

## HAC RF Emissions Test Report

|                                                  |                                                                                                                                                                                                                                                                                |                         |                                                                                                                       |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Test report no.:                                 | HAC_RM-509_01                                                                                                                                                                                                                                                                  | Date of report:         | 2010-02-10                                                                                                            |
| Template version:                                | 7.0                                                                                                                                                                                                                                                                            | Number of pages:        | 28                                                                                                                    |
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| Tested devices:                                  | RM-509                                                                                                                                                                                                                                                                         |                         |                                                                                                                       |
| FCC ID:                                          | PPIRM-509H                                                                                                                                                                                                                                                                     | IC:                     | 661U-RM509                                                                                                            |
| Supplement reports:                              | HAC_Photo_RM-509_02, T-Coil_RM-509_03                                                                                                                                                                                                                                          |                         |                                                                                                                       |
| Testing has been carried out in accordance with: | <b>ANSI C63.19-2007</b><br>American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids                                                                                                                     |                         |                                                                                                                       |
| Documentation:                                   | The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.                                                                                                                                                                        |                         |                                                                                                                       |
| Test results:                                    | <b>The tested device complies with the requirements in respect of all parameters subject to the test.</b> The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory. |                         |                                                                                                                       |
| Date and signatures:                             |                                                                                                                                                                                                                                                                                |                         |                                                                                                                       |
| For the contents:                                |                                                                                                                                                                                                                                                                                |                         |                                                                                                                       |

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## 1. SUMMARY OF HAC RF EMISSION TEST REPORT

### 1.1 Test Details

|                                             |                                                        |
|---------------------------------------------|--------------------------------------------------------|
| Period of test                              | 2010-01-25 to 2010-01-26                               |
| SN, HW, SW and DUT numbers of tested device | SN: 356934/03/000586/2, HW: 0650, SW: 4.18, DUT: 14453 |
| Batteries used in testing                   | BL-4S, DUT: 14454, 14455 14456                         |
| State of sample                             | Prototype unit                                         |
| Notes                                       | AWF = -5 for GSM, 0 for WCDMA                          |

### 1.2 Maximum Results

The maximum measured HAC RF emissions values and categories for electric and magnetic fields are given in section 1.2.1 and 1.2.2 respectively.

#### 1.2.1 Electric field measurements

| Band & Mode     | Ch / Freq. [MHz] | Conducted power | Limit of E-field max. value in category M3 [V/m] | Maximum E-field value after exclusion [V/m] | Category  |
|-----------------|------------------|-----------------|--------------------------------------------------|---------------------------------------------|-----------|
| GSM850          | 251 / 848.8      | 32.5 dBm        | 149.6 – 266.1                                    | 127.3                                       | M4 (-5dB) |
| WCDMA 1700/2100 | 1413 / 1732.4    | 23.0 dBm        | 63.1 – 112.2                                     | 19.5                                        | M4 ( 0dB) |
| GSM1900         | 512 / 1850.2     | 29.5 dBm        | 47.3 – 84.1                                      | 55.1                                        | M3 (-5dB) |

#### 1.2.2 Magnetic field measurements

| Band & Mode     | Ch / Freq. [MHz] | Conducted power | Limit of H-field max. value in category M3 [A/m] | Maximum H-field value after exclusion [A/m] | Category  |
|-----------------|------------------|-----------------|--------------------------------------------------|---------------------------------------------|-----------|
| GSM850          | 190 / 836.6      | 32.5 dBm        | 0.45 – 0.80                                      | 0.177                                       | M4 (-5dB) |
| WCDMA 1700/2100 | 1413 / 1732.4    | 23.0 dBm        | 0.19 – 0.34                                      | 0.047                                       | M4 ( 0dB) |
| GSM1900         | 512 / 1850.2     | 29.5 dBm        | 0.14 – 0.25                                      | 0.154                                       | M3 (-5dB) |

### 1.2.3 Overall RF emissions category of the tested device

| Band & Mode           | Combined category<br>(E- and H-fields) | Pass / Fail |
|-----------------------|----------------------------------------|-------------|
| GSM850                | M4                                     | Pass        |
| WCDMA 1700/2100       | M4                                     | Pass        |
| GSM1900               | M3                                     | Pass        |
| <b>Final Category</b> | <b>M3</b>                              | <b>Pass</b> |

### 1.2.4 Maximum Drift

|                                   |         |
|-----------------------------------|---------|
| Maximum drift during measurements | 0.31 dB |
|-----------------------------------|---------|

### 1.2.5 Measurement Uncertainty

|                                         |        |
|-----------------------------------------|--------|
| Extended Uncertainty (k=2) 95%, E-field | 14.7 % |
| Extended Uncertainty (k=2) 95%, H-field | 10.9 % |

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## 2. DESCRIPTION OF THE DEVICE UNDER TEST (DUT)

| Modes of Operation | Bands               | Modulation Mode | Duty Cycle | Transmitter Frequency Range (MHz) |
|--------------------|---------------------|-----------------|------------|-----------------------------------|
| GSM                | 850<br>1900         | GMSK            | 1/8        | 824 – 849<br>1850 – 1910          |
| WCDMA              | 1700/2100 (Band IV) | QPSK            | 1          | 1712 – 1753                       |

Outside of USA the transmitter of the device is capable of operating also in 900MHz, 1800MHz and 2100MHz bands, which are not part of this filing.

### 2.1 Picture of Device

See separate report 'HAC\_Photo\_RM-509\_02'.

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### 3. TEST CONDITIONS

#### 3.1 Temperature and Humidity

|                           |              |
|---------------------------|--------------|
| Ambient temperature [°C]: | 20.5 to 20.9 |
| Ambient humidity [RH %]:  | 41 to 46     |

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

The transmitter of the device was put into operation by using a call tester. Communications between the device and the call tester were established by air link.

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

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

The measurements were performed on lowest, middle and highest channels.

#### 4. DESCRIPTION OF THE TEST EQUIPMENT

##### 4.1 Measurement system and components

The measurements were performed using an automated near-field scanning system, DASY 4, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland.  
The following table lists calibration dates of SPEAG components:

| Test Equipment                  | Serial Number | Calibration interval | Calibration expiry |
|---------------------------------|---------------|----------------------|--------------------|
| DAE 4                           | 728           | 12 months            | 2010-02            |
| E-field Probe ER3DV6            | 2309          | 12 months            | 2010-10            |
| H-field Probe H3DV6             | 6143          | 12 months            | 2010-10            |
| Dipole Validation Kit, CD835V3  | 1005          | 24 months            | 2010-11            |
| Dipole Validation Kit, CD1880V3 | 1004          | 24 months            | 2010-11            |
| DASY4 software                  | Version 4.7   | -                    | -                  |

Additional test equipment used in testing and validation:

| Test Equipment   | Model        | Serial Number | Calibration interval | Calibration expiry |
|------------------|--------------|---------------|----------------------|--------------------|
| Signal Generator | SML03        | 101265        | 12 months            | 2010-08            |
| Amplifier        | ZHL-42 (SMA) | N072095-5     | 12 months            | 2010-08            |
| Power Meter      | NRVS         | 849305/028    | 12 months            | 2010-08            |
| Power Sensor     | NRV-Z32      | 839176/020    | 12 months            | 2010-08            |
| Call Tester      | CMU 200      | 101111        | -                    | -                  |

#### 4.1.1 Isotropic E-field probe ER3DV6

|                      |                                                                                                                                                                                   |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>  | One dipole parallel, two dipoles normal to probe axis<br>Built-in shielding against static charges<br>PEEK enclosure material                                                     |
| <b>Frequency</b>     | In air 100 MHz to >6 GHz; Linearity: $\pm 0.2$ dB (100 MHz to 3 GHz)                                                                                                              |
| <b>Directivity</b>   | $\pm 0.2$ dB in air (rotation around probe axis)<br>$\pm 0.4$ dB in air (rotation normal to probe axis)                                                                           |
| <b>Dynamic Range</b> | 2 V/m to > 1000 V/m; Linearity: $\pm 0.2$ dB                                                                                                                                      |
| <b>Dimensions</b>    | Overall length: 330 mm<br>Tip length: 16 mm<br>Body diameter: 12 mm<br>Tip diameter: 8 mm                                                                                         |
| <b>Application</b>   | Distance from probe tip to nearest point of dipole: 1.25 mm<br>General near-field measurements up to 6 GHz<br>Field component measurements<br>Fast automatic scanning in phantoms |

#### 4.1.2 Isotropic H-field probe H3DV6

|                      |                                                                                                                                                                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Construction</b>  | Three concentric loop sensors with 3.8 mm loop diameters<br>Resistively loaded detector diodes for linear response<br>Built-in shielding against static charges<br>PEEK enclosure material                                          |
| <b>Frequency</b>     | 200 MHz to 3 GHz; Output linearized (absolute accuracy $\pm 6.0\%$ , $k=2$ )                                                                                                                                                        |
| <b>Directivity</b>   | $\pm 0.25$ dB (spherical isotropy error)                                                                                                                                                                                            |
| <b>Dynamic Range</b> | 10 mA/m to 2 A/m at 1 GHz                                                                                                                                                                                                           |
| <b>Dimensions</b>    | Overall length: 330 mm<br>Tip length: 40 mm<br>Body diameter: 12 mm<br>Tip diameter: 6 mm                                                                                                                                           |
| <b>Application</b>   | Distance from probe tip to nearest point of dipole: 1.1 mm<br>General magnetic near-field measurements up to 3 GHz<br>Field component measurements, surface current measurements<br>Measurements in air or liquids, low interaction |

### 4.1.3 Device Holder

The Device Holder and Test Arch are manufactured by Speag (<http://www.dasy4.com/hac>). Test arch is used for all tests i.e. for both validation testing and device testing. The holder and test arch conforms to the requirements of ANSI C63.19.

The SPEAG device holder (see Section 5.1) was used to position the test device in all tests.

## 4.2 Validation of the System

The manufacturer calibrates the probes annually. Validation measurements are made regularly using the dipole validation kit. The power level used by manufacturer in dipole calibration is supplied to the dipole antenna. The antenna is scanned at 10mm distance between top surface of the dipole and calibration point of the probe.

**System Validation, H-field and E-field**

| f [MHz]              | Description      | E-field [V/m] | H-field [A/m] |
|----------------------|------------------|---------------|---------------|
| 835                  | Reference result | 164.1         | 0.441         |
|                      | ± 10% window     | 147.7 – 180.5 | 0.397 – 0.485 |
|                      | 2010-01-25       | 163.1         | 0.470         |
| 1880<br>1700(/2100)* | Reference result | 137.9         | 0.461         |
|                      | ± 10% window     | 124.1 – 151.7 | 0.415 – 0.507 |
|                      | 2010-01-25       | 143.4         | 0.478         |

\* No specific solution provided by system vendor to verify system performance on WCDMA 1700(/2100) frequency band. However the frequency is in range of 1880±10% in which probes (ER3DV6, H3DV6) are found practically linear according to the calibration documentation. Therefore system validation and probe modulation factor determination results of WCDMA1900 have been applied.

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

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## 5. DESCRIPTION OF THE TEST PROCEDURE

### 5.1 Test Arch and Device Holder

The test device was placed in the Device Holder (illustrated below) that is supplied by SPEAG. Using this positioner the tested device is positioned under Test Arch.



Device holder and Test Arch supplied by SPEAG

### 5.2 Test Positions

#### 5.2.1 Scan area centered at the acoustic output

The device was positioned such that Device Reference plane was touching the bottom of the Test Arch. The scan is centered at the acoustic output by aligning the acoustic output with the intersection of the Test Arch's middle bar and dielectric wire.

### 5.3 Scan Procedures

Near field scans of 5cm x 5cm were used for determination of the field distribution. Measurement plane distance from WD reference plane is 15mm. Scans were performed for both E- and H-field using appropriate probe. DASY software divides detected values into 3 x 3 sub grids as described in the C63.19 standard.

### 5.4 Scan area centered at the maximum magnetic T-coil coupling

Scanning centered at the maximum magnetic T-coil coupling was not applicable for the tested device.

## 5.5 Probe Modulation Factor

All raw measurements in DASY4 system are presented as RMS values. The measurement software then applies Probe Modulation Factor (PMF) to convert readings to “slot averaged” peak values as required by C63.19 standard.

Therefore PMF was assessed as described in C63.19 standard along with Speag's Application Note (AN\_Hearing\_Aid\_Compatibility.pdf, section 28.8, "Definition / Determination of the Probe Modulation Factor").

**Observed Modulation Factor:**

$$PMF_{(E)} = E\text{-field}_{(CW)} / E\text{-field}_{(Modulated)}$$

$$PMF_{(H)} = H\text{-field}_{(CW)} / H\text{-field}_{(Modulated)}$$

**Observed Crest Factor:**

$$CF_{(E)} = (PMF_{(E)})^2$$

$$CF_{(H)} = (PMF_{(H)})^2$$

Modulation factors, GSM

| $f$ [MHz] | $P_{in}$ [dBm] | E-field [V/m]<br>Probe SN: 2309 |      | H-field [A/m]<br>Probe SN: 6143 |       | PMF<br>E-field | PMF<br>H-field |
|-----------|----------------|---------------------------------|------|---------------------------------|-------|----------------|----------------|
|           |                | CW                              | GSM  | CW                              | GSM   |                |                |
| 835.0     | 20             | 99.6                            | 34.7 | 0.459                           | 0.169 | 2.87           | 2.72           |
| 1880.0    | 20             | 158.4                           | 55.1 | 0.498                           | 0.221 | 2.87           | 2.25           |

Modulation factors, WCDMA

| $f$ [MHz] | $P_{in}$ [dBm] | E-field [V/m]<br>Probe SN: 2309 |       | H-field [A/m]<br>Probe SN: 6143 |       | PMF<br>E-field | PMF<br>H-field |
|-----------|----------------|---------------------------------|-------|---------------------------------|-------|----------------|----------------|
|           |                | CW                              | WCDMA | CW                              | WCDMA |                |                |
| 1732.4*   | -              |                                 |       |                                 |       | 0.60           | 0.52           |
| 1880.0    | 20             | 36.3                            | 60.1  | 0.112                           | 0.217 | 0.60           | 0.52           |

\* See table 'System Validation, H-field and E-field' in section 4.2 Validation of the System

## 5.6 Slot Averaged Calculation Method

The slot-averaged values for the every measured signal type were calculated using observed duty cycles.

## 5.7 Sub-grid Exclusion

The measurement grid defined in C63.19 consists of 9 evenly sized blocks, which are used to define permissible exclusion areas. For both E- and H-field measurements three contiguous blocks may be excluded from the measurements except center block may never be excluded. There must be 4 blocks left that are common for both E- and H-field measurements, so maximum of 5 different blocks can be excluded (e.g. 3 blocks excluded from E-field and 2 blocks from H-field).

## 5.8 Category Limits

From remaining maximum values after exclusion process, Hearing Aid M-category is defined according to the category limits of C63.19 – 2007.

|          |          | Limits for RF-parameters <960MHz |               |
|----------|----------|----------------------------------|---------------|
| Category | AWF [dB] | E-field [V/m]                    | H-field [A/m] |
| M1       | 0        | 631.0 to 1122.0                  | 1.91 to 3.39  |
|          | -5       | 473.2 to 841.4                   | 1.43 to 2.54  |
| M2       | 0        | 354.8 to 631.0                   | 1.07 to 1.91  |
|          | -5       | 266.1 to 473.2                   | 0.80 to 1.43  |
| M3       | 0        | 199.5 to 354.8                   | 0.60 to 1.07  |
|          | -5       | 149.6 to 266.1                   | 0.45 to 0.80  |
| M4       | 0        | <199.5                           | <0.60         |
|          | -5       | <149.6                           | <0.45         |

|          |          | Limits for RF-parameters >960MHz |               |
|----------|----------|----------------------------------|---------------|
| Category | AWF [dB] | E-field [V/m]                    | H-field [A/m] |
| M1       | 0        | 199.5 to 354.8                   | 0.60 to 1.07  |
|          | -5       | 149.6 to 266.1                   | 0.45 to 0.80  |
| M2       | 0        | 112.2 to 199.5                   | 0.34 to 0.60  |
|          | -5       | 84.1 to 149.6                    | 0.25 to 0.45  |
| M3       | 0        | 63.1 to 112.2                    | 0.19 to 0.34  |
|          | -5       | 47.3 to 84.1                     | 0.14 to 0.25  |
| M4       | 0        | <63.1                            | <0.19         |
|          | -5       | <47.3                            | <0.14         |

## 6. MEASUREMENT UNCERTAINTY

| Source of Uncertainty              | Tolerance<br>±% | Prob.<br>Dist. | Div. | ci<br>E | ci<br>H | Standard<br>Uncertainty<br>±%, E | Standard<br>Uncertainty<br>±%, H | Remark |
|------------------------------------|-----------------|----------------|------|---------|---------|----------------------------------|----------------------------------|--------|
| <b>MEASUREMENT SYSTEM</b>          |                 |                |      |         |         |                                  |                                  |        |
| Probe Calibration                  | 5.1             | N              | 1    | 1       | 1       | 5.1                              | 5.1                              |        |
| Axial Isotropy                     | 4.7             | R              | √3   | 1       | 1       | 2.7                              | 2.7                              |        |
| Sensor Displacement                | 16.5            | R              | √3   | 1       | 0.145   | 9.5                              | 1.4                              |        |
| Boundary Effect                    | 2.4             | R              | √3   | 1       | 1       | 1.4                              | 1.4                              |        |
| Linearity                          | 4.7             | R              | √3   | 1       | 1       | 2.7                              | 2.7                              | SAR    |
| Scaling to Peak Envelope Power     | 2.0             | R              | √3   | 1       | 1       | 1.2                              | 1.2                              |        |
| System Detection Limit             | 1.0             | R              | √3   | 1       | 1       | 0.6                              | 0.6                              |        |
| Readout Electronics                | 0.3             | N              | 1    | 1       | 1       | 0.3                              | 0.3                              | SAR    |
| Response Time                      | 0.8             | R              | √3   | 1       | 1       | 0.5                              | 0.5                              |        |
| Integration Time                   | 2.6             | R              | √3   | 1       | 1       | 1.5                              | 1.5                              | SAR    |
| RF Ambient Conditions              | 3.0             | R              | √3   | 1       | 1       | 1.7                              | 1.7                              | SAR    |
| RF Reflections                     | 12.0            | R              | √3   | 1       | 1       | 6.9                              | 6.9                              |        |
| Probe Positioner                   | 1.2             | R              | √3   | 1       | 0.67    | 0.7                              | 0.5                              |        |
| Probe Positioning                  | 4.7             | R              | √3   | 1       | 0.67    | 2.7                              | 1.8                              |        |
| Extrapolation and Interpolation    | 1.0             | R              | √3   | 1       | 1       | 0.6                              | 0.6                              | SAR    |
| <b>TEST SAMPLE RELATED</b>         |                 |                |      |         |         |                                  |                                  |        |
| Device Positioning Vertical        | 4.7             | R              | √3   | 1       | 0.67    | 2.7                              | 1.8                              |        |
| Device Positioning Lateral         | 1.0             | R              | √3   | 1       | 1       | 0.6                              | 0.6                              |        |
| Device Holder and Test Arch        | 2.4             | R              | √3   | 1       | 1       | 1.4                              | 1.4                              |        |
| Power Drift                        | 5.0             | R              | √3   | 1       | 1       | 2.9                              | 2.9                              | SAR    |
| <b>TEST ARCH AND SETUP RELATED</b> |                 |                |      |         |         |                                  |                                  |        |
| Test Arch Thickness                | 2.4             | R              | √3   | 1       | 0.67    | 1.4                              | 0.9                              |        |
| Combined Standard Uncertainty      |                 |                |      |         |         | 14.7                             | 10.9                             |        |
| Expanded Uncertainty on Power      |                 |                |      |         |         | 29.4                             | 21.8                             |        |
| Expanded Uncertainty on Field      |                 |                |      |         |         | 14.7                             | 10.9                             |        |

## 7. RESULTS

The calculated maximum field values for the test device are tabulated below:

### GSM850, RF emissions results

| Mode   | Flip option | Test configuration | Ch 128<br>824.2 MHz | Ch 190<br>836.6 MHz | Ch 251<br>848.8 MHz |
|--------|-------------|--------------------|---------------------|---------------------|---------------------|
| GSM850 | Flip open   | Power              | 32.5 dBm            | 32.5 dBm            | 32.5 dBm            |
|        |             | E-field [V/m]      | 117.6               | 124.8               | <b>127.3</b>        |
|        |             | H-field [A/m]      | 0.173               | <b>0.177</b>        | 0.171               |
|        |             | Category           | M4 (-5 dB)          | M4 (-5 dB)          | M4 (-5 dB)          |

### WCDMA1700/2100, RF emissions results

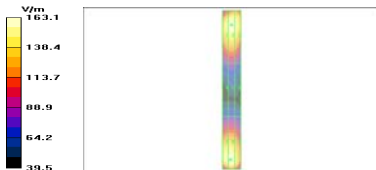
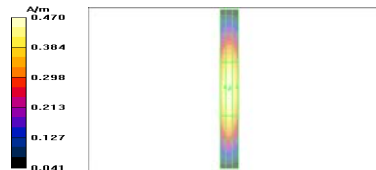
| Mode               | Flip option | Test configuration | Ch 1312<br>1712.4 MHz | Ch 1413<br>1732.4 MHz | Ch 1513<br>1752.6 MHz |
|--------------------|-------------|--------------------|-----------------------|-----------------------|-----------------------|
| WCDMA<br>1700/2100 | Flip open   | Power              | 23.0 dBm              | 23.0 dBm              | 23.0 dBm              |
|                    |             | E-field [V/m]      | 16.5                  | <b>19.5</b>           | 15.8                  |
|                    |             | H-field [A/m]      | 0.038                 | <b>0.047</b>          | 0.039                 |
|                    |             | Category           | M4 (0 dB)             | M4 (0 dB)             | M4 (0 dB)             |

### GSM1900, RF emissions results

| Mode    | Flip option | Test configuration | Ch 512<br>1850.2MHz | Ch 661<br>1880.0MHz | Ch 810<br>1909.8MHz |
|---------|-------------|--------------------|---------------------|---------------------|---------------------|
| GSM1900 | Flip open   | Power              | 29.5 dBm            | 29.5 dBm            | 29.5 dBm            |
|         |             | E-field [V/m]      | <b>55.1</b>         | 48.7                | 48.6                |
|         |             | H-field [A/m]      | <b>0.154</b>        | 0.130               | 0.135               |
|         |             | Category           | M3 (-5 dB)          | M3 (-5 dB)          | M3 (-5 dB)          |

Plots of the measurement scans are shown in **Appendix B**. Excluded cells are colored orange.

## APPENDIX A: SYSTEM VALIDATION SCANS

| SYSTEM VALIDATION DATA 850MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                         |                       |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|
| <div>Date/Time: 2010-01-25 11:36:54<br/>Test Laboratory: TCC Nokia<br/>Type: CD835V3; Serial: 1005</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div>Date/Time: 2010-01-25 12:16:38<br/>Test Laboratory: TCC Nokia<br/>Type: CD835V3; Serial: 1005</div>                                                                                                                                                                                                                                |                       |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| <div>Communication System: CW835<br/>Frequency: 835 MHz; Duty Cycle: 1:1<br/>Medium: Air; Medium Notes: -<br/>Medium parameters used: <math>\sigma = 0</math> mho/m, <math>\epsilon_r = 1</math>; <math>\rho = 1000</math> kg/m<sup>3</sup><br/>Phantom section: E Dipole Section</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <div>Communication System: CW835<br/>Frequency: 835 MHz; Duty Cycle: 1:1<br/>Medium: Air; Medium Notes: -<br/>Medium parameters used: <math>\sigma = 0</math> mho/m, <math>\epsilon_r = 1</math>; <math>\rho = 1</math> kg/m<sup>3</sup><br/>Phantom section: H Dipole Section</div>                                                    |                       |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| <div>DASY4 Configuration:<br/>- Probe: ER3DV6 - SN2309<br/>- ConvF(1, 1, 1); Calibrated: 2009-10-27<br/>- Sensor-Surface: (Fix Surface)<br/>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br/>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br/>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div>DASY4 Configuration:<br/>- Probe: H3DV6 - SN6143<br/>- ; Calibrated: 2009-10-23<br/>- Sensor-Surface: (Fix Surface)<br/>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br/>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br/>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176</div> |                       |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| <div>E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):<br/>Measurement grid: dx=5mm, dy=5mm<br/>Maximum value of peak Total field = 163.1 V/m<br/>Probe Modulation Factor = 1.00<br/>Device Reference Point: 0.000, 0.000, 354.7 mm<br/>Reference Value = 107.9 V/m; Power Drift = 0.058 dB<br/>Hearing Aid Near-Field Category: M4 (AWF 0 dB)</div> <div><table><tr><td>Grid 1<br/>155.6<br/>M4</td><td>Grid 2<br/>159.9<br/>M4</td><td>Grid 3<br/>156.7<br/>M4</td></tr><tr><td>Grid 4<br/>86.9<br/>M4</td><td>Grid 5<br/>88.9<br/>M4</td><td>Grid 6<br/>86.4<br/>M4</td></tr><tr><td>Grid 7<br/>159.1<br/>M4</td><td>Grid 8<br/>163.1<br/>M4</td><td>Grid 9<br/>151.0<br/>M4</td></tr></table></div> | Grid 1<br>155.6<br>M4                                                                                                                                                                                                                                                                                                                   | Grid 2<br>159.9<br>M4 | Grid 3<br>156.7<br>M4 | Grid 4<br>86.9<br>M4 | Grid 5<br>88.9<br>M4 | Grid 6<br>86.4<br>M4 | Grid 7<br>159.1<br>M4 | Grid 8<br>163.1<br>M4 | Grid 9<br>151.0<br>M4 | <div>H Scan - measurement distance from the probe sensor center to CD835 dipole= 10mm/Hearing Aid Compatibility Test (41x361x1):<br/>Measurement grid: dx=5mm, dy=5mm<br/>Maximum value of peak Total field = 0.470 A/m<br/>Probe Modulation Factor = 1.00<br/>Device Reference Point: 0.000, 0.000, 354.7 mm<br/>Reference Value = 0.495 A/m; Power Drift = 0.082 dB<br/>Hearing Aid Near-Field Category: M4 (AWF 0 dB)</div> <div><table><tr><td>Grid 1<br/>0.380<br/>M4</td><td>Grid 2<br/>0.402<br/>M4</td><td>Grid 3<br/>0.383<br/>M4</td></tr><tr><td>Grid 4<br/>0.446<br/>M4</td><td>Grid 5<br/>0.470<br/>M4</td><td>Grid 6<br/>0.444<br/>M4</td></tr><tr><td>Grid 7<br/>0.394<br/>M4</td><td>Grid 8<br/>0.41<br/>5 M4</td><td>Grid 9<br/>0.386<br/>M4</td></tr></table></div> | Grid 1<br>0.380<br>M4 | Grid 2<br>0.402<br>M4 | Grid 3<br>0.383<br>M4 | Grid 4<br>0.446<br>M4 | Grid 5<br>0.470<br>M4 | Grid 6<br>0.444<br>M4 | Grid 7<br>0.394<br>M4 | Grid 8<br>0.41<br>5 M4 | Grid 9<br>0.386<br>M4 |
| Grid 1<br>155.6<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 2<br>159.9<br>M4                                                                                                                                                                                                                                                                                                                   | Grid 3<br>156.7<br>M4 |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| Grid 4<br>86.9<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 5<br>88.9<br>M4                                                                                                                                                                                                                                                                                                                    | Grid 6<br>86.4<br>M4  |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| Grid 7<br>159.1<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 8<br>163.1<br>M4                                                                                                                                                                                                                                                                                                                   | Grid 9<br>151.0<br>M4 |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| Grid 1<br>0.380<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 2<br>0.402<br>M4                                                                                                                                                                                                                                                                                                                   | Grid 3<br>0.383<br>M4 |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| Grid 4<br>0.446<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 5<br>0.470<br>M4                                                                                                                                                                                                                                                                                                                   | Grid 6<br>0.444<br>M4 |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |
| Grid 7<br>0.394<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 8<br>0.41<br>5 M4                                                                                                                                                                                                                                                                                                                  | Grid 9<br>0.386<br>M4 |                       |                      |                      |                      |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                       |                       |                       |                       |                       |                       |                        |                       |

## SYSTEM VALIDATION DATA 1900MHz

Date/Time: 2010-01-25 11:48:13  
Test Laboratory: TCC Nokia  
Type: CD1880V3; Serial: 1003

Date/Time: 2010-01-25 12:08:29  
Test Laboratory: TCC Nokia  
Type: CD1880V3; Serial: 1004

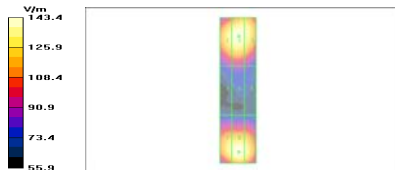
Communication System: CW1880  
Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: E Dipole Section

Communication System: CW1880  
Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>  
Phantom section: H Dipole Section

DASY4 Configuration:  
- Probe: ER3DV6 - SN2309  
- ConvF(1, 1, 1); Calibrated: 2009-10-27  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

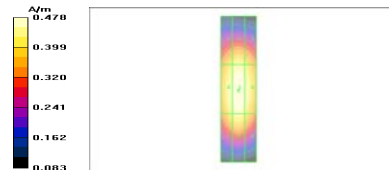
DASY4 Configuration:  
- Probe: H3DV6 - SN6143  
- ; Calibrated: 2009-10-23  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 143.4 V/m  
Probe Modulation Factor = 1.00  
Device Reference Point: 0.000, 0.000, 354.7 mm  
Reference Value = 160.3 V/m; Power Drift = 0.053 dB  
**Hearing Aid Near-Field Category: M2 (AWF 0 dB)**



|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Grid 1<br>137.8<br>M2 | Grid 2<br>142.0<br>M2 | Grid 3<br>139.6<br>M2 |
| Grid 4<br>87.7<br>M3  | Grid 5<br>90.2<br>M3  | Grid 6<br>86.6<br>M3  |
| Grid 7<br>136.5<br>M2 | Grid 8<br>143.4<br>M2 | Grid 9<br>138.8<br>M2 |

**H Scan - measurement distance from the probe sensor center to CD1880 dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 0.478 A/m  
Probe Modulation Factor = 1.00  
Device Reference Point: 0.000, 0.000, 354.7 mm  
Reference Value = 0.506 A/m; Power Drift = 0.021 dB  
**Hearing Aid Near-Field Category: M2 (AWF 0 dB)**



|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Grid 1<br>0.412<br>M2 | Grid 2<br>0.434<br>M2 | Grid 3<br>0.414<br>M2 |
| Grid 4<br>0.455<br>M2 | Grid 5<br>0.478<br>M2 | Grid 6<br>0.454<br>M2 |
| Grid 7<br>0.420<br>M2 | Grid 8<br>0.444<br>M2 | Grid 9<br>0.416<br>M2 |

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## APPENDIX B: MEASUREMENT SCANS

| MEASUREMENT DATA GSM850, CHANNEL LOW (824.2 MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                     |                       |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <p>Date/Time: 2010-01-26 09:03:21<br/>Test Laboratory: TCC Nokia<br/>Type: RM-509; Serial: 356934/03/000586/2</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>Date/Time: 2010-01-25 13:06:05<br/>Test Laboratory: TCC Nokia<br/>Type: RM-509; Serial: 356934/03/000586/2</p>                                                                                                                                                                                                                   |                       |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <p>Communication System: GSM850 (ER3DV6)<br/>Frequency: 824.2 MHz; Duty Cycle: 1:8.26<br/>Medium: Air; Medium Notes: -<br/>Medium parameters used: <math>\sigma = 0</math> mho/m, <math>\epsilon_r = 1</math>; <math>\rho = 1000</math> kg/m<sup>3</sup><br/>Phantom section: E Device Section</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Communication System: GSM850 (H3DV6)<br/>Frequency: 824.2 MHz; Duty Cycle: 1:7.39<br/>Medium: Air; Medium Notes: -<br/>Medium parameters used: <math>\sigma = 0</math> mho/m, <math>\epsilon_r = 1</math>; <math>\rho = 1</math> kg/m<sup>3</sup><br/>Phantom section: H Device Section</p>                                      |                       |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <p>DASY4 Configuration:<br/>- Probe: ER3DV6 - SN2309<br/>- ConvF(1, 1, 1); Calibrated: 2009-10-27<br/>- Sensor-Surface: (Fix Surface)<br/>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br/>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br/>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>DASY4 Configuration:<br/>- Probe: H3DV6 - SN6143<br/>- ; Calibrated: 2009-10-23<br/>- Sensor-Surface: (Fix Surface)<br/>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br/>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br/>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176</p> |                       |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <p><b>E Scan - Low - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br/>Measurement grid: dx=5mm, dy=5mm<br/>Maximum value of peak Total field = 117.6 V/m<br/>Probe Modulation Factor = 2.87<br/>Device Reference Point: 0.000, 0.000, 353.7 mm<br/>Reference Value = 55.2 V/m; Power Drift = 0.040 dB<br/><b>Hearing Aid Near-Field Category: M4 (AWF -5 dB)</b></p> <div><div><div>V/m</div><div>117.6</div><div>105.3</div><div>92.9</div><div>80.6</div><div>68.2</div><div>55.9</div></div><div></div></div> <table><tr><td>Grid 1<br/>103.3<br/>M4</td><td>Grid 2<br/>115.1<br/>M4</td><td>Grid 3<br/>111.1<br/>M4</td></tr><tr><td>Grid 4<br/>105.0<br/>M4</td><td>Grid 5<br/>117.6<br/>M4</td><td>Grid 6<br/>114.0<br/>M4</td></tr><tr><td>Grid 7<br/>101.8<br/>M4</td><td>Grid 8<br/>115.0<br/>M4</td><td>Grid 9<br/>111.1<br/>M4</td></tr></table> | Grid 1<br>103.3<br>M4                                                                                                                                                                                                                                                                                                               | Grid 2<br>115.1<br>M4 | Grid 3<br>111.1<br>M4 | Grid 4<br>105.0<br>M4 | Grid 5<br>117.6<br>M4 | Grid 6<br>114.0<br>M4 | Grid 7<br>101.8<br>M4 | Grid 8<br>115.0<br>M4 | Grid 9<br>111.1<br>M4 | <p><b>H Scan - Low - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br/>Measurement grid: dx=5mm, dy=5mm<br/>Maximum value of peak Total field = 0.173 A/m<br/>Probe Modulation Factor = 2.72<br/>Device Reference Point: 0.000, 0.000, 353.7 mm<br/>Reference Value = 0.046 A/m; Power Drift = -0.008 dB<br/><b>Hearing Aid Near-Field Category: M4 (AWF -5 dB)</b></p> <div><div><div>A/m</div><div>0.232</div><div>0.197</div><div>0.162</div><div>0.128</div><div>0.093</div><div>0.058</div></div><div></div></div> <table><tr><td>Grid 1<br/>0.216<br/>M4</td><td>Grid 2<br/>0.154<br/>M4</td><td>Grid 3<br/>0.094<br/>M4</td></tr><tr><td>Grid 4<br/>0.220<br/>M4</td><td>Grid 5<br/>0.163<br/>M4</td><td>Grid 6<br/>0.105<br/>M4</td></tr><tr><td>Grid 7<br/>0.232<br/>M4</td><td>Grid 8<br/>0.173<br/>M4</td><td>Grid 9<br/>0.114<br/>M4</td></tr></table> | Grid 1<br>0.216<br>M4 | Grid 2<br>0.154<br>M4 | Grid 3<br>0.094<br>M4 | Grid 4<br>0.220<br>M4 | Grid 5<br>0.163<br>M4 | Grid 6<br>0.105<br>M4 | Grid 7<br>0.232<br>M4 | Grid 8<br>0.173<br>M4 | Grid 9<br>0.114<br>M4 |
| Grid 1<br>103.3<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 2<br>115.1<br>M4                                                                                                                                                                                                                                                                                                               | Grid 3<br>111.1<br>M4 |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>105.0<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 5<br>117.6<br>M4                                                                                                                                                                                                                                                                                                               | Grid 6<br>114.0<br>M4 |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>101.8<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 8<br>115.0<br>M4                                                                                                                                                                                                                                                                                                               | Grid 9<br>111.1<br>M4 |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 1<br>0.216<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 2<br>0.154<br>M4                                                                                                                                                                                                                                                                                                               | Grid 3<br>0.094<br>M4 |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>0.220<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 5<br>0.163<br>M4                                                                                                                                                                                                                                                                                                               | Grid 6<br>0.105<br>M4 |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>0.232<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 8<br>0.173<br>M4                                                                                                                                                                                                                                                                                                               | Grid 9<br>0.114<br>M4 |                       |                       |                       |                       |                       |                       |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                       |                       |                       |                       |                       |                       |                       |                       |

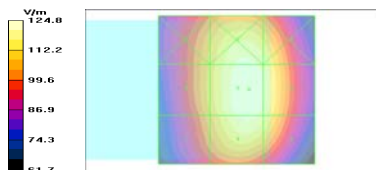
### MEASUREMENT DATA GSM850, CHANNEL MIDDLE (836.6 MHz)

Date/Time: 2010-01-26 08:50:02  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

Communication System: GSM850 (ER3DV6)  
Frequency: 836.6 MHz; Duty Cycle: 1:8.26  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: E Device Section

DASY4 Configuration:  
- Probe: ER3DV6 - SN2309  
- ConvF(1, 1, 1); Calibrated: 2009-10-27  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**E Scan -Middle - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 124.8 V/m  
Probe Modulation Factor = 2.87  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 59.0 V/m; Power Drift = -0.220 dB  
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**



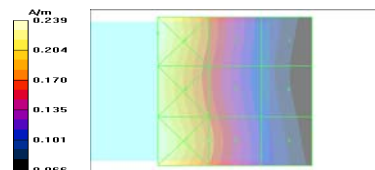
|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Grid 1<br>109.4<br>M4 | Grid 2<br>122.1<br>M4 | Grid 3<br>118.8<br>M4 |
| Grid 4<br>110.1<br>M4 | Grid 5<br>124.8<br>M4 | Grid 6<br>121.1<br>M4 |
| Grid 7<br>107.0<br>M4 | Grid 8<br>122.0<br>M4 | Grid 9<br>118.3<br>M4 |

Date/Time: 2010-01-25 12:53:28  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

Communication System: GSM850 (H3DV6)  
Frequency: 836.6 MHz; Duty Cycle: 1:7.39  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>  
Phantom section: H Device Section

DASY4 Configuration:  
- Probe: H3DV6 - SN6143  
- ; Calibrated: 2009-10-23  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**H Scan - Middle - Measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 0.177 A/m  
Probe Modulation Factor = 2.72  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 0.051 A/m; Power Drift = -0.206 dB  
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**



|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Grid 1<br>0.239<br>M4 | Grid 2<br>0.171<br>M4 | Grid 3<br>0.107<br>M4 |
| Grid 4<br>0.229<br>M4 | Grid 5<br>0.170<br>M4 | Grid 6<br>0.108<br>M4 |
| Grid 7<br>0.238<br>M4 | Grid 8<br>0.177<br>M4 | Grid 9<br>0.113<br>M4 |

## MEASUREMENT DATA GSM850, CHANNEL HIGH (848.8 MHz)

Date/Time: 2010-01-26 08:55:14  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

Date/Time: 2010-01-25 12:58:48  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

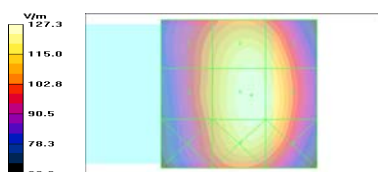
Communication System: GSM850 (ER3DV6)  
Frequency: 848.8 MHz; Duty Cycle: 1:8.26  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: E Device Section

Communication System: GSM850 (H3DV6)  
Frequency: 848.8 MHz; Duty Cycle: 1:7.39  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>  
Phantom section: H Device Section

DASY4 Configuration:  
- Probe: ER3DV6 - SN2309  
- ConvF(1, 1, 1); Calibrated: 2009-10-27  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

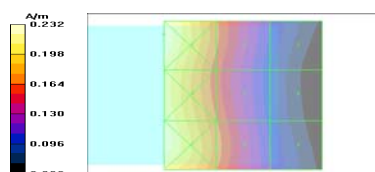
DASY4 Configuration:  
- Probe: H3DV6 - SN6143  
- ; Calibrated: 2009-10-23  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**E Scan - High - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):**  
Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 127.3 V/m  
Probe Modulation Factor = 2.87  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 58.8 V/m; Power Drift = 0.109 dB  
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**

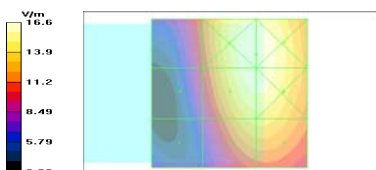
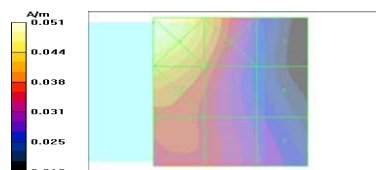


|        |        |        |
|--------|--------|--------|
| Grid 1 | Grid 2 | Grid 3 |
| 110.0  | 124.1  | 121.0  |
| M4     | M4     | M4     |
| Grid 4 | Grid 5 | Grid 6 |
| 111.4  | 127.3  | 124.6  |
| M4     | M4     | M4     |
| Grid 7 | Grid 8 | Grid 9 |
| 108.3  | 124.9  | 122.0  |
| M4     | M4     | M4     |

**H Scan - High - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):**  
Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 0.171 A/m  
Probe Modulation Factor = 2.72  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 0.050 A/m; Power Drift = 0.060 dB  
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**



|        |        |        |
|--------|--------|--------|
| Grid 1 | Grid 2 | Grid 3 |
| 0.232  | 0.168  | 0.109  |
| M4     | M4     | M4     |
| Grid 4 | Grid 5 | Grid 6 |
| 0.225  | 0.165  | 0.104  |
| M4     | M4     | M4     |
| Grid 7 | Grid 8 | Grid 9 |
| 0.231  | 0.171  | 0.109  |
| M4     | M4     | M4     |

| MEASUREMENT DATA WCDMA1700/2100, CHANNEL LOW (1712.4MHZ)                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                       |             |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|------------|------------|------------|--------|--------|--------|------------|------------|------------|--------|--------|--------|------------|------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-------------|-------------|-------------|--------|--------|--------|-------------|-------------|-------------|--------|--------|--------|-------------|-------------|-------------|
| Date/Time: 2010-01-25 14:54:04<br>Test Laboratory: TCC Nokia<br>Type: RM-509; Serial: 356934/03/000586/2                                                                                                                                                                                                                                                                                                                                                                                        | Date/Time: 2010-01-25 14:02:53<br>Test Laboratory: TCC Nokia<br>Type: RM-509; Serial: 356934/03/000586/2                                                                                                                                                                                                                                                                                                              |             |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| Communication System: WCDMA1700 (ER3DV6)<br>Frequency: 1712.4 MHz; Duty Cycle: 1:1<br>Medium: Air; Medium Notes: -<br>Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$ ; $\rho = 1000$ kg/m <sup>3</sup><br>Phantom section: E Device Section                                                                                                                                                                                                                                       | Communication System: WCDMA1700 (H3DV6)<br>Frequency: 1712.4 MHz; Duty Cycle: 1:1<br>Medium: Air; Medium Notes: -<br>Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$ ; $\rho = 1$ kg/m <sup>3</sup><br>Phantom section: H Device Section                                                                                                                                                                 |             |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| DASY4 Configuration:<br>- Probe: ER3DV6 - SN2309<br>- ConvF(1, 1, 1); Calibrated: 2009-10-27<br>- Sensor-Surface: (Fix Surface)<br>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176                                                                                                                                                           | DASY4 Configuration:<br>- Probe: H3DV6 - SN6143<br>- ; Calibrated: 2009-10-23<br>- Sensor-Surface: (Fix Surface)<br>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176                                                                                                |             |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| <b>E Scan - Low - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br>Measurement grid: dx=5mm, dy=5mm<br>Maximum value of peak Total field = 16.5 V/m<br>Probe Modulation Factor = 0.600<br>Device Reference Point: 0.000, 0.000, 353.7 mm<br>Reference Value = 30.2 V/m; Power Drift = 0.058 dB<br><b>Hearing Aid Near-Field Category: M4 (AWF 0 dB)</b>                                                                              | <b>H Scan - Low - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br>Measurement grid: dx=5mm, dy=5mm<br>Maximum value of peak Total field = 0.038 A/m<br>Probe Modulation Factor = 0.520<br>Device Reference Point: 0.000, 0.000, 353.7 mm<br>Reference Value = 0.066 A/m; Power Drift = -0.239 dB<br><b>Hearing Aid Near-Field Category: M4 (AWF 0 dB)</b> |             |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| <div></div> <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>11.3<br/>M4</td><td>16.6<br/>M4</td><td>16.6<br/>M4</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>10.3<br/>M4</td><td>16.5<br/>M4</td><td>16.5<br/>M4</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>8.02<br/>M4</td><td>14.3<br/>M4</td><td>14.4<br/>M4</td></tr></table> | Grid 1                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 2      | Grid 3 | 11.3<br>M4 | 16.6<br>M4 | 16.6<br>M4 | Grid 4 | Grid 5 | Grid 6 | 10.3<br>M4 | 16.5<br>M4 | 16.5<br>M4 | Grid 7 | Grid 8 | Grid 9 | 8.02<br>M4 | 14.3<br>M4 | 14.4<br>M4 | <div></div> <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.051<br/>M4</td><td>0.042<br/>M4</td><td>0.028<br/>M4</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.044<br/>M4</td><td>0.038<br/>M4</td><td>0.028<br/>M4</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.037<br/>M4</td><td>0.035<br/>M4</td><td>0.030<br/>M4</td></tr></table> | Grid 1 | Grid 2 | Grid 3 | 0.051<br>M4 | 0.042<br>M4 | 0.028<br>M4 | Grid 4 | Grid 5 | Grid 6 | 0.044<br>M4 | 0.038<br>M4 | 0.028<br>M4 | Grid 7 | Grid 8 | Grid 9 | 0.037<br>M4 | 0.035<br>M4 | 0.030<br>M4 |
| Grid 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Grid 2                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 3      |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| 11.3<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 16.6<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | 16.6<br>M4  |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| Grid 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Grid 5                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 6      |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| 10.3<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 16.5<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | 16.5<br>M4  |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| Grid 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Grid 8                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 9      |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| 8.02<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 14.3<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | 14.4<br>M4  |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| Grid 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Grid 2                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 3      |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| 0.051<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.042<br>M4                                                                                                                                                                                                                                                                                                                                                                                                           | 0.028<br>M4 |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| Grid 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Grid 5                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 6      |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| 0.044<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.038<br>M4                                                                                                                                                                                                                                                                                                                                                                                                           | 0.028<br>M4 |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| Grid 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Grid 8                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 9      |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |
| 0.037<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.035<br>M4                                                                                                                                                                                                                                                                                                                                                                                                           | 0.030<br>M4 |        |            |            |            |        |        |        |            |            |            |        |        |        |            |            |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |        |             |             |             |        |        |        |             |             |             |        |        |        |             |             |             |

## MEASUREMENT DATA WCDMA1700/2100, CHANNEL MIDDLE (1732.4MHz)

Date/Time: 2010-01-25 14:18:03  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

Date/Time: 2010-01-25 13:41:48  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

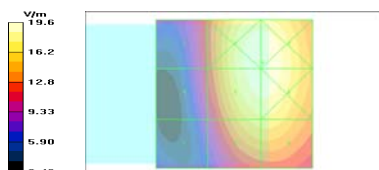
Communication System: WCDMA1700 (ER3DV6)  
Frequency: 1732.4 MHz; Duty Cycle: 1:1  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: E Device Section

Communication System: WCDMA1700 (H3DV6)  
Frequency: 1732.4 MHz; Duty Cycle: 1:1  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>  
Phantom section: H Device Section

DASY4 Configuration:  
- Probe: ER3DV6 - SN2309  
- ConvF(1, 1, 1); Calibrated: 2009-10-27  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

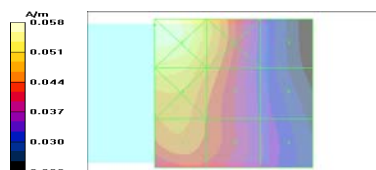
DASY4 Configuration:  
- Probe: H3DV6 - SN6143  
- ; Calibrated: 2009-10-23  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**E Scan -Middle - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 19.5 V/m  
Probe Modulation Factor = 0.600  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 37.7 V/m; Power Drift = -0.152 dB  
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

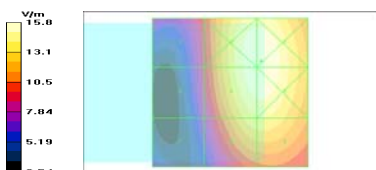


|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Grid 1<br>12.1<br>M4 | Grid 2<br>19.6<br>M4 | Grid 3<br>19.6<br>M4 |
| Grid 4<br>11.7<br>M4 | Grid 5<br>19.5<br>M4 | Grid 6<br>19.5<br>M4 |
| Grid 7<br>9.49<br>M4 | Grid 8<br>17.0<br>M4 | Grid 9<br>17.0<br>M4 |

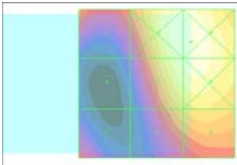
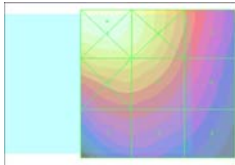
**H Scan - Middle - Measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 0.047 A/m  
Probe Modulation Factor = 0.520  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 0.083 A/m; Power Drift = -0.282 dB  
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**



|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Grid 1<br>0.058<br>M4 | Grid 2<br>0.050<br>M4 | Grid 3<br>0.034<br>M4 |
| Grid 4<br>0.052<br>M4 | Grid 5<br>0.047<br>M4 | Grid 6<br>0.035<br>M4 |
| Grid 7<br>0.047<br>M4 | Grid 8<br>0.044<br>M4 | Grid 9<br>0.035<br>M4 |

| MEASUREMENT DATA WCDMA1700/2100, CHANNEL HIGH (1752.6MHz)                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Date/Time: 2010-01-25 14:48:35<br>Test Laboratory: TCC Nokia<br>Type: RM-509; Serial: 356934/03/000586/2                                                                                                                                                                                                                                                                                                                         | Date/Time: 2010-01-25 13:57:19<br>Test Laboratory: TCC Nokia<br>Type: RM-509; Serial: 356934/03/000586/2                                                                                                                                                                                                                                                                                                               |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Communication System: WCDMA1700 (ER3DV6)<br>Frequency: 1752.6 MHz; Duty Cycle: 1:1<br>Medium: Air; Medium Notes: -<br>Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$ ; $\rho = 1000$ kg/m <sup>3</sup><br>Phantom section: E Device Section                                                                                                                                                                        | Communication System: WCDMA1700 (H3DV6)<br>Frequency: 1752.6 MHz; Duty Cycle: 1:1<br>Medium: Air; Medium Notes: -<br>Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$ ; $\rho = 1$ kg/m <sup>3</sup><br>Phantom section: H Device Section                                                                                                                                                                  |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| DASY4 Configuration:<br>- Probe: ER3DV6 - SN2309<br>- ConvF(1, 1, 1); Calibrated: 2009-10-27<br>- Sensor-Surface: (Fix Surface)<br>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176                                                                                            | DASY4 Configuration:<br>- Probe: H3DV6 - SN6143<br>- ; Calibrated: 2009-10-23<br>- Sensor-Surface: (Fix Surface)<br>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176                                                                                                 |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <b>E Scan - High - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br>Measurement grid: dx=5mm, dy=5mm<br>Maximum value of peak Total field = 15.8 V/m<br>Probe Modulation Factor = 0.600<br>Device Reference Point: 0.000, 0.000, 353.7 mm<br>Reference Value = 29.3 V/m; Power Drift = -0.085 dB<br><b>Hearing Aid Near-Field Category: M4 (AWF 0 dB)</b>             | <b>H Scan - High - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br>Measurement grid: dx=5mm, dy=5mm<br>Maximum value of peak Total field = 0.039 A/m<br>Probe Modulation Factor = 0.520<br>Device Reference Point: 0.000, 0.000, 353.7 mm<br>Reference Value = 0.067 A/m; Power Drift = -0.307 dB<br><b>Hearing Aid Near-Field Category: M4 (AWF 0 dB)</b> |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <div></div> <table><tr><td>Grid 1<br/>9.56<br/>M4</td><td>Grid 2<br/>15.8<br/>M4</td><td>Grid 3<br/>15.8<br/>M4</td></tr><tr><td>Grid 4<br/>8.92<br/>M4</td><td>Grid 5<br/>15.8<br/>M4</td><td>Grid 6<br/>15.8<br/>M4</td></tr><tr><td>Grid 7<br/>7.44<br/>M4</td><td>Grid 8<br/>13.9<br/>M4</td><td>Grid 9<br/>14.0<br/>M4</td></tr></table> | Grid 1<br>9.56<br>M4                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 2<br>15.8<br>M4  | Grid 3<br>15.8<br>M4 | Grid 4<br>8.92<br>M4 | Grid 5<br>15.8<br>M4 | Grid 6<br>15.8<br>M4 | Grid 7<br>7.44<br>M4 | Grid 8<br>13.9<br>M4 | Grid 9<br>14.0<br>M4 | <div></div> <table><tr><td>Grid 1<br/>0.050<br/>M4</td><td>Grid 2<br/>0.044<br/>M4</td><td>Grid 3<br/>0.031<br/>M4</td></tr><tr><td>Grid 4<br/>0.043<br/>M4</td><td>Grid 5<br/>0.039<br/>M4</td><td>Grid 6<br/>0.028<br/>M4</td></tr><tr><td>Grid 7<br/>0.036<br/>M4</td><td>Grid 8<br/>0.035<br/>M4</td><td>Grid 9<br/>0.029<br/>M4</td></tr></table> | Grid 1<br>0.050<br>M4 | Grid 2<br>0.044<br>M4 | Grid 3<br>0.031<br>M4 | Grid 4<br>0.043<br>M4 | Grid 5<br>0.039<br>M4 | Grid 6<br>0.028<br>M4 | Grid 7<br>0.036<br>M4 | Grid 8<br>0.035<br>M4 | Grid 9<br>0.029<br>M4 |
| Grid 1<br>9.56<br>M4                                                                                                                                                                                                                                                                                                                                                                                                             | Grid 2<br>15.8<br>M4                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 3<br>15.8<br>M4  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>8.92<br>M4                                                                                                                                                                                                                                                                                                                                                                                                             | Grid 5<br>15.8<br>M4                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 6<br>15.8<br>M4  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>7.44<br>M4                                                                                                                                                                                                                                                                                                                                                                                                             | Grid 8<br>13.9<br>M4                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 9<br>14.0<br>M4  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 1<br>0.050<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | Grid 2<br>0.044<br>M4                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 3<br>0.031<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>0.043<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | Grid 5<br>0.039<br>M4                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 6<br>0.028<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>0.036<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | Grid 8<br>0.035<br>M4                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 9<br>0.029<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |

### MEASUREMENT DATA GSM1900, CHANNEL LOW (1850.2 MHz)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                         |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <div>Date/Time: 2010-01-26 08:39:40<br/>Test Laboratory: TCC Nokia<br/>Type: RM-509; Serial: 356934/03/000586/2</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div>Date/Time: 2010-01-25 13:31:46<br/>Test Laboratory: TCC Nokia<br/>Type: RM-509; Serial: 356934/03/000586/2</div>                                                                                                                                                                                                                   |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <div>Communication System: GSM1900 (ER3DV6)<br/>Frequency: 1850.2 MHz; Duty Cycle: 1:8.26<br/>Medium: Air; Medium Notes: -<br/>Medium parameters used: <math>\sigma = 0</math> mho/m, <math>\epsilon_r = 1</math>; <math>\rho = 1000</math> kg/m<sup>3</sup><br/>Phantom section: E Device Section</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <div>Communication System: GSM1900 (H3DV6)<br/>Frequency: 1850.2 MHz; Duty Cycle: 1:5.07<br/>Medium: Air; Medium Notes: -<br/>Medium parameters used: <math>\sigma = 0</math> mho/m, <math>\epsilon_r = 1</math>; <math>\rho = 1</math> kg/m<sup>3</sup><br/>Phantom section: H Device Section</div>                                    |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <div>DASY4 Configuration:<br/>- Probe: ER3DV6 - SN2309<br/>- ConvF(1, 1, 1); Calibrated: 2009-10-27<br/>- Sensor-Surface: (Fix Surface)<br/>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br/>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br/>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <div>DASY4 Configuration:<br/>- Probe: H3DV6 - SN6143<br/>- ; Calibrated: 2009-10-23<br/>- Sensor-Surface: (Fix Surface)<br/>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br/>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br/>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176</div> |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <div>E Scan - Low - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):<br/>Measurement grid: dx=5mm, dy=5mm<br/>Maximum value of peak Total field = 55.1 V/m<br/>Probe Modulation Factor = 2.87<br/>Device Reference Point: 0.000, 0.000, 353.7 mm<br/>Reference Value = 18.6 V/m; Power Drift = 0.138 dB<br/>Hearing Aid Near-Field Category: M3 (AWF -5 dB)</div> <div><div><div>V/m</div><div>56.5</div><div>48.6</div><div>40.6</div><div>32.7</div><div>24.7</div><div>16.8</div></div><div></div></div> <table><tr><td>Grid 1<br/>42.2<br/>M4</td><td>Grid 2<br/>56.2<br/>M3</td><td>Grid 3<br/>56.5<br/>M3</td></tr><tr><td>Grid 4<br/>30.4<br/>M4</td><td>Grid 5<br/>55.1<br/>M3</td><td>Grid 6<br/>55.9<br/>M3</td></tr><tr><td>Grid 7<br/>36.8<br/>M4</td><td>Grid 8<br/>46.3<br/>M4</td><td>Grid 9<br/>48.5<br/>M3</td></tr></table> | Grid 1<br>42.2<br>M4                                                                                                                                                                                                                                                                                                                    | Grid 2<br>56.2<br>M3  | Grid 3<br>56.5<br>M3 | Grid 4<br>30.4<br>M4 | Grid 5<br>55.1<br>M3 | Grid 6<br>55.9<br>M3 | Grid 7<br>36.8<br>M4 | Grid 8<br>46.3<br>M4 | Grid 9<br>48.5<br>M3 | <div>H Scan - Low - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):<br/>Measurement grid: dx=5mm, dy=5mm<br/>Maximum value of peak Total field = 0.154 A/m<br/>Probe Modulation Factor = 2.25<br/>Device Reference Point: 0.000, 0.000, 353.7 mm<br/>Reference Value = 0.062 A/m; Power Drift = 0.016 dB<br/>Hearing Aid Near-Field Category: M3 (AWF -5 dB)</div> <div><div><div>A/m</div><div>0.175</div><div>0.156</div><div>0.134</div><div>0.114</div><div>0.093</div><div>0.073</div></div><div></div></div> <table><tr><td>Grid 1<br/>0.175<br/>M3</td><td>Grid 2<br/>0.168<br/>M3</td><td>Grid 3<br/>0.135<br/>M4</td></tr><tr><td>Grid 4<br/>0.156<br/>M3</td><td>Grid 5<br/>0.154<br/>M3</td><td>Grid 6<br/>0.128<br/>M4</td></tr><tr><td>Grid 7<br/>0.126<br/>M4</td><td>Grid 8<br/>0.126<br/>M4</td><td>Grid 9<br/>0.112<br/>M4</td></tr></table> | Grid 1<br>0.175<br>M3 | Grid 2<br>0.168<br>M3 | Grid 3<br>0.135<br>M4 | Grid 4<br>0.156<br>M3 | Grid 5<br>0.154<br>M3 | Grid 6<br>0.128<br>M4 | Grid 7<br>0.126<br>M4 | Grid 8<br>0.126<br>M4 | Grid 9<br>0.112<br>M4 |
| Grid 1<br>42.2<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 2<br>56.2<br>M3                                                                                                                                                                                                                                                                                                                    | Grid 3<br>56.5<br>M3  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>30.4<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 5<br>55.1<br>M3                                                                                                                                                                                                                                                                                                                    | Grid 6<br>55.9<br>M3  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>36.8<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Grid 8<br>46.3<br>M4                                                                                                                                                                                                                                                                                                                    | Grid 9<br>48.5<br>M3  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 1<br>0.175<br>M3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 2<br>0.168<br>M3                                                                                                                                                                                                                                                                                                                   | Grid 3<br>0.135<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>0.156<br>M3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 5<br>0.154<br>M3                                                                                                                                                                                                                                                                                                                   | Grid 6<br>0.128<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>0.126<br>M4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Grid 8<br>0.126<br>M4                                                                                                                                                                                                                                                                                                                   | Grid 9<br>0.112<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                       |                       |                       |                       |                       |                       |                       |                       |

## MEASUREMENT DATA GSM1900, CHANNEL MIDDLE (1880 MHz)

Date/Time: 2010-01-25 15:04:03  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

Date/Time: 2010-01-25 13:18:59  
Test Laboratory: TCC Nokia  
Type: RM-509; Serial: 356934/03/000586/2

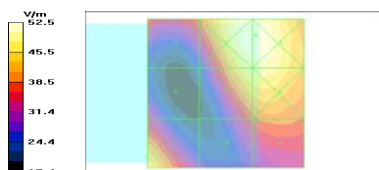
Communication System: GSM1900 (ER3DV6)  
Frequency: 1880 MHz; Duty Cycle: 1:8.26  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: E Device Section

Communication System: GSM1900 (H3DV6)  
Frequency: 1880 MHz; Duty Cycle: 1:5.07  
Medium: Air; Medium Notes: -  
Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>  
Phantom section: H Device Section

DASY4 Configuration:  
- Probe: ER3DV6 - SN2309  
- ConvF(1, 1, 1); Calibrated: 2009-10-27  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

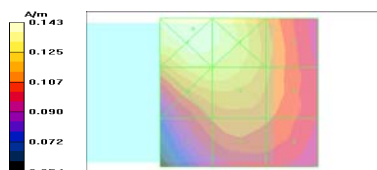
DASY4 Configuration:  
- Probe: H3DV6 - SN6143  
- ; Calibrated: 2009-10-23  
- Sensor-Surface: (Fix Surface)  
- Electronics: DAE4 Sn728; Calibrated: 2009-02-09  
- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -  
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**E Scan -Middle - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 48.7 V/m  
Probe Modulation Factor = 2.87  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 14.8 V/m; Power Drift = -0.050 dB  
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

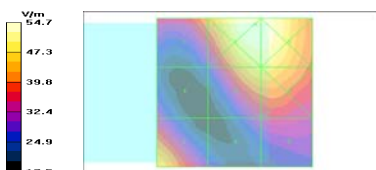
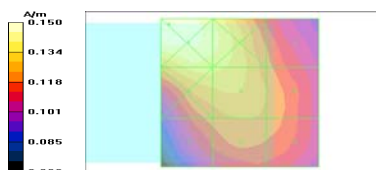


|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Grid 1<br>38.2<br>M4 | Grid 2<br>52.4<br>M3 | Grid 3<br>52.5<br>M3 |
| Grid 4<br>33.8<br>M4 | Grid 5<br>48.7<br>M3 | Grid 6<br>49.5<br>M3 |
| Grid 7<br>46.8<br>M4 | Grid 8<br>37.2<br>M4 | Grid 9<br>39.7<br>M4 |

**H Scan - Middle - Measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm  
Maximum value of peak Total field = 0.130 A/m  
Probe Modulation Factor = 2.25  
Device Reference Point: 0.000, 0.000, 353.7 mm  
Reference Value = 0.056 A/m; Power Drift = 0.039 dB  
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**



|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Grid 1<br>0.143<br>M3 | Grid 2<br>0.140<br>M4 | Grid 3<br>0.117<br>M4 |
| Grid 4<br>0.130<br>M4 | Grid 5<br>0.130<br>M4 | Grid 6<br>0.115<br>M4 |
| Grid 7<br>0.108<br>M4 | Grid 8<br>0.111<br>M4 | Grid 9<br>0.109<br>M4 |

| MEASUREMENT DATA GSM1900, CHANNEL HIGH (1909.8 MHz)                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Date/Time: 2010-01-26 08:33:09<br>Test Laboratory: TCC Nokia<br>Type: RM-509; Serial: 356934/03/000586/2                                                                                                                                                                                                                                                                                                                         | Date/Time: 2010-01-25 13:24:57<br>Test Laboratory: TCC Nokia<br>Type: RM-509; Serial: 356934/03/000586/2                                                                                                                                                                                                                                                                                                               |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Communication System: GSM1900 (ER3DV6)<br>Frequency: 1909.8 MHz; Duty Cycle: 1:8.26<br>Medium: Air; Medium Notes: -<br>Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$ ; $\rho = 1000$ kg/m <sup>3</sup><br>Phantom section: E Device Section                                                                                                                                                                       | Communication System: GSM1900 (H3DV6)<br>Frequency: 1909.8 MHz; Duty Cycle: 1:5.07<br>Medium: Air; Medium Notes: -<br>Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$ ; $\rho = 1$ kg/m <sup>3</sup><br>Phantom section: H Device Section                                                                                                                                                                 |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| DASY4 Configuration:<br>- Probe: ER3DV6 - SN2309<br>- ConvF(1, 1, 1); Calibrated: 2009-10-27<br>- Sensor-Surface: (Fix Surface)<br>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176                                                                                            | DASY4 Configuration:<br>- Probe: H3DV6 - SN6143<br>- ; Calibrated: 2009-10-23<br>- Sensor-Surface: (Fix Surface)<br>- Electronics: DAE4 Sn728; Calibrated: 2009-02-09<br>- Phantom: HAC Test Arch; Type: SD HAC P01 BA; Serial: -<br>- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176                                                                                                 |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <b>E Scan - High - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br>Measurement grid: dx=5mm, dy=5mm<br>Maximum value of peak Total field = 48.6 V/m<br>Probe Modulation Factor = 2.87<br>Device Reference Point: 0.000, 0.000, 353.7 mm<br>Reference Value = 14.8 V/m; Power Drift = 0.056 dB<br><b>Hearing Aid Near-Field Category: M3 (AWF -5 dB)</b>              | <b>H Scan - High - measurement distance, sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):</b><br>Measurement grid: dx=5mm, dy=5mm<br>Maximum value of peak Total field = 0.135 A/m<br>Probe Modulation Factor = 2.25<br>Device Reference Point: 0.000, 0.000, 353.7 mm<br>Reference Value = 0.062 A/m; Power Drift = -0.031 dB<br><b>Hearing Aid Near-Field Category: M4 (AWF -5 dB)</b> |                       |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| <div></div> <table><tr><td>Grid 1<br/>42.7<br/>M4</td><td>Grid 2<br/>54.7<br/>M3</td><td>Grid 3<br/>54.4<br/>M3</td></tr><tr><td>Grid 4<br/>33.1<br/>M4</td><td>Grid 5<br/>48.6<br/>M3</td><td>Grid 6<br/>48.8<br/>M3</td></tr><tr><td>Grid 7<br/>47.4<br/>M3</td><td>Grid 8<br/>33.2<br/>M4</td><td>Grid 9<br/>34.6<br/>M4</td></tr></table> | Grid 1<br>42.7<br>M4                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 2<br>54.7<br>M3  | Grid 3<br>54.4<br>M3 | Grid 4<br>33.1<br>M4 | Grid 5<br>48.6<br>M3 | Grid 6<br>48.8<br>M3 | Grid 7<br>47.4<br>M3 | Grid 8<br>33.2<br>M4 | Grid 9<br>34.6<br>M4 | <div></div> <table><tr><td>Grid 1<br/>0.150<br/>M3</td><td>Grid 2<br/>0.141<br/>M3</td><td>Grid 3<br/>0.120<br/>M4</td></tr><tr><td>Grid 4<br/>0.137<br/>M4</td><td>Grid 5<br/>0.135<br/>M4</td><td>Grid 6<br/>0.123<br/>M4</td></tr><tr><td>Grid 7<br/>0.120<br/>M4</td><td>Grid 8<br/>0.123<br/>M4</td><td>Grid 9<br/>0.121<br/>M4</td></tr></table> | Grid 1<br>0.150<br>M3 | Grid 2<br>0.141<br>M3 | Grid 3<br>0.120<br>M4 | Grid 4<br>0.137<br>M4 | Grid 5<br>0.135<br>M4 | Grid 6<br>0.123<br>M4 | Grid 7<br>0.120<br>M4 | Grid 8<br>0.123<br>M4 | Grid 9<br>0.121<br>M4 |
| Grid 1<br>42.7<br>M4                                                                                                                                                                                                                                                                                                                                                                                                             | Grid 2<br>54.7<br>M3                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 3<br>54.4<br>M3  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>33.1<br>M4                                                                                                                                                                                                                                                                                                                                                                                                             | Grid 5<br>48.6<br>M3                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 6<br>48.8<br>M3  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>47.4<br>M3                                                                                                                                                                                                                                                                                                                                                                                                             | Grid 8<br>33.2<br>M4                                                                                                                                                                                                                                                                                                                                                                                                   | Grid 9<br>34.6<br>M4  |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 1<br>0.150<br>M3                                                                                                                                                                                                                                                                                                                                                                                                            | Grid 2<br>0.141<br>M3                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 3<br>0.120<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 4<br>0.137<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | Grid 5<br>0.135<br>M4                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 6<br>0.123<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Grid 7<br>0.120<br>M4                                                                                                                                                                                                                                                                                                                                                                                                            | Grid 8<br>0.123<br>M4                                                                                                                                                                                                                                                                                                                                                                                                  | Grid 9<br>0.121<br>M4 |                      |                      |                      |                      |                      |                      |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                       |                       |                       |                       |                       |                       |                       |                       |

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**APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)**



Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Salo TCC**

Certificate No: **ER3-2309\_Oct09**

## CALIBRATION CERTIFICATE

Object **ER3DV6 - SN:2309**

Calibration procedure(s) **QA CAL-02.v5 and QA CAL-25.v2**  
**Calibration procedure for E-field probes optimized for close near field evaluations in air**

Calibration date: **October 27, 2009**

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-09 (No. 217-01030)       | Apr-10                |
| Power sensor E4412A        | MY41495277      | 1-Apr-09 (No. 217-01030)       | Apr-10                |
| Power sensor E4412A        | MY41498087      | 1-Apr-09 (No. 217-01030)       | Apr-10                |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 31-Mar-09 (No. 217-01026)      | Mar-10                |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 31-Mar-09 (No. 217-01028)      | Mar-10                |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 31-Mar-09 (No. 217-01027)      | Mar-10                |
| Reference Probe ER3DV6     | SN: 2328        | 3-Oct-09 (No. ER3-2328_Oct09)  | Oct-10                |
| DAE4                       | SN: 789         | 19-Dec-08 (No. DAE4-789_Dec08) | Dec-09                |

| 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  |

|                |             |                       |           |
|----------------|-------------|-----------------------|-----------|
|                | Name        | Function              | Signature |
| Calibrated by: | Marcel Fehr | Laboratory Technician |           |

|              |               |                   |  |
|--------------|---------------|-------------------|--|
| Approved by: | Katja Pokovic | Technical Manager |  |
|--------------|---------------|-------------------|--|

Issued: October 27, 2009

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



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 Salo TCC**

Certificate No: **H3-6143\_Oct09**

## CALIBRATION CERTIFICATE

Object

**H3DV6 - SN:6143**

Calibration procedure(s)

**QA CAL-03.v5 and QA CAL-25.v2**  
Calibration procedure for H-field probes optimized for close near field  
evaluations in air

Calibration date:

**October 23, 2009**

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-09 (No. 217-01030)       | Apr-10                |
| Power sensor E4412A        | MY41495277      | 1-Apr-09 (No. 217-01030)       | Apr-10                |
| Power sensor E4412A        | MY41498087      | 1-Apr-09 (No. 217-01030)       | Apr-10                |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 31-Mar-09 (No. 217-01026)      | Mar-10                |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 31-Mar-09 (No. 217-01028)      | Mar-10                |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 31-Mar-09 (No. 217-01027)      | Mar-10                |
| Reference Probe H3DV6      | SN: 6182        | 3-Oct-09 (No. H3-6182_Oct09)   | Oct-10                |
| DAE4                       | SN: 789         | 19-Dec-08 (No. DAE4-789_Dec08) | Dec-09                |

| 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  |

|                |             |                       |           |
|----------------|-------------|-----------------------|-----------|
|                | Name        | Function              | Signature |
| Calibrated by: | Marcel Fehr | Laboratory Technician |           |

|              |               |                   |  |
|--------------|---------------|-------------------|--|
| Approved by: | Katja Pokovic | Technical Manager |  |
|--------------|---------------|-------------------|--|

Issued: October 27, 2009

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**APPENDIX D: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)**



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **Nokia Salo TCC**

Certificate No: **CD835V3-1005\_Nov08**

CALIBRATION CERTIFICATE

|                                  |                                                          |
|----------------------------------|----------------------------------------------------------|
| Object                           | CD835V3 - SN: 1005                                       |
| Calibration procedure(s)         | QA CAL-20.v4<br>Calibration procedure for dipoles in air |
| Calibration date:                | November 11, 2008                                        |
| Condition of the calibrated item | In Tolerance                                             |

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI)  
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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  | 08-Oct-08 (No. 217-00898)         | Oct-09                 |
| Power sensor HP 8481A     | US37292783  | 08-Oct-08 (No. 217-00898)         | Oct-09                 |
| Probe ER3DV6              | SN: 2336    | 31-Dec-07 (No. ER3-2336_Dec07)    | Dec-08                 |
| Probe H3DV6               | SN: 6065    | 31-Dec-07 (No. H3-6065_-Dec07)    | Dec-08                 |
| DAE4                      | SN: 781     | 03-Oct-08 (No. DAE4-781_Oct08)    | Oct-09                 |
| Secondary Standards       | ID #        | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-4419B     | GB42420191  | 11-May-05 (in house check Oct-07) | In house check: Oct-09 |
| Power sensor HP 8482A     | US37295597  | 11-May-05 (in house check Oct-07) | In house check: Oct-09 |
| Power sensor HP 8482H     | 3318A09450  | 08-Jan-02 (in house check Oct-07) | In house check: Oct-09 |
| Network Analyzer HP 8753E | US37390585  | 18-Oct-01 (in house check Oct-08) | In house check: Oct-09 |
| RF generator E4433B       | MY 41310391 | 03-Nov-04 (in house check Oct-07) | In house check: Oct-09 |

|                |                 |                       |           |
|----------------|-----------------|-----------------------|-----------|
|                | Name            | Function              | Signature |
| Calibrated by: | Claudio Leubler | Laboratory Technician |           |
| Approved by:   | Katja Pokovic   | Technical Manager     |           |

Issued: November 13, 2008

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3.3.2 DASY4 H-field result

Date/Time: 11.11.2008 08:45:34

Test Laboratory: SPEAG Lab 2

H\_CD835\_1005\_081111

DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: 1005

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>

Phantom section: RF Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 31.12.2007
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 03.10.2008
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.441 A/m

Probe Modulation Factor = 1.00

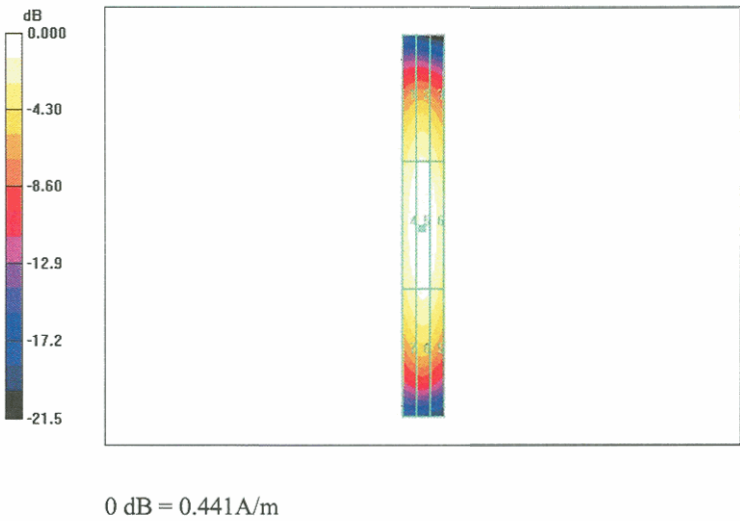
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.467 A/m; Power Drift = 0.006 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Grid 1<br>0.370 M4 | Grid 2<br>0.385 M4 | Grid 3<br>0.358 M4 |
| Grid 4<br>0.423 M4 | Grid 5<br>0.441 M4 | Grid 6<br>0.412 M4 |
| Grid 7<br>0.376 M4 | Grid 8<br>0.394 M4 | Grid 9<br>0.368 M4 |



Test Laboratory: SPEAG Lab 2

E\_CD835\_1005\_081111

DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: 1005

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: RF Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 31.12.2007
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 03.10.2008
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

Measurement grid: dx=5mm, dy=5mm

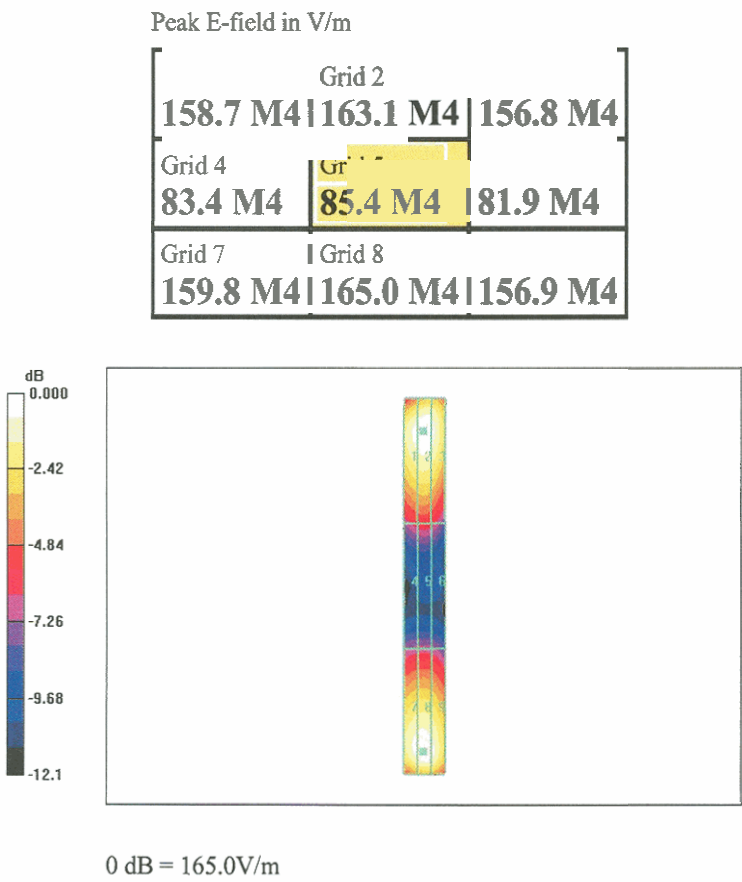
Maximum value of peak Total field = 165.0 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 107.1 V/m; Power Drift = -0.020 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **Nokia Salo TCC**

Certificate No: **CD1880V3-1004\_Nov08**

CALIBRATION CERTIFICATE

|                                  |                                                          |
|----------------------------------|----------------------------------------------------------|
| Object                           | CD1880V3 - SN: 1004                                      |
| Calibration procedure(s)         | QA CAL-20.v4<br>Calibration procedure for dipoles in air |
| Calibration date:                | November 11, 2008                                        |
| Condition of the calibrated item | In Tolerance                                             |

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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 | 08-Oct-08 (No. 217-00898)      | Oct-09                |
| Power sensor HP 8481A | US37292783 | 08-Oct-08 (No. 217-00898)      | Oct-09                |
| Probe ER3DV6          | SN: 2336   | 31-Dec-07 (No. ER3-2336_Dec07) | Dec-08                |
| Probe H3DV6           | SN: 6065   | 31-Dec-07 (No. H3-6065_-Dec07) | Dec-08                |
| DAE4                  | SN 781     | 03-Oct-08 (No. DAE4-781_Oct08) | Oct-09                |

| Secondary Standards       | ID #        | Check Date (in house)             | Scheduled Check        |
|---------------------------|-------------|-----------------------------------|------------------------|
| Power meter EPM-4419B     | GB42420191  | 11-May-05 (in house check Oct-07) | In house check: Oct-09 |
| Power sensor HP 8482A     | US37295597  | 11-May-05 (in house check Oct-07) | In house check: Oct-09 |
| Power sensor HP 8482H     | 3318A09450  | 08-Jan-02 (in house check Oct-07) | In house check: Oct-09 |
| Network Analyzer HP 8753E | US37390585  | 18-Oct-01 (in house check Oct-08) | In house check: Oct-09 |
| RF generator E4433B       | MY 41310391 | 22-Nov-04 (in house check Oct-07) | In house check: Oct-09 |

|                |                 |                       |           |
|----------------|-----------------|-----------------------|-----------|
| Calibrated by: | Name            | Function              | Signature |
|                | Claudio Leubler | Laboratory Technician |           |
| Approved by:   | Katja Pokovic   | Technical Manager     |           |

Issued: November 13, 2008

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Test Laboratory: SPEAG Lab 2

H\_CD1880\_1004\_081111

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1004

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1$  kg/m<sup>3</sup>

Phantom section: RF Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 31.12.2007
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 03.10.2008
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm 2/Hearing Aid

Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.461 A/m

Probe Modulation Factor = 1.00

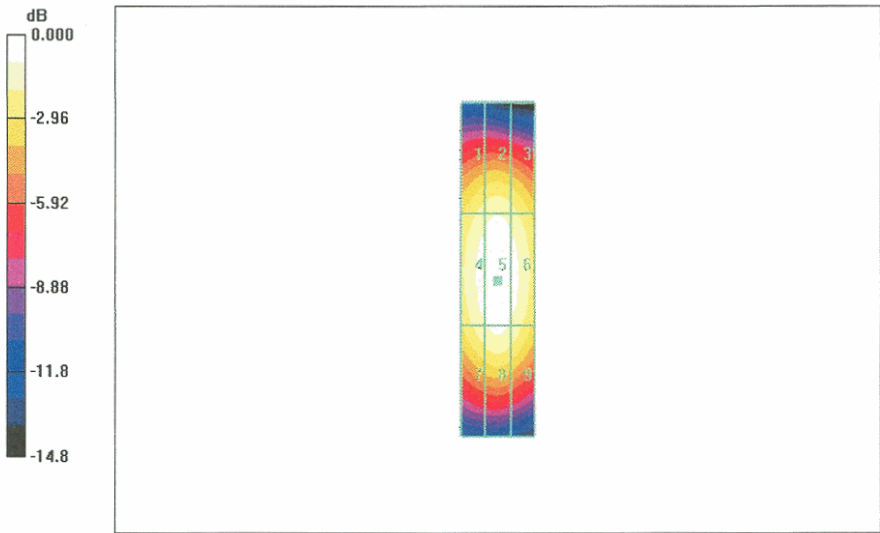
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.488 A/m; Power Drift = -0.018 dB

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak H-field in A/m

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Grid 1<br>0.394 M2 | Grid 2<br>0.410 M2 | Grid 3<br>0.390 M2 |
| Grid 4<br>0.442 M2 | Grid 5<br>0.461 M2 | Grid 6<br>0.438 M2 |
| Grid 7<br>0.409 M2 | Grid 8<br>0.430 M2 | Grid 9<br>0.406 M2 |



3.3.2 DASY4 E-Field Result

Date/Time: 11.11.2008 12:54:31

Test Laboratory: SPEAG Lab 2

E\_CD1880\_1004\_081111

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1004

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used:  $\sigma = 0$  mho/m,  $\epsilon_r = 1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: RF Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 31.12.2007
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 03.10.2008
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 138.8 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 157.2 V/m; Power Drift = -0.005 dB

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak E-field in V/m

|                                |                    |                    |
|--------------------------------|--------------------|--------------------|
| 131.1 M2   136.9 M2   133.9 M2 |                    |                    |
| Grid 4<br>89.6 M3              | 5<br>92.1 M3       | Grid 6<br>88.3 M3  |
| Grid 7<br>133.8 M2             | Grid 8<br>138.8 M2 | Grid 9<br>133.2 M2 |

