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

SAR Compliance Test Report

Test report no.:	FCC_RM-845_10	**Date of report:**	2012-10-12
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Tested device:	RM-845		
FCC ID:	QMNRM-845	**IC:**	661X-RM845
Supplement reports:	FCC_RM-845_05, SAR_Photo_RM-845_11		

Testing has been carried out in accordance with:

47CFR §2.1093
Radiofrequency Radiation Exposure Evaluation: Portable Devices

FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)
Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

RSS-102
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 - 2003
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:

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1. SUMMARY OF SAR TEST REPORT

Period of test	2012-08-30 to 2012-10-04
SN, HW and SW numbers of tested device	SN: C1A138246/E2, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 16538 SN: C1A138254/F2, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 16539 SN: C1A138405/FF2, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 16540 SN: C1A138294/B1, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 30598 SN: C1A138373/C1, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 30608/16575 SN: C1A138226/D1, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 30614 SN: C1A138211/A2, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 30597 SN: C1A138245/D2, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 30613 SN: C1A138223/G1, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 16537 SN: C1A138344/G4, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 16854 SN: C1A138332/BC1, HW: 0209, SW: 1525.0003.8422.9710.12271, DUT: 30667
Batteries used in testing	BP-4W, DUT: 16524, 16525, 16526, 16527, 16528, 16529, 16530, 16531, 16532, 16533, 30601, 30602, 30607, 30609, 30610
Headsets used in testing	WH-902, DUT: 16534, 16535, 30648
Other accessories used in testing	Wireless Charging Back Cover CC-3059
State of sample	Prototype unit
Notes	-

1.1 Test Details

1.1.1 Supplement reports referenced on the front cover of this report

FCC_RM-845_05: All the SAR data except Wireless Charging Back Cover checks have been taken from this earlier report; 11 samples were used in the RM-845 SAR testing. Application for an FCC Grant for this product is in progress.

1.2 Maximum Results

The maximum measured SAR values for Head configuration, Body Worn configuration, Wireless Router configuration and Simultaneous Voice LTE (SVLTE) configuration are given in sections 1.2.1, 1.2.2, 1.2.3 and 1.2.4 respectively. The device conforms to the requirements of the standard(s) when the maximum measured SAR value is less than or equal to the limit.

1.2.1 Head Configuration

Mode	Ch / *f*(MHz)	Conducted power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
LTE750	23230 / 782.0	23.52 dBm	Right, Cheek	0.627 W/kg	**0.70 W/kg**	1.6 W/kg	PASSED
CDMA800	384 / 836.5	23.40 dBm	Left, Cheek	0.708 W/kg	**0.79 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850	251 / 848.8	26.50 dBm	Left, Cheek	0.904 W/kg	**1.01 W/kg**	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	23.25 dBm	Left, Cheek	0.628 W/kg	**0.70 W/kg**	1.6 W/kg	PASSED
CDMA1900	25 / 1851.3	23.00 dBm	Left, Cheek	1.03 W/kg	**1.15 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900	512 / 1850.2	26.7 dBm	Left, Cheek	0.608 W/kg	**0.68 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9400 / 1880.0	23.05 dBm	Left, Cheek	0.987 W/kg	**1.11 W/kg**	1.6 W/kg	PASSED
WLAN2450	6 / 2437.0	17.85 dBm	Right, Cheek	0.691 W/kg	**0.77 W/kg**	1.6 W/kg	PASSED
WLAN5000	56 / 5280.0	11.85 dBm	Right, Cheek	0.259 W/kg	**0.29 W/kg**	1.6 W/kg	PASSED
LTE750 + WLAN2450	-	-	Right, Cheek	0.805 W/kg	**0.90 W/kg**	1.6 W/kg	PASSED
CDMA800 + WLAN2450	-	-	Right, Cheek	0.926 W/kg	**1.04 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	Right, Cheek	0.921 W/kg	**1.03 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	Right, Cheek	0.885 W/kg	**0.99 W/kg**	1.6 W/kg	PASSED
CDMA1900 + WLAN2450	-	-	Right, Cheek	1.03 W/kg	**1.15 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	Right, Cheek	0.915 W/kg	**1.02 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Right, Cheek	0.993 W/kg	**1.11 W/kg**	1.6 W/kg	PASSED
LTE750 + WLAN5000	-	-	Right, Cheek	0.627 W/kg	**0.70 W/kg**	1.6 W/kg	PASSED
CDMA800 + WLAN5000	-	-	Left, Cheek	0.734 W/kg	**0.82 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN5000	-	-	Left, Cheek	0.904 W/kg	**1.01 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN5000	-	-	Left, Cheek	0.635 W/kg	**0.71 W/kg**	1.6 W/kg	PASSED
CDMA1900 + WLAN5000	-	-	Left, Cheek	1.04 W/kg	**1.16 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN5000	-	-	Left, Cheek	0.638 W/kg	**0.71 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN5000	-	-	Left, Cheek	0.987 W/kg	**1.11 W/kg**	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / *f*(MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
LTE750	23230 / 782.0	23.52 dBm	1.5 cm	0.645 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
CDMA800	384 / 836.5	23.40 dBm	1.5 cm	0.546 W/kg	**0.61 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850	190 / 836.6	26.60 dBm	1.5 cm	0.635 W/kg	**0.71 W/kg**	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	23.25 dBm	1.5 cm	0.643 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
CDMA1900	600 / 1880.0	23.20 dBm	1.5 cm	0.734 W/kg	**0.82 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900	661 / 1880.0	26.70 dBm	1.5 cm	0.393 W/kg	**0.44 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9538 / 1907.6	22.94 dBm	1.5 cm	0.629 W/kg	**0.70 W/kg**	1.6 W/kg	PASSED
WLAN2450	11 / 2462.0	17.85 dBm	1.5 cm	0.130 W/kg	**0.15 W/kg**	1.6 W/kg	PASSED
WLAN5000	44 / 5220.0	11.84 dBm	1.5 cm	0.089 W/kg	**0.10 W/kg**	1.6 W/kg	PASSED
LTE750 + WLAN2450	-	-	1.5 cm	0.645 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
CDMA800 + WLAN2450	-	-	1.5 cm	0.597 W/kg	**0.67 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	1.5 cm	0.642 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	1.5 cm	0.695 W/kg	**0.78 W/kg**	1.6 W/kg	PASSED
CDMA1900 + WLAN2450	-	-	1.5 cm	0.787 W/kg	**0.88 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	1.5 cm	0.462 W/kg	**0.52 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	1.5 cm	0.711 W/kg	**0.80 W/kg**	1.6 W/kg	PASSED
LTE750 + WLAN5000	-	-	1.5 cm	0.645 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
CDMA800 + WLAN5000	-	-	1.5 cm	0.592 W/kg	**0.66 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN5000	-	-	1.5 cm	0.641 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN5000	-	-	1.5 cm	0.677 W/kg	**0.76 W/kg**	1.6 W/kg	PASSED
CDMA1900 + WLAN5000	-	-	1.5 cm	0.734 W/kg	**0.82 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN5000	-	-	1.5 cm	0.393 W/kg	**0.44 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN5000	-	-	1.5 cm	0.651 W/kg	**0.73 W/kg**	1.6 W/kg	PASSED

1.2.3 Wireless Router Configuration

Summary of Maximum Results for Wireless Router mode at 10.0mm

Mode	Ch / *f*(MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
LTE750***	23230 / 782.0	23.12 dBm	10.0 mm	0.766 W/kg	**0.86 W/kg**	1.6 W/kg	PASSED
CDMA800	1013 / 824.7	23.54 dBm	10.0 mm	0.810 W/kg	**0.91 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850	190 / 836.6	26.60 dBm	10.0 mm	0.764 W/kg	**0.86 W/kg**	1.6 W/kg	PASSED
WCDMA850	4233 / 846.6	23.33 dBm	10.0 mm	0.681 W/kg	**0.76 W/kg**	1.6 W/kg	PASSED
CDMA1900	600 / 1880.0	22.60 dBm	10.0 mm	1.06 W/kg	**1.19 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900	661 / 1880.0	26.70 dBm	10.0 mm	0.674 W/kg	**0.75 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9400 / 1880.0	22.11 dBm	10.0 mm	0.803 W/kg	**0.90 W/kg**	1.6 W/kg	PASSED
WLAN2450	11 / 2462.0	17.85 dBm	10.0 mm	0.281 W/kg	**0.31 W/kg**	1.6 W/kg	PASSED
LTE750*** + WLAN2450	-	-	10.0 mm	0.766 W/kg	**0.86 W/kg**	1.6 W/kg	PASSED
CDMA800 + WLAN2450	-	-	10.0 mm	0.857 W/kg	**0.96 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	10.0 mm	0.764 W/kg	**0.86 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	10.0 mm	0.701 W/kg	**0.79 W/kg**	1.6 W/kg	PASSED
CDMA1900 + WLAN2450	-	-	10.0 mm	1.09 W/kg	**1.22 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	10.0 mm	0.694 W/kg	**0.78 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	10.0 mm	0.854 W/kg	**0.96 W/kg**	1.6 W/kg	PASSED

1.2.4 Simultaneous Voice LTE (SVLTE) Configuration

1.2.4.1 Head Configuration

Mode	Ch / *f*(MHz)	Conducted power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
SVLTE750	23230 / 782.0	23.52 dBm	Right, Cheek	0.698 W/kg	**0.78 W/kg**	1.6 W/kg	PASSED
SVLTE750***	23230 / 782.0	19.43 dBm	Right, Cheek	0.285 W/kg	**0.32 W/kg**	1.6 W/kg	PASSED
CDMA800	384 / 836.5	23.40 dBm	Left, Cheek	0.708 W/kg	**0.79 W/kg**	1.6 W/kg	PASSED
CDMA1900	25 / 1851.3	22.50 dBm	Left, Cheek	1.03 W/kg	**1.15 W/kg**	1.6 W/kg	PASSED
CDMA1900****	25 / 1851.3	18.91 dBm	Left Cheek	0.362 W/kg	**0.41 W/kg**	1.6 W/kg	PASSED
WLAN2450	6 / 2437.0	17.85 dBm	Right, Cheek	0.708 W/kg	**0.79 W/kg**	1.6 W/kg	PASSED
WLAN5000	56 / 5280.0	11.85 dBm	Right, Cheek	0.259 W/kg	**0.29 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA800	-	-	Right, Cheek	0.960 W/kg	**1.08 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA1900****			Right, Cheek	0.696 W/kg	**1.08 W/kg**	1.6 W/kg	PASSED
SVLTE750*** + CDMA1900	-	-	Left, Cheek	1.10 W/kg	**1.23 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA800 + WLAN2450	-	-	Right, Cheek	1.06 W/kg	**1.19 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA800 + WLAN5000	-	-	Right, Cheek	0.976 W/kg	**1.09 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA1900**** + WLAN2450	-	-	Right, Cheek	0.910 W/kg	**1.02 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA1900**** + WLAN5000	-	-	Right, Cheek	0.701 W/kg	**0.79 W/kg**	1.6 W/kg	PASSED
SVLTE750*** + CDMA1900 + WLAN2450	-	-	Right, Cheek	1.06 W/kg	**1.19 W/kg**	1.6 W/kg	PASSED
SVLTE750*** + CDMA1900 + WLAN5000	-	-	Right, Cheek	1.05 W/kg	**1.18 W/kg**	1.6 W/kg	PASSED

Note: SVLTE750***indicates reduced-power LTE750
CDMA1900**** indicates reduced-power CDMA1900
Full details of power reductions active in SVLTE mode are given in Section 2.1

1.2.4.2 Body Worn Configuration

Mode	Ch / *f*(MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
SVLTE750	23230 / 782.0	23.52 dBm	1.5 cm	0.645 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
SVLTE750***	23230 / 782.0	19.43 dBm	1.5 cm	0.193 W/kg	**0.22 W/kg**	1.6 W/kg	PASSED
CDMA800	384 / 836.5	23.40 dBm	1.5 cm	0.546 W/kg	**0.61 W/kg**	1.6 W/kg	PASSED
CDMA1900	600 / 1880.0	22.60 dBm	1.5 cm	0.734 W/kg	**0.82 W/kg**	1.6 W/kg	PASSED
CDMA1900****	25 / 1851.3	18.91 dBm	1.5 cm	0.257 W/kg	**0.29 W/kg**	1.6 W/kg	PASSED
WLAN2450	11 / 2462.0	17.85 dBm	1.5 cm	0.130 W/kg	**0.15 W/kg**	1.6 W/kg	PASSED
WLAN5000	44 / 5220.0	11.84 dBm	1.5 cm	0.089 W/kg	**0.10 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA800	-	-	1.5 cm	0.850 W/kg	**0.95 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA1900****	-	-	1.5 cm	0.746 W/kg	**0.84 W/kg**	1.6 W/kg	PASSED
SVLTE750*** + CDMA1900	-	-	1.5 cm	0.767 W/kg	**0.86 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA800 + WLAN2450	-	-	1.5 cm	0.851 W/kg	**0.95 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA800 + WLAN5000	-	-	1.5 cm	0.842 W/kg	**0.94 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA1900**** + WLAN2450	-	-	1.5 cm	0.747 W/kg	**0.84 W/kg**	1.6 W/kg	PASSED
SVLTE750 + CDMA1900**** + WLAN5000			1.5 cm	0.742 W/kg	**0.83 W/kg**	1.6 W/kg	PASSED
SVLTE750*** + CDMA1900 + WLAN2450	-	-	1.5 cm	0.801 W/kg	**0.90 W/kg**	1.6 W/kg	PASSED
SVLTE750*** + CDMA1900 + WLAN5000	-	-	1.5 cm	0.775 W/kg	**0.87 W/kg**	1.6 W/kg	PASSED

Note: SVLTE750*** indicates reduced-power LTE750
CDMA1900**** indicates reduced-power CDMA1900
Full details of power reductions active in SVLTE mode are given in Section 2.1

* SAR values are scaled up by 12% to cover measurement drift. As a consequence of this upwards correction of the SAR values, the contribution of measurement drift to the overall measurement uncertainty (Section 6) is reduced to zero.

1.2.5 Summary SAR data

	FCC-defined SAR values for the Grants of Equipment Authorization		
	PCE	DTS	NII
Maximum Head SAR values	1.15 W/kg	0.79 W/kg	0.29 W/Kg
{Max + Max} Simultaneous Head SAR value	1.55 W/kg †		
Maximum Body SAR values	0.82 W/kg	0.15 W/kg	0.10 W/Kg
{Max + Max} Simultaneous Body SAR value	1.44 W/kg ††		
Maximum Product Specific (Wireless Router) SAR values	1.19 W/kg	0.31 W/kg	N/A
{Max + Max} Simultaneous Product Specific SAR value	1.50 W/kg †††		
Maximum Simultaneous SAR value **Head SAR: WCDMA1900+WLAN2450**	1.55 W/kg		

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

† From Section 7: The highest {max + max} Head SAR value is 1.382 (0.691 for WCDMA1900, 0.691 for WLAN2450) which, scaled up by 12% gives 1.55 W/kg.

†† From Section 7: The highest {max + max + max} Body SAR value is 1.282 (0.645 for SVLTE750, 0.546 for CDMA800, 0.091 for WLAN2450) which, scaled up by 12% gives 1.44 W/kg.

††† From Section 7: The highest {max + max} WR Body SAR value is 1.341 (1.06 for CDMA1900, 0.281 for WLAN2450) which, scaled up by 12% gives 1.5 W/kg.

From Section 7.1:

The highest {Max + Max} Simultaneous Head SAR value is 1.524W/kg for CDMA1900+WLAN2450 Right Cheek test configuration which, when scaled up by 12%, becomes 1.707W/kg i.e. > 1.6W/kg. However, as the separation distance between the SAR peaks is 7.03cm, the Antenna Pair SAR to Peak Separation Ratio is 1.707/ 7.03 = 0.24 i.e. < 0.3, hence Simultaneous Transmission Procedures as described in KDB648474 are not required.

From Section 7.4.1:

The highest {Max + Max} Simultaneous Head SAR value in SVLTE mode is 1.874 W/kg for SVLTE750+CDMA800+WLAN2450 Right Cheek test configuration which, when scaled up by 12%, becomes 2.099 W/kg i.e. > 1.6Wkg. As the Antenna Pair SAR to Peak Separation Ratio for some of the transmitter combinations > 0.3, Simultaneous Transmission Procedures according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05 were performed. The resulting combined SAR value was 1.01 W/kg which becomes 1.13 W/kg when scaled.

The second highest {Max + Max} Simultaneous Head SAR value in SVLTE mode is 1.784 W/kg for SVLTE750**+CDMA1900+WLAN2450 Right Cheek test configuration which, when scaled up by 12%, becomes 1.998 W/kg i.e. > 1.6Wkg. As the Antenna Pair SAR to Peak Separation Ratio for some of the transmitter combinations > 0.3, Simultaneous Transmission Procedures according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05 were performed. The resulting combined SAR value was 1.01 W/kg which becomes 1.13 W/kg when scaled.

The third {Max + Max} Simultaneous Head SAR value in SVLTE mode is 1.556 W/kg for SVLTE750+CDMA1900***+WLAN2450 Right Cheek test configuration which, when scaled up by 12%, becomes 1.743 W/kg i.e. > 1.6Wkg. As the Antenna Pair SAR to Peak Separation Ratio for some of the transmitter combinations > 0.3, Simultaneous Transmission Procedures according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05 were performed. The resulting combined SAR value was 0.903 W/kg which becomes 1.011 W/kg when scaled.

The fourth highest {Max + Max} Simultaneous Head SAR value in SVLTE mode is 1.442 W/kg for SVLTE750+CDMA800+WLAN5000 Right Cheek test configuration which, when scaled up by 12%, becomes 1.615 W/kg i.e. > 1.6Wkg. As the Antenna Pair SAR to Peak Separation Ratio forsome of the transmitter combinations > 0.3, Simultaneous Transmission Procedures according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05 were performed. The resulting combined SAR value was 0.8576 W/kg which becomes 0.960 W/kg when scaled.

1.2.6 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.38dB

1.2.7 Measurement Uncertainty

Expanded Uncertainty (k=2) 95%	± 26.4%

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)
CDMA	800 1900	QPSK	1	824 – 849 1850 – 1910
GSM	850 1900	GMSK	1/8	824 – 849 1850 – 1910
GPRS	850 1900	GMSK	1/8 to 4/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 4/8	824 – 849 1850 – 1910
WCDMA	850 (Band 5) 1900 (Band 2)		1	826 – 847 1852 – 1908
HSUPA	850 (Band 5) 1900 (Band 2)		1	826 – 847 1852 – 1908
LTE	750 (Band 13)		1	777 - 787
BT	2450	GFSK	1	2402 – 2480
WLAN b-mode	2450	Up to 11Mbps QPSK	1	2412 – 2462
WLAN g-mode	2450	Up to 54Mbps 64QAM	1	2412 – 2462
WLAN n-mode 20MHz	2450	Up to 72.2Mbps 64QAM	1	2412 – 2462
WLAN n-mode 40MHz	2450	Up to 54Mbps 64QAM	1	2412 – 2462
WLAN a-mode 20MHz	5000	Up to 54Mbps 64QAM	1	5150 - 5825
WLAN n-mode 20MHz	5000	Up to 72.2Mbps 64QAM	1	5150 - 5825
WLAN n-mode 40MHz	5000	Up to 150Mbps 64QAM	1	5150 - 5825

This is a 1 x RTT Ev-Do RevA device.

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM/GPRS/EGPRS900, GSM/GPRS/EGPRS1800, WCDMA900 (Band 8) and WCDMA2100 (Band 1) bands which are not part of this filing.

This device has Dual Transfer Mode capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom. Dual Transfer Mode is a feature that utilises the multi-slot GPRS capability in this device; it allows simultaneous transmission of voice and data during the same call, using the same transmitter and antenna.

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

This is an LTE Category 3 device; it contains one LTE band, namely LTE band 13. In LTE band 13 i.e. LTE750, 5MHz and 10MHz Channel Bandwidths are supported.

This is a BT Class 1 device; as its power tuning target is 6dBm (4mW), SAR testing was deemed unnecessary.

This device has SVLTE mode capability.

This device uses a single antenna for transmission of CDMA800, GSM/GPRS/EGPRS850, WCDMA850, CDMA1900, GSM/GPRS/EGPRS1900 and WCDMA1900 bands; a separate single antenna is used for transmission of LTE750 and third separate single antenna is used for WLAN. Simultaneous transmission of any singular cellular and PCS band is possible with WLAN in Head and Body-worn use according to the table below. In SVLTE mode simultaneous transmission of LTE is also possible only with CDMA bands.

Simultaneous transmission capabilities in Head and Body-worn use		
	WLAN2450	WLAN5000
LTE750	✓	✓
CDMA800	✓	✓
GSM/GPRS/EGPRS850	✓	✓
WCDMA850	✓	✓
CDMA1900	✓	✓
GSM/GPRS/EGPRS1900	✓	✓
WCDMA1900	✓	✓
SVLTE: LTE750 + CDMA800	✓	✓
SVLTE: LTE750 + CDMA1900	✓	✓

This device has Wireless Router “Hotspot” mode capability. Simultaneous transmission of any cellular, AWS and PCS band is possible with WLAN2450 in Wireless Router mode. Wireless Router mode capability is not available with WLAN5000.

Simultaneous transmission capabilities in Wireless Router use		
	WLAN2450	WLAN5000
LTE750	✓	x
CDMA800	✓	x
GPRS/EGPRS850	✓	x
WCDMA850	✓	x
CDMA1900	✓	x
GPRS/EGPRS1900	✓	x
WCDMA1900	✓	x

2.1 Power reductions in Wireless Router and SVLTE configurations

The following table details the power reductions active in Wireless Router mode:

Band	Power reduction in WR mode	Target tuning power in WR mode		
LTE750	0.3 dB	23 dBm		
CDMA800	0 dB	23.5 dBm		
GPRS/EGPRS850	0 dB	1-slot GPRS: 32.2 dBm	2-slot GPRS: 29.7 dBm 3-slot GPRS: 27.9 dBm 4-slot GPRS: 26.7 dBm	
WCDMA850	0 dB	23.2 dBm		
CDMA 1xRTT and 1xEVDO 1900	0.7 dB	22.5 dBm		
GPRS/EGPRS1900	0 dB	1-slot GPRS: 29.2 dBm	2-slot GPRS: 26.7 dBm 3-slot GPRS: 24.9 dBm 4-slot GPRS: 23.7 dBm	
WCDMA1900	1 dB	22 dBm		
SVLTE: LTE750 + CDMA800	‡	‡		
SVLTE: LTE750 + CDMA1900	‡	‡		
WLAN2450 b-mode (DSSS 1 Mbps)	0dB	Ch 1: 17 dBm	Ch 6: 17 dBm	Ch 11: 17 dBm
WLAN2450 g-mode (OFDM 6 Mbps)	0dB	Ch 1: 16 dBm	Ch 6: 16 dBm	Ch 11: 16 dBm
WLAN2450 n-mode (MCS 0 – OFDM 6.5 Mbps)	0dB	Ch 1: 15 dBm	Ch 6: 15 dBm	Ch 11: 15 dBm

‡ Wireless Router 'Hotspot' mode use is not restricted during Voice calls, hence SAR compliance has been addressed for the simultaneous Voice and Hotspot data configurations in Head and Body-worn accessory use conditions (KDB 941225 D06 Hot Spot SAR v01)

The following table details the power reductions active in SVLTE mode:

Band	Power reduction in SVLTE mode			Target tuning power in SVLTE mode		
LTE750	When active with CDMA800: 0 dB	When active with CDMA1900 powers ≥ 18.5dBm: 4 dB	When active with CDMA1900 powers < 18.5dBm: 0 dB	When active with CDMA800: 23.3 dBm	When active with CDMA1900 powers ≥ 18.5dBm: 19.3 dBm	When active with CDMA1900 powers < 18.5dBm: 23.3 dBm
CDMA800	0 dB			23.5 dBm		
CDMA1900	0 dB			23.2 dBm		

Note: there are 2 modes of SVLTE operation with CDMA1900:

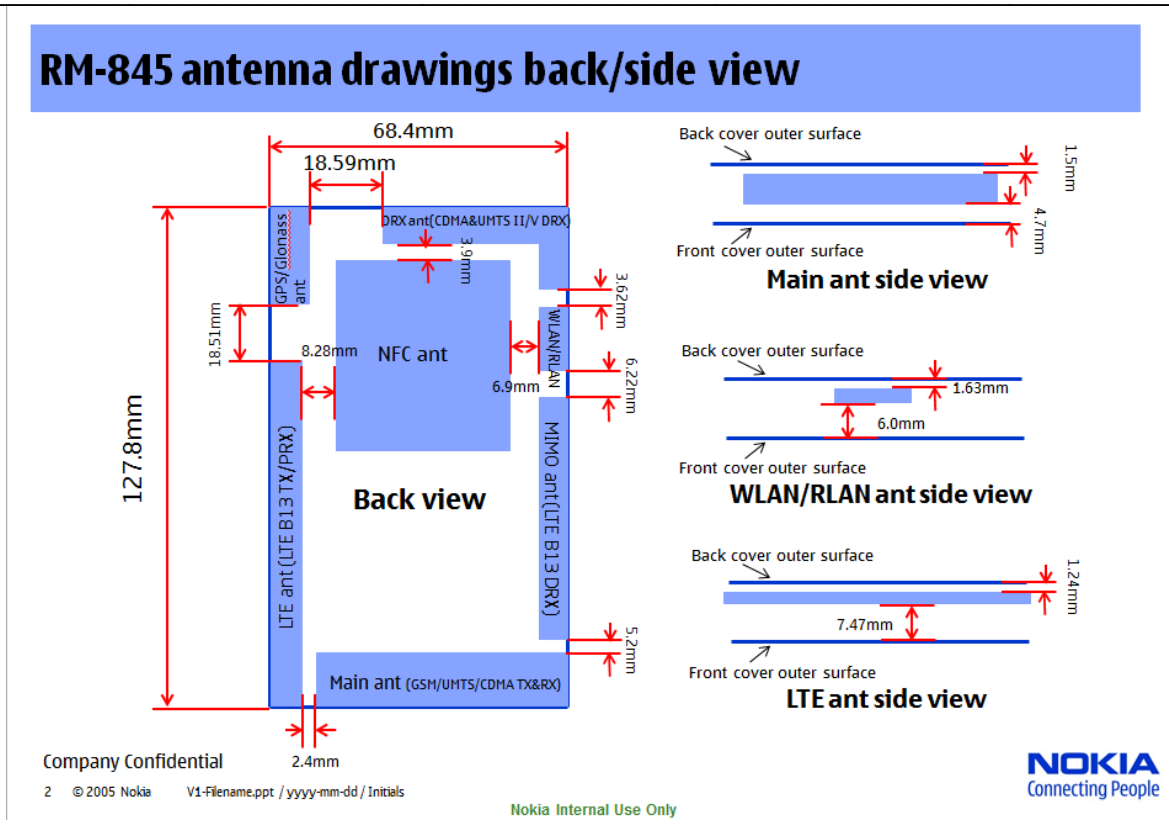
when the CDMA1900 transmitted power level ≥ 18.5dBm, LTE power is reduced by 4dB

when the CDMA1900 transmitted power level < 18.5dBm, LTE power is full power

The power tuning target for reduced-power CDMA1900 is 18.5dBm. To evaluate SAR for the combination of full power SVLTE with reduced-power CDMA1900, the actual power level of CDMA1900 was set slightly higher than 18.5dBm to allow for production tuning tolerances; please see the results tables in Section 7.4.1, 7.4.2 and Appendix H for the actual measured conducted power values.

2.2 Description of the Antenna

The device has internal antennas for both cellular and WLAN use. The cellular antennas are located at the bottom underneath the back cover. The WLAN antenna is located at the top underneath the back cover. The device dimensions, antenna locations and antenna interdistances are illustrated below.



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 except for testing WLAN2450/WLAN5000 where control software was used. Communication between the device and the call tester was established by air link.

A CMW500 call tester was used to configure the test device for transmitting all the LTE bands; in each band, the Uplink Power Control was set to 'Max Power'. Additional Spectrum Emission was set to 'NS_01' to disable A-MPR.

A CMU200 call tester was used for all the GSM/GPRS/EGPRS and WCDMA bands; in the case of GSM/GPRS/EGPRS the MS signal was always set to maximum power, whereas for WCDMA the UE uplink signal was configured to 12.2kbps RMC with all TPC bit set to 1.

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

In all operating bands the measurements were performed on lowest, middle and highest channels, except for testing LTE750 band for which, fully in accordance with KDB941225 D05 SAR for LTE Devices v01, only the maximum Channel Bandwidth of 10MHz was tested; as the available bandwidth (777-787MHz) exactly matched the 10MHz Channel Bandwidth all LTE750 testing was carried out on the middle channel (Channel 23230, 782.0MHz).

The radiated output power of the device was measured by a separate test laboratory on the same units as used for SAR testing. The results are given in the EMC report supporting this application.

This device was tested in all the available multi-slot GMSK GPRS modes; Dual Transfer Mode was not specifically tested as the average power in multi-slot GMSK GPRS mode is always greater than, or equal to, the average power in Dual Transfer Mode in Nokia devices.

All WCDMA testing has been carried out in accordance with FCC KDB 941225: SAR Measurement Procedures for 3G Devices.

LTE band has been tested according to the guidance given in KDB941225 D05 SAR for LTE Devices v01. MPR values as stipulated in Table 6.2.3_1 of 3GPP TS 36.101 (presented below) have been incorporated into the device; these MPR values are dependent on the modulation, Channel Bandwidth and Resource Block allocations as shown:

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

Although A-MPR will be supported by the final production device, for all the reported testing A-MPR was deactivated in the test samples.

LTE SAR testing has been carried out in accordance with KDB941225 D05 SAR for LTE Devices v01. In addition to the requirements of KDB941225, the following test modulations have voluntarily been measured in both LTE bands:

QPSK, 1RB allocation, 50% offset
QPSK, 100% RB allocation
16QAM, 1RB allocation, 50% offset
16QAM, 100% RB allocation

The transmission mode of the device in all WLAN b-mode tests was DSSS QPSK 5.5Mbps. The transmission mode of the device in all WLAN a-mode tests was OFDM 6 Mbps, and in WLAN5000 n-mode tests was MCS 3, OFDM 26.0/28.9 Mbps. These modes have the highest time-averaged output power of all the WLAN a, b, g and n modulation modes in this device as illustrated in table in Appendix G. All WLAN testing has been carried out in accordance with FCC KDB 248227: SAR Measurement Procedures for 802.11 a/b/g Transmitters.

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

KDB941225 D05 SAR for LTE Devices v01
KDB 941225 D01 SAR Measurement Procedures for 3G Devices
KDB 248227: SAR Measurement Procedures for 802.11 a/b/g Transmitters
KDB 648474 D01 SAR Handsets Multi Xmiter and Ant v01r05
KDB 941225 D06 v01 Hot Spot SAR

The number of Wireless Charging Back Cover test cases reported in this document has been minimised based on the earlier testing in FCC_RM-845_05. Some of the SAR results given in this report are taken from the same earlier test report FCC_RM-845_05.

3.3 Test Cases and Test Minimisation

The tested device examined in this report may not incorporate all of the features described in the text that follows, but its SAR evaluation will have been subjected to the same considerations and test logic described below.

Whilst it's possible to identify the maximum SAR test cases from inspection of the conducted power levels given in the Results tables (Section 7), different modes in the same band and multi-slot transmit GSM/GPRS modes can create some difficulties. Therefore the sequence of the SAR tests made in evaluating this device has used test logic that is based on measured SAR values. Comparison of measured SAR values in this way, can also allow some test minimization (i.e. test elimination) to be made.

For example, when SAR testing multi-slot GSM/GPRS/EGPRS modes, it is an inefficient use of test resources to fully SAR test every test configuration in each of the different modes as these modes have a fixed power relationship between them that is the same, irrespective of the test configuration. In the case of multi-slot GSM/GPRS modes, a single comparative SAR test - using the same test channel and test configuration – is made in each of the n-slot modes; the mode with the highest measured SAR value is then subjected to full SAR testing in all test configurations. These comparative SAR tests (same frequency, same test configuration) are regarded as extremely accurate as they are relative tests in which the tested device changes neither its frequency nor its position between tests. For different modes that operate in the same band and use the same antenna e.g. GSM/GPRS850 and WCDMA850, full SAR testing is carried out in the GSM/GPRS850 mode but WCDMA850 testing is limited to 3 channel testing in the maximum SAR test configuration for GSM/GPRS850.

Multi-slot SAR testing against the Head is always performed whenever such a device offers Push to Talk over cellular with the internal earpiece active, Dual Transfer Mode (i.e. the ability to transmit voice and data simultaneously using the same transmitter) or has WLAN (which enables a Voice over IP call to take place whilst the device can simultaneously transmit data on a cellular band). Whenever a device has an intended multi-slot use against the head, it is also Head SAR tested in EGPRS mode. It should be noted that EGPRS transmit modes can have either GMSK or 8PSK modulation but, when tested, only 8PSK EGPRS will appear explicitly in the results tables, as GMSK EGPRS mode has identical time-averaged power to the reported GPRS mode.

Devices that have flips or slides are fully SAR tested in all device configurations consistent with their intended usage. For example, flip phones that can receive a call in closed mode are SAR tested against the head in both open and closed configurations. Similarly, slide phones are fully SAR tested in all slide configurations in which calls are intended to be made or received.

In the results tables in Section 7, the maximum SAR value for the 'basic' tests (i.e. left cheek, left tilt, right cheek and right tilt in Head SAR testing; with and without headset with the back &/or display side facing the flat phantom in Body SAR testing) is bolded for each band. In some cases, after full testing of the basic SAR test configurations has been completed, additional checking SAR tests are made. These checking tests are always based on the bolded result from the 'basic' testing. When the SAR value of a checking test exceeds the maximum value from the basic tests, it is also bolded and used as the basis for any further checking tests that might be needed.

Checking tests are largely voluntary and can cover optional batteries, different camera slide positions, optional covers, etc. In the case of optional batteries, if the construction of the optional battery is significantly different to the battery used in the full testing e.g. if the outer can is floating electrically rather than grounded, then the maximum SAR test configuration in each band is tested with the optional battery in 3 channels. For camera slides, if the slide material is metal, then checking tests in 3 channels are again run for the maximum SAR test configuration in each band. For plastic camera slides, SAR checking is only carried out in the channel that provided the maximum SAR value for the original. Optional front and back covers are tested if their shape differs significantly from the original or if their metallic content varies by more than 15% from the original; in the former case, the testing depends on the extent of the physical differences, whereas in the latter case, 3 channel SAR testing is performed in every band in the max SAR test configuration.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

The measurements were performed using an automated 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 3	420	2011-07	2012-07
DAE 4	538	2012-08	2013-08
DAE 4	701	2011-07	2012-07
DAE 4	701	2012-08	2013-08
DAE 4	756	2011-08	2012-08
DAE 4	793	2011-09	2012-09
DAE 4	604	2012-07	2013-07
DAE 4	1213	2012-02	2013-02
DAE 4	1301	2011-10	2012-10
DAE 4	1309	2012-01	2013-01
DAE 4	1316	2012-02	2013-02
E-field Probe ET3DV6R	1399	2012-02	2013-02
E-field Probe ET3DV6	1739	2011-09	2012-09
E-field Probe ES3DV3	3131	2011-09	2012-09
E-field Probe ES3DV3	3165	2012-02	2013-02
E-field Probe EX3DV4	3573	2012-02	2013-02
E-field Probe EX3DV4	3834	2012-02	2013-02
E-field Probe EX3DV4	3835	2012-02	2013-02
Dipole Validation Kit, D750V3	1034	2011-07	2013-07
Dipole Validation Kit, D835V2	487	2012-02	2014-02
Dipole Validation Kit, D835V2	462	2011-09	2013-09
Dipole Validation Kit, D1900V2	5d099	2011-09	2013-09
Dipole Validation Kit, D1900V2	534	2012-09	2014-09
Dipole Validation Kit, D1900V2	5d030	2012-02	2014-02
Dipole Validation Kit, D2450V2	729	2011-09	2013-09
Dipole Validation Kit, D5GHzV2	1032	2012-02	2014-02
DASY4 software	Version 4.7		
DASY5 software	Version 52.8	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration date	Calibration expiry
Signal Generator	E4438C	MY42080610	2012-08	2013-08
Signal Generator	SMB100A	105735	2012-08	2013-08
Signal Generator	E4436B	US39260114	2012-08	2013-08
Amplifier	5S1G4M3	302338	-	-
Amplifier	5S4G11	312661	-	-
Amplifier	5S1G4	25583	-	-
Power Meter	NRVS	838624/032	2012-08	2013-08
Power Meter	NRVS	849305/028	2012-08	2013-08
Power Meter	NRVZ	849305/029	2012-08	2013-08
Power Sensor	NRV-Z32	100067	2012-08	2013-08
Power Sensor	NRV-Z32	100069	2012-08	2013-08
Power Sensor	NRV-Z32	825600/002	2012-08	2013-08
Call Tester	CMU 200	101111	-	-
Call Tester	CMW 500	110565	-	-
Call Tester	MT8820C	6200883095	-	-
Network Analyzer	ENA E5071C	MY46213166	2012-08	2013-08
Dielectric Probe Kit	DAK-3.5	1042	-	-
Signal Generator	E8257C	MY43350540	2011-05	2013-05
Signal generator	E8247C	MY43321016	2012-07	2014-07
Signal generator	N5181B	MY51350034	2012-07	2013-07
Amplifier	KM0822	991253	-	-
Amplifier	5S1G4	0330638	-	-
Amplifier	4.8 – 6GHz 1w	HD29078	-	-
Power Meter	E4419B	GB40202156	2012-08	2013-08
Power Meter	E4419B	GB3920697	2012-08	2013-08
Power Meter	EPM441A	GB37170673	2012-05	2013-05
Power Sensor	8482H	2704A04612	2012-07	2013-07
Power Sensor	E4412A	US38484674	2012-07	2013-07
Power Sensor	8482H	3318A06406	2012-08	2013-08
Power Sensor	E9301A	US39211864	2012-07	2013-07

(Equipment list continues)

(Equipmen list continues)

Test Equipment	Model	Serial Number	Calibration date	Calibration expiry
Call Tester	CMW500	5000-0032/2012	2012-01	2013-01
Call Tester	E5515C	GB42452440	2010-12	2012-12
Call Tester	E5515C	GB42230195	2011-04	2013-04
Network Analyzer	HP8753E	US38161692	2012-03	2014-03
Network Analyzer	E8357A	US42070515	2012-04	2013-04
Spectrum Analyzer	E4404B	MY41440516	2012-05	2013-05
Dielectric Probe Kit	HP 8120-6192	01148176	-	-
Dielectric Probe Kit	DAK-3.5	1064	-	-

4.1.1 Isotropic E-field Probe Type ET3DV6

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix E
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 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: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.1.2 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 E
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

4.1.3 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 E
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 - 2003.

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

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

4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2003 and FCC Supplement C to OET Bulletin 65. All tests were carried out using simulants whose dielectric parameters were within ± 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):

700MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	52.13	69.23
Tween 20	46.59	29.56
Salt	1.28	1.21

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	51.50	69.25
Tween 20	47.35	30.00
Salt	1.15	0.75

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

2450MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	56.0	70.20
Tween 20	44.0	29.62
Salt	-	0.18

5000MHz band †

Ingredient	Head (% by weight)	Body (% by weight)
Water	50-65	60-80
Oil	10-30	-
Emulsifiers, Esters, Inhibitors	8-25	20-40
Sodium salt	0-1.5	0-1.5

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

4.3.2 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, (except in the case of the 5000MHz dipole for which 100mW was supplied), which was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below.

System checking, head tissue simulant

f[MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	2.12	41.7	0.91	
	± 10% window	1.91 – 2.33			
	IEEE1528 / IEC62209 Standard targets		41.9	0.89	
750	2012-08-31	2.04	40.1	0.89	21.0
	2012-09-13	2.18	40.5	0.92	21.0
	Reference result	2.31	41.0	0.89	
	± 10% window	2.08 – 2.54			
	IEEE1528 / IEC62209 Standard targets		41.5	0.90	
835	2012-09-17	2.36	39.9	0.87	21.0
	Reference result	2.33	41.1	0.89	
	± 10% window	2.10 – 2.56			
	IEEE1528 / IEC62209 Standard targets		41.5	0.90	
835	2012-08-30	2.37	40.7	0.91	21.0
	Reference result	10.1	39.6	1.43	
	± 10% window	9.1 - 11.1			
	IEEE1528 / IEC62209 Standard targets		40.0	1.40	
1900	2012-09-15	9.43	39.3	1.43	21.0
	2012-10-01	9.99	39.3	1.42	21.0
	Reference result	9.79	40.4	1.40	
	± 10% window	8.81 - 10.77			
	IEEE1528 / IEC62209 Standard targets		40.0	1.40	
1900	2012-09-17	9.66	38.8	1.38	21.0

(System check, head Table continues)

(System check, head Table continues)

f[MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			εr	σ [S/m]	
	Reference result	13.9	38.3	1.85	
	± 10% window	12.5 – 15.3			
	IEEE1528 / IEC62209 Standard targets		39.2	1.80	
2450	2012-09-05	13.6	38.3	1.81	21.0
	2012-10-04	13.4	37.6	1.77	21.0
	Reference result	7.98	35.3	4.60	
	± 10% window	7.18 – 8.78			
	IEEE1528 / IEC62209 Standard targets*		36.0	4.66	
5200	2012-09-10	7.97	34.7	4.45	21.0
	Reference result	8.65	34.9	4.89	
	± 10% window	7.78 – 9.52			
	IEEE1528 / IEC62209 Standard targets*		35.6	4.96	
5500	2012-09-10	8.11	34.3	4.74	21.0
	Reference result	7.92	34.4	5.19	
	± 10% window	7.13 - 8.71			
	IEEE1528 / IEC62209 Standard targets*		35.3	5.27	
5800	2012-09-09	8.02	34.0	5.08	21.0

* Dielectric parameter data taken from IEC62209-2.

System checking, body tissue simulant

f[MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	2.20	55.2	0.96	
	± 10% window	1.98 – 2.42			
	IEEE1528 / IEC62209 Standard targets		55.5	0.96	
750	2012-08-31	2.18	53.4	0.99	21.0
	2012-09-13	2.22	53.8	1.01	21.0
	Reference result	2.44	55.7	1.01	
	± 10% window	2.20 – 2.68			
	IEEE1528 / IEC62209 Standard targets		55.2	0.97	
835	2012-09-15	2.38	54.4	0.97	21.0
	Reference result	2.45	53.5	1.00	
	± 10% window	2.20 – 2.70			
	IEEE1528 / IEC62209 Standard targets		55.2	0.97	
835	2012-08-31	2.42	53.2	0.99	21.0
	Reference result	10.6	54.2	1.59	
	± 10% window	9.5 – 11.7			
	IEEE1528 / IEC62209 Standard targets		53.3	1.52	
1900	2012-09-14	9.58	51.5	1.53	21.0
	Reference result	10.1	52.5	1.54	
	± 10% window	9.1 – 11.1			
	IEEE1528 / IEC62209 Standard targets		53.3	1.52	
1900	2012-09-26	9.92	52.1	1.58	21.0
	Reference result	9.87	53.0	1.56	
	± 10% window	8.88 – 10.86			
	IEEE1528 / IEC62209 Standard targets		53.3	1.52	
1900	2012-09-18	10.5	51.9	1.51	21.0

(System check, body Table continues)

(System check, body Table continues)

f[MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	13.3	51.7	2.04	
	± 10% window	12.0 – 14.6			
	IEEE1528 / IEC62209 Standard targets		52.7	1.95	
2450	2012-09-07	13.7	50.9	1.97	21.0
	Reference result	7.23	48.6	5.48	
	± 10% window	6.51 – 7.95			
	FCC OET65 Supplement C targets		49.0	5.30	
5200	2012-09-11	7.78	48.1	5.40	21.0
	Reference result	7.78	48.1	5.87	
	± 10% window	7.00 – 8.56			
	FCC OET65 Supplement C targets		48.6	5.65	
5500	2012-09-10	8.51	47.9	5.86	21.0
	Reference result	7.21	48.2	6.28	
	± 10% window	6.49 – 7.93			
	FCC OET65 Supplement C targets		48.2	6.00	
5800	2012-09-12	7.27	46.3	6.07	21.0

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
782	Recommended value	41.9	0.92	
	± 5% window	39.8 – 44.0	0.87 – 0.97	
	2012-08-31	39.8	0.91	21.0
	2012-09-13	40.2	0.95	21.0
836	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2012-08-30	40.7	0.91	21.0
	2012-09-17	39.9	0.87	21.0
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2012-09-15	39.4	1.41	21.0
	2012-09-17	38.9	1.36	21.0
	2012-10-01	39.4	1.40	21.0
2437	Recommended value	39.2	1.79	
	± 5% window	37.3 – 41.2	1.70 – 1.88	
	2012-09-05	38.3	1.80	21.0
	2012-10-04	37.7	1.76	21.0

(Head tissue simulant Table continues)

(Head tissue simulant Table continues)

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	36.1	4.67	
	± 5% window	34.3 – 37.9	4.44 – 4.90	
5210	2012-09-10	34.7	4.46	21.0
	Recommended value	36.0	4.75	
	± 5% window	34.2 – 37.8	4.51 – 4.99	
5290	2012-09-10	34.6	4.53	21.0
	Recommended value	35.6	5.07	
	± 5% window	33.8 – 37.4	4.82 – 5.32	
5600	2012-09-10	34.1	4.84	21.0
	Recommended value	35.4	5.25	
	± 5% window	33.6 – 37.2	4.99 – 5.51	
5785	2012-09-09	34.0	5.05	21.0

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
782	Recommended value	55.4	0.99	
	± 5% window	52.6 – 58.2	0.94 – 1.04	
	2012-08-31	53.1	1.01	21.0
	2012-09-13	53.7	1.03	21.0
835	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2012-09-15	54.4	0.97	21.0
836	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2012-08-31	53.2	0.99	21.0
	2012-09-15	54.5	0.97	21.0
1880	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
	2012-09-14	51.6	1.51	21.0
	2012-09-18	52.0	1.48	21.0
	2012-09-26	52.2	1.56	21.0
2437	Recommended value	52.7	1.94	
	± 5% window	50.1 – 55.3	1.85 – 2.04	
	2012-09-07	50.9	1.95	21.0

(Body tissue simulant table continues)

(Body tissue simulant table continues)

f [MHz]	Description	Dielectric Parameters ε_r	Dielectric Parameters σ [S/m]	Temp [°C]
	Recommended value	49.0	5.31	
	± 5% window	46.6 – 51.5	5.04 – 5.58	
5210	2012-09-11	48.1	5.41	21.0
	Recommended value	48.9	5.40	
	± 5% window	46.4 – 51.3	5.13 – 5.67	
5290	2012-09-11	48.0	5.51	21.0
	Recommended value	4.85	5.77	
	± 5% window	46.0 – 50.9	5.48 – 6.06	
5600	2012-09-10	47.7	6.01	21.0
	Recommended value	48.2	5.98	
	± 5% window	45.8 – 50.6	5.68 – 6.28	
5785	2012-09-12	46.4	6.08	21.0

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” position on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2003 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.2.2 Body Worn Configuration

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

Nokia body-worn accessories are commonly available for the separation distance used in this testing.

5.3 Wireless Router Configuration

The device was placed in the SPEAG holder using the Nokia spacer and positioned 10.0mm away from the flat phantom. The spacer was removed before the start of the measurements.

5.4 Scan Procedures

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

5.5 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	c_i	$c_i . u_i$ (%)	v_i
Measurement System							
Probe Calibration	E2.1	±6.55	N	1	1	±6.55	∞
Axial Isotropy	E2.2	±4.7	R	√3	$(1-c_p)^{1/2}$	±1.9	∞
Hemispherical Isotropy	E2.2	±9.6	R	√3	$(c_p)^{1/2}$	±3.9	∞
Boundary Effect	E2.3	±1.0	R	√3	1	±0.6	∞
Linearity	E2.4	±4.7	R	√3	1	±2.7	∞
System Detection Limits	E2.5	±1.0	R	√3	1	±0.6	∞
Readout Electronics	E2.6	±1.0	N	1	1	±1.0	∞
Response Time	E2.7	±0.8	R	√3	1	±0.5	∞
Integration Time	E2.8	±2.6	R	√3	1	±1.5	∞
RF Ambient Conditions - Noise	E6.1	±3.0	R	√3	1	±1.7	∞
RF Ambient Conditions - Reflections	E6.1	±3.0	R	√3	1	±1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	±0.4	R	√3	1	±0.2	∞
Probe Positioning with respect to Phantom Shell	E6.3	±2.9	R	√3	1	±1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5	±3.9	R	√3	1	±2.3	∞
Test sample Related							
Test Sample Positioning	E4.2	±6.0	N	1	1	±6.0	11
Device Holder Uncertainty	E4.1	±5.0	N	1	1	±5.0	7
Output Power Variation - SAR drift measurement	6.6.3	±0.0	R	√3	1	±0.0	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	±4.0	R	√3	1	±2.3	∞
Conductivity Target - tolerance	E3.2	±5.0	R	√3	0.64	±1.8	∞
Conductivity - measurement uncertainty	E3.3	±5.5	N	1	0.64	±3.5	5
Permittivity Target - tolerance	E3.2	±5.0	R	√3	0.6	±1.7	∞
Permittivity - measurement uncertainty	E3.3	±2.9	N	1	0.6	±1.7	5
Combined Standard Uncertainty			RSS			**±13.2**	116
Coverage Factor for 95%			**k=2**				
Expanded Uncertainty						**±26.4**	

7. RESULTS

7.1 The measured Head SAR values for the test device

LTE750 Band Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			-	Ch 23230 782.0 MHz	-
QPSK	Conducted Average Power		-	22.54 dBm	-
10MHz Ch BW 100% RB**	Left	Cheek	-	0.292	-
		Tilt	-	0.167	-
	Right	Cheek	-	0.489	-
		Tilt	-	0.197	-
QPSK	Conducted Average Power		-	22.71 dBm	-
10MHz Ch BW 50% RB 50% offset**	Left	Cheek	-	0.309	-
		Tilt	-	0.137	-
	Right	Cheek	-	0.519	-
		Tilt	-	0.208	-
QPSK	Conducted Average Power		-	23.52 dBm	-
10MHz Ch BW 1 RB 50% offset**	Left	Cheek	-	0.374	-
		Tilt	-	0.166	-
	Right	Cheek	-	0.627	-
		Tilt	-	0.250	-
QPSK	Conducted Average Power		-	22.94 dBm	-
10MHz Ch BW 1 RB 100% offset**	Left	Cheek	-	0.266	-
		Tilt	-	0.116	-
	Right	Cheek		0.468	
		Tilt	-	0.187	-
QPSK	Conducted Average Power		-	23.35 dBm	-
10MHz Ch BW 1 RB 0% offset**	Left	Cheek	-	0.310	-
		Tilt	-	0.144	-
	Right	Cheek	-	0.523	-
		Tilt	-	0.196	-

(LTE750 Table continues)

(LTE750 Table continues)

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			-	Ch 23230 782.0 MHz	-
16QAM	**Conducted Average Power**		**-**	**21.61 dBm**	**-**
10MHz Ch BW 100% RB**	Left	Cheek	-	0.224	-
		Tilt	-	0.101	-
	Right	Cheek	**-**	0.400	**-**
		Tilt	-	0.175	-
16QAM	**Conducted Average Power**		**-**	**21.78 dBm**	**-**
10MHz Ch BW 50% RB 50% offset**	Left	Cheek	-	0.241	-
		Tilt	-	0.142	-
	Right	Cheek	**-**	0.413	**-**
		Tilt	-	0.185	-
16QAM	**Conducted Average Power**		**-**	**22.40 dBm**	**-**
10MHz Ch BW 1 RB 50% offset**	Left	Cheek	-	0.295	-
		Tilt	-	0.175	-
	Right	Cheek	**-**	0.508	**-**
		Tilt	-	0.212	-
16QAM	**Conducted Average Power**		**-**	**21.88 dBm**	**-**
10MHz Ch BW 1 RB 100% offset**	Left	Cheek	-	0.214	-
		Tilt	-	0.133	-
	Right	Cheek	**-**	0.378	**-**
		Tilt	-	0.160	-
16QAM	**Conducted Average Power**		**-**	**22.21 dBm**	**-**
10MHz Ch BW 1 RB 0% offset**	Left	Cheek	-	0.249	-
		Tilt	-	0.137	-
	Right	Cheek	**-**	0.434	**-**
		Tilt	-	0.240	-
QPSK 10MHz Ch BW 1 RB 50% offset Back cover CC-3059	Right Cheek		-	0.614	-

5MHz Channel Bandwidth has a maximum time-averaged output power < 0.5dB above the maximum time-averaged output power in 10MHz Channel Bandwidth. Therefore, according to KDB 941225 D05 SAR for LTE Devices v01, no SAR testing was required for the 5MHz Channel Bandwidth as no SAR value for 10MHz Channel Bandwidth exceeded 1.45W/kg.

CDMA800 Band Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 1013 824.7 MHz	Ch 384 836.5 MHz	Ch 777 848.3 MHz
RC3 / SO55**	Conducted Average Power		23.54 dBm	23.40 dBm	23.50 dBm
	Left	Cheek	0.672	**0.708**	0.706
		Tilt	-	0.456	-
	Right	Cheek	-	0.556	-
		Tilt	-	0.460	-
RC3 / SO55 Back cover CC-3059	Left Cheek		0.614	0.671	0.651

850MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM**	Conducted Average Power		-	31.90 dBm	-
	Left	Cheek	-	0.739	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS**	Conducted Average Power		29.90 dBm	29.90 dBm	29.60 dBm
	Left	Cheek	0.681	0.785	0.784
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS**	Conducted Average Power		28.00 dBm	28.20 dBm	27.70 dBm
	Left	Cheek	0.655	0.856	0.883
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS**	Conducted Average Power		26.90 dBm	26.60 dBm	26.50 dBm
	Left	Cheek	0.716	0.818	**0.904**
		Tilt	-	0.463	-
	Right	Cheek	-	0.665	-
		Tilt	-	0.420	-

(850MHz Table continues)

(850MHz Table continues)

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
4-slot 8PSK EGPRS**	**Conducted Average Power**		**-**	**-**	**25.6 dBm**
	Left	Cheek	-	-	0.617
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	**Test configuration**		**SAR, averaged over 1g (W/kg)**		
			Ch 4132 826.4 MHz	**Ch 4175 835.0 MHz**	**Ch 4233 846.6 MHz**
WCDMA**	**Conducted Average Power**		**23.20 dBm**	**23.25 dBm**	**23.33 dBm**
	Left	Cheek	0.557	**0.628**	0.592
		Tilt	-	0.402	-
	Right	Cheek	-	0.487	-
		Tilt	-	0.411	-
4-slot GPRS Back cover CC-3059	Left Cheek		0.654	0.772	0.796

CDMA1900 Band Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 25 1851.3 MHz	Ch 600 1880.0 MHz	Ch 1175 1908.8 MHz
RC3 / SO55**	**Conducted Average Power**		**23.00 dBm**	**23.20 dBm**	**23.10 dBm**
	Left	Cheek	**1.03**	0.991	0.960
		Tilt	-	0.424	-
	Right	Cheek	0.746	0.833	0.728
		Tilt	-	0.540	-
RC3 / SO55 Back cover CC-3059	Left Cheek		1.01	1.03	0.870

1900MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM**	**Conducted Average Power**		**-**	**29.3 dBm**	**-**
				0.504	
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS**	**Conducted Average Power**		**26.7 dBm**	**26.7 dBm**	**26.4 dBm**
	Left	Cheek	**0.608**	0.576	0.527
		Tilt	-	0.205	-
	Right	Cheek	-	0.400	-
		Tilt	-	0.304	-
3-slot GPRS**	**Conducted Average Power**		**-**	**24.9 dBm**	**-**
	Left	Cheek	-	0.554	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS**	**Conducted Average Power**		**-**	**23.7 dBm**	**-**
	Left	Cheek	-	0.569	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot 8PSK EGPRS**	**Conducted Average Power**		**23.9 dBm**	**23.8 dBm**	**23.6 dBm**
	Left	Cheek	0.315	-	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	**Test configuration**		**SAR, averaged over 1g (W/kg)**		
			Ch 9262 1852.4 MHz	**Ch 9400 1880.0 MHz**	**Ch 9538 1907.6 MHz**
WCDMA**	**Conducted Average Power**		**23.08 dBm**	**23.05 dBm**	**22.94 dBm**
	Left	Cheek	0.953	**0.987**	0.838
		Tilt	-	0.344	-
	Right	Cheek	-	0.691	-
		Tilt	-	0.490	-
WCDMA Back cover CC-3059	Left Cheek		0.813	0.813	0.704

2450MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 6 2437.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode**	Conducted Average Power		17.71 dBm	17.85 dBm	17.85 dBm
DSSS 5.5 Mbps	Left	Cheek	-	0.227	-
		Tilt	-	0.245	-
	Right	Cheek	0.446	0.577	**0.639**
		Tilt	-	0.168	-
WLAN b-mode DSSS 5.5 Mbps Back cover CC-3059	Right Cheek		0.667	**0.691**	0.555

5000MHz Head SAR results
5150–5250 MHz and 5250–5350 MHz

Mode	Test configuration		SAR, averaged over 1g (W/kg)			
			Ch 36 5180.0 MHz	Ch 44 5220.0 MHz	Ch 56 5280.0 MHz	Ch 64 5320.0 MHz
WLAN a-mode**	Conducted Average Power		11.83 dBm	11.84 dBm	11.85 dBm	11.77 dBm
OFDM 6 Mbps	Left	Cheek	0.133	0.114	0.126	0.118
		Tilt	0.025	-	0.037	-
	Right	Cheek	**0.226**	-	**0.259**	-
		Tilt	0.061	-	0.058	-
WLAN a-mode: OFDM 6 Mbps Back cover CC-3059	Right Cheek		0.229	-	0.229	-

5000MHz Head SAR results
5470–5725 MHz

Mode	Test configuration		SAR, averaged over 1g (W/kg)			
			Ch 100 5500.0 MHz	Ch 120 5600.0 MHz	Ch 124 5620.0 MHz	Ch 136 5680.0 MHz
WLAN a-mode**	**Conducted Average Power**		**12.11 dBm**	**12.00 dBm**	**12.00 dBm**	**11.98 dBm**
OFDM 6 Mbps	Left	Cheek	0.080	0.060	0.059	0.061
		Tilt	0.051	-	-	-
	Right	Cheek	**0.237**	-	-	-
		Tilt	0.070	-	-	-
WLAN n-mode**	**Conducted Average Power**		**-**	**-**	**12.27 dBm**	**-**
MCS 3 OFDM 26.0 / 28.9 Mbps	Left	Cheek	-	-	-	-
		Tilt	-	-	-	-
	Right	Cheek	-	-	0.158	-
		Tilt	-	-	-	-
WLAN a-mode: OFDM 6 Mbps Back cover CC-3059	Right Cheek		0.201	-	-	-

5000MHz Head SAR results
5725–5850 MHz

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 153 5765.0 MHz	Ch 157 5785.0 MHz	Ch 161 5805.0 MHz
WLAN a-mode**	**Conducted Average Power**		**12.04 dBm**	**11.98 dBm**	**11.96 dBm**
OFDM 6 Mbps	Left	Cheek	0.059	0.064	0.067
		Tilt	-	-	0.047
	Right	Cheek	-	-	**0.153**
		Tilt	-	-	0.057
WLAN a-mode: OFDM 6 Mbps Back cover CC-3059	Right Cheek		-	-	0.133

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results								
	WLAN 2450	WLAN 5000	LTE 750	CDMA 800	4-slot GPRS 850	WCDMA 850	CDMA 1900	2-slot GPRS 1900	WCDMA 1900
Head: Left, Cheek	0.227**	0.133**	0.374**	0.708**	0.904**	0.628**	1.03**	0.608**	0.987**
Head: Left, Tilt	0.245**	0.051**	0.175**	0.456**	0.463**	0.402**	0.424**	0.205**	0.344**
Head: Right, Cheek	0.691	0.259**	0.627**	0.556**	0.665**	0.487**	0.833**	0.400**	0.691**
Head: Right, Tilt	0.168**	0.070**	0.250**	0.460**	0.420**	0.411**	0.540**	0.304**	0.490**

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

Test configuration	Max. 1g SAR results						
	LTE750 + WLAN2450	CDMA800 + WLAN2450	4-slot GPRS850 + WLAN2450	WCDMA 850 + WLAN2450	CDMA1900 + WLAN2450	2-slot GPRS1900 + WLAN2450	WCDMA 1900 + WLAN2450
Head: Left, Cheek	0.601**	0.935**	1.131**	0.855**	1.257**	0.835**	1.214**
Head: Left, Tilt	0.420**	0.701**	0.708**	0.647**	0.669**	0.450**	0.589**
Head: Right, Cheek	**1.318**	**1.247**	**1.356**	**1.178**	**1.524**	**1.091**	**1.382**
Head: Right, Tilt	0.418**	0.628**	0.588**	0.579**	0.708**	0.472**	0.658**
Test configuration	**Max. 1g SAR results**						
	LTE750 + WLAN5000	**CDMA800 + WLAN5000**	**4-slot GPRS850 + WLAN5000**	**WCDMA 850 + WLAN5000**	**CDMA 1900 + WLAN5000**	**2-slot GPRS1900 + WLAN5000**	**WCDMA 1900 + WLAN5000**
Head: Left, Cheek	0.507**	**0.841****	**1.037****	**0.761****	**1.163****	**0.741****	**1.120****
Head: Left, Tilt	0.226**	0.507**	0.514**	0.453**	0.475**	0.256**	0.395**
Head: Right, Cheek	**0.886****	0.815**	0.924**	0.746**	1.092**	0.659**	0.950**
Head: Right, Tilt	0.320**	0.530**	0.490**	0.481**	0.610**	0.374**	0.560**

The CDMA1900+WLAN2450 Simultaneous Head SAR value for Right Cheek test configuration is 1.524W/kg which, when scaled up by 12%, becomes 1.707W/kg i.e. > 1.6W/kg. However, as the separation distance between the SAR peaks is 7.03 cm, the Antenna Pair SAR to Peak Separation Ratio is 1.707/ 7.03 = 0.24 i.e. < 0.3, hence Simultaneous Transmission Procedures as described in KDB648474 are not required.

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 or WLAN5000 and the cellular bands point-by-point and c) calculates the combined average SAR values.

Simultaneous transmissions: Combined head SAR results – SPEAG Combined Multiband algorithm results

Test configuration	Max. 1g SAR results						
	LTE750 + WLAN2450	CDMA800 + WLAN2450	4-slot GPRS850 + WLAN2450	WCDMA 850 + WLAN2450	CDMA1900 + WLAN2450	2-slot GPRS1900 + WLAN2450	WCDMA 1900 + WLAN2450
Head: Left, Cheek	-	-	-	-	-	-	-
Head: Left, Tilt	-	-	-	-	-	-	-
Head: Right, Cheek	0.805	0.926	0.921	0.885	0.989	0.915	0.993
Head: Right, Tilt	-	-	-	-	-	-	--
Test configuration	**Max. 1g SAR results**						
	LTE750 + WLAN5000	CDMA800 + WLAN5000	4-slot GPRS850 + WLAN5000	WCDMA 850 + WLAN5000	CDMA1900 + WLAN5000	2-slot GPRS1900 + WLAN5000	WCDMA 1900 + WLAN5000
Head: Left, Cheek	-	0.734**	0.901**	0.635**	1.04**	0.638**	0.945**
Head: Left, Tilt	-	-	-	-	-	-	-
Head: Right, Cheek	0.581**	-	-	-	-	-	-
Head: Right, Tilt	-	-	-	-	-	-	-

** SAR data taken from FCC_RM-845_05.

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 or WLAN5000 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

7.2 The measured Body SAR values for the test device

LTE750 Band Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			-	Ch 23230 782.0 MHz	-
QPSK	Conducted Average Power		-	22.54 dBm	-
10MHz Ch BW 100% RB **	Back facing phantom	Without headset	-	0.356	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
QPSK	Conducted Average Power		-	22.71 dBm	-
10MHz Ch BW 50% RB 50% offset**	Back facing phantom	Without headset	-	0.374	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
QPSK	Conducted Average Power		-	23.52 dBm	-
10MHz Ch BW 1RB 50% offset**	Back facing phantom	Without headset	-	0.452	-
		Headset WH-902	-	0.421	-
	Display facing phantom	Without headset	-	0.287	-
		Headset WH-902	-	0.228	-
QPSK	Conducted Average Power		-	22.94 dBm	-
10MHz Ch BW 1RB 100% offset**	Back facing phantom	Without headset	-	0.358	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
QPSK	Conducted Average Power		-	23.35 dBm	-
10MHz Ch BW 1RB 0% offset**	Back facing phantom	Without headset	-	0.376	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-

(LTE750 table continues)

(LTE750 table continues)

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			-	Ch 23230 782.0 MHz	-
16QAM	**Conducted Average Power**		**-**	**21.61 dBm**	**-**
10MHz Ch BW 100% RB**	Back facing phantom	Without headset	-	0.269	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
16QAM	**Conducted Average Power**		**-**	**21.78 dBm**	**-**
10MHz Ch BW 50% RB 50% offset**	Back facing phantom	Without headset	-	0.281	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
16QAM	**Conducted Average Power**		**-**	**22.40 dBm**	**-**
10MHz Ch BW 1RB 50% offset**	Back facing phantom	Without headset	-	0.349	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
16QAM	**Conducted Average Power**		**-**	**21.88 dBm**	**-**
10MHz Ch BW 1RB 100% offset**	Back facing phantom	Without headset	-	0.273	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
16QAM	**Conducted Average Power**		**-**	**22.21 dBm**	**-**
10MHz Ch BW 1RB 0% offset**	Back facing phantom	Without headset	-	0.334	-
		Headset WH-902	-	-	-
	Display facing phantom	Without headset	-	-	-
		Headset WH-902	-	-	-
QPSK 10MHz Ch BW 1RB 50% offset Back cover CC-3059	Back facing phantom	Without headset	-	**0.645**	-

CDMA800 Band Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 1013 824.7 MHz	Ch 384 836.5 MHz	Ch 777 848.3 MHz
RC3 / SO55**	Conducted Average Power		23.54 dBm	23.40 dBm	23.50 dBm
	Back facing phantom	Without headset	0.523	**0.546**	0.496
		Headset WH-902	-	0.446	-
	Display facing phantom	Without headset	-	0.534	-
		Headset WH-902	-	0.420	-
RC3 / SO55 Back cover CC-3059	Back facing phantom	Without headset	0.366	0.359	0.298

850MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
4-slot GPRS**	Conducted Average Power		26.90 dBm	26.60 dBm	26.50 dBm
	Back facing phantom	Without headset	-	0.574	-
		Headset WH-902	-	0.457	-
	Display facing phantom	Without headset	0.605	**0.635**	0.631
		Headset WH-902	-	0.464	-
Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA**	Conducted Average Power		23.20 dBm	23.25 dBm	23.33 dBm
	Back facing phantom	Without headset	0.562	**0.643**	0.541
		Headset WH-902	-	0.549	-
	Display facing phantom	Without headset	-	0.621	-
		Headset WH-902	-	0.478	-
WCDMA Back cover CC-3059	Back facing phantom	Without headset	0.303	0.326	0.286

CDMA1900 Band Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 25 1851.3 MHz	Ch 600 1880.0 MHz	Ch 1175 1908.8 MHz
RC3 / SO55**	Conducted Average Power		23.00 dBm	23.20 dBm	23.10 dBm
	Back facing phantom	Without headset	-	0.681	-
		Headset WH-902	-	0.692	-
	Display facing phantom	Without headset	-	0.704	-
		Headset WH-902	0.677	**0.719**	0.716
RC3 / SO55 Back cover CC-3059	Diplay facing phantom	Headset WH-902	0.684	**0.734**	0.653

1900MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot GPRS**	Conducted Average Power		26.7 dBm	26.7 dBm	26.4 dBm
	Back facing phantom	Without headset	-	0.366	-
		Headset WH-902	-	0.349	-
	Display facing phantom	Without headset	-	0.388	-
		Headset WH-902	0.389	**0.393**	0.386
Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA**	Conducted Average Power		23.08 dBm	23.05 dBm	22.94 dBm
	Back facing phantom	Without headset	-	0.607	-
		Headset WH-902	-	0.621	-
	Display facing phantom	Without headset	-	0.624	-
		Headset WH-902	0.606	0.625	**0.629**
WCDMA Back cover CC-3059	Diplay facing phantom	Without headset	0.472	0.468	0.433

2450MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 6 2437.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode**	**Conducted Average Power**		**17.71 dBm**	**17.85 dBm**	**17.85 dBm**
DSSS 5.5 Mbps	Back facing phantom	Without headset	-	0.091	-
		Headset WH-902	0.082	0.102	**0.130**
	Display facing phantom	Without headset	-	0.072	-
		Headset WH-902	-	0.062	-
WLAN b-mode DSSS 5.5 Mbps Back cover CC-3059	Back facing phantom	Headset WH-902	0.089	0.117	0.130

5000MHz Body SAR results
5150–5250 MHz and 5250–5350 MHz

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)			
			Ch 36 5180.0 MHz	Ch 44 5220.0 MHz	Ch 56 5280.0 MHz	Ch 64 5320.0 MHz
WLAN a-mode**	**Conducted Average Power**		**11.83 dBm**	**11.84 dBm**	**11.85 dBm**	**11.77 dBm**
OFDM 6 Mbps	Back facing phantom	Without headset	0.085	**0.089**	0.086	**0.089**
		Headset WH-902	-	0.089	-	0.088
	Display facing phantom	Without headset	-	0.034	-	0.026
		Headset WH-902	-	0.033	-	0.028
WLAN a-mode: OFDM 6 Mbps Back cover CC-3059	Back facing phantom	Without headset	-	0.082	-	0.076

5000MHz Body SAR results
5470–5725 MHz

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)			
			Ch 100 5500.0 MHz	Ch 120 5600.0 MHz	Ch 124 5620.0 MHz	Ch 136 5680.0 MHz
WLAN a-mode**	**Conducted Average Power**		**12.11 dBm**	**12.00 dBm**	**12.00 dBm**	**11.98 dBm**
OFDM 6 Mbps	Back facing phantom	Without headset	**0.088**	0.083	0.080	0.076
		Headset WH-902	0.084	-	-	-
	Display facing phantom	Without headset	0.037	-	-	-
		Headset WH-902	0.031	-	-	-
WLAN n-mode**	**Conducted Average Power**		**- dBm**	**- dBm**	**12.27 dBm**	**- dBm**
MCS 3 OFDM 26.0 / 28.9 Mbps	Back facing phantom	Without headset	-	-	0.075	-
		Headset WH-902	-	-	-	-
	Display facing phantom	Without headset	-	-	-	-
		Headset WH-902	-	-	-	-
WLAN a-mode: OFDM 6 Mbps Back cover CC-3059	Back facing phantom	Without headset	0.080	-	-	-

5000MHz Body SAR results
5725–5850 MHz

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 153 5765.0 MHz	Ch 157 5785.0 MHz	Ch 161 5805.0 MHz
WLAN a-mode**	**Conducted Average Power**		**12.04 dBm**	**11.98 dBm**	**11.96 dBm**
OFDM 6 Mbps	Back facing phantom	Without headset	0.053	**0.061**	0.059
		Headset WH-902	-	0.054	-
	Display facing phantom	Without headset	-	0.030	-
		Headset WH-902	-	0.022	-
WLAN a-mode: OFDM 6 Mbps Back cover CC-3059	Back facing phantom	Without headset	-	0.047	-

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

Test configuration	Max. 1g SAR results								
	WLAN 2450	WLAN 5000**	LTE 750	CDMA 800	4-slot GPRS 850	WCDMA 850	CDMA 1900	2-slot GPRS 1900	WCDMA 1900
Body: Back facing phantom, Without Headset	0.091**	0.089**	0.645	0.546**	0.574**	0.643**	0.681**	0.366**	0.607**
Body: Back facing phantom, Headset WH-902	0.130**	0.089**	0.421**	0.446**	0.457**	0.549**	0.692**	0.349**	0.621**
Body: Display facing phantom, Without Headset	0.072**	0.037**	0.287**	0.534**	0.635**	0.621**	0.704**	0.388**	0.624**
Body: Display facing phantom, Headset WH-902	0.062**	0.033**	0.228**	0.420**	0.464**	0.478**	0.734	0.393**	0.629**

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

Test configuration	Max. 1g SAR results						
	LTE750 + WLAN 2450	CDMA800 + WLAN 2450	4-slot GPRS850 + WLAN 2450	WCDMA850 + WLAN 2450	CDMA1900 + WLAN 2450	2-slot GPRS1900 + WLAN 2450	WCDMA1900 + WLAN 2450
Body: Back facing hantom, Without Headset	**0.736**	**0.637****	0.665**	**0.734****	0.772**	0.457**	0.698**
Body: Back facing phantom, Headset WH-902	0.551**	0.576**	0.587**	0.679**	**0.822****	**0.479****	**0.751****
Body: Display facing phantom, Without Headset	0.359**	0.606**	**0.707****	0.693**	0.776**	0.460**	0.696**
Body: Display facing phantom, Headset WH-902	0.290**	0.482**	0.526**	0.540**	0.796	0.455**	0.691**
Test configuration	**Max. 1g SAR results**						
	LTE750 + WLAN 5000	CDMA800 + WLAN 5000	4-slot GPRS850 + WLAN 5000	WCDMA850 + WLAN 5000	CDMA1900 + WLAN 5000	2-slot GPRS1900 + WLAN 5000	WCDMA1900 + WLAN 5000
Body: Back facing hantom, Without Headset	**0.734**	0.635**	0.663**	**0.732****	0.770**	**0.455****	0.696**
Body: Back facing phantom, Headset WH-902	0.510**	0.535**	0.546**	0.638**	**0.781****	0.438**	**0.710****
Body: Display facing phantom, Without Headset	0.324**	**0.571****	**0.672****	0.658**	0.741**	0.425**	0.661**
Body: Display facing phantom, Headset WH-902	0.261**	0.453	0.497**	0.511**	0.767	0.426**	0.662**

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 or WLAN5000 and the cellular bands point-by-point and c) calculates the combined average SAR values.

Simultaneous transmissions: Combined body SAR results – SPEAG Combined Multiband algorithm results

Test configuration	Max. 1g SAR results						
	LTE750 + WLAN 2450	CDMA800 + WLAN 2450	4-slot GPRS850 + WLAN 2450	WCDMA850 + WLAN 2450	CDMA1900 + WLAN 2450	2-slot GPRS1900 + WLAN 2450	WCDMA1900 + WLAN 2450
Body: Back facing hantom, Without Headset	0.638	0.597**	-	0.695**	-	-	-
Body: Back facing phantom, Headset WH-902	-	-	-	-	0.787**	0.462**	0.711**
Body: Display facing phantom, Without Headset	-	-	0.642**	-	-	-	-
Body: Display facing phantom, Headset WH-902	-	-	-	-	-	-	-
Test configuration	**Max. 1g SAR results**						
	LTE750 + WLAN 5000	CDMA800 + WLAN 5000	4-slot GPRS850 + WLAN 5000	WCDMA850 + WLAN 5000	CDMA1900 + WLAN 5000	2-slot GPRS1900 + WLAN 5000	WCDMA1900 + WLAN 5000
Body: Back facing hantom, Without Headset	0.634	0.592**	-	0.677**	-	0.392**	-
Body: Back facing phantom, Headset WH-902	-	-	-	-	0.715**	-	0.651**
Body: Display facing phantom, Without Headset	-	-	0.641**	-	-	-	-
Body: Display facing phantom, Headset WH-902	-	-	-	-	-	-	-

** SAR data taken from FCC_RM-845_05.

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 or WLAN5000 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

7.3 Body SAR assessment of Wireless Router mode at 10.0mm separation distance

LTE750 Wireless Router SAR results

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		-	Ch 23230 782.0 MHz	-
QPSK**	**Conducted Average Power**	**-**	**21.71 dBm**	**-**
10MHz Ch BW 100% RB	Back facing phantom	-	0.532	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
QPSK**	**Conducted Average Power**	**-**	**21.86 dBm**	**-**
10MHz Ch BW 50% RB 50% offset	Back facing phantom	-	0.571	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
QPSK**	**Conducted Average Power**	**-**	**23.12 dBm**	**-**
10MHz Ch BW 1RB 50% offset	Back facing phantom	-	**0.766**	-
	Display facing phantom	-	0.342	-
	Top edge facing phantom	-	0.022	-
	Bottom edge facing phantom	-	0.073	-
	Left edge facing phantom	-	0.116	-
	Right edge facing phantom	-	0.745	-

(LTE750 table continues)

(LTE750 table continues)

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		-	Ch 23230 782.0 MHz	-
QPSK**	**Conducted Average Power**	**-**	**22.48 dBm**	**-**
10MHz Ch BW 1RB 100% offset	Back facing phantom	-	0.580	-
	Display facing phantom			
	Top edge facing phantom	-		-
	Bottom edge facing phantom	-		-
	Left edge facing phantom	-		-
	Right edge facing phantom	-		-
QPSK**	**Conducted Average Power**	**-**	**22.84 dBm**	**-**
10MHz Ch BW 1RB 0% offset	Back facing phantom	-	0.633	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
16QAM**	**Conducted Average Power**	**-**	**20.71 dBm**	**-**
10MHz Ch BW 100% RB	Back facing phantom	-	0.435	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-

(LTE750 table continues)

(LTE750 table continues)

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		-	Ch 23230 782.0 MHz	-
16QAM**	**Conducted Average Power**	**-**	**20.93 dBm**	**-**
10MHz Ch BW 50% RB 50% offset	Back facing phantom	-	0.475	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
16QAM**	**Conducted Average Power**	**-**	**21.61 dBm**	**-**
10MHz Ch BW 1RB 50% offset	Back facing phantom	-	0.635	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
16QAM**	**Conducted Average Power**	**-**	**21.05 dBm**	**-**
10MHz Ch BW 1RB 100% offset	Back facing phantom	-	0.499	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-

(LTE750 table continues)

(LTE750 table continues)

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		-	Ch 23230 782.0 MHz	-
16QAM**	**Conducted Average Power**	**-**	**21.38 dBm**	**-**
10MHz Ch BW 1RB 0% offset	Back facing phantom	-	0.533	-
	Display facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
QPSK 10MHz Ch BW 1RB 50% offset Back cover CC-3059	Back facing phantom	-	0.715	-

CDMA800 Band Wireless Router SAR results

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1013 824.7 MHz	Ch 384 836.5 MHz	Ch 777 848.3 MHz
RC3 / SO55**	**Conducted Average Power**	**23.54 dBm**	**23.40 dBm**	**23.50 dBm**
	Back facing phantom	**0.810**	0.678	0.568
	Display facing phantom	-	0.613	-
	Top edge facing phantom	-	0.032	-
	Bottom edge facing phantom	-	0.141	-
	Left edge facing phantom	-	0.665	-
	Right edge facing phantom	-	0.252	-
RC3 / SO55 Back cover CC-3059	Back facing phantom	0.545	0.477	0.441

850MHz Wireless Router SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
4-slot GPRS**	**Conducted Power**	**26.90 dBm**	**26.60 dBm**	**26.50 dBm**
	Back facing phantom	-	0.657	-
	Display facing phantom	0.690	**0.764**	0.757
	Top edge facing phantom	-	0.044	-
	Bottom edge facing phantom	-	0.150	-
	Left edge facing phantom	-	0.605	-
	Right edge facing phantom	-	0.264	-
Option used	**Device orientation**	**SAR, averaged over 1g (W/kg)**		
		Ch 4132 826.4 MHz	**Ch 4175 835.0 MHz**	**Ch 4233 846.6 MHz**
WCDMA**	**Conducted Power**	**23.20 dBm**	**23.25 dBm**	**23.33 dBm**
	Back facing phantom	-	0.642	-
	Display facing phantom	-	0.613	-
	Top edge facing phantom	-	0.036	-
	Bottom edge facing phantom	-	0.117	-
	Left edge facing phantom	0.672	0.675	**0.681**
	Right edge facing phantom	-	0.330	-
4-slot GPRS Back cover CC-3059	Display facing phantom	0.669	0.689	0.671

CDMA1900 Band Wireless Router SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 25 1851.3 MHz	Ch 600 1880.0 MHz	Ch 1175 1908.8 MHz
RC3 / SO55**	**Conducted Power**	**22.50 dBm**	**22.60 dBm**	**22.60 dBm**
	Back facing phantom	1.03	**1.06**	0.981
	Display facing phantom	0.928	0.988	0.935
	Top edge facing phantom	-	0.063	-
	Bottom edge facing phantom	-	0.686	-
	Left edge facing phantom	-	0.204	-
	Right edge facing phantom	-	0.290	-
RC3 / SO55 Back cover CC-3059	Back facing phantom	0.878	0.884	0.806

1900MHz Wireless Router SAR results

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot GPRS**	Conducted Average Power	26.7 dBm	26.7 dBm	26.4 dBm
	Back facing phantom	0.674	**0.674**	0.595
	Display facing phantom	-	0.653	-
	Top edge facing phantom	-	0.049	-
	Bottom edge facing phantom	-	0.460	-
	Left edge facing phantom	-	0.146	-
	Right edge facing phantom	-	0.173	-
Mode	**Device orientation**	**SAR, averaged over 1g (W/kg)**		
		Ch 9262 1852.4 MHz	**Ch 9400 1880.0 MHz**	**Ch 9538 1907.6 MHz**
WCDMA**	Maximum Output Power	22.15 dBm	22.11 dBm	21.86 dBm
	Back facing phantom	0.769	**0.803**	0.683
	Display facing phantom	-	0.760	-
	Top edge facing phantom	-	0.067	-
	Bottom edge facing phantom	-	0.662	-
	Left edge facing phantom	-	0.217	-
	Right edge facing phantom	-	0.239	-
WCDMA Back cover CC-3059	Back facing phantom	0.761	0.712	0.624

2450MHz Wireless Router SAR results

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1 2412.0 MHz	Ch 6 2437.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode**	**Conducted Power**	**17.71 dBm**	**17.85 dBm**	**17.85 dBm**
DSSS 5.5 Mbps	Back facing phantom	0.180	0.230	**0.258**
	Display facing phantom	-	0.132	-
	Top edge facing phantom	-	0.077	-
	Bottom edge facing phantom	-	0.021	-
	Left edge facing phantom	-	0.194	-
	Right edge facing phantom	-	0.012	-
WLAN b-mode DSSS 5.5 Mbps Back cover CC-3059	Back facing phantom	0.167	0.237	**0.281**

Simultaneous transmissions: Combined Wireless Router SAR results – Individual band Max results

Test configuration	Max. 1g SAR results							
	WLAN 2450	LTE 750	CDMA 800	4-slot GPRS 850	WCDMA 850	CDMA 1900	2-slot GPRS 1900	WCDMA 1900
WR: Back facing phantom	0.281	0.766**	0.810**	0.657**	0.642**	1.06**	0.674**	0.803**
WR: Display facing phantom	0.132**	0.342**	0.613**	0.764**	0.613**	0.988**	0.653**	0.760**
WR: Top edge facing phantom	0.077**	0.022**	0.032**	0.044**	0.036**	0.063**	0.049**	0.067**
WR: Bottom edge facing phantom	0.021**	0.073**	0.141**	0.150**	0.117**	0.686**	0.460**	0.662**
WR: Left edge facing phantom	0.194**	0.116**	0.665**	0.605**	0.681**	0.204**	0.146**	0.217**
WR: Right edge facing phantom	0.012**	0.745**	0.252**	0.264**	0.330**	0.290**	0.173**	0.239**

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

Test configuration	Max. 1g SAR results						
	LTE750 + WLAN 2450	CDMA800 + WLAN 2450	4-slot GPRS850 + WLAN 2450	WCDMA850 + WLAN 2450	CDMA1900 + WLAN 2450	2-slot GPRS1900 + WLAN 2450	WCDMA 1900 + WLAN 2450
WR: Back facing phantom	**1.047**	**1.091**	**0.938**	**0.923**	**1.341**	**0.955**	**1.084**
WR: Display facing phantom	0.474**	0.745**	0.896**	0.745**	1.120**	0.785**	0.892**
WR: Top edge facing phantom	0.099**	0.109**	0.121**	0.113**	0.140**	0.126**	0.144**
WR: Bottom edge facing phantom	0.094**	0.162**	0.171**	0.138**	0.707**	0.481**	0.683**
WR: Left edge facing phantom	0.310**	0.859**	0.799**	0.875**	0.398**	0.340**	0.411**
WR: Right edge facing phantom	0.757**	0.264**	0.276**	0.342**	0.302**	0.185**	0.251**

** SAR data taken from FCC_RM-845_05.

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values.

**Simultaneous transmissions: Combined SAR results –
SPEAG Combined Multiband algorithm results**

Test configuration	Max. 1g SAR results						
	LTE750 + WLAN 2450	CDMA800 + WLAN 2450	4-slot GPRS850 + WLAN 2450	WCDMA850 + WLAN 2450	CDMA1900 + WLAN 2450	2-slot GPRS1900 + WLAN 2450	WCDMA 1900 + WLAN 2450
WR: Back facing phantom	**0.757**	**0.857**	**0.704**	**0.701**	**1.09**	**0.694**	**0.854**
WR: Display facing phantom	-	-	-	-	-	-	-
WR: Top edge facing phantom	-	-	-	-	-	-	-
WR: Bottom edge facing phantom	-	-	-	-	-	-	-
WR: Left edge facing phantom	-	-	-	-	-	-	-
WR: Right edge facing phantom	-	-	-	-	-	-	-

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

Plots of the Measurement scans are given in Appendix B.

7.4 Head and Body SAR assessment of SVLTE mode

7.4.1 Head SAR results of SVLTE mode

LTE750 Band Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			-	Ch 23230 782.0 MHz	-
SVLTE*/QPSK****	**Conducted Average Power**		**-**	**19.43 dBm**	**-**
10MHz Ch BW 1 RB 50% offset	Left	Cheek	-	0.136	-
		Tilt	-	0.082	-
	Right	Cheek	**-**	**0.260**	**-**
		Tilt	-	0.097	-
SVLTE*/QPSK 10MHz Ch BW 1 RB 50% offset** Back cover CC-3059	Right Cheek		-	0.260	-

CDMA1900*** Band Head SAR results**

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 25 1851.3 MHz	Ch 600 1880.0 MHz	Ch 1175 1908.8 MHz
RC3 / SO55**	**Conducted Average Power**		**18.91 dBm**	**18.85 dBm**	**18.76 dBm**
	Left	Cheek	**0.362**	0.355	0.325
		Tilt	-	0.137	-
	Right	Cheek	-	0.238	-
		Tilt	-	0.169	-
RC3 / SO55 Back cover CC-3059	Left Cheek		0.303	0.317	0.300

7.4.1.1 Expanded Volume Scans

Mode	Test configuration	SAR, averaged over 1g (W/kg)		
		-	Ch 23230 782.0 MHz	-
SVLTE/QPSK**	**Conducted Average Power**	**-**	**23.52 dBm**	**-**
10MHz Ch BW 1 RB, 50% offset	Right, Cheek Expanded Volume scan	-	0.698	-
Mode	**Test configuration**	**SAR, averaged over 1g (W/kg)**		
		-	**Ch 23230 782.0 MHz**	**-**
SVLTE*/QPSK****	**Conducted Average Power**	**-**	**19.43 dBm**	**-**
10MHz Ch BW 1 RB, 50% offset	Right, Cheek Expanded Volume scan	-	0.285	-
Mode	**Test configuration**	**SAR, averaged over 1g (W/kg)**		
		Ch 1013 824.7 MHz	**Ch 384 836.5 MHz**	**Ch 777 848.3 MHz**
CDMA800**	Conducted Average Power	-	**23.40 dBm**	-
RC3/SO55	Right, Cheek Expanded Volume scan	-	0.472	-
Mode	**Test configuration**	**SAR, averaged over 1g (W/kg)**		
		Ch 25 1851.3 MHz	**Ch 600 1880.0 MHz**	**Ch 1175 1908.8 MHz**
CDMA1900**	Conducted Average Power	-	**22.60 dBm**	-
RC3/SO55	Right, Cheek Expanded Volume scan	-	0.744	-
CDMA1900**/****	Conducted Average Power	-	**18.85 dBm**	-
RC3/SO55	Right, Cheek Expanded Volume scan	-	0.255	-
Mode	**Test configuration**	**SAR, averaged over 1g (W/kg)**		
		Ch 1 2412.0 MHz	**Ch 6 2437.0 MHz**	**Ch 11 2462.0 MHz**
WLAN2450	Conducted Average Power	-	**17.85 dBm**	-
b-mode Back cover CC-3059	Right, Cheek Expanded Volume scan	-	0.708	-
Mode	**Test configuration**	**SAR, averaged over 1g (W/kg)**		
		-	**-**	**Ch 56 5280.0 MHz**
WLAN5000**	Conducted Average Power	-	-	**11.85 dBm**
a-mode	Right, Cheek Expanded Volume scan	-	-	0.226

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results						
	WLAN 2450	WLAN 5000	SVLTE 750	SVLTE 750***	CDMA 800	CDMA 1900	CDMA 1900 ****
Head: Left, Cheek	0.227**	0.133**	0.374**	0.136**	0.708**	1.03**	0.362**
Head: Left, Tilt	0.245**	0.051**	0.175**	0.082**	0.456**	0.424**	0.137**
Head: Right, Cheek	0.691	0.259**	0.627**	0.260**	0.556**	0.833**	0.238**
Head: Right, Tilt	0.168**	0.070**	0.250**	0.097**	0.460**	0.540**	0.169**

Simultaneous transmissions: Combined head SAR results – Max + Max combined results for SVLTE mode

Test configuration	SVLTE750 + CDMA800	SVLTE750 + CDMA1900****	SVLTE750*** + CDMA1900	SVLTE750 + CDMA800 + WLAN2450	SVLTE750 + CDMA800 + WLAN5000
Head: Left, Cheek	1.082**	0.736**	**1.166****	1.309**	1.215**
Head: Left, Tilt	0.631**	0.312**	0.506**	0.876**	0.682**
Head: Right, Cheek	**1.183****	**0.865****	1.093**	**1.874**	**1.442****
Head: Right, Tilt	0.710**	0.419**	0.637**	0.878**	0.780**

Test configuration	SVLTE750 + CDMA1900**** + WLAN2450	SVLTE750 + CDMA1900**** + WLAN5000	SVLTE750*** + CDMA1900 + WLAN2450	SVLTE750*** + CDMA1900 + WLAN5000
Head: Left, Cheek	0.963**	0.869**	1.393**	1.299**
Head: Left, Tilt	0.557**	0.363**	0.751**	0.557**
Head: Right, Cheek	**1.556**	**1.124****	**1.784**	**1.352****
Head: Right, Tilt	0.587**	0.489**	0.805**	0.707**

The 1.874 W/kg, which is 2.099 W/kg when scaled up by 12%, Right Cheek SAR value for SVLTE750+CDMA800+WLAN2450 comprises the individual values of 0.627 for SVLTE750, 0.556 for CDMA800 and 0.691 for WLAN2450.

- For the combination of SVLTE750 and CDMA800, the Antenna Pair SAR to Peak Separation Ratio is 1.325/4.33 = 0.31 i.e. > 0.3
- For the combination of SVLTE750 and WLAN2450, the Antenna Pair SAR to Peak Separation Ratio is 1.476/7.72 = 0.19 i.e. < 0.3
- For the combination of CDMA800 and WLAN2450, the Antenna Pair SAR to Peak Separation Ratio is 1.397/3.93 = 0.36 i.e. > 0.3

Therefore, according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05, Simultaneous Transmission Procedures are required. Expanded zoom SAR scans (presented in Appendix B.4) fully including the Right Cheek SAR distributions of SVLTE750, CDMA800 and

WLAN2450 were performed. The resulting combined SAR value was 1.01 W/kg which is 1.13 W/kg as scaled.

The 1.784 W/kg, which is 1.998 W/kg when scaled up by 12%, Right Cheek SAR value for SVLTE750***+CDMA1900+WLAN2450 comprises the individual values of 0.260 for SVLTE750***, 0.833 for CDMA1900 and 0.691 for WLAN2450.

- For the combination of SVLTE750*** and CDMA1900, the Antenna Pair SAR to Peak Separation Ratio is 1.224/1.58 = 0.77 i.e. > 0.3
- For the combination of SVLTE750*** and WLAN2450, the Antenna Pair SAR to Peak Separation Ratio is 1.065/7.91 = 0.13 i.e. < 0.3
- For the combination of CDMA1900 and WLAN2450, the Antenna Pair SAR to Peak Separation Ratio is 1.707/7.03 = 0.24 i.e. < 0.3

Therefore, according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05, Simultaneous Transmission Procedures are required. Expanded zoom SAR scans (presented in Appendix B.4) fully including the Right Cheek SAR distributions of SVLTE750***, CDMA1900 and WLAN2450 were performed. The resulting combined SAR value was 1.01 W/kg which is 1.13 W/kg as scaled.

The 1.556 W/kg, which is 1.743 W/kg when scaled up by 12%, Right Cheek SAR value for SVLTE750+CDMA1900****+WLAN2450 comprises the individual values of 0.627 for SVLTE750, 0.238 for CDMA1900**** and 0.691 for WLAN2450.

- For the combination of SVLTE750 and CDMA1900****, the Antenna Pair SAR to Peak Separation Ratio is 0.970/2.18 = 0.44 i.e. > 0.3
- For the combination of SVLTE750 and WLAN2450, the Antenna Pair SAR to Peak Separation Ratio is 1.476/7.72 = 0.19 i.e. < 0.3
- For the combination of CDMA1900**** and WLAN2450, the Antenna Pair SAR to Peak Separation Ratio is 1.040/6.87 = 0.15 i.e. < 0.3

Therefore, according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05, Simultaneous Transmission Procedures are required. Expanded zoom SAR scans (presented in Appendix B.4) fully including the Right Cheek SAR distributions of SVLTE750, CDMA1900 and WLAN2450 were performed. The resulting combined SAR value was 0.903 W/kg which is 1.011 W/kg as scaled.

The 1.442 W/kg, which is 1.615 W/kg when scaled up by 12%, Right Cheek SAR value for SVLTE750***+CDMA800+WLAN5000 comprises the individual values of 0.627 for SVLTE750***, 0.556 for CDMA800 and 0.259 for WLAN5000.

- For the combination of SVLTE750*** and CDMA800, the Antenna Pair SAR to Peak Separation Ratio is 1.325/4.33 = 0.31 i.e. >0.3
- For the combination of SVLTE750*** and WLAN5000, the Antenna Pair SAR to Peak Separation Ratio is 0.992/7.94 = 0.12 i.e. < 0.3
- For the combination of CDMA800 and WLAN5000, the Antenna Pair SAR to Peak Separation Ratio is 0.913/3.78 = 0.24 i.e. < 0.3

Therefore, according to KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05, Simultaneous Transmission Procedures are required. Expanded zoom SAR scans (presented in Appendix B.4) fully including the Right Cheek SAR distributions of SVLTE750, CDMA1900 and WLAN2450 were performed. The resulting combined SAR value was 0.857 W/kg which is 0.960 W/kg as scaled.

Simultaneous transmissions: Combined head SAR results –
SPEAG Combined Multiband algorithm results for SVLTE mode

Test configuration	SVLTE750 + CDMA800	SVLTE750 + CDMA1900****	SVLTE750*** + CDMA1900	SVLTE750 + CDMA800 + WLAN2450	SVLTE750 + CDMA800 + WLAN5000
Head: Left, Cheek	-	-	1.10**	-	-
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	0.960**	0.696**	-	1.06	0.976**
Head: Right, Tilt	-	-	-	-	-

Test configuration	SVLTE750 + CDMA1900**** + WLAN2450	SVLTE750 + CDMA1900**** + WLAN5000	SVLTE750*** + CDMA1900 + WLAN2450	SVLTE750*** + CDMA1900 + WLAN5000
Head: Left, Cheek	-	-	-	-
Head: Left, Tilt	-	-	-	-
Head: Right, Cheek	0.910	0.701**	1.06	1.05**
Head: Right, Tilt	-	-	-	-

Simultaneous transmissions: Combined head SAR results – SPEAG Combined Expanded Zoom scan results for SVLTE mode

Test configuration	SVLTE750 + CDMA800	SVLTE750 + CDMA1900****	SVLTE750*** + CDMA1900	SVLTE750 + CDMA800 + WLAN2450	SVLTE750 + CDMA800 + WLAN5000
Head: Left, Cheek	-	-	-	-	-
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	-	-	-	1.01	0.857**
Head: Right, Tilt	-	-	-	-	-

Test configuration	SVLTE750 + CDMA1900**** + WLAN2450	SVLTE750 + CDMA1900**** + WLAN5000	SVLTE750*** + CDMA1900 + WLAN2450	SVLTE750*** + CDMA1900 + WLAN5000
Head: Left, Cheek	-	-	-	-
Head: Left, Tilt	-	-	-	-
Head: Right, Cheek	0.903	-	1.01	-
Head: Right, Tilt	-	-	-	-

** SAR data taken from FCC_RM-845_05.

***No power reduction to LTE750 in SVLTE mode when using CDMA800, or when using CDMA1900 and the CDMA1900 TX power is less than 18.5 dBm.

****LTE power is not reduced when CDMA1900 TX power is less than 18.5 dBm.

Note: SVLTE750*** indicates reduced-power LTE750
CDMA1900**** indicates reduced-power CDMA1900
Full details of power reductions active in SVLTE mode are given in Section 2.1

7.4.2 Body SAR results of SVLTE mode

LTE750 Band Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			-	Ch 23230 782.0 MHz	-
SVLTE*/QPSK****	**Conducted Average Power**		**-**	**19.43 dBm**	**-**
10MHz Ch BW 1RB 50% offset	Back facing phantom	Without headset	-	**0.193**	-
		Headset WH-902	-	0.184	-
	Display facing phantom	Without headset	**-**	0.119	**-**
		Headset WH-902	-	0.098	-
QPSK 10MHz Ch BW 1RB 50% offset Back cover CC-3059	Back facing phantom	Without headset	-	0.190	-

CDMA1900** Band Body SAR results**

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 25 1851.3 MHz	Ch 600 1880.0 MHz	Ch 1175 1908.8 MHz
RC3 / SO55**	**Conducted Average Power**		**18.91 dBm**	**18.85 dBm**	**18.76 dBm**
	Back facing phantom	Without headset	-	0.219	-
		Headset WH-902	-	0.215	-
	Display facing phantom	Without headset	-	0.238	-
		Headset WH-902	**0.257**	0.244	0.248
RC3 / SO55 Back cover CC-3059	Diplay facing phantom	Headset WH-902	0.237	0.226	0.219

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results						
	WLAN 2450	WLAN 5000	SVLTE 750	SVLTE 750***	CDMA 800	CDMA 1900	CDMA 1900****
Body: Back facing phantom, Without Headset	0.091**	0.089**	0.645	0.193**	0.546**	0.681**	0.219**
Body: Back facing phantom, Headset WH-902	0.130**	0.089**	0.421**	0.184**	0.446**	0.692**	0.215**
Body: Display facing phantom, Without Headset	0.072**	0.037**	0.287**	0.119**	0.534**	0.704**	0.238**
Body: Display facing phantom, Headset WH-902	0.062**	0.033**	0.228**	0.098**	0.420**	0.734	0.257**

Simultaneous transmissions: Combined body SAR results – Max + Max combined results for SVLTE mode

Test configuration	SVLTE750 + CDMA800	SVLTE750 + CDMA1900****	SVLTE750*** + CDMA1900	SVLTE750 + CDMA800 + WLAN2450	SVLTE750 + CDMA800 + WLAN5000
Body: Back facing phantom, Without Headset	**1.191**	**0.864**	0.874**	**1.282**	**1.280**
Body: Back facing phantom, Headset WH-902	0.867**	0.636**	**0.876****	0.997**	0.956**
Body: Display facing phantom, Without Headset	0.821**	0.525**	0.823**	0.893**	0.858**
Body: Display facing phantom, Headset WH-902	0.648**	0.485**	0.832	0.710**	0.681**

Test configuration	SVLTE750 + CDMA1900**** + WLAN2450	SVLTE750 + CDMA1900**** + WLAN5000	SVLTE750*** + CDMA1900 + WLAN2450	SVLTE750*** + CDMA1900 + WLAN5000
Body: Back facing phantom, Without Headset	**0.955**	**0.953**	0.965**	0.963**
Body: Back facing phantom, Headset WH-902	0.766**	0.725**	**1.006****	**0.965****
Body: Display facing phantom, Without Headset	0.597**	0.562**	0.895**	0.860**
Body: Display facing phantom, Headset WH-902	0.547**	0.518**	0.894	0.865

Simultaneous transmissions: Combined body SAR results – SPEAG Combined Multiband algorithm results for SVLTE

Test configuration	SVLTE750 + CDMA800	SVLTE750 + CDMA1900****	SVLTE750*** + CDMA1900	SVLTE750 + CDMA800 + WLAN2450	SVLTE750 + CDMA800 + WLAN5000
Body: Back facing phantom, Without Headset	0.850	0.746	-	0.851	0.842
Body: Back facing phantom, Headset WH-902	-	-	0.767**	-	-
Body: Display facing phantom, Without Headset	-	-	-	-	-
Body: Display facing phantom, Headset WH-902	-	-	-	-	-

Test configuration	SVLTE750 + CDMA1900**** + WLAN2450	SVLTE750 + CDMA1900**** + WLAN5000	SVLTE750*** + CDMA1900 + WLAN2450	SVLTE750*** + CDMA1900 + WLAN5000**
Body: Back facing phantom, Without Headset	0.747	0.742	-	-
Body: Back facing phantom, Headset WH-902	-	-	0.801**	0.775**
Body: Display facing phantom, Without Headset	-	-	-	-
Body: Display facing phantom, Headset WH-902	-	-	-	-

** SAR data taken from FCC_RM-845_05.

***No power reduction to LTE750 in SVLTE mode when using CDMA800, or when using CDMA1900 and the CDMA1900 TX power is less than 18.5 dBm.

****LTE power is not reduced when CDMA1900 TX power is less than 18.5 dBm.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2012-08-31 09:45:35

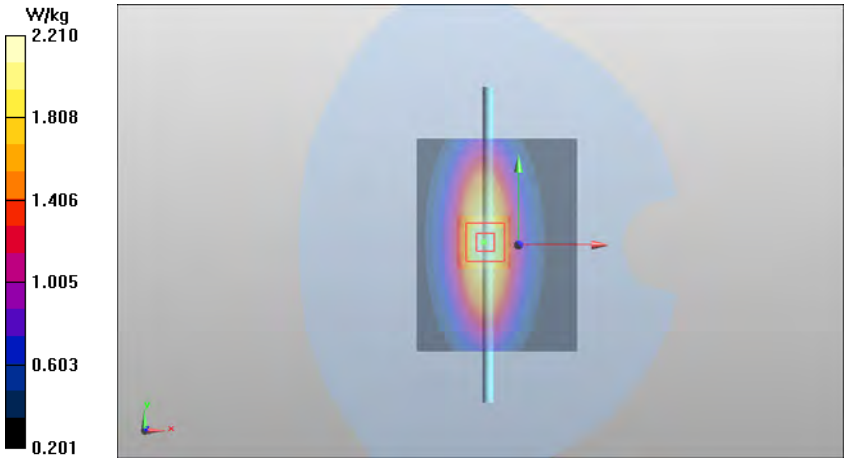
Test Laboratory: TCC Nokia
Type: D750V3; Serial: D750V3 - SN:1034

Communication System: CW750
Frequency: 750 MHz; Duty Cycle: 1:1
Medium: HSL750; Medium Notes: t= 21.0
Medium parameters used: f = 750 MHz; σ = 0.887 mho/m; ε_r = 40.06; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #4 CRP ; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.18 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.346 V/m
Peak SAR (extrapolated) = 3.038 mW/g
SAR(1 g) = 2.04 mW/g
SAR(10 g) = 1.34 mW/g
Power Drift = 0.03 dB
Maximum value of SAR (measured) = 2.21 W/kg



Date/Time: 2012-09-13 13:05:40

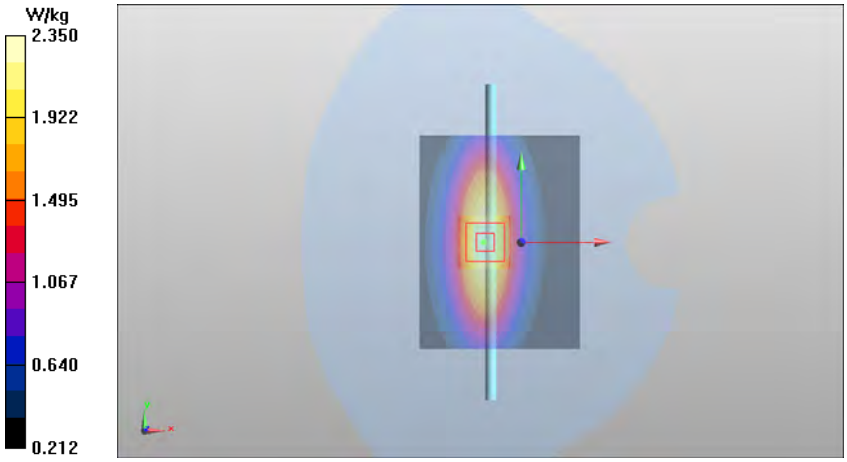
Test Laboratory: TCC Nokia
Type: D750V3; Serial: D750V3 - SN:1034

Communication System: CW750
Frequency: 750 MHz; Duty Cycle: 1:1
Medium: HSL750; Medium Notes: t= 21.4
Medium parameters used: f = 750 MHz; σ = 0.924 mho/m; ε_r = 40.462; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #4 CRP ; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.33 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.560 V/m
Peak SAR (extrapolated) = 3.245 mW/g
SAR(1 g) = 2.18 mW/g
SAR(10 g) = 1.42 mW/g
Power Drift = 0.02 dB
Maximum value of SAR (measured) = 2.35 W/kg



Date/Time: 2012-09-17 08:14:39

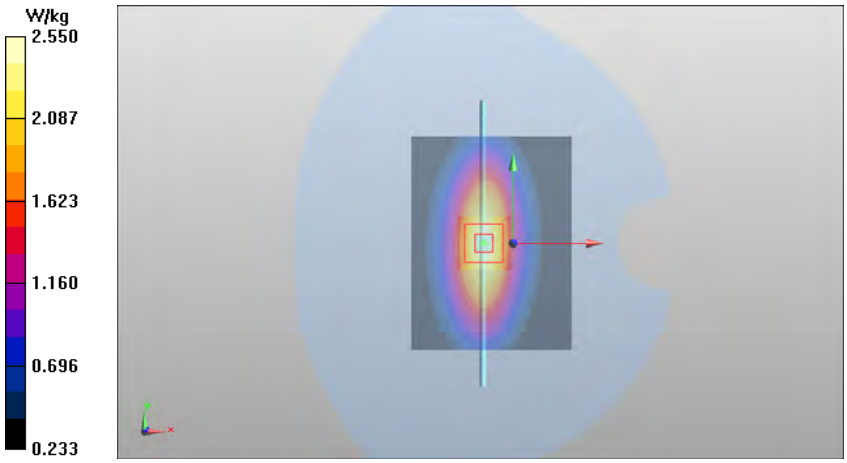
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:487

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900; Medium Notes: T = 22.0 C
Medium parameters used: f = 835 MHz; σ = 0.867 mho/m; ε_r = 39.908; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(5.82, 5.82, 5.82); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 2 9/8/2012; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.51 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.030 V/m
Peak SAR (extrapolated) = 3.501 mW/g
SAR(1 g) = 2.36 mW/g
SAR(10 g) = 1.54 mW/g
Power Drift = 0.06 dB
Maximum value of SAR (measured) = 2.55 W/kg



Date/Time: 2012-08-30 08:36:11

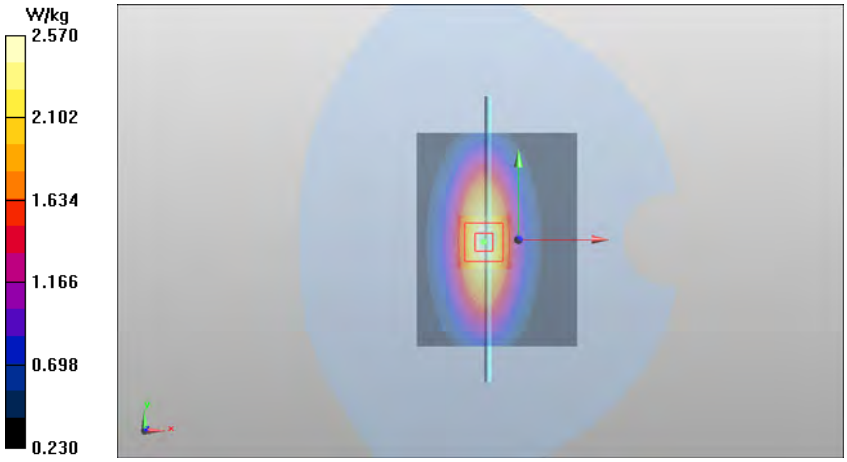
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL850; Medium Notes: t= 21,3 C
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 40.706; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.53 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.077 V/m
Peak SAR (extrapolated) = 3.536 mW/g
SAR(1 g) = 2.37 mW/g
SAR(10 g) = 1.55 mW/g
Power Drift = -0.03 dB
Maximum value of SAR (measured) = 2.57 W/kg



Date/Time: 2012-09-15 09:48:40

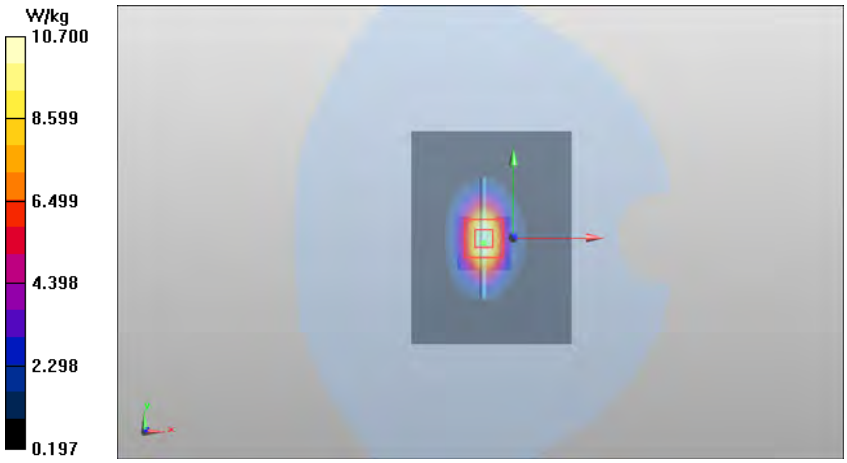
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN5d099

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: T =21.67 C
Medium parameters used: f = 1900 MHz; σ = 1.435 mho/m; ε_r = 39.279; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.92, 4.92, 4.92); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM1 9/15/2012; Type: QD000P40CC; Serial: TP:1279
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

d=10mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 11.2 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.977 V/m
Peak SAR (extrapolated) = 15.828 mW/g
SAR(1 g) = 9.43 mW/g
SAR(10 g) = 5.01 mW/g
Power Drift = 0.10 dB
Maximum value of SAR (measured) = 10.7 W/kg



Date/Time: 2012-10-01 09:03:04

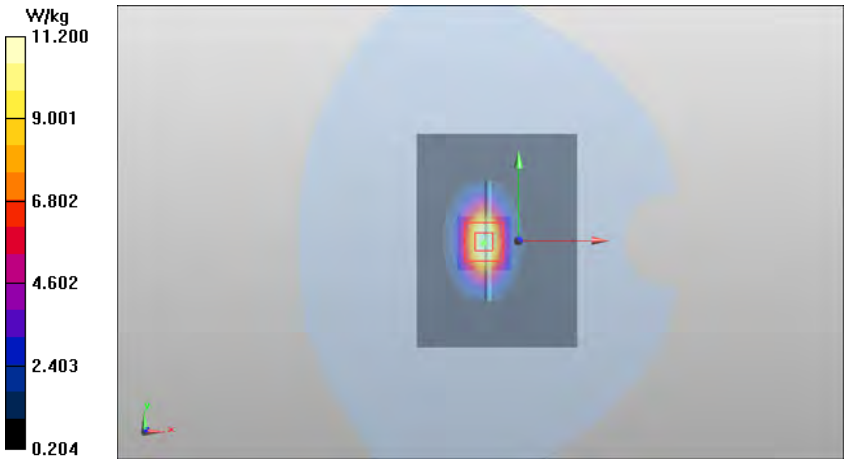
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN5d099

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: T=21.1
Medium parameters used: f = 1900 MHz; σ = 1.422 mho/m; ε_r = 39.34; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3852
- ConvF(7.8, 7.8, 7.8); Calibrated: 2012-03-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
- Phantom: SAM 3 06.09.2012; Type: QD000P40CB; Serial: TP:1399
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

d=10mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 11.8 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.776 V/m
Peak SAR (extrapolated) = 18.724 mW/g
SAR(1 g) = 9.99 mW/g
SAR(10 g) = 5.19 mW/g
Power Drift = 0.08 dB
Maximum value of SAR (measured) = 11.2 W/kg



Date/Time: 2012-09-17 10:11:12

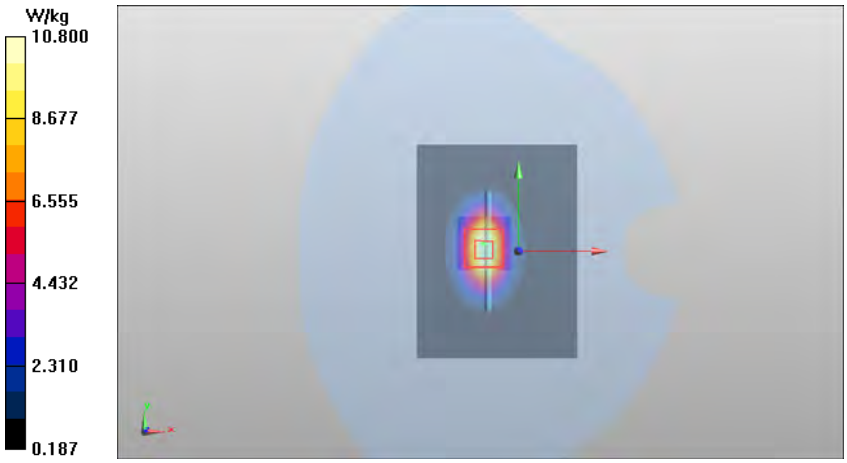
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: t= 21.5 C
Medium parameters used: f = 1900 MHz; σ = 1.385 mho/m; ε_r = 38.782; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 11.5 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.1 V/m
Peak SAR (extrapolated) = 17.966 mW/g
SAR(1 g) = 9.66 mW/g
SAR(10 g) = 5.04 mW/g
Power Drift = -0.09 dB
Maximum value of SAR (measured) = 10.8 W/kg



Date/Time: 2012-09-05 10:45:28

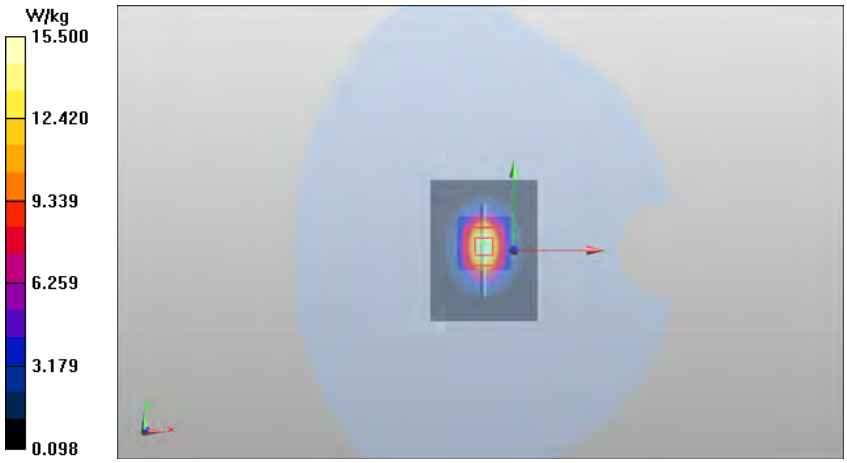
Test Laboratory: TCC Nokia
Type: D2450V2; Serial: D2450V2 - SN:729

Communication System: CW2450
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL2450; Medium Notes: t= 21.4 C
Medium parameters used: f = 2450 MHz; σ = 1.814 mho/m; ε_r = 38.26; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 16.0 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.1 V/m
Peak SAR (extrapolated) = 28.524 mW/g
SAR(1 g) = 13.6 mW/g
SAR(10 g) = 6.3 mW/g
Power Drift = -0.07 dB
Maximum value of SAR (measured) = 15.5 W/kg



Date/Time: 2012-10-04 06:42:01

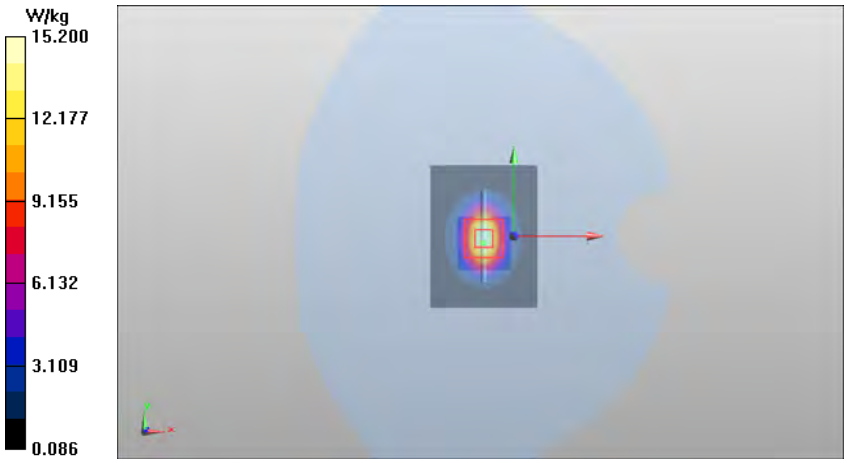
Test Laboratory: TCC Nokia
Type: D2450V2; Serial: D2450V2 - SN:729

Communication System: CW2450
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL2450; Medium Notes: t= 20.9 C
Medium parameters used: f = 2450 MHz; σ = 1.771 mho/m; ε_r = 37.637; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3835
- ConvF(6.73, 6.73, 6.73); Calibrated: 2012-02-07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=10mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 15.6 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.5 V/m
Peak SAR (extrapolated) = 28.266 mW/g
SAR(1 g) = 13.4 mW/g
SAR(10 g) = 6.2 mW/g
Power Drift = -0.06 dB
Maximum value of SAR (measured) = 15.2 W/kg



Date/Time: 2012-09-10 09:32:32

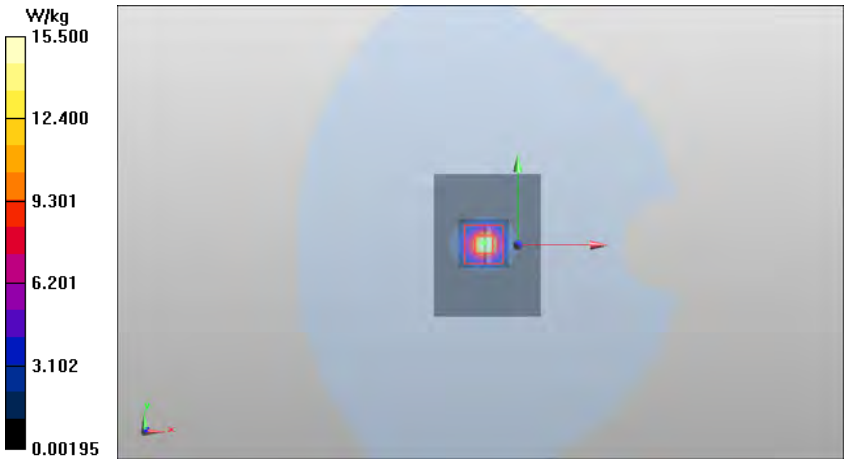
Test Laboratory: TCC Nokia
Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW5200
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: HSL5000; Medium Notes: t= 21.7 C
Medium parameters used: f = 5200 MHz; σ = 4.454 mho/m; ε_r = 34.707; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(4.81, 4.81, 4.81); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=100mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 15.7 W/kg

d=15mm, Pin=100mW/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 64.203 V/m
Peak SAR (extrapolated) = 31.383 mW/g
SAR(1 g) = 7.97 mW/g
SAR(10 g) = 2.24 mW/g
Power Drift = -0.03 dB
Maximum value of SAR (measured) = 15.5 W/kg



Date/Time: 2012-09-10 10:12:58

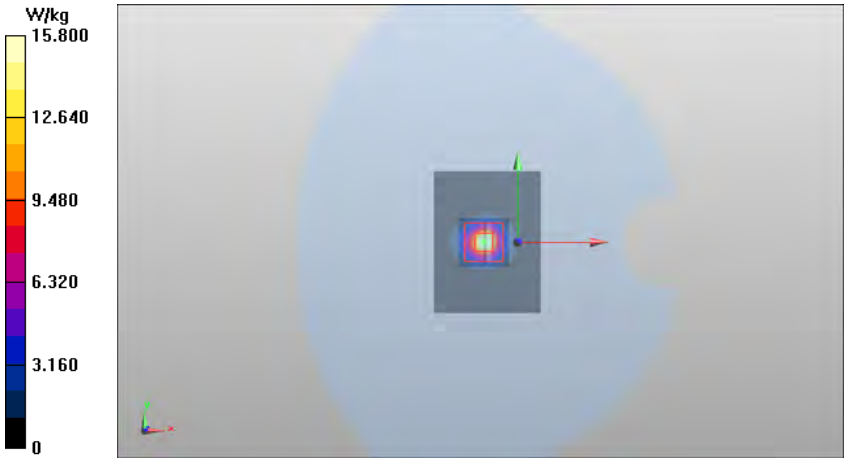
Test Laboratory: TCC Nokia
Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW5500
Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: HSL5000; Medium Notes: t= 21.7 C
Medium parameters used: f = 5500 MHz; σ = 4.738 mho/m; ε_r = 34.274; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(4.6, 4.6, 4.6); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=100mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 16.6 W/kg

d=15mm, Pin=100mW/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 61.679 V/m
Peak SAR (extrapolated) = 34.233 mW/g
SAR(1 g) = 8.11 mW/g
SAR(10 g) = 2.26 mW/g
Power Drift = 0.18 dB
Maximum value of SAR (measured) = 15.8 W/kg



Date/Time: 2012-09-09 11:09:09

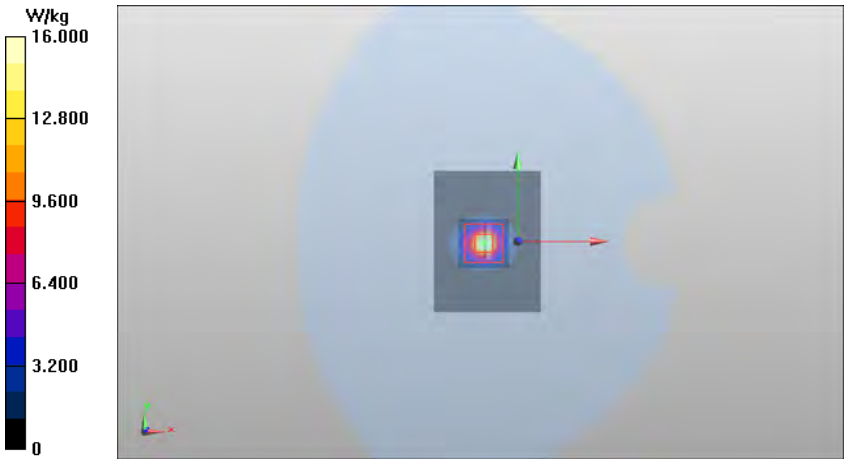
Test Laboratory: TCC Nokia
Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW5800
Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: HSL5000; Medium Notes: t= 21.7 C
Medium parameters used: f = 5800 MHz; σ = 5.084 mho/m; ε_r = 33.98; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(4.14, 4.14, 4.14); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=100mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 16.7 W/kg

d=15mm, Pin=100mW/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 61.271 V/m
Peak SAR (extrapolated) = 34.262 mW/g
SAR(1 g) = 8.02 mW/g
SAR(10 g) = 2.23 mW/g
Power Drift = 0.02 dB
Maximum value of SAR (measured) = 16.0 W/kg



Date/Time: 2012-08-31 12:07:43

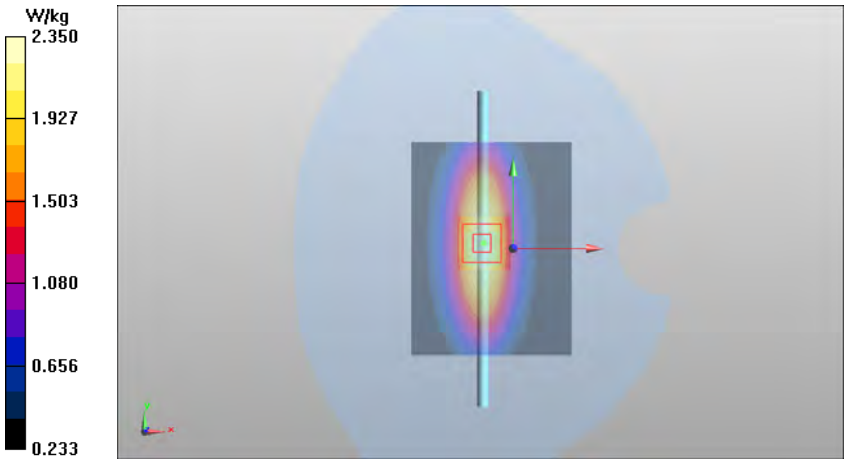
Test Laboratory: TCC Nokia
Type: D750V3; Serial: D750V3 - SN:1034

Communication System: CW750
Frequency: 750 MHz; Duty Cycle: 1:1
Medium: BSL750; Medium Notes: t= 21.3 C
Medium parameters used: f = 750 MHz; σ = 0.987 mho/m; ε_r = 53.376; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #3 CRP; Type: SAM
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.31 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 49.360 V/m
Peak SAR (extrapolated) = 3.183 mW/g
SAR(1 g) = 2.18 mW/g
SAR(10 g) = 1.44 mW/g
Power Drift = 0.05 dB
Maximum value of SAR (measured) = 2.35 W/kg



Date/Time: 2012-09-13 15:33:19

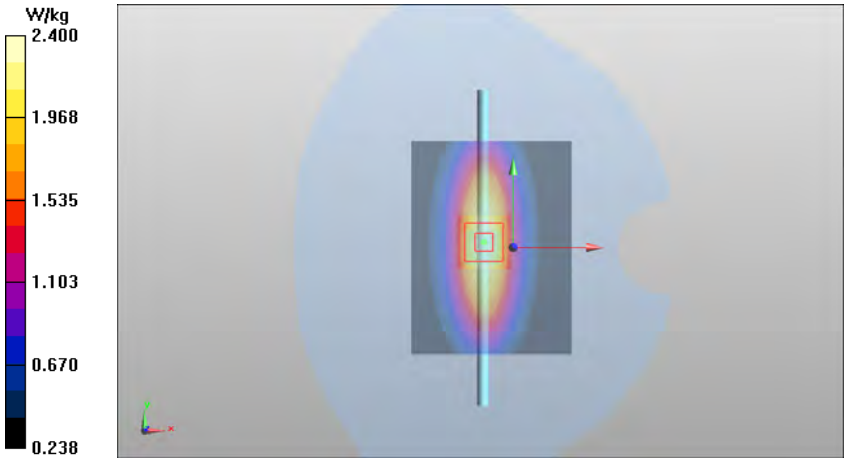
Test Laboratory: TCC Nokia
Type: D750V3; Serial: D750V3 - SN:1034

Communication System: CW750
Frequency: 750 MHz; Duty Cycle: 1:1
Medium: BSL750; Medium Notes: t= 21.3 C
Medium parameters used: f = 750 MHz; σ = 1.006 mho/m; ε_r = 53.826; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #3 CRP; Type: SAM
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.37 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 49.518 V/m
Peak SAR (extrapolated) = 3.252 mW/g
SAR(1 g) = 2.22 mW/g
SAR(10 g) = 1.46 mW/g
Power Drift = -0.00 dB
Maximum value of SAR (measured) = 2.40 W/kg



Date/Time: 2012-09-15 18:07:59

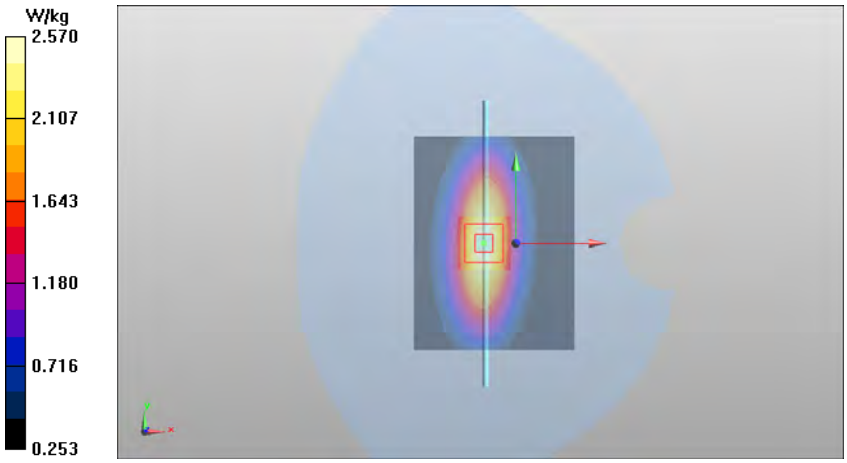
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:487

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900; Medium Notes: T=21.9C
Medium parameters used: f = 835 MHz; σ = 0.971 mho/m; ε_r = 54.44; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 4 15-09-2012; Type: QD000P40CD; Serial: TP1630
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.57 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.831 V/m
Peak SAR (extrapolated) = 3.405 mW/g
SAR(1 g) = 2.38 mW/g
SAR(10 g) = 1.57 mW/g
Power Drift = -0.01 dB
Maximum value of SAR (measured) = 2.57 W/kg



Date/Time: 2012-08-31 13:32:28

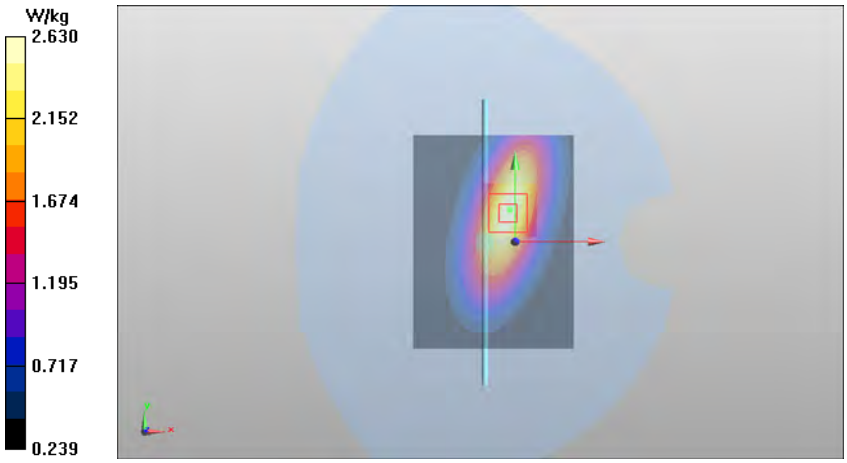
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21,1 C
Medium parameters used: f = 835 MHz; σ = 0.987 mho/m; ε_r = 53.214; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 2.61 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 44.629 V/m
Peak SAR (extrapolated) = 3.546 mW/g
SAR(1 g) = 2.42 mW/g
SAR(10 g) = 1.6 mW/g
Power Drift = -0.01 dB
Maximum value of SAR (measured) = 2.63 W/kg



Date/Time: 2012-09-14 10:41:01

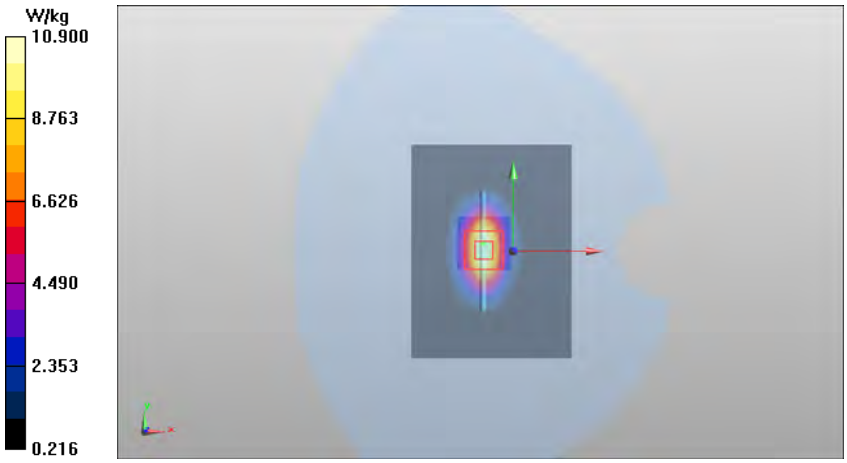
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d099

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL1900; Medium Notes: T =21.8 C
Medium parameters used: f = 1900 MHz; σ = 1.535 mho/m; ε_r = 51.537; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM3 11-09-2012; Type: QD000P40CD; Serial: TP: 1729
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

d=10mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 11.5 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.251 V/m
Peak SAR (extrapolated) = 15.498 mW/g
SAR(1 g) = 9.58 mW/g
SAR(10 g) = 5.17 mW/g
Power Drift = 0.01 dB
Maximum value of SAR (measured) = 10.9 W/kg



Date/Time: 2012-09-26 10:24:45

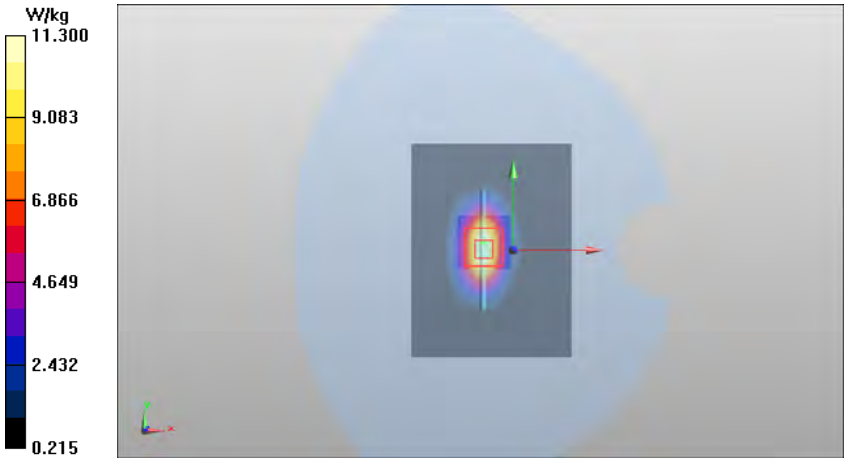
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:534

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL1900; Medium Notes: T = 21.3 C
Medium parameters used: f = 1900 MHz; σ = 1.585 mho/m; ε_r = 52.088; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 4 15-09-2012; Type: QD000P40CD; Serial: TP1630
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

d=10mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 12.1 W/kg

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.711 V/m
Peak SAR (extrapolated) = 16.326 mW/g
SAR(1 g) = 9.92 mW/g
SAR(10 g) = 5.31 mW/g
Power Drift = 0.01 dB
Maximum value of SAR (measured) = 11.3 W/kg



Date/Time: 2012-09-18 10:54:21

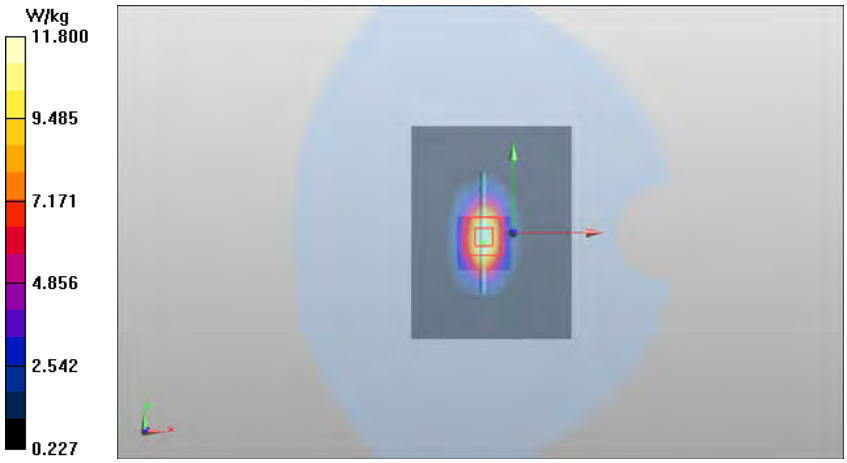
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.0 C
Medium parameters used: f = 1900 MHz; σ = 1.506 mho/m; ε_r = 51.892; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 12.7 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.6 V/m
Peak SAR (extrapolated) = 19.048 mW/g
SAR(1 g) = 10.5 mW/g
SAR(10 g) = 5.47 mW/g
Power Drift = -0.04 dB
Maximum value of SAR (measured) = 11.8 W/kg



Date/Time: 2012-09-07 10:38:15

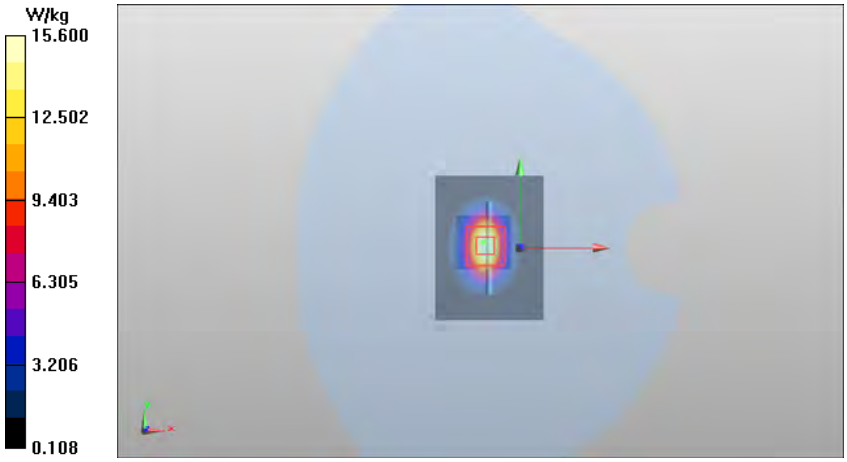
Test Laboratory: TCC Nokia
Type: D2450V2; Serial: D2450V2 - SN:729

Communication System: CW2450
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2450 MHz; σ = 1.966 mho/m; ε_r = 50.856; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 16.2 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.9 V/m
Peak SAR (extrapolated) = 27.696 mW/g
SAR(1 g) = 13.7 mW/g
SAR(10 g) = 6.34 mW/g
Power Drift = -0.08 dB
Maximum value of SAR (measured) = 15.6 W/kg



Date/Time: 2012-09-11 12:50:35

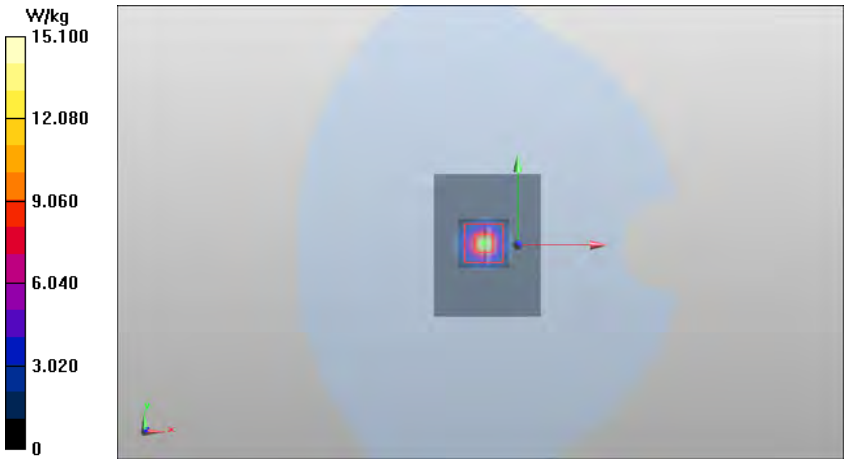
Test Laboratory: TCC Nokia
Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW5200
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: BSL5500; Medium Notes: t= 21.3 C
Medium parameters used: f = 5200 MHz; σ = 5.401 mho/m; ε_r = 48.107; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=100mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 12.1 W/kg

d=15mm, Pin=100mW/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 59.670 V/m
Peak SAR (extrapolated) = 29.500 mW/g
SAR(1 g) = 7.78 mW/g
SAR(10 g) = 2.17 mW/g
Power Drift = 0.13 dB
Maximum value of SAR (measured) = 15.1 W/kg



Date/Time: 2012-09-10 15:32:36

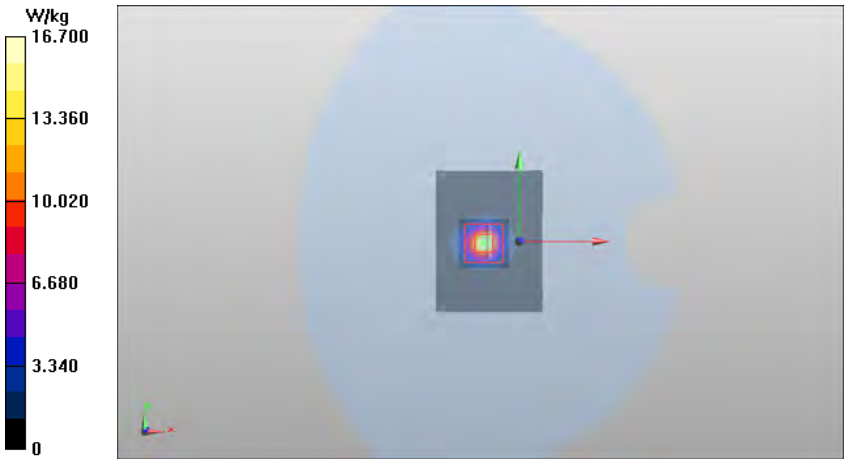
Test Laboratory: TCC Nokia
Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW5500
Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: BSL5500; Medium Notes: t= 21.4 C
Medium parameters used: f = 5500 MHz; σ = 5.863 mho/m; ε_r = 47.869; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(3.5, 3.5, 3.5); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=100mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 16.7 W/kg

d=15mm, Pin=100mW/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 56.581 V/m
Peak SAR (extrapolated) = 33.926 mW/g
SAR(1 g) = 8.51 mW/g
SAR(10 g) = 2.32 mW/g
Power Drift = 0.17 dB
Maximum value of SAR (measured) = 16.7 W/kg



Date/Time: 2012-09-12 10:07:58

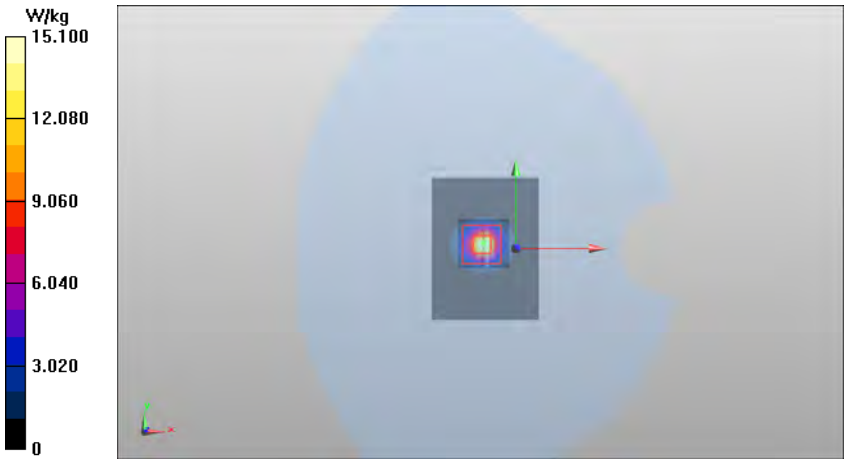
Test Laboratory: TCC Nokia
Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW5800
Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: BSL5500; Medium Notes: t= 21.3 C
Medium parameters used: f = 5800 MHz; σ = 6.074 mho/m; ε_r = 46.312; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(3.78, 3.78, 3.78); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=100mW/Area Scan (61x81x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 15.5 W/kg

d=15mm, Pin=100mW/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 54.308 V/m
Peak SAR (extrapolated) = 30.834 mW/g
SAR(1 g) = 7.27 mW/g
SAR(10 g) = 1.99 mW/g
Power Drift = 0.11 dB
Maximum value of SAR (measured) = 15.1 W/kg



APPENDIX B.1: HEAD MEASUREMENT SCANS

Date/Time: 2012-08-31 10:25:59

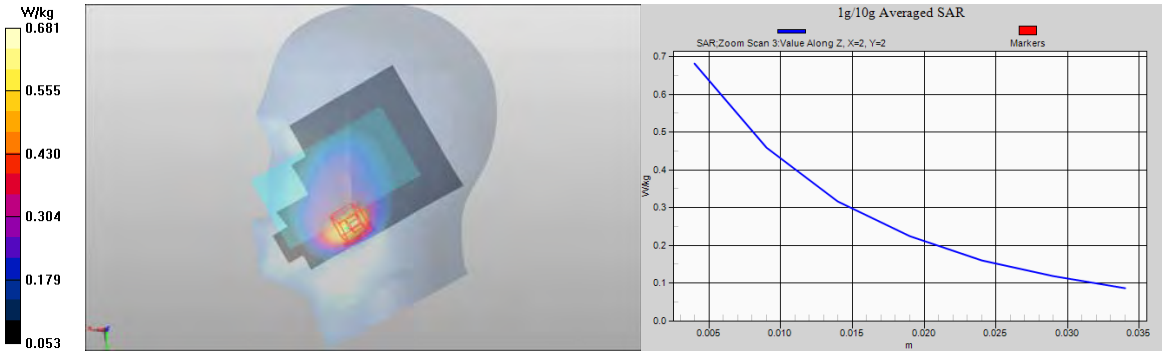
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2

Communication System: LTE13 (BAND 13)
Frequency: 782 MHz; Duty Cycle: 1:1
Medium: HSL750; Medium Notes: t= 21.0
Medium parameters used: f = 782 MHz; σ = 0.908 mho/m; ε_r = 39.833; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #4 CRP ; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

LTE - Right/Cheek - Right - Middle - QPSK - 10MHz - 1 RB - 50% offset - Cover CC-3059/Area Scan (81x121x1):
Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.616 W/kg

LTE - Right/Cheek - Right - Middle - QPSK - 10MHz - 1 RB - 50% offset - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.460 V/m
Peak SAR (extrapolated) = 0.993 mW/g
SAR(1 g) = 0.614 mW/g
SAR(10 g) = 0.383 mW/g
Power Drift = 0.08 dB
Maximum value of SAR (measured) = 0.681 W/kg



Date/Time: 2012-09-17 15:20:39

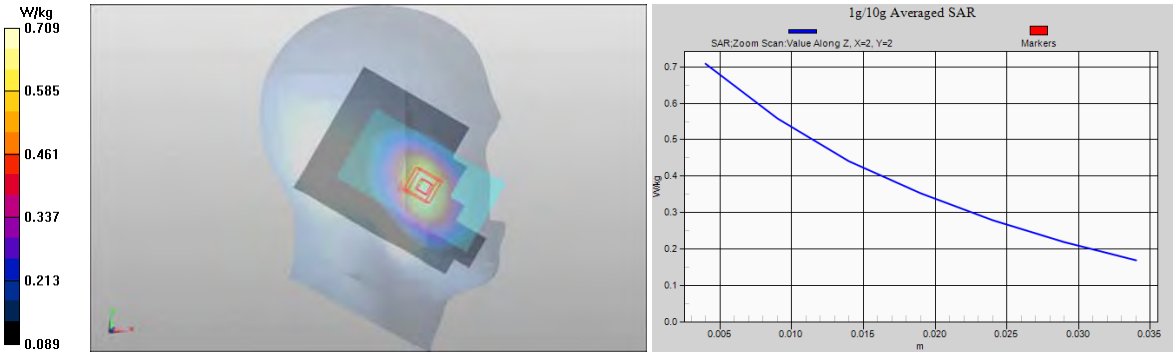
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1

Communication System: CDMA800
Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: HSL900; Medium Notes: T = 22.0 C
Medium parameters used: f = 837 MHz; σ = 0.87 mho/m; ε_r = 39.869; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(5.82, 5.82, 5.82); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 2 9/8/2012; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA - Left/Cheek – Middle - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.712 W/kg

CDMA - Left/Cheek – Middle - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.733 V/m
Peak SAR (extrapolated) = 0.859 mW/g
SAR(1 g) = 0.671 mW/g
SAR(10 g) = 0.497 mW/g
Power Drift = -0.25 dB
Maximum value of SAR (measured) = 0.709 W/kg



Date/Time: 2012-08-30 11:13:04

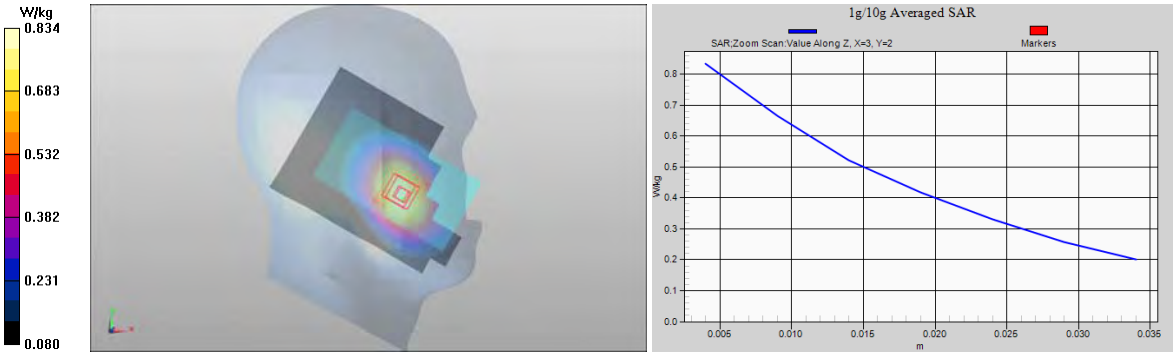
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138373/C1

Communication System: 4-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:2.09991
Medium: HSL850; Medium Notes: t= 21,3 C
Medium parameters used: f = 849 MHz; σ = 0.918 mho/m; ε_r = 40.522; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:
- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

4-slot GPRS - Left/Cheek - High – Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.832 W/kg

4-slot GPRS - Left/Cheek - High – Cover CC-3059/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.362 V/m
Peak SAR (extrapolated) = 1.005 mW/g
SAR(1 g) = 0.796 mW/g
SAR(10 g) = 0.602 mW/g
Power Drift = -0.14 dB
Maximum value of SAR (measured) = 0.834 W/kg



Date/Time: 2012-09-15 12:48:31

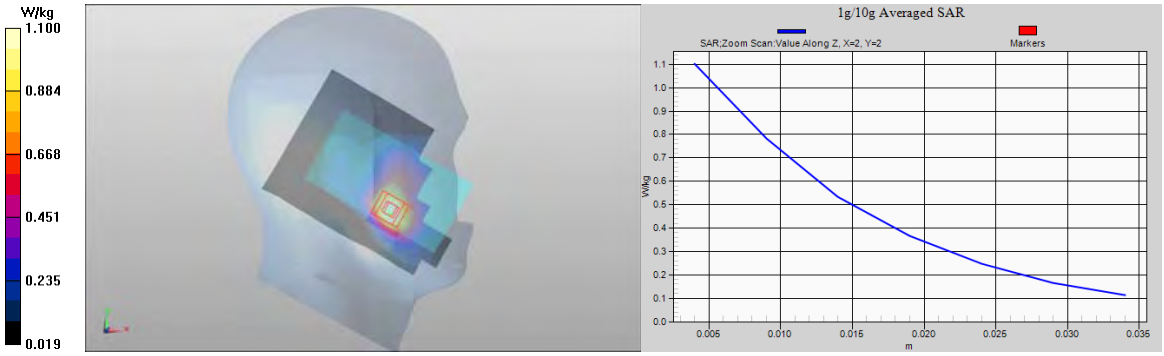
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1383211/A2

Communication System: CDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: T =21.67 C
Medium parameters used: f = 1880 MHz; σ = 1.413 mho/m; ε_r = 39.37; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.92, 4.92, 4.92); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM1 9/15/2012; Type: QD000P40CC; Serial: TP:1279
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA - Left/Cheek – Middle – Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 1.26 W/kg

CDMA - Left/Cheek – Middle – Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.856 V/m
Peak SAR (extrapolated) = 1.396 mW/g
SAR(1 g) = 1.03 mW/g
SAR(10 g) = 0.661 mW/g
Power Drift = -0.02 dB
Maximum value of SAR (measured) = 1.10 W/kg



Date/Time: 2012-09-17 14:34:50

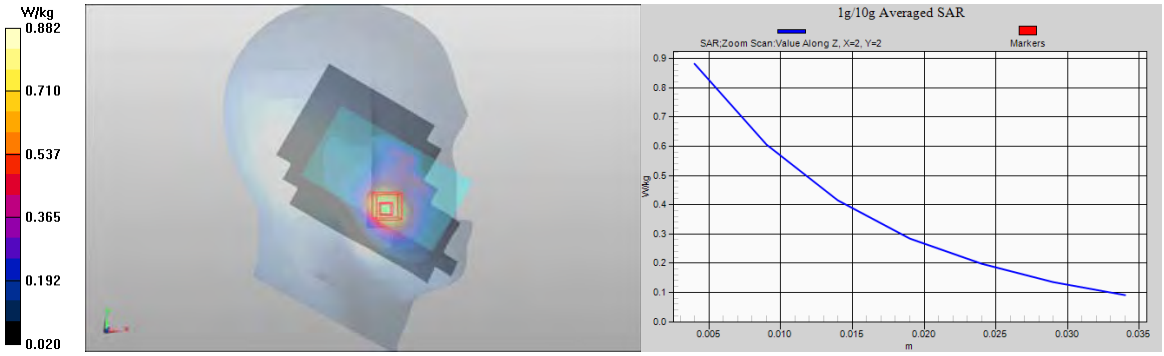
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138373/C1

Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: t= 21.5 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.333 mho/m; ε_r = 38.992; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA - Left/Cheek - Low - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.853 W/kg

WCDMA - Left/Cheek - Low - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.713 V/m
Peak SAR (extrapolated) = 1.205 mW/g
SAR(1 g) = 0.813 mW/g
SAR(10 g) = 0.513 mW/g
Power Drift = 0.19 dB
Maximum value of SAR (measured) = 0.882 W/kg



Date/Time: 2012-09-05 14:21:38

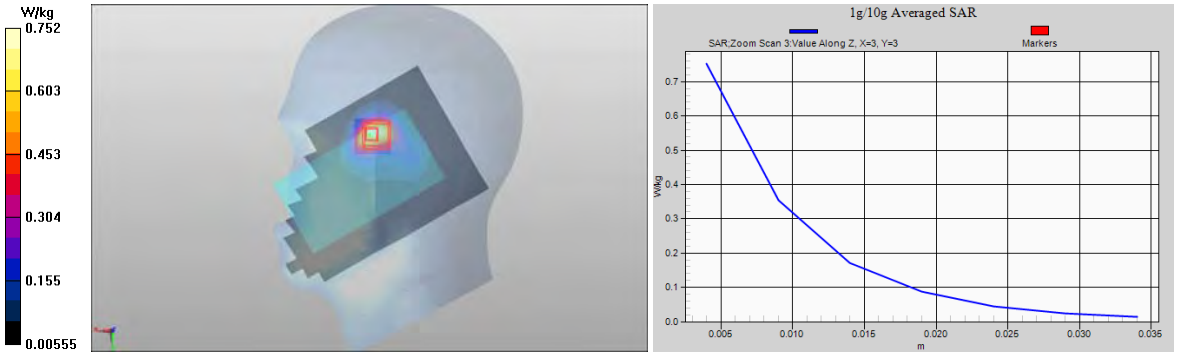
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode
Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450; Medium Notes: t= 21.4 C
Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan (121x181x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 0.795 W/kg

WLAN - Right/Cheek- Middle - Cover CC-3059/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.799 V/m
Peak SAR (extrapolated) = 1.587 mW/g
SAR(1 g) = 0.691 mW/g
SAR(10 g) = 0.331 mW/g
Power Drift = 0.20 dB
Maximum value of SAR (measured) = 0.752 W/kg



Date/Time: 2012-09-10 11:45:59

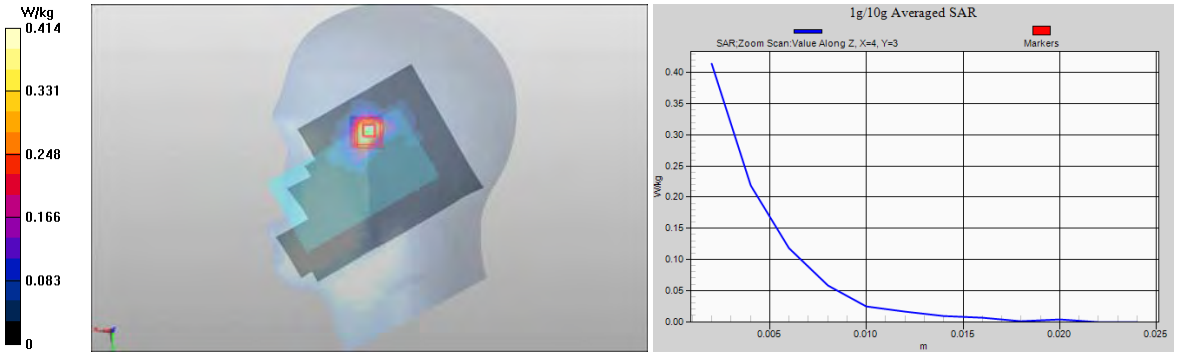
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138344/G4

Communication System: WLAN5000 a-mode
Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: HSL5200; Medium Notes: 21.4 C
Medium parameters used: f = 5180 MHz; σ = 4.439 mho/m; ε_r = 34.731; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(4.81, 4.81, 4.81); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WLAN - Right/Cheek - Channel 36 - Cover CC-3059/Area Scan (121x181x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 0.409 W/kg

WLAN - Right/Cheek - Channel 36 - Cover CC-3059/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 10.234 V/m
Peak SAR (extrapolated) = 0.885 mW/g
SAR(1 g) = 0.229 mW/g
SAR(10 g) = 0.087 mW/g
Power Drift = 0.10 dB
Maximum value of SAR (measured) = 0.414 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

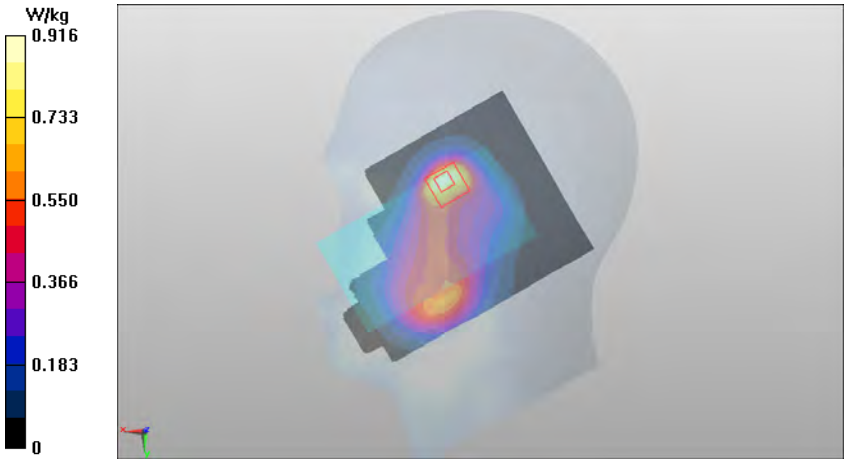
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-19 15:19:58

DASY Configuration for LTE - Right/Cheek - Right - Middle - QPSK - 10MHz - 1 RB - 50% offset/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2
Communication System: LTE13 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.932 mho/m; ε_r = 40.425; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD;
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.805 mW/g; SAR(10 g) = 0.420 mW/g
Maximum value of SAR (interpolated) = 0.916 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

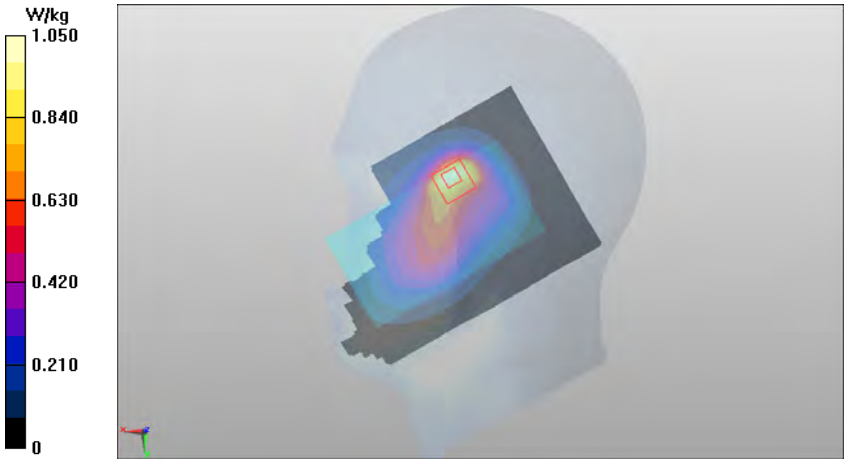
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-19 19:02:41

DASY Configuration for CDMA - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294
Communication System: CDMA2000; Frequency: 836.52 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL835 Medium parameters used: f = 837 MHz; σ = 0.899 mho/m; ε_r = 41.755; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ET3DV6R - SN1399; ConvF(5.82, 5.82, 5.82); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE3 Sn420; Calibrated: 2011-07-21
Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.503 mW/g
Maximum value of SAR (interpolated) = 1.05 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

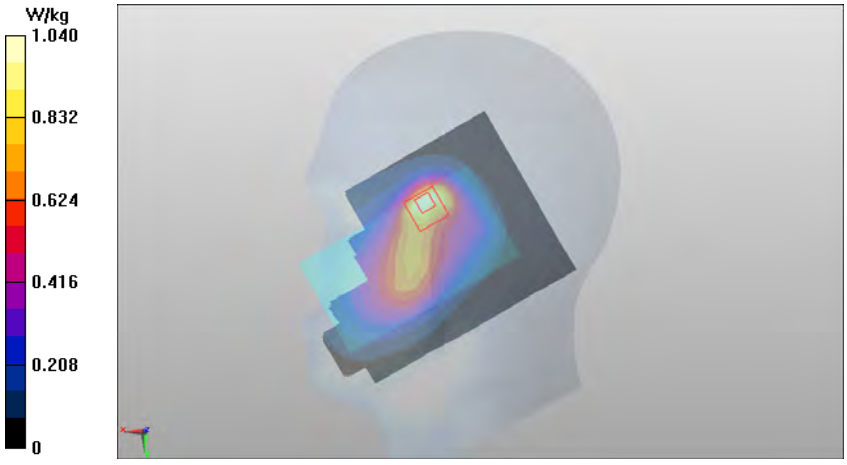
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-29 15:44:28

DASY Configuration for 4-slot GPRS - Right/Cheek - High/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138373/C1
Communication System: 4-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991; PMF: 1.44911
Medium: HSL850 Medium parameters used: f = 837 MHz; σ = 0.928 mho/m; ε_r = 40.694; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ES3DV3 - SN3131; ConvF(5.88, 5.88, 5.88); Calibrated: 2011-09-14;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.921 mW/g; SAR(10 g) = 0.508 mW/g
Maximum value of SAR (interpolated) = 1.04 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

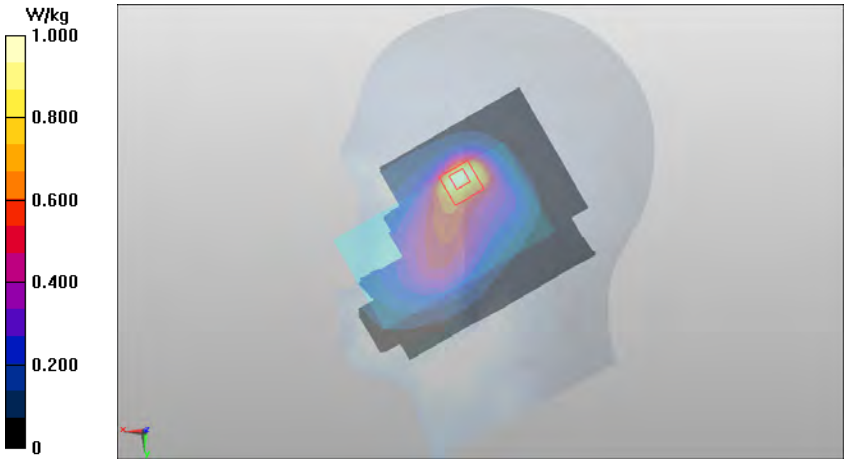
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-07 17:01:39

DASY Configuration for WCDMA - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138226/D1
Communication System: WCDMA850; Frequency: 835 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL900 Medium parameters used: f = 835 MHz; σ = 0.886 mho/m; ε_r = 40.934; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ET3DV6R - SN1399; ConvF(5.82, 5.82, 5.82); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn756; Calibrated: 2011-08-26
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.885 mW/g; SAR(10 g) = 0.474 mW/g
Maximum value of SAR (interpolated) = 1.00 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

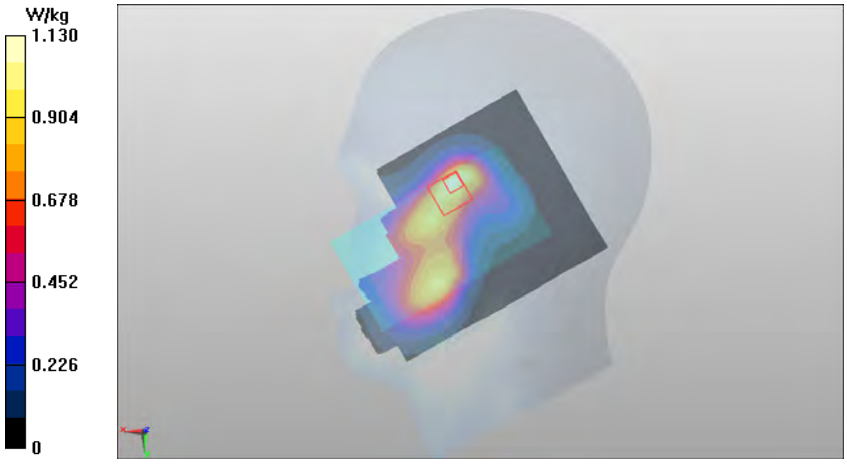
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-18 11:59:02

DASY Configuration for CDMA - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138211/F2/A2
Communication System: CDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.449 mho/m; ε_r = 38.967; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ET3DV6 - SN1739; ConvF(5.07, 5.07, 5.07); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2011-07-21
Phantom: SAM 3; Type: QD000P40CD; Serial: TP1630
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.525 mW/g
Maximum value of SAR (interpolated) = 1.13 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

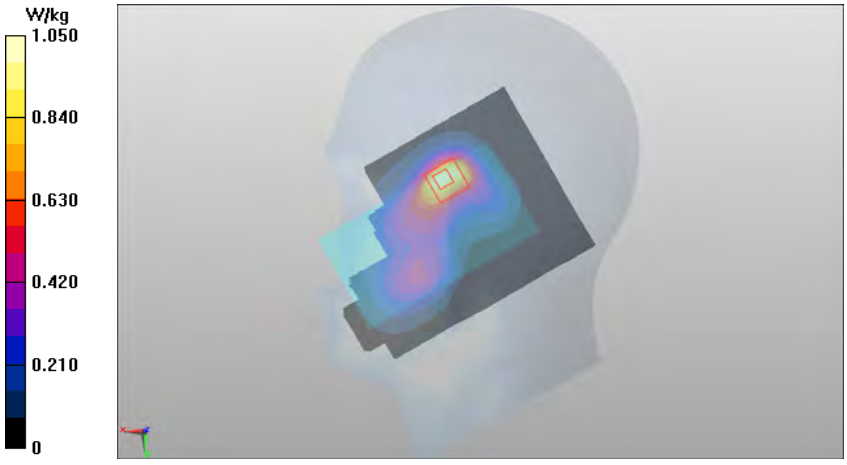
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-27 18:24:16

DASY Configuration for 2-slot GPRS - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1383245/D2
Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.439 mho/m; ε_r = 39.548; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ET3DV6 - SN1739; ConvF(5.07, 5.07, 5.07); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn756; Calibrated: 2011-08-26
Phantom: SAM 3; Type: QD000P40CD; Serial: TP1630
Measurement SW: DASY52, Version 52.8 (2)

Fast SAR of Combined Scans: SAR(1 g) = 0.915 mW/g; SAR(10 g) = 0.464 mW/g
Maximum value of SAR (interpolated) = 1.05 W/kg



Date/Time: 2012-09-05 14:21:38

DASY Configuration for WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; ε_r = 38.29; ρ = 1000 kg/m^3
Phantom section: Right Section

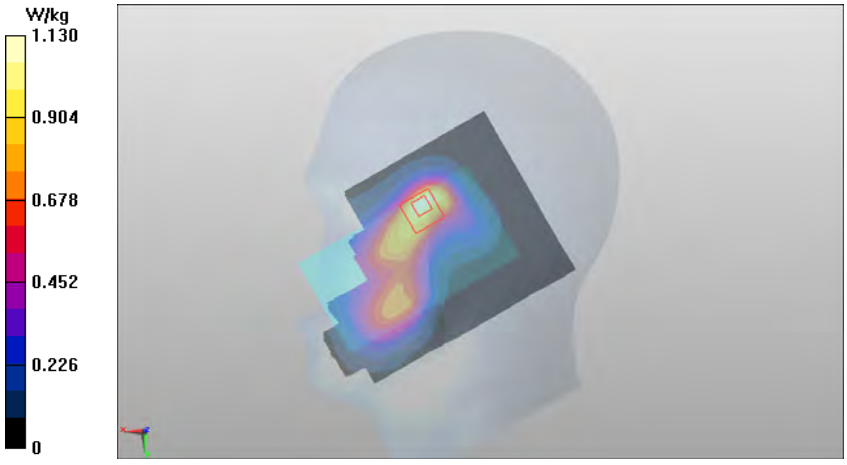
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-21 18:48:20

DASY Configuration for WCDMA - Right/WCDMA - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138373/C1
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.432 mho/m; ε_r = 38.639; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ET3DV6 - SN1739; ConvF(5.07, 5.07, 5.07); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn756; Calibrated: 2011-08-26
Phantom: SAM 3; Type: QD000P40CD; Serial: TP1630
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.993 mW/g; SAR(10 g) = 0.526 mW/g
Maximum value of SAR (interpolated) = 1.13 W/kg



APPENDIX B.2: BODY-WORN MEASUREMENT SCANS

Date/Time: 2012-08-31 12:39:45

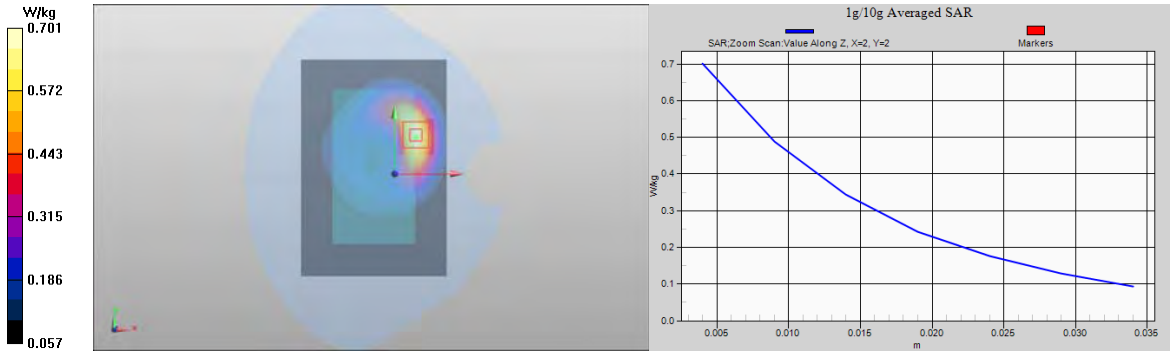
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2

Communication System: LTE13 (BAND 13)
Frequency: 782 MHz; Duty Cycle: 1:1
Medium: BSL750; Medium Notes: t= 21.3 C
Medium parameters used: f = 782 MHz; σ = 1.005 mho/m; ε_r = 53.115; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #3 CRP; Type: SAM
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.695 W/kg

LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 12.313 V/m
Peak SAR (extrapolated) = 0.927 mW/g
SAR(1 g) = 0.645 mW/g
SAR(10 g) = 0.420 mW/g
Power Drift = 0.06 dB
Maximum value of SAR (measured) = 0.701 W/kg



Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1

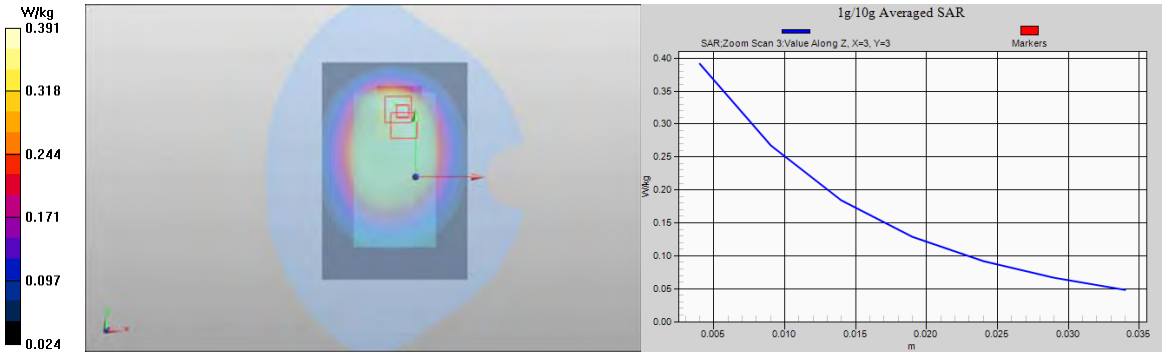
Communication System: CDMA800
Frequency: 824.7 MHz; Duty Cycle: 1:1
Medium: MSL900; Medium Notes: T=21.9C
Medium parameters used: f = 825 MHz; σ = 0.965 mho/m; ε_r = 54.475; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 4 15-09-2012; Type: QD000P40CD; Serial: TP1630
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA/Body-Low-Spacer 15mm-No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1):
Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.401 W/kg

CDMA/Body-Low-Spacer 15mm-No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 19.233 V/m
Peak SAR (extrapolated) = 0.540 mW/g
SAR(1 g) = 0.363 mW/g
SAR(10 g) = 0.246 mW/g
Power Drift = -0.06 dB
Maximum value of SAR (measured) = 0.386 W/kg

CDMA/Body-Low-Spacer 15mm-No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan 2 (6x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 19.233 V/m
Peak SAR (extrapolated) = 0.548 mW/g
SAR(1 g) = 0.366 mW/g
SAR(10 g) = 0.254 mW/g
Power Drift = -0.10 dB
Maximum value of SAR (measured) = 0.391 W/kg



WDate/Time: 2012-09-15 19:01:54

Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138226/D1

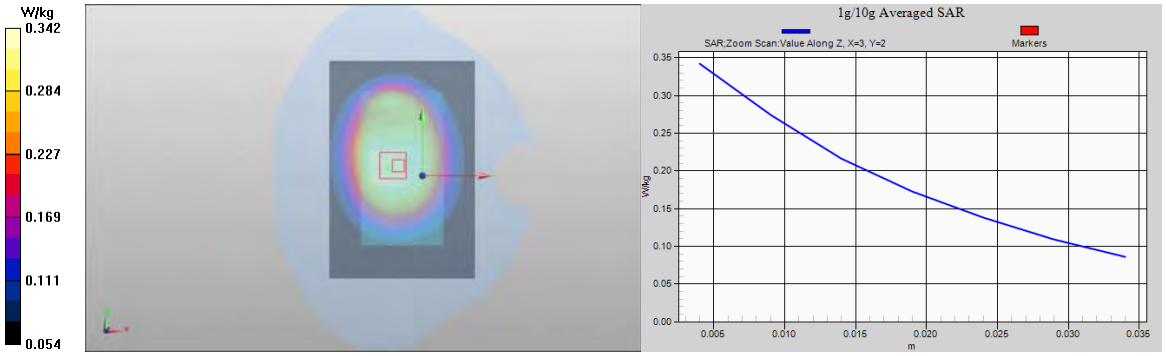
Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900; Medium Notes: T=21.9C
Medium parameters used: f = 835 MHz; σ = 0.971 mho/m; ε_r = 54.44; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 4 15-09-2012; Type: QD000P40CD; Serial: TP1630
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body-Middle-Spacer 15mm-No Accessory-Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.345 W/kg

WCDMA/Body-Middle-Spacer 15mm-No Accessory-Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 19.611 V/m
Peak SAR (extrapolated) = 0.404 mW/g
SAR(1 g) = 0.326 mW/g
SAR(10 g) = 0.254 mW/g
Power Drift = -0.07 dB

Maximum value of SAR (measured) = 0.342 W/kg



Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138211/A2

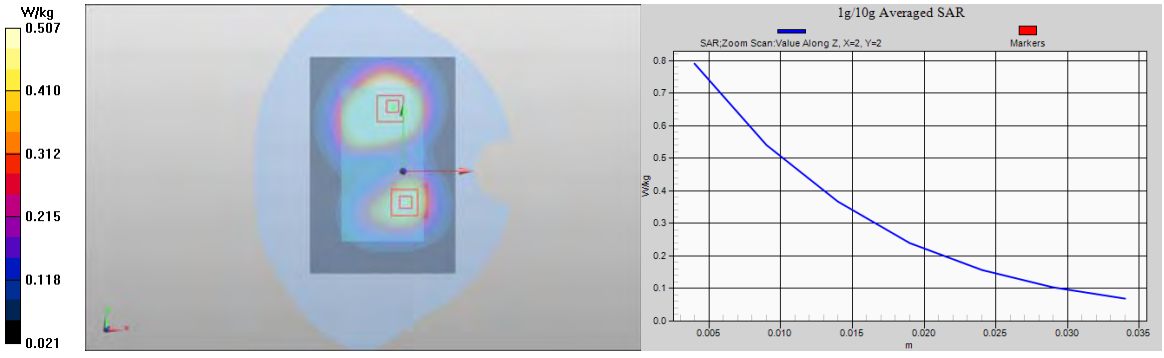
Communication System: CDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: MSL1900; Medium Notes: T =21.8 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 51.562; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM3 11-09-2012; Type: QD000P40CD; Serial: TP: 1729
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA/Body-Middle-Spacer 15mm-WH-902-Display Facing Phantom - Cover CC-3059/Area Scan (81x121x1):
Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.798 W/kg

CDMA/Body-Middle-Spacer 15mm-WH-902-Display Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.543 V/m
Peak SAR (extrapolated) = 1.047 mW/g
SAR(1 g) = 0.734 mW/g
SAR(10 g) = 0.483 mW/g
Power Drift = 0.01 dB
Maximum value of SAR (measured) = 0.790 W/kg

CDMA/Body-Middle-Spacer 15mm-WH-902-Display Facing Phantom - Cover CC-3059/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.543 V/m
Peak SAR (extrapolated) = 0.683 mW/g
SAR(1 g) = 0.476 mW/g
SAR(10 g) = 0.311 mW/g
Power Drift = 0.01 dB
Maximum value of SAR (measured) = 0.507 W/kg



Date/Time: 2012-09-18 11:57:29

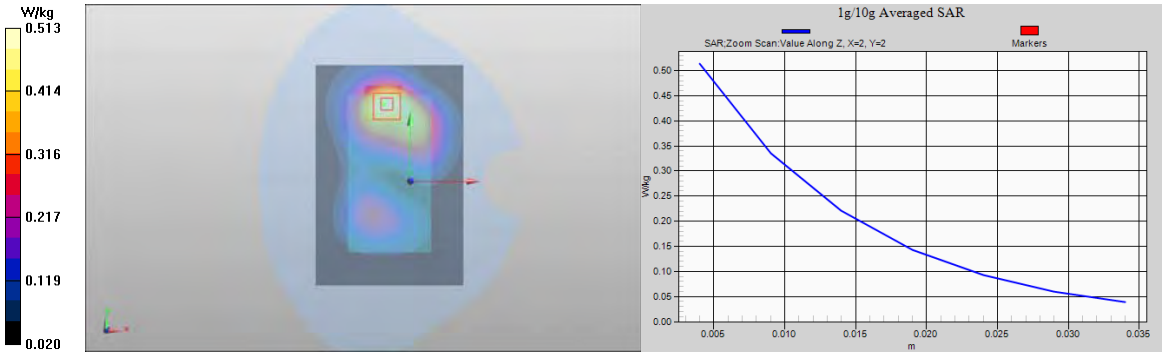
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138373/C1

Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.4 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.454 mho/m; ε_r = 52.186; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Low - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (121x181x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 0.517 W/kg

WCDMA/Body - Low - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.648 V/m
Peak SAR (extrapolated) = 0.731 mW/g
SAR(1 g) = 0.472 mW/g
SAR(10 g) = 0.298 mW/g
Power Drift = 0.06 dB
Maximum value of SAR (measured) = 0.513 W/kg



Date/Time: 2012-09-07 13:22:49

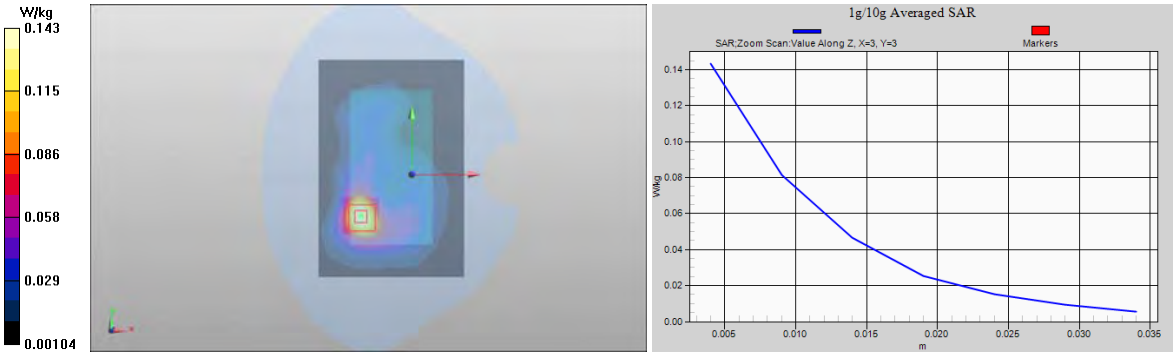
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode
Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WLAN/Body - High - Spacer 15mm – WH-902 - Back Facing Phantom - Cover CC-3059/Area Scan (121x181x1):
Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 0.149 W/kg

WLAN/Body - High - Spacer 15mm - WH-902 - Back Facing Phantom - Cover CC-3059/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.624 V/m
Peak SAR (extrapolated) = 0.229 mW/g
SAR(1 g) = 0.130 mW/g
SAR(10 g) = 0.070 mW/g
Power Drift = -0.08 dB
Maximum value of SAR (measured) = 0.143 W/kg



Date/Time: 2012-09-11 13:57:00

Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138344/G4

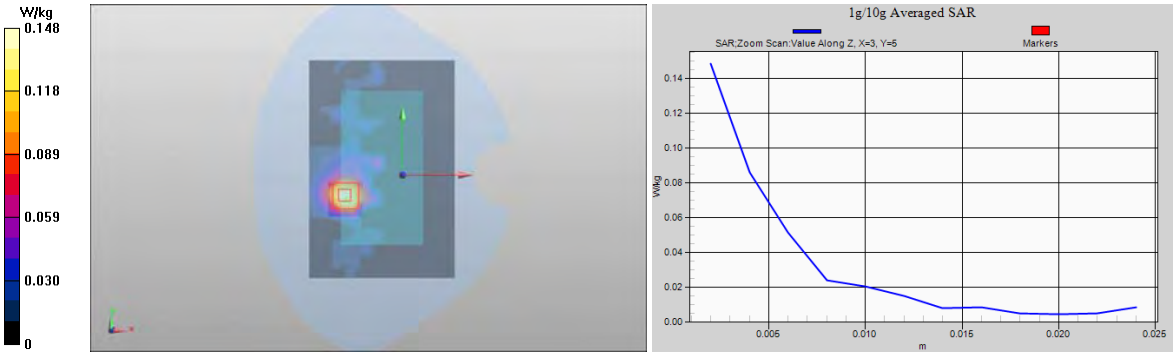
Communication System: WLAN5000 a-mode
Frequency: 5220 MHz; Duty Cycle: 1:1
Medium: BSL5200; Medium Notes: 21,3 C
Medium parameters used: f = 5220 MHz; σ = 5.429 mho/m; ε_r = 48.065; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3834
- ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WLAN/Body - Channel 44 - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (121x181x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 0.148 W/kg

WLAN/Body - Channel 44 - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.772 V/m
Peak SAR (extrapolated) = 0.252 mW/g
SAR(1 g) = 0.082 mW/g
SAR(10 g) = 0.032 mW/g
Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.148 W/kg



Date/Time: 2012-07-20 18:42:09

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: BSL2450 Medium parameters used: f = 2437 MHz; σ = 1.934 mho/m; ε_r = 51.203; ρ = 1000 kg/m^3
Phantom section: Flat Section

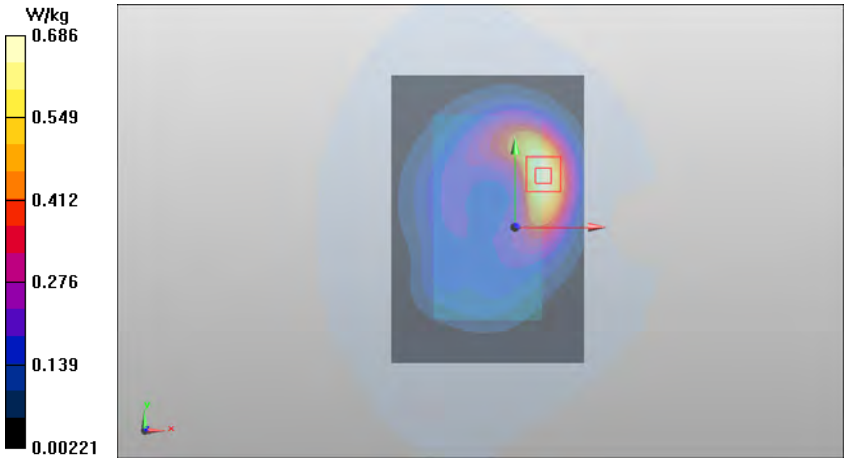
Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2
Communication System: LTE13 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.005 mho/m; ε_r = 53.115; ρ = 1000 kg/m^3
Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.425 mW/g
Maximum value of SAR (interpolated) = 0.686 W/kg



Date/Time: 2012-08-03 01:59:15

DASY Configuration for WLAN/Body - Channel 44 - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A1138344/G4

Communication System: WLAN5000 a-mode; Frequency: 5220 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL5200 Medium parameters used: f = 5220 MHz; σ = 5.493 mho/m; ε_r = 48.671; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;
Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
Phantom: SAM2; Type: SAM; Serial: TP-1570
Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE13 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

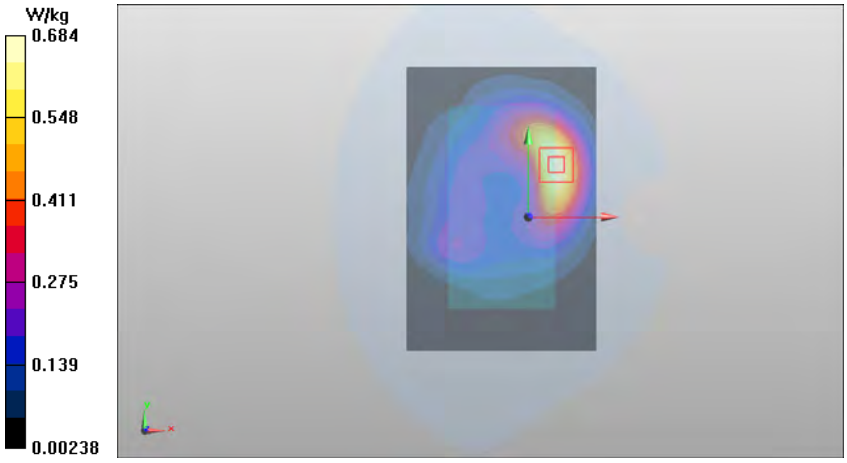
Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.005 mho/m; ε_r = 53.115; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.422 mW/g

Maximum value of SAR (interpolated) = 0.684 W/kg



APPENDIX B.3: WIRELESS ROUTER MEASUREMENT SCANS

Date/Time: 2012-08-31 13:14:42

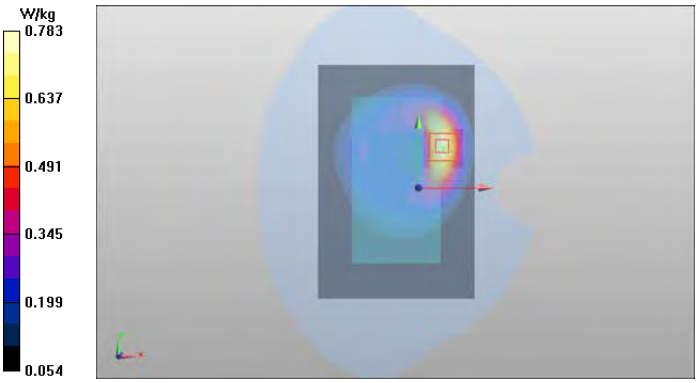
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138254/F2

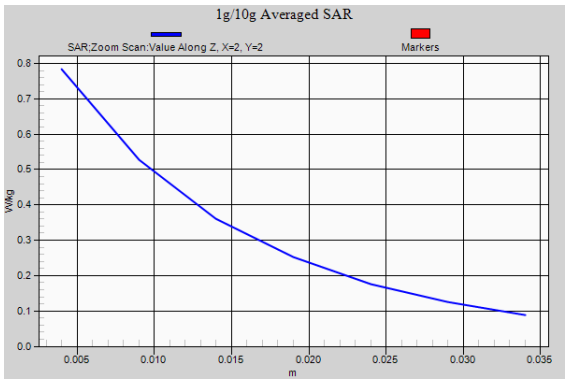
Communication System: LTE13 (BAND 13)
Frequency: 782 MHz; Duty Cycle: 1:1
Medium: BSL750; Medium Notes: t= 21.3 C
Medium parameters used: f = 782 MHz; σ = 1.005 mho/m; ε_r = 53.115; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #3 CRP; Type: SAM
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.762 W/kg

LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.562 V/m
Peak SAR (extrapolated) = 1.094 mW/g
SAR(1 g) = 0.715 mW/g
SAR(10 g) = 0.440 mW/g
Power Drift = 0.02 dB
Maximum value of SAR (measured) = 0.783 W/kg





Date/Time: 2012-09-16 00:24:54

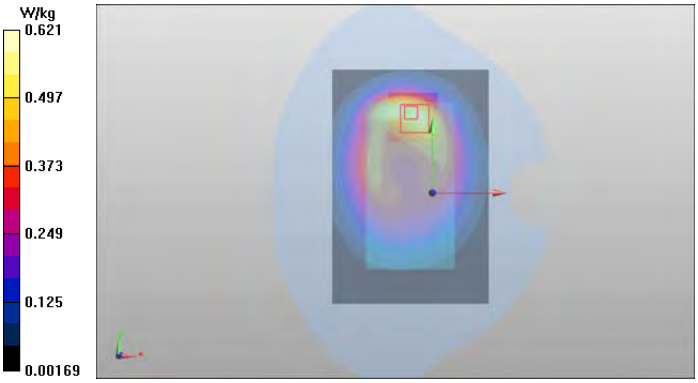
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1

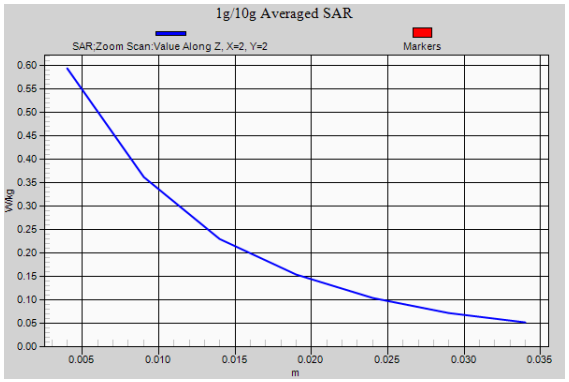
Communication System: CDMA800
Frequency: 824.7 MHz; Duty Cycle: 1:1
Medium: MSL900; Medium Notes: T=21.9C
Medium parameters used: f = 825 MHz; σ = 0.965 mho/m; ε_r = 54.475; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 4 15-09-2012; Type: QD000P40CD; Serial: TP1630
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.621 W/kg

CDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 19.054 V/m
Peak SAR (extrapolated) = 0.911 mW/g
SAR(1 g) = 0.545 mW/g
SAR(10 g) = 0.344 mW/g
Power Drift = -0.08 dB
Maximum value of SAR (measured) = 0.593 W/kg





Date/Time: 2012-08-31 15:13:34

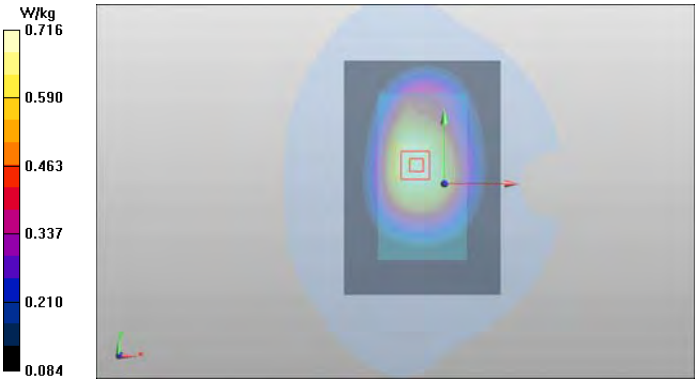
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138373/C1

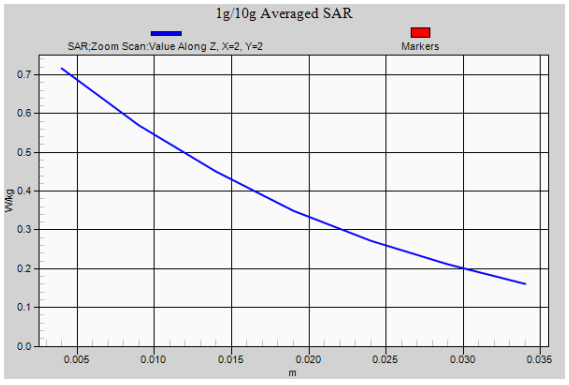
Communication System: 4-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.09991
Medium: BSL850; Medium Notes: t= 21,1 C
Medium parameters used: f = 837 MHz; σ = 0.988 mho/m; ε_r = 53.212; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

4-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.730 W/kg

4-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 26.285 V/m
Peak SAR (extrapolated) = 0.843 mW/g
SAR(1 g) = 0.689 mW/g
SAR(10 g) = 0.533 mW/g
Power Drift = -0.03 dB
Maximum value of SAR (measured) = 0.716 W/kg





Date/Time: 2012-09-14 18:44:55

Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1

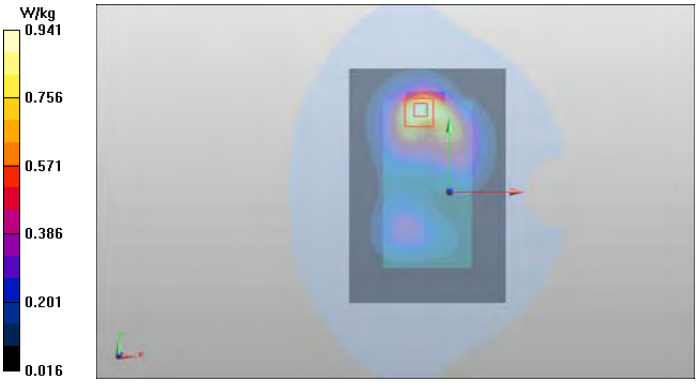
Communication System: CDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: MSL1900; Medium Notes: T =21.8 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 51.562; ρ = 1000 kg/m^3
Phantom section: Flat Section

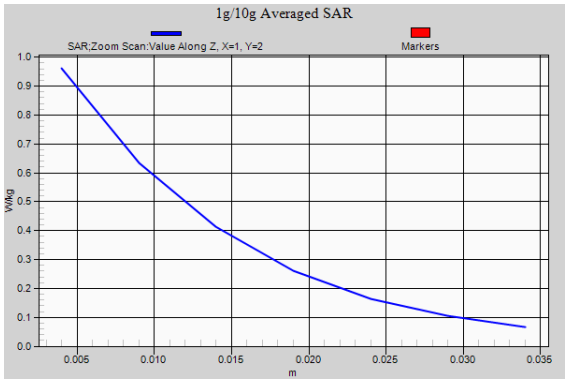
DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM3 11-09-2012; Type: QD000P40CD; Serial: TP: 1729
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

CDMA/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 7.337 V/m
Peak SAR (extrapolated) = 1.368 mW/g
SAR(1 g) = 0.884 mW/g
SAR(10 g) = 0.530 mW/g
Power Drift = -0.04 dB

Maximum value of SAR (measured) = 0.961 W/kg





Date/Time: 2012-09-14 21:01:07

Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1

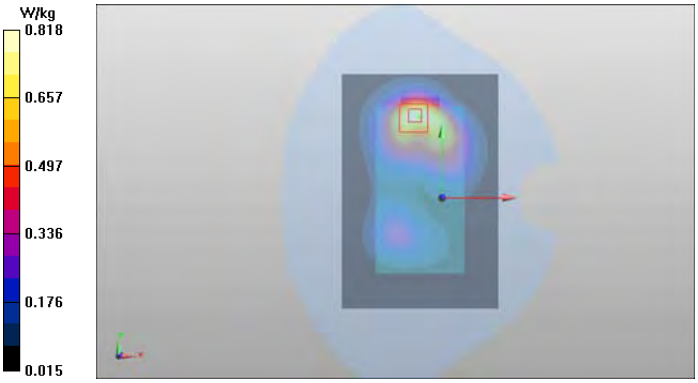
Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: MSL1900; Medium Notes: T =21.8 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.477 mho/m; ε_r = 51.705; ρ = 1000 kg/m^3
Phantom section: Flat Section

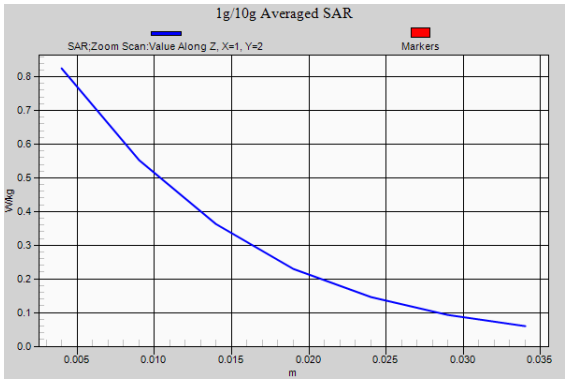
DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM3 11-09-2012; Type: QD000P40CD; Serial: TP: 1729
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.860 W/kg

WCDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.960 V/m
Peak SAR (extrapolated) = 1.173 mW/g
SAR(1 g) = 0.761 mW/g
SAR(10 g) = 0.459 mW/g
Power Drift = -0.09 dB

Maximum value of SAR (measured) = 0.824 W/kg





Date/Time: 2012-09-07 13:52:47

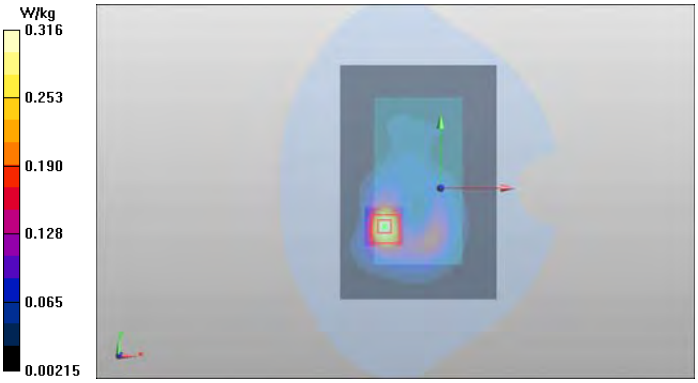
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138223/G1

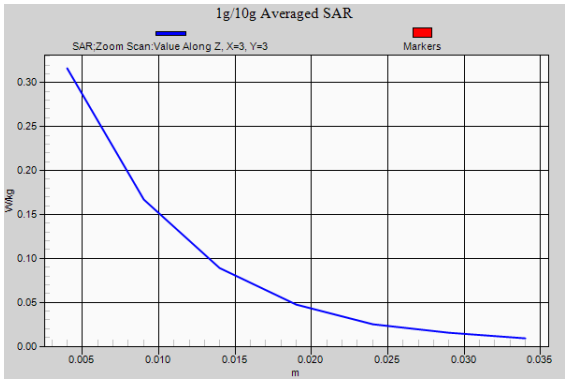
Communication System: WLAN2450 b-mode
Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: EX3DV4 - SN3573
- ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan (121x181x1): Measurement grid: dx=10.00 mm, dy=10.00 mm
Maximum value of SAR (interpolated) = 0.324 W/kg

WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.262 V/m
Peak SAR (extrapolated) = 0.540 mW/g
SAR(1 g) = 0.281 mW/g
SAR(10 g) = 0.142 mW/g
Power Drift = -0.05 dB
Maximum value of SAR (measured) = 0.316 W/kg





Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-20 18:39:57

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138254/F2

Communication System: LTE13 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

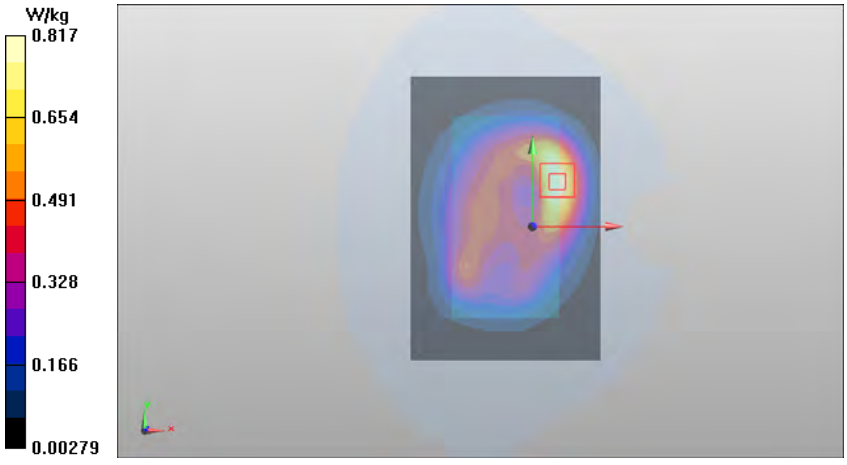
Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.007 mho/m; ε_r = 53.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.757 mW/g; SAR(10 g) = 0.495 mW/g

Maximum value of SAR (interpolated) = 0.817 W/kg



Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-23 17:10:14

DASY Configuration for CDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138294/B1

Communication System: CDMA2000; Frequency: 824.7 MHz; Duty Cycle: 1:1; PMF: 1

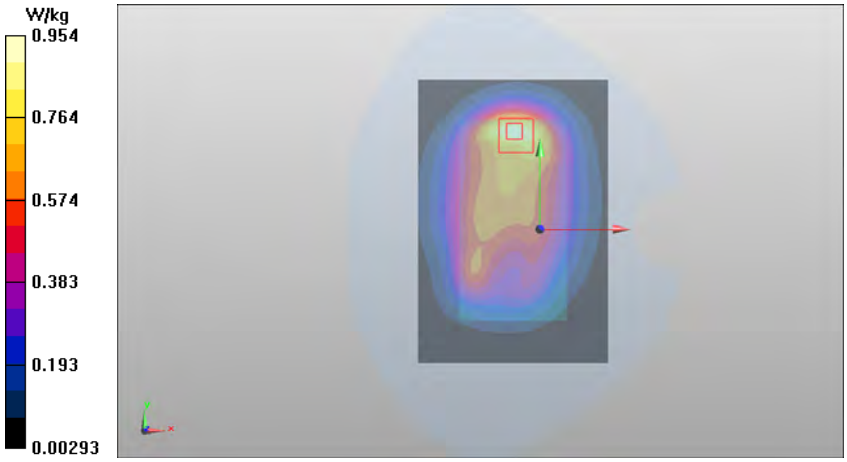
Medium: MSL835 Medium parameters used: f = 825 MHz; σ = 0.957 mho/m; ε_r = 56.047; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
Phantom: SAM3; Type: SAM; Serial: TP-1399
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.563 mW/g

Maximum value of SAR (interpolated) = 0.954 W/kg



Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-29 19:35:30

DASY Configuration for 4-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138373/C1

Communication System: 4-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2.09991; PMF: 1.44911

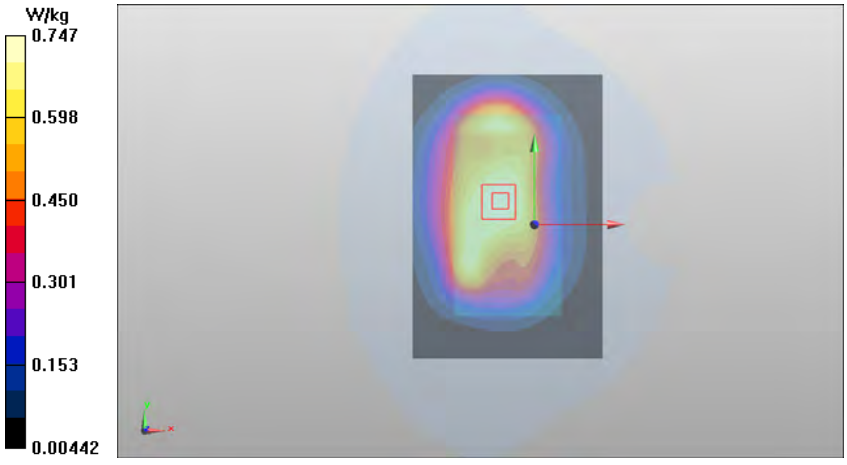
Medium: BSL850 Medium parameters used: f = 837 MHz; σ = 1.008 mho/m; ε_r = 53.63; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3131; ConvF(5.92, 5.92, 5.92); Calibrated: 2011-09-14;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.496 mW/g

Maximum value of SAR (interpolated) = 0.747 W/kg



Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-25 23:07:19

DASY Configuration for WCDMA/Body - Middle - Spacer 10mm - No Accessory -Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138226/D1

Communication System: WCDMA850; Frequency: 835 MHz; Duty Cycle: 1:1; PMF: 1

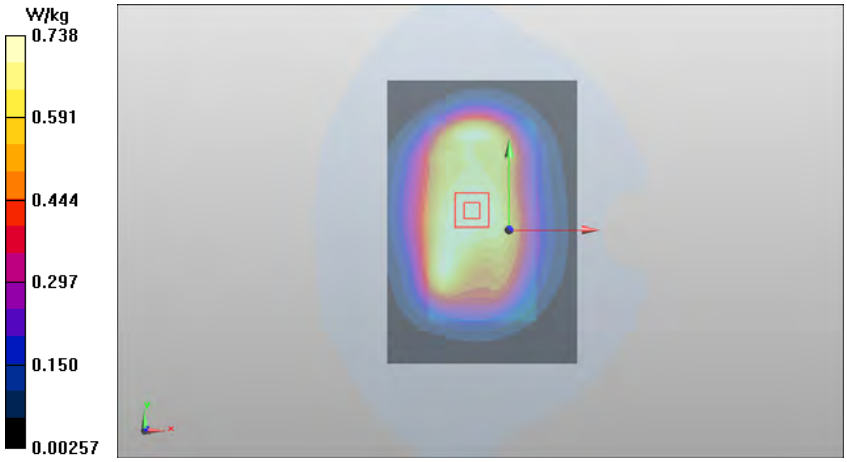
Medium: M900 Medium parameters used: f = 835 MHz; σ = 0.978 mho/m; ε_r = 55.206; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
Phantom: SAM3; Type: SAM; Serial: TP-1399
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.701 mW/g; SAR(10 g) = 0.498 mW/g

Maximum value of SAR (interpolated) = 0.738 W/kg



Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-23 13:04:47

DASY Configuration for CDMABody - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138294/F2/B1

Communication System: CDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

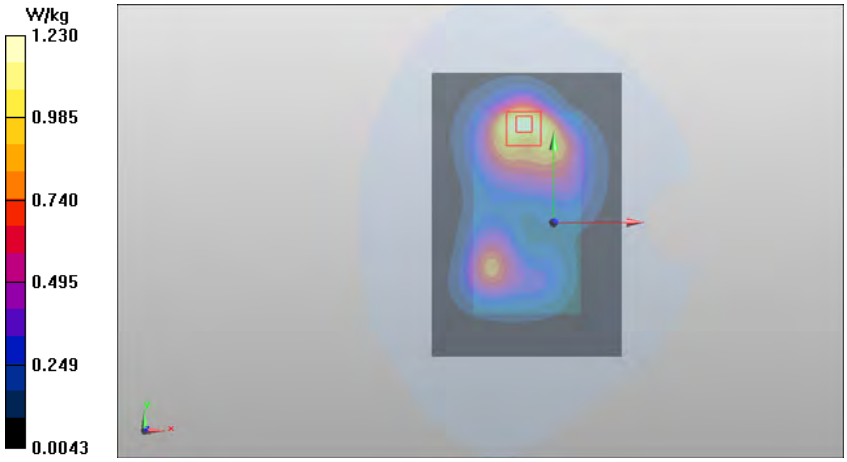
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.508 mho/m; ε_r = 52.268; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6 - SN1739; ConvF(4.54, 4.54, 4.54); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn756; Calibrated: 2011-08-26
Phantom: SAM 2; Type: QD000P40CD; Serial: TP1701
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.629 mW/g

Maximum value of SAR (interpolated) = 1.23 W/kg



Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-28 13:08:47

DASY Configuration for 2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A1383245/D2

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927

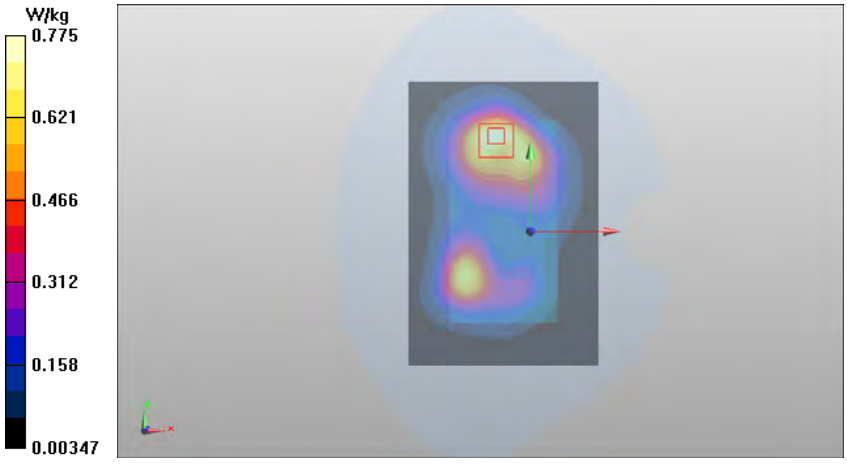
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.579 mho/m; ε_r = 52.086; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6 - SN1739; ConvF(4.54, 4.54, 4.54); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn756; Calibrated: 2011-08-26
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.694 mW/g; SAR(10 g) = 0.406 mW/g

Maximum value of SAR (interpolated) = 0.775 W/kg



Date/Time: 2012-09-07 13:52:47

DASY Configuration for WLAN/Body - High - Spacer 10mm - No Accessory - Back Facing Phantom - Cover CC-3059/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2462 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: f = 2462 MHz; σ = 1.979 mho/m; ε_r = 50.805; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-07-30 12:09:36

DASY Configuration for WCDMA/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A1383245/D2

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

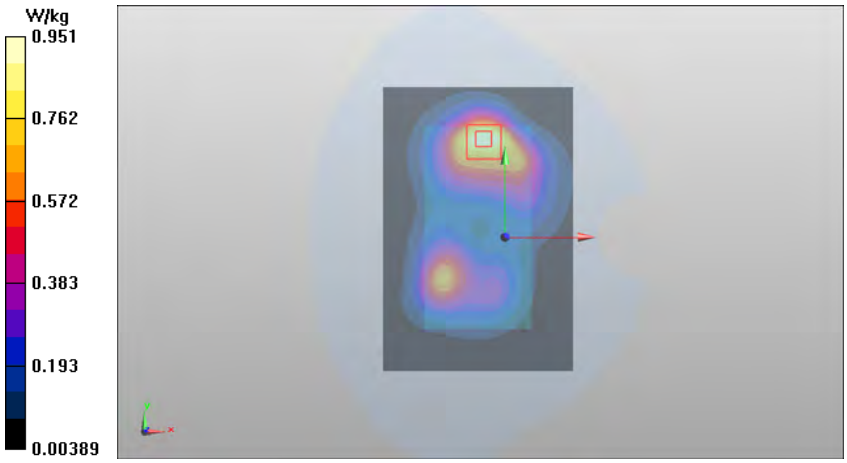
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.58 mho/m; ε_r = 51.809; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6 - SN1739; ConvF(4.54, 4.54, 4.54); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn756; Calibrated: 2011-08-26
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.854 mW/g; SAR(10 g) = 0.488 mW/g

Maximum value of SAR (interpolated) = 0.951 W/kg



APPENDIX B.4: SVLTE MODE MEASUREMENTS SCANS

Date/Time: 2012-09-13 14:07:58

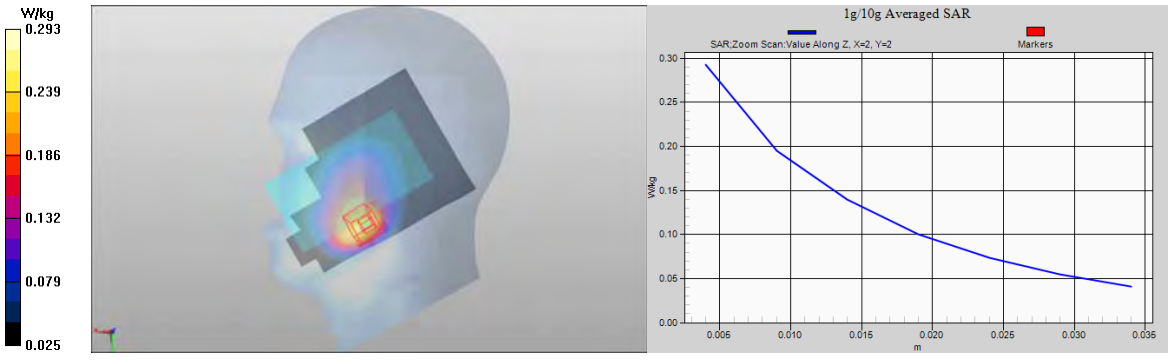
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138405/F2

Communication System: LTE13 *(BAND 13)**
Frequency: 782 MHz; Duty Cycle: 1:1
Medium: HSL750; Medium Notes: t= 21.4
Medium parameters used: f = 782 MHz; σ = 0.947 mho/m; ε_r = 40.225; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #4 CRP ; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

LTE - Right/Cheek - Middle - QPSK - 10MHz - 1 RB - 50% offset – Cover CC-3059/Area Scan (81x121x1):
Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.261 W/kg

LTE - Right/Cheek - Middle - QPSK - 10MHz - 1 RB - 50% offset - Cover CC-3059/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.976 V/m
Peak SAR (extrapolated) = 0.411 mW/g
SAR(1 g) = 0.260 mW/g
SAR(10 g) = 0.169 mW/g
Power Drift = 0.04 dB
Maximum value of SAR (measured) = 0.293 W/kg



Date/Time: 2012-10-01 10:18:13

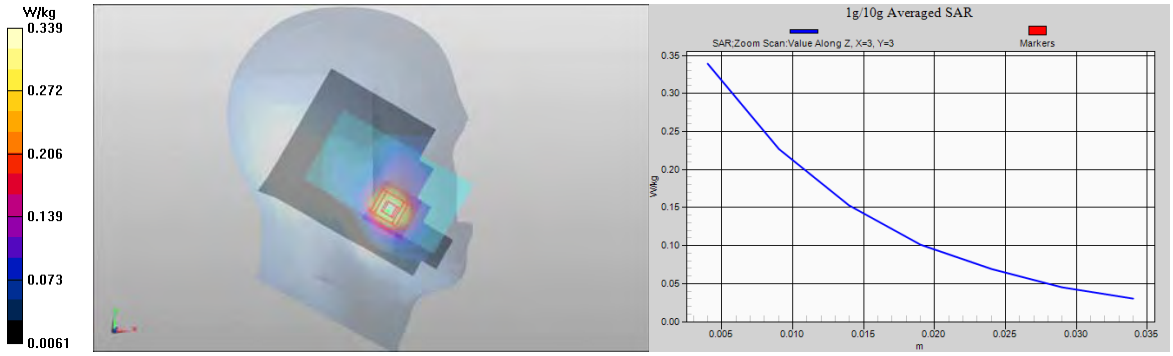
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138332

Communication System: CDMA1900****
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: T=21.1
Medium parameters used: f = 1880 MHz; σ = 1.402 mho/m; ε_r = 39.419; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:
- Probe: EX3DV4 - SN3852
- ConvF(7.8, 7.8, 7.8); Calibrated: 2012-03-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
- Phantom: SAM 3 06.09.2012; Type: QD000P40CB; Serial: TP:1399
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA - Left/Cheek – Middle – Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.344 W/kg

CDMA - Left/Cheek – Middle – Cover CC-3059/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.381 V/m
Peak SAR (extrapolated) = 0.474 mW/g
SAR(1 g) = 0.317 mW/g
SAR(10 g) = 0.196 mW/g
Power Drift = 0.38 dB
Maximum value of SAR (measured) = 0.339 W/kg



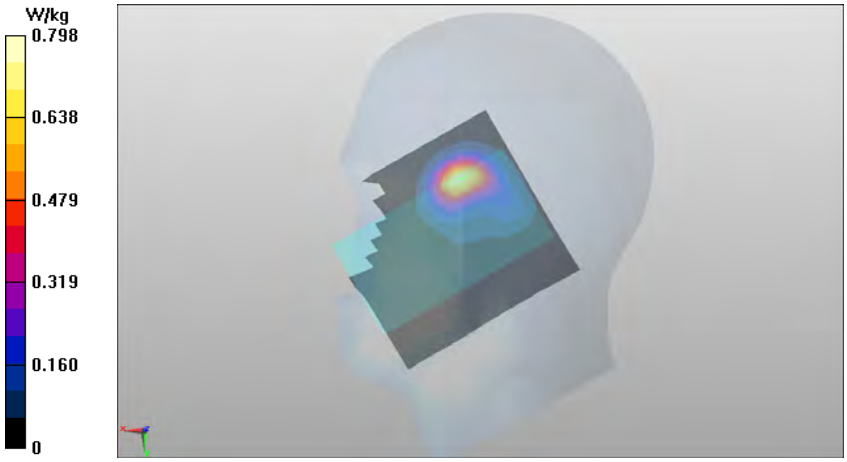
Date/Time: 2012-10-04 13:38:55

Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1

Communication System: WLAN2450 b-mode EXPANDED ZOOM SCAN
Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450; Medium Notes: t= 20.9 C
Medium parameters used: f = 2437 MHz; σ = 1.758 mho/m; ε_r = 37.695; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:
- Probe: EX3DV4 - SN3835
- ConvF(6.73, 6.73, 6.73); Calibrated: 2012-02-07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WLAN - Right/Cheek - Middle – Volume Scan - Cover CC-3059/Volume Scan (17x18x7): Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.983 V/m
Peak SAR (extrapolated) = 1.555 mW/g
SAR(1 g) = 0.708 mW/g
SAR(10 g) = 0.333 mW/g
Power Drift = -0.05 dB
Total Absorbed Power = 0.0137 W
Maximum value of SAR (measured) = 0.798 W/kg



Date/Time: 2012-07-19 15:19:58

DASY Configuration for LTE - Right/Cheek - Right - Middle - QPSK - 10MHz - 1 RB - 50% offset/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2
Communication System: LTE750 (Band 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.932 mho/m; ε_r = 40.425; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD; Serial:
Measurement SW: DASY52, Version 52.8 (0)

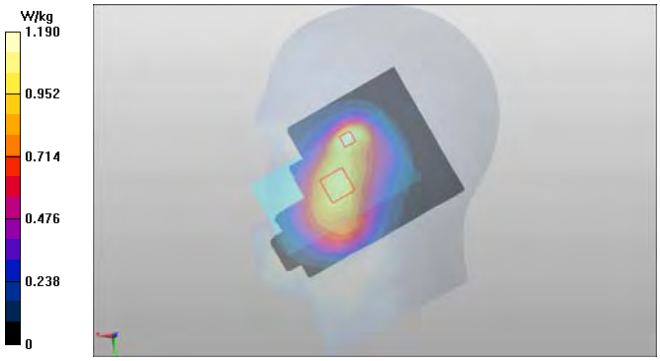
Date/Time: 2012-07-19 19:02:41

DASY Configuration for CDMA - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1
Communication System: CDMA800 RC3/SO55; Frequency: 836.52 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL835 Medium parameters used: f = 837 MHz; σ = 0.899 mho/m; ε_r = 41.755; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ET3DV6R - SN1399; ConvF(5.82, 5.82, 5.82); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE3 Sn420; Calibrated: 2011-07-21
Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-09-05 14:21:38

DASY Configuration for Configuration/WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; εr = 38.29; ρ = 1000 kg/m3
Phantom section: Right Section
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.698 mW/g
Maximum value of SAR (interpolated) = 1.19 mW/g



Date/Time: 2012-08-29 18:43:40

DASY Configuration for CDMA1900 Right/CDMA - Right/Cheek - Middle/Area Scan:
Test Laboratory: TCC Nokia
Type: Type: RM-845; Serial: C1A138332/BC1
Communication System: CDMA1900****; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.385 mho/m; ε_r = 39.267; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ET3DV6R - SN1399; ConvF(4.92, 4.92, 4.92); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2012-08-15
Phantom: SAM1; Type: QD000P40CC; Serial: TP:1279
Measurement SW: DASY52, Version 52.8 (1)

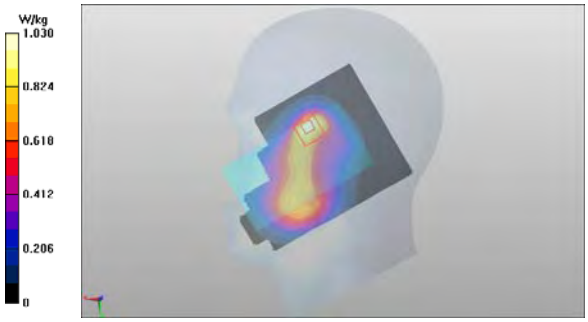
Date/Time: 2012-07-19 15:19:58

DASY Configuration for LTE - Right/Cheek - Right - Middle - QPSK - 10MHz - 1 RB - 50% offset/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2
Communication System: LTE750 (Band13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.932 mho/m; ε_r = 40.425; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD; Serial: TP:
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-09-05 14:21:38

DASY Configuration for Configuration/WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; εr = 38.29; ρ = 1000 kg/m3
Phantom section: Right Section
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.910 mW/g; SAR(10 g) = 0.492 mW/g
Maximum value of SAR (interpolated) = 1.03 mW/g



Date/Time: 2012-07-23 17:07:58

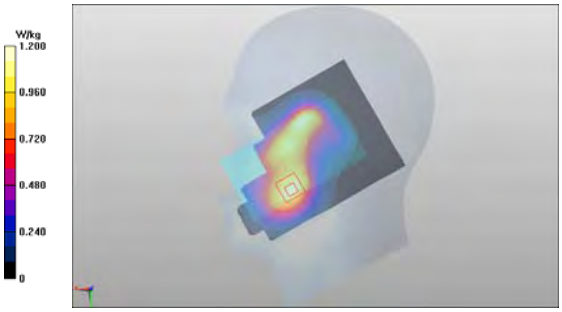
DASY Configuration for LTE - Right/Cheek - Middle - QPSK - 10MHz - 1 RB - 50% offset/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138405/F2
Communication System: LTE750*** (Band 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.922 mho/m; ε_r = 39.928; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD; Serial: TP:
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-09-05 14:21:38

DASY Configuration for Configuration/WLAN - Right/Cheek- Middle - Cover CC-3059/Area Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.797 mho/m; εr = 38.29; ρ = 1000 kg/m3
Phantom section: Right Section
Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

DASY Configuration for CDMA - Right/Cheek - Middle/Area Scan:
Date/Time: 2012-07-18 11:59:02
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138211/A2
Communication System: CDMA1900 RC3/SO55; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.449 mho/m; ε_r = 38.967; ρ = 1000 kg/m^3
Phantom section: Right Section

Probe: ET3DV6 - SN1739; ConvF(5.07, 5.07, 5.07); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2011-07-21
Phantom: SAM 3; Type: QD000P40CD; Serial: TP1630
Measurement SW: DASY52, Version 52.8 (1)
Fast SAR of Combined Scans: SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.649 mW/g
Maximum value of SAR (interpolated) = 1.20 mW/g



EXPANDED ZOOM SCAN

Date/Time: 2012-08-11 18:18:59

DASY Configuration for CDMA - Right/Cheek/ Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138294/B1
Communication System: CDMA800 RC3/SO55; Frequency: 836.52 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL900 Medium parameters used: f = 837 MHz; σ = 0.874 mho/m; ε_r = 40.234; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ET3DV6 - SN1739; ConvF(6.29, 6.29, 6.29); Calibrated: 2011-09-22;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn604; Calibrated: 2012-07-31
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY52, Version 52.8 (1)

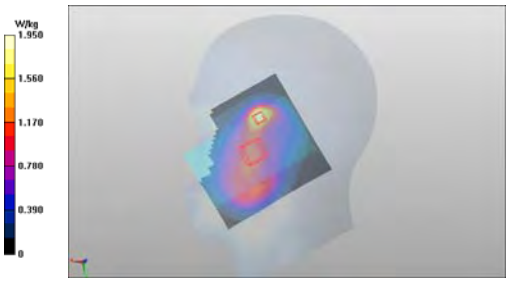
Date/Time: 2012-08-11 20:06:36

DASY Configuration for LTE - Right/Cheek - Middle - QPSK - 10MHz - 1 RB - 50% offset /Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2
Communication System: SVLTE750 (Band 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.932 mho/m; ε_r = 40.785; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD; Serial:
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-10-04 13:38:55

DASY Configuration for Configuration/WLAN - Right/Cheek - Middle - Cover CC-3059/Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.758 mho/m; εr = 37.695; ρ = 1000 kg/m3
Phantom section: Right Section
Probe: EX3DV4 - SN3835; ConvF(6.73, 6.73, 6.73); Calibrated: 2012-02-07;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)

Multi Band Result /EXPANDED ZOOM SCAN. This includes the SVLTE750 + CDMA800 + WLAN2450
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.679 mW/g
Maximum value of SAR (interpolated) = 1.95 mW/g



EXPANDED ZOOM SCAN

Date/Time: 2012-08-11 20:06:36

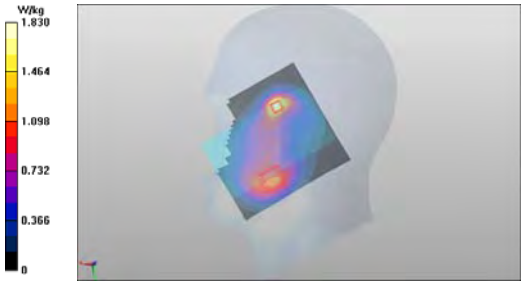
DASY Configuration for LTE - Right/Cheek - Middle - QPSK - 10MHz - 1 RB - 50% offset /Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A18246/E2
Communication System: SVLTE750 (Band 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.932 mho/m; ε_r = 40.785; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD; Serial:
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-09-04 11:55:01

DASY Configuration for CDMA1900 BC1 18.5dBm/Right/Cheek/Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138332/BC1
Communication System: CDMA1900****; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.429 mho/m; ε_r = 39.993; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ET3DV6R - SN1399; ConvF(4.92, 4.92, 4.92); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2012-08-15
Phantom: SAM1; Type: QD000P40CC; Serial: TP:1279
Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-10-04 13:38:55

DASY Configuration for Configuration/WLAN - Right/Cheek - Middle - Cover CC-3059/Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.758 mho/m; εr = 37.695; ρ = 1000 kg/m3
Phantom section: Right Section
Probe: EX3DV4 - SN3835; ConvF(6.73, 6.73, 6.73); Calibrated: 2012-02-07;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)
Multi Band Result / EXPANDED ZOOM SCAN. This includes the SVLTE750 + CDMA1900** + WLAN2450**
SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.547 mW/g
Maximum value of SAR (interpolated) = 1.83 mW/g



EXPANDED ZOOM SCAN

Date/Time: 2012-09-04 12:49:28

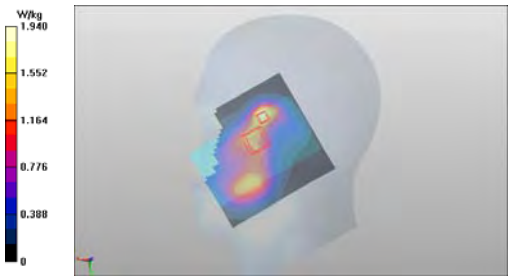
DASY Configuration for LTE - Right/Cheek - Middle - QPSK - 10MHz - 1 RB - 50% offset/Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138405/F2
Communication System: LTE750*** (band 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL750 Medium parameters used: f = 782 MHz; σ = 0.93 mho/m; ε_r = 40.328; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ES3DV3 - SN3165; ConvF(6.13, 6.13, 6.13); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #4 CRP ; Type: QD000P40CD; Serial: TP:
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-09-04 13:45:14

DASY Configuration for CDMA1900 A2/Right/Cheek/Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138211/A2
Communication System: CDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.429 mho/m; ε_r = 39.993; ρ = 1000 kg/m^3
Phantom section: Right Section
Probe: ET3DV6R - SN1399; ConvF(4.92, 4.92, 4.92); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2012-08-15
Phantom: SAM1; Type: QD000P40CC; Serial: TP:1279
Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-10-04 13:38:55

DASY Configuration for Configuration/WLAN - Right/Cheek - Middle - Cover CC-3059/Volume Scan:
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A1138223/G1
Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.758 mho/m; εr = 37.695; ρ = 1000 kg/m3
Phantom section: Right Section
Probe: EX3DV4 - SN3835; ConvF(6.73, 6.73, 6.73); Calibrated: 2012-02-07;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
Measurement SW: DASY4, Version 4.7 (80)
Multi Band Result / EXPANDED ZOOM SCAN. This includes the SVLTE750* + CDMA1900 + WLAN2450**
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.679 mW/g
Maximum value of SAR (interpolated) = 1.94 mW/g



Date/Time: 2012-09-14 08:46:56

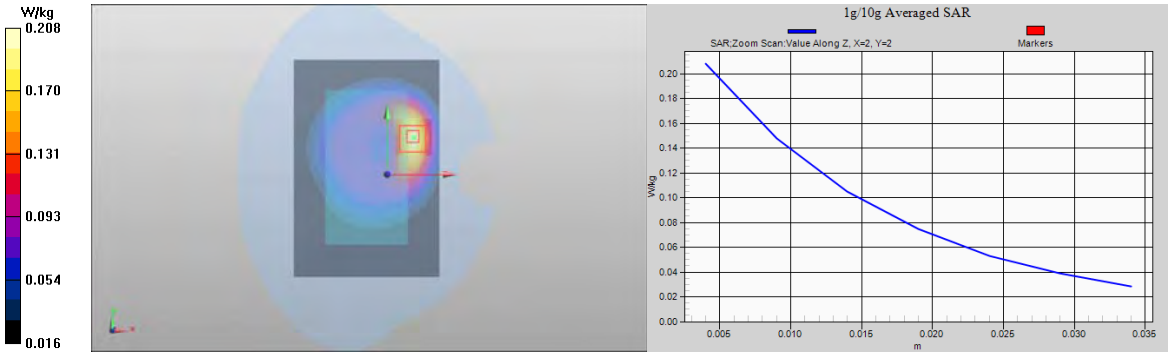
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138405/F2

Communication System: LTE13* (BAND 13)**
Frequency: 782 MHz; Duty Cycle: 1:1
Medium: BSL750; Medium Notes: t= 21.3 C
Medium parameters used: f = 782 MHz; σ = 1.026 mho/m; ε_r = 53.685; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ES3DV3 - SN3165
- ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
- Phantom: SAM #3 CRP; Type: SAM
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom – Cover CC-3059/Area Scan (81x121x1): Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.203 W/kg

LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom – Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.348 V/m
Peak SAR (extrapolated) = 0.270 mW/g
SAR(1 g) = 0.190 mW/g
SAR(10 g) = 0.125 mW/g
Power Drift = -0.01 dB
Maximum value of SAR (measured) = 0.208 W/kg



Date/Time: 2012-09-26 11:41:03

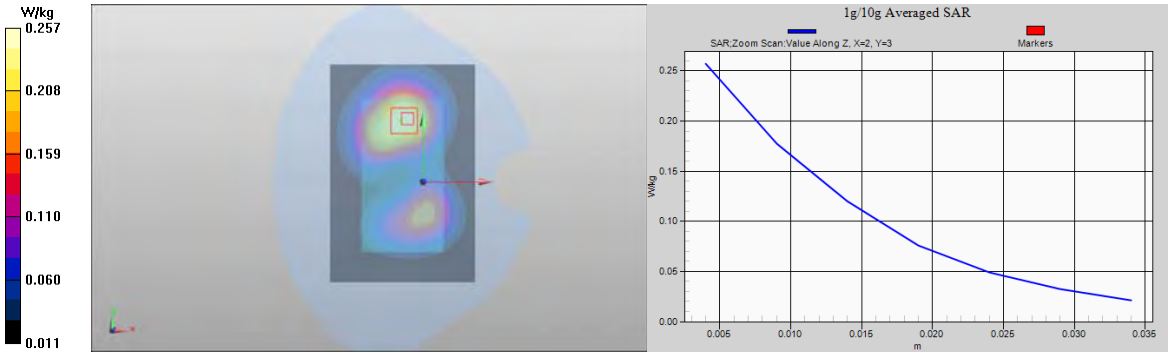
Test Laboratory: TCC Nokia
Type: RM-845; Serial: C1A138332

Communication System: CDMA1900**
Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: MSL1900; Medium Notes: T = 21.3 C
Medium parameters used (interpolated): f = 1851.25 MHz; σ = 1.538 mho/m; ε_r = 52.255; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:
- Probe: ET3DV6R - SN1399
- ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn701; Calibrated: 2012-08-15
- Phantom: SAM 4 15-09-2012; Type: QD000P40CD; Serial: TP1630
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

CDMA/Body - Low - Spacer 15mm - WH-902 - Display Facing Phantom - Cover CC-3059/Area Scan (81x121x1):
Measurement grid: dx=15.00 mm, dy=15.00 mm
Maximum value of SAR (interpolated) = 0.249 W/kg

CDMA/Body - Low - Spacer 15mm - WH-902 - Display Facing Phantom – Cover CC-3059/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.238 V/m
Peak SAR (extrapolated) = 0.340 mW/g
SAR(1 g) = 0.237 mW/g
SAR(10 g) = 0.155 mW/g
Power Drift = -0.00 dB
Maximum value of SAR (measured) = 0.257 W/kg



Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3041/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE13; Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.005 mho/m; ε_r = 53.115; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-07-21 20:23:55

DASY Configuration for CDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138294/B1

Communication System: CDMA800; Frequency: 836.52 MHz; Duty Cycle: 1:1; PMF: 1

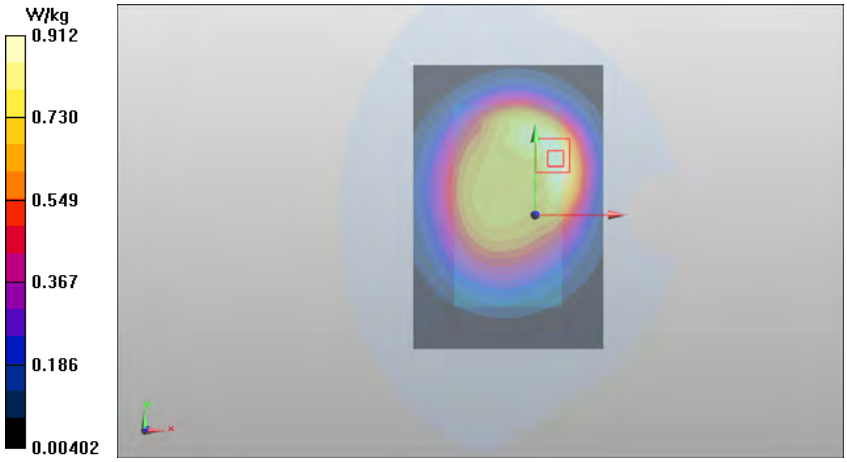
Medium: MSL835 Medium parameters used: f = 837 MHz; σ = 1.004 mho/m; ε_r = 55.935; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
Phantom: SAM3; Type: SAM; Serial: TP-1399
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.589 mW/g

Maximum value of SAR (interpolated) = 0.912 W/kg



Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3041/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE13; Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.005 mho/m; ε_r = 53.115; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-08-31 11:23:42

DASY Configuration for CDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138332

Communication System: CDMA1900****; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

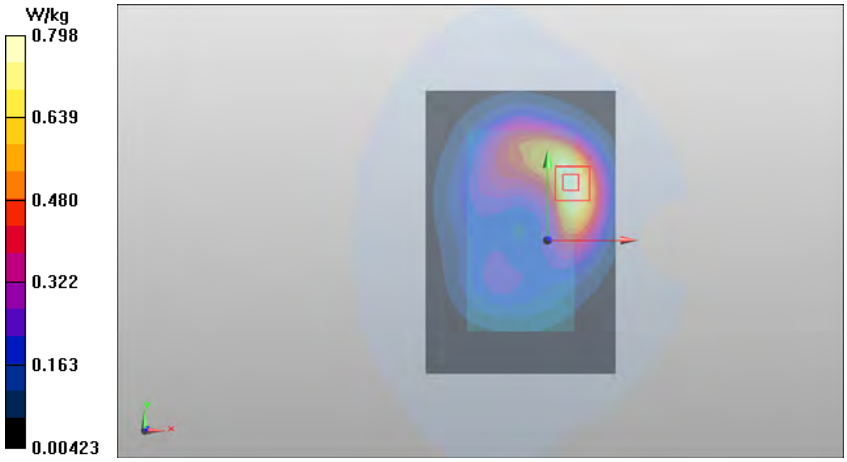
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.539 mho/m; ε_r = 51.859; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2012-08-15
Phantom: SAM3; Type: QD000P40CD; Serial: TP: 1729
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.746 mW/g; SAR(10 g) = 0.493 mW/g

Maximum value of SAR (interpolated) = 0.798 W/kg



Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3041/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE750 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.007 mho/m; ε_r = 53.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM; Serial: Not Specified
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-07-21 20:23:55

DASY Configuration for CDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138294/B1

Communication System: CDMA800 RC3/SO55; Frequency: 836.52 MHz; Duty Cycle: 1:1; PMF: 1

Medium: MSL835 Medium parameters used: f = 837 MHz; σ = 1.004 mho/m; ε_r = 55.935; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
Phantom: SAM3; Type: SAM; Serial: TP-1399
Measurement SW: DASY4, Version 4.7 (80)

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Date/Time: 2012-07-20 18:42:09

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

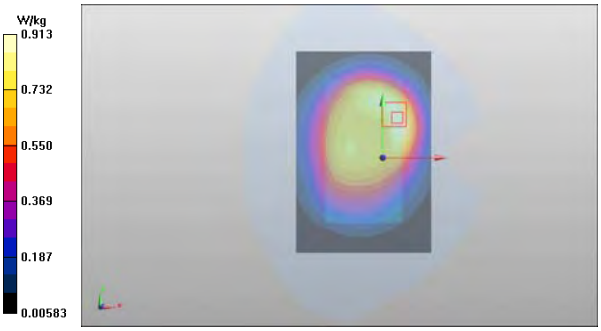
Medium: BSL2450 Medium parameters used: f = 2437 MHz; σ = 1.934 mho/m; ε_r = 51.203; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.851 mW/g; SAR(10 g) = 0.590 mW/g

Maximum value of SAR (interpolated) = 0.913 mW/g



Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3041/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE750 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.007 mho/m; ε_r = 53.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM; Serial: Not Specified
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-07-21 20:23:55

DASY Configuration for CDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom /Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138294/B1

Communication System: CDMA800 RC3/SO55; Frequency: 836.52 MHz; Duty Cycle: 1:1; PMF: 1

Medium: MSL835 Medium parameters used: f = 837 MHz; σ = 1.004 mho/m; ε_r = 55.935; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
Phantom: SAM3; Type: SAM; Serial: TP-1399
Measurement SW: DASY4, Version 4.7 (80)

DASY Configuration for WLAN/Body - Channel 44 - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Date/Time: 2012-08-03 01:59:15

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138344/G4

Communication System: WLAN5000 a-mode; Frequency: 5220 MHz; Duty Cycle: 1:1; PMF: 1

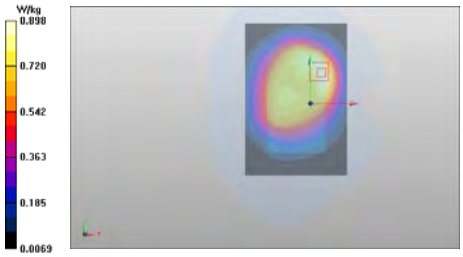
Medium: BSL5200 Medium parameters used: f = 5220 MHz; σ = 5.493 mho/m; ε_r = 48.671; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;
Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
Phantom: SAM2; Type: SAM; Serial: TP-1570
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.587 mW/g

Maximum value of SAR (interpolated) = 0.898 mW/g



Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3041/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE750 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.007 mho/m; ε_r = 53.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM; Serial: Not Specified
Measurement SW: DASY52, Version 52.8 (0)

2012-08-31 11:23:42

DASY Configuration for CDMA1900/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138332/BC1

Communication System: CDMA1900****; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

Medium: MSL835 Medium parameters used: f = 837 MHz; σ = 1.004 mho/m; ε_r = 55.935; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(5.83, 5.83, 5.83); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1301; Calibrated: 2011-10-27
Phantom: SAM3; Type: SAM; Serial: TP-1399
Measurement SW: DASY4, Version 4.7 (80)

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Date/Time: 2012-07-20 18:42:09

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138223/G1

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

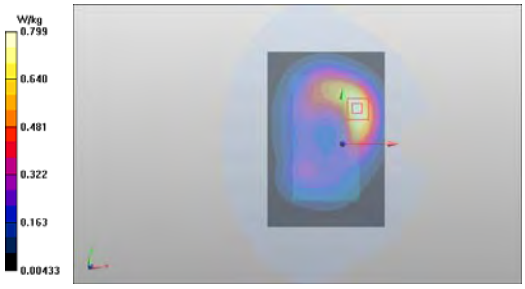
Medium: BSL2450 Medium parameters used: f = 2437 MHz; σ = 1.934 mho/m; ε_r = 51.203; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.494 mW/g

Maximum value of SAR (interpolated) = 0.799 mW/g



Date/Time: 2012-08-31 12:39:45

DASY Configuration for LTE/Body - Middle - QPSK - 10MHz - 1 RB - 50% offset - Spacer 15mm - No Accessory - Back Facing Phantom - Cover CC-3041/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A18246/E2

Communication System: LTE750 (BAND 13); Frequency: 782 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL750 Medium parameters used: f = 782 MHz; σ = 1.007 mho/m; ε_r = 53.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ES3DV3 - SN3165; ConvF(6.06, 6.06, 6.06); Calibrated: 2012-02-21;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1309; Calibrated: 2012-01-11
Phantom: SAM #3 CRP; Type: SAM; Serial: Not Specified
Measurement SW: DASY52, Version 52.8 (0)

Date/Time: 2012-08-31 11:23:42

DASY Configuration for CDMA1900/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A138332/BC1

Communication System: CDMA1900****; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.539 mho/m; ε_r = 51.859; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: ET3DV6R - SN1399; ConvF(4.47, 4.47, 4.47); Calibrated: 2012-02-10;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn701; Calibrated: 2012-08-15
Phantom: SAM3; Type: QD000P40CD; Serial: TP: 1729
Measurement SW: DASY52, Version 52.8 (1)

DASY Configuration for WLAN/Body - Channel 44 - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Date/Time: 2012-08-03 01:59:15

Test Laboratory: TCC Nokia

Type: RM-845; Serial: C1A1138344/G4

Communication System: WLAN5000 a-mode; Frequency: 5220 MHz; Duty Cycle: 1:1; PMF: 1

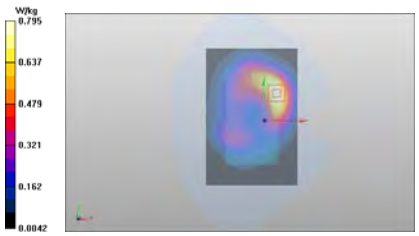
Medium: BSL5200 Medium parameters used: f = 5220 MHz; σ = 5.493 mho/m; ε_r = 48.671; ρ = 1000 kg/m^3

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;
Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
Phantom: SAM2; Type: SAM; Serial: TP-1570
Measurement SW: DASY52, Version 52.8 (1)

Fast SAR of Combined Scans: SAR(1 g) = 0.742 mW/g; SAR(10 g) = 0.491 mW/g

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



APPENDIX C: DIELECTRIC PARAMETERS OF THE TISSUE SIMULANTS

Head tissue simulant dielectric parameters used in the measurements 782 – 2462 MHz:

f (MHz)	Date	Dielectric Parameters					
		-		Ch 23230 782.0 MHz		-	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
782	2012-08-31	-	-	39.8	0.91	-	-
	2012-09-13	-	-	40.2	0.95	-	-
f (MHz)	Date	Dielectric Parameters					
		Ch 1013 824.7 MHz		Ch 384 836.5 MHz		Ch 777 848.3 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
836	2012-09-17	40.0	0.86	39.9	0.87	39.8	0.88
f (MHz)	Date	Dielectric Parameters					
		Ch 128 824.2 MHz		Ch 190 836.6 MHz		Ch 251 848.8 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
836	2012-08-30	40.8	0.91	40.7	0.91	40.5	0.92
f (MHz)	Date	Dielectric Parameters					
		Ch 25 1851.3 MHz		Ch 600 1880.0 MHz		Ch 1175 1908.8 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
1880	2012-09-15	39.5	1.39	39.4	1.41	39.2	1.44
	2012-10-01	39.5	1.38	39.4	1.40	39.3	1.43
f (MHz)	Date	Dielectric Parameters					
		Ch 9262 1852.4 MHz		Ch 9400 1880.0 MHz		Ch 9538 1907.6 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
1880	2012-09-17	39.0	1.33	38.9	1.36	38.8	1.39
f (MHz)	Date	Dielectric Parameters					
		Ch 1 2412.0 MHz		Ch 6 2437.0 MHz		Ch 11 2462.0 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
2437	2012-09-05	38.4	1.77	38.3	1.80	38.2	1.82
	2012-10-04	37.8	1.73	37.7	1.76	37.6	1.78

Head tissue simulant dielectric parameters used in the measurements 5180 – 5805 MHz:

f (MHz)	Date	Dielectric Parameters							
		Ch 36 5180.0 MHz		5210.0 MHz		Ch 44 5220.0 MHz		-	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
5210	2012-09-10	34.7	4.44	34.7	4.46	34.7	4.47	-	-
f (MHz)	Date	Dielectric Parameters							
		Ch 56 5280.0 MHz		5290.0 MHz		Ch 64 5320.0 MHz		-	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
5290	2012-09-10	34.6	4.53	34.6	4.53	34.5	4.56	-	-
f (MHz)	Date	Dielectric Parameters							
		Ch 100 5500.0 MHz		Ch 120 5600.0 MHz		Ch 124 5620.0 MHz		Ch 136 5680.0 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
5600	2012-09-10	34.3	4.73	34.1	4.84	34.1	4.85	34.0	4.93
f (MHz)	Date	Dielectric Parameters							
		Ch 153 5765.0 MHz		Ch 157 5785.0 MHz		Ch 161 5805.0 MHz		-	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
5785	2012-09-09	34.0	5.03	34.0	5.05	34.0	5.08	-	-

Body tissue simulant dielectric parameters used in the measurements 782 – 2462 MHz:

f (MHz)	Date	Dielectric Parameters					
		-		Ch 23230 782.0 MHz		-	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
782	2012-08-31	-	-	53.1	1.01	-	-
	2012-09-13	-	-	53.7	1.02	-	-
f (MHz)	Date	Dielectric Parameters					
		Ch 1013 824.7 MHz		Ch 384 836.5 MHz		Ch 777 848.3 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
836	2012-09-15	54.5	0.97	54.4	0.98	54.4	0.98
f (MHz)	Date	Dielectric Parameters					
		Ch 128 824.2 MHz		Ch 190 836.6 MHz		Ch 251 848.8 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
836	2012-08-31	53.2	0.99	53.2	0.99	53.2	1.00
f (MHz)	Date	Dielectric Parameters					
		Ch 4132 826.4 MHz		Ch 4175 835.0 MHz		Ch 4233 846.6 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
835	2012-09-15	54.5	0.97	54.4	0.97	54.4	0.98
f (MHz)	Date	Dielectric Parameters					
		Ch 25 1851.3 MHz		Ch 600 1880.0 MHz		Ch 1175 1908.8 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
1880	2012-09-14	51.7	1.48	51.6	1.51	51.5	1.55
	2012-09-26	52.3	1.54	52.2	1.56	52.1	1.60
f (MHz)	Date	Dielectric Parameters					
		Ch 9262 1852.4 MHz		Ch 9400 1880.0 MHz		Ch 9538 1907.6 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
1880	2012-09-14	51.7	1.48	51.6	1.51	51.5	1.54
	2012-09-18	52.2	1.45	52.0	1.48	51.9	1.51
f (MHz)	Date	Dielectric Parameters					
		Ch 1 2412.0 MHz		Ch 6 2437.0 MHz		Ch 11 2462.0 MHz	
		εr	σ [S/m]	εr	σ [S/m]	εr	σ [S/m]
2437	2012-09-07	51.0	1.92	50.9	1.95	50.8	1.98

Body tissue simulant dielectric parameters used in the measurements 5180 – 5805 MHz:

f (MHz)	Date	Dielectric Parameters							
		Ch 36 5180.0 MHz		5210.0 MHz		Ch 44 5220.0 MHz		-	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
5210	2012-09-11	48.1	5.37	48.1	5.41	48.1	5.43	-	-
f (MHz)	Date	Dielectric Parameters							
		Ch 56 5280.0 MHz		5290.0 MHz		Ch 64 5320.0 MHz		-	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
5290	2012-09-11	48.0	5.50	48.0	5.51	47.9	5.55	-	-
f (MHz)	Date	Dielectric Parameters							
		Ch 100 5500.0 MHz		Ch 120 5600.0 MHz		Ch 124 5620.0 MHz		Ch 136 5680.0 MHz	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
5600	2012-09-10	47.9	5.86	47.7	6.01	47.7	6.03	47.6	6.12
f (MHz)	Date	Dielectric Parameters							
		Ch 153 5765.0 MHz		Ch 157 5785.0 MHz		Ch 161 5805.0 MHz		-	
		ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]	ε_r	σ [S/m]
5785	2012-09-12	46.5	6.08	46.4	6.08	46.3	6.07	-	-

APPENDIX D: CONDUCTED AVERAGE POWER MEASUREMENTS FOR WCDMA AND HSUPA

Test Laboratory: TCC Nokia
Type: RM-845; Serial: 352423/05/003903/9, HW: 0209, SW: 1525.0003.8422.9710.12271

D.1. WCDMA850 Test results

Average power

Ch / *f*(MHz)	P [dBm]
4133 / 826.6	22.9
4175 / 835.0	23.1
4232 / 846.4	23.0

D.2. HSUPA850 Test results

Average power

	P [dBm]				
Ch / *f*(MHz)	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
4133 / 826.6	21.7	19.6	20.6	19.4	21.5
4175 / 835.0	21.7	19.7	20.8	19.9	21.9
4232 / 846.4	21.7	19.7	20.6	19.7	21.8

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs a single HSUPA power control routine: MPR. In addition, to ensure linearity of the PA output, a further 1.0dB power reduction for all Subtest modes is implemented. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1.0dB	3.0dB	2.0dB	3.0dB	1.0dB

D.3. WCDMA1900 Test results

Average power

Ch / *f*(MHz)	P [dBm]
9263 / 1852.6	22.8
9400 / 1880.0	22.9
9537 / 1907.4	22.7

D.4. HSUPA1900 Test results

Average power

Ch / *f*(MHz)	P [dBm]				
	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
9263 / 1852.6	21.5	19.5	20.5	19.6	21.6
9400 / 1880.0	21.7	19.5	20.4	19.6	21.8
9537 / 1907.4	21.4	19.6	20.3	19.5	21.6

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs a single HSUPA power control routine: MPR. In addition, to ensure linearity of the PA output, a further 1.0dB power reduction for all Subtest modes is implemented. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1.0dB	3.0dB	2.0dB	3.0dB	1.0dB

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

6044

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 SD**

Certificate No: ET3-1399_Feb12

CALIBRATION CERTIFICATE

Object ET3DV6R - SN:1399

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

Calibration date: February 10, 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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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-11)	In house check: Oct-12

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

Issued: February 14, 2012

DASY/EASY - Parameters of Probe: ET3DV6R - SN:1399

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	6.05	6.05	6.05	0.31	3.00	± 12.0 %
835	41.5	0.90	5.82	5.82	5.82	0.42	2.34	± 12.0 %
1810	40.0	1.40	4.92	4.92	4.92	0.80	2.24	± 12.0 %
1950	40.0	1.40	4.69	4.69	4.69	0.80	2.14	± 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: ET3DV6R - SN:1399

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	5.93	5.93	5.93	0.31	3.00	± 12.0 %
835	55.2	0.97	5.83	5.83	5.83	0.50	2.27	± 12.0 %
1810	53.3	1.52	4.47	4.47	4.47	0.80	2.45	± 12.0 %
1950	53.3	1.52	4.49	4.49	4.49	0.80	2.24	± 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.

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Accreditation No.: SCS 108

Client Nokia SD

Certificate No: ET3-1739_Sep11

CALIBRATION CERTIFICATE

Object: ET3DV6 - SN:1739

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

Calibration date: September 22, 2011

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: September 23, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1739

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	6.53	6.53	6.53	0.66	1.99	± 12.0 %
835	41.5	0.90	6.29	6.29	6.29	0.71	1.83	± 12.0 %
1810	40.0	1.40	5.07	5.07	5.07	0.54	2.37	± 12.0 %
1950	40.0	1.40	4.85	4.85	4.85	0.53	2.44	± 12.0 %
2450	39.2	1.80	4.29	4.29	4.29	0.75	1.76	± 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: ET3DV6- SN:1739

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	6.27	6.27	6.27	0.73	1.89	± 12.0 %
835	55.2	0.97	6.19	6.19	6.19	0.71	1.88	± 12.0 %
1810	53.3	1.52	4.54	4.54	4.54	0.55	2.81	± 12.0 %
1950	53.3	1.52	4.54	4.54	4.54	0.55	2.70	± 12.0 %
2450	52.7	1.95	3.91	3.91	3.91	0.76	1.46	± 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.

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: ES3-3131_Sep11

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3131

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

Calibration date: September 14, 2011

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: September 15, 2011

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3131

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	6.10	6.10	6.10	0.80	1.00	± 12.0 %
835	41.5	0.90	5.88	5.88	5.88	0.80	1.31	± 12.0 %
1750	40.1	1.37	5.14	5.14	5.14	0.80	1.25	± 12.0 %
1900	40.0	1.40	4.92	4.92	4.92	0.80	1.25	± 12.0 %
2450	39.2	1.80	4.32	4.32	4.32	0.79	1.25	± 12.0 %
2600	39.0	1.96	4.21	4.21	4.21	0.76	1.30	± 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:3131

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	5.97	5.97	5.97	0.80	1.00	± 12.0 %
835	55.2	0.97	5.92	5.92	5.92	0.80	1.34	± 12.0 %
1750	53.4	1.49	4.64	4.64	4.64	0.80	1.35	± 12.0 %
1900	53.3	1.52	4.44	4.44	4.44	0.80	1.28	± 12.0 %
2450	52.7	1.95	4.07	4.07	4.07	0.80	1.17	± 12.0 %
2600	52.5	2.16	3.97	3.97	3.97	0.80	1.00	± 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.

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Client **Nokia Salo TCC** **Certificate No: ES3-3165_Feb12**

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3165

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

Calibration date: February 21, 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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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-11)	In house check: Oct-12

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

Issued: February 23, 2012

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3165

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	6.13	6.13	6.13	0.29	1.78	± 12.0 %
835	41.5	0.90	5.88	5.88	5.88	0.21	2.26	± 12.0 %
1750	40.1	1.37	5.51	5.51	5.51	0.49	1.46	± 12.0 %
1900	40.0	1.40	5.24	5.24	5.24	0.54	1.44	± 12.0 %
2450	39.2	1.80	4.37	4.37	4.37	0.70	1.37	± 12.0 %
2600	39.0	1.96	4.20	4.20	4.20	0.80	1.28	± 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:3165

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	6.06	6.06	6.06	0.37	1.66	± 12.0 %
835	55.2	0.97	5.97	5.97	5.97	0.59	1.30	± 12.0 %
1750	53.4	1.49	4.84	4.84	4.84	0.52	1.61	± 12.0 %
1900	53.3	1.52	4.57	4.57	4.57	0.42	1.93	± 12.0 %
2450	52.7	1.95	4.14	4.14	4.14	0.73	1.08	± 12.0 %
2600	52.5	2.16	3.96	3.96	3.96	0.80	1.03	± 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.

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: EX3-3573_Feb12

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3573

Calibration procedure(s): QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: February 23, 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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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-11)	In house check: Oct-12

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

Issued: February 23, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3573

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	8.71	8.71	8.71	0.20	1.24	± 12.0 %
835	41.5	0.90	8.33	8.33	8.33	0.14	1.71	± 12.0 %
1750	40.1	1.37	7.67	7.67	7.67	0.75	0.59	± 12.0 %
1900	40.0	1.40	7.43	7.43	7.43	0.80	0.59	± 12.0 %
2450	39.2	1.80	6.52	6.52	6.52	0.38	0.93	± 12.0 %
2600	39.0	1.96	6.30	6.30	6.30	0.37	0.89	± 12.0 %
5200	36.0	4.66	4.63	4.63	4.63	0.39	1.80	± 13.1 %
5300	35.9	4.76	4.46	4.46	4.46	0.35	1.80	± 13.1 %
5500	35.6	4.96	4.23	4.23	4.23	0.40	1.80	± 13.1 %
5600	35.5	5.07	3.96	3.96	3.96	0.45	1.80	± 13.1 %
5800	35.3	5.27	3.99	3.99	3.99	0.50	1.80	± 13.1 %

[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:3573

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	8.71	8.71	8.71	0.44	0.87	± 12.0 %
835	55.2	0.97	8.54	8.54	8.54	0.35	0.94	± 12.0 %
1750	53.4	1.49	7.07	7.07	7.07	0.38	0.93	± 12.0 %
1900	53.3	1.52	6.69	6.69	6.69	0.52	0.77	± 12.0 %
2450	52.7	1.95	6.45	6.45	6.45	0.80	0.57	± 12.0 %
2600	52.5	2.16	6.24	6.24	6.24	0.80	0.50	± 12.0 %
5200	49.0	5.30	3.99	3.99	3.99	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.84	3.84	3.84	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.64	3.64	3.64	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.05	3.05	3.05	0.75	1.90	± 13.1 %
5800	48.2	6.00	3.71	3.71	3.71	0.55	1.90	± 13.1 %

[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.

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: EX3-3834_Feb12

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3834

Calibration procedure(s): QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: February 7, 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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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-11)	In house check: Oct-12

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

Issued: February 7, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3834

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	9.17	9.17	9.17	0.38	0.90	± 12.0 %
835	41.5	0.90	8.69	8.69	8.69	0.34	0.97	± 12.0 %
900	41.5	0.97	8.59	8.59	8.59	0.23	1.26	± 12.0 %
1750	40.1	1.37	7.84	7.84	7.84	0.51	0.70	± 12.0 %
1900	40.0	1.40	7.61	7.61	7.61	0.80	0.58	± 12.0 %
2450	39.2	1.80	6.82	6.82	6.82	0.45	0.78	± 12.0 %
2600	39.0	1.96	6.65	6.65	6.65	0.48	0.77	± 12.0 %
5200	36.0	4.66	4.81	4.81	4.81	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.57	4.57	4.57	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.60	4.60	4.60	0.38	1.80	± 13.1 %
5600	35.5	5.07	4.37	4.37	4.37	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.14	4.14	4.14	0.50	1.80	± 13.1 %

[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:3834

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	9.03	9.03	9.03	0.26	1.22	± 12.0 %
835	55.2	0.97	8.75	8.75	8.75	0.21	1.58	± 12.0 %
900	55.0	1.05	8.72	8.72	8.72	0.46	0.83	± 12.0 %
1750	53.4	1.49	7.54	7.54	7.54	0.80	0.62	± 12.0 %
1900	53.3	1.52	7.17	7.17	7.17	0.52	0.77	± 12.0 %
2450	52.7	1.95	6.93	6.93	6.93	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.65	6.65	6.65	0.80	0.50	± 12.0 %
5200	49.0	5.30	3.99	3.99	3.99	0.55	1.90	± 13.1 %
5300	48.9	5.42	3.75	3.75	3.75	0.60	1.90	± 13.1 %
5500	48.6	5.65	3.50	3.50	3.50	0.58	1.90	± 13.1 %
5600	48.5	5.77	3.28	3.28	3.28	0.60	1.90	± 13.1 %
5800	48.2	6.00	3.78	3.78	3.78	0.58	1.90	± 13.1 %

[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.

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: EX3-3835_Feb12

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3835

Calibration procedure(s): QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: February 7, 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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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-11)	In house check: Oct-12

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

Issued: February 7, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3835

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	8.96	8.96	8.96	0.40	0.87	± 12.0 %
835	41.5	0.90	8.61	8.61	8.61	0.42	0.85	± 12.0 %
900	41.5	0.97	8.50	8.50	8.50	0.28	1.11	± 12.0 %
1750	40.1	1.37	7.83	7.83	7.83	0.60	0.66	± 12.0 %
1900	40.0	1.40	7.55	7.55	7.55	0.71	0.62	± 12.0 %
2450	39.2	1.80	6.73	6.73	6.73	0.44	0.80	± 12.0 %
2600	39.0	1.96	6.49	6.49	6.49	0.28	1.15	± 12.0 %
5200	36.0	4.66	4.67	4.67	4.67	0.45	1.80	± 13.1 %
5300	35.9	4.76	4.60	4.60	4.60	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.29	4.29	4.29	0.45	1.80	± 13.1 %
5600	35.5	5.07	4.22	4.22	4.22	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.07	4.07	4.07	0.50	1.80	± 13.1 %

[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:3835

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	8.78	8.78	8.78	0.26	1.17	± 12.0 %
835	55.2	0.97	8.68	8.68	8.68	0.23	1.29	± 12.0 %
900	55.0	1.05	8.48	8.48	8.48	0.23	1.34	± 12.0 %
1750	53.4	1.49	7.28	7.28	7.28	0.56	0.79	± 12.0 %
1900	53.3	1.52	6.96	6.96	6.96	0.41	0.87	± 12.0 %
2450	52.7	1.95	6.57	6.57	6.57	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.46	6.46	6.46	0.80	0.50	± 12.0 %
5200	49.0	5.30	3.96	3.96	3.96	0.55	1.90	± 13.1 %
5300	48.9	5.42	3.86	3.86	3.86	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.54	3.54	3.54	0.58	1.90	± 13.1 %
5600	48.5	5.77	3.34	3.34	3.34	0.60	1.90	± 13.1 %
5800	48.2	6.00	3.70	3.70	3.70	0.60	1.90	± 13.1 %

[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.

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

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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 Salo TCC

Certificate No: D750V3-1034_Jul11

CALIBRATION CERTIFICATE

Object: D750V3 - SN:1034

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

Calibration date: July 07, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-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-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: July 11, 2011

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.7 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.12 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**8.33 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.39 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**5.48 mW / g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.20 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**8.79 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.45 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**5.80 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.8 Ω - 1.6 jΩ
Return Loss	- 28.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.1 Ω - 3.5 jΩ
Return Loss	- 28.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.033 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.
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 06, 2011

Date: 07.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

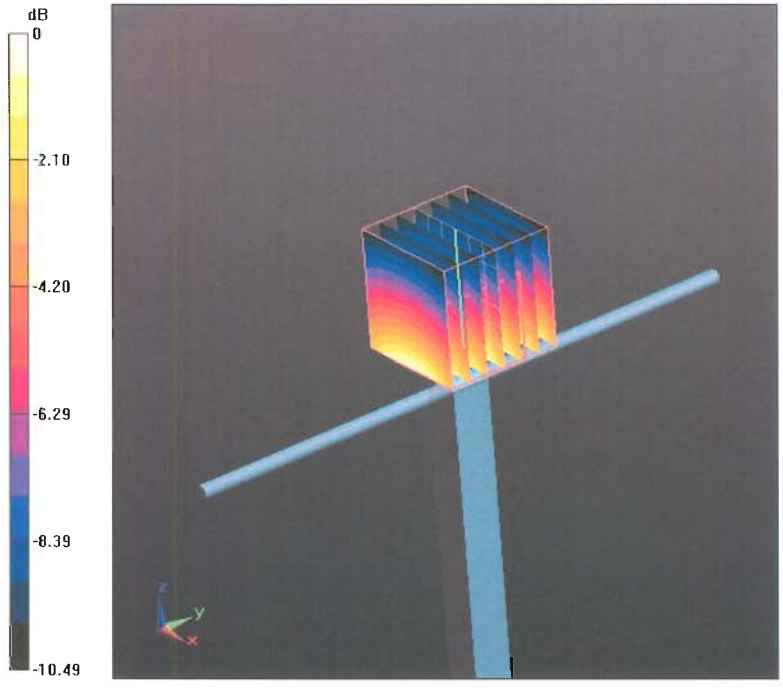
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1034

Communication System: CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

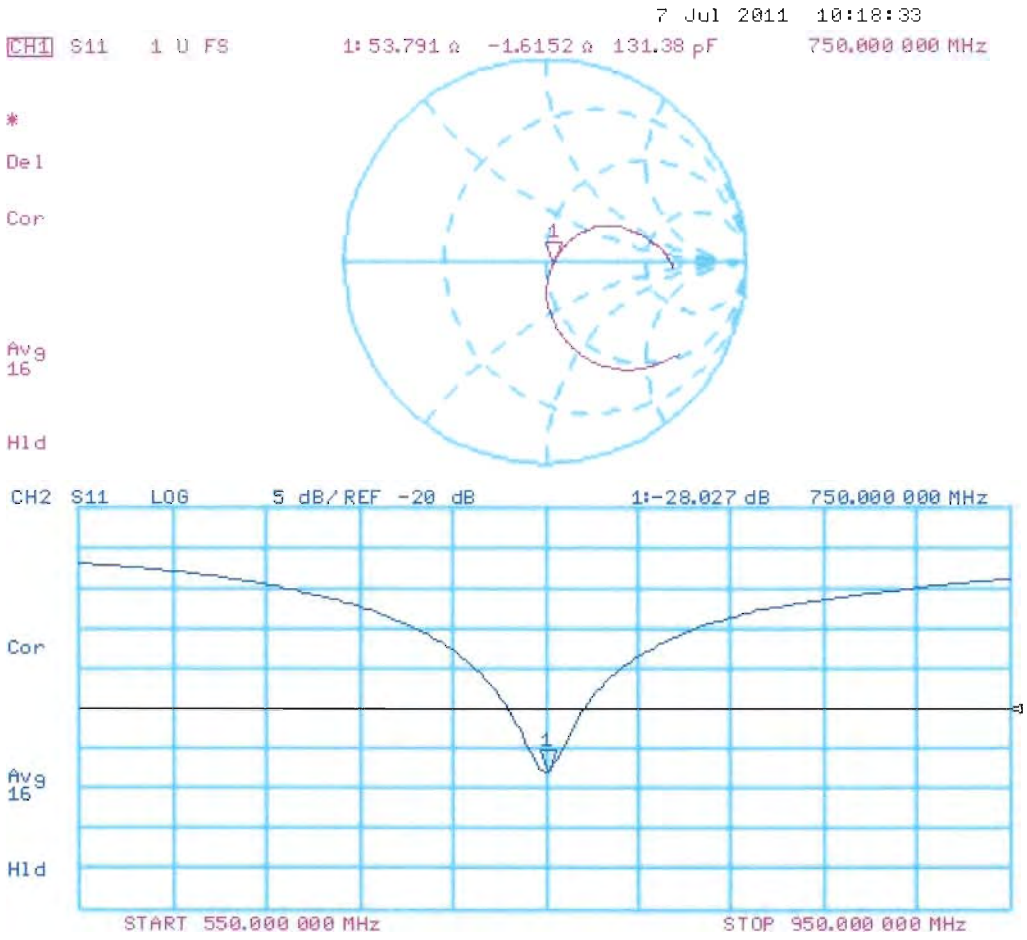
- Probe: ES3DV3 - SN3205; ConvF(6.33, 6.33, 6.33); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.065 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.205 W/kg
SAR(1 g) = 2.12 mW/g; SAR(10 g) = 1.39 mW/g
Maximum value of SAR (measured) = 2.487 mW/g



0 dB = 2.490mW/g

Impedance Measurement Plot for Head TSL



Date: 07.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

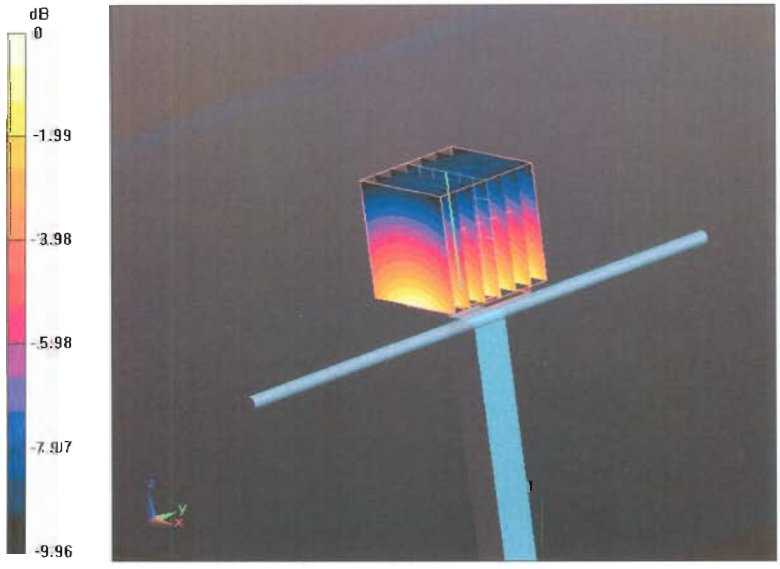
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1034

Communication System: CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.96 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

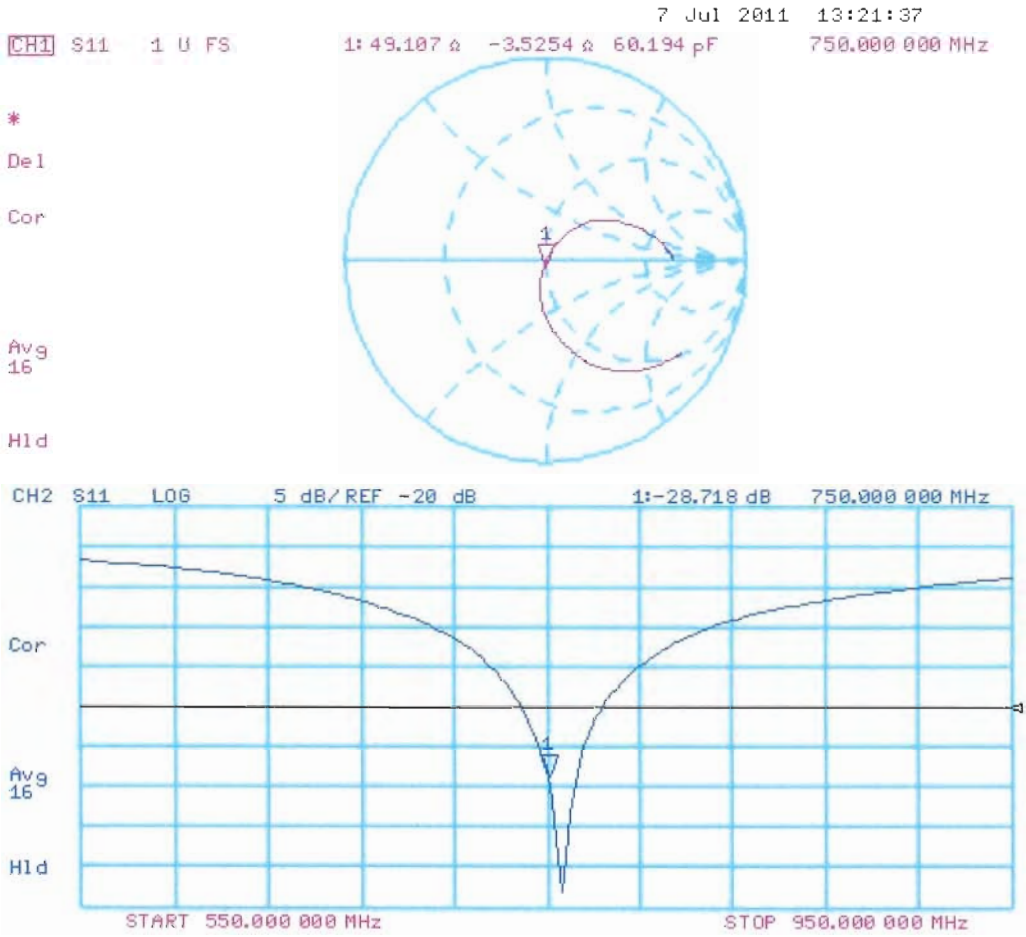
- Probe: ES3DV3 - SN3205; ConvF(6.12, 6.12, 6.12); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.234 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.265 W/kg
SAR(1 g) = 2.2 mW/g; SAR(10 g) = 1.45 mW/g
Maximum value of SAR (measured) = 2.566 mW/g



0 dB = 2.570mW/g

Impedance Measurement Plot for Body TSL



Dipole D750V3 – SN: 1034 Antenna Parameters measured: 2012-05-07.

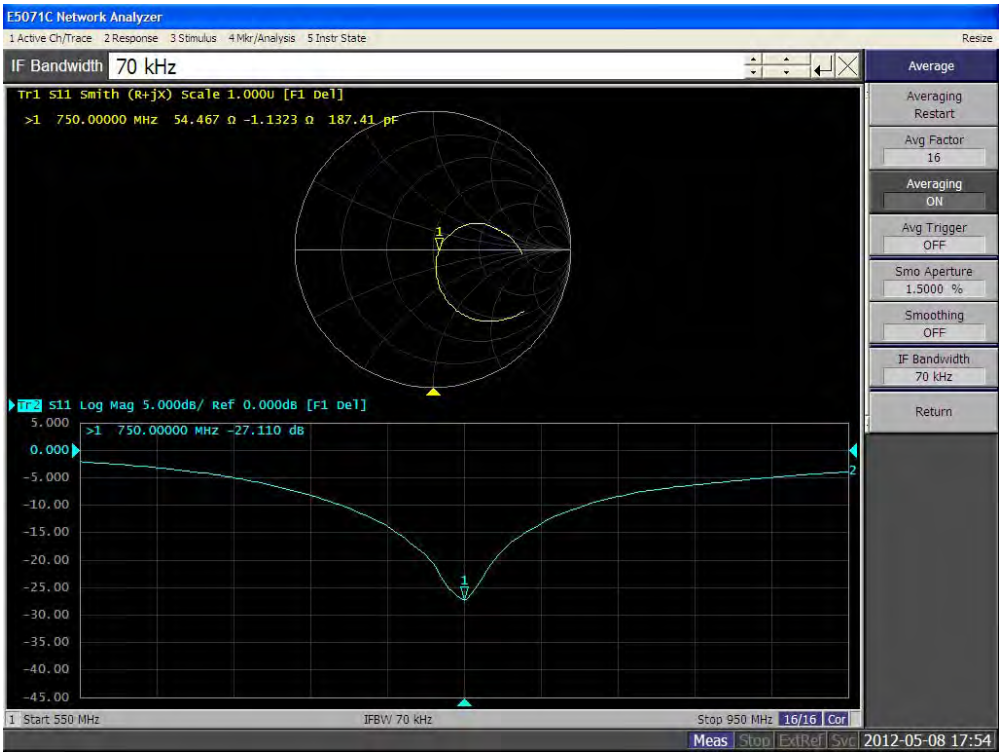
Antenna Parameters with Head TSL

	Calibration certificate	Annual measurement
Impedance, transformed to feed point	53.8 Ω - 1.6 jΩ	54.5 Ω - 1.1 jΩ
Return loss	-28.0 dB	-27.1 dB

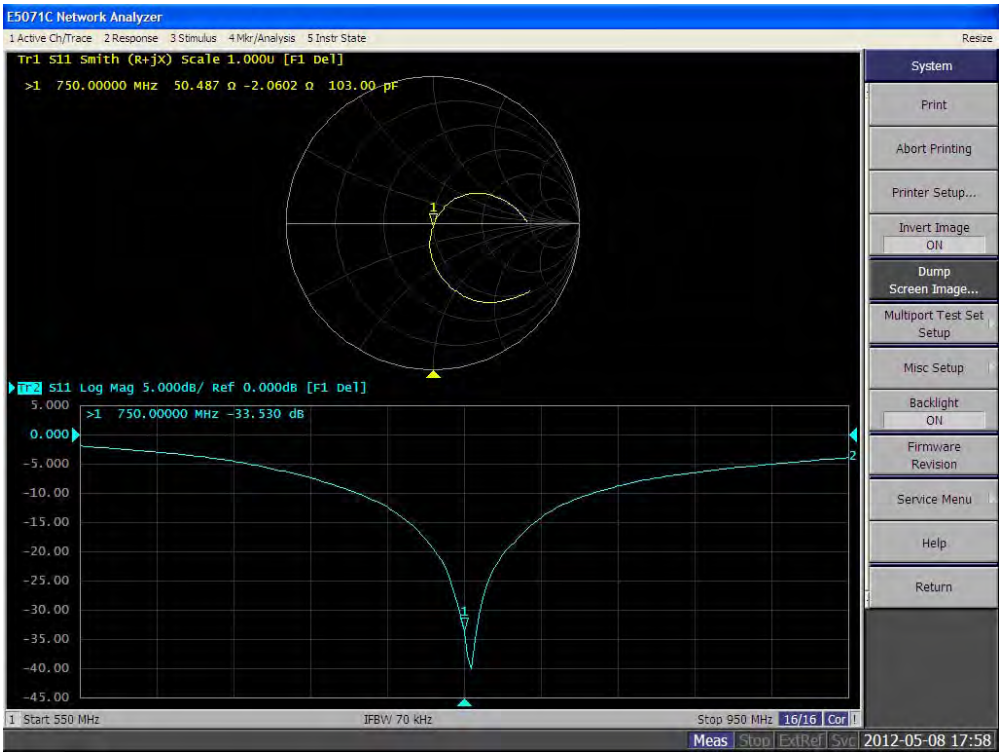
Antenna Parameters with Body TSL

	Calibration certificate	Annual measurement
Impedance, transformed to feed point	49.1 Ω - 3.5 jΩ	50.5 Ω - 2.1 jΩ
Return loss	-28.7 dB	-33.5 dB

Impedance Measurement Plot for Head TSL 750



Impedance Measurement Plot for Body TSL 750



ASSET 6987

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Accreditation No.: SCS 108

Client Nokia SD

Certificate No: D835V2-487_Feb12

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 487

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

Calibration date: February 17, 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: February 17, 2012

DASY5 Validation Report for Head TSL

Date: 17.02.2012

Test Laboratory: The name of your organization

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 487

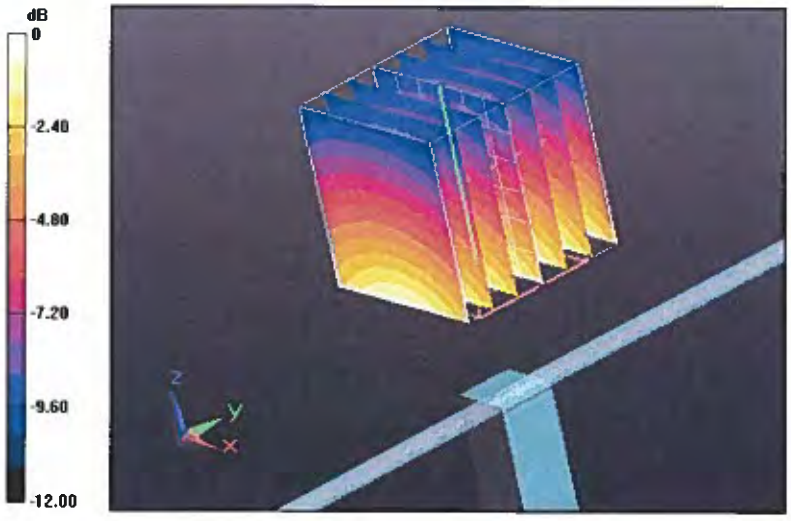
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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 = 56.945 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.4020
SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.691 mW/g



0 dB = 2.690mW/g = 8.60 dB mW/g

DASY5 Validation Report for Body TSL

Date: 17.02.2012

Test Laboratory: The name of your organization

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 487

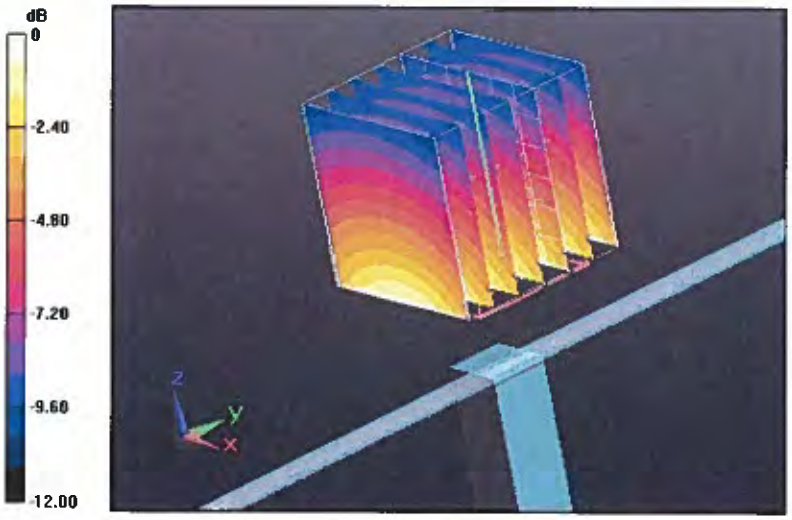
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 55.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(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 = 54.922 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.5200
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.833 mW/g



0 dB = 2.830mW/g = 9.04 dB mW/g

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D835V2-462_Sep11

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 462
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	September 13, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-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-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 13, 2011

Date: 13.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462

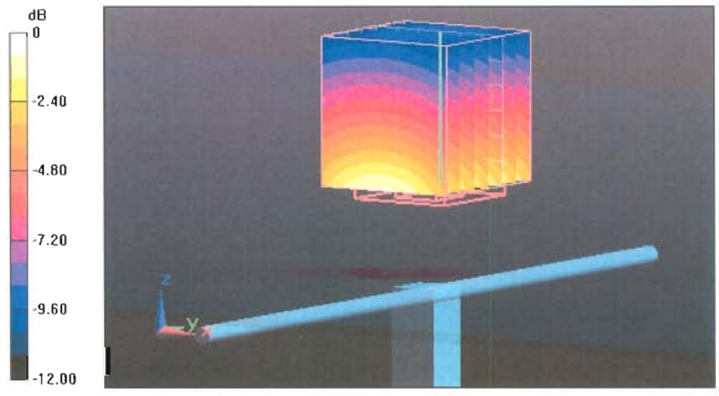
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 56.987 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.423 W/kg
SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.708 mW/g



0 dB = 2.710mW/g

DASY5 Validation Report for Body TSL

Date: 12.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462

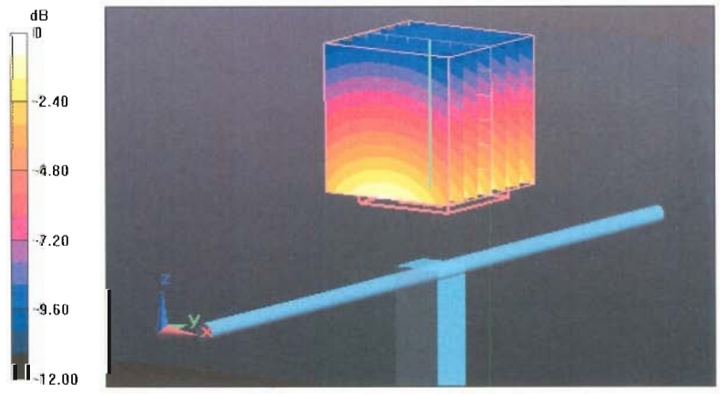
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 55.464 V/m; Power Drift = 0.0033 dB
Peak SAR (extrapolated) = 3.540 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g
Maximum value of SAR (measured) = 2.851 mW/g



0 dB = 2.850mW/g

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Accreditation No.: SCS 108

Client Nokia SD

Certificate No: D1900V2-5d099_Sep11

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d099
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	September 15, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-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-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 15, 2011

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.6 ± 6 %	1.43 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.26 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.9 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.2 ± 6 %	1.59 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**41.4 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.56 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.0 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.9 Ω + 6.4 jΩ
Return Loss	- 23.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.3 Ω + 6.8 jΩ
Return Loss	- 22.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 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.
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	September 26, 2007

DASY5 Validation Report for Head TSL

Date: 15.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d099

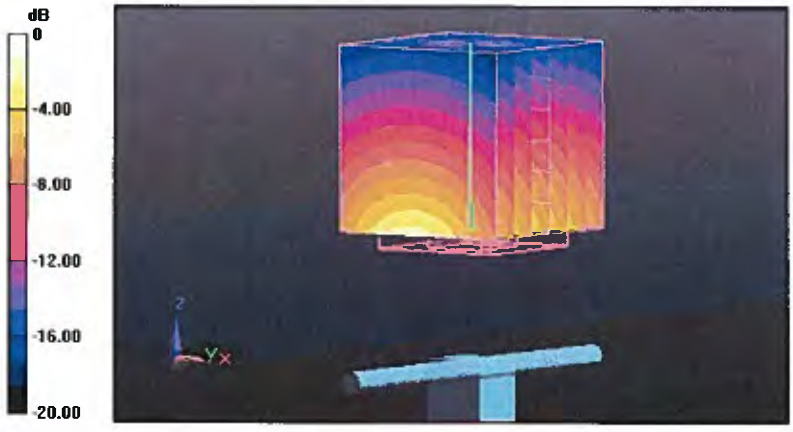
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.43 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

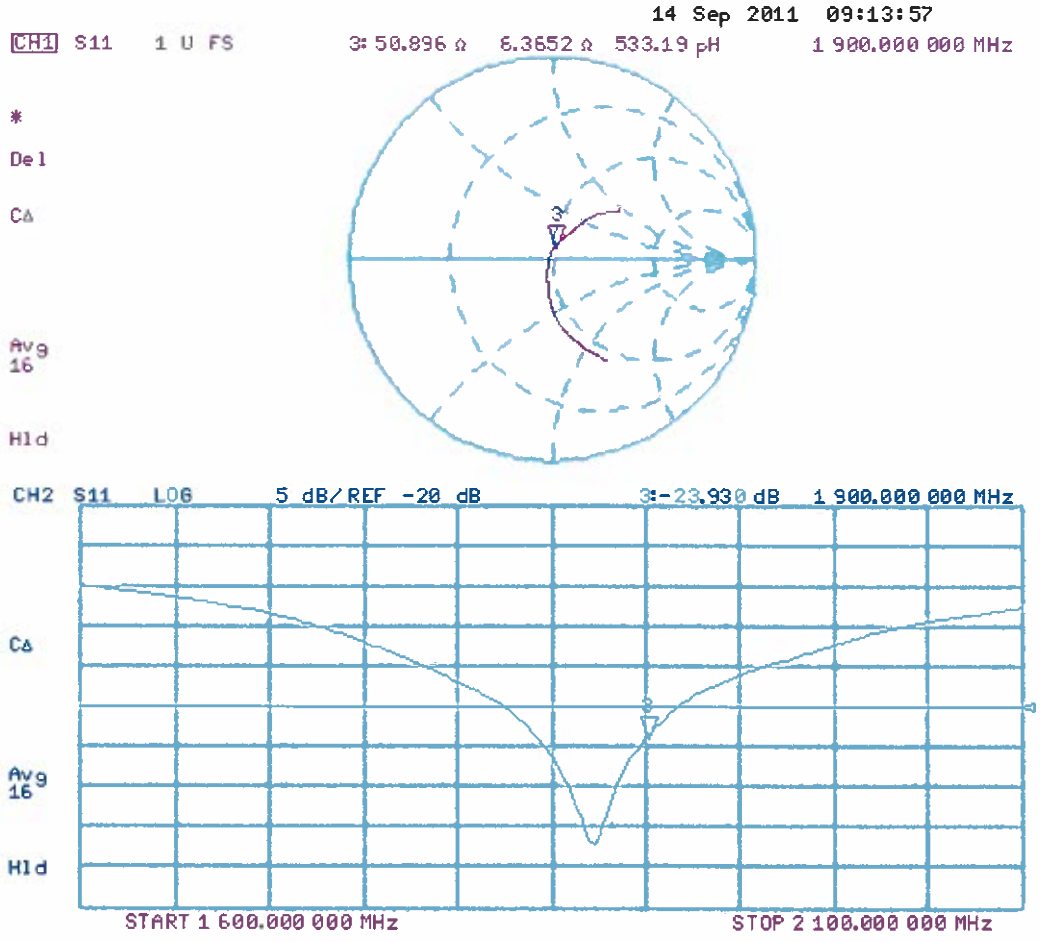
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.201 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 18.370 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.26 mW/g
Maximum value of SAR (measured) = 12.759 mW/g



0 dB = 12.760mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 14.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d099

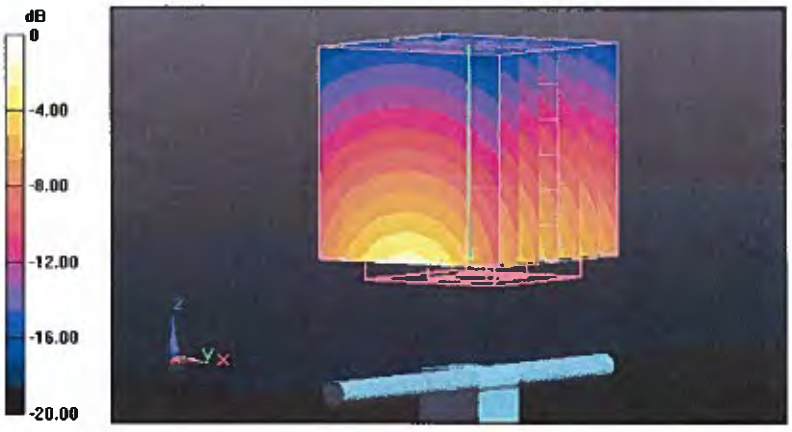
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.59 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

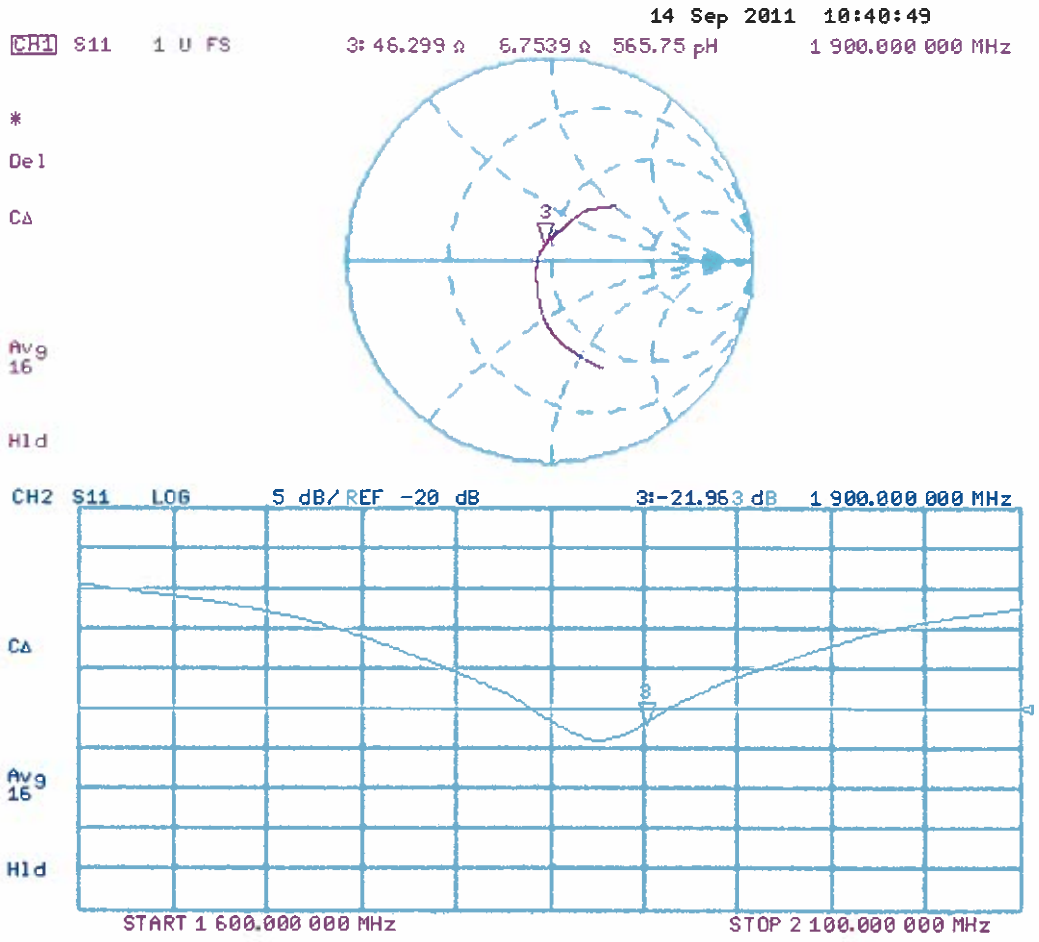
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.840 V/m; Power Drift = 0.00072 dB
Peak SAR (extrapolated) = 18.707 W/kg
SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.56 mW/g
Maximum value of SAR (measured) = 13.461 mW/g



0 dB = 13.460mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Nokia SD**

Certificate No: D1900V2-534_Sep12

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 534
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	September 14, 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: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 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-11)	In house check: Oct-12

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

Issued: September 14, 2012

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.6 ± 6 %	1.37 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.64 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.2 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.11 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.6 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	1.54 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.0 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.34 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω + 4.5 jΩ
Return Loss	- 26.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.6 Ω + 4.5 jΩ
Return Loss	- 25.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.204 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	January 31, 2001

DASY5 Validation Report for Head TSL

Date: 14.09.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 534

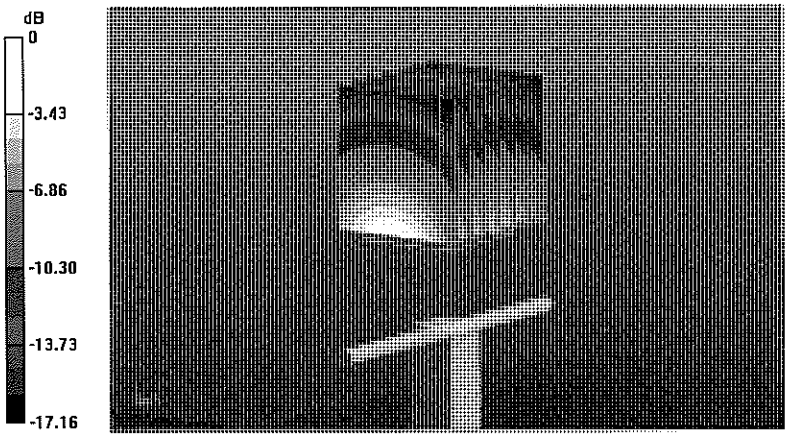
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.37 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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 52.8.2(969); SEMCAD X 14.6.6(6824)

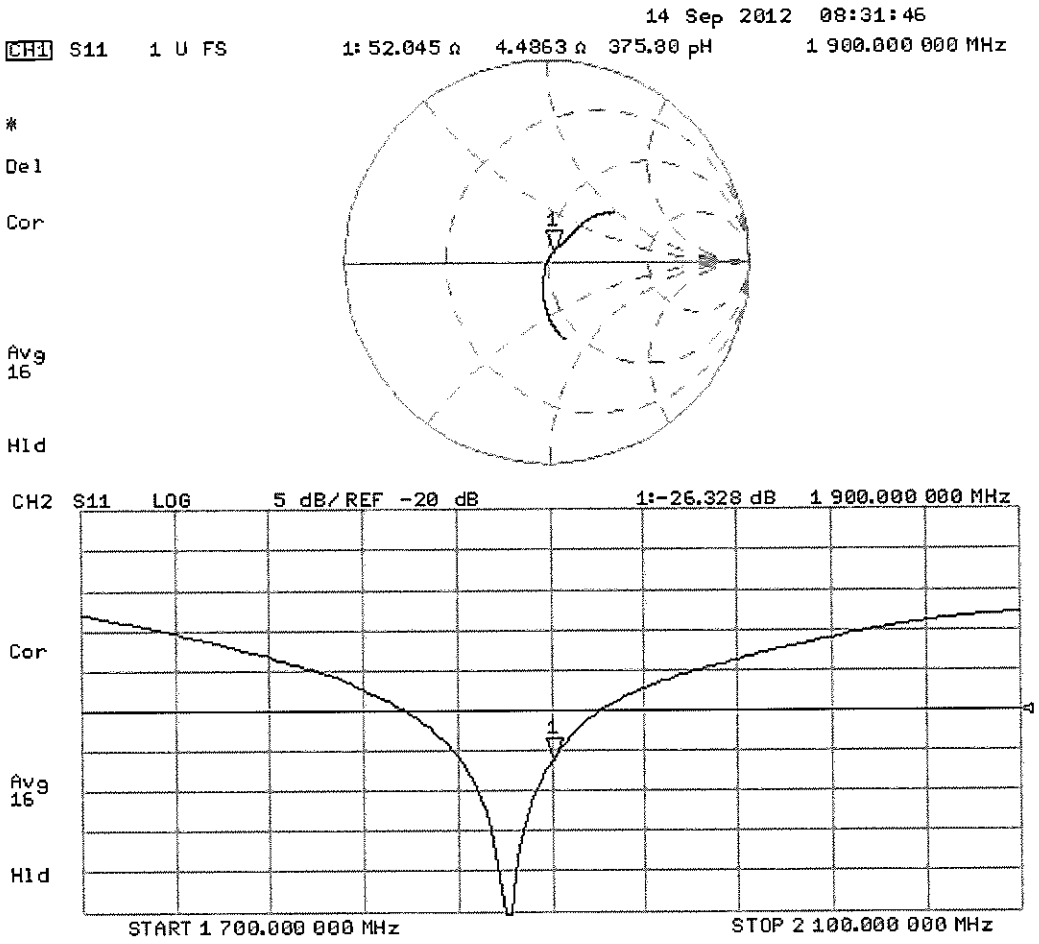
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.550 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.069 mW/g
SAR(1 g) = 9.64 mW/g; SAR(10 g) = 5.11 mW/g
Maximum value of SAR (measured) = 11.8 W/kg



0 dB = 11.8 W/kg = 21.44 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 14.09.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 534

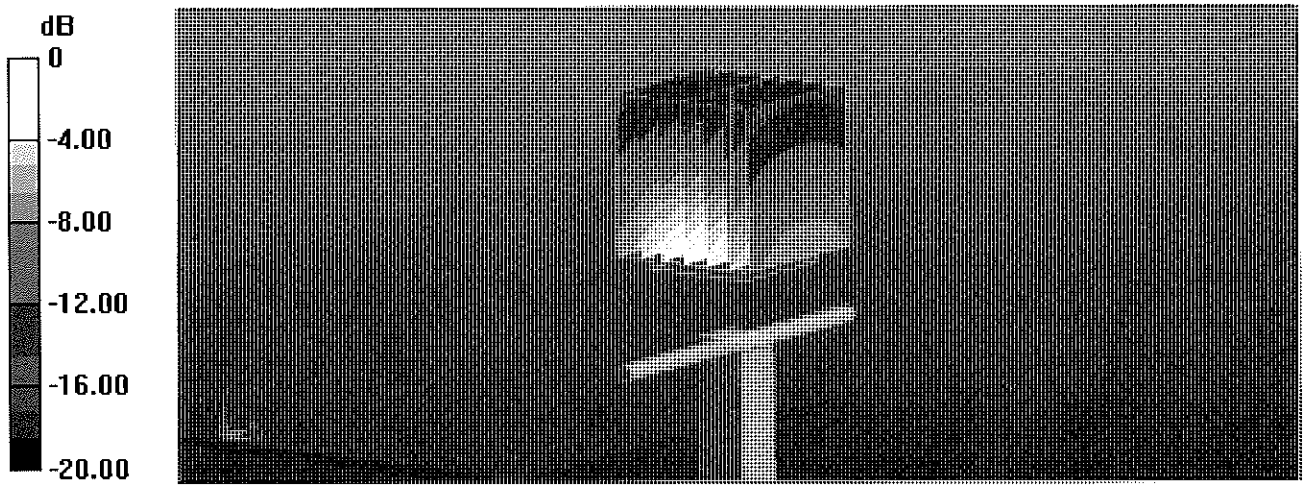
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(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 52.8.2(969); SEMCAD X 14.6.6(6824)

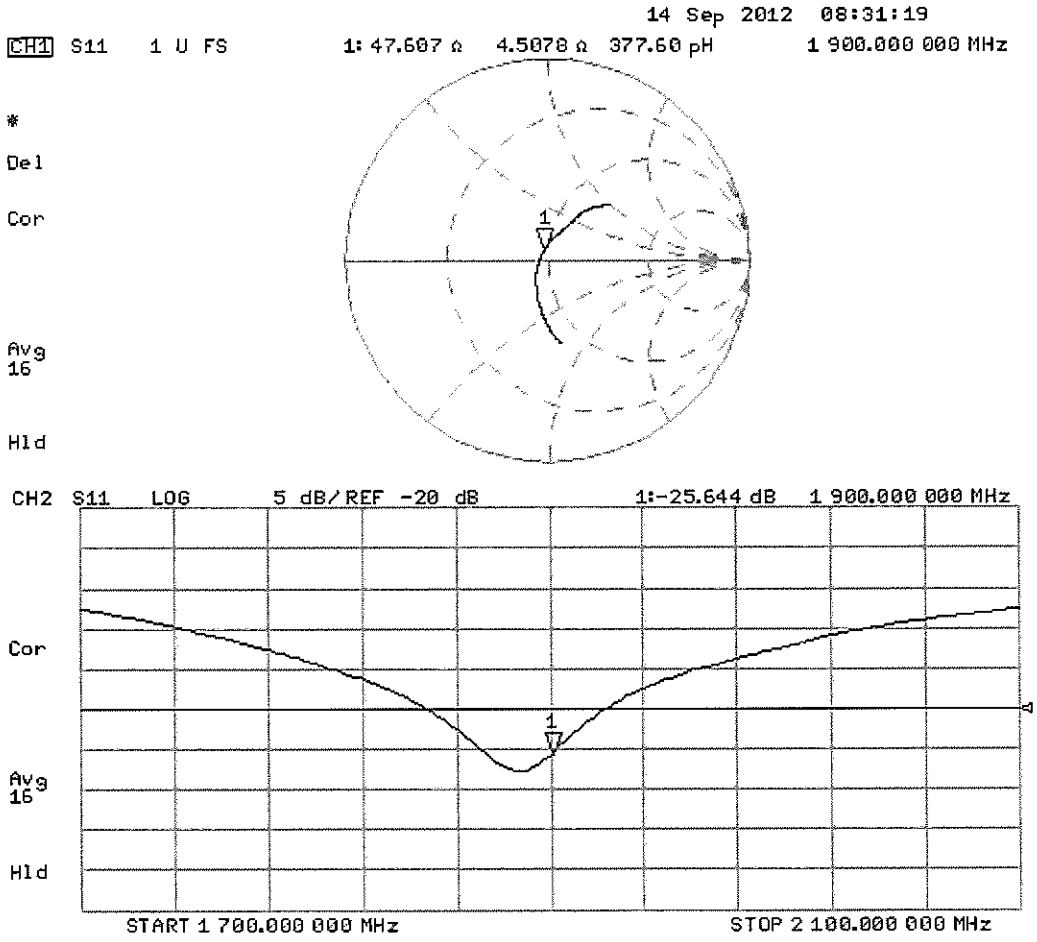
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.550 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.586 mW/g
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.34 mW/g
Maximum value of SAR (measured) = 12.7 W/kg



0 dB = 12.7 W/kg = 22.08 dB W/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D1900V2-5d030_Feb12

CALIBRATION CERTIFICATE

Object: D1900V2 - SN: 5d030

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

Calibration date: February 22, 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: February 22, 2012

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω + 5.3 jΩ
Return Loss	- 25.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.6 Ω + 5.4 jΩ
Return Loss	- 24.4 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	December 17, 2002

DASY5 Validation Report for Head TSL

Date: 22.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d030

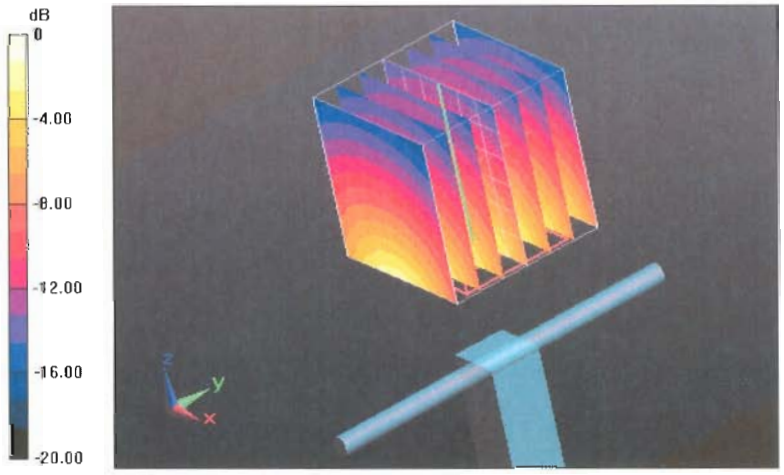
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.4 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

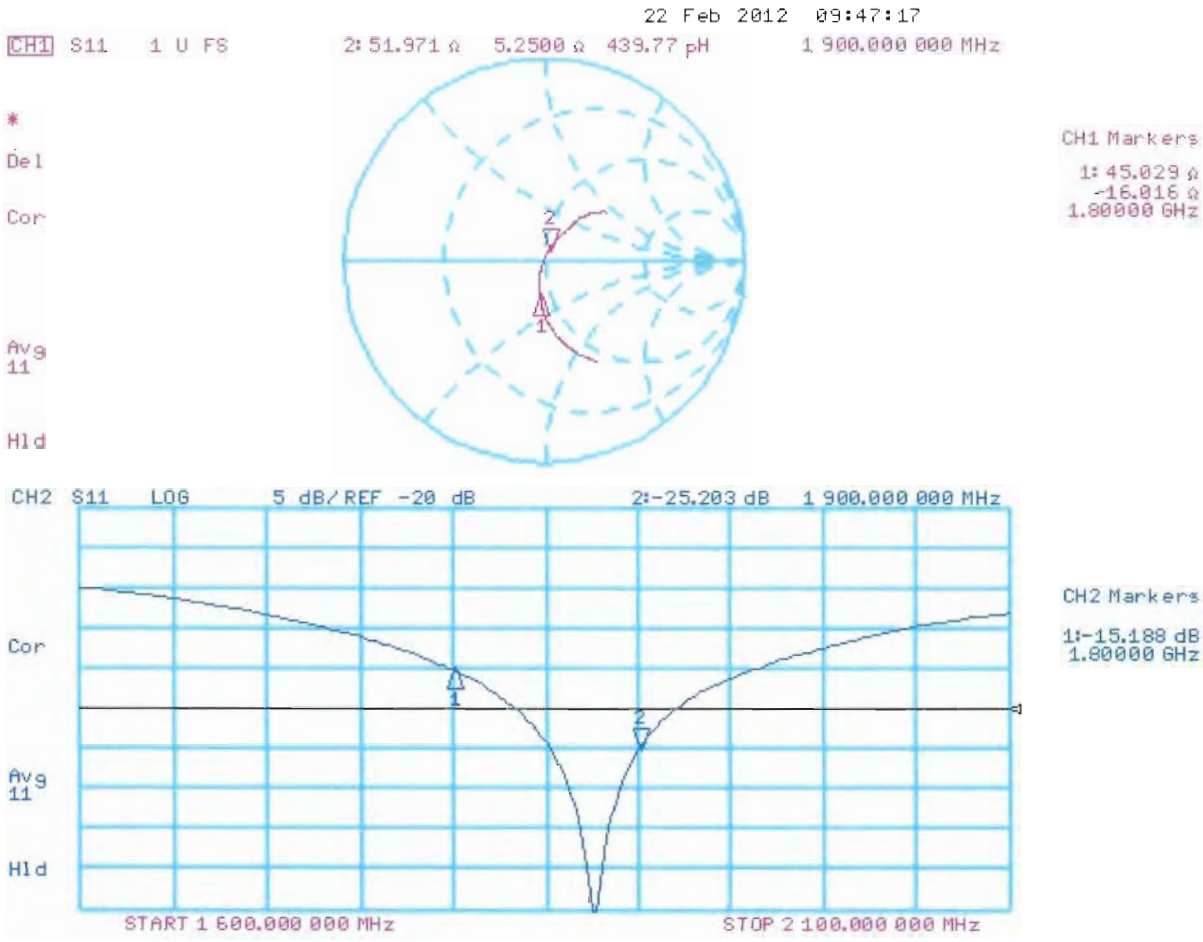
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.565 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 17.4270
SAR(1 g) = 9.79 mW/g; SAR(10 g) = 5.18 mW/g
Maximum value of SAR (measured) = 12.117 mW/g



0 dB = 12.120mW/g = 21.67 dB mW/g

Impedance Measurement Plot for Head TSL



Date: 22.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d030

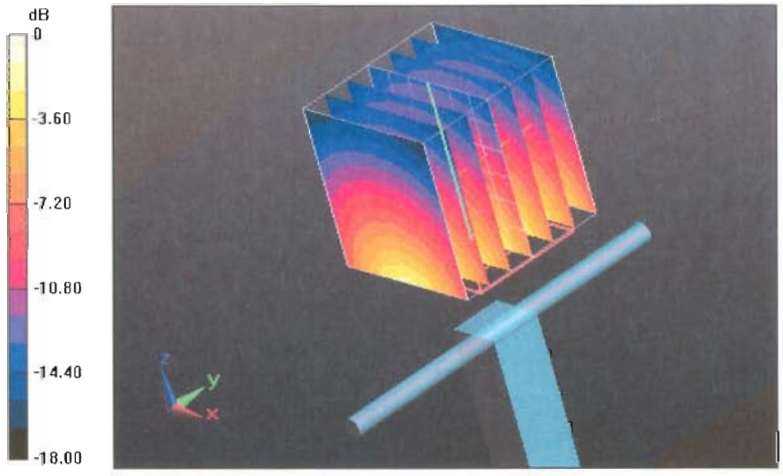
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

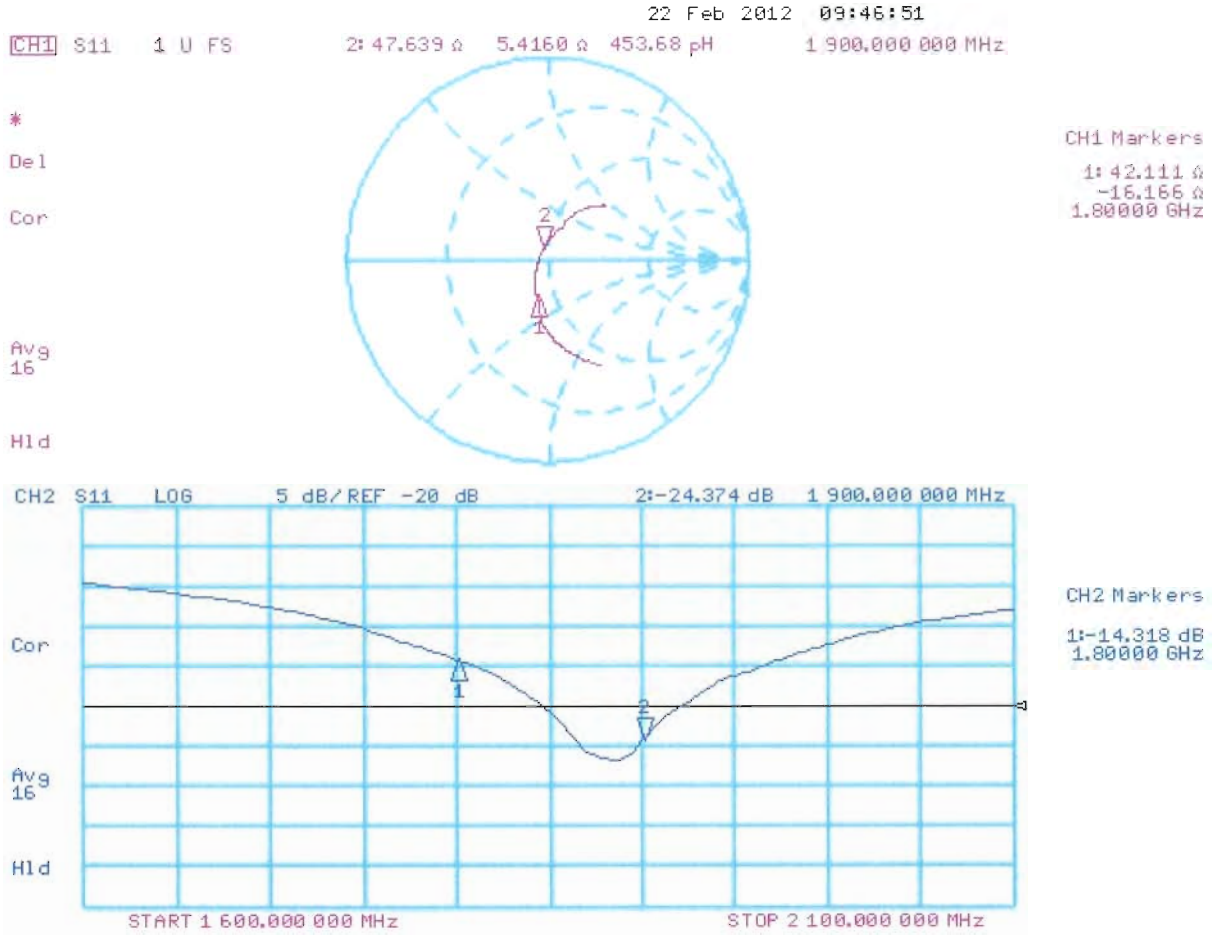
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.541 V/m; Power Drift = -0.0095 dB
Peak SAR (extrapolated) = 17.4260
SAR(1 g) = 9.87 mW/g; SAR(10 g) = 5.17 mW/g
Maximum value of SAR (measured) = 12.485 mW/g



0 dB = 12.480mW/g = 21.92 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D2450V2-729_Sep11

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 729
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	September 13, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-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-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 13, 2011

Date: 13.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 729

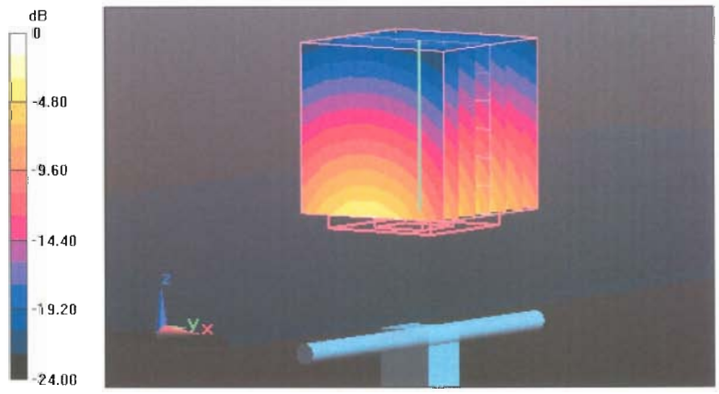
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 102.5 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 28.852 W/kg
SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.45 mW/g
Maximum value of SAR (measured) = 18.134 mW/g



0 dB = 18.130mW/g

Date: 12.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 729

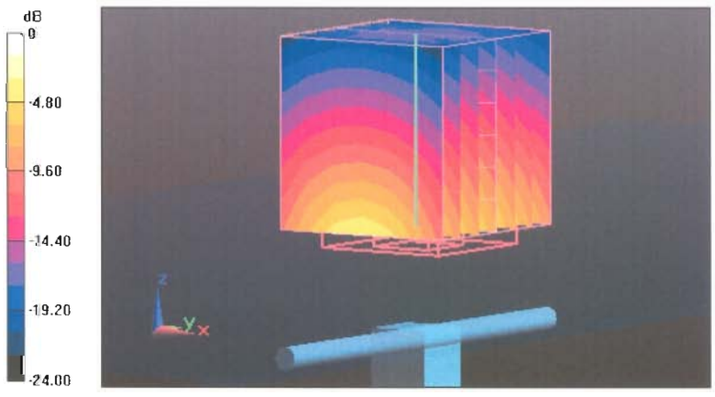
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.04 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 96.035 V/m; Power Drift = -0.0016 dB
Peak SAR (extrapolated) = 27.393 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.18 mW/g
Maximum value of SAR (measured) = 17.569 mW/g



0 dB = 17.570mW/g

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D5GHzV2-1032_Feb12

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN: 1032

Calibration procedure(s): QA CAL-22.v1
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: February 14, 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 EX3DV4	SN: 3503	30-Dec-11 (No. EX3-3503_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	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 14, 2012

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	49.6 Ω - 8.3 jΩ
Return Loss	- 21.6 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	52.0 Ω - 1.9 jΩ
Return Loss	- 31.3 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	58.9 Ω - 3.2 jΩ
Return Loss	- 21.2 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	49.2 Ω - 7.7 jΩ
Return Loss	- 22.1 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	52.6 Ω - 1.0 jΩ
Return Loss	- 31.3 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	59.8 Ω - 2.9 jΩ
Return Loss	- 20.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 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 09, 2004

Date: 14.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.6 mho/m; ε_r = 35.3; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.89 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.19 mho/m; ε_r = 34.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

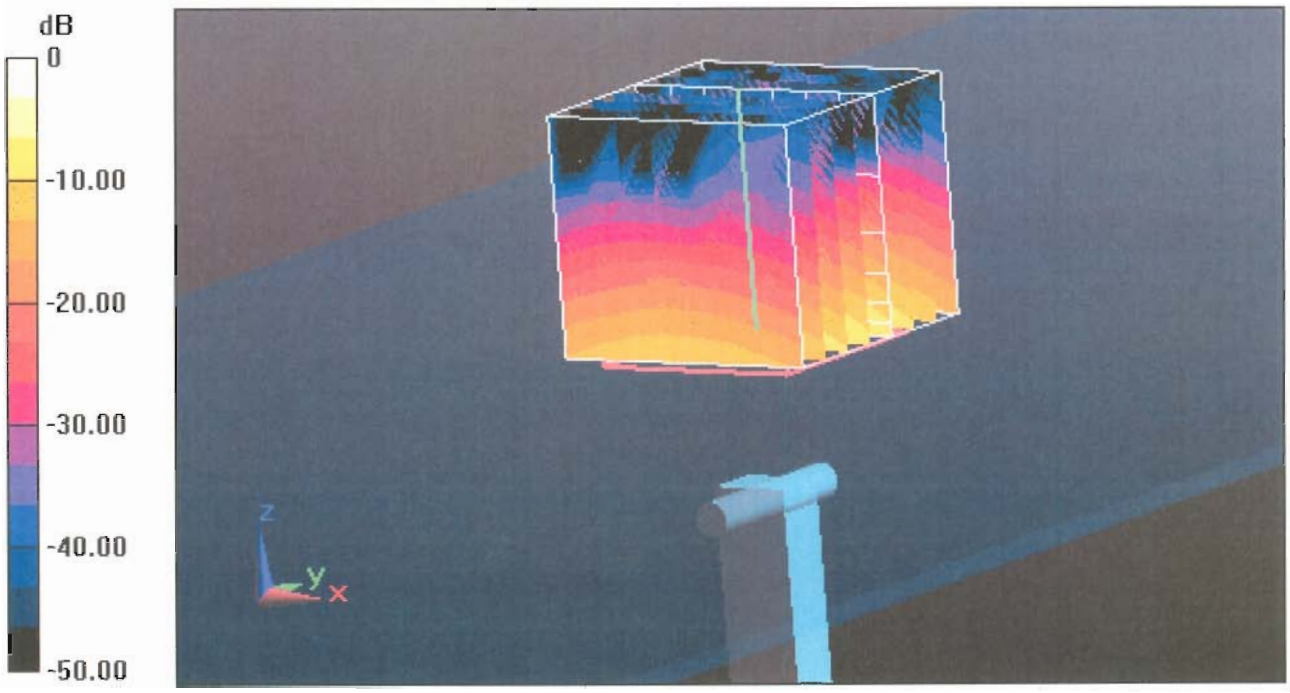
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41), ConvF(4.91, 4.91, 4.91), ConvF(4.81, 4.81, 4.81); Calibrated: 30.12.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.348 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 30.0130
SAR(1 g) = 7.98 mW/g; SAR(10 g) = 2.28 mW/g
Maximum value of SAR (measured) = 19.030 mW/g

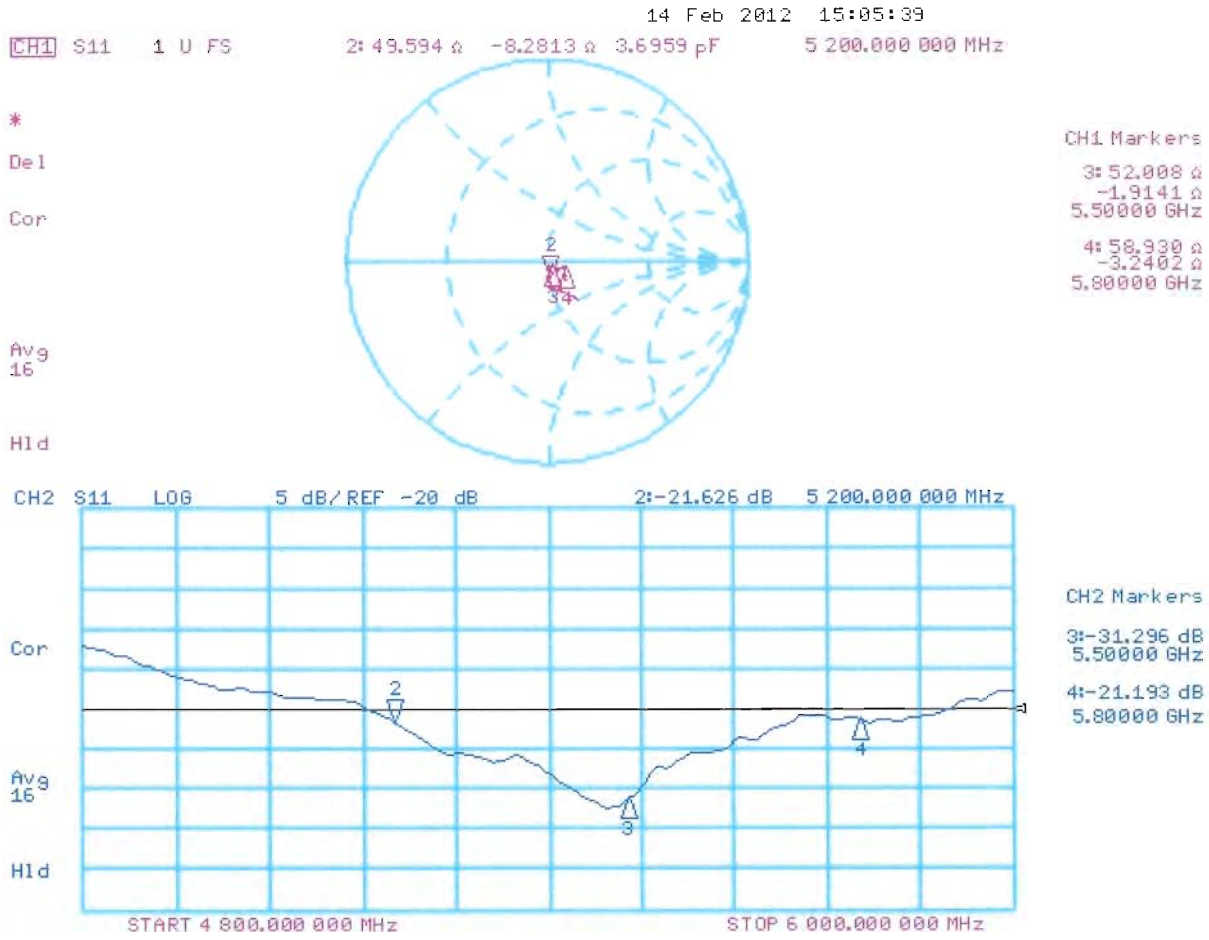
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.801 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 34.8980
SAR(1 g) = 8.65 mW/g; SAR(10 g) = 2.45 mW/g
Maximum value of SAR (measured) = 21.094 mW/g

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 60.873 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 33.7370
SAR(1 g) = 7.92 mW/g; SAR(10 g) = 2.25 mW/g
Maximum value of SAR (measured) = 19.840 mW/g



0 dB = 19.840mW/g = 25.95 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 13.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1032

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.48 mho/m; ε_r = 48.6; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 5.87 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

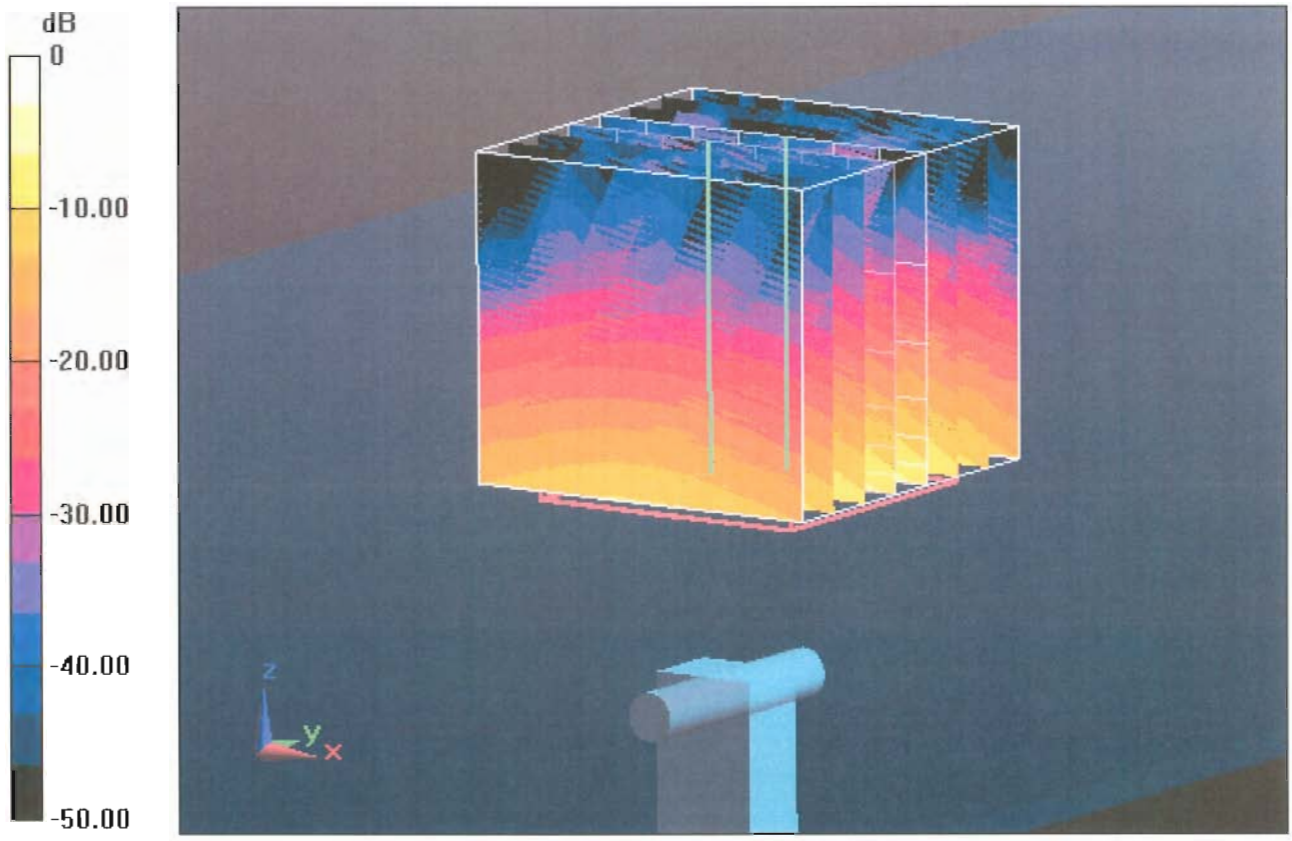
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91), ConvF(4.43, 4.43, 4.43), ConvF(4.38, 4.38, 4.38); Calibrated: 30.12.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.401 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 28.2500
SAR(1 g) = 7.23 mW/g; SAR(10 g) = 2.03 mW/g
Maximum value of SAR (measured) = 16.493 mW/g

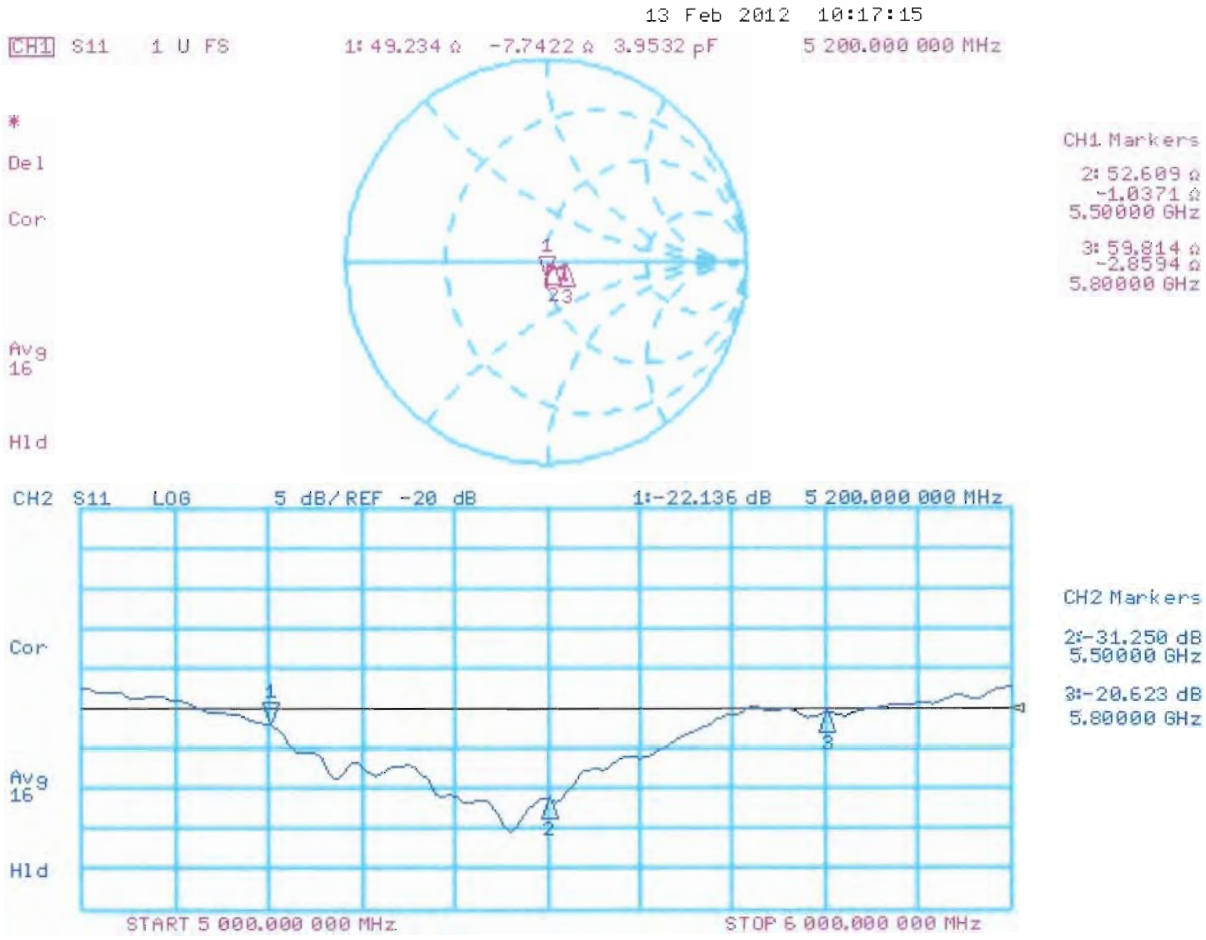
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.876 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 33.4980
SAR(1 g) = 7.78 mW/g; SAR(10 g) = 2.16 mW/g
Maximum value of SAR (measured) = 18.246 mW/g

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 54.089 V/m; Power Drift = -0.0018 dB
Peak SAR (extrapolated) = 33.8810
SAR(1 g) = 7.21 mW/g; SAR(10 g) = 1.99 mW/g
Maximum value of SAR (measured) = 17.435 mW/g



0 dB = 17.440mW/g = 24.83 dB mW/g

Impedance Measurement Plot for Body TSL



APPENDIX G: CONDUCTED POWER MEASUREMENTS FOR SUPPORTED LTE TRANSMISSION MODES

G.1 Power Tuning Targets

Tuning targets LTE			
Slot configuration	Low channel	Mid channel	High channel
LTE750 (Band 13)	-	23.3	-

Tuning targets LTE in WR mode			
Slot configuration	Low channel	Mid channel	High channel
LTE750 (Band 13)	-	23.0	-

Band	Power reduction in SVLTE mode			Target tuning power in SVLTE mode		
LTE750	When active with CDMA800: 0 dB	When active with CDMA1900 powers ≥ 18.5dBm: 4 dB	When active with CDMA1900 powers < 18.5dBm: 0 dB	When active with CDMA800: 23.3 dBm	When active with CDMA1900 powers ≥ 18.5dBm: 19.3 dBm	When active with CDMA1900 powers < 18.5dBm: 23.3 dBm

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

Type: RM-845; Serial number: C1A138246/E2 used for LTE750 SAR Head and Body-worn measurements.

"Max Average Power (dBm)" column lists measured powers with MPR active. The "Reduced Power (dBm)" column lists measured powers with MPR and A-MPR active (as defined by 3GPP TS 36.101). A-MPR is only specified for 10MHz BW in this specification (Table 6.2.4-1).

Frequency (MHz)	Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max Average Power (dBm)	Reduced Power (dBm)
779.5	23205	5	1	0	QPSK	22.68	-
779.5	23205	5	1	24	QPSK	22.91	-
779.5	23205	5	1	12	QPSK	22.92	-
779.5	23205	5	12	6	QPSK	21.84	-
779.5	23205	5	25	0	QPSK	21.95	-
779.5	23205	5	1	0	16QAM	22.07	-
779.5	23205	5	1	24	16QAM	22.19	-
779.5	23205	5	1	12	16QAM	22.71	-
779.5	23205	5	12	6	16QAM	21.74	-
779.5	23205	5	25	0	16QAM	21.92	-
782.0	23230	5	1	0	QPSK	22.65	-
782.0	23230	5	1	24	QPSK	22.91	-
782.0	23230	5	1	12	QPSK	23.01	-
782.0	23230	5	12	6	QPSK	22.17	-
782.0	23230	5	25	0	QPSK	22.17	-
782.0	23230	5	1	0	16QAM	22.14	-
782.0	23230	5	1	24	16QAM	22.04	-
782.0	23230	5	1	12	16QAM	22.18	-
782.0	23230	5	12	6	16QAM	22.19	-
782.0	23230	5	25	0	16QAM	21.19	-
784.5	23255	5	1	0	QPSK	23.02	-
784.5	23255	5	1	24	QPSK	22.51	-
784.5	23255	5	1	12	QPSK	22.76	-
784.5	23255	5	12	6	QPSK	22.13	-
784.5	23255	5	25	0	QPSK	22.00	-
784.5	23255	5	1	0	16QAM	22.29	-
784.5	23255	5	1	24	16QAM	21.33	-
784.5	23255	5	1	12	16QAM	21.69	-
784.5	23255	5	12	6	16QAM	22.06	-
784.5	23255	5	25	0	16QAM	22.03	-

Frequency (MHz)	Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max Average Power (dBm)	Reduced Power (dBm)
782.0	23230	10	1	0	QPSK	23.35	11.84
782.0	23230	10	1	49	QPSK	22.94	20.86
782.0	23230	10	1	24	QPSK	23.52	23.59
782.0	23230	10	25	12	QPSK	22.71	11.02
782.0	23230	10	50	0	QPSK	22.54	10.88
782.0	23230	10	1	0	16QAM	22.21	10.90
782.0	23230	10	1	49	16QAM	21.88	19.91
782.0	23230	10	1	24	16QAM	22.4	22.92
782.0	23230	10	25	12	16QAM	21.78	9.92
782.0	23230	10	50	0	16QAM	21.61	9.91

Type: RM-845; Serial number: C1A138254/F2 used for LTE750 Wireless Router mode testing

"Max Average Power (dBm)" column lists measured powers with MPR active. The "Reduced Power (dBm)" column lists measured powers with MPR and A-MPR active (as defined by 3GPP TS 36.101). A-MPR is only specified for 10MHz BW in this specification (Table 6.2.4-1).

Frequency (MHz)	Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max Average Power (dBm)	Reduced Power (dBm)
779.5	23205	5	1	0	QPSK	22.3	-
779.5	23205	5	1	24	QPSK	22.48	-
779.5	23205	5	1	12	QPSK	22.52	-
779.5	23205	5	12	6	QPSK	21.21	-
779.5	23205	5	25	0	QPSK	21.07	-
779.5	23205	5	1	0	16QAM	21.23	-
779.5	23205	5	1	24	16QAM	21.38	-
779.5	23205	5	1	12	16QAM	21.36	-
779.5	23205	5	12	6	16QAM	21.2	-
779.5	23205	5	25	0	16QAM	20.18	-
782.0	23230	5	1	0	QPSK	22.53	-
782.0	23230	5	1	24	QPSK	22.42	-
782.0	23230	5	1	12	QPSK	22.54	-
782.0	23230	5	12	6	QPSK	21.42	-
782.0	23230	5	25	0	QPSK	21.35	-
782.0	23230	5	1	0	16QAM	21.4	-
782.0	23230	5	1	24	16QAM	21.24	-
782.0	23230	5	1	12	16QAM	21.42	-
782.0	23230	5	12	6	16QAM	20.31	-
782.0	23230	5	25	0	16QAM	20.27	-
784.5	23255	5	1	0	QPSK	22.46	-
784.5	23255	5	1	24	QPSK	22.09	-
784.5	23255	5	1	12	QPSK	22.14	-
784.5	23255	5	12	6	QPSK	21.27	-
784.5	23255	5	25	0	QPSK	21.05	-
784.5	23255	5	1	0	16QAM	21.63	-
784.5	23255	5	1	24	16QAM	20.95	-
784.5	23255	5	1	12	16QAM	21.29	-
784.5	23255	5	12	6	16QAM	21.24	-
784.5	23255	5	25	0	16QAM	20.22	-

Frequency (MHz)	Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max Average Power (dBm)	Reduced Power (dBm)
782.0	23230	10	1	0	QPSK	22.84	10.97
782.0	23230	10	1	49	QPSK	22.48	20.03
782.0	23230	10	1	24	QPSK	23.12	23.17
782.0	23230	10	25	12	QPSK	21.86	10.15
782.0	23230	10	50	0	QPSK	21.71	10.07
782.0	23230	10	1	0	16QAM	21.38	21.38
782.0	23230	10	1	49	16QAM	21.05	21.05
782.0	23230	10	1	24	16QAM	21.61	22.14
782.0	23230	10	25	12	16QAM	20.93	19.08
782.0	23230	10	50	0	16QAM	20.71	9.97

Type: RM-845; Serial number: C1A138405/FF2 used for LTE750 reduced-power SVLTE mode testing

"Max Average Power (dBm)" column lists measured powers with MPR active. The "Reduced Power (dBm)" column lists measured powers with MPR and A-MPR active (as defined by 3GPP TS 36.101). A-MPR is only specified for 10MHz BW in this specification (Table 6.2.4-1).

Frequency (MHz)	Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max Average Power (dBm)	Reduced Power (dBm)
779.5	23205	5	1	0	QPSK	18.64	-
779.5	23205	5	1	24	QPSK	18.92	-
779.5	23205	5	1	12	QPSK	18.74	-
779.5	23205	5	12	6	QPSK	17.62	-
779.5	23205	5	25	0	QPSK	17.52	-
779.5	23205	5	1	0	16QAM	17.85	-
779.5	23205	5	1	24	16QAM	17.93	-
779.5	23205	5	1	12	16QAM	17.87	-
779.5	23205	5	12	6	16QAM	17.58	-
779.5	23205	5	25	0	16QAM	16.56	-
782.0	23230	5	1	0	QPSK	18.77	-
782.0	23230	5	1	24	QPSK	18.82	-
782.0	23230	5	1	12	QPSK	18.9	-
782.0	23230	5	12	6	QPSK	17.88	-
782.0	23230	5	25	0	QPSK	17.79	-
782.0	23230	5	1	0	16QAM	18.81	-
782.0	23230	5	1	24	16QAM	17.93	-
782.0	23230	5	1	12	16QAM	18	-
782.0	23230	5	12	6	16QAM	17.81	-
782.0	23230	5	25	0	16QAM	17.77	-
784.5	23255	5	1	0	QPSK	18.9	-
784.5	23255	5	1	24	QPSK	18.53	-
784.5	23255	5	1	12	QPSK	18.88	-
784.5	23255	5	12	6	QPSK	17.8	-
784.5	23255	5	25	0	QPSK	17.57	-
784.5	23255	5	1	0	16QAM	18	-
784.5	23255	5	1	24	16QAM	17.39	-
784.5	23255	5	1	12	16QAM	17.83	-
784.5	23255	5	12	6	16QAM	17.68	-
784.5	23255	5	25	0	16QAM	17.72	-

Frequency (MHz)	Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max Average Power (dBm)	Reduced Power (dBm)
782.0	23230	10	1	0	QPSK	19.13	7.28
782.0	23230	10	1	49	QPSK	19.06	16.32
782.0	23230	10	1	24	QPSK	19.43	19.41
782.0	23230	10	25	12	QPSK	18.32	6.44
782.0	23230	10	50	0	QPSK	18.06	6.34
782.0	23230	10	1	0	16QAM	17.83	6.23
782.0	23230	10	1	49	16QAM	17.5	15.16
782.0	23230	10	1	24	16QAM	17.93	18.52
782.0	23230	10	25	12	16QAM	17.33	5.45
782.0	23230	10	50	0	16QAM	17.19	5.25

APPENDIX H: CONDUCTED POWER MEASUREMENTS FOR SUPPORTED CDMA TRANSMISSION MODES

H.1 Power Tuning Targets

Tuning targets CDMA 800			
Configuration	Low channel	Mid channel	High channel
CDMA 1X	-	23.5	-
CDMA EVDO	-	23.5	-

Tuning targets CDMA 800 in WR mode			
Configuration	Low channel	Mid channel	High channel
CDMA 1X	-	23.5	-
CDMA EVDO	-	23.5	-

Tuning targets CDMA 1900			
Configuration	Low channel	Mid channel	High channel
CDMA 1X	-	23.2	-
CDMA EVDO	-	23.2	-

Tuning targets CDMA 1900 in WR mode			
Configuration	Low channel	Mid channel	High channel
CDMA 1X	-	22.5	-
CDMA EVDO	-	22.5	-

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

Type: RM-845; Serial number: C1A138294/B1 used for CDMA800 SAR Head, Body-worn and Wireless Router testing

Radio Config	Service Option	SCH1 Rate	1013	384	777
RC1	SO1	NA	NA	NA	NA
RC1	SO2	NA	23.54	23.40	23.50
RC1	SO3	NA	23.54	23.40	23.50
RC1	SO55	NA	23.54	23.40	23.50
RC2	SO9	NA	23.54	23.40	23.50
RC2	SO17	NA	23.54	23.40	23.50
RC2	SO55	NA	23.54	23.40	23.50
RC3	SO1	NA	NA	NA	NA
RC3	SO2	NA	23.54	23.40	23.50
RC3	SO3	NA	23.54	23.40	23.50
RC3	**SO55**	**NA**	**23.54**	**23.40**	**23.50**
RC3	SO32	0	23.50	23.40	23.50
RC3	SO32	9.6	23.54	23.40	23.50
RC3	SO32	19.2	23.54	23.40	23.50
RC3	SO32	38.4	23.54	23.40	23.50
RC3	SO32	76.8	23.54	23.40	23.50
RC3	SO32	153.6	23.54	23.40	23.50
RC3	SO33	9.6	NA	NA	NA
RC3	SO33	19.2	NA	NA	NA
RC3	SO33	38.4	NA	NA	NA
RC3	SO33	76.8	NA	NA	NA
RC3	SO33	153.6	NA	NA	NA

(CDMA800 Table continues)

(CDMA800 Table continues)

RC4	SO1	NA	NA	NA	NA
RC4	SO2	NA	23.54	23.40	23.50
RC4	SO3	NA	23.54	23.40	23.50
RC4	SO55	NA	23.54	23.40	23.50
RC4	SO32	0	23.50	23.40	23.50
RC4	SO32	9.6	23.54	23.40	23.50
RC4	SO32	19.2	23.54	23.40	23.50
RC4	SO32	38.4	23.54	23.40	23.50
RC4	SO32	76.8	23.54	23.40	23.50
RC4	SO32	153.6	23.54	23.40	23.50
RC4	SO33	9.6	NA	NA	NA
RC4	SO33	19.2	NA	NA	NA
RC4	SO33	38.4	NA	NA	NA
RC4	SO33	76.8	NA	NA	NA
RC4	SO33	153.6	NA	NA	NA
RC5	SO9	NA	23.50	23.50	23.40
RC5	SO17	NA	23.50	23.50	23.40
RC5	SO55	NA	23.50	23.50	23.40
RC5	SO33	9.6	NA	NA	NA
RC5	SO33	19.2	NA	NA	NA
RC5	SO33	38.4	NA	NA	NA
RC5	SO33	76.8	NA	NA	NA
RC5	SO33	153.6	NA	NA	NA

EVDO Rev 0

Radio Config	Data Rate	1013	384	777
RTAP	9.6	23.50	23.40	23.50
RTAP	19.2	23.50	23.40	23.50
RTAP	38.4	23.50	23.40	23.50
RTAP	76.8	23.50	23.40	23.50
RTAP	153.6	23.50	23.40	23.50

EVDO Rev A

Radio Config	Pckt Size	1013	384	777
RETAP	256	23.55	23.50	23.50
RETAP	512	23.55	23.50	23.50
RETAP	1024	23.50	23.50	23.50
RETAP	2048	23.50	23.50	23.50
RETAP	3072	23.50	23.50	23.50
RETAP	6144	23.50	23.50	23.50
RETAP	12288	23.50	23.50	23.50

Type: RM-845; Serial number: C1A138211/A2 used for CDMA1900 SAR Head and Body-worn testing

Radio Config	Service Option	SCH1 Rate	25	600	1175
RC1	SO1	NA	NA	NA	NA
RC1	SO2	NA	23.00	23.20	23.10
RC1	SO3	NA	23.00	23.30	23.10
RC1	SO55	NA	23.00	23.20	23.10
RC2	SO9	NA	22.99	23.26	23.10
RC2	SO17	NA	23.00	23.20	23.20
RC2	SO55	NA	23.00	23.20	23.20
RC3	SO1	NA	NA	NA	NA
RC3	SO2	NA	23.00	23.20	23.10
RC3	SO3	NA	23.00	23.20	23.10
RC3	**SO55**	**NA**	**23.00**	**23.20**	**23.10**
RC3	SO32	0	23.00	23.20	23.10
RC3	SO32	9.6	23.00	23.20	23.10
RC3	SO32	19.2	23.00	23.20	23.10
RC3	SO32	38.4	23.00	23.20	23.10
RC3	SO32	76.8	23.00	23.20	23.10
RC3	SO32	153.6	23.00	23.20	23.10
RC3	SO33	9.6	NA	NA	NA
RC3	SO33	19.2	NA	NA	NA
RC3	SO33	38.4	NA	NA	NA
RC3	SO33	76.8	NA	NA	NA
RC3	SO33	153.6	NA	NA	NA

(CDMA1900 for Head and Body-worn Table continues)

(CDMA1900 for Head and Body-worn Table continues)

RC4	SO1	NA	NA	NA	NA
RC4	SO2	NA	23.00	23.20	23.00
RC4	SO3	NA	22.90	23.20	23.00
RC4	SO55	NA	23.00	23.20	23.00
RC4	SO32	0	23.00	23.20	22.97
RC4	SO32	9.6	23.00	23.20	23.00
RC4	SO32	19.2	23.00	23.20	22.90
RC4	SO32	38.4	23.00	23.20	23.00
RC4	SO32	76.8	23.00	23.20	23.00
RC4	SO32	153.6	23.00	23.20	23.00
RC4	SO33	9.6	NA	NA	NA
RC4	SO33	19.2	NA	NA	NA
RC4	SO33	38.4	NA	NA	NA
RC4	SO33	76.8	NA	NA	NA
RC4	SO33	153.6	NA	NA	NA
RC5	SO9	NA	23.00	23.15	23.00
RC5	SO17	NA	22.95	23.15	23.00
RC5	SO55	NA	22.95	23.15	23.00
RC5	SO33	9.6	NA	NA	NA
RC5	SO33	19.2	NA	NA	NA
RC5	SO33	38.4	NA	NA	NA
RC5	SO33	76.8	NA	NA	NA
RC5	SO33	153.6	NA	NA	NA

EVDO Rev 0

Radio Config	Data Rate	25	600	1175
RTAP	9.6	22.8	22.98	22.9
RTAP	19.2	22.8	23	22.9
RTAP	38.4	22.9	22.9	22.9
RTAP	76.8	22.8	23	22.85
RTAP	153.6	22.80	22.99	22.89

EVDO Rev A

Radio Config	Pckt Size	25	600	1175
RETAP	256	23.00	23.20	23.10
RETAP	512	23.00	23.10	23.12
RETAP	1024	23.00	23.10	23.12
RETAP	2048	23.00	23.10	23.10
RETAP	3072	23.00	23.10	23.10
RETAP	6144	23.00	23.10	23.12
RETAP	12288	23.00	23.10	23.12

Type: RM-845; Serial number: C1A138294/B1 used for CDMA1900 Wireless testing

Radio Config	Service Option	SCH1 Rate	25	600	1175
RC1	SO1	NA	NA	NA	NA
RC1	SO2	NA	22.50	22.63	22.60
RC1	SO3	NA	22.50	22.60	22.60
RC1	SO55	NA	22.50	22.60	22.60
RC2	SO9	NA	22.50	22.63	22.60
RC2	SO17	NA	22.50	22.60	22.60
RC2	SO55	NA	22.50	22.60	22.60
RC3	SO1	NA	NA	NA	NA
RC3	SO2	NA	22.50	22.63	22.60
RC3	SO3	NA	22.50	22.60	22.60
RC3	SO55	NA	22.50	22.60	22.60
RC3	SO32	0	22.50	22.60	22.60
RC3	SO32	9.6	22.50	22.63	22.60
RC3	SO32	19.2	22.50	22.60	22.60
RC3	SO32	38.4	22.50	22.60	22.60
RC3	SO32	76.8	22.50	22.60	22.60
RC3	SO32	153.6	22.50	22.60	22.60
RC3	SO33	9.6	NA	NA	NA
RC3	SO33	19.2	NA	NA	NA
RC3	SO33	38.4	NA	NA	NA
RC3	SO33	76.8	NA	NA	NA
RC3	SO33	153.6	NA	NA	NA

(CDMA1900 for Wireless Router Table continues)

(CDMA1900 for Wireless Router Table continues)

RC4	SO1	NA	NA	NA	NA
RC4	SO2	NA	22.50	22.63	22.60
RC4	SO3	NA	22.50	22.60	22.60
RC4	SO55	NA	22.50	22.60	22.60
RC4	SO32	0	22.50	22.60	22.60
RC4	SO32	9.6	22.50	22.63	22.60
RC4	SO32	19.2	22.50	22.60	22.60
RC4	SO32	38.4	22.50	22.60	22.60
RC4	SO32	76.8	22.50	22.60	22.60
RC4	SO32	153.6	22.50	22.60	22.60
RC4	SO33	9.6	NA	NA	NA
RC4	SO33	19.2	NA	NA	NA
RC4	SO33	38.4	NA	NA	NA
RC4	SO33	76.8	NA	NA	NA
RC4	SO33	153.6	NA	NA	NA
RC5	SO9	NA	22.50	22.60	22.55
RC5	SO17	NA	22.50	22.60	22.55
RC5	SO55	NA	22.50	22.60	22.55
RC5	SO33	9.6	NA	NA	NA
RC5	SO33	19.2	NA	NA	NA
RC5	SO33	38.4	NA	NA	NA
RC5	SO33	76.8	NA	NA	NA
RC5	SO33	153.6	NA	NA	NA

EVDO Rev 0

Radio Config	Data Rate	25	600	1175
RTAP	9.6	22.40	22.40	22.50
RTAP	19.2	22.40	22.40	22.50
RTAP	38.4	22.40	22.40	22.50
RTAP	76.8	22.40	22.40	22.50
RTAP	153.6	22.40	22.40	22.50

EVDO Rev A

Radio Config	Pckt Size	25	600	1175
RETAP	256	22.40	22.50	22.60
RETAP	512	22.40	22.50	22.60
RETAP	1024	22.40	22.50	22.60
RETAP	2048	22.40	22.50	22.60
RETAP	3072	22.40	22.50	22.60
RETAP	6144	22.40	22.50	22.60
RETAP	12288	22.40	22.50	22.60

Type: RM-845; Serial number: C1A138332/BC1, used for reduced-power CDMA1900 SV-mode testing

	Take 1			Take 2		
	25	600	1175	25	600	1175
BC1 RC1 S02	18.86	18.80	18.70	18.77	18.73	18.64
BC1 RC1 S03	18.89	18.80	18.73	18.99	18.91	18.86
BC1 RC1 SO55	18.88	18.83	18.69	18.99	18.92	18.81
BC1 RC2 S09	19.05	18.99	18.89	18.77	18.69	18.62
BC1 RC2 SO17	18.89	18.79	18.72	18.80	18.74	18.64
BC1 RC2 SO55	19.03	18.96	18.89	18.98	18.93	18.84
BC1 RC3 S02	18.83	18.77	18.66	18.97	18.92	18.77
BC1 RC3 SO3	18.82	18.74	18.64	18.94	18.91	18.79
BC1 RC3 SO55	19.02	18.98	18.86	18.78	18.70	18.63
BC1 RC4 SO2	18.81	18.72	18.67	18.98	18.91	18.80
BC1 RC4 SO3	19.01	18.95	18.85	18.98	18.90	18.80
BC1 RC4 SO55	18.82	18.73	18.64	18.95	18.93	18.79
BC1 RC5 SO9	18.81	18.71	18.63	18.97	18.90	18.78
BC1 RC5 SO17	19.00	18.95	18.85	18.96	18.91	18.76
BC1 RC5 SO55	18.96	18.99	18.93	18.96	18.95	18.90
	Take 3			Average		
	25	600	1175	25	600	1175
BC1 RC1 S02	18.92	18.88	18.80	18.85	18.80	18.71
BC1 RC1 S03	18.98	18.94	18.87	18.95	18.89	18.82
BC1 RC1 SO55	18.97	18.91	18.81	18.95	18.89	18.77
BC1 RC2 S09	18.93	18.90	18.80	18.91	18.86	18.77
BC1 RC2 SO17	18.96	18.91	18.83	18.88	18.81	18.73
BC1 RC2 SO55	18.74	18.66	18.57	18.92	18.85	18.77
BC1 RC3 S02	18.97	18.88	18.78	18.92	18.86	18.74
BC1 RC3 SO3	18.96	18.89	18.78	18.90	18.85	18.74
BC1 RC3 SO55	18.94	18.88	18.79	18.91	18.85	18.76
BC1 RC4 SO2	18.95	18.88	18.77	18.91	18.83	18.75
BC1 RC4 SO3	18.89	18.85	18.74	18.96	18.90	18.80
BC1 RC4 SO55	18.95	18.86	18.80	18.91	18.84	18.75
BC1 RC5 SO9	18.92	18.90	18.75	18.90	18.84	18.72
BC1 RC5 SO17	18.95	18.91	18.78	18.97	18.92	18.80
BC1 RC5 SO55	18.93	18.96	18.88	18.95	18.97	18.90

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

I.1 Power Tuning Targets

Tuning targets GSM 850			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	-	32.2	-
GPRS 2-slot	-	29.7	-
GPRS 3-slot	-	27.9	-
GPRS 4-slot	-	26.7	-
EGRPS 1-slot	-	26.2	-
EGPRS 2-slot	-	26.2	-
EGPRS 3-slot	-	26.2	-
EGPRS 4-slot	-	26.2	-

Tuning targets GSM 1900			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	-	29.2	-
GPRS 2-slot	-	26.7	-
GPRS 3-slot	-	24.9	-
GPRS 4-slot	-	23.7	-
EGRPS 1-slot	-	25.5	-
EGPRS 2-slot	-	24.0	-
EGPRS 3-slot	-	24.0	-
EGPRS 4-slot	-	24.0	-

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

Type: RM-845; Serial number: C1A138373/C1 used for GSM/GPRS/EGPRS850 SAR Head, Body-worn and Wireless router measurements.

GSM 850			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	31.9	31.9	31.8
GPRS 2-slot	29.9	29.9	29.6
GPRS 3-slot	28	28.2	27.7
GPRS 4-slot	26.9	26.6	26.5
EGRPS 1-slot	26.5	26.5	26.4
EGPRS 2-slot	26.2	26.2	26.2
EGPRS 3-slot	26	26.1	26
EGPRS 4-slot	25.6	25.8	25.6

Type: RM-845; Serial number: C1A138245/D2 used for GSM/GPRS/EGPRS1900 SAR Head, Body-worn and Wireless router measurements.

GSM 1900			
Slot configuration	Low channel	Mid channel	High channel
GSM 1-slot	29.3	29.3	29
GPRS 2-slot	26.7	26.7	26.4
GPRS 3-slot	24.9	24.9	24.6
GPRS 4-slot	23.8	23.7	23.5
EGRPS 1-slot	25.5	25.4	25.3
EGPRS 2-slot	23.9	23.8	23.6
EGPRS 3-slot	23.9	23.8	23.6
EGPRS 4-slot	22.6	22.6	22.4

APPENDIX J: CONDUCTED POWER MEASUREMENTS FOR SUPPORTED WCDMA TRANSMISSION MODES

J.1 Power Tuning Targets

Tuning targets			
Mode	Low channel	Mid channel	High channel
WCDMA850	-	23.2	-
WCDMA1900	-	23.0	-

Tuning targets in WR mode			
Mode	Low channel	Mid channel	High channel
WCDMA850	-	23.2	-
WCDMA1900	-	22.0	-

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

Type: RM-845; Serial number: C1A138226/D1 used for WCDMA850 SAR Head, Body-worn and Wireless router measurements.

WCDMA 5			
Mode	Low channel	Mid channel	High channel
WCDMA	23.2	23.25	23.33
HSUPA Sub-mode 1	-	-	-
HSUPA Sub-mode 2	-	-	-
HSUPA Sub-mode 3	-	-	-
HSUPA Sub-mode 4	-	-	-
HSUPA Sub-mode 5	-	-	-

Type: RM-845; Serial number: C1A138373/C1 used for WCDMA1900 SAR Head, and Body-worn measurements.

WCDMA 2, C1A138373/C1			
Mode	Low channel	Mid channel	High channel
WCDMA	23.08	23.05	22.94
HSUPA Sub-mode 1	-	-	-
HSUPA Sub-mode 2	-	-	-
HSUPA Sub-mode 3	-	-	-
HSUPA Sub-mode 4	-	-	-
HSUPA Sub-mode 5	-	-	-

Type: RM-845; Serial number: C1A138245/D2 used for WCDMA1900 SAR Wireless Router measurements.

WCDMA 2, C1A138245/D2			
Mode	Low channel	Mid channel	High channel
WCDMA	22.15	22.11	21.86
HSUPA Sub-mode 1	-	-	-
HSUPA Sub-mode 2	-	-	-
HSUPA Sub-mode 3	-	-	-
HSUPA Sub-mode 4	-	-	-
HSUPA Sub-mode 5	-	-	-

WCDMA and HSUPA Subtest mode conducted powers, measured from a separate, fully representative sample are presented in Appendix D.

APPENDIX K: CONDUCTED POWER RESULTS FOR WLAN2450 AND WLAN5000

K.1 Power Tuning Targets

Modulation mode	Ch 1	Ch 6	Ch 11
b-mode WLAN DSSS 1 Mbps	17	17	17
b-mode WLAN DSSS 2 Mbps	17	17	17
b-mode WLAN DSSS 5.5 Mbps	17	17	17
b-mode WLAN DSSS 11 Mbps	17	17	17
g-mode WLAN OFDM 6 Mbps	16	16	16
g-mode WLAN OFDM 9 Mbps	16	16	16
g-mode WLAN OFDM 12 Mbps	15	15	15
g-mode WLAN OFDM 18 Mbps	15	15	15
g-mode WLAN OFDM 24 Mbps	14	14	14
g-mode WLAN OFDM 36 Mbps	14	14	14
g-mode WLAN OFDM 48 Mbps	13	13	13
g-mode WLAN OFDM 54 Mbps	13	13	13
n-mode MCS 0: OFDM 6.5 / 7.25 Mbps	15	15	15
n-mode MCS 1: OFDM 13.0 / 14.4 Mbps	15	15	15
n-mode MCS 2: OFDM 19.5 / 21.7 Mbps	15	15	15
n-mode MCS 3: OFDM 26.0 / 28.9 Mbps	15	15	15
n-mode MCS 4: OFDM 39.0 / 43.3 Mbps	13	13	13
n-mode MCS 5: OFDM 52.0 / 57.8 Mbps	13	13	13
n-mode MCS 6: OFDM 58.5 / 65.0 Mbps	13	13	13
n-mode MCS 7: OFDM 65.0 / 72.2 Mbps	13	13	13
n-mode MCS 0: OFDM 13.5 / 15.0 Mbps	-	-	-
n-mode MCS 1: OFDM 27.0 / 30.0 Mbps	-	-	-
n-mode MCS 2: OFDM 40.5 / 45.0 Mbps	-	-	-
n-mode MCS 3: OFDM 54.0 / 60.0 Mbps	-	-	-
n-mode MCS 4: OFDM 81.0 / 90.0 Mbps	-	-	-
n-mode MCS 5: OFDM 108.0 / 120.0 Mbps	-	-	-
n-mode MCS 6: OFDM 121.5 / 135.0 Mbps	-	-	-
n-mode MCS 7: OFDM 135.0 / 150.0 Mbps	-	-	-

WLAN 5 GHz	
Mode	Channel
	All channels
WLAN OFDM 6 Mbps	12
WLAN OFDM 9 Mbps	12
WLAN OFDM 12 Mbps	12
WLAN OFDM 18 Mbps	12
WLAN OFDM 24 Mbps	12
WLAN OFDM 36 Mbps	12
WLAN OFDM 48 Mbps	12
WLAN OFDM 54 Mbps	12
MCS 0: OFDM 6.5 / 7.25 Mbps	12
MCS 1: OFDM 13.0 / 14.4 Mbps	12
MCS 2: OFDM 19.5 / 21.7 Mbps	12
MCS 3: OFDM 26.0 / 28.9 Mbps	12
MCS 4: OFDM 39.0 / 43.3 Mbps	12
MCS 5: OFDM 52.0 / 57.8 Mbps	12
MCS 6: OFDM 58.5 / 65.0 Mbps	12
MCS 7: OFDM 65.0 / 72.2 Mbps	12
MCS 0: OFDM13.5 / 15.0 Mbps	10
MCS 1: OFDM 27.0 / 30.0 Mbps	10
MCS 2: OFDM 40.5 / 45.0 Mbps	10
MCS 3: OFDM 54.0 / 60.0 Mbps	10
MCS 4: OFDM 81.0 / 90.0 Mbps	10
MCS 5: OFDM 108.0 / 120.0 Mbps	10
MCS 6: OFDM 121.5 / 135.0 Mbps	10
MCS 7: OFDM 135.0 / 150.0 Mbps	10

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

Type: RM-845; Serial: C1A138223/G1

Modulation mode	Ch 1	Ch 6	Ch 11
b-mode WLAN DSSS 1 Mbps	17.44	17.56	17.52
b-mode WLAN DSSS 2 Mbps	17.48	17.61	17.52
b-mode WLAN DSSS 5.5 Mbps	17.71	17.85	17.85
b-mode WLAN DSSS 11 Mbps	17.62	17.74	17.72
g-mode WLAN OFDM 6 Mbps	15.61	16.45	15.84
g-mode WLAN OFDM 9 Mbps	15.65	16.43	15.85
g-mode WLAN OFDM 12 Mbps	14.78	15.59	15.78
g-mode WLAN OFDM 18 Mbps	15.63	15.65	15.88
g-mode WLAN OFDM 24 Mbps	15.63	15.64	15.08
g-mode WLAN OFDM 36 Mbps	15.63	14.93	15.19
g-mode WLAN OFDM 48 Mbps	12.90	13.88	13.14
g-mode WLAN OFDM 54 Mbps	13.04	13.76	13.29
n-mode MCS 0: OFDM 6.5 / 7.25 Mbps	14.72	13.90	14.21
n-mode MCS 1: OFDM 13.0 / 14.4 Mbps	13.86	14.77	15.02
n-mode MCS 2: OFDM 19.5 / 21.7 Mbps	13.90	13.95	15.05
n-mode MCS 3: OFDM 26.0 / 28.9 Mbps	14.77	13.91	14.24
n-mode MCS 4: OFDM 39.0 / 43.3 Mbps	12.91	13.96	13.29
n-mode MCS 5: OFDM 52.0 / 57.8 Mbps	13.04	13.01	13.22
n-mode MCS 6: OFDM 58.5 / 65.0 Mbps	13.01	13.84	13.24
n-mode MCS 7: OFDM 65.0 / 72.2 Mbps	12.94	12.92	13.41
n-mode MCS 0: OFDM 13.5 / 15.0 Mbps	-	-	-
n-mode MCS 1: OFDM 27.0 / 30.0 Mbps	-	-	-
n-mode MCS 2: OFDM 40.5 / 45.0 Mbps	-	-	-
n-mode MCS 3: OFDM 54.0 / 60.0 Mbps	-	-	-
n-mode MCS 4: OFDM 81.0 / 90.0 Mbps	-	-	-
n-mode MCS 5: OFDM 108.0 / 120.0 Mbps	-	-	-
n-mode MCS 6: OFDM 121.5 / 135.0 Mbps	-	-	-
n-mode MCS 7: OFDM 135.0 / 150.0 Mbps	-	-	-

Type: RM-845; Serial: C1A138344/G4

WLAN 5 GHz						
Mode	Channel					
	36	40	44	48	52	56
WLAN OFDM 6 Mbps	11.83	11.57	11.84	11.67	11.85	11.85
WLAN OFDM 9 Mbps	11.69	11.60	11.95	11.70	11.96	12.10
WLAN OFDM 12 Mbps	11.63	11.55	11.57	11.54	12.02	11.78
WLAN OFDM 18 Mbps	11.67	11.74	11.66	11.65	11.72	11.84
WLAN OFDM 24 Mbps	11.63	11.68	11.98	11.83	11.70	11.74
WLAN OFDM 36 Mbps	11.59	11.08	12.05	11.62	11.71	11.94
WLAN OFDM 48 Mbps	11.69	11.43	11.66	11.64	11.63	12.05
WLAN OFDM 54 Mbps	11.63	11.57	11.87	11.61	11.64	11.82
MCS 0: OFDM 6.5 / 7.25 Mbps	11.75	11.49	12.05	11.70	11.72	11.85
MCS 1: OFDM 13.0 / 14.4 Mbps	11.77	11.73	12.03	11.64	11.77	11.90
MCS 2: OFDM 19.5 / 21.7 Mbps	11.75	11.39	11.66	11.71	11.70	11.88
MCS 3: OFDM 26.0 / 28.9 Mbps	11.78	11.39	11.73	11.75	11.67	11.87
MCS 4: OFDM 39.0 / 43.3 Mbps	11.76	11.73	11.71	11.74	11.78	11.83
MCS 5: OFDM 52.0 / 57.8 Mbps	11.75	11.69	12.05	11.92	11.71	11.94
MCS 6: OFDM 58.5 / 65.0 Mbps	11.79	11.61	11.59	11.66	11.70	11.86
MCS 7: OFDM 65.0 / 72.2 Mbps	11.83	11.57	11.84	11.67	11.85	11.85
MCS 0: OFDM13.5 / 15.0 Mbps	7.88	7.81	7.99	8.01	8.05	7.85
MCS 1: OFDM 27.0 / 30.0 Mbps	7.90	7.81	7.99	8.08	8.10	8.31
MCS 2: OFDM 40.5 / 45.0 Mbps	7.74	7.42	7.59	8.05	8.12	7.77
MCS 3: OFDM 54.0 / 60.0 Mbps	7.77	7.23	7.46	7.97	8.05	7.76
MCS 4: OFDM 81.0 / 90.0 Mbps	7.80	7.63	7.47	7.76	7.57	7.82
MCS 5: OFDM 108.0 / 120.0 Mbps	7.54	7.78	7.99	7.56	8.00	8.21
MCS 6: OFDM 121.5 / 135.0 Mbps	7.89	7.36	7.48	7.55	8.05	7.79
MCS 7: OFDM 135.0 / 150.0 Mbps	7.85	7.79	7.50	8.00	8.02	7.87

(5GHz Table continues)

(5GHz Table continues)

WLAN 5 GHz						
Mode						
	60	64	100	104	108	112
WLAN OFDM 6 Mbps	11.74	11.77	12.11	11.90	11.94	11.98
WLAN OFDM 9 Mbps	11.63	11.88	12.07	11.99	11.86	11.91
WLAN OFDM 12 Mbps	11.76	11.86	12.09	11.92	11.88	12.03
WLAN OFDM 18 Mbps	11.77	11.88	12.19	11.92	11.89	11.87
WLAN OFDM 24 Mbps	11.76	11.90	12.21	11.98	11.96	11.81
WLAN OFDM 36 Mbps	11.80	11.76	12.10	12.03	12.15	11.93
WLAN OFDM 48 Mbps	11.69	11.76	11.96	11.88	11.75	11.85
WLAN OFDM 54 Mbps	11.83	11.81	12.24	12.06	11.75	11.84
MCS 0: OFDM 6.5 / 7.25 Mbps	11.77	11.93	12.17	12.07	11.93	12.00
MCS 1: OFDM 13.0 / 14.4 Mbps	11.81	11.62	12.19	12.05	12.03	11.93
MCS 2: OFDM 19.5 / 21.7 Mbps	11.76	11.95	12.11	12.09	11.97	11.96
MCS 3: OFDM 26.0 / 28.9 Mbps	11.82	11.93	12.05	12.10	11.84	12.07
MCS 4: OFDM 39.0 / 43.3 Mbps	11.67	11.47	12.10	12.02	12.05	12.02
MCS 5: OFDM 52.0 / 57.8 Mbps	11.66	11.67	11.93	12.08	11.92	11.87
MCS 6: OFDM 58.5 / 65.0 Mbps	11.81	11.69	12.10	12.11	12.01	12.02
MCS 7: OFDM 65.0 / 72.2 Mbps	11.74	11.77	12.11	11.90	11.94	11.98
MCS 0: OFDM13.5 / 15.0 Mbps	8.24	8.15	8.34	8.28	8.17	8.34
MCS 1: OFDM 27.0 / 30.0 Mbps	8.32	8.24	8.41	8.25	8.22	8.35
MCS 2: OFDM 40.5 / 45.0 Mbps	7.92	7.78	8.40	8.28	8.21	8.37
MCS 3: OFDM 54.0 / 60.0 Mbps	7.87	7.98	8.30	8.22	8.24	8.35
MCS 4: OFDM 81.0 / 90.0 Mbps	7.82	7.83	8.29	8.22	8.22	8.34
MCS 5: OFDM 108.0 / 120.0 Mbps	8.21	8.11	8.24	8.21	8.16	8.28
MCS 6: OFDM 121.5 / 135.0 Mbps	7.56	7.57	8.32	8.23	8.10	8.27
MCS 7: OFDM 135.0 / 150.0 Mbps	8.30	7.93	8.35	8.28	8.20	8.34

(5GHz Table continues)

(5GHz Table continues)

WLAN 5 GHz						
Mode						
	116	120	124	128	132	136
WLAN OFDM 6 Mbps	11.98	12.00	12.00	11.79	11.95	11.98
WLAN OFDM 9 Mbps	11.92	11.92	12.00	11.87	11.83	11.91
WLAN OFDM 12 Mbps	11.96	11.97	11.98	11.78	11.89	11.96
WLAN OFDM 18 Mbps	11.98	11.90	12.03	11.81	12.03	11.98
WLAN OFDM 24 Mbps	11.91	11.99	12.01	11.70	11.99	11.82
WLAN OFDM 36 Mbps	11.89	11.98	11.98	11.71	12.09	11.87
WLAN OFDM 48 Mbps	11.94	12.01	12.03	11.82	12.19	11.99
WLAN OFDM 54 Mbps	11.95	11.88	12.07	11.95	12.12	11.79
MCS 0: OFDM 6.5 / 7.25 Mbps	12.10	12.14	12.14	11.81	12.26	12.01
MCS 1: OFDM 13.0 / 14.4 Mbps	11.99	12.06	12.16	11.95	12.21	12.01
MCS 2: OFDM 19.5 / 21.7 Mbps	12.01	12.08	12.15	11.83	11.91	11.97
MCS 3: OFDM 26.0 / 28.9 Mbps	11.99	11.96	12.27	11.82	12.20	12.00
MCS 4: OFDM 39.0 / 43.3 Mbps	11.96	11.68	12.04	11.91	12.20	12.05
MCS 5: OFDM 52.0 / 57.8 Mbps	12.03	11.97	12.09	11.61	11.90	12.04
MCS 6: OFDM 58.5 / 65.0 Mbps	12.01	11.92	12.12	11.87	11.95	11.84
MCS 7: OFDM 65.0 / 72.2 Mbps	11.98	12.00	12.00	11.79	11.95	11.98
MCS 0: OFDM13.5 / 15.0 Mbps	8.37	8.31	8.35	8.15	8.18	8.16
MCS 1: OFDM 27.0 / 30.0 Mbps	8.39	8.31	8.40	8.20	8.18	8.17
MCS 2: OFDM 40.5 / 45.0 Mbps	8.42	8.32	8.42	8.18	8.21	8.12
MCS 3: OFDM 54.0 / 60.0 Mbps	8.30	8.29	8.29	8.14	8.53	8.16
MCS 4: OFDM 81.0 / 90.0 Mbps	8.37	7.81	8.39	8.20	8.22	8.09
MCS 5: OFDM 108.0 / 120.0 Mbps	8.29	8.35	8.26	8.17	8.54	8.09
MCS 6: OFDM 121.5 / 135.0 Mbps	8.34	8.27	8.41	8.16	8.24	8.05
MCS 7: OFDM 135.0 / 150.0 Mbps	8.38	8.28	8.37	8.16	8.61	8.14

(5GHz Table continues)

(5GHz Table continues)

WLAN 5 GHz						
Mode						
	140	149	153	157	161	165
WLAN OFDM 6 Mbps	11.83	11.85	12.04	11.98	11.96	11.75
WLAN OFDM 9 Mbps	11.81	11.67	11.99	11.88	11.85	11.72
WLAN OFDM 12 Mbps	11.82	12.05	11.99	11.91	11.87	11.72
WLAN OFDM 18 Mbps	11.78	11.97	11.98	12.09	11.85	11.73
WLAN OFDM 24 Mbps	11.75	12.04	11.91	11.93	11.77	11.81
WLAN OFDM 36 Mbps	11.69	11.95	12.01	11.85	11.91	11.65
WLAN OFDM 48 Mbps	11.88	12.01	12.10	12.08	11.58	11.67
WLAN OFDM 54 Mbps	11.84	11.97	12.07	11.81	11.81	11.63
MCS 0: OFDM 6.5 / 7.25 Mbps	11.86	12.10	11.88	12.09	11.75	12.08
MCS 1: OFDM 13.0 / 14.4 Mbps	11.92	12.14	12.08	11.99	11.90	11.87
MCS 2: OFDM 19.5 / 21.7 Mbps	11.90	11.80	12.03	12.13	11.97	11.80
MCS 3: OFDM 26.0 / 28.9 Mbps	11.81	12.11	12.03	12.06	11.94	11.78
MCS 4: OFDM 39.0 / 43.3 Mbps	11.90	12.04	11.91	12.11	12.04	11.83
MCS 5: OFDM 52.0 / 57.8 Mbps	11.86	12.00	11.80	11.99	11.84	11.65
MCS 6: OFDM 58.5 / 65.0 Mbps	11.82	12.03	12.00	12.05	11.65	11.68
MCS 7: OFDM 65.0 / 72.2 Mbps	11.83	11.85	12.04	11.98	11.96	11.75
MCS 0: OFDM13.5 / 15.0 Mbps	8.14	7.81	8.36	8.25	8.09	7.91
MCS 1: OFDM 27.0 / 30.0 Mbps	8.21	8.31	8.34	7.82	8.10	8.01
MCS 2: OFDM 40.5 / 45.0 Mbps	8.31	8.28	8.39	8.28	8.13	8.22
MCS 3: OFDM 54.0 / 60.0 Mbps	8.16	8.20	7.89	8.24	8.11	8.09
MCS 4: OFDM 81.0 / 90.0 Mbps	8.22	7.80	8.35	8.30	7.93	8.32
MCS 5: OFDM 108.0 / 120.0 Mbps	8.12	7.79	7.82	7.79	8.05	7.84
MCS 6: OFDM 121.5 / 135.0 Mbps	8.02	8.27	7.80	8.19	8.12	7.79
MCS 7: OFDM 135.0 / 150.0 Mbps	8.13	8.27	7.89	7.82	8.12	7.89