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HAC RF Emissions Test Report

Test report no.:	Salo_HAC_0839_01	**Date of report:**	2008-09-23
Template version:	3.0	**Number of pages:**	31
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Responsible test engineer:	Ari Orte	**Product contact person:**	Choi Byungman
Measurements made by:	Ari Orte		
Tested devices:	RM-472		
FCC ID:	QEYRM-472	**IC:**	661L-RM472
Supplement reports:	Salo_HAC_0839_02		
Testing has been carried out in accordance with:	**ANSI C63.19-2007** 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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Date: 2008.09.23 12:47:52 +03'00'

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1. SUMMARY OF HAC RF EMISSION TEST REPORT

1.1 Test Details

Period of test	2008-07-23 to 2008-07-24
SN, HW, SW and DUT numbers of tested device	SN: 004401/10/122571/8, HW: 0655, SW: 10.007, DUT: 13048
Batteries used in testing	BL-5F, DUT: 13046, 13047
State of sample	
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]	Radiated power	Limit of E-field max. value in category M3 [V/m]	Maximum E-field value after exclusion [V/m]	Category
GSM 850	251 / 848.8	28.3 dBm ERP	149.6 – 266.1	206.8	M3 (-5dB)
WCDMA 850	4233 / 846.6	13.5 dBm ERP	199.5 – 354.8	36.0	M4 (0dB)
GSM 1900	512 / 1850.2	30.7 dBm EIRP	47.3 – 84.1	83.5	M3 (-5dB)
WCDMA 1900	9262 / 1852.4	22.6 dBm EIRP	63.1 – 112.2	33.4	M4 (0dB)

1.2.2 Magnetic field measurements

Band & Mode	Ch / Freq. [MHz]	Radiated power	Limit of H-field max. value in category M3 [A/m]	Maximum H-field value after exclusion [A/m]	Category
GSM 850	190 / 836.6	28.4 dBm ERP	0.45 – 0.80	0.24	M4 (-5dB)
WCDMA 850	4233 / 846.6	13.5 dBm ERP	0.60 – 1.07	0.05	M4 (0dB)
GSM 1900	512 / 1850.2	30.7 dBm EIRP	0.14 – 0.25	0.15	M3 (-5dB)
WCDMA 1900	9262 / 1852.4	22.6 dBm EIRP	0.19 – 0.34	0.06	M4 (0dB)

1.2.3 Overall RF emissions category of the tested device

Band & Mode	Combined category (E- and H-fields)	Pass / Fail
GSM850	M3	Pass
WCDMA850	M4	Pass
GSM1900	M3	Pass
WCDMA1900	M4	Pass
Final Category	M3	Pass

1.2.4 Maximum Drift

Maximum drift during measurements	0.10 dB

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	GMSK	1/8	824 – 849
GSM	1900	GMSK	1/8	1850 – 1910
WCDMA	850		1	826 – 847
WCDMA	1900		1	1852 - 1908
WLAN/VOIP	2450	11Mbps QPSK	1	2412 – 2462

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

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature [°C]:	20.8 to 21.1
Ambient humidity [RH %]:	50 to 59

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 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
DAE 4	728	12 months	2009-04
E-field Probe ER3DV6	2333	12 months	2009-01
H-field Probe H3DV6	6053	12 months	2009-01
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	2009-07
Amplifier	ZHL-42 (SMA)	N072095-5	12 months	2009-07
Power Meter	NRVS	849305/028	12 months	2009-07
Power Sensor	NRV-Z32	839176/020	12 months	2009-07
Radio Communication Tester	CMU 200	101111	12 months	2009-07

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 Distance from probe tip to nearest point of dipole: 1.25 mm
Application	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 ±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 Distance from probe tip to nearest point of dipole: 1.1 mm
Application	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	E-field [V/m]	H-field [A/m]
835	Reference result	160.0	0.452
	± 10% window	144.0 – 176.0	0.406 – 0.497
	2008-07-23	161.4	0.463
1880	Reference result	128.8	0.452
	± 10% window	115.9 – 141.7	0.406 – 0.497
	2008-07-23	125.7	0.442

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 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 1.5cm. 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.

5.3 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.

5.4 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-field$_{(CW)}$ / E-field $_{(Modulated)}$

$PMF_{(H)}$ = H-field$_{(CW)}$ / H-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	95.6	33.9	0.452	0.173	2.82	2.61
1880.0	20	136.3	48.4	0.506	0.249	2.82	2.03

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
1880.0	17	91.9	113.9	0.308	0.551	0.81	0.56

5.5 Slot Averaged Calculation Method

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

5.6 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).

5.7 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				Limits for RF-parameters >960MHz			
Category	AWF [dB]	E-field [V/m]		H-field [A/m]		E-field [V/m]		H-field [A/m]	
		Min	Max	Min	Max	Min	Max	Min	Max
M1	0	631.0	1122.0	1.91	3.39	199.5	354.8	0.60	1.07
M1	-5	473.2	841.4	1.43	2.54	149.6	266.1	0.45	0.80
M2	0	354.8	631.0	1.07	1.91	112.2	199.5	0.34	0.60
M2	-5	266.1	473.2	0.80	1.43	84.1	149.6	0.25	0.45
M3	0	**199.5**	**354.8**	**0.60**	**1.07**	**63.1**	**112.2**	**0.19**	**0.34**
M3	-5	**149.6**	**266.1**	**0.45**	**0.80**	**47.3**	**84.1**	**0.14**	**0.25**
M4	0		<199.5		<0.60		<63.1		<0.19
M4	-5		<149.6		<0.45		<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

Option used	Test configuration	Ch 128 824.2MHz	Ch 190 836.6MHz	Ch 251 848.8MHz
GSM850	Power	28.7 dBm	28.4 dBm	28.3 dBm
Slide Open	E-field [V/M]	206.2	203.8	**206.8**
	H-field [A/m]	0.228	**0.235**	0.231
	Category	M3 (-5dB)	M3 (-5dB)	M3 (-5dB)

WCDMA850, E and H RF emissions results

Option used	Test configuration	Ch 4132 826.4MHz	Ch 4175 835.0MHz	Ch 4233 846.6MHz
WCDMA850	Power	13.1 dBm	12.3 dBm	13.5 dBm
Slide Open	E-field [V/M]	28.7	33.2	**36.0**
	H-field [A/m]	0.039	0.043	**0.052**
	Category	M4 (0dB)	M4 (0dB)	M4 (0dB)

GSM1900, E and H RF emissions results

Option used	Test configuration	Ch 512 1850.2MHz	Ch 661 1880.0MHz	Ch 810 1909.8MHz
GSM1900	Power	30.7 dBm	30.2 dBm	28.1 dBm
Slide Open	E-field [V/M]	**83.5**	82.6	81.0
	H-field [A/m]	**0.152**	0.148	0.146
	Category	M3 (-5dB)	M3 (-5dB)	M3 (-5dB)

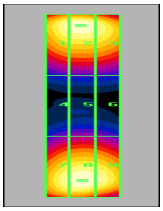
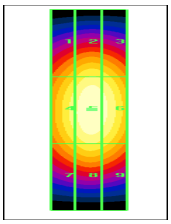
WCDMA1900, E and H RF emissions results

Option used	Test configuration	Ch 9262 1852.4MHz	Ch 9400 1880.0MHz	Ch 9538 1907.6MHz
WCDMA1900	Power	22.6 dBm	22.9 dBm	22.6 dBm
Slide Open	E-field [V/M]	**33.4**	31.7	31.3
	H-field [A/m]	**0.055**	0.051	0.049
	Category	M4 (0dB)	M4 (0dB)	M4 (0dB)

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

APPENDIX A: SYSTEM VALIDATION SCANS

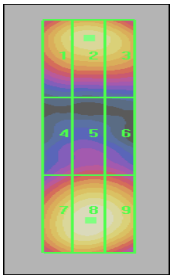
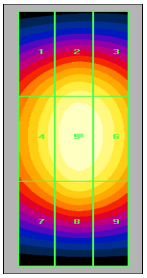
SYSTEM VALIDATION DATA 850MHz

Date/Time: 2008-07-23 14:56:57 Test Laboratory: TCC Nokia **Type: D835V3; Serial: 1004**	Date/Time: 2008-07-23 14:14:39 Test Laboratory: TCC Nokia **Type: D835V3; Serial: 1004**
Communication System: CW835 Frequency: 835 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Dipole Section	Communication System: CW835 Frequency: 835 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Dipole Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - 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 = 161.4 V/m Probe Modulation Factor = 1.00 Device Reference Point: 0.000, 0.000, 354.7 mm Reference Value = 120.7 V/m; Power Drift = 0.009 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - 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 = 0.463 A/m Probe Modulation Factor = 1.00 Device Reference Point: 0.000, 0.000, 354.7 mm Reference Value = 0.491 A/m; Power Drift = -0.010 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**
	

Grid 1 157.9 M4	Grid 2 161.4 M4	Grid 3 154.7 M4
Grid 4 84.3 M4	Grid 5 87.2 M4	Grid 6 85.3 M4
Grid 7 156.6 M4	Grid 8 161.3 M4	Grid 9 157.2 M4

Grid 1 0.376 M4	Grid 2 0.410 M4	Grid 3 0.399 M4
Grid 4 0.429 M4	Grid 5 0.463 M4	Grid 6 0.450 M4
Grid 7 0.379 M4	Grid 8 0.408 M4	Grid 9 0.394 M4

SYSTEM VALIDATION DATA 1900MHz

Date/Time: 2008-07-23 14:41:58 Test Laboratory: TCC Nokia **Type: CD1880V3; Serial: 1003**	Date/Time: 2008-07-23 14:31:09 Test Laboratory: TCC Nokia **Type: CD1880V3; Serial: 1003**
Communication System: CW1880 Frequency: 1880 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Dipole Section	Communication System: CW1880 Frequency: 1880 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Dipole Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - 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 = 129.4 V/m Probe Modulation Factor = 1.00 Device Reference Point: 0.000, 0.000, 354.7 mm Reference Value = 132.4 V/m; Power Drift = 0.029 dB **Hearing Aid Near-Field Category: M2 (AWF 0 dB)**	**H Scan - H3DV6 - 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 = 0.442 A/m Probe Modulation Factor = 1.00 Device Reference Point: 0.000, 0.000, 354.7 mm Reference Value = 0.466 A/m; Power Drift = -0.005 dB **Hearing Aid Near-Field Category: M2 (AWF 0 dB)**
	

Grid 1 118.3 M2	Grid 2 122.0 M2	Grid 3 119.0 M2
Grid 4 85.3 M3	Grid 5 89.7 M3	Grid 6 88.7 M3
Grid 7 123.9 M2	Grid 8 129.4 M2	Grid 9 126.7 M2

Grid 1 0.376 M2	Grid 2 0.407 M2	Grid 3 0.398 M2
Grid 4 0.408 M2	Grid 5 0.442 M2	Grid 6 0.433 M2
Grid 7 0.365 M2	Grid 8 0.397 M2	Grid 9 0.388 M2

APPENDIX B: MEASUREMENT SCANS

MEASUREMENT DATA GSM850, CHANNEL LOW (824.2 MHz)

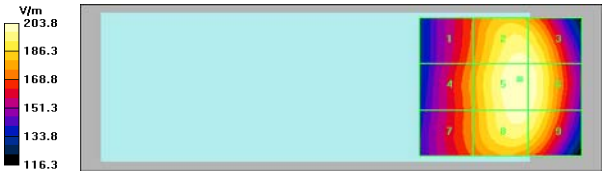
Date/Time: 2008-07-24 10:57:15 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:45:21 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: GSM850 (ER3DV6) Frequency: 824.2 MHz; Duty Cycle: 1:7.95 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: GSM850 (H3DV6) Frequency: 824.2 MHz; Duty Cycle: 1:6.79 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 206.2 V/m Probe Modulation Factor = 2.82 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 89.7 V/m; Power Drift = -0.007 dB **Hearing Aid Near-Field Category: M3 (AWF -5 dB)**	**H Scan - H3DV6 - measurement distance, sensor center to the Device = 15mm, Low/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.343 A/m Probe Modulation Factor = 2.61 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.064 A/m; Power Drift = -0.006 dB **Hearing Aid Near-Field Category: M4 (AWF -5 dB)**
	

Grid 1 175.6 M3	Grid 2 202.4 M3	Grid 3 201.4 M3
Grid 4 179.7 M3	Grid 5 206.2 M3	Grid 6 204.8 M3
Grid 7 177.5 M3	Grid 8 203.2 M3	Grid 9 201.2 M3

Grid 1 0.326 M4	Grid 2 0.228 M4	Grid 3 0.128 M4
Grid 4 0.321 M4	Grid 5 0.222 M4	Grid 6 0.120 M4
Grid 7 0.343 M4	Grid 8 0.239 M4	Grid 9 0.137 M4

MEASUREMENT DATA GSM850, CHANNEL MIDDLE (836.6 MHz)

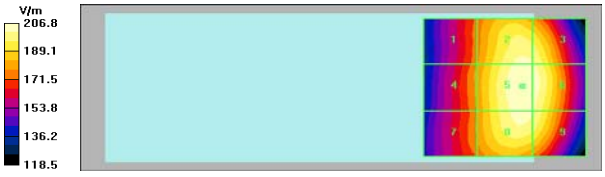
Date/Time: 2008-07-24 10:45:57 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:33:05 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: GSM850 (ER3DV6) Frequency: 836.6 MHz; Duty Cycle: 1:7.95 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: GSM850 (H3DV6) Frequency: 836.6 MHz; Duty Cycle: 1:6.79 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 203.8 V/m Probe Modulation Factor = 2.82 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 89.0 V/m; Power Drift = -0.097 dB **Hearing Aid Near-Field Category: M3 (AWF -5 dB)**	**H Scan - H3DV6 - measurement distance, sensor center to the Device = 15mm, mid/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.336 A/m Probe Modulation Factor = 2.61 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.064 A/m; Power Drift = -0.072 dB **Hearing Aid Near-Field Category: M4 (AWF -5 dB)**



Grid 1 174.7 M3	Grid 2 201.0 M3	Grid 3 200.1 M3
Grid 4 178.0 M3	Grid 5 203.8 M3	Grid 6 202.8 M3
Grid 7 176.3 M3	Grid 8 201.7 M3	Grid 9 199.9 M3

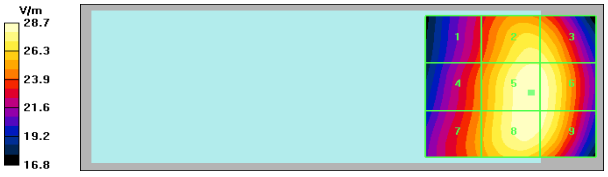
Grid 1 0.336 M4	Grid 2 0.235 M4	Grid 3 0.135 M4
Grid 4 0.316 M4	Grid 5 0.217 M4	Grid 6 0.119 M4
Grid 7 0.328 M4	Grid 8 0.228 M4	Grid 9 0.132 M4

MEASUREMENT DATA GSM850, CHANNEL HIGH (848.8 MHz)

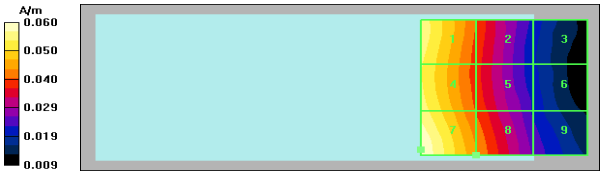
Date/Time: 2008-07-24 10:51:24 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:39:56 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: GSM850 (ER3DV6) Frequency: 848.8 MHz; Duty Cycle: 1:7.95 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: GSM850 (H3DV6) Frequency: 848.8 MHz; Duty Cycle: 1:6.79 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 206.8 V/m Probe Modulation Factor = 2.82 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 90.0 V/m; Power Drift = -0.034 dB **Hearing Aid Near-Field Category: M3 (AWF -5 dB)**	**H Scan - H3DV6 - measurement distance, sensor center to the Device = 15mm, high/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.327 A/m Probe Modulation Factor = 2.61 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.063 A/m; Power Drift = -0.031 dB **Hearing Aid Near-Field Category: M4 (AWF -5 dB)**
	
Grid 1 177.0 M3 / Grid 2 203.1 M3 / Grid 3 201.9 M3 Grid 4 179.8 M3 / Grid 5 206.8 M3 / Grid 6 205.4 M3 Grid 7 178.4 M3 / Grid 8 204.0 M3 / Grid 9 202.0 M3	Grid 1 0.327 M4 / Grid 2 0.231 M4 / Grid 3 0.131 M4 Grid 4 0.309 M4 / Grid 5 0.213 M4 / Grid 6 0.116 M4 Grid 7 0.320 M4 / Grid 8 0.223 M4 / Grid 9 0.129 M4

MEASUREMENT DATA WCDMA850, CHANNEL LOW (826.4 MHz)

Date/Time: 2008-07-24 11:17:41 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:14:46 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: WCDMA850 Frequency: 826.4 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: WCDMA850 Frequency: 826.4 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Low/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 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 43.4 V/m; Power Drift = -0.012 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - measurement discance, sensor center to the Device = 15mm, Low/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.060 A/m Probe Modulation Factor = 0.720 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.042 A/m; Power Drift = -0.020 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**



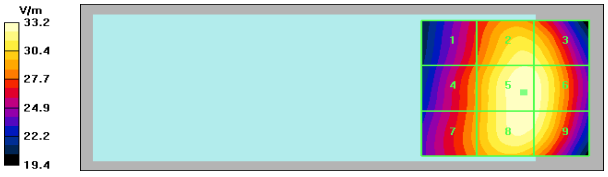
Grid 1 23.9 M4	Grid 2 27.8 M4	Grid 3 27.8 M4
Grid 4 24.9 M4	Grid 5 28.7 M4	Grid 6 28.6 M4
Grid 7 25.4 M4	Grid 8 28.7 M4	Grid 9 28.5 M4



Grid 1 0.056 M4	Grid 2 0.039 M4	Grid 3 0.022 M4
Grid 4 0.055 M4	Grid 5 0.039 M4	Grid 6 0.022 M4
Grid 7 0.060 M4	Grid 8 0.044 M4	Grid 9 0.026 M4

MEASUREMENT DATA WCDMA850, CHANNEL MIDDLE (835 MHz)

Date/Time: 2008-07-24 11:06:58 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:04:51 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: WCDMA850 Frequency: 835 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: WCDMA850 Frequency: 835 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 33.2 V/m Probe Modulation Factor = 0.810 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 50.2 V/m; Power Drift = -0.040 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - measurement discance, sensor center to the Device = 15mm, mid/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.061 A/m Probe Modulation Factor = 0.720 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.043 A/m; Power Drift = -0.016 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**



Grid 1 28.0 M4	Grid 2 32.2 M4	Grid 3 32.0 M4
Grid 4 29.0 M4	Grid 5 33.2 M4	Grid 6 33.0 M4
Grid 7 29.2 M4	Grid 8 33.1 M4	Grid 9 32.8 M4

Grid 1 0.060 M4	Grid 2 0.043 M4	Grid 3 0.024 M4
Grid 4 0.057 M4	Grid 5 0.041 M4	Grid 6 0.023 M4
Grid 7 0.061 M4	Grid 8 0.044 M4	Grid 9 0.026 M4

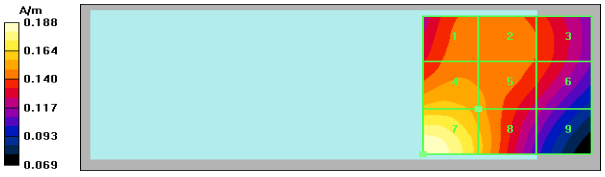
MEASUREMENT DATA WCDMA850, CHANNEL HIGH (846.6 MHz)

Date/Time: 2008-07-24 11:12:30 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:09:48 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: WCDMA850 Frequency: 846.6 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: WCDMA850 Frequency: 846.6 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 36.0 V/m Probe Modulation Factor = 0.810 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 54.0 V/m; Power Drift = -0.065 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - measurement discance, sensor center to the Device = 15mm, high/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.071 A/m Probe Modulation Factor = 0.720 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.051 A/m; Power Drift = -0.030 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Grid 1 29.7 M4	Grid 2 34.7 M4	Grid 3 34.5 M4
Grid 4 31.2 M4	Grid 5 36.0 M4	Grid 6 35.8 M4
Grid 7 31.8 M4	Grid 8 36.0 M4	Grid 9 35.8 M4

Grid 1 0.071 M4	Grid 2 0.052 M4	Grid 3 0.031 M4
Grid 4 0.066 M4	Grid 5 0.047 M4	Grid 6 0.027 M4
Grid 7 0.068 M4	Grid 8 0.049 M4	Grid 9 0.028 M4

MEASUREMENT DATA GSM1900, CHANNEL LOW (1850.2 MHz)

Date/Time: 2008-07-24 10:30:51 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 14:08:20 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: GSM1900 (ER3DV6) Frequency: 1850.2 MHz; Duty Cycle: 1:7.92 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: GSM1900 (H3DV6) Frequency: 1850.2 MHz; Duty Cycle: 1:4.13 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Low 2/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 91.5 V/m Probe Modulation Factor = 2.82 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 27.5 V/m; Power Drift = -0.013 dB **Hearing Aid Near-Field Category: M2 (AWF -5 dB)**	**H Scan - H3DV6 - measurement distance, sensor center to the Device = 15mm, Low/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.188 A/m Probe Modulation Factor = 2.03 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.076 A/m; Power Drift = -0.008 dB **Hearing Aid Near-Field Category: M3 (AWF -5 dB)**
	
Grid 1 54.3 M3 / Grid 2 57.2 M3 / Grid 3 57.8 M3 Grid 4 58.0 M3 / Grid 5 83.5 M3 / Grid 6 83.5 M3 Grid 7 76.2 M3 / Grid 8 91.5 M2 / Grid 9 90.7 M2	Grid 1 0.147 M3 / Grid 2 0.147 M3 / Grid 3 0.141 M3 Grid 4 0.160 M3 / Grid 5 0.152 M3 / Grid 6 0.140 M4 Grid 7 0.188 M3 / Grid 8 0.160 M3 / Grid 9 0.122 M4

MEASUREMENT DATA GSM1900, CHANNEL MIDDLE (1880 MHz)

Date/Time: 2008-07-24 10:09:12 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 13:58:27 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: GSM1900 (ER3DV6) Frequency: 1880 MHz; Duty Cycle: 1:7.92 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: GSM1900 (H3DV6) Frequency: 1880 MHz; Duty Cycle: 1:4.13 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 88.3 V/m Probe Modulation Factor = 2.82 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 27.0 V/m; Power Drift = -0.068 dB **Hearing Aid Near-Field Category: M2 (AWF -5 dB)**	**H Scan - H3DV6 - measurement distance, sensor center to the Device = 15mm, mid/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.175 A/m Probe Modulation Factor = 2.03 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.071 A/m; Power Drift = -0.064 dB **Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Grid 1 54.3 M3	Grid 2 60.0 M3	Grid 3 60.9 M3
Grid 4 51.9 M3	Grid 5 82.5 M3	Grid 6 82.6 M3
Grid 7 68.1 M3	Grid 8 88.3 M2	Grid 9 88.2 M2

Grid 1 0.148 M3	Grid 2 0.148 M3	Grid 3 0.143 M3
Grid 4 0.146 M3	Grid 5 0.140 M3	Grid 6 0.137 M4
Grid 7 0.175 M3	Grid 8 0.144 M3	Grid 9 0.111 M4

MEASUREMENT DATA GSM1900, CHANNEL HIGH (1909.8 MHz)

Date/Time: 2008-07-24 10:14:26 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 14:03:26 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: GSM1900 (ER3DV6) Frequency: 1909.8 MHz; Duty Cycle: 1:7.92 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: GSM1900 (H3DV6) Frequency: 1909.8 MHz; Duty Cycle: 1:4.13 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 84.9 V/m Probe Modulation Factor = 2.82 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 26.9 V/m; Power Drift = -0.018 dB **Hearing Aid Near-Field Category: M2 (AWF -5 dB)**	**H Scan - H3DV6 - measurement distance, sensor center to the Device = 15mm, high/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.172 A/m Probe Modulation Factor = 2.03 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.070 A/m; Power Drift = 0.024 dB **Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

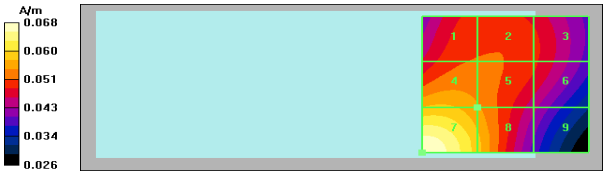
Grid 1 50.6 M3	Grid 2 60.7 M3	Grid 3 61.5 M3
Grid 4 52.3 M3	Grid 5 80.9 M3	Grid 6 81.0 M3
Grid 7 64.8 M3	Grid 8 84.9 M2	Grid 9 84.7 M2

Grid 1 0.145 M3	Grid 2 0.146 M3	Grid 3 0.140 M3
Grid 4 0.143 M3	Grid 5 0.138 M4	Grid 6 0.135 M4
Grid 7 0.172 M3	Grid 8 0.142 M3	Grid 9 0.109 M4

MEASUREMENT DATA WCDMA1900, CHANNEL LOW (1852.4MHz)

Date/Time: 2008-07-24 11:42:51 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 12:26:45 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: WCDMA1900 Frequency: 1852.4 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: WCDMA1900 Frequency: 1852.4 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 36.5 V/m Probe Modulation Factor = 0.810 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 37.4 V/m; Power Drift = 0.037 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - measurement discance, sensor center to the Device = 15mm, Low/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.068 A/m Probe Modulation Factor = 0.560 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.097 A/m; Power Drift = 0.022 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Grid 1 21.2 M4	Grid 2 23.0 M4	Grid 3 23.5 M4
Grid 4 22.6 M4	Grid 5 33.4 M4	Grid 6 33.4 M4
Grid 7 30.0 M4	Grid 8 36.5 M4	Grid 9 36.2 M4



Grid 1 0.051 M4	Grid 2 0.051 M4	Grid 3 0.049 M4
Grid 4 0.058 M4	Grid 5 0.055 M4	Grid 6 0.049 M4
Grid 7 0.068 M4	Grid 8 0.058 M4	Grid 9 0.044 M4

MEASUREMENT DATA WCDMA1900, CHANNEL MIDDLE (1880MHz)

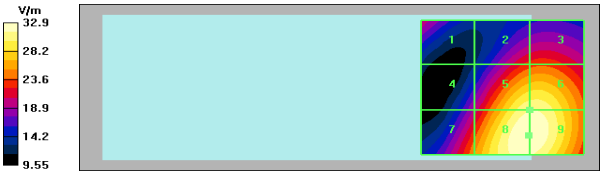
Date/Time: 2008-07-24 11:29:46 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 12:09:12 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: WCDMA1900 Frequency: 1880 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: WCDMA1900 Frequency: 1880 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, Mid/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 33.6 V/m Probe Modulation Factor = 0.810 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 35.1 V/m; Power Drift = -0.051 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - measurement discance, sensor center to the Device = 15mm, mid/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.060 A/m Probe Modulation Factor = 0.560 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.088 A/m; Power Drift = -0.077 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Grid 1 20.8 M4	Grid 2 22.7 M4	Grid 3 23.2 M4
Grid 4 19.7 M4	Grid 5 31.6 M4	Grid 6 31.7 M4
Grid 7 25.8 M4	Grid 8 33.6 M4	Grid 9 33.5 M4

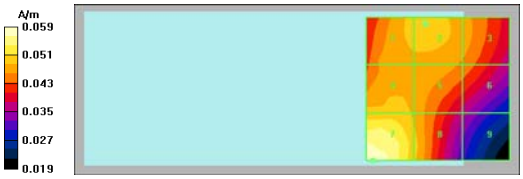
Grid 1 0.051 M4	Grid 2 0.051 M4	Grid 3 0.049 M4
Grid 4 0.051 M4	Grid 5 0.048 M4	Grid 6 0.047 M4
Grid 7 0.060 M4	Grid 8 0.051 M4	Grid 9 0.038 M4

MEASUREMENT DATA WCDMA1900, CHANNEL HIGH (1907.6MHz)

Date/Time: 2008-07-24 11:35:49 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**	Date/Time: 2008-07-24 12:21:34 Test Laboratory: TCC Nokia **Type: RM-472; Serial: 004401/10/122571/8**
Communication System: WCDMA1900 Frequency: 1907.6 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3 Phantom section: E Device Section	Communication System: WCDMA1900 Frequency: 1907.6 MHz; Duty Cycle: 1:1 Medium: Air; Medium Notes: Not Specified Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3 Phantom section: H Device Section
DASY4 Configuration: - Probe: ER3DV6 - SN2333; Probe Notes: - ConvF(1, 1, 1); Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176	DASY4 Configuration: - Probe: H3DV6 - SN6053; Probe Notes: - ; Calibrated: 2008-01-21 - Sensor-Surface: (Fix Surface) - Electronics: DAE4 Sn728; Calibrated: 2008-04-23 - Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: Not Specified - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
E Scan - ER3DV6 - measurement distance, sensor center to the Device = 15mm, High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 32.9 V/m Probe Modulation Factor = 0.810 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 34.8 V/m; Power Drift = 0.003 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**	**H Scan - H3DV6 - measurement discance, sensor center to the Device = 15mm, high/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.059 A/m Probe Modulation Factor = 0.560 Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.085 A/m; Power Drift = 0.024 dB **Hearing Aid Near-Field Category: M4 (AWF 0 dB)**



Grid 1 20.3 M4	Grid 2 22.9 M4	Grid 3 23.4 M4
Grid 4 19.6 M4	Grid 5 31.2 M4	Grid 6 31.3 M4
Grid 7 25.1 M4	Grid 8 32.9 M4	Grid 9 32.9 M4



Grid 1 0.049 M4	Grid 2 0.049 M4	Grid 3 0.047 M4
Grid 4 0.050 M4	Grid 5 0.048 M4	Grid 6 0.045 M4
Grid 7 0.059 M4	Grid 8 0.050 M4	Grid 9 0.036 M4

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

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