TCC
Nokia

FINAS
Finnish Accreditation Service
T117 (EN ISO/IEC 17025)

SAR Compliance Test Report

Test report no.:	FCC_RM-986_01	**Date of report:**	2013-12-16
Template version:	19.5	**Number of pages:**	40
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Measurements made by:	Yuan Rui, He Ying, Xu Liping		
Tested device:	RM-986		
FCC ID:	QTLRM-986	**IC:**	-
Supplement reports:	SAR_Photo_RM-986_02		
Testing has been carried out in accordance with:	**47CFR §2.1093** Radiofrequency Radiation Exposure Evaluation: Portable Devices **FCC published RF exposure KDB procedures** **RSS-102, Issue 4** Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields **IEEE 1528 - 2013** IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test results:	**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:

Zhang Luwen

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2013-12-05 to 2013-12-06
SN, HW and SW numbers of tested device	SN: 004402/47/670042/6; 004402/47/670043/4, HW: 0110, SW: 1.1345.0, DUT: 53986 SN: 004402/47/670196/0; 004402/47/670197/8, HW: 0110, SW: 1.1345.0, DUT: 53985
Batteries used in testing	BL-5C, DUT: 52557, 52611, 52558
Headsets used in testing	WH-108, DUT: 53989, 53990
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / *f*(MHz)	Conducted power	Position	Measured SAR value (1g avg)	Reported* SAR value (1g avg)	SAR limit (1g avg)	Result	Plot #
2-slot GPRS850	251 / 848.8	29.5 dBm	Left, Cheek	0.846 W/kg	**0.93 W/kg**	1.6 W/kg	PASSED	1
GSM1900	810 / 1909.8	30.6 dBm	Right, Cheek	1.00 W/kg	**1.07 W/kg**	1.6 W/kg	PASSED	2

1.2.2 Body Worn Configuration

Mode	Ch / *f*(MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Reported* SAR value (1g avg)	SAR limit (1g avg)	Result	Plot #
2-slot GPRS850	251 / 848.8	29.5 dBm	1.5 cm	0.702 W/kg	**0.77 W/kg**	1.6 W/kg	PASSED	3
GSM1900	512 / 1850.2	30.6 dBm	1.5 cm	0.469 W/kg	**0.50 W/kg**	1.6 W/kg	PASSED	4

* Reported SAR values are scaled to, or measured at, upper limit of power tuning tolerance.

1.2.3 Summary SAR data

	FCC-defined SAR values for the Grants of Equipment Authorization			
	PCE	DTS	NII	DSS
Maximum Head SAR values	1.07W/kg	-	-	0.24W/kg
{Max + Max} Simultaneous Head SAR value	1.31W/kg			
Maximum Body SAR values	0.77W/kg	-	-	0.08W/kg
{Max + Max} Simultaneous Body SAR value	0.85W/kg			
Maximum Product Specific (Wireless Router) SAR values	-	-	-	-
Maximum Simultaneous SAR value Head SAR: GSM1900 + BT2450*	1.31W/kg			

*Max+Max values include estimated BT SAR as calculated according to KDB 447498 General RF Exposure Guidelines D01 v05 Section 4.3.2.

Note:

PCE contains the highest results between all cellular modes (cellular, AWS and PCS bands)
DTS contains the highest results between WLAN 2.4GHz + RLAN 5725-5850MHz
NII contains the highest results between RLAN 5150-5250, 5250-5350 and 5470-5725
DSS contains the highest results between BT 2450

1.2.4 Maximum Drift

Maximum drift covered by 5% scaling up of the SAR values	Maximum drift during measurements
0.2dB	0.18dB

1.2.5 Measurement Uncertainty

Expanded Uncertainty (k=2) 95%	± 29.8%

2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	Portable
Exposure environment	General population / uncontrolled

Modes of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)	Power Tuning Target (dBm)				Upper Limit of Power Tuning Tolerance (dBm)			
					1-slot	2-slot	3-slot	4-slot	1-slot	2-slot	3-slot	4-slot
GSM / GPRS	850	GMSK	1/8 to 4/8	824 – 849	32.5	29.5	27.7	26.5	32.9	29.9	28.1	26.9
	1900			1850 – 1910	30.5	27.5	25.7	24.5	30.9	27.9	26.1	24.9
BT	2450	GFSK	1	2402 – 2480	6.0				7.5			

Outside of USA, the transmitter of the device is capable of operating also in GSM/GPRS900 and GSM/GPRS1800 bands which are not part of this filing.

This device has Voice-over-IP capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom.

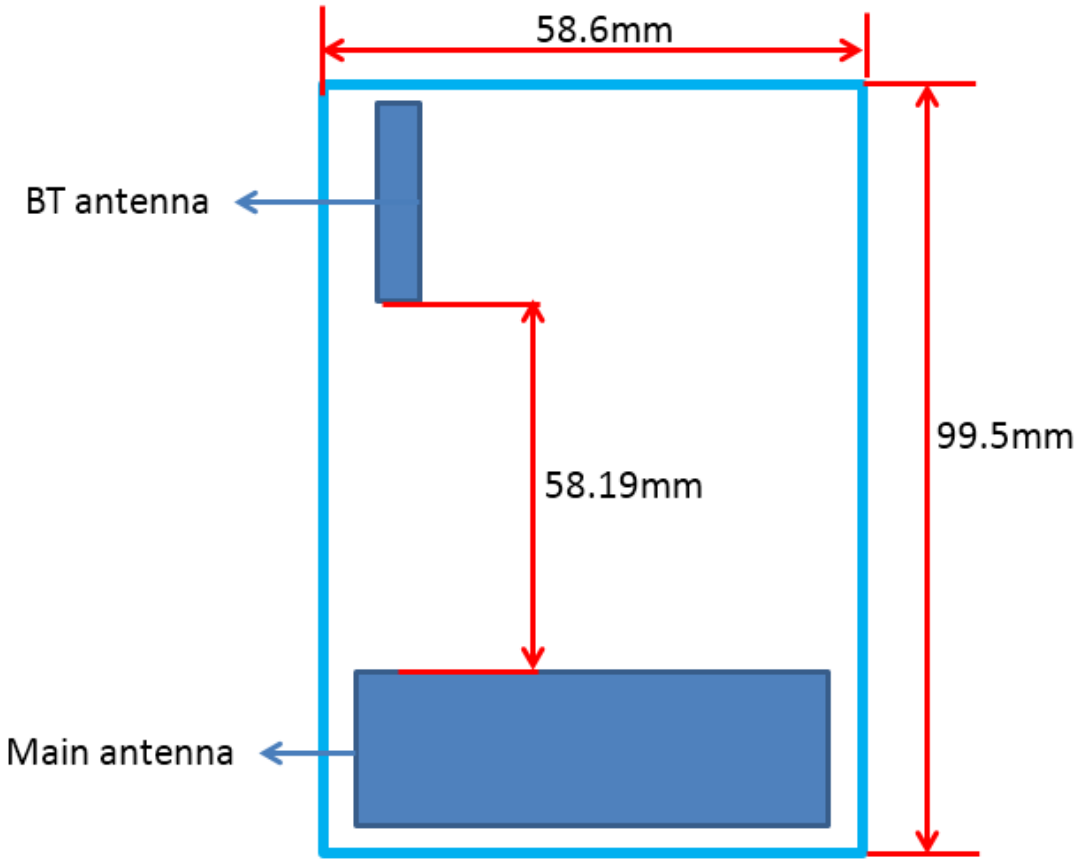
This is a BT Class 1 device; as its power tuning target is 6dBm (4mW), SAR testing was deemed unnecessary since (4mW/5mm)*√2.48GHz < 3.0 (KDB447498 D01 General RF Exposure Guidelines v05 Section 4.3.1 Standalone SAR test exclusion considerations)

This is a dual-SIM device. As both SIMs use the same antenna and transmitter chain, full evaluation of this device has been made by activating a single SIM only.

2.1 escription of the Antenna

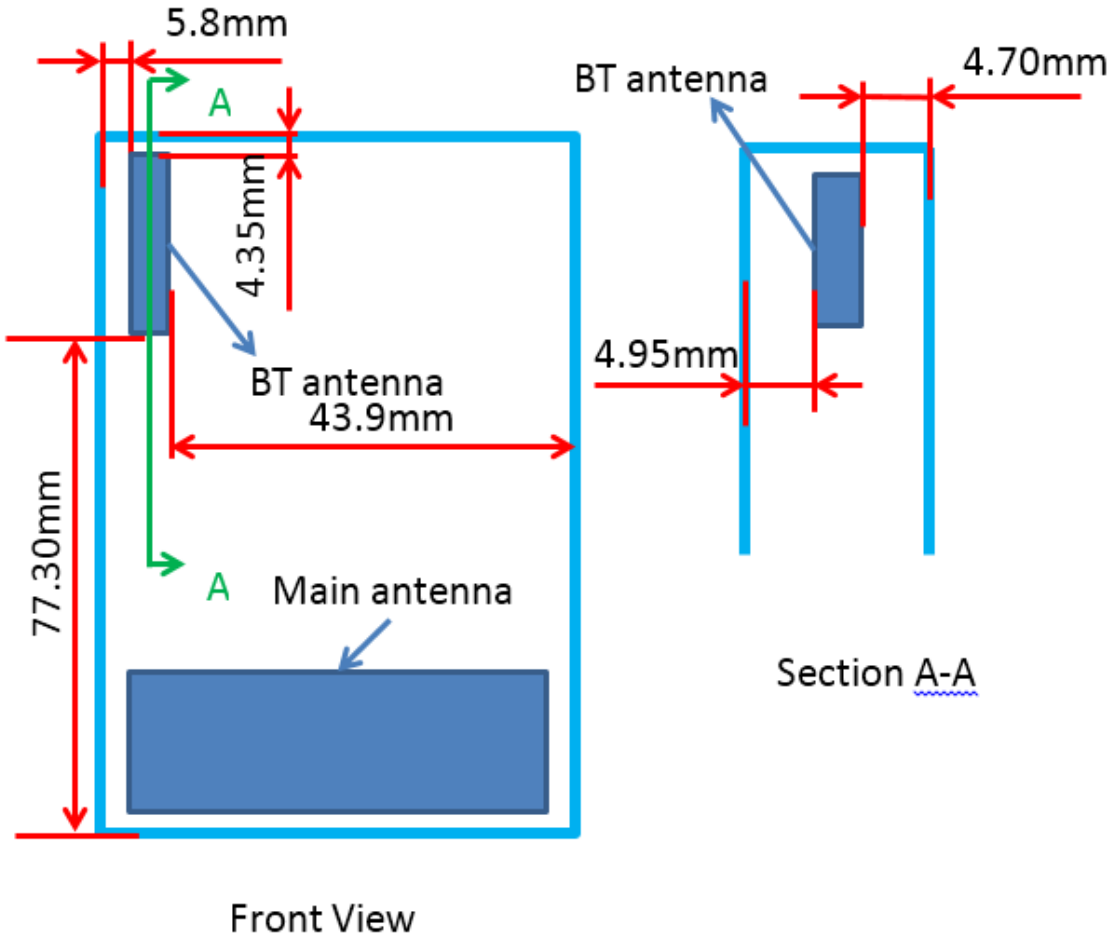
The device has an internal antenna for cellular use. The cellular antenna is located at the bottom underneath the back cover.

Phone Dimension and Distance Between Main antenna and BT Antenna

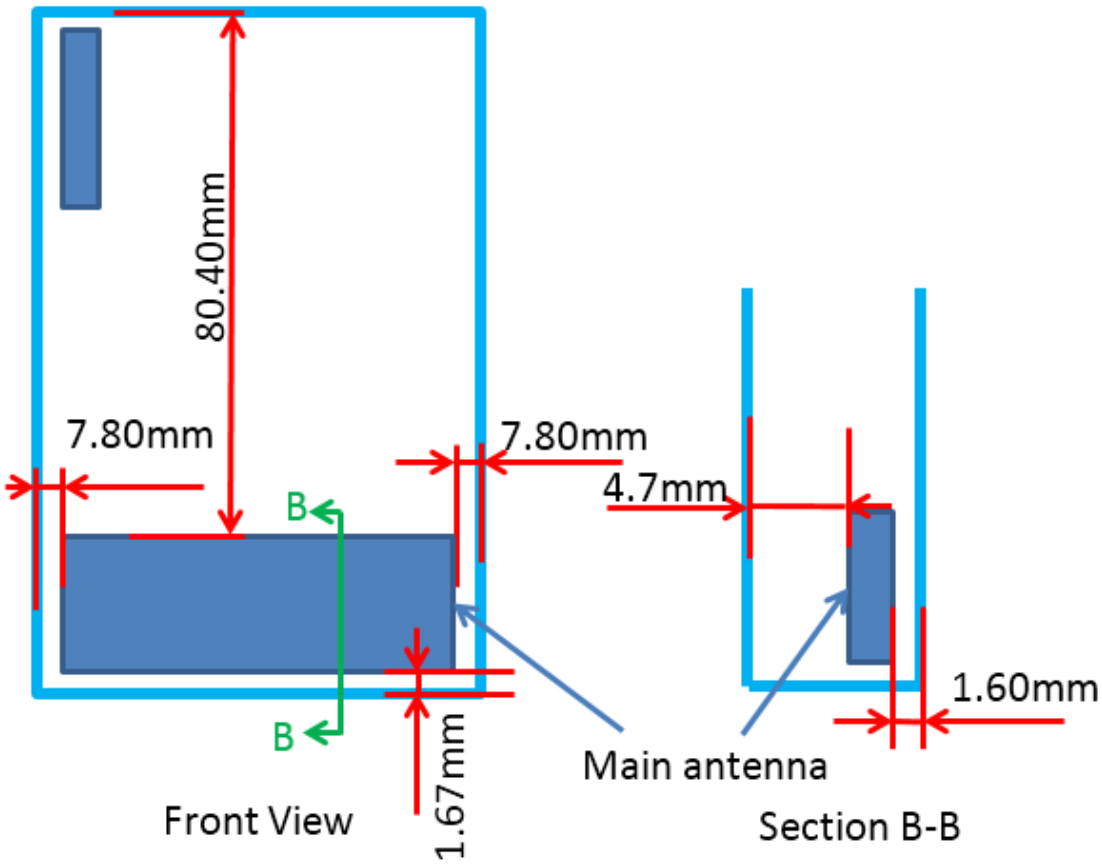


Front View

Distance between Out of Device and BT Antenna



Distance between Out of Device and Main Antenna



3. TEST CONDITIONS

3.1 Temperature and Humidity

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

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.

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

This device was tested in all the available multi-slot GMSK GPRS modes. The number of Tx slots in all GSM/GPRS mode tests was based on conducted power data, see Appendix F. The number of slots with highest, or equal highest, time-averaged power was tested.

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

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

Here is a summary list of the KDB documents used in the reported testing:

KDB 941225 D01 SAR Measurement Procedures for 3G Devices
KDB 648474 D04 SAR Handsets Multi Xmiter and Ant v01
KDB 447498 D01 General RF Exposure Guidance v05
KDB 690783 D01 SAR Listings on Grants
KDB 865664 D01 SAR Measurements 100MHz to 6GHz v01
KDB 865664 D02 SAR Reporting v01

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration date	Calibration expiry
DAE 4	887	2013-03	2014-03
DAE 4	858	2013-03	2014-03
DAE 4	1319	2013-09	2014-09
E-field Probe EX3DV4	3836	2013-03	2014-03
E-field Probe ES3DV3	3195	2013-03	2014-03
E-field Probe EX3DV4	3574	2013-09	2014-09
Dipole Validation Kit, D835V2	4d005	2012-03	2014-03
Dipole Validation Kit, D1900V2	509	2012-12	2014-12
Dipole Validation Kit, D1900V2	547	2013-09	2015-09
DASY5 software	Version 52.8	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration date	Calibration expiry
Signal Generator	SME06	829445	2013-04	2014-04
Signal Generator	E4432B	US40052231	2013-04	2014-04
Signal Generator	SME06	829445/008	2013-04	2014-04
Call Tester	CMU200	835352/008	-	-
Call Tester	CMU200	831593/001	-	-
Call Tester	CMU200	110735	-	-
Amplifier	ZHL-42W	QA1252001	-	-
Amplifier	AR 5S1G4M1	306024	-	-
Amplifier	ZHL-4240W	e060204/1	-	-
RF Network Analyzer	8753ES	My40002096	2013-04	2014-04
RF Network Analyzer	8753ES	US39170317	2013-04	2014-04
Dielectric Probe Kit	85070C	2577	-	-
Dielectric Probe Kit	85070C	653	-	-
Power Meter	R&S NRP	101293	2013-04	2014-04
Power Sensor	R&S NRP-Z51	102842	2013-04	2014-04
Power Meter	Agilent E4419B	My41291520	2013-04	2014-04
Power Sensor	Agilent 8482A	US37295411	2013-04	2014-04
Power Meter	R&S NRVD	840297/008	2013-04	2014-04
Power Sensor	R&S NRV-Z51	101135	2013-04	2014-04

4.1.1 Isotropic E-field Probe Type ES3DV3

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix D
Frequency	10 MHz to 4 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB

Dimensions	Overall length: 330 mm Tip length: 20 mm Body diameter: 12 mm Tip diameter: 3.9 mm Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.1.2 Isotropic E-field Probe Type EX3DV4

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

4.2 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin-headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528 – 2013 FCC published RF Exposure KDB Procedures.

The phantom used for all Body SAR tests i.e. for both system checks and device testing, was a "Triple Flat Phantom", also manufactured by SPEAG; this phantom conform to the requirements of FCC published RF exposure KDB procedures.

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

4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2013 and FCC published RF Exposure KDB Procedures. All tests were carried out using simulants whose dielectric parameters were within ± 5% of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

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

4.3.1 Tissue Simulant Recipes

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

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	39.74	55.97
HEC	0.25	1.21
Sugar	58.31	41.76
Preservative	0.15	0.27
Salt	1.55	0.79

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.50	70.25
Tween 20	45.23	29.41
Salt	0.27	0.34

4.4 System validation and System checking

4.4.1 System validation status

Probe Calibration Point f / MHz	Test System	DASY SW	Dipole Type / SN	Probe Type / SN	Calibrated signal type(s)	DAE unit Type / SN	Validation done	
							Head tissue simulant	Body tissue simulant
835	TCC Beijing / SAR-1	V52.8	D835V2 / 4d005	EX3DV4 / 3836	CW	DAE4 / 710	2013-03	2013-03
1900	TCC Beijing / SAR-3	V52.8	D1900V2 / 509	ES3DV3 / 3195	CW	DAE4 / 887	2013-08	2013-09
1900	TCC Beijing / SAR-4	V52.8	D1900V2 / 547	EX3DV4 / 3574	CW	DAE4 / 858	2013-11	-

4.4.2 System checking

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

System checking, head tissue simulant

f[MHz]	Description	SAR 1g [W/kg]	Estimated SAR 1g [W/kg]	Estimated SAR 1g Deviation	Dielectric Parameters		SAR 1g Deviation from target	Dielectric Parameters Deviation from target		Temp	Plot #
				dSAR [%]	ε_r	σ [S/m]	dSAR [%]	$d\varepsilon_r$ [%]	$d\sigma$ [%]	[°C]	
	Tolerances			±3%			±10 %	±5 %	±5 %		
	IEEE1528 / IEC62209*				41.5	0.90					
	Reference result SN:4d005	2.32	-		41.5	0.89	TCC Bej/SAR-1 EX3DV4 SN:3836 Head 835MHz				
835	2013-12-05	2.27	2.24	1.32	43.2	0.92	-2.16	4.10	3.37	21.3	1
	IEEE1528 / IEC62209*				40.0	1.40					
	Reference result SN:547	10.1	-		39.7	1.37	TCC Bej/SAR-4 EX3DV4 SN:3574 Head 1900MHz				
1900	2013-12-05	9.90	9.95	-0.51	39.7	1.37	-1.98	0.00	0.00	21.3	2

* Dielectric parameter reference data taken from IEEE1528/IEC62209

System checking, body tissue simulant

f[MHz]	Description	SAR 1g [W/kg]	Estimated SAR 1g [W/kg]	Estimated SAR 1g Deviation	Dielectric Parameters		SAR 1g Deviation from target	Dielectric Parameters Deviation from target		Temp	Plot #
				dSAR [%]	εr	σ [S/m]	dSAR [%]	dεr [%]	dσ [%]	[°C]	
	Tolerances			±3%			±10 %	±5 %	±5 %		
	FCC KDB Procedures*				55.2	0.97					
	Reference result SN:4d005	2.42	-		55.0	1.00	TCC Bej/SAR-1 EX3DV4 SN:3836 Body 835MHz				
835	2013-12-06	2.47	2.45	0.81	54.0	0.96	2.07	-1.82	-4.00	21.4	3
	FCC KDB Procedures*				53.3	1.52					
	Reference result SN:509	9.84	-		52.2	1.52	TCC Bej/SAR-3 ES3DV3 SN:3195 Body 1900MHz				
1900	2013-12-06	9.75	9.79	-0.41	51.3	1.52	-0.91	-1.72	0.00	20.5	4

* Dielectric parameter reference data taken from IEEE1528 /FCC Published RF Exposure KDB Procedures

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

4.4.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Dielectric Parameters Deviation from recommended value		Temp [°C]
		ε_r	σ [S/m]	$d\varepsilon_r$ [%]	$d\sigma$ [%]	
	Tolerances			±5 %	±5 %	
836	Recommended value	41.5	0.90			
	2013-12-05	43.2	0.92	4.10	2.22	21.3
1880	Recommended value	40.0	1.40			
	2013-12-05	39.7	1.35	-0.50	-3.57	21.3

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Dielectric Parameters Deviation from Recommended value		Temp [°C]
		ε_r	σ [S/m]	$d\varepsilon_r$ [%]	$d\sigma$ [%]	
	Tolerances			±5 %	±5 %	
836	Recommended value	55.2	0.97			
	2013-12-06	54.0	0.96	-2.17	-1.03	21.4
1880	Recommended value	53.3	1.52			
	2013-12-06	51.4	1.50	-3.56	-1.32	20.5

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

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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

Device holder supplied by SPEAG

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

Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

The positions used in the measurements were according to IEEE 1528 - 2013 Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.2.2 Body Worn Configuration

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

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

5.3 Scan Procedures

First, area scans were used for determination of the field distribution. Next, a zoom scan, a minimum of 5x5x7 points covering a volume of at least 30x30x30mm, was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan. Fast SAR is measured according to the KDB 447498 D01 General RF Exposure Guidance v05r01.

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation for 1g Full SAR in 0.3-6GHz range

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	c_i	$c_i . u_i$ (%)	v_i
Measurement System							
Probe Calibration	E2.1	±6.6	N	1	1	±6.6	∞
Axial Isotropy	E2.2	±4.7	R	√3	$(1-c_p)^{1/2}$	±1.9	∞
Hemispherical Isotropy	E2.2	±9.6	R	√3	$(c_p)^{1/2}$	±3.9	∞
Boundary Effect	E2.3	±2.0	R	√3	1	±1.2	∞
Linearity	E2.4	±4.7	R	√3	1	±2.7	∞
System Detection Limits	E2.5	±1.0	R	√3	1	±0.6	∞
Modulation response	E2.5	±2.4	R	√3	1	±1.4	
Readout Electronics	E2.6	±0.3	N	1	1	±0.3	∞
Response Time	E2.7	±0.8	R	√3	1	±0.5	∞
Integration Time	E2.8	±2.6	R	√3	1	±1.5	∞
RF Ambient Conditions - Noise	E6.1	±3.0	R	√3	1	±1.7	∞
RF Ambient Conditions - Reflections	E6.1	±3.0	R	√3	1	±1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	±0.8	R	√3	1	±0.5	∞
Probe Positioning with respect to Phantom Shell	E6.3	±6.7	R	√3	1	±3.9	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5	±4.0	R	√3	1	±2.3	∞
Test sample Related							
Test Sample Positioning	E4.2	±6.0	N	1	1	±6.0	11
Device Holder Uncertainty	E4.1	±3.6	N	1	1	±3.6	5
Output Power Variation - SAR drift measurement	E2.9	±5.0	R	√3	1	±2.9	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	±6.6	R	√3	1	±3.8	∞
SAR correction	E3.2	±1.9	R	√3	1	±1.1	∞
Conductivity Target - tolerance	E3.4	±5.0	R	√3	0.6	±1.8	∞
Conductivity - measurement uncertainty	E3.3	±5.5	N	1	0.6	±3.5	5
Permittivity Target - tolerance	E3.4	±5.0	R	√3	0.6	±1.7	∞
Permittivity - measurement uncertainty	E3.3	±2.9	N	1	0.6	±1.7	5
Combined Standard Uncertainty			RSS			**±14.0**	198
Coverage Factor for 95%			**k=2**				
Expanded Uncertainty						**±28.2**	

Table 6.2 – Measurement uncertainty evaluation for 1g Fast SAR in 0.3-6GHz range

Relative DASY5 Uncertainty Budget for Fast SAR Tests According to IEEE 1528/2011 and IEC 62209-1/2011 (0.3-6 GHz range)						
Uncertainty Component	**Tol. (%)**	**Prob Dist.**	**Div.**	c_i	$c_i . u_i$ (%)	v_i
Measurement System						
Probe Calibration	±6.6	N	1	0		
Axial Isotropy	±4.7	R	√3	$(1-c_p)^{1/2}$	±1.9	∞
Hemispherical Isotropy	±9.6	R	√3	$(c_p)^{1/2}$	±3.9	∞
Boundary Effect	±2.0	R	√3	1	±1.2	∞
Linearity	±4.7	R	√3	1	±2.7	∞
System Detection Limits	±1.0	R	√3	1	±0.6	∞
Modulation Response	±2.4	R	√3	1	±1.4	∞
Readout Electronics	±0.3	N	1	0		
Response Time	±0.8	R	√3	0		
Integration Time	±2.6	R	√3	1	±1.5	∞
RF Ambient Conditions - Noise	±3.0	R	√3	1	±1.7	∞
RF Ambient Conditions - Reflections	±3.0	R	√3	0		
Probe Positioner Mechanical Tolerance	±0.8	R	√3	1	±0.5	∞
Probe Positioning with respect to Phantom Shell	±6.7	R	√3	1	±3.9	∞
Spatial x-y Resolution	±10.0	R	√3	1	±5.8	∞
Fast SAR z Approximation	±14.0	R	√3	1	±8.1	∞
Test sample Related						
Test Sample Positioning	±6.0	N	1	1	±6.0	12
Device Holder Uncertainty	±3.6	N	1	1	±3.6	5
Output Power Variation - SAR drift measurement	±5.0	R	√3	1	±2.9	∞
Power Scaling	±0	R	√3	0		
Phantom and Setup						
Phantom Uncertainty (shape and thickness tolerances)	±6.6	R	√3	1	±3.8	∞
SAR correction	±1.9	R	√3	0		
Conductivity Target - tolerance	±1.9	R	√3	0		
Conductivity - measurement uncertainty	±5.0	R	√3	0		
Permittivity Target - tolerance	±5.5	N	1	0		
Permittivity - measurement uncertainty	±5.0	R	√3	0		
Combined Standard Uncertainty		RSS			**±14.9**	748
Coverage Factor for 95%		**k=2**				
Expanded Uncertainty					**±29.8**	

7. RESULTS

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

850MHz Band Head SAR results

Mode	Device orientation	SAR measurement	Measured 1g SAR [W/kg]			Reported* 1g SAR [W/kg]			Max Deviation (Estimated SAR - Full SAR) [W/kg]	Plot #
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz	Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz		
GSM	Tuning Target + Tolerance [dBm]		32.9			Scaling factor*				
	Conducted Slot Average Power [dBm]		32.4	32.4	32.4	0.50	0.50	0.50	dB	
	Time-averaged power [dBm]		23.4	23.4	23.4	1.12	1.12	1.12	Lin	
			No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01							
2-slot GPRS	Tuning Target + Tolerance [dBm]		29.9			Scaling factor*				
	Conducted Slot Average Power [dBm]		29.4	29.5	29.5	0.50	0.40	0.40	dB	
	Time-averaged power [dBm]		23.4	23.5	23.5	1.12	1.10	1.10	Lin	
	Left Cheek	Estimated SAR	0.554	0.717	0.841	0.622	0.786	0.922	0.01	1
		Full SAR	-	-	**0.846**	-	-	**0.928**		
	Left Tilt	Estimated SAR	-	0.372	-	-	0.408	-	-	-
		Full SAR	-	-	-	-	-	-		
	Right Cheek	Estimated SAR	-	0.687	-	-	0.753	-	0.04	-
		Full SAR	-	0.643	-	-	0.705	-		
	Right Tilt	Estimated SAR	-	0.358	-	-	0.393	-	-	-
		Full SAR	-	-	-	-	-	-		
	Repeated SAR: Left Cheek	Estimated SAR	-	-	-	-	-	-	-	-
		Full SAR	-	-	0.830	-	-	0.910		
3-slot GPRS	Tuning Target + Tolerance [dBm]		28.1			Scaling factor*				
	Conducted Slot Average Power [dBm]		27.6	27.6	27.6	0.50	0.50	0.50	dB	
	Time-averaged power [dBm]		23.3	23.3	23.3	1.12	1.12	1.12	Lin	
			No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01							
4-slot GPRS	Tuning Target + Tolerance [dBm]		26.9			Scaling factor*				
	Conducted Slot Average Power [dBm]		26.3	26.3	26.4	0.60	0.60	0.50	dB	
	Time-averaged power [dBm]		23.3	23.3	23.4	1.15	1.15	1.12	Lin	
			No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01							

1900MHz Band Head SAR results

Mode	Device orientation	SAR measurement	Measured 1g SAR [W/kg]			Reported* 1g SAR [W/kg]			Max Deviation (Estimated SAR - Full SAR) [W/kg]	Plot #
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz	Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz		
GSM	Tuning Target + Tolerance [dBm]		30.9			Scaling factor*				
	Conducted Slot Average Power [dBm]		30.6	30.6	30.6	0.30	0.30	0.30	dB	
	Time-averaged power [dBm]		21.6	21.6	216	1.07	1.07	1.07	Lin	
	Left Cheek	Estimated SAR	-	0.644	-	-	0.690	-	0.02	-
		Full SAR	-	0.625	-	-	0.670	-		
	Left Tilt	Estimated SAR	-	0.259	-	-	0.278	-	-	-
		Full SAR	-	-	-	-	-	-		
	Right Cheek	Estimated SAR	0.945	0.983	1.00	1.01	1.05	1.07	0.00	2
		Full SAR	-	-	**1.00**	-	-	**1.07**		
	Right Tilt	Estimated SAR	-	0.270	-	-	0.289	-	-	-
		Full SAR	-	-	-	-	-	-		
	Repeated SAR: Right Cheek	Estimated SAR	-	-	-	-	-	-	-	-
		Full SAR	-	-	0.997	-	-	1.07		
2-slot GPRS	Tuning Target + Tolerance [dBm]		27.9			Scaling factor*				
	Conducted Slot Average Power [dBm]		27.4	27.5	27.4	0.50	0.40	0.50	dB	
	Time-averaged power [dBm]		21.4	21.5	21.4	1.12	1.10	1.12	Lin	
			No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01							
3-slot GPRS	Tuning Target + Tolerance [dBm]		26.1			Scaling factor*				
	Conducted Slot Average Power [dBm]		25.5	25.5	25.4	0.60	0.60	0.70	dB	
	Time-averaged power [dBm]		21.2	21.2	21.1	1.15	1.15	1.17	Lin	
			No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01							
4-slot GPRS	Tuning Target + Tolerance [dBm]		24.9			Scaling factor*				
	Conducted Slot Average Power [dBm]		24.3	24.3	24.2	0.60	0.60	0.70	dB	
	Time-averaged power [dBm]		21.3	21.3	21.2	1.15	1.15	1.17	Lin	
			No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01							

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

Test configuration	Max. Reported* 1g SAR results		
	BT2450	2-slot GPRS 850	GSM 1900
Head: Left, Cheek	0.236†	0.928	0.670
Head: Left, Tilt	0.236†	0.408	0.278
Head: Right, Cheek	0.236†	0.705	1.07
Head: Right, Tilt	0.236†	0.393	0.289

Note:
* Reported SAR values are scaled to, or measured at, upper limit of power tuning tolerance.

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

Test configuration	Max. 1g SAR results	
	2-slot GPRS850+ BT†	GSM1900 + BT†
Head: Left, Cheek	**1.16**	0.906
Head: Left, Tilt	0.644	0.514
Head: Right, Cheek	0.941	**1.31**
Head: Right, Tilt	0.629	0.525

† SAR value estimated, according to KDB447498 from: [(max. power of channel, including tune-up tolerance, mW) / 5mm].[√2.480 / 7.5] W/kg

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

850MHz Band Body SAR results

Mode	Device orientation		SAR measurement	Measured 1g SAR [W/kg]			Reported* 1g SAR [W/kg]			Max Deviation (Estimated SAR - Full SAR) [W/kg]	Plot #
				Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz	Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz		
1-slot GPRS	Tuning Target + Tolerance [dBm]			32.9			Scaling factor*				
	Conducted Slot Average Power [dBm]			32.4	32.4	32.4	0.50	0.50	0.50	dB	
	Time-averaged power [dBm]			23.4	23.4	23.4	1.12	1.12	1.12	Lin	
	No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01										
2-slot GPRS	Tuning Target + Tolerance [dBm]			29.9			Scaling factor*				
	Conducted Slot Average Power [dBm]			29.4	29.5	29.5	0.50	0.40	0.40	dB	
	Time-averaged power [dBm]			23.4	23.5	23.5	1.12	1.10	1.10	Lin	
	Back facing phantom	Without headset	Estimated SAR	0.612	0.688	0.692	0.687	0.754	0.759	0.01	3
			Full SAR	-	-	**0.702**	-	-	**0.770**		
		Headset WH-108	Estimated SAR	-	0.572	-	-	0.627	-	-	-
			Full SAR	-	-	-	-	-	-		
	Display facing phantom	Without headset	Estimated SAR	-	0.445	-	-	0.488	-	-	-
			Full SAR	-	-	-	-	-	-		
		Headset WH-108	Estimated SAR	-	0.341	-	-	0.374	-	-	-
			Full SAR	-	-	-	-	-	-		
3-slot GPRS	Tuning Target + Tolerance [dBm]			28.1			Scaling factor*				
	Conducted Slot Average Power [dBm]			27.6	27.6	27.6	0.50	0.50	0.50	dB	
	Time-averaged power [dBm]			23.3	23.3	23.3	1.12	1.12	1.12	Lin	
	No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01										
4-slot GPRS	Tuning Target + Tolerance [dBm]			26.9			Scaling factor*				
	Conducted Slot Average Power [dBm]			26.3	26.3	26.4	0.60	0.60	0.50	dB	
	Time-averaged power [dBm]			23.3	23.3	23.4	1.15	1.15	1.12	Lin	
	No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01										

1900MHz Band Body SAR results

Mode	Device orientation		SAR measurement	Measured 1g SAR [W/kg]			Reported* 1g SAR [W/kg]			Max Deviation (Estimated SAR - Full SAR) [W/kg]	Plot #
				Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz	Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz		
1-slot GPRS	Tuning Target + Tolerance [dBm]			30.9			Scaling factor*				
	Conducted Slot Average Power [dBm]			30.6	30.6	30.6	0.30	0.30	0.30	dB	
	Time-averaged power [dBm]			21.6	21.6	21.6	1.07	1.07	1.07	Lin	
	Back facing phantom	Without headset	Estimated SAR	0.476	0.401	0.327	0.510	0.430	0.350	0.01	3
			Full SAR	**0.469**	-	-	**0.503**	-	-		
		Headset WH-108	Estimated SAR	-	0.396	-	-	0.424	-	-	-
			Full SAR	-	-	-	-	-	-		
	Display facing phantom	Without headset	Estimated SAR	-	0.249	-	-	0.267	-	-	-
			Full SAR	-	-	-	-	-	-		
		Headset WH-108	Estimated SAR	-	0.237	-	-	0.254	-	-	-
			Full SAR	-	-	-	-	-	-		
2-slot GPRS	Tuning Target + Tolerance [dBm]			27.9			Scaling factor*				
	Conducted Slot Average Power [dBm]			27.4	27.5	27.4	0.50	0.40	0.50	dB	
	Time-averaged power [dBm]			21.4	21.5	21.4	1.12	1.10	1.12	Lin	
	No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01										
3-slot GPRS	Tuning Target + Tolerance [dBm]			26.1			Scaling factor*				
	Conducted Slot Average Power [dBm]			25.5	25.5	25.4	0.60	0.60	0.70	dB	
	Time-averaged power [dBm]			21.2	21.2	21.1	1.15	1.15	1.17	Lin	
	No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01										
4-slot GPRS	Tuning Target + Tolerance [dBm]			24.9			Scaling factor*				
	Conducted Slot Average Power [dBm]			24.3	24.3	24.2	0.60	0.60	0.70	dB	
	Time-averaged power [dBm]			21.3	21.3	21.2	1.15	1.15	1.17	Lin	
	No testing required for this configuration according to KDB 941225 D03_SAR_Test_Reduction_GSM_GPRS_EDGE_v01										

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

Test configuration	Max. Reported*1g SAR results		
	BT2450	2-slot GPRS 850	GSM 1900
Body: Back facing phantom, Without Headset	0.079†	0.770	0.503
Body: Back facing phantom, Headset WH-108	0.079†	0.627	0.424
Body: Display facing phantom, Without Headset	0.079†	0.488	0.267
Body: Display facing phantom, Headset WH-108	0.079†	0.374	0.254

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

Test configuration	Max. Reported*1g SAR results	
	2-slot GPRS850+ BT†	GSM1900 + BT†
Body: Back facing phantom, Without Headset	**0.849**	**0.582**
Body: Back facing phantom, Headset WH-108	0.706	0.503
Body: Display facing phantom, Without Headset	0.567	0.346
Body: Display facing phantom, Headset WH-108	0.453	0.333

† SAR value estimated, according to KDB447498 from: [(max. power of channel, including tune-up tolerance, mW) / 15mm].[√2.480 / 7.5] W/kg

Note:
* Reported SAR values are scaled to, or measured at, upper limit of power tuning tolerance.

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Plot 1:

Date/Time: 2013-12-05 9:24:52 AM

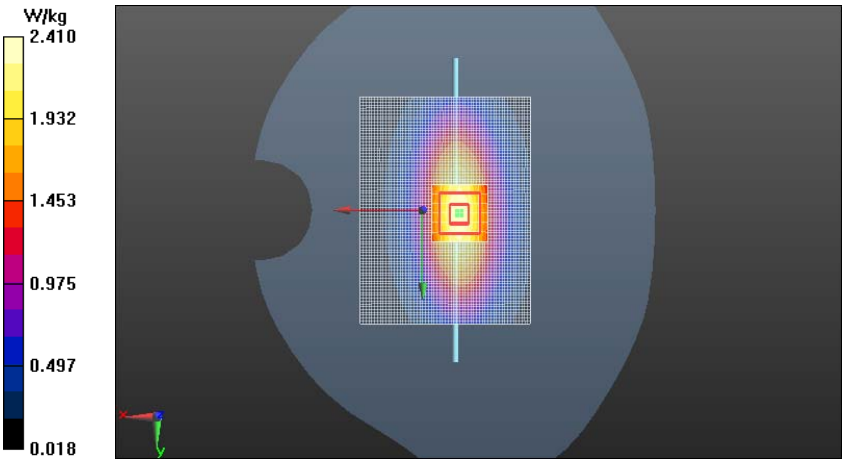
Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d005

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Head 835 SAR1; Medium Notes: Medium Temperature: t=21.3
Medium parameters used: f = 835 MHz; σ = 0.921 S/m; ε_r = 43.207; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3836
- ConvF(9.03, 9.03, 9.03); Calibrated: 2013-03-08;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2013-09-18
- Phantom: SAR1 - SAM1; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 51.283 V/m
Fast SAR: SAR(1 g) = 2.24 W/kg
Fast SAR(10 g) = 1.53 W/kg
Maximum value of SAR (interpolated) = 2.41 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.283 V/m
Peak SAR (extrapolated) = 3.42 W/kg
SAR(1 g) = 2.27 W/kg
SAR(10 g) = 1.48 W/kg
Power Drift = -0.01 dB
Maximum value of SAR (measured) = 2.45 W/kg



Plot 2:

Date/Time: 2013-12-05 10:05:43 AM

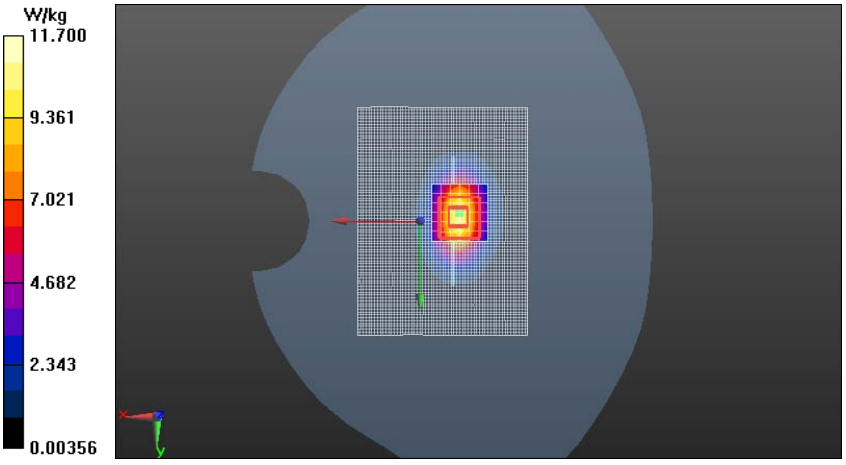
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 547

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Head 1900 SAR4; Medium Notes: Medium Temperature: t=21.3C
Medium parameters used: f = 1900 MHz; σ = 1.369 S/m; ε_r = 39.654; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3574
- ConvF(7.29, 7.29, 7.29); Calibrated: 2013-09-19;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2013-03-07
- Phantom: SAR4 - SAM1; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

d=10mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 86.425 V/m
Fast SAR: SAR(1 g) = 9.95 W/kg
Fast SAR(10 g) = 5.25 W/kg
Maximum value of SAR (interpolated) = 11.7 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.425 V/m
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 9.9 W/kg
SAR(10 g) = 5.16 W/kg
Power Drift = -0.02 dB
Maximum value of SAR (measured) = 11.0 W/kg



Plot 3:

Date/Time: 2013-12-06 9:14:10 AM

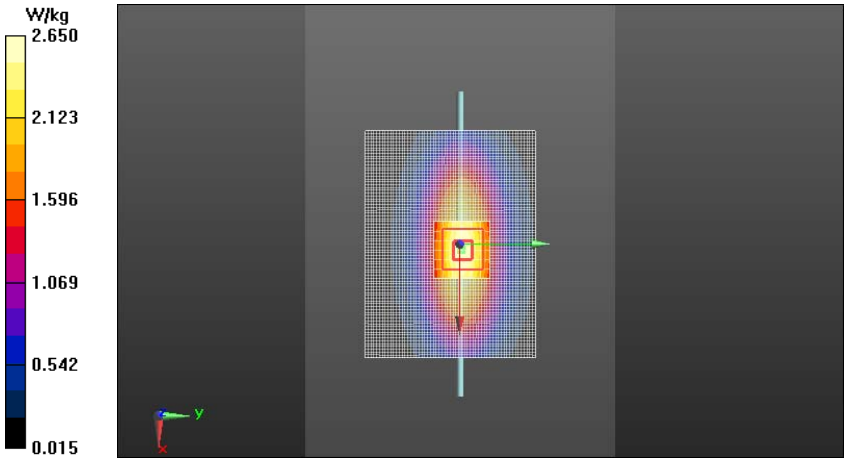
Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d005

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Body 835 SAR1; Medium Notes: Medium Temperature: t=21.4
Medium parameters used: f = 835 MHz; σ = 0.959 S/m; ε_r = 53.968; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:
- Probe: EX3DV4 - SN3836
- ConvF(8.97, 8.97, 8.97); Calibrated: 2013-03-08;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2013-09-18
- Phantom: SAR1 - TFP; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

d=15mm, Pin=250mW/Area Scan (81x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 52.370 V/m
Fast SAR: SAR(1 g) = 2.45 W/kg
Fast SAR(10 g) = 1.66 W/kg
Maximum value of SAR (interpolated) = 2.65 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.370 V/m
Peak SAR (extrapolated) = 3.63 W/kg
SAR(1 g) = 2.47 W/kg
Maximum value of SAR (measured) = 2.66 W/kg
Power Drift = 0.02 dB



Plot 4:

Date/Time: 2013-12-06 9:43:37 AM

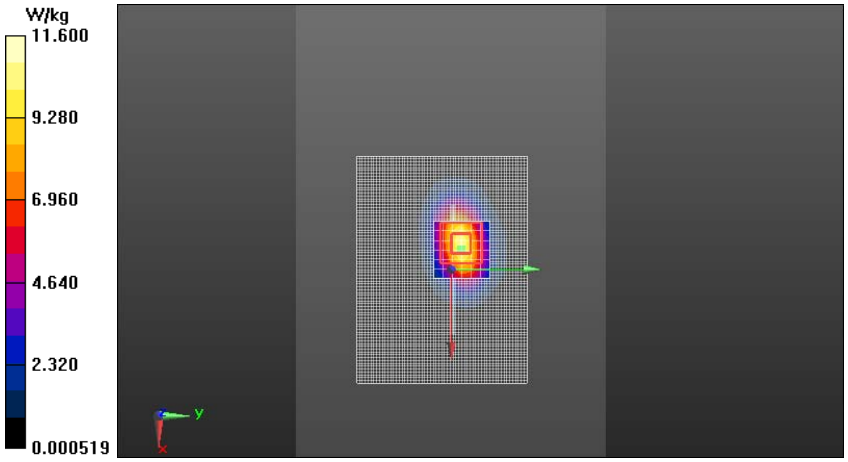
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 509

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Body 1900 SAR3; Medium Notes: Medium Temperature: t=20.5 C
Medium parameters used: f = 1900 MHz; σ = 1.518 S/m; ε_r = 51.333; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:
- Probe: ES3DV3 - SN3195
- ConvF(4.73, 4.73, 4.73); Calibrated: 2013-03-08;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn887; Calibrated: 2013-03-07
- Phantom: SAR3 - TFP; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.8 (7028)

d=10mm, Pin=250mW/Area Scan (81x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 63.843 V/m
Fast SAR: SAR(1 g) = 9.79 W/kg
Fast SAR(10 g) = 5.08 W/kg
Maximum value of SAR (interpolated) = 11.6 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 63.843 V/m
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.75 W/kg
Maximum value of SAR (measured) = 11.0 W/kg
Power Drift = 0.04 dB



APPENDIX B: MEASUREMENT SCANS

Plot 1:

Date/Time: 2013-12-05 10:48:00 AM

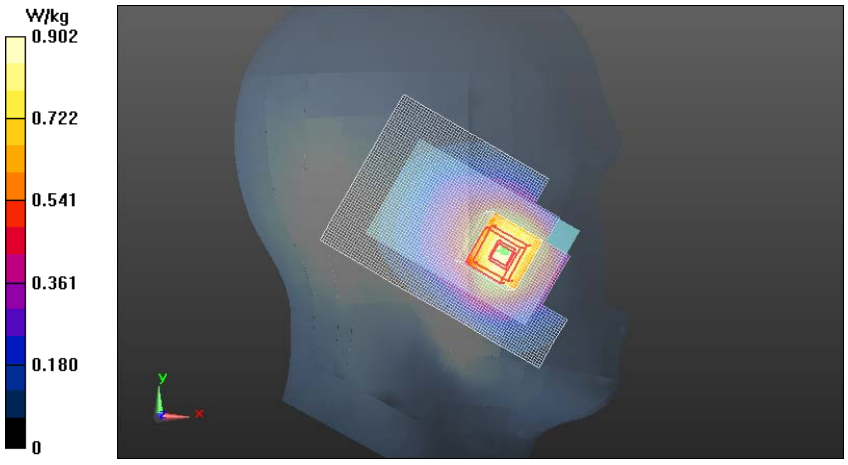
Test Laboratory: TCC Nokia
Type: RM-986; Serial: 004402/47/670042/6; 004402/47/670043/4

Communication System: 2-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:4.19952
Medium: Head 835 SAR1; Medium Notes: Medium Temperature: t=21.3
Medium parameters used: f = 849 MHz; σ = 0.935 S/m; ε_r = 43.041; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:
- Probe: EX3DV4 - SN3836
- ConvF(9.03, 9.03, 9.03); Calibrated: 2013-03-08;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2013-09-18
- Phantom: SAR1 - SAM1; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

2-slot GPRS850 - Left/Cheek - High/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 11.170 V/m
Fast SAR: SAR(1 g) = 0.841 W/kg
Fast SAR(10 g) = 0.580 W/kg
Maximum value of SAR (interpolated) = 0.902 W/kg

2-slot GPRS850 - Left/Cheek - High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.170 V/m
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.846 W/kg
SAR(10 g) = 0.600 W/kg
Power Drift = 0.04 dB
Maximum value of SAR (measured) = 0.895 W/kg



Plot 2:

Date/Time: 2013-12-05 4:06:13 PM

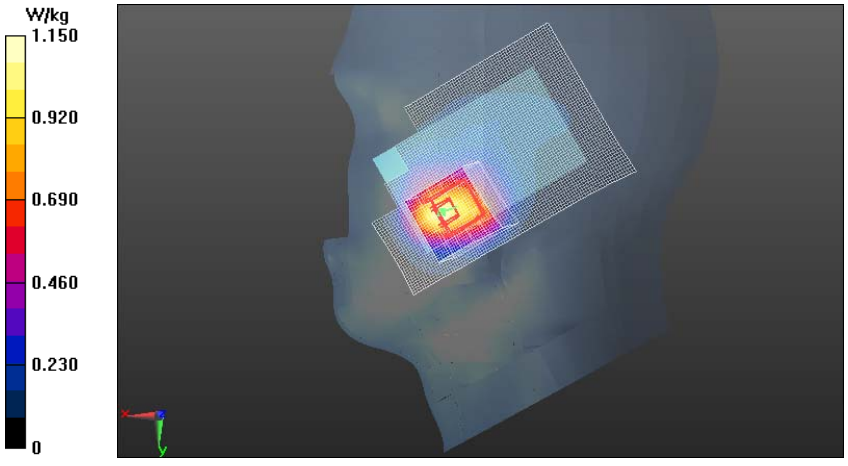
Test Laboratory: TCC Nokia
Type: RM-986; Serial: 004402/47/670196/0; 004402/47/670197/8

Communication System: GSM1900
Frequency: 1909.8 MHz; Duty Cycle: 1:8.30042
Medium: Head 1900 SAR4; Medium Notes: Medium Temperature: t=21.3C
Medium parameters used: f = 1910 MHz; σ = 1.379 S/m; ε_r = 39.593; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:
- Probe: EX3DV4 - SN3574
- ConvF(7.29, 7.29, 7.29); Calibrated: 2013-09-19;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2013-03-07
- Phantom: SAR4 - SAM1; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

GSM1900 - Right/Cheek - High/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 8.693 V/m
Fast SAR: SAR(1 g) = 1 W/kg
Fast SAR(10 g) = 0.560 W/kg
Maximum value of SAR (interpolated) = 1.15 W/kg

GSM1900 - Right/Cheek - High/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.693 V/m
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1 W/kg
SAR(10 g) = 0.558 W/kg
Power Drift = 0.03 dB
Maximum value of SAR (measured) = 1.10 W/kg



Plot 3:

Date/Time: 2013-12-06 10:34:09 AM

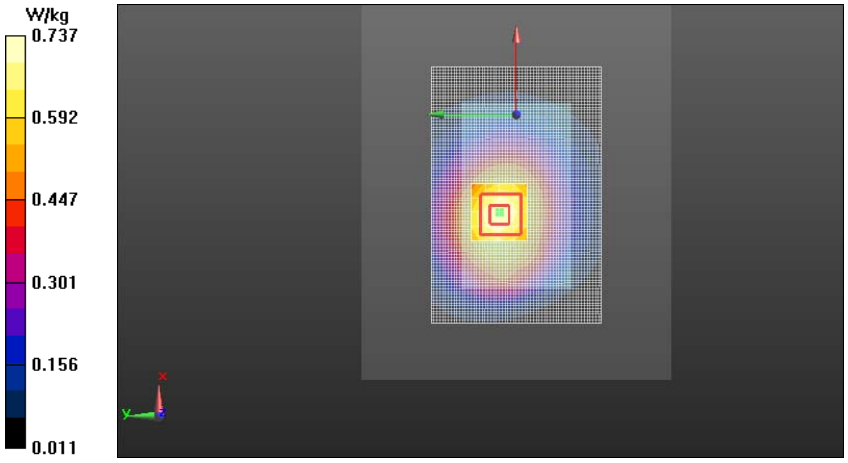
Test Laboratory: TCC Nokia
Type: RM-986; Serial: 004402/47/670042/6; 004402/47/670043/4

Communication System: 2-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:4.19952
Medium: Body 835 SAR1; Medium Notes: Medium Temperature: t=21.4
Medium parameters used: f = 849 MHz; σ = 0.973 S/m; ε_r = 53.844; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:
- Probe: EX3DV4 - SN3836
- ConvF(8.97, 8.97, 8.97); Calibrated: 2013-03-08;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1319; Calibrated: 2013-09-18
- Phantom: SAR1 - TFP; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

2-slot GPRS850/Body - High - Spacer 15mm - No Headset - Back Facing Phantom/Area Scan (61x91x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 11.763 V/m
Fast SAR: SAR(1 g) = 0.692 W/kg
Fast SAR(10 g) = 0.484 W/kg
Maximum value of SAR (interpolated) = 0.737 W/kg

2-slot GPRS850/Body - High - Spacer 15mm - No Headset - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.763 V/m
Peak SAR (extrapolated) = 0.945 W/kg
SAR(1 g) = 0.702 W/kg
SAR(10 g) = 0.498 W/kg
Power Drift = -0.04 dB
Maximum value of SAR (measured) = 0.746 W/kg



Plot 4:

Date/Time: 2013-12-06 10:52:50 AM

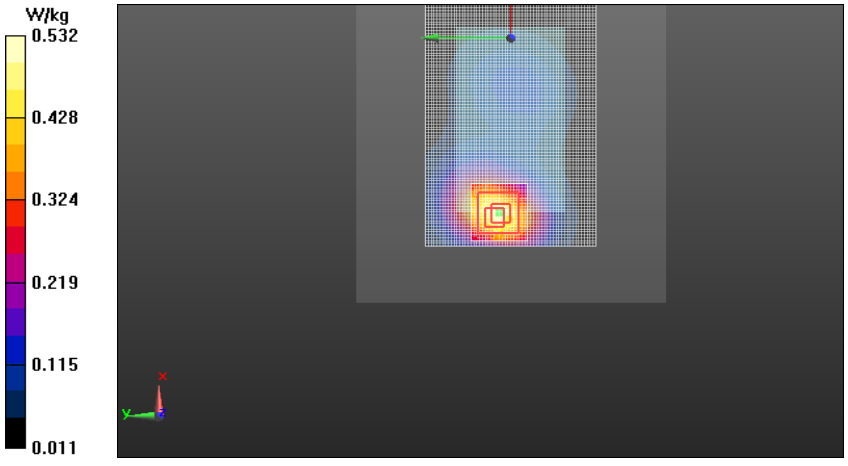
Test Laboratory: TCC Nokia
Type: RM-986; Serial: 004402/47/670196/0; 004402/47/670197/8

Communication System: GSM1900
Frequency: 1850.2 MHz; Duty Cycle: 1:8.30042
Medium: Body 1900 SAR3; Medium Notes: Medium Temperature: t=20.5 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.469 S/m; ε_r = 51.432; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:
- Probe: ES3DV3 - SN3195
- ConvF(4.73, 4.73, 4.73); Calibrated: 2013-03-08;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn887; Calibrated: 2013-03-07
- Phantom: SAR3 - TFP; Type: Not Specified; Serial: Not Specified
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.8 (7028)

GSM1900/Body - Low - Spacer 15mm - No Headset - Back Facing Phantom/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 3.034 V/m
Fast SAR: SAR(1 g) = 0.476 W/kg
Fast SAR(10 g) = 0.272 W/kg
Maximum value of SAR (interpolated) = 0.532 W/kg

GSM1900/Body - Low - Spacer 15mm - No Headset - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 3.034 V/m
Peak SAR (extrapolated) = 0.759 W/kg
SAR(1 g) = 0.469 W/kg
Maximum value of SAR (measured) = 0.495 W/kg
Power Drift = 0.18 dB



APPENDIX C: DIELECTRIC PARAMETERS OF THE TISSUE SIMULANTS

Head tissue simulant dielectric parameters used in the measurements:

f (MHz)	Date	Dielectric Parameters					
		824.2MHz		837.0MHz		849.0MHz	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
GSM/GPRS850	2013-12-05	43.3	0.91	43.2	0.92	43.0	0.93
f (MHz)	Date	Dielectric Parameters					
		1850.0MHz		1880.0MHz		1910.0MHz	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
GSM/GPRS1900	2013-12-05	39.8	1.32	39.7	1.35	39.6	1.38

Body tissue simulant dielectric parameters used in the measurements:

f (MHz)	Date	Dielectric Parameters					
		824.2MHz		837.0MHz		849.0MHz	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
GSM/GPRS850	2013-12-06	54.1	0.95	54.0	0.96	53.8	0.97
f (MHz)	Date	Dielectric Parameters					
		1850.0MHz		1880.0MHz		1910.0MHz	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
GSM/GPRS1900	2013-12-06	51.4	1.47	51.4	1.50	51.3	1.52

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client **Nokia Beijing TCC**

Certificate No: EX3-3836_Mar13

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3836

Calibration procedure(s) QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: March 8, 2013

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013_Dec12)	Dec-13
DAE4	SN: 660	31-Jan-13 (No. DAE4-660_Jan13)	Jan-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 8, 2013

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3836

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.40	0.47	0.45	± 10.1 %
DCP (mV)[B]	89.8	101.7	96.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	143.5	±3.0 %
		Y	0.0	0.0	1.0		155.5	
		Z	0.0	0.0	1.0		149.3	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3836

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.44	9.44	9.44	0.80	0.60	± 12.0 %
835	41.5	0.90	9.03	9.03	9.03	0.79	0.60	± 12.0 %
1750	40.1	1.37	8.11	8.11	8.11	0.31	0.98	± 12.0 %
1900	40.0	1.40	7.79	7.79	7.79	0.35	0.92	± 12.0 %
2600	39.0	1.96	6.82	6.82	6.82	0.42	0.86	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

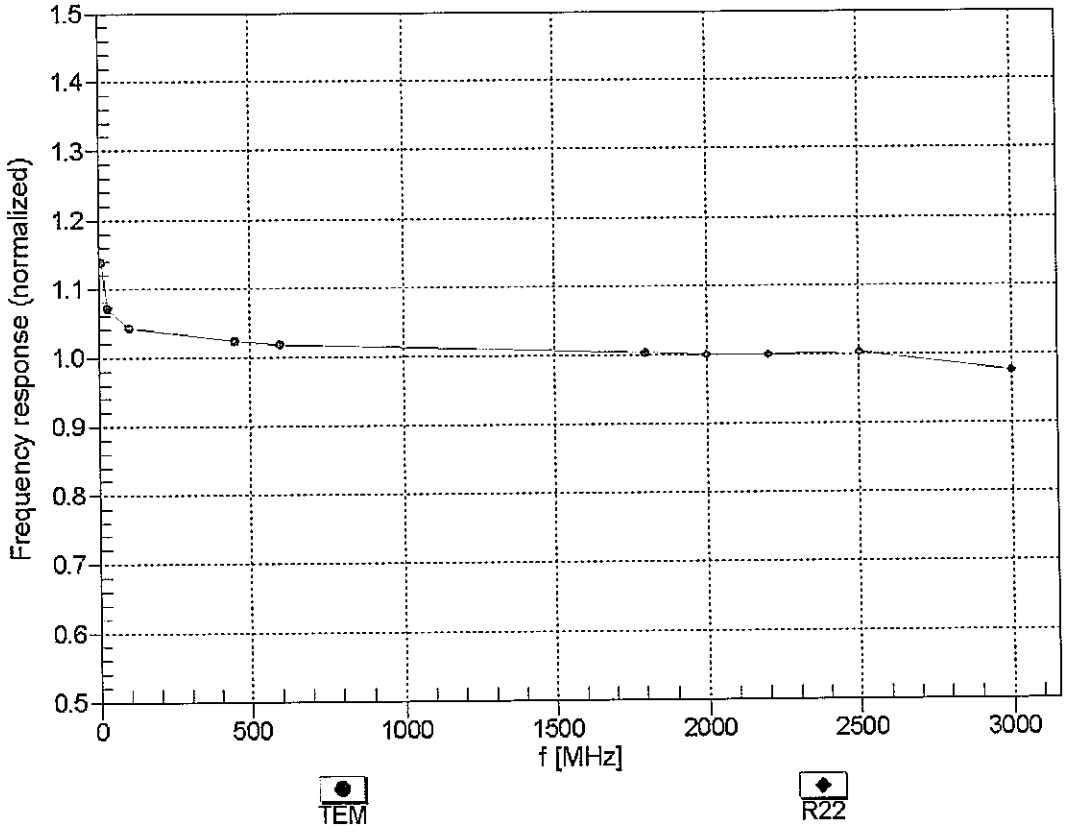
DASY/EASY - Parameters of Probe: EX3DV4 - SN:3836

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.07	9.07	9.07	0.80	0.61	± 12.0 %
835	55.2	0.97	8.97	8.97	8.97	0.70	0.67	± 12.0 %
1750	53.4	1.49	7.57	7.57	7.57	0.67	0.67	± 12.0 %
1900	53.3	1.52	7.18	7.18	7.18	0.80	0.61	± 12.0 %
2600	52.5	2.16	6.70	6.70	6.70	0.64	0.50	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

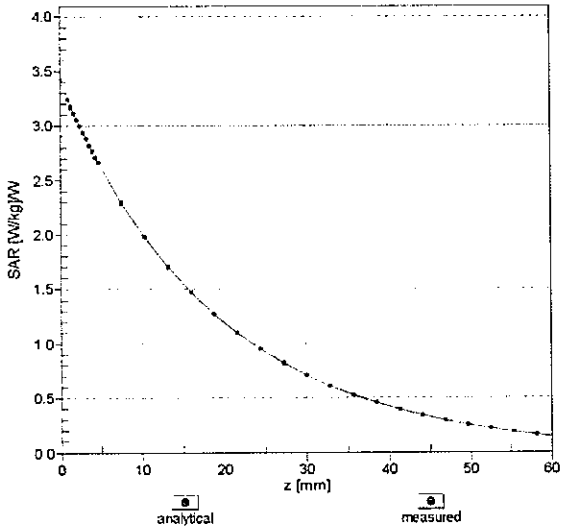
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



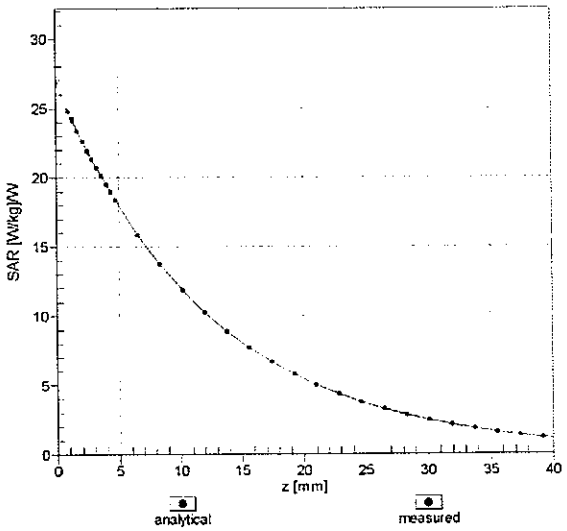
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

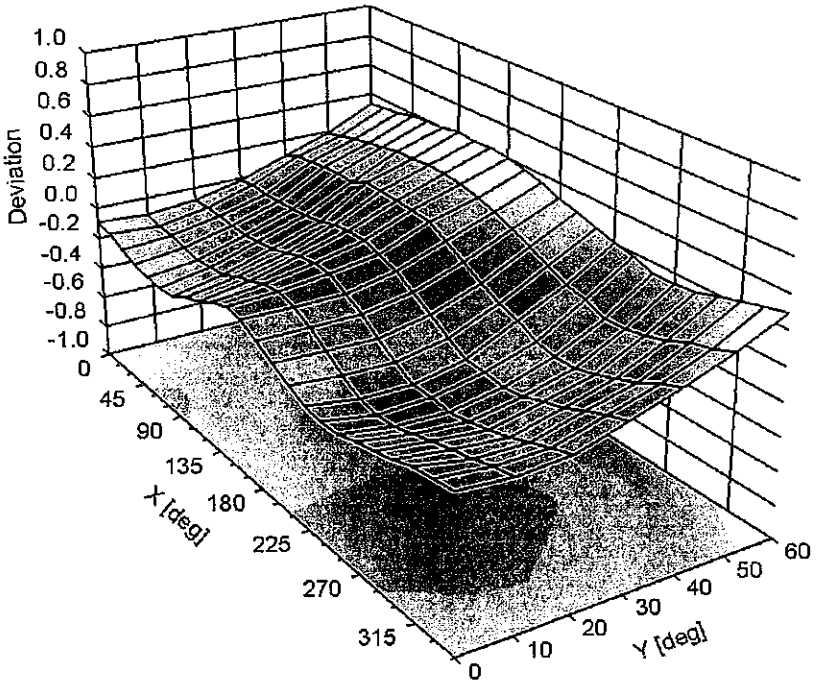


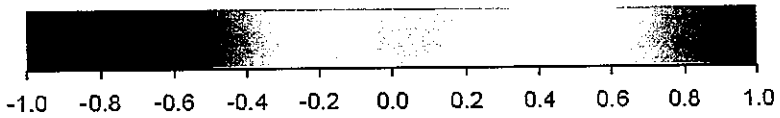
f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client **Nokia Beijing TCC**

Certificate No: ES3-3195_Mar13

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3195

Calibration procedure(s) QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: March 8, 2013

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013_Dec12)	Dec-13
DAE4	SN: 660	31-Jan-13 (No. DAE4-660_Jan13)	Jan-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 8, 2013

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3195

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.41	1.18	1.43	± 10.1 %
DCP (mV)[B]	102.7	102.8	99.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	168.3	±2.7 %
		Y	0.0	0.0	1.0		153.7	
		Z	0.0	0.0	1.0		170.1	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3195

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.39	6.39	6.39	0.30	2.05	± 12.0 %
1750	40.1	1.37	5.34	5.34	5.34	0.68	1.37	± 12.0 %
1900	40.0	1.40	5.14	5.14	5.14	0.53	1.61	± 12.0 %
1950	40.0	1.40	4.94	4.94	4.94	0.48	1.73	± 12.0 %
2300	39.5	1.67	4.73	4.73	4.73	0.72	1.39	± 12.0 %
2450	39.2	1.80	4.43	4.43	4.43	0.80	1.33	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3195

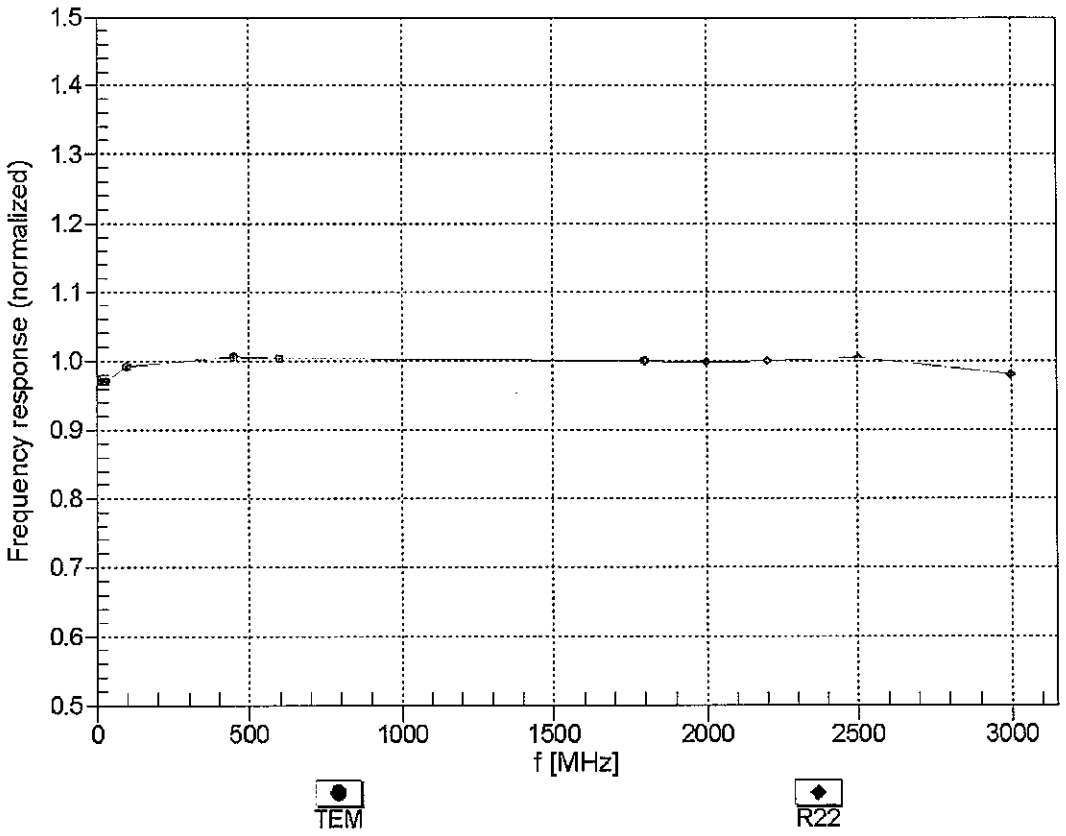
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.28	6.28	6.28	0.50	1.49	± 12.0 %
1750	53.4	1.49	4.98	4.98	4.98	0.44	1.69	± 12.0 %
1900	53.3	1.52	4.73	4.73	4.73	0.36	1.98	± 12.0 %
1950	53.3	1.52	4.84	4.84	4.84	0.46	1.72	± 12.0 %
2300	52.9	1.81	4.45	4.45	4.45	0.57	1.46	± 12.0 %
2450	52.7	1.95	4.31	4.31	4.31	0.71	1.17	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Frequency Response of E-Field

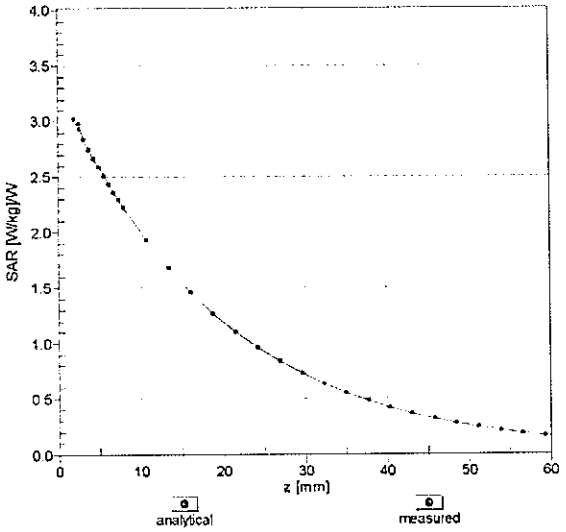
(TEM-Cell:ifi110 EXX, Waveguide: R22)



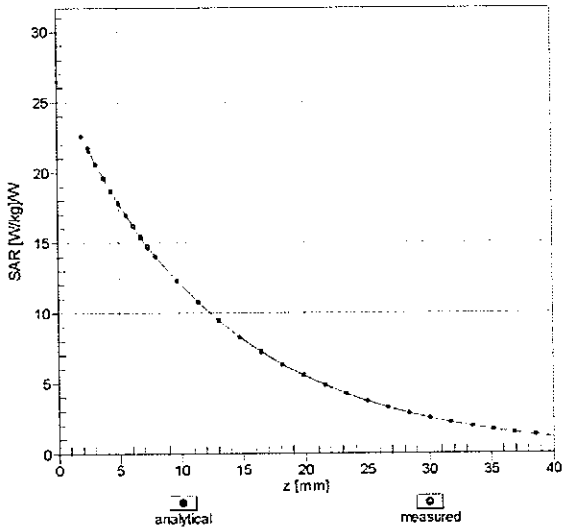
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

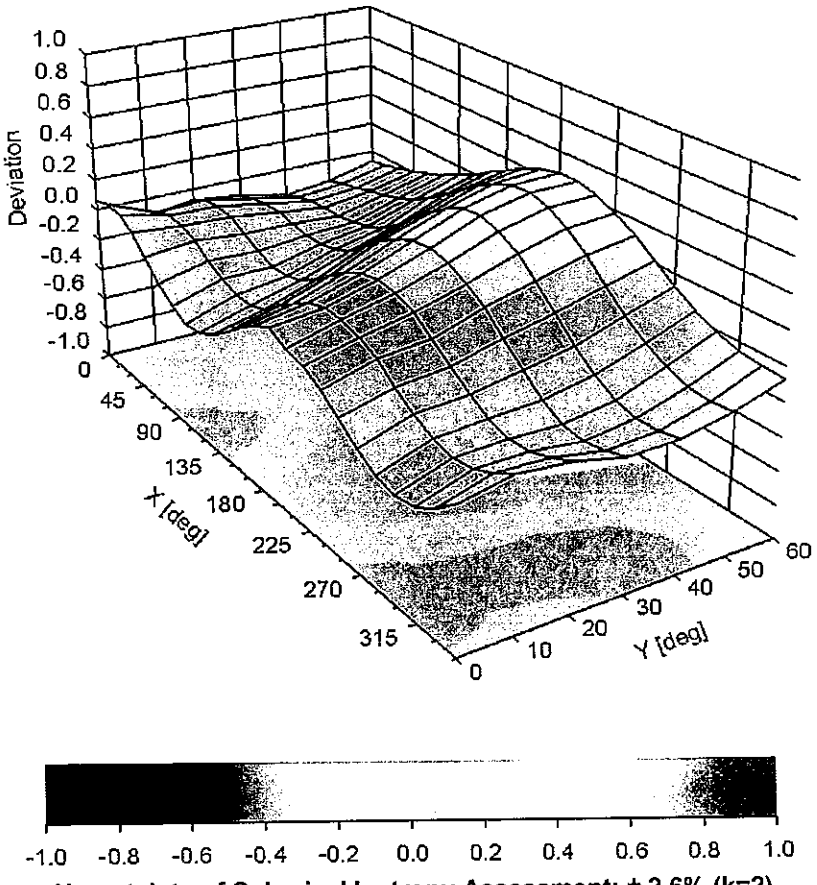


f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
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S Servizio svizzero di taratura
Swiss Calibration Service

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

Accreditation No.: SCS 108

Client **Nokia Beijing TCC**

Certificate No: EX3-3574_Sep13

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3574
Calibration procedure(s)	QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	September 19, 2013

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013_Dec12)	Dec-13
DAE4	SN: 660	4-Sep-13 (No. DAE4-660_Sep13)	Apr-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-15
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 20, 2013

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3574

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.54	0.47	0.42	± 10.1 %
DCP (mV)[B]	98.6	100.3	104.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	164.5	±2.7 %
		Y	0.0	0.0	1.0		160.0	
		Z	0.0	0.0	1.0		150.5	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3574

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	8.67	8.67	8.67	0.16	1.65	± 12.0 %
835	41.5	0.90	8.45	8.45	8.45	0.18	1.63	± 12.0 %
1750	40.1	1.37	7.57	7.57	7.57	0.33	0.90	± 12.0 %
1900	40.0	1.40	7.29	7.29	7.29	0.57	0.68	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3574

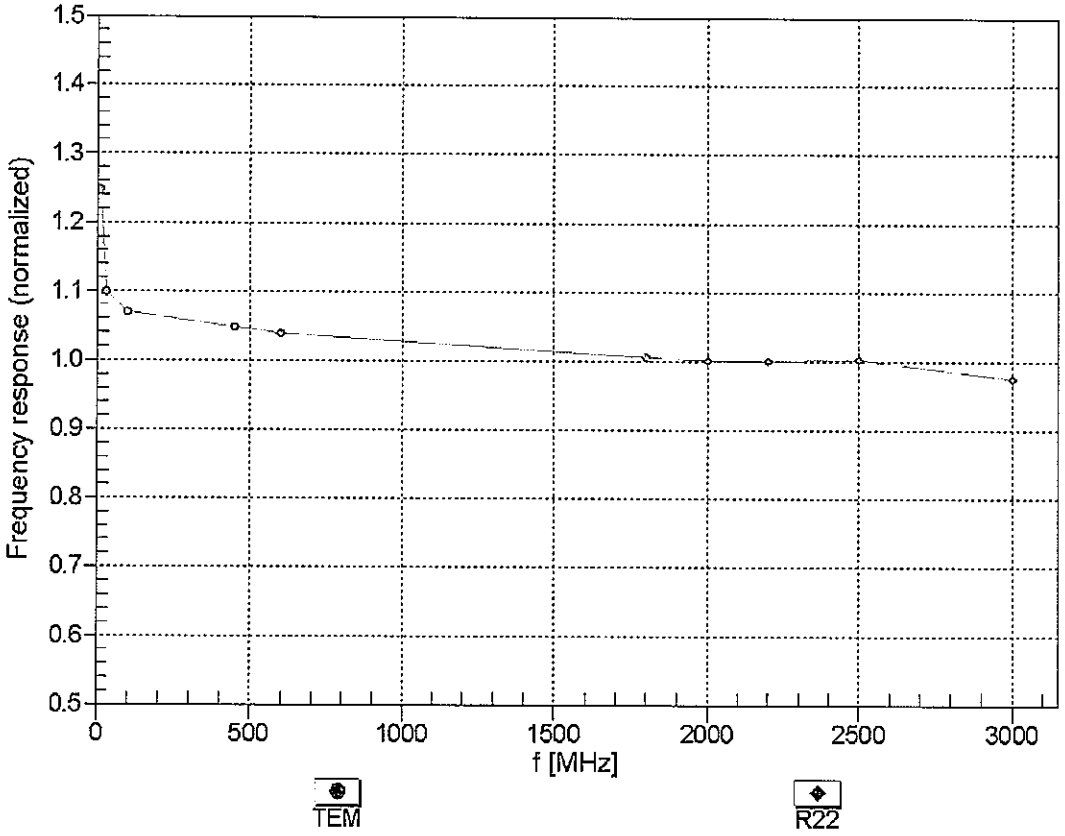
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	8.47	8.47	8.47	0.23	1.40	± 12.0 %
835	55.2	0.97	8.39	8.39	8.39	0.26	1.27	± 12.0 %
1750	53.4	1.49	7.13	7.13	7.13	0.48	0.79	± 12.0 %
1900	53.3	1.52	6.73	6.73	6.73	0.32	0.91	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Frequency Response of E-Field

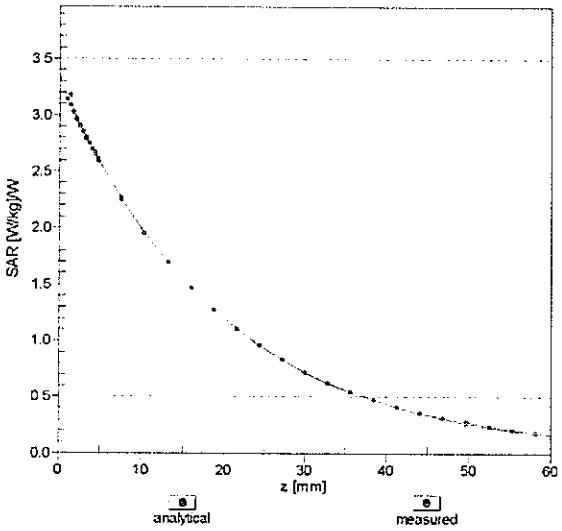
(TEM-Cell:ifi110 EXX, Waveguide: R22)



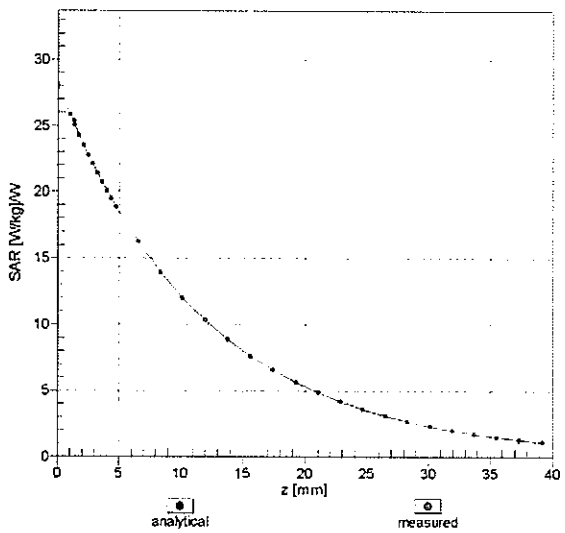
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

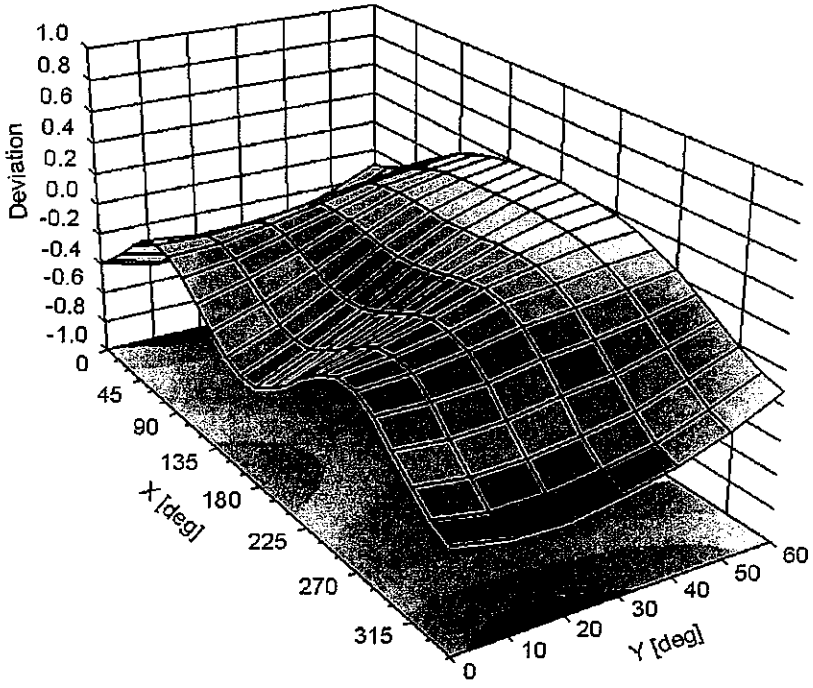


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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

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Zeughausstrasse 43, 8004 Zurich, Switzerland

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **Nokia Beijing TCC**

Certificate No: D835V2-4d005_Mar12

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 4d005

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: March 06, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	Israe El-Naouq
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 6, 2012

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.7 Ω - 3.4 jΩ
Return Loss	- 27.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.8 Ω - 5.1 jΩ
Return Loss	- 24.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.394 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 11, 2003

DASY5 Validation Report for Head TSL

Date: 06.03.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d005

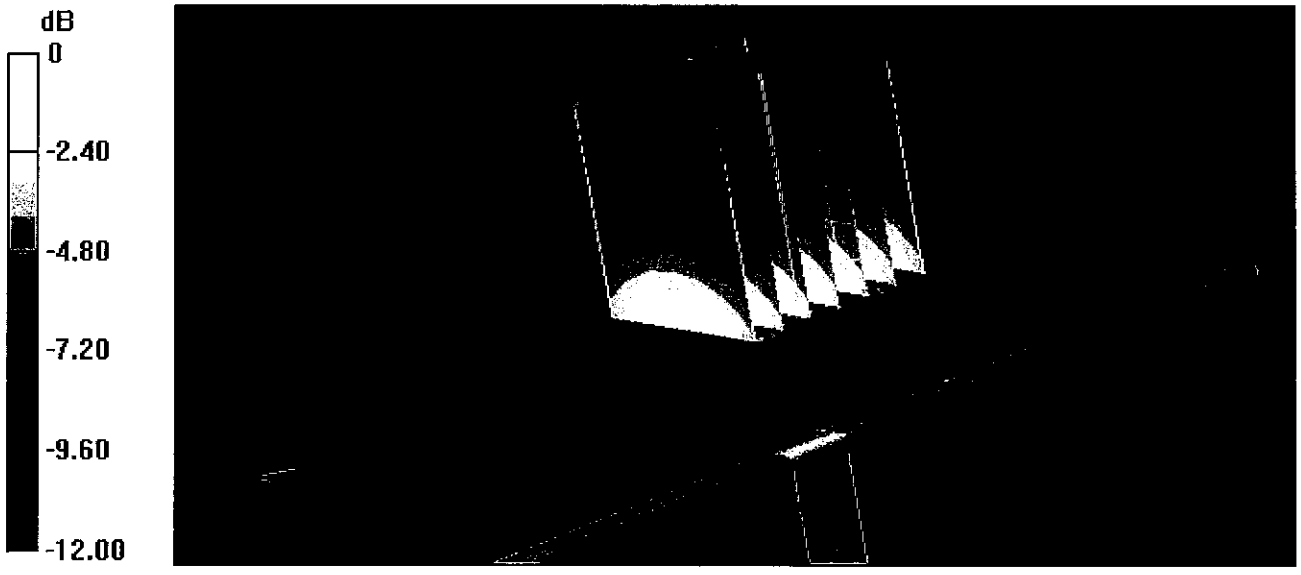
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

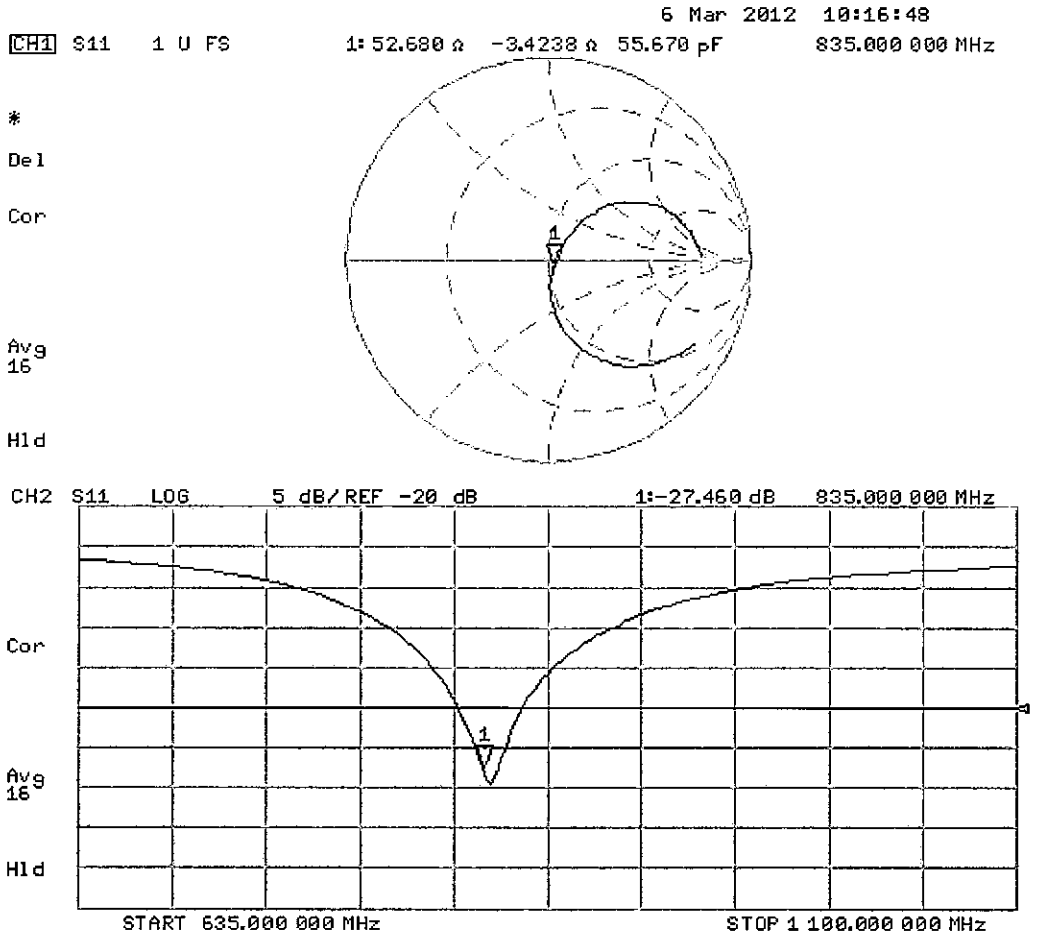
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.103 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.4310
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.709 mW/g



0 dB = 2.710mW/g = 8.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 05.03.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d005

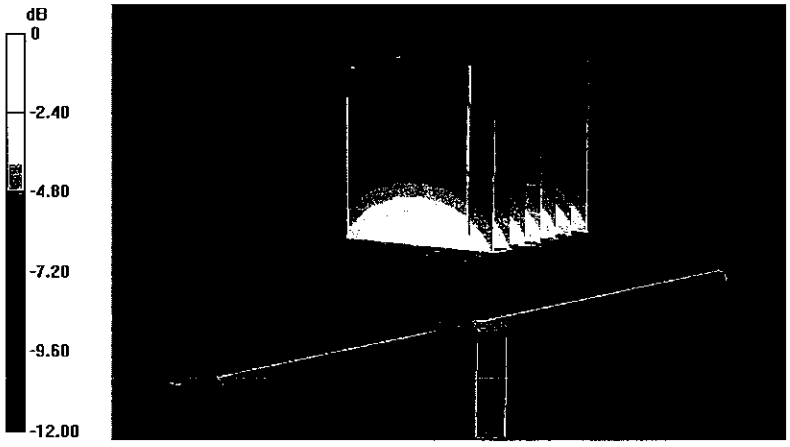
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

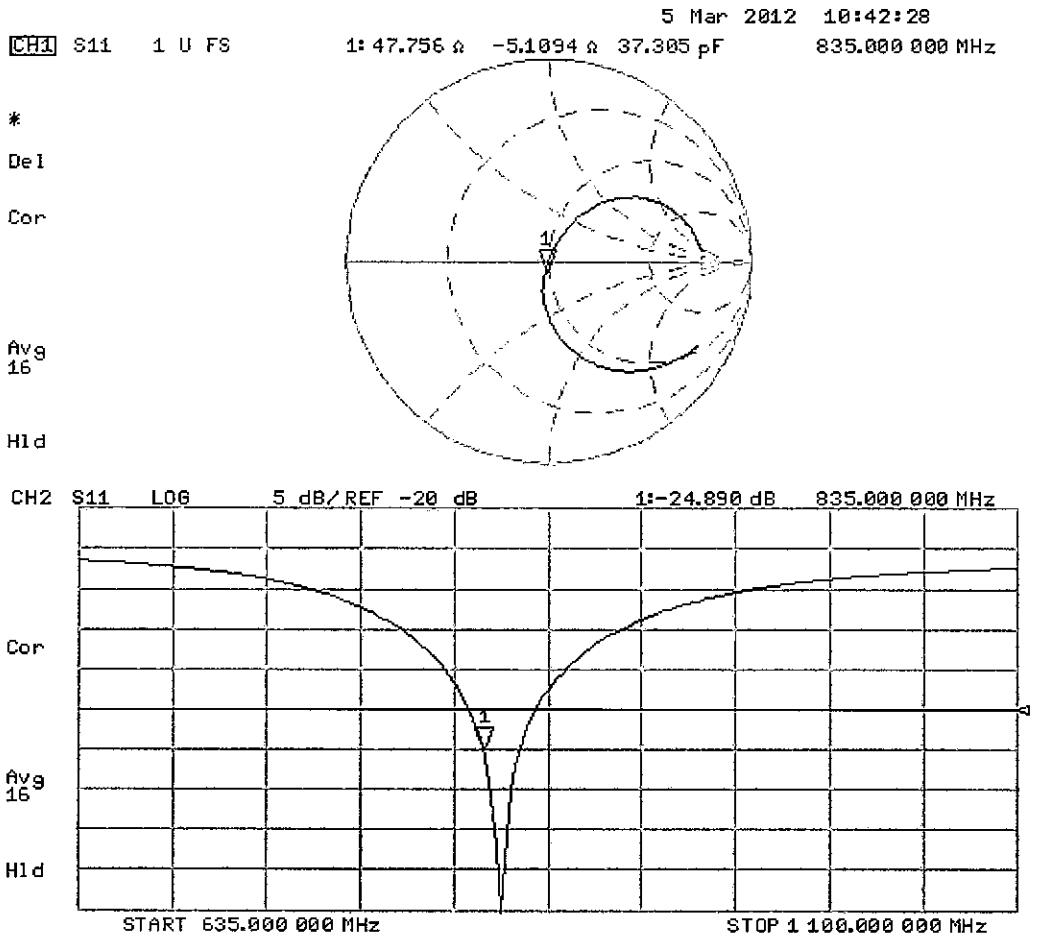
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.011 V/m; Power Drift = 0.0071 dB
Peak SAR (extrapolated) = 3.4950
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.812 mW/g



0 dB = 2.810mW/g = 8.97 dB mW/g

Impedance Measurement Plot for Body TSL



Dipole D835V2 – SN: 4d005 Antenna Parameters

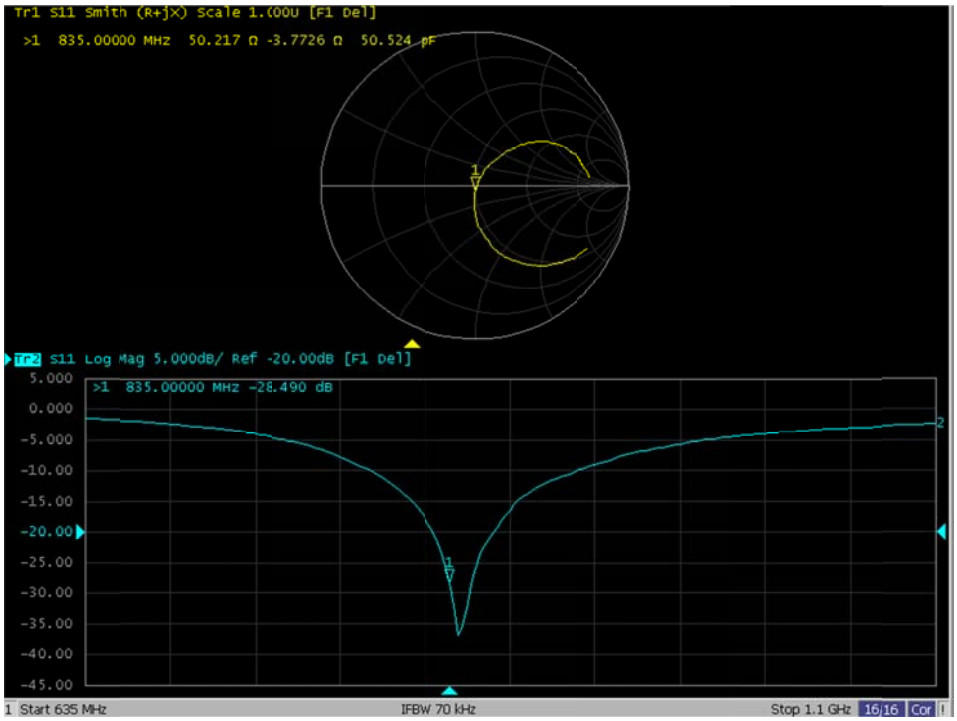
Antenna Parameters with Head TSL

	Calibration certificate	Annual measurement 2013-03-06
Impedance, transformed to feed point	52.7 Ω - 3.4 jΩ	50.2 Ω - 3.8 jΩ
Return loss	- 27.5 dB	- 28.5 dB

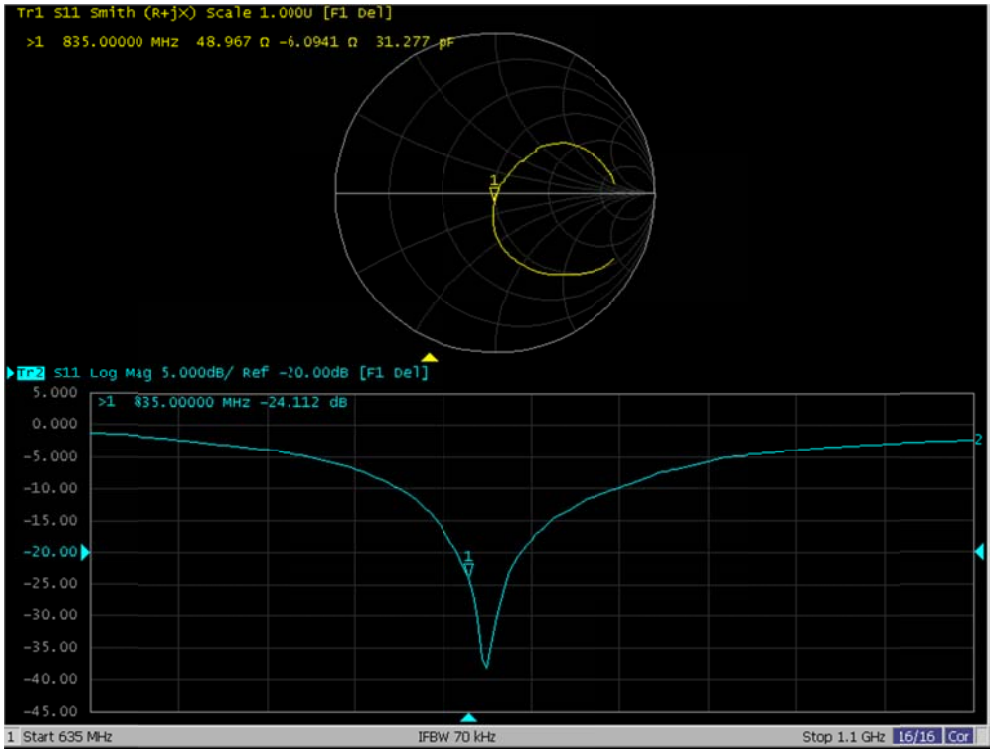
Antenna Parameters with Body TSL

	Calibration certificate	Annual measurement 2013-03-06
Impedance, transformed to feed point	47.8 Ω - 5.1 jΩ	49.0 Ω - 6.1 jΩ
Return loss	- 24.9 dB	- 24.1 dB

Impedance Measurement plot for Head TSL 835



Impedance Measurement plot for Body TSL 835



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Accreditation No.: SCS 108

Client Nokia Beijing TCC

Certificate No: D1900V2-509_Dec12

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 509
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	December 06, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.3 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: December 6, 2012

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.1 Ω - 5.1 jΩ
Return Loss	- 24.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	43.7 Ω - 5.2 jΩ
Return Loss	- 21.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.192 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 20, 1999

Date: 06.12.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 509

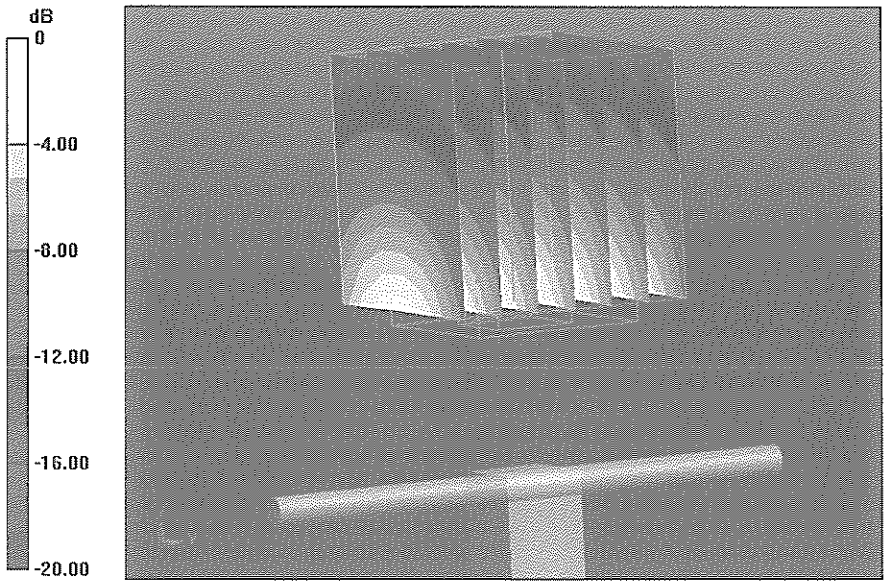
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.3(988); SEMCAD X 14.6.7(6848)

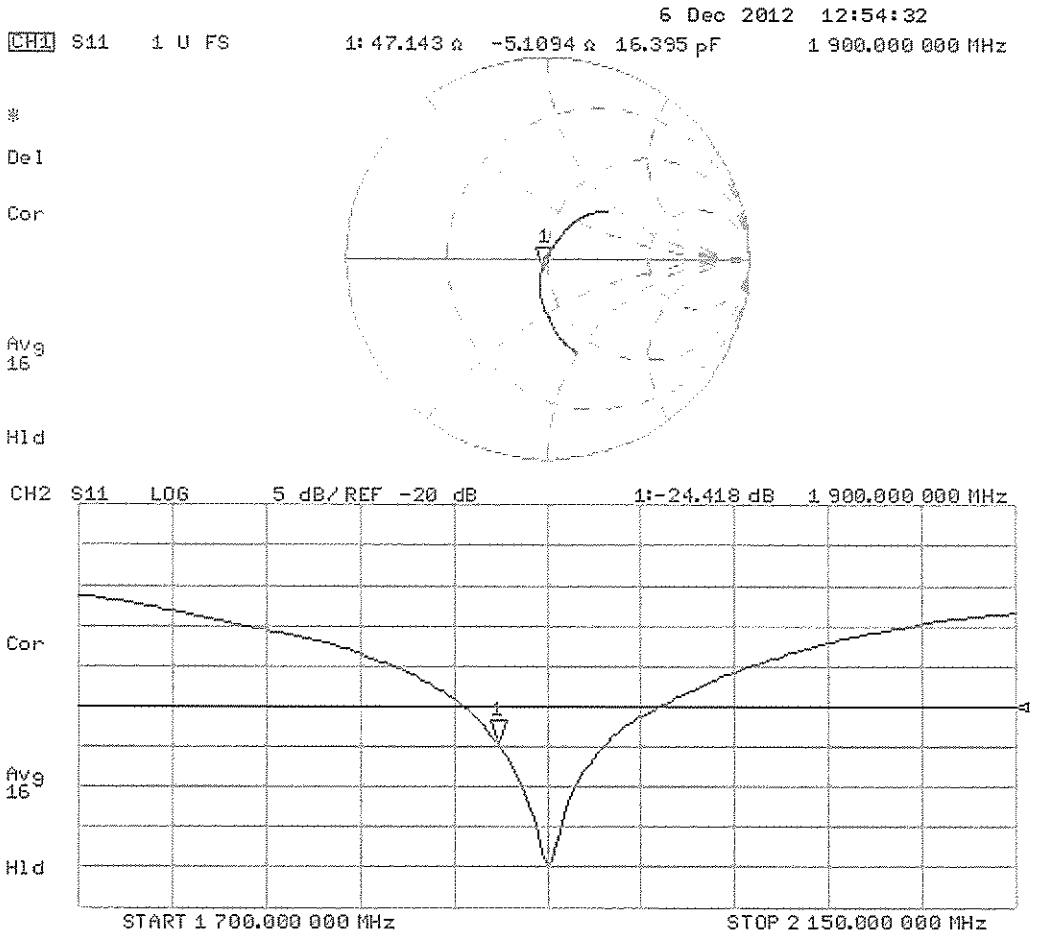
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.248 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.63 W/kg; SAR(10 g) = 5.05 W/kg
Maximum value of SAR (measured) = 11.9 W/kg



0 dB = 11.9 W/kg = 10.76 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 06.12.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 509

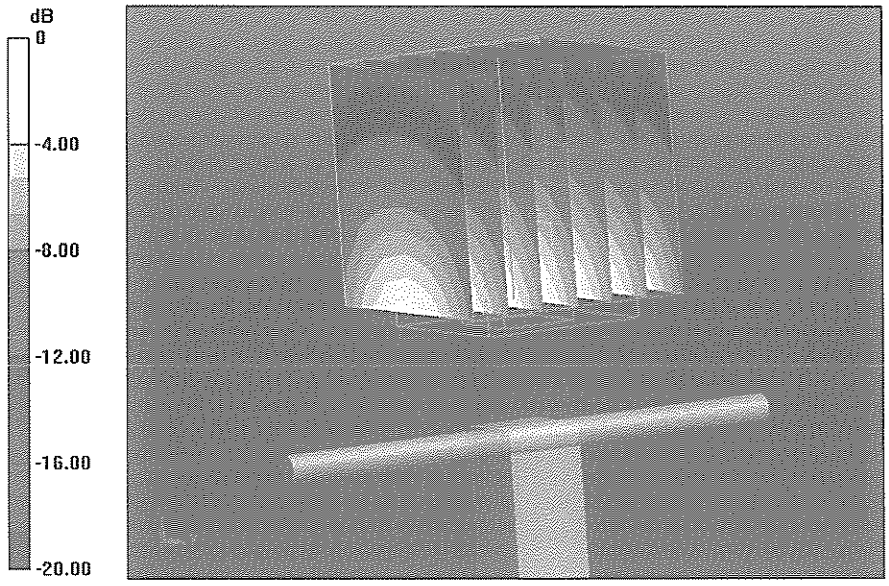
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.3(988); SEMCAD X 14.6.7(6848)

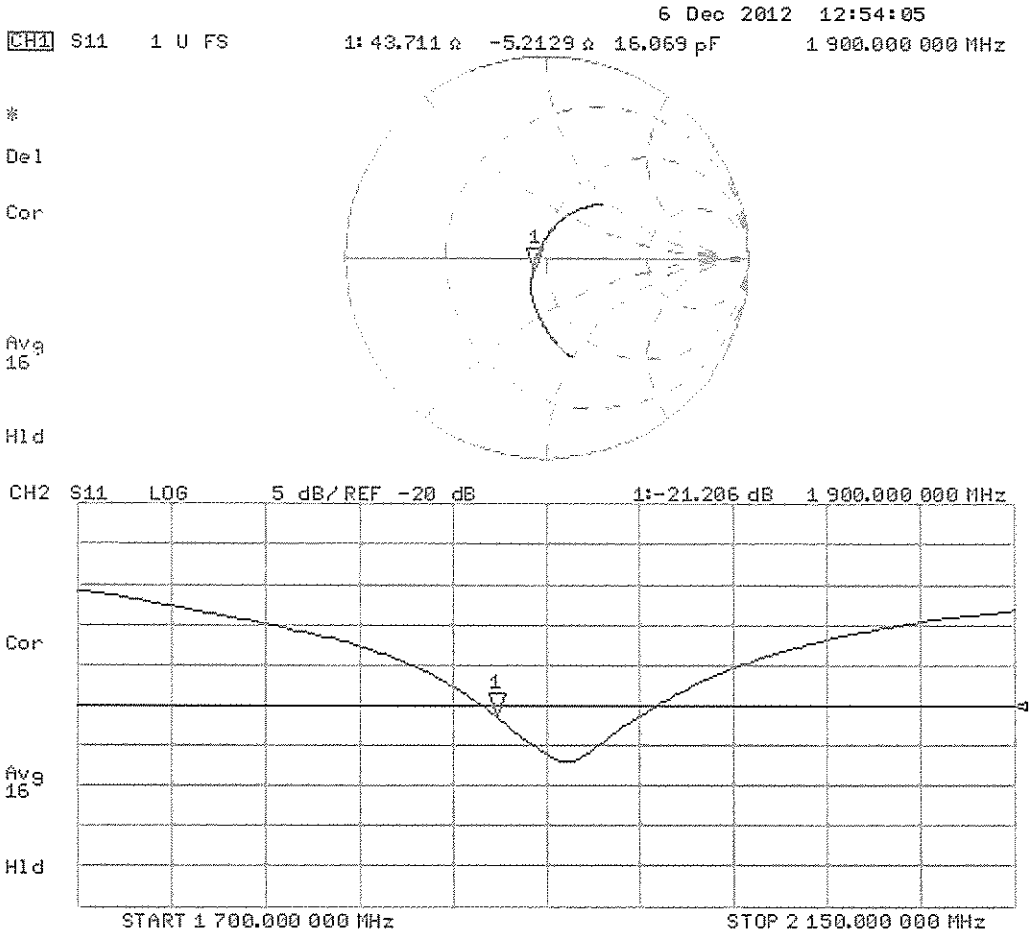
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.176 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 9.84 W/kg; SAR(10 g) = 5.16 W/kg
Maximum value of SAR (measured) = 12.4 W/kg



0 dB = 12.4 W/kg = 10.93 dBW/kg

Impedance Measurement Plot for Body TSL



Dipole D1900V2 – SN: 509 Antenna Parameters

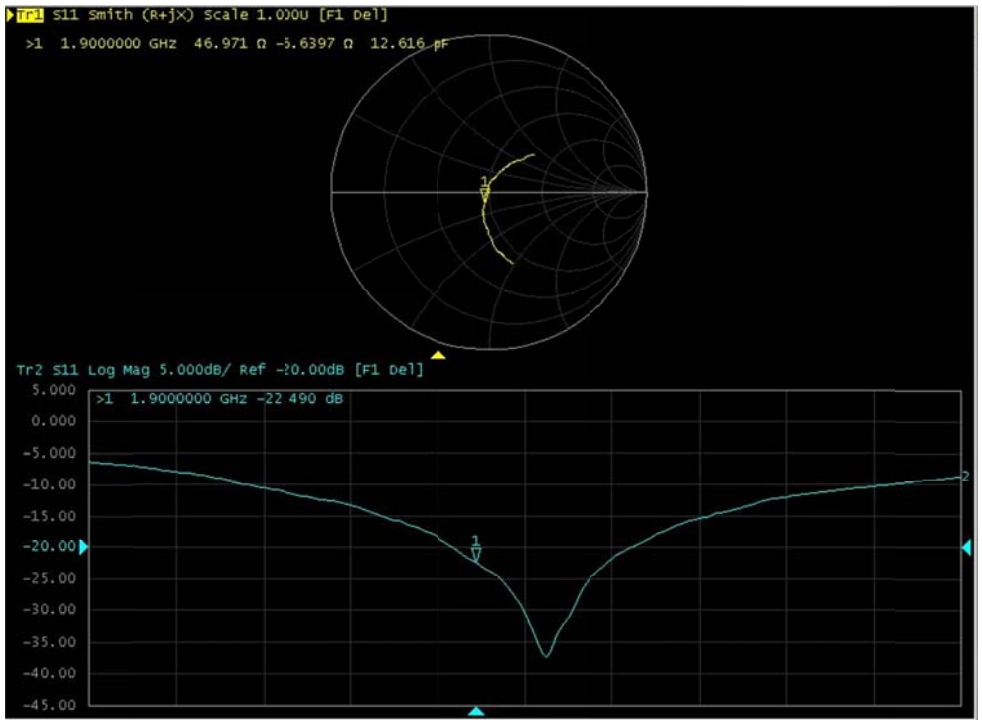
Antenna Parameters with Head TSL

	Calibration certificate	Annual measurement 2013-02-20
Impedance, transformed to feed point	47.1 Ω - 5.1 jΩ	47.0 Ω - 6.6 jΩ
Return loss	- 24.4 dB	- 22.5 dB

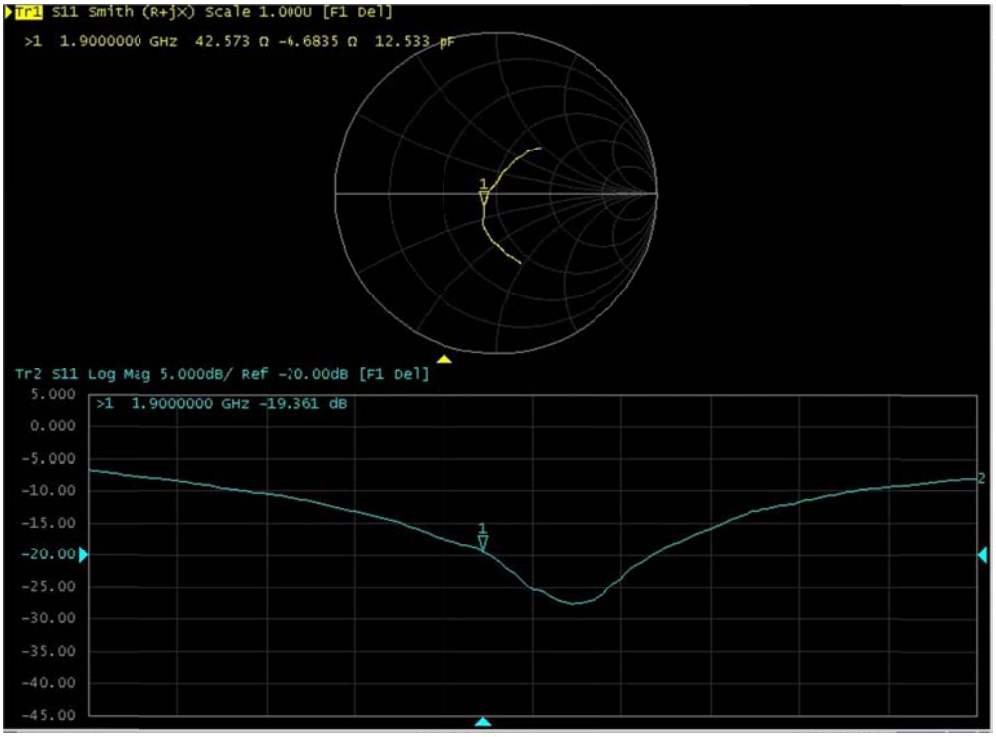
Antenna Parameters with Body TSL

	Calibration certificate	Annual measurement 2013-02-20
Impedance, transformed to feed point	43.7 Ω - 5.2 jΩ	42.6 Ω - 6.7 jΩ
Return loss	- 21.2 dB	- 19.4 dB

Impedance Measurement plot for Head TSL 1900



Impedance Measurement plot for Body TSL 1900



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Accreditation No.: SCS 108

Client **Nokia Beijing TCC**

Certificate No: D1900V2-547_Sep13

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 547
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	September 17, 2013

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 18, 2013

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.0 Ω + 3.8 jΩ
Return Loss	- 28.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.1 Ω + 3.5 jΩ
Return Loss	- 25.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.189 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 15, 2001

DASY5 Validation Report for Head TSL

Date: 17.09.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 547

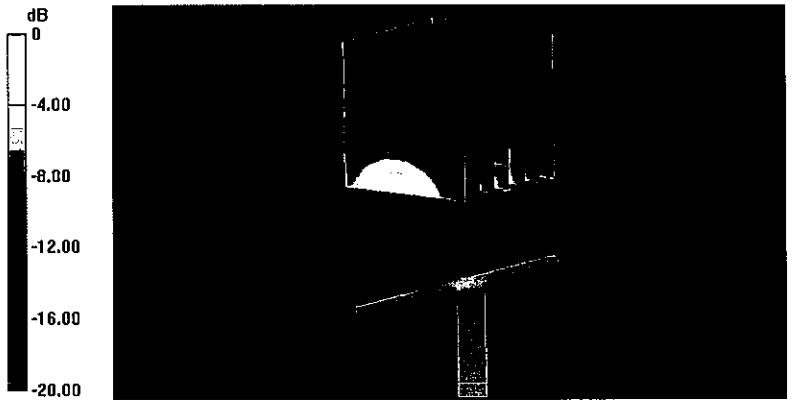
Communication System: UID 0 - CW ; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.37 S/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.98, 4.98, 4.98); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

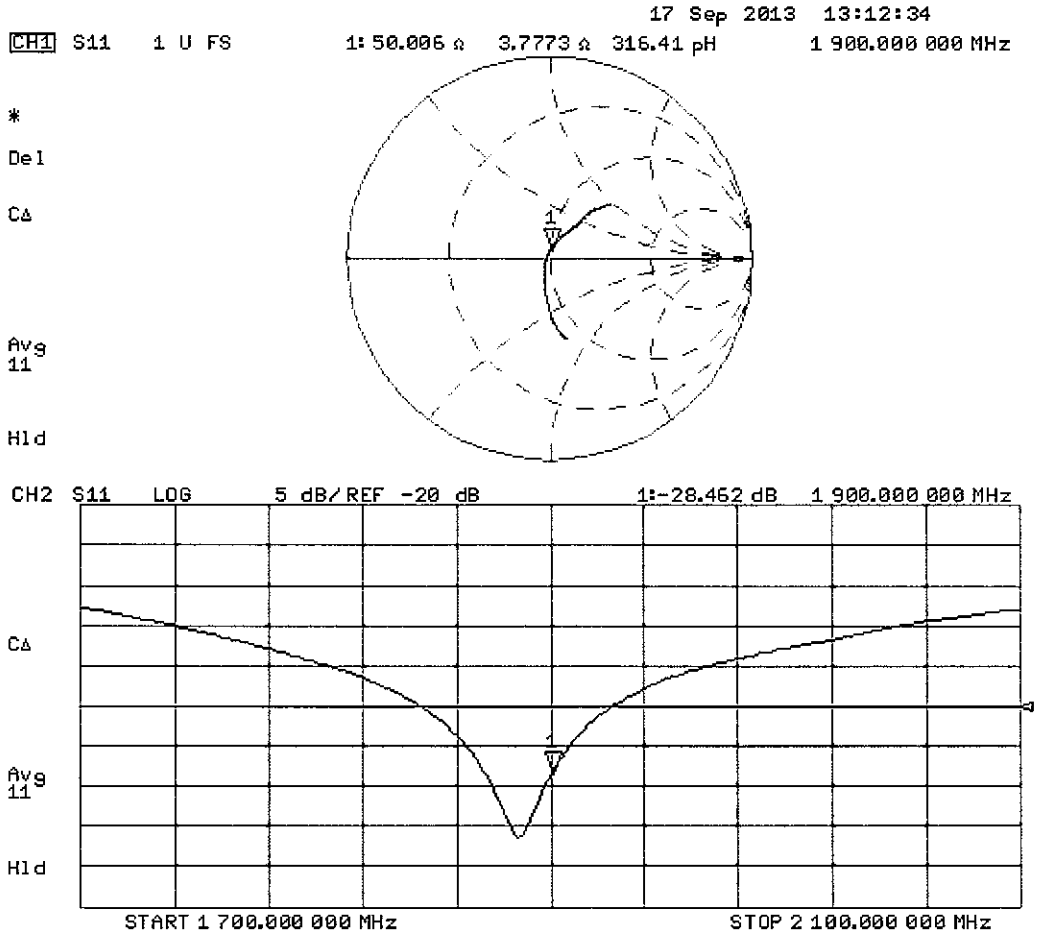
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.940 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.3 W/kg
Maximum value of SAR (measured) = 12.5 W/kg



0 dB = 12.5 W/kg = 10.97 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 17.09.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 547

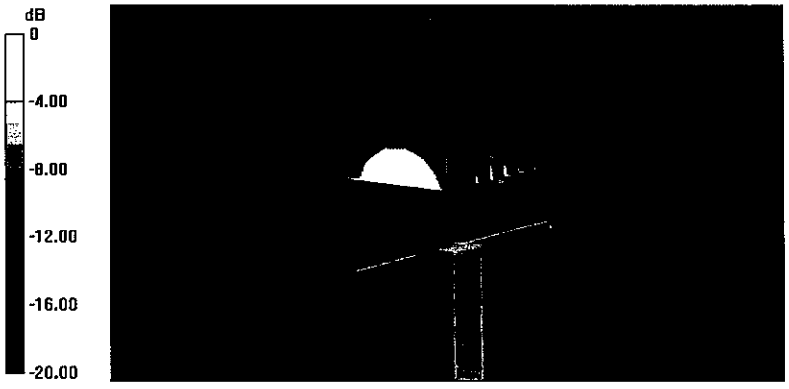
Communication System: UID 0 - CW ; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.49 S/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.6, 4.6, 4.6); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

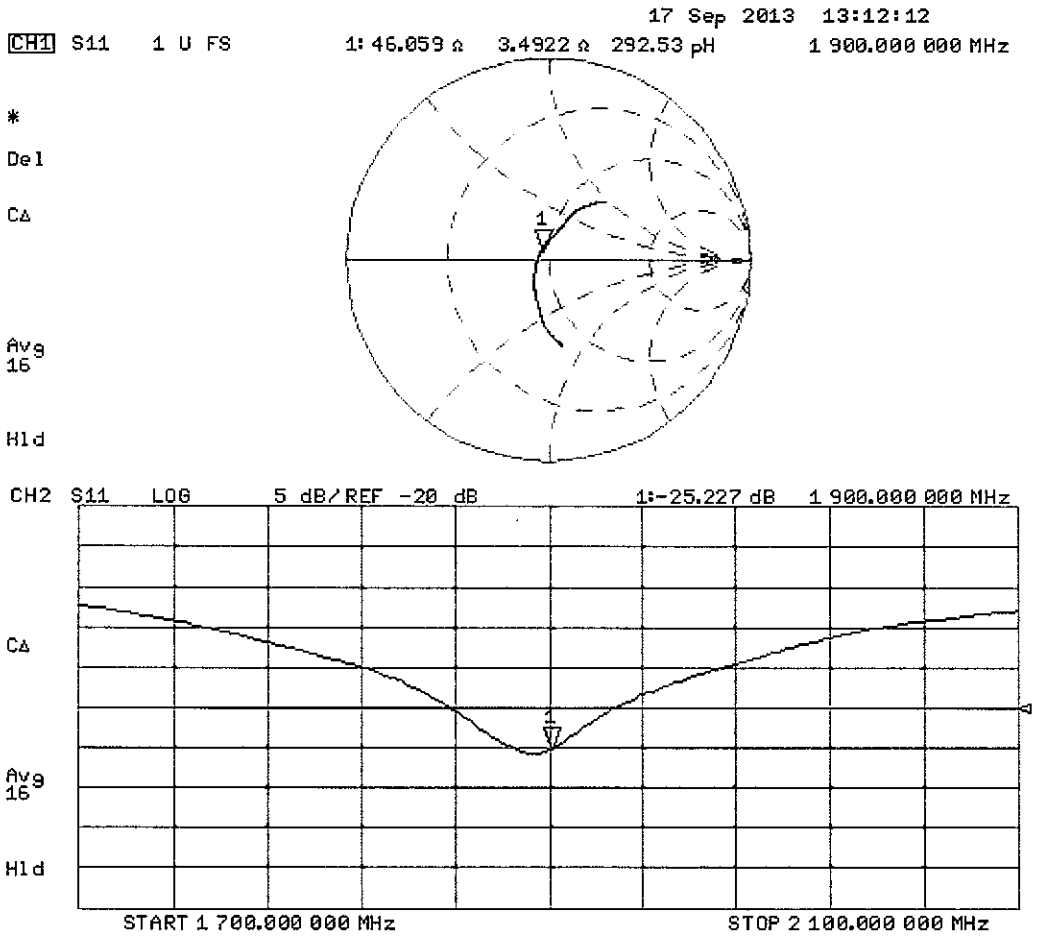
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.940 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.35 W/kg
Maximum value of SAR (measured) = 12.6 W/kg



0 dB = 12.6 W/kg = 11.00 dBW/kg

Impedance Measurement Plot for Body TSL



APPENDIX F: CONDUCTED POWER MEASUREMENTS FOR SUPPORTED GSM/GPRS TRANSMISSION MODES

F.1 Power Tuning Targets for Head and Body-worn measurements

GSM 850			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	32.5	32.5	32.5
GPRS 2-slot	29.5	29.5	29.5
GPRS 3-slot	27.7	27.7	27.7
GPRS 4-slot	26.5	26.5	26.5

GSM 1900			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	30.5	30.5	30.5
GPRS 2-slot	27.5	27.5	27.5
GPRS 3-slot	25.7	25.7	25.7
GPRS 4-slot	24.5	24.5	24.5

F.2 Conducted Power from the Samples used in the Testing

Type: RM-986; Serial number 004402/47/670042/6; 004402/47/670043/4 used for GSM/GPRS850 SAR Head and Body-worn measurements.

GSM 850			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	32.4	32.4	32.4
GPRS 2-slot	29.4	29.5	29.5
GPRS 3-slot	27.6	27.6	27.6
GPRS 4-slot	26.3	26.3	26.4

Type: RM-986; Serial number 004402/47/670196/0; 004402/47/670197/8 used for GSM/GPRS1900 SAR Head and Body-worn measurements.

GSM 1900			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	30.6	30.6	30.6
GPRS 2-slot	27.4	27.5	27.4
GPRS 3-slot	25.5	25.5	25.4
GPRS 4-slot	24.3	24.3	24.2