

HAC RF Emissions Test Report

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Testing laboratory:	TCC Salo P.O. Box 86 Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220	Client:	Nokia Corporation 12278 Scripps Summit Drive SAN DIEGO CA. 92131 USA Tel. +1 858 831 5000 Fax. +1 858 831 6500
Responsible test engineer:	Ari Orte	Product contact person:	Bill Griffin
Measurements made by:	Ari Orte		
Tested devices:	RM-257 (Hearing aid mode)		
FCC ID:	QMNRM-257		
Supplement reports:	Salo_HAC_0739_02 Salo_HAC_0739_11_setup_photos		
Testing has been carried out in accordance with:	ANSI C63.19-2006 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:	The tested device complies with the requirements in respect of all parameters subject to the test. 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	2007-09-18 to 2007-09-20
SN, HW, SW and DUT numbers of tested device	SN: 004401/01/111749/2, HW: 4604, SW: 4.40, DUT: 12239
Batteries used in testing	BL-4C, EUT: 11546, 11735
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]	Limit of E-field max. value in category M3 [V/m]	Maximum E-field value after exclusion [V/m]	Category
GSM850	251 / 848.8	149.6 – 266.1	243.5	M3 (-5dB)
WCDMA1700/2100	1513 / 1752.6	63.1 - 112.2	31.7	M4 (0dB)
GSM1900	512 / 1850.2	47.3 – 84.1	79.7	M3 (-5dB)

1.2.2 Magnetic field measurements

Band & Mode	Ch / Freq. [MHz]	Limit of H-field max. value in category M3 [A/m]	Maximum H-field value after exclusion [A/m]	Category
GSM850	251 / 848.8	0.45 – 0.80	0.33	M3 (-5dB)
WCDMA1700/2100	1513 / 1752.6	0.19 - 0.34	0.07	M4 (0dB)
GSM1900	810 / 1909.8	0.14 – 0.25	0.19	M3 (-5dB)

1.2.3 Overall RF emissions category of the tested device

Band & Mode	Combined category (E- and H-fields)	Pass / Fail
GSM850	M3 (-5dB)	Pass
WCDMA1700/2100	M4 (0dB)	Pass
GSM1900	M3 (-5dB)	Pass

1.2.4 Maximum Drift

Maximum drift during measurements	0.14 dB
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1.2.5 Measurement Uncertainty

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

2. DESCRIPTION OF THE DEVICE UNDER TEST (DUT)

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

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

2.1 Picture of Device

See separate report 'Salo_HAC_0739_11_setup_photos'

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature [°C]:	19.3 to 22.2
Ambient humidity [RH %]:	39 to 57

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 measurements were performed on low, middle and high 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
DAE4	555	12 months	2008-03
E-field Probe ER3DV6	2333	12 months	2008-02
H-field Probe H3DV6	6053	12 months	2008-02
Dipole Validation Kit, CD835V3	1004	24 months	2009-02
Dipole Validation Kit, CD1880V3	1003	24 months	2009-02

Additional test equipment used in testing and validation:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SML03	101265	12 months	2008-07
Amplifier	ZHL-42 (SMA)	N072095-5	12 months	2008-07
Power Meter	NRVS	849305/028	12 months	2008-07
Power Sensor	NRV-Z32	839176/020	12 months	2008-07
Radio Communication Tester	CMU 200	101111	12 months	2008-07

4.1.1 Isotropic E-field probe ER3DV6

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

4.1.2 Isotropic H-field probe H3DV6

Construction	Three concentric loop sensors with 3.8 mm loop diameters Resistively loaded detector diodes for linear response Built-in shielding against static charges PEEK enclosure material
Frequency	200 MHz to 3 GHz; Output linearized (absolute accuracy $\pm 6.0\%$, $k=2$)
Directivity	± 0.25 dB (spherical isotropy error)
Dynamic Range	10 mA/m to 2 A/m at 1 GHz
Dimensions	Overall length: 330 mm Tip length: 40 mm Body diameter: 12 mm Tip diameter: 6 mm
Application	Distance from probe tip to nearest point of dipole: 1.1 mm General magnetic near-field measurements up to 3 GHz Field component measurements, surface current measurements 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 1.0cm distance between top surface of the dipole and calibration point of the probe.

System Validation, H-field and E-field

f [MHz]	Description	H-field [A/m]	E-field [V/m]
835	Reference result	0.452	160.0
	± 10% window	0.406 – 0.497	144.0 – 176.0
	2007-09-18	0.449	163.7
1700/2100*	Reference result	0.452	128.8
	± 10% window	0.406 – 0.497	115.9 – 141.7
	2007-09-18	0.461	131.7

* 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.

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 1cm. 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 [dBm]	E-field [V/m] Probe SN: 2333		H-field [A/m] Probe SN: 6053		PMF E-field	PMF H-field
		CW	GSM	CW	GSM		
835.0	20	110.9	39.7	0.498	0.187	2.79	2.66
1880.0	20	143.3	51.0	0.481	0.236	2.81	2.04

Modulation factors, WCDMA

f [MHz]	p [dBm]	E-field [V/m] Probe SN: 2333		H-field [A/m] Probe SN: 6053		PMF E-field	PMF H-field
		CW	WCDMA	CW	WCDMA		
835.0	17	92.3	114.0	0.377	0.526	0.81	0.72
1732.4*	-					0.81	0.56
1880.0	17	91.9	113.9	0.308	0.551	0.81	0.56

* 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 -2006.

Category Limits for RF-parameters <960MHz

Category	AWF [dB]	Limits for E-Field Emissions [V/m]	Limits for H-Field Emissions [A/m]
M1	0	631.0 - 1122.0	1.91 - 3.39
	-5	473 - 841.4	1.43 - 2.54
M2	0	354.8 - 631.0	1.07 - 1.91
	-5	266.1 - 473.2	0.80 - 1.43
M3	0	199.5 - 354.8	0.60 - 1.07
	-5	149.6 - 266.1	0.45 - 0.80
M4	0	<199.5	<0.60
	-5	<149.6	<0.45

Category Limits for RF-parameters >960MHz

Category	AWF [dB]	Limits for E-Field Emissions [V/m]	Limits for H-Field Emissions [A/m]
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14

6. MEASUREMENT UNCERTAINTY

Source of Uncertainty	Tolerance ±%	Probability Distribution	Div.	ci E	ci H	Standard Uncertainty ±%, E	Standard Uncertainty ±%, H	Remark
Measurement System								
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
Test Sample Related								
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
Test Arch and Setup Related								
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, E and H RF emissions results

Mode	Flip option	Test configuration	Ch 128 824.2MHz	Ch 190 836.6MHz	Ch 251 848.8MHz
GSM850	Flip open	E-field [V/M]	221.1	218.3	243.5
		H-field [A/m]	0.282	0.296	0.331
		Category	M3 (-5dB)	M3 (-5dB)	M3 (-5dB)

WCDMA1700/2100, E and H RF emissions results

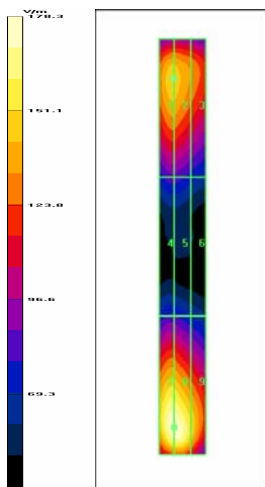
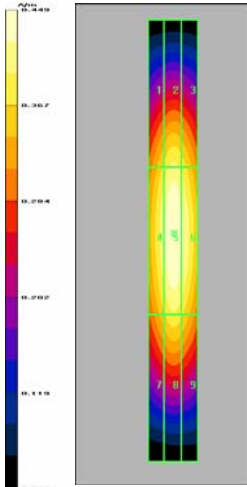
Mode	Flip option	Test configuration	Ch 1312 1712.4MHz	Ch 1412 1732.4MHz	Ch 1513 1752.6 MHz
WCDMA 1700/2100	Flip open	E-field [V/M]	29.2	28.4	31.7
		H-field [A/m]	0.055	0.059	0.069
		Category	M4 (0dB)	M4 (0dB)	M4 (0dB)

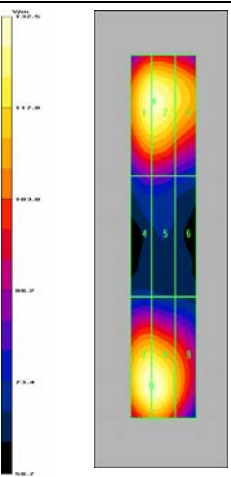
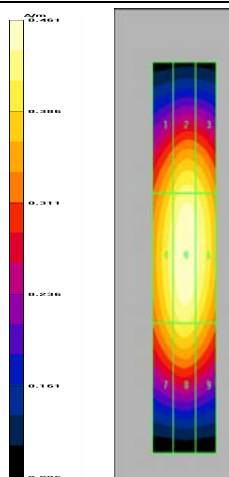
GSM1900, E and H RF emissions results

Mode	Flip option	Test configuration	Ch 512 1850.2MHz	Ch 661 1880.0MHz	Ch 810 1909.8MHz
GSM1900	Flip open	E-field [V/M]	79.7	79.5	77.8
		H-field [A/m]	0.172	0.174	0.185
		Category	M3 (-5dB)	M3 (-5dB)	M3 (-5dB)

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

APPENDIX A: SYSTEM VALIDATION SCANS

Date/Time: 2007-09-18 15:24:14 Test Laboratory: TCC Nokia Type: D835V3; Serial: SN 1004	Date/Time: 2007-09-18 14:35:39 Test Laboratory: TCC Nokia Type: D835V3; Serial: SN 1004																																				
Communication System: CW Frequency: 835 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Dipole Section	Communication System: CW Frequency: 835 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Dipole Section																																				
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172																																				
E Scan - ER probe center 10mm above CD835 Dipole/Hearing Aid Compatibility Test (41x361x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 178.3 V/m Probe Modulation Factor = 1.00 Reference Value = 106.7 V/m; Power Drift = 0.001 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)	H Scan - H3DV6 probe center 10mm above CD835 Dipole/Hearing Aid Compatibility Test (41x361x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.449 A/m Probe Modulation Factor = 1.00 Reference Value = 0.475 A/m; Power Drift = -0.001 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)																																				
 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>149.0</td><td>148.6</td><td>133.1</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>84.6</td><td>84.5</td><td>74.4</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>178.3</td><td>178.3</td><td>153.1</td></tr></table>	Grid 1	Grid 2	Grid 3	149.0	148.6	133.1	Grid 4	Grid 5	Grid 6	84.6	84.5	74.4	Grid 7	Grid 8	Grid 9	178.3	178.3	153.1	 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.375</td><td>0.402</td><td>0.385</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.418</td><td>0.449</td><td>0.431</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.362</td><td>0.390</td><td>0.372</td></tr></table>	Grid 1	Grid 2	Grid 3	0.375	0.402	0.385	Grid 4	Grid 5	Grid 6	0.418	0.449	0.431	Grid 7	Grid 8	Grid 9	0.362	0.390	0.372
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0.418	0.449	0.431																																			
Grid 7	Grid 8	Grid 9																																			
0.362	0.390	0.372																																			

Date/Time: 2007-09-18 15:04:42 Test Laboratory: TCC Nokia Type: CD1880V3; Serial: S/N=1003	Date/Time: 2007-09-18 14:48:28 Test Laboratory: TCC Nokia Type: CD1880V3; Serial: S/N=1003																																				
Communication System: CW Frequency: 1880 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m ³ Phantom section: E Dipole Section	Communication System: CW Frequency: 1880 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m ³ Phantom section: H Dipole Section																																				
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172																																				
E Scan - ER probe center 10mm above CD1880 Dipole/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 132.5 V/m Probe Modulation Factor = 1.00 Reference Value = 140.6 V/m; Power Drift = -0.019 dB Hearing Aid Near-Field Category: M2 (AWF 0 dB)	H Scan - H3DV6 probe center 10mm above CD1880 Dipole/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 Reference Value = 0.486 A/m; Power Drift = 0.007 dB Hearing Aid Near-Field Category: M2 (AWF 0 dB)																																				
 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>130.8</td><td>130.9</td><td>121.6</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>85.4</td><td>85.4</td><td>78.8</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>132.5</td><td>132.5</td><td>115.1</td></tr></table>	Grid 1	Grid 2	Grid 3	130.8	130.9	121.6	Grid 4	Grid 5	Grid 6	85.4	85.4	78.8	Grid 7	Grid 8	Grid 9	132.5	132.5	115.1	 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.392</td><td>0.425</td><td>0.414</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.432</td><td>0.461</td><td>0.446</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.391</td><td>0.412</td><td>0.392</td></tr></table>	Grid 1	Grid 2	Grid 3	0.392	0.425	0.414	Grid 4	Grid 5	Grid 6	0.432	0.461	0.446	Grid 7	Grid 8	Grid 9	0.391	0.412	0.392
Grid 1	Grid 2	Grid 3																																			
130.8	130.9	121.6																																			
Grid 4	Grid 5	Grid 6																																			
85.4	85.4	78.8																																			
Grid 7	Grid 8	Grid 9																																			
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0.392	0.425	0.414																																			
Grid 4	Grid 5	Grid 6																																			
0.432	0.461	0.446																																			
Grid 7	Grid 8	Grid 9																																			
0.391	0.412	0.392																																			

APPENDIX B: MEASUREMENT SCANS

MEASUREMENT DATA GSM850, CHANNEL LOW (824.2 MHz)

Date/Time: 2007-09-19 16:48:11
Test Laboratory: TCC Nokia
Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2

Communication System: GSM850 (ER3DV6)
Frequency: 824.2 MHz
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³
Phantom section: E Device Section

DASY4 Configuration:
- Probe: ER3DV6 - SN2333; Probe Notes:
- ConvF(1, 1, 1); Calibrated: 2007-02-13
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn555; Calibrated: 2007-03-15
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

E Scan - ER probe tip 10mm above Device Reference, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 221.1 V/m

Probe Modulation Factor = 2.79

Reference Value = 87.7 V/m; Power Drift = -0.030 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)



Grid 1	Grid 2	Grid 3
188.6	214.4	210.4
Grid 4	Grid 5	Grid 6
194.3	221.1	215.7
Grid 7	Grid 8	Grid 9
172.3	190.6	184.4

Date/Time: 2007-09-19 15:26:10
Test Laboratory: TCC Nokia
Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2

Communication System: GSM850 (H3DV6)
Frequency: 824.2 MHz
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³
Phantom section: H Device Section

DASY4 Configuration:
- Probe: H3DV6 - SN6053; Probe Notes:
- ; Calibrated: 2007-02-13
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn555; Calibrated: 2007-03-15
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

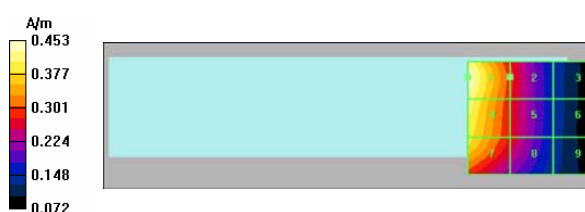
H Scan - H3DV6 probe tip 10mm above Device Reference, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.453 A/m

Probe Modulation Factor = 2.66

Reference Value = 0.082 A/m; Power Drift = -0.045 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)



Grid 1	Grid 2	Grid 3
0.453	0.290	0.151
Grid 4	Grid 5	Grid 6
0.429	0.282	0.151
Grid 7	Grid 8	Grid 9
0.394	0.274	0.147

MEASUREMENT DATA GSM850, CHANNEL MIDDLE (836.6 MHz)

Date/Time: 2007-09-19 16:53:58 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: GSM850 (ER3DV6) Frequency: 836.6 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Device Section DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172	Date/Time: 2007-09-19 15:32:44 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: GSM850 (H3DV6) Frequency: 836.6 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Device Section DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172																																				
E Scan - ER probe tip 10mm above Device Reference, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 218.3 V/m Probe Modulation Factor = 2.79 Reference Value = 86.2 V/m; Power Drift = -0.010 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB) V/m 218.3 190.8 163.2 135.7 108.1 80.6 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>183.5</td><td>212.5</td><td>208.7</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>189.1</td><td>218.3</td><td>213.5</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>169.6</td><td>188.2</td><td>182.3</td></tr></table>	Grid 1	Grid 2	Grid 3	183.5	212.5	208.7	Grid 4	Grid 5	Grid 6	189.1	218.3	213.5	Grid 7	Grid 8	Grid 9	169.6	188.2	182.3	H Scan - H3DV6 probe tip 10mm above Device Reference, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.474 A/m Probe Modulation Factor = 2.66 Reference Value = 0.086 A/m; Power Drift = -0.043 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB) A/m 0.474 0.395 0.316 0.237 0.158 0.079 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.474</td><td>0.309</td><td>0.170</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.442</td><td>0.296</td><td>0.165</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.392</td><td>0.274</td><td>0.149</td></tr></table>	Grid 1	Grid 2	Grid 3	0.474	0.309	0.170	Grid 4	Grid 5	Grid 6	0.442	0.296	0.165	Grid 7	Grid 8	Grid 9	0.392	0.274	0.149
Grid 1	Grid 2	Grid 3																																			
183.5	212.5	208.7																																			
Grid 4	Grid 5	Grid 6																																			
189.1	218.3	213.5																																			
Grid 7	Grid 8	Grid 9																																			
169.6	188.2	182.3																																			
Grid 1	Grid 2	Grid 3																																			
0.474	0.309	0.170																																			
Grid 4	Grid 5	Grid 6																																			
0.442	0.296	0.165																																			
Grid 7	Grid 8	Grid 9																																			
0.392	0.274	0.149																																			

MEASUREMENT DATA GSM850, CHANNEL HIGH (848.8 MHz)

Date/Time: 2007-09-19 16:59:28

Test Laboratory: TCC Nokia

Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2

Communication System: GSM850 (ER3DV6)

Frequency: 848.8 MHz

Medium: Air

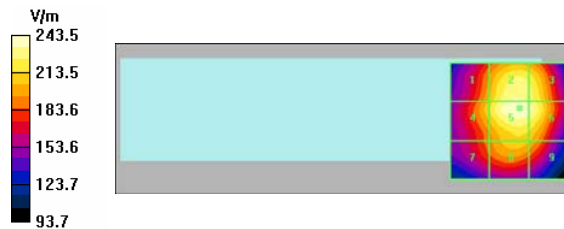
Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2333; Probe Notes:
- ConvF(1, 1, 1); Calibrated: 2007-02-13
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn555; Calibrated: 2007-03-15
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

E Scan - ER probe tip 10mm above Device Reference, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 243.5 V/m
Probe Modulation Factor = 2.79
Reference Value = 96.5 V/m; Power Drift = -0.033 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)



Grid 1	Grid 2	Grid 3
205.3	236.4	231.3
Grid 4	Grid 5	Grid 6
212.5	243.5	237.6
Grid 7	Grid 8	Grid 9
190.2	211.4	205.1

Date/Time: 2007-09-19 15:38:20

Test Laboratory: TCC Nokia

Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2

Communication System: GSM850 (H3DV6)

Frequency: 848.8 MHz

Medium: Air

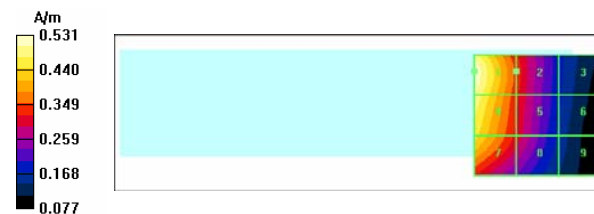
Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6053; Probe Notes:
- ; Calibrated: 2007-02-13
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn555; Calibrated: 2007-03-15
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

H Scan - H3DV6 probe tip 10mm above Device Reference, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 0.531 A/m
Probe Modulation Factor = 2.66
Reference Value = 0.095 A/m; Power Drift = -0.046 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

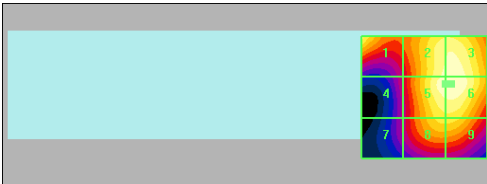
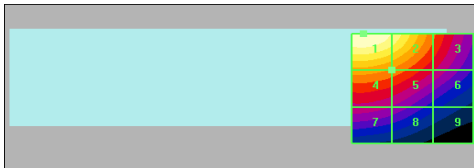


Grid 1	Grid 2	Grid 3
0.531	0.343	0.183
Grid 4	Grid 5	Grid 6
0.505	0.331	0.176
Grid 7	Grid 8	Grid 9
0.455	0.312	0.163

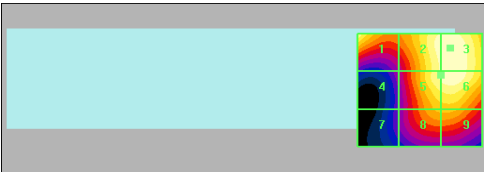
MEASUREMENT DATA WCDMA1700/2100, CHANNEL LOW (1712.4MHz)

Date/Time: 2007-09-20 10:27:03 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: WCDMA1700/2100 Frequency: 1712.4 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Device Section DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 E Scan - ER probe tip 10mm above Device Reference, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 29.2 V/m Probe Modulation Factor = 0.810 Reference Value = 32.9 V/m; Power Drift = -0.126 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB) V/m 29.2 24.4 19.5 14.7 9.83 4.99 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>23.5</td><td>27.7</td><td>28.6</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>16.8</td><td>28.6</td><td>29.2</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>16.7</td><td>25.7</td><td>25.7</td></tr></table>	Grid 1	Grid 2	Grid 3	23.5	27.7	28.6	Grid 4	Grid 5	Grid 6	16.8	28.6	29.2	Grid 7	Grid 8	Grid 9	16.7	25.7	25.7	Date/Time: 2007-09-20 12:34:04 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: WCDMA1700/2100 Frequency: 1712.4 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Device Section DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 H Scan - H3DV6 probe tip 10mm above Device Reference, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.076 A/m Probe Modulation Factor = 0.560 Reference Value = 0.086 A/m; Power Drift = -0.105 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB) A/m 0.076 0.063 0.050 0.038 0.025 0.012 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.076</td><td>0.071</td><td>0.051</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.058</td><td>0.055</td><td>0.042</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.043</td><td>0.040</td><td>0.027</td></tr></table>	Grid 1	Grid 2	Grid 3	0.076	0.071	0.051	Grid 4	Grid 5	Grid 6	0.058	0.055	0.042	Grid 7	Grid 8	Grid 9	0.043	0.040	0.027
Grid 1	Grid 2	Grid 3																																			
23.5	27.7	28.6																																			
Grid 4	Grid 5	Grid 6																																			
16.8	28.6	29.2																																			
Grid 7	Grid 8	Grid 9																																			
16.7	25.7	25.7																																			
Grid 1	Grid 2	Grid 3																																			
0.076	0.071	0.051																																			
Grid 4	Grid 5	Grid 6																																			
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0.043	0.040	0.027																																			

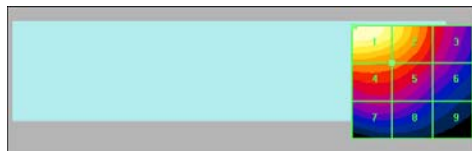
MEASUREMENT DATA WCDMA1700/2100, CHANNEL MIDDLE (1732.4MHz)

Date/Time: 2007-09-20 10:37:02 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: WCDMA1700/2100 Frequency: 1732.4 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Device Section DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 E Scan - ER probe tip 10mm above Device Reference, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 28.7 V/m Probe Modulation Factor = 0.810 Reference Value = 33.8 V/m; Power Drift = -0.131 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB) V/m 28.7 24.4 20.2 15.9 11.7 7.41  <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>27.0</td><td>27.9</td><td>28.2</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>17.5</td><td>28.4</td><td>28.7</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>16.6</td><td>25.3</td><td>25.3</td></tr></table>	Grid 1	Grid 2	Grid 3	27.0	27.9	28.2	Grid 4	Grid 5	Grid 6	17.5	28.4	28.7	Grid 7	Grid 8	Grid 9	16.6	25.3	25.3	Date/Time: 2007-09-20 12:45:00 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: WCDMA1700/2100 Frequency: 1732.4 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Device Section DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 H Scan - H3DV6 probe tip 10mm above Device Reference, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.078 A/m Probe Modulation Factor = 0.560 Reference Value = 0.087 A/m; Power Drift = -0.132 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB) A/m 0.078 0.065 0.052 0.039 0.026 0.013  <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.078</td><td>0.073</td><td>0.053</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.059</td><td>0.056</td><td>0.044</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.042</td><td>0.039</td><td>0.028</td></tr></table>	Grid 1	Grid 2	Grid 3	0.078	0.073	0.053	Grid 4	Grid 5	Grid 6	0.059	0.056	0.044	Grid 7	Grid 8	Grid 9	0.042	0.039	0.028
Grid 1	Grid 2	Grid 3																																			
27.0	27.9	28.2																																			
Grid 4	Grid 5	Grid 6																																			
17.5	28.4	28.7																																			
Grid 7	Grid 8	Grid 9																																			
16.6	25.3	25.3																																			
Grid 1	Grid 2	Grid 3																																			
0.078	0.073	0.053																																			
Grid 4	Grid 5	Grid 6																																			
0.059	0.056	0.044																																			
Grid 7	Grid 8	Grid 9																																			
0.042	0.039	0.028																																			

MEASUREMENT DATA WCDMA1700/2100, CHANNEL HIGH (1752.6MHz)

Date/Time: 2007-09-20 11:26:05 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: WCDMA1700/2100 Frequency: 1752.6 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Device Section DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 E Scan - ER probe tip 10mm above Device Reference, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 32.8 V/m Probe Modulation Factor = 0.810 Reference Value = 36.3 V/m; Power Drift = -0.124 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB) V/m 32.8 28.0 23.2 18.4 13.6 8.86  <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>31.5</td><td>32.3</td><td>32.8</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>18.6</td><td>31.7</td><td>32.5</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>17.1</td><td>27.0</td><td>27.1</td></tr></table> Date/Time: 2007-09-20 13:16:27 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: WCDMA1700/2100 Frequency: 1752.6 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Device Section DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 H Scan - H3DV6 probe tip 10mm above Device Reference, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.089 A/m Probe Modulation Factor = 0.560 Reference Value = 0.105 A/m; Power Drift = -0.142 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB) A/m 0.089 0.075 0.061 0.046 0.032 0.018  <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.089</td><td>0.085</td><td>0.064</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.069</td><td>0.066</td><td>0.054</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.051</td><td>0.048</td><td>0.036</td></tr></table>	Grid 1	Grid 2	Grid 3	31.5	32.3	32.8	Grid 4	Grid 5	Grid 6	18.6	31.7	32.5	Grid 7	Grid 8	Grid 9	17.1	27.0	27.1	Grid 1	Grid 2	Grid 3	0.089	0.085	0.064	Grid 4	Grid 5	Grid 6	0.069	0.066	0.054	Grid 7	Grid 8	Grid 9	0.051	0.048	0.036
Grid 1	Grid 2	Grid 3																																		
31.5	32.3	32.8																																		
Grid 4	Grid 5	Grid 6																																		
18.6	31.7	32.5																																		
Grid 7	Grid 8	Grid 9																																		
17.1	27.0	27.1																																		
Grid 1	Grid 2	Grid 3																																		
0.089	0.085	0.064																																		
Grid 4	Grid 5	Grid 6																																		
0.069	0.066	0.054																																		
Grid 7	Grid 8	Grid 9																																		
0.051	0.048	0.036																																		

MEASUREMENT DATA GSM1900, CHANNEL LOW (1850.2 MHz)

Date/Time: 2007-09-19 16:28:29 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: GSM1900 (ER3DV6) Frequency: 1850.2 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Device Section DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 E Scan - ER probe tip 10mm above Device Reference, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 82.1 V/m Probe Modulation Factor = 2.79 Reference Value = 25.5 V/m; Power Drift = -0.034 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB) V/m 82.1 70.4 58.8 47.1 35.5 23.8  <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>77.5</td><td>79.8</td><td>81.8</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>49.0</td><td>79.7</td><td>82.1</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>36.0</td><td>65.6</td><td>67.1</td></tr></table>	Grid 1	Grid 2	Grid 3	77.5	79.8	81.8	Grid 4	Grid 5	Grid 6	49.0	79.7	82.1	Grid 7	Grid 8	Grid 9	36.0	65.6	67.1	Date/Time: 2007-09-19 15:49:35 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: GSM1900 (H3DV6) Frequency: 1850.2 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Device Section DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 H Scan - H3DV6 probe tip 10mm above Device Reference, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.220 A/m Probe Modulation Factor = 2.04 Reference Value = 0.074 A/m; Power Drift = -0.069 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB) A/m 0.220 0.189 0.158 0.126 0.095 0.064  <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.220</td><td>0.203</td><td>0.151</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.172</td><td>0.165</td><td>0.135</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.133</td><td>0.131</td><td>0.103</td></tr></table>	Grid 1	Grid 2	Grid 3	0.220	0.203	0.151	Grid 4	Grid 5	Grid 6	0.172	0.165	0.135	Grid 7	Grid 8	Grid 9	0.133	0.131	0.103
Grid 1	Grid 2	Grid 3																																			
77.5	79.8	81.8																																			
Grid 4	Grid 5	Grid 6																																			
49.0	79.7	82.1																																			
Grid 7	Grid 8	Grid 9																																			
36.0	65.6	67.1																																			
Grid 1	Grid 2	Grid 3																																			
0.220	0.203	0.151																																			
Grid 4	Grid 5	Grid 6																																			
0.172	0.165	0.135																																			
Grid 7	Grid 8	Grid 9																																			
0.133	0.131	0.103																																			

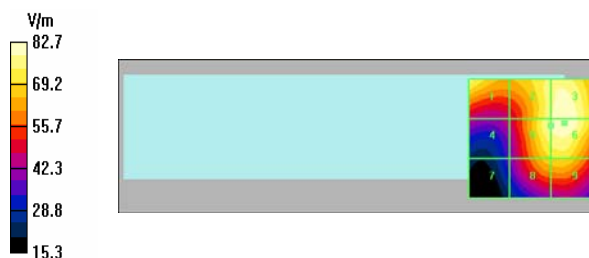
MEASUREMENT DATA GSM1900, CHANNEL MIDDLE (1880 MHz)

Date/Time: 2007-09-19 16:33:52
Test Laboratory: TCC Nokia
Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2

Communication System: GSM1900 (ER3DV6)
Frequency: 1880 MHz
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³
Phantom section: E Device Section

DASY4 Configuration:
- Probe: ER3DV6 - SN2333; Probe Notes:
- ConvF(1, 1, 1); Calibrated: 2007-02-13
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn555; Calibrated: 2007-03-15
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

E Scan - ER probe tip 10mm above Device Reference, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 82.7 V/m
Probe Modulation Factor = 2.79
Reference Value = 25.0 V/m; Power Drift = 0.030 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)



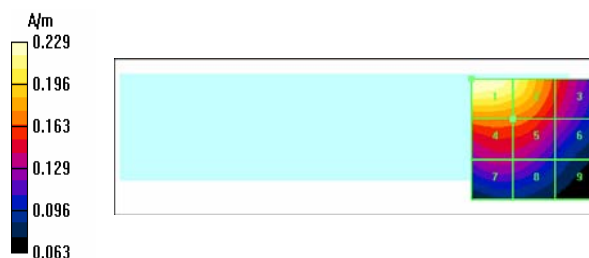
Grid 1	Grid 2	Grid 3
77.3	78.3	82.1
Grid 4	Grid 5	Grid 6
46.5	79.5	82.7
Grid 7	Grid 8	Grid 9
37.0	68.6	69.9

Date/Time: 2007-09-19 15:56:50
Test Laboratory: TCC Nokia
Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2

Communication System: GSM1900 (H3DV6)
Frequency: 1880 MHz
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³
Phantom section: H Device Section

DASY4 Configuration:
- Probe: H3DV6 - SN6053; Probe Notes:
- ; Calibrated: 2007-02-13
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn555; Calibrated: 2007-03-15
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

H Scan - H3DV6 probe tip 10mm above Device Reference, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 0.229 A/m
Probe Modulation Factor = 2.04
Reference Value = 0.077 A/m; Power Drift = 0.051 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)



Grid 1	Grid 2	Grid 3
0.229	0.214	0.159
Grid 4	Grid 5	Grid 6
0.174	0.171	0.139
Grid 7	Grid 8	Grid 9
0.136	0.133	0.100

MEASUREMENT DATA GSM1900, CHANNEL HIGH (1909.8 MHz)

Date/Time: 2007-09-19 16:40:01 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: GSM1900 (ER3DV6) Frequency: 1909.8 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³ Phantom section: E Device Section DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 E Scan - ER probe tip 10mm above Device Reference, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 82.2 V/m Probe Modulation Factor = 2.79 Reference Value = 24.3 V/m; Power Drift = -0.014 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB) V/m 82.2 69.6 57.0 44.4 31.8 19.2 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>70.4</td><td>78.7</td><td>82.2</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>44.1</td><td>77.8</td><td>81.9</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>30.8</td><td>61.1</td><td>63.1</td></tr></table> Date/Time: 2007-09-19 16:02:48 Test Laboratory: TCC Nokia Type: RM-257; EUT: 12239; Serial: 004401/01/111749/2 Communication System: GSM1900 (H3DV6) Frequency: 1909.8 MHz Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³ Phantom section: H Device Section DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2007-02-13 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn555; Calibrated: 2007-03-15 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1004 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172 H Scan - H3DV6 probe tip 10mm above Device Reference, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.234 A/m Probe Modulation Factor = 2.04 Reference Value = 0.079 A/m; Power Drift = -0.115 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB) A/m 0.234 0.200 0.166 0.132 0.098 0.064 <table><tr><td>Grid 1</td><td>Grid 2</td><td>Grid 3</td></tr><tr><td>0.234</td><td>0.218</td><td>0.154</td></tr><tr><td>Grid 4</td><td>Grid 5</td><td>Grid 6</td></tr><tr><td>0.185</td><td>0.178</td><td>0.138</td></tr><tr><td>Grid 7</td><td>Grid 8</td><td>Grid 9</td></tr><tr><td>0.143</td><td>0.140</td><td>0.104</td></tr></table>	Grid 1	Grid 2	Grid 3	70.4	78.7	82.2	Grid 4	Grid 5	Grid 6	44.1	77.8	81.9	Grid 7	Grid 8	Grid 9	30.8	61.1	63.1	Grid 1	Grid 2	Grid 3	0.234	0.218	0.154	Grid 4	Grid 5	Grid 6	0.185	0.178	0.138	Grid 7	Grid 8	Grid 9	0.143	0.140	0.104
Grid 1	Grid 2	Grid 3																																		
70.4	78.7	82.2																																		
Grid 4	Grid 5	Grid 6																																		
44.1	77.8	81.9																																		
Grid 7	Grid 8	Grid 9																																		
30.8	61.1	63.1																																		
Grid 1	Grid 2	Grid 3																																		
0.234	0.218	0.154																																		
Grid 4	Grid 5	Grid 6																																		
0.185	0.178	0.138																																		
Grid 7	Grid 8	Grid 9																																		
0.143	0.140	0.104																																		