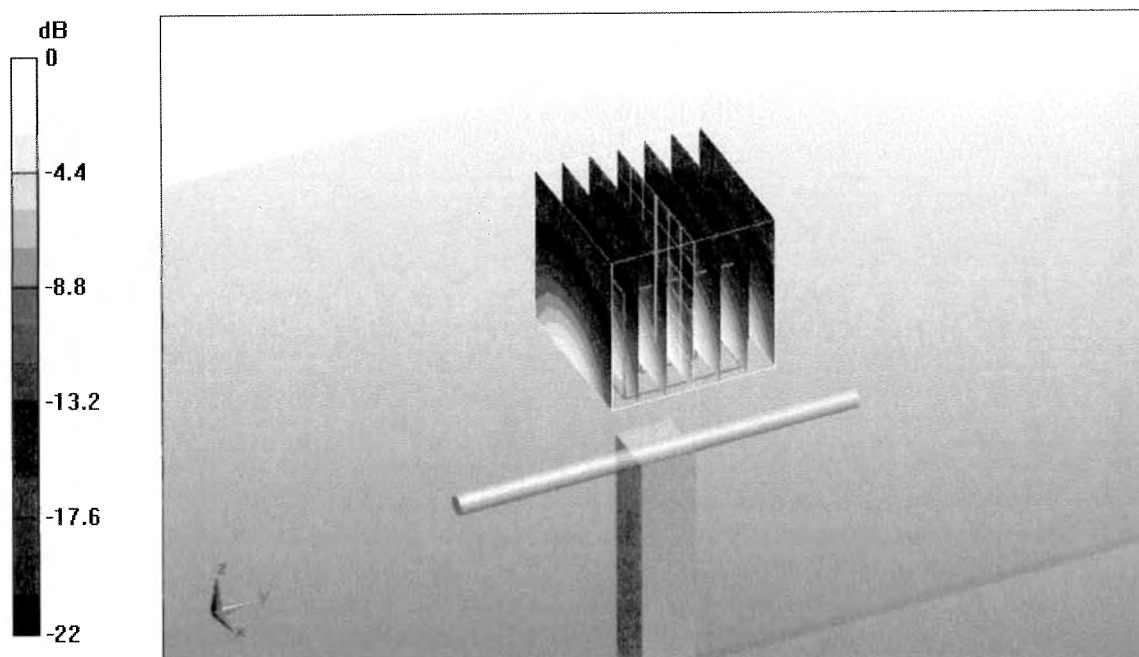
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.2 V/m; Power Drift = 0.00838 dB

Peak SAR (extrapolated) = 27.5 W/kg

**SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.3 mW/g**

Maximum value of SAR (measured) = 17.4 mW/g



0 dB = 17.4mW/g

## DASY5 Validation Report for Body

Date/Time: 19.02.2010 14:00:59

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:750**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.01$  mho/m;  $\epsilon_r = 51.8$ ;  $\rho = 1000$  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: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Body/d=10mm, Pin250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0:**

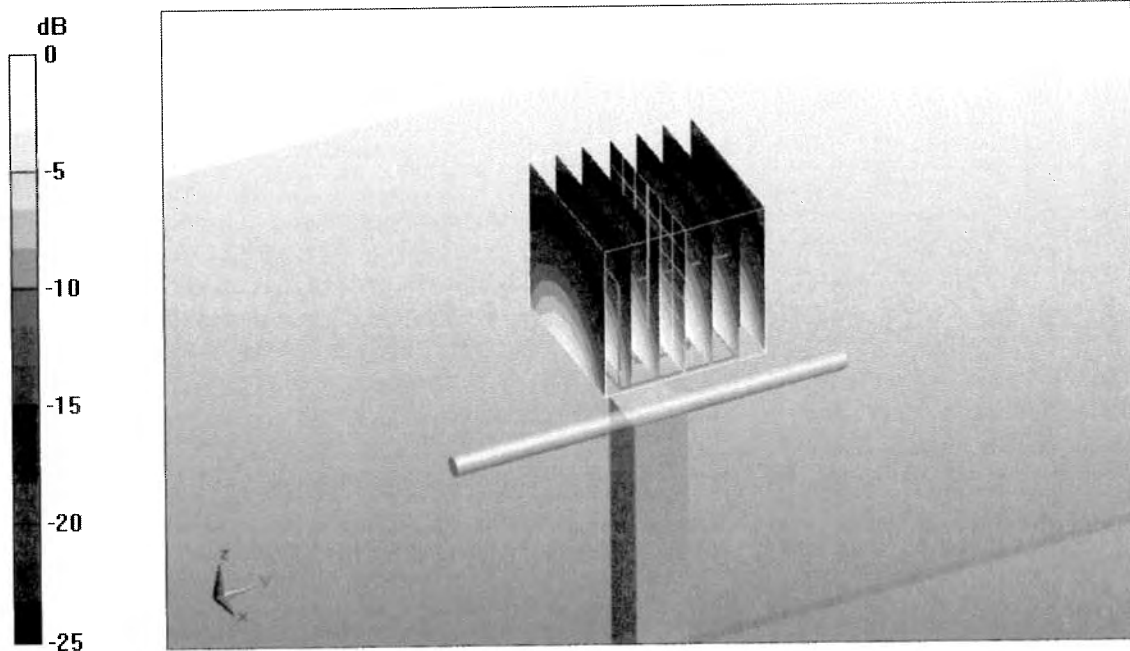
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.7 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 26.9 W/kg

**SAR(1 g) = 12.9 mW/g; SAR(10 g) = 5.9 mW/g**

Maximum value of SAR (measured) = 17.1 mW/g



0 dB = 17.1mW/g

**Calibration Laboratory of**  
**Schmid & Partner**  
**Engineering AG**  
 Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**S** Service suisse d'étalonnage  
**C** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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 Oulu TCC**

Certificate No: **D5GHzV2-1014\_Nov10**

## CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN: 1014**

Calibration procedure(s) **QA CAL-22.v1**  
**Calibration procedure for dipole validation kits between 3-6 GHz**

Calibration date: **November 16, 2010**

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 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 EX3DV4      | SN: 3503           | 05-Mar-10 (No. EX3-3503_Mar10)    | Mar-11                 |
| DAE4                        | SN: 801            | 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: | Claudio Leubler | Laboratory Technician |                  |
| Approved by:   | Katja Pokovic   | Technical Manager     |                  |

Issued: November 17, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



## DASY5 Validation Report for Head TSL

Time: 15.11.2010 11:40:40

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014**

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: HSL 501

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 4.6$  mho/m;  $\epsilon_r = 37.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 4.91$  mho/m;  $\epsilon_r = 36.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 5800$  MHz;  $\sigma = 5.22$  mho/m;  $\epsilon_r = 36.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.36, 5.36, 5.36), ConvF(4.85, 4.85, 4.85), ConvF(4.74, 4.74, 4.74); Calibrated: 05.03.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

**Configuration D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x12)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 65 V/m; Power Drift = 0.078 dB

Peak SAR (extrapolated) = 31.9 W/kg

**SAR(1 g) = 8.26 mW/g; SAR(10 g) = 2.34 mW/g**

Maximum value of SAR (measured) = 16.1 mW/g

**Configuration D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x12)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 65.9 V/m; Power Drift = 0.060 dB

Peak SAR (extrapolated) = 36 W/kg

**SAR(1 g) = 8.82 mW/g; SAR(10 g) = 2.49 mW/g**

Maximum value of SAR (measured) = 17.5 mW/g

**Configuration D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x12)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 62.2 V/m; Power Drift = 0.054 dB

Peak SAR (extrapolated) = 35 W/kg

**SAR(1 g) = 8.17 mW/g; SAR(10 g) = 2.3 mW/g**

Maximum value of SAR (measured) = 16.3 mW/g



## DASY5 Validation Report for Body TSL

Date/Time: 16.11.2010 13:22:37

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014**

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: MSL 5000 MHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.3$  mho/m;  $\epsilon_r = 47.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.68$  mho/m;  $\epsilon_r = 46.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>,

Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.08$  mho/m;  $\epsilon_r = 46.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88), ConvF(4.37, 4.37, 4.37), ConvF(4.57, 4.57, 4.57); Calibrated: 05.03.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

### **Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5200 MHz 2/Zoom Scan (4x4x2mm), dist=2mm (8x8x12)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 60.2 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 31.8 W/kg

**SAR(1 g) = 7.91 mW/g; SAR(10 g) = 2.2 mW/g**

Maximum value of SAR (measured) = 15.3 mW/g

### **Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x12)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 61 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 36.4 W/kg

**SAR(1 g) = 8.52 mW/g; SAR(10 g) = 2.35 mW/g**

Maximum value of SAR (measured) = 16.6 mW/g

### **Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x12)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 56.1 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 34.2 W/kg

**SAR(1 g) = 7.6 mW/g; SAR(10 g) = 2.09 mW/g**

Maximum value of SAR (measured) = 15 mW/g



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 Denmark A/S**

Certificate No: **D5GHzV2-1045\_Feb10/2**

## CALIBRATION CERTIFICATE (Replacement of No:D5GHzV2-1045\_Feb10)

Object **D5GHzV2 - SN: 1045**

Calibration procedure(s) **QA CAL-22.v1**  
**Calibration procedure for dipole validation kits between 3-6 GHz**

Calibration date: **February 25, 2010**

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-09 (No. 217-01086)         | Oct-10                 |
| Power sensor HP 8481A       | US37292783         | 06-Oct-09 (No. 217-01086)         | Oct-10                 |
| Reference 20 dB Attenuator  | SN: 5086 (20g)     | 31-Mar-09 (No. 217-01025)         | Mar-10                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 31-Mar-09 (No. 217-01029)         | Mar-10                 |
| Reference Probe EX3DV4      | SN: 3503           | 11-Mar-09 (No. EX3-3503_Mar09)    | Mar-10                 |
| DAE4                        | SN: 601            | 07-Mar-09 (No. DAE4-601_Mar09)    | Mar-10                 |
| 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-09) | In house check: Oct-10 |

|                |                |                       |           |
|----------------|----------------|-----------------------|-----------|
|                | Name           | Function              | Signature |
| Calibrated by: | Jeton Kastrati | Laboratory Technician |           |
| Approved by:   | Katja Pokovic  | Technical Manager     |           |

Issued: April 21, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



## DASY5 Validation Report for Head TSL

Date/Time: 24.02.2010 16:54:38

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1045**

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: HSL 3-6 GHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 4.54$  mho/m;  $\epsilon_r = 34.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5500$  MHz;  $\sigma = 4.81$  mho/m;  $\epsilon_r = 34.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5800$  MHz;  $\sigma = 5.07$  mho/m;  $\epsilon_r = 33.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.36, 5.36, 5.36), ConvF(4.85, 4.85, 4.85), ConvF(4.74, 4.74, 4.74); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**D5GHzV2 Dipole/d=10mm, Pin=100mW, f=5200 MHz 2/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 65 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 30.2 W/kg

**SAR(1 g) = 7.81 mW/g; SAR(10 g) = 2.22 mW/g**

Maximum value of SAR (measured) = 15.3 mW/g

**D5GHzV2 Dipole/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 64.3 V/m; Power Drift = 0.063 dB

Peak SAR (extrapolated) = 32.8 W/kg

**SAR(1 g) = 8.08 mW/g; SAR(10 g) = 2.28 mW/g**

Maximum value of SAR (measured) = 16.2 mW/g

**D5GHzV2 Dipole/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 60.1 V/m; Power Drift = 0.073 dB

Peak SAR (extrapolated) = 31.3 W/kg

**SAR(1 g) = 7.34 mW/g; SAR(10 g) = 2.07 mW/g**

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

## DASY5 Validation Report for Body TSL

Date/Time: 25.02.2010 14:26:01

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1045**

Communication System: CW-5GHz; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: MSL 3-6 GHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.45$  mho/m;  $\epsilon_r = 47.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.82$  mho/m;  $\epsilon_r = 46.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>, Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.18$  mho/m;  $\epsilon_r = 46$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88), ConvF(4.37, 4.37, 4.37), ConvF(4.57, 4.57, 4.57); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5200 MHz/Area Scan (91x91x1):**

Measurement grid: dx=10mm, dy=10mm

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

**D5GHzV2 Dipole/d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 59.3 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 28.9 W/kg

**SAR(1 g) = 7.6 mW/g; SAR(10 g) = 2.14 mW/g**

Maximum value of SAR (measured) = 15 mW/g

**D5GHzV2 Dipole/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 59.5 V/m; Power Drift = -0.00706 dB

Peak SAR (extrapolated) = 33.2 W/kg

**SAR(1 g) = 8.14 mW/g; SAR(10 g) = 2.25 mW/g**

Maximum value of SAR (measured) = 16.3 mW/g

**D5GHzV2 Dipole/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:**

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 54.4 V/m; Power Drift = -0.00394 dB

Peak SAR (extrapolated) = 30.7 W/kg

**SAR(1 g) = 7.06 mW/g; SAR(10 g) = 1.96 mW/g**

Maximum value of SAR (measured) = 14.3 mW/g