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SAR Test Report: Sony Ericsson FAB 1021011-XX mobile phone for GSM900, GSM1800 and GSM1900

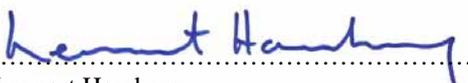
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The results and statements contained herein relate only to the items tested. The names of individuals involved may be mentioned only in connection with the statements or results from this report.

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Test report summary

The table below summarizes the SAR measurement results obtained for the Sony Ericsson FAB 1021011-XX mobile phone model. The results show that the maximum SAR values are below the 1.6 W/kg (1g) and 2 W/kg (10g) limits and thus the Sony Ericsson FAB 1021011-XX mobile phone is in compliance with the appropriate RF exposure standards and recommendations.

<i>Mode</i>	<i>Maximum SAR_{1g}</i> <i>(W/kg)</i>	<i>Maximum SAR_{10g}</i> <i>(W/kg)</i>
<i>GSM 900</i>	<i>1.27</i>	<i>0.91</i>
<i>GSM 1800</i>	<i>1.36</i>	<i>0.76</i>
<i>GSM1900 (Head)</i>	<i>1.01</i>	<i>0.54</i>
<i>GSM 1900 (Body)</i>	<i>0.45</i>	<i>0.27</i>

2 General information

The tests reported in this document have been performed in accordance with the Ericsson SAR measurement specification [1], which fulfills the requirements listed in the SAR measurement standards CENELEC EN 50361 [2], IEEE Standard 1528 [3] and the FCC Supplement C [6]. The purpose of the tests was to verify that the Sony Ericsson FAB 1021011-XX mobile phone model is in compliance with the appropriate RF exposure standards, recommendations and limits [4-9].

3 Device under test

The table below summarizes the technical data for the tested device. Photographs of the device are presented in Appendix 1.

Device model	FAB 1021011-XX
FCC ID	PY7FAB1021011
Serial number of tested unit	ALS2P7ASZ7B
Device category	Portable
RF exposure environment	General population/uncontrolled
Mode	GSM900, GSM1800, GSM1900
Antenna	Internal
Maximum output power level¹ (dBm)	GSM900: 33.0 GSM1800: 30.0 GSM1900: 30.0
Duty cycle	1:8
Transmitter frequency range (MHz)	GSM900: 880.2-914.8 GSM1800: 1710.2-1784.8 GSM1900: 1850.2-1909.8
Bluetooth	Power class 3 (0 dBm)
Prototype or production unit	Prototype FPI
Tested accessories	Stereo headset, RLF 501 47 Carry case, KRY 104 164 Portable handsfree, HPB-20 Bluetooth headset, HBH-20

1 Output power level of the phone model at the antenna port for the maximum power setting. This equals the nominal output power level plus the factory variation.

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4 Test equipment

4.1 Dosimetric system

The SAR measurements were made using the DASY4 professional near-field scanner by Schmid & Partner Engineering AG that was installed in December 2002. The total SAR assessment uncertainty ($k=1$) of the system is $\pm 10.3\%$ for 1g SAR assessments and 9.7% for 10g SAR assessments. The corresponding extended uncertainties ($k=2$) are $\pm 20.6\%$ and $\pm 19.3\%$, respectively. The equipment list is given below. In Appendix 5 calibration parameters for the SAR test probe are listed.

Description	Asset number	Calibration due date
DAE3	S/N 422	2004-05-15
E-field probe, ET3DV6	S/N 1572	2004-05-06
Dipole validation kit, D900V2	S/N 015	NA
Dipole validation kit, D1800V2	S/N 203	NA
SAM Phantom ²	S/N TP-1004	NA
SAM Phantom ³	S/N TP-1204	NA

4.2 Additional equipment

Description	Asset number	Calibration due date
Signal generator, R&S SMHU58	S/N 843863/034	2004-01-02
Dielectric probe kit, HP 85070C	S/N US99360060	NA
Network analyzer, HP 8752C	S/N 3410A03732	2003-12-06
Power meter, R&S NRVS	S/N 848888/052	2004-05-02
Power sensor, R&S NRV-Z5	S/N 849895/030	2004-05-02
Digital radio tester, R&S CTS-55	S/N 827443/012	2004-01-29
Thermometer, EBRO TFX-392SKWT	S/N 10130918	2003-11-28
Thermo/Hygrometer, Testo 608-H2	S/N 60013082	2004-01-28

² This equipment was used for the tests at 900 MHz.

³ This equipment was used for the tests at 1800 MHz and 1900 MHz.

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5 Electrical parameters of the tissue simulating liquids

The parameters of the tissue simulating liquids were measured with the dielectric probe kit prior to the SAR measurement and the results are shown in the table below. Specified standard values for the permittivity and the conductivity are also given [2][3][6]. The measured values are within 5% of the standard values. The mass density of the liquid entered into the DASY4 program was 1000 kg/m³. The depth of the tissue simulating liquid was 15 cm in the head sections and 18 cm in the body section. The depth was measured with a measuring rod at the ear reference point in the head sections and at the central reference point in the body section.

f (MHz)	Liquid type	Measured/Specification	ϵ_r	σ (S/m)
900	Head tissue	Measured	40.6 - 41.5	0.95 - 0.97
		Specified value	42.0	0.99
		Difference (%)	-1/-3	-2/-4
1800	Head tissue	Measured	38.5	38.5
		Specified value	40.0	1.40
		Difference (%)	-4	-2
1900	Head tissue	Measured	38.0- 38.1	1.47
		Specified value	40.0	1.40
		Difference (%)	-5	+5
1900	Body tissue (muscle)	Measured	52.6	1.57
		Specified value	53.3	1.52
		Difference (%)	-1	+3

6 SAR system performance check

System performance checks for the DASY4 were conducted before the SAR measurements with the D900V2 and D1800V2 dipole kits and the obtained results are displayed in the table below. The results are within 10% of the reference values [3][12]. An evaluation of the test facility showed that the SAR system noise met the standard requirements [11]. The temperature of the test facility during the performance checks was in the range 23.0°C to 24.0°C and the relative humidity was 46%-52%. In Appendix 2 SAR distributions for the performance checks are shown.

f (MHz)	Tissue	Measured/Reference	SAR 1g (W/kg)	SAR 10g (W/kg)	ϵ_r	σ (S/m)	Liquid temp. (°C)	Date
900	Head	Measured	10.1	6.4	40.6	0.95	23.1	2003-07-29
		Reference [3]	10.8	6.9	41.5	0.97	-	-
		Difference (%)	-6	-7	-2	-2	-	-
1800	Head	Measured	37.7 37.3	19.8 19.8	38.6 38.5	1.36 1.37	23.6 23.1	2003-07-31 2003-08-04
		Reference [3]	38.1	19.8	40.0	1.40	-	-
		Difference (%)	-1/-2	±0/±0	-4/-4	-3/-2	-	-
1800	Body	Measured	35.3	18.8	53.0	1.46	23.1	2003-08-06
		Reference [12]	38.5	19.5	53.3	1.52	-	-
		Difference (%)	-8	-3	-1	-4	-	-

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7 Test results

The tables in this section show the measured 1g and 10g averaged SAR for the device and the corresponding values normalized to 33.0 dBm maximum output power level for the GSM900 mode and 30.0 dBm for the GSM1800 mode. For the GSM1900 mode the output power of the tested device was equal to the maximum output power level (30.0 dBm). A digital radio tester was used to control the device during the SAR measurements. The phone was supplied with a fully charged battery for the tests. The temperature of the tissue simulating liquid was measured prior to each SAR measurement and was in the range 23.1°C to 24.0°C. The temperature of the test facility during the tests was 23±1°C and the relative humidity was 43%-52%.

The device was tested on the right-hand phantom (corresponding to the right side of the head) and the left-hand phantom for the cheek and tilt phone positions in the middle of the transmit band, corresponding to the traffic channel 37 for GSM900, channel 699 for GSM1800 and channel 661 for GSM1900. In Appendix 3 pictures of the device when positioned on the left-hand phantom are shown. Tests were performed with the flip opened, closed and removed. For the position giving the highest SAR result, the device was tested at the lowest, middle and the highest frequencies of the transmit bands corresponding to the traffic channels 975 and 124 for GSM900, channels 512 and 885 for GSM1800 and channels 512 and 810 for GSM1900. Finally, for the position and frequency giving the highest SAR result in each band, tests were performed with the Bluetooth transmitter turned on.

The device was also tested in body worn positions with muscle tissue in the GSM 1900 mode. Tests were performed with the stereo headset attached and with a carry case or a 15 mm separation between the device and the liquid. In Appendix 3 pictures of the device when positioned under the flat section of the phantom are shown.

7.1 Results for the GSM900 mode

Configuration	Hand side	Phone position	f (MHz)	Measured output power (dBm)	Measured (W/kg)		Normalized to max power, 33.0 dBm (W/kg)	
					SAR _{1g}	SAR _{10g}	SAR _{1g}	SAR _{10g}
Flip Closed	Left	Cheek	880.2	32.7	1.05	0.75	1.13	0.80
			897.4	32.3	0.98	0.70	1.18	0.85
			914.8	32.0	0.78	0.56	0.98	0.70
	Right	Cheek	897.4	32.3	0.60	0.43	0.72	0.51
			897.4	32.3	0.92	0.67	1.10	0.80
			897.4	32.3	0.55	0.38	0.66	0.45
Flip Open	Left	Cheek	880.2	32.7	1.12	0.80	1.20	0.85
			897.4	32.3	1.05	0.75	1.26	0.90
			914.8	32.0	0.84	0.60	1.06	0.75
	Right	Cheek	897.4	32.3	0.74	0.51	0.88	0.61
			897.4	32.3	0.98	0.70	1.17	0.85
			897.4	32.3	0.69	0.48	0.83	0.58
Flip Removed	Left	Cheek	880.2	32.7	1.14	0.82	1.22	0.88
			897.4	32.3	1.06	0.76	1.27	0.91
			914.8	32.0	0.83	0.60	1.05	0.75
	Right	Cheek	897.4	32.3	0.70	0.50	0.84	0.60
			897.4	32.3	1.02	0.73	1.23	0.88
			897.4	32.3	0.63	0.46	0.76	0.55
Flip Removed Bluetooth on	Left	Cheek	897.4	32.3	1.03	0.74	1.24	0.89

Appendix 4 (a) shows the maximum SAR distribution for the left-hand phantom giving the maximum 1g SAR of 1.27 W/kg and the maximum 10g averaged SAR of 0.91 W/kg at 900 MHz.

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7.2 Results for the GSM1800 mode

Configuration	Hand side	Phone position	f (MHz)	Measured output power (dBm)	Measured (W/kg)		Normalized to max power, 30.0 dBm (W/kg)	
					SAR _{1g}	SAR _{10g}	SAR _{1g}	SAR _{10g}
Flip Closed	Left	Cheek	1747.6	29.2	0.93	0.52	1.12	0.62
		Tilt	1710.2	28.8	0.91	0.50	1.20	0.66
			1747.6	29.2	0.99	0.55	1.19	0.66
	Right	Cheek	1747.6	29.2	0.82	0.48	0.99	0.58
		Tilt	1710.2	28.8	0.94	0.54	1.24	0.71
			1747.6	29.2	0.98	0.56	1.18	0.67
Flip Open	Left	Cheek	1747.6	29.2	0.71	0.40	0.85	0.48
		Tilt	1747.6	29.2	0.88	0.50	1.06	0.60
	Right	Cheek	1710.2	28.8	0.91	0.57	1.19	0.75
			1747.6	29.2	0.95	0.58	1.15	0.70
		Tilt	1784.8	29.6	0.77	0.46	0.84	0.51
			1747.6	29.2	0.85	0.51	1.02	0.61
Flip Removed	Left	Cheek	1747.6	29.2	0.79	0.45	0.95	0.54
		Tilt	1710.2	28.8	1.03	0.58	1.36	0.76
			1747.6	29.2	1.03	0.58	1.24	0.69
	Right	Cheek	1747.6	29.2	0.89	0.56	1.07	0.67
		Tilt	1747.6	29.2	0.99	0.58	1.19	0.69
Flip Removed, Bluetooth on	Left	Tilt	1710.2	28.8	1.00	0.56	1.32	0.73

Appendix 4 (b) shows the maximum SAR distribution for the left-hand phantom giving the maximum 1g SAR of 1.36 W/kg and the maximum 10g averaged SAR of 0.76 W/kg at 1800 MHz.

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7.3 Results for the GSM1900 mode

Configuration	Hand side	Phone position	f (MHz)	Measured output power (dBm)	Measured (W/kg)		
					SAR _{1g}	SAR _{10g}	
Flip Closed	Left	Cheek	1880.0	30.0	0.87	0.48	
		Tilt	1850.2	30.0	0.87	0.48	
			1880.0	30.0	1.01	0.54	
			1909.8	30.0	0.86	0.46	
	Right	Cheek	1880.0	30.0	0.77	0.45	
		Tilt	1880.0	30.0	0.97	0.54	
Flip Open	Left	Cheek	1880.0	30.0	0.77	0.41	
		Tilt	1850.2	30.0	0.79	0.42	
			1880.0	30.0	0.91	0.48	
			1909.8	30.0	0.82	0.43	
	Right	Cheek	1880.0	30.0	0.84	0.50	
		Tilt	1850.2	30.0	0.82	0.45	
			1880.0	30.0	0.91	0.50	
			1909.8	30.0	0.85	0.46	
	Flip Removed	Left	Cheek	1880.0	30.0	0.78	0.43
			Tilt	1850.2	30.0	0.88	0.48
1880.0				30.0	0.95	0.52	
1909.8				30.0	0.85	0.46	
Right		Cheek	1880.0	30.0	0.89	0.52	
		Tilt	1850.2	30.0	0.87	0.48	
			1880.0	30.0	0.95	0.53	
			1909.8	30.0	0.86	0.48	
Flip Closed, Bluetooth on	Left	Tilt	1880.0	30.0	0.97	0.52	

Appendix 4 (c) shows the maximum SAR distribution for the left-hand phantom giving the maximum 1g SAR of 1.01 W/kg and the maximum 10g averaged SAR of 0.54 W/kg at 1900 MHz.

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7.4 Results for the GSM1900 mode (Body)

Separation	Configuration/ Accessory	Phone position (Front/Back towards the phantom)	f (MHz)	Measured output power (dBm)	Measured (W/kg)	
					SAR _{1g}	SAR _{10g}
Carry case touching the phantom	Flip Closed Stereo headset	Front	1880.0	30.0	0.21	0.13
		Back	1850.2	30.0	0.30	0.19
			1880.0	30.0	0.34	0.21
			1909.8	30.0	0.30	0.19
	Flip Removed Stereo headset	Front	1880.0	30.0	0.22	0.14
		Back	1850.2	30.0	0.33	0.21
			1880.0	30.0	0.36	0.23
			1909.8	30.0	0.32	0.20
	Flip Removed Portable handsfree	Back	1880.0	30.0	0.30	0.19
	Flip Removed Bluetooth on	Back	1880.0	30.0	0.27	0.17
15mm between the device and the tissue simulating liquid	Flip Closed Stereo headset	Front	1880.0	30.0	0.26	0.16
		Back	1850.2	30.0	0.41	0.25
			1880.0	30.0	0.45	0.27
			1909.8	30.0	0.40	0.24
	Flip Removed Stereo headset	Front	1880.0	30.0	0.34	0.21
		Back	1850.2	30.0	0.40	0.25
			1880.0	30.0	0.45	0.27
			1909.8	30.0	0.40	0.24
	Flip Removed Portable handsfree	Back	1880.0	30.0	0.34	0.20
	Flip Removed Bluetooth on	Back	1880.0	30.0	0.30	0.18

Appendix 4 (d) shows the maximum SAR distribution for the flat section of the phantom giving the maximum 1g SAR of 0.45 W/kg and the maximum 10g averaged SAR of 0.27 W/kg at 1900 MHz (body).

8 Conclusion

The results above show that the maximum SAR for the Sony Ericsson FAB 1021011-XX mobile phone is below the 1.6 W/kg (1g) and 2.0 W/kg (10g) limits. Consequently, the Sony Ericsson FAB 1021011-XX mobile phone model is in compliance with the appropriate RF exposure standards and recommendations.

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APPENDIX 1: Photographs of the DUT

(a) Front view of the Sony Ericsson FAB 1021011-XX mobile phone.



(b) Side view of the Sony Ericsson FAB 1021011-XX mobile phone.

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APPENDIX 2: SAR distributions for the system performance checks

SysPerfCheck 900 2003-07-29

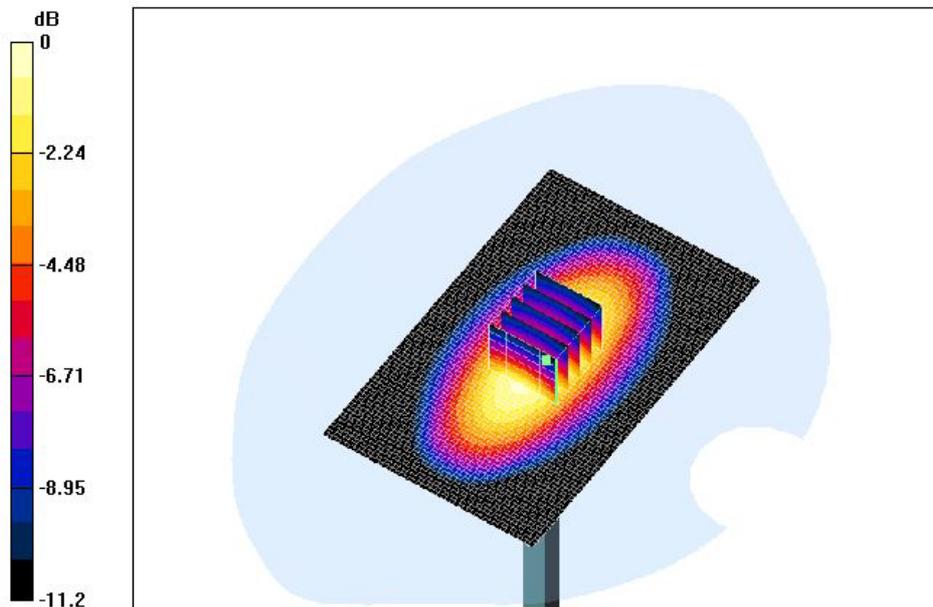
DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:015

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
 Medium: Head 900 MHz ($\sigma = 0.95 \text{ mho/m}$, $\epsilon_r = 40.6$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Flat Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1572; ConvF(7.1, 7.1, 7.1); Calibrated: 2003-05-15
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn422; Calibrated: 2003-05-06
 - Phantom: SAM 1;
 - Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Pf 249mW Pr 300uW/Area Scan (51x81x1): Measurement grid: dx=20mm, dy=20mm
 Reference Value = 55.1 V/m
 Power Drift = -0.02 dB
 Maximum value of SAR = 2.65 mW/g

Pf 249mW Pr 300uW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Peak SAR (extrapolated) = 3.71 W/kg
 SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.59 mW/g
 Reference Value = 55.1 V/m
 Power Drift = -0.02 dB
 Maximum value of SAR = 2.69 mW/g



0 dB = 2.69mW/g
(a) SAR distribution for the system performance check at 900MHz.

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SysPerfCheck 1800 2003-07-31

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:203

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Head 1800 MHz ($\sigma = 1.36 \text{ mho/m}$, $\epsilon_r = 38.6$, $\rho = 1000 \text{ kg/m}^3$)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1572; ConvF(5.5, 5.5, 5.5); Calibrated: 2003-05-15
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn422; Calibrated: 2003-05-06
- Phantom: SAM 2; Type:
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Pf 240mW Pr 26uW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 89.4 V/m

Power Drift = 0.004 dB

Maximum value of SAR = 10.1 mW/g

Pf 240mW Pr 26uW/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

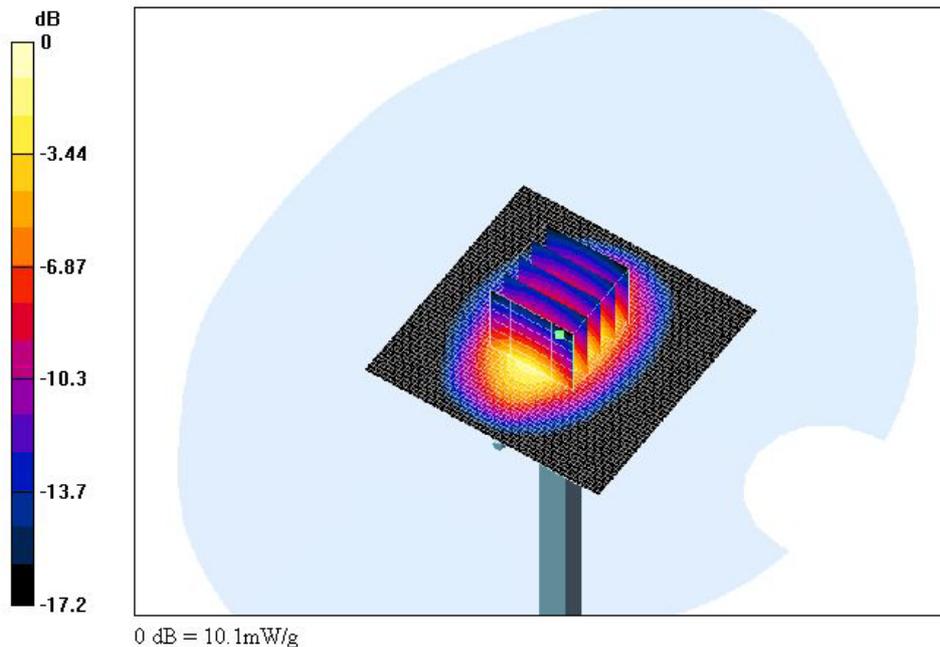
Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 9.04 mW/g; SAR(10 g) = 4.75 mW/g

Reference Value = 89.4 V/m

Power Drift = 0.004 dB

Maximum value of SAR = 10.1 mW/g



(b) SAR distribution for the system performance check at 900MHz.

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SysPerfCheck 1800 2003-08-06 (Body tissue)

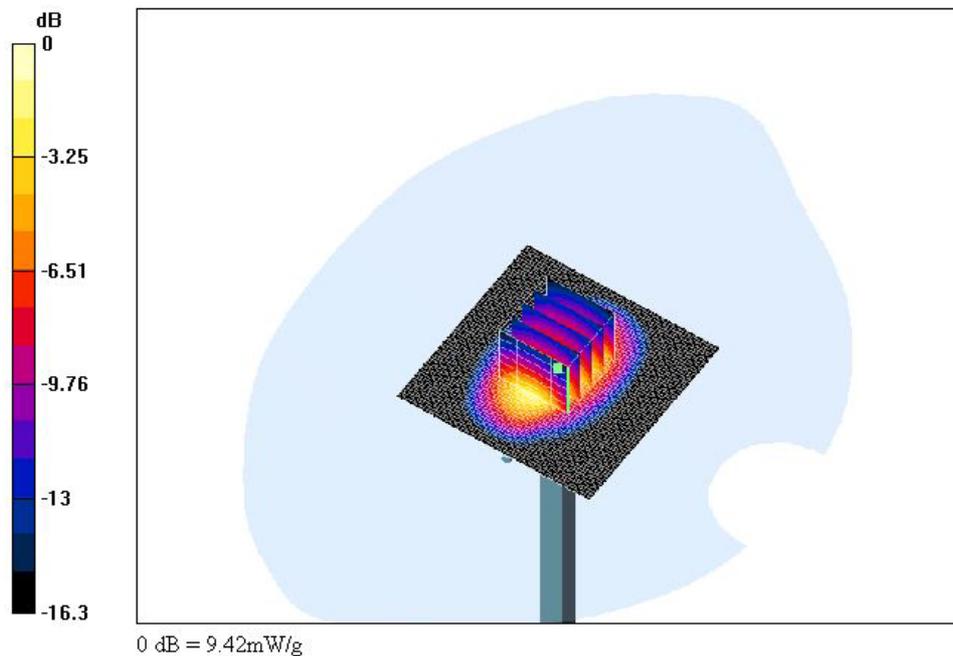
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:203
Program: System Performance Check at 1800 MHz

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
 Medium: Muscle 1900 ($\sigma = 1.46 \text{ mho/m}$, $\epsilon_r = 53$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Flat Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1572; ConvF(5.1, 5.1, 5.1); Calibrated: 2003-05-15
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn422; Calibrated: 2003-05-06
 - Phantom: SAM 2;
 - Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Pf 243mW Pr 300uW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
 Reference Value = 83.7 V/m
 Power Drift = -0.006 dB
 Maximum value of SAR = 9.4 mW/g

Pf 243mW Pr 300uW/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Peak SAR (extrapolated) = 14.4 W/kg
 SAR(1 g) = 8.46 mW/g; SAR(10 g) = 4.51 mW/g
 Reference Value = 83.7 V/m
 Power Drift = -0.006 dB
 Maximum value of SAR = 9.42 mW/g



(c) SAR distribution for the system performance check at 1800MHz with body tissue simulating liquid.

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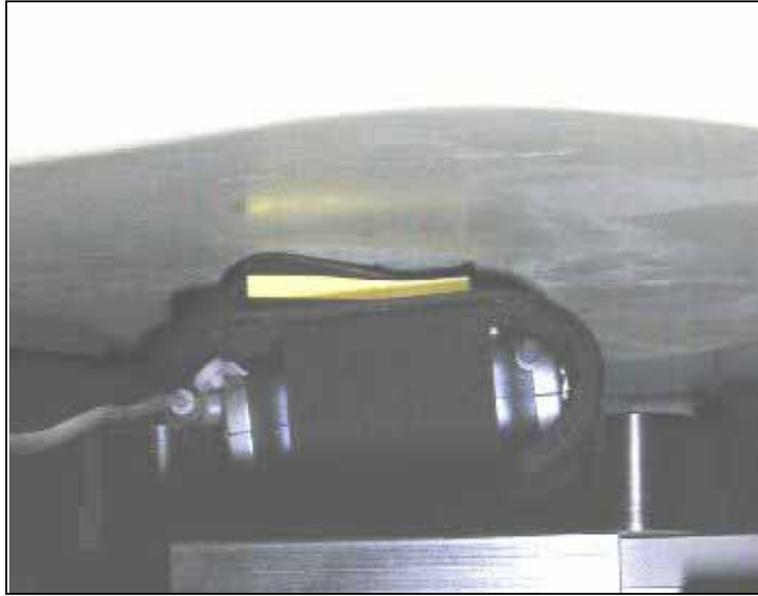
APPENDIX 3: Photographs of the DUT when positioned for SAR measurements

(a) Device on head phantom in the cheek position with the flip removed.

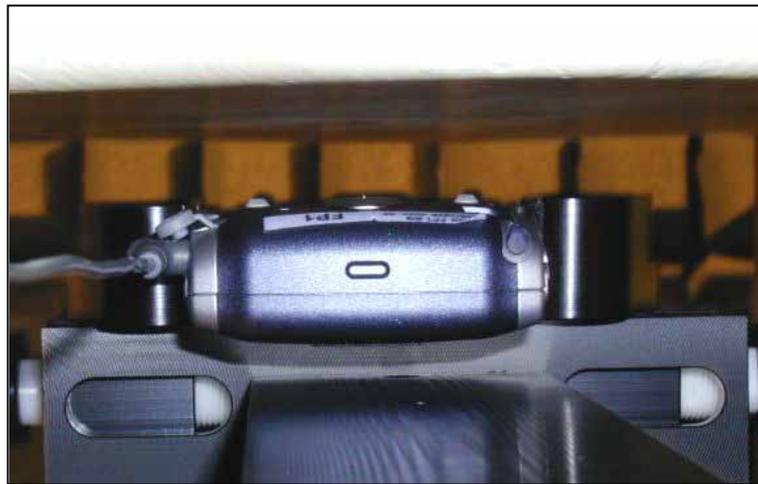


(b) Device on head phantom in the tilt position with the flip closed.

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(c) Device on flat section of the phantom with the carry case and the stereo headset. The clip was opened 2 mm with a piece of paper.



(d) Device on flat section of the phantom with the stereo headset. The separation was 15 mm between the device and the tissue simulating liquid.

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APPENDIX 4: SAR distribution plots

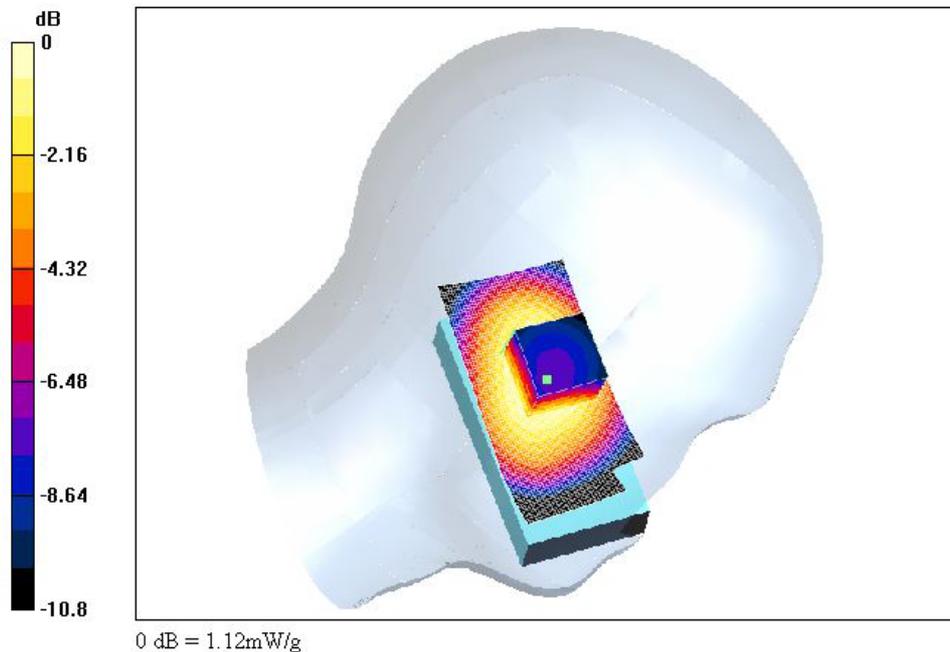
Date/Time: 07/30/03 18:05:39

DUT: Sony Ericsson P810; Type: Mobile Terminal; Serial: ALS2P7ASZ7B
 Communication System: EGSM 900; Frequency: 897.4 MHz; Duty Cycle: 1:8.3
 Medium: Head 900 MHz ($\sigma = 0.97 \text{ mho/m}$, $\epsilon_r = 41.5$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1572; ConvF(7.1, 7.1, 7.1); Calibrated: 2003-05-15
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn422; Calibrated: 2003-05-06
 - Phantom: SAM 1;
 - Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch Left Removed Middle / Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
 Reference Value = 27.9 V/m
 Power Drift = -0.09 dB
 Maximum value of SAR = 1.11 mW/g

Touch Left Removed Middle / Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Peak SAR (extrapolated) = 1.38 W/kg
 SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.756 mW/g
 Reference Value = 27.9 V/m
 Power Drift = -0.09 dB
 Maximum value of SAR = 1.12 mW/g



(a) Distribution of maximum SAR in GSM900 mode giving the maximum 1g and 10g averaged SAR. Measured against the left hand side phantom for the cheek phone position.

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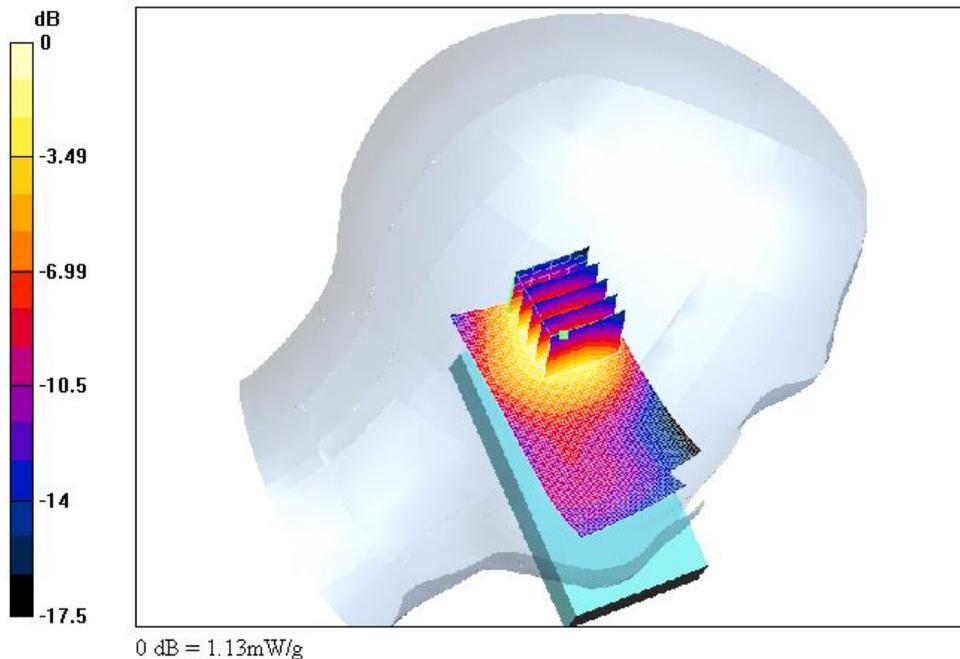
Date/Time: 08/05/03 12:27:16

DUT: P810; Type: Mobile Terminal; Serial: ALS2P7ASZ7B
 Communication System: GSM 1800; Frequency: 1710.2 MHz; Duty Cycle: 1:8.3
 Medium: Head 1800 MHz ($\sigma = 1.37 \text{ mho/m}$, $\epsilon_r = 38.5$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1572; ConvF(5.5, 5.5, 5.5); Calibrated: 2003-05-15
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn422; Calibrated: 2003-05-06
 - Phantom: SAM 2;
 - Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt Left Removed Low / Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
 Reference Value = 28 V/m
 Power Drift = -0.1 dB
 Maximum value of SAR = 1.18 mW/g

Tilt Left Removed Low / Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Peak SAR (extrapolated) = 1.7 W/kg
 SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.575 mW/g
 Reference Value = 28 V/m
 Power Drift = -0.1 dB
 Maximum value of SAR = 1.13 mW/g



(b) Distribution of maximum SAR in GSM1800 mode giving the maximum 1g and 10g averaged SAR. Measured against the left hand side phantom for the tilt phone position.

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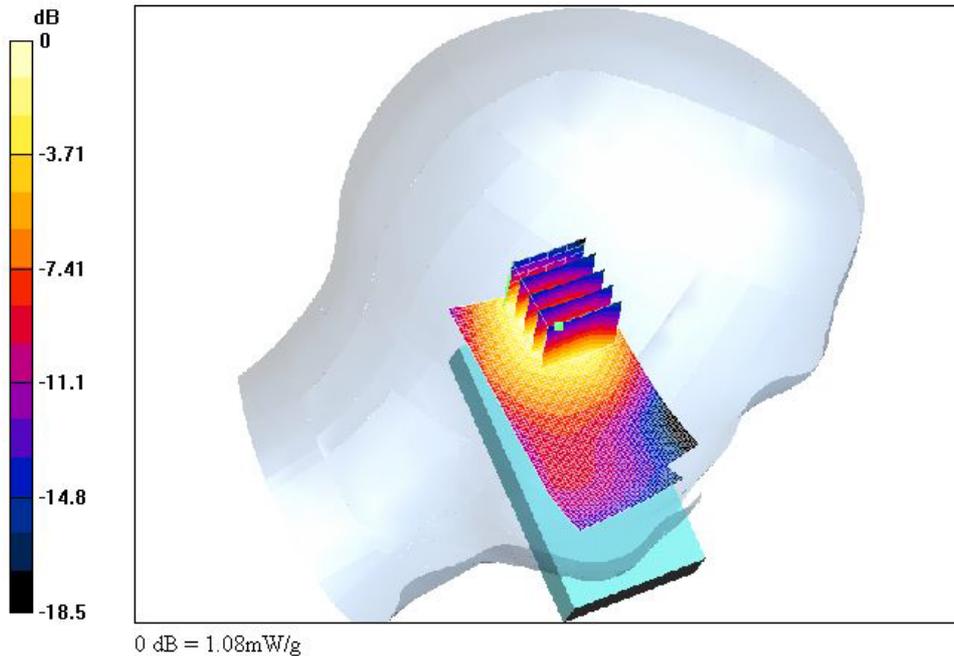
Date/Time: 08/01/03 12:43:22

DUT: P810; Type: Mobile Terminal; Serial: ALS2P7ASZ7B
 Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium: Head 1900 MHz ($\sigma = 1.47 \text{ mho/m}$, $\epsilon_r = 38$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1572; ConvF(5.5, 5.5, 5.5); Calibrated: 2003-05-15
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn422; Calibrated: 2003-05-06
 - Phantom: SAM 2;
 - Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt Left Closed Middle / Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
 Reference Value = 26.4 V/m
 Power Drift = -0.09 dB
 Maximum value of SAR = 1.12 mW/g

Tilt Left Closed Middle / Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Peak SAR (extrapolated) = 1.81 W/kg
 SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.541 mW/g
 Reference Value = 26.4 V/m
 Power Drift = -0.09 dB
 Maximum value of SAR = 1.08 mW/g



(c) Distribution of maximum SAR in GSM1900 mode giving the maximum 1g and 10g averaged SAR. Measured against the left hand side phantom for the tilt phone position.

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DUT: P810; Type: Mobile Terminal; Serial: ALS2P7ASZ7B

Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium: Muscle 1900 ($\sigma = 1.57 \text{ mho/m}$, $\epsilon_r = 52.6$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1572; ConvF(4.9, 4.9, 4.9); Calibrated: 2003-05-15
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn422; Calibrated: 2003-05-06
- Phantom: SAM 2;
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Back to Phantom - Removed - Middle - Stereo / Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

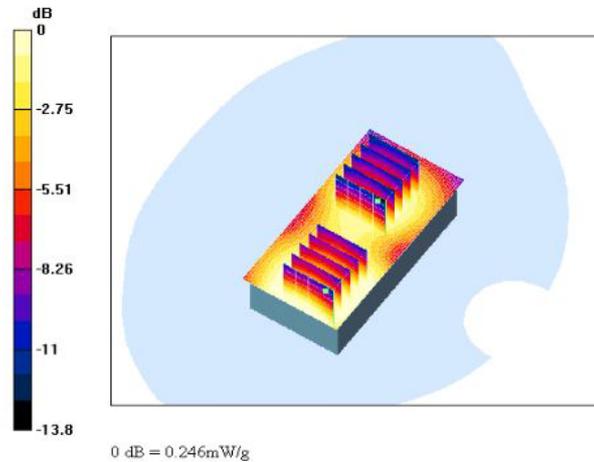
Reference Value = 11.1 V/m
 Power Drift = -0.01 dB
 Maximum value of SAR = 0.482 mW/g

Back to Phantom - Removed - Middle - Stereo / Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Peak SAR (extrapolated) = 0.702 W/kg
 SAR(1 g) = 0.445 mW/g; SAR(10 g) = 0.273 mW/g
 Reference Value = 11.1 V/m
 Power Drift = -0.01 dB
 Maximum value of SAR = 0.475 mW/g

Back to Phantom - Removed - Middle - Stereo / Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Peak SAR (extrapolated) = 0.345 W/kg
 SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.151 mW/g
 Reference Value = 11.1 V/m
 Power Drift = -0.01 dB
 Maximum value of SAR = 0.246 mW/g



(d) Distribution of maximum SAR in GSM1900 mode with muscle tissue simulating liquid giving the maximum 1g and 10g averaged SAR. Measured against the flat section of the phantom with the back of the device facing the phantom and with a 15 mm separation between the device and the liquid.

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APPENDIX 5: Probe calibration parameters for ET3DV6, SN : 1572
Diode compression

Parameter	Value in mV
DCP X	95
DCP Y	95
DCP Z	95

Sensitivity in free space:

Parameter	Value in $\mu\text{V}/(\text{V}/\text{m})^2$
Norm X	1.92
Norm Y	1.81
Norm Z	1.98

Sensitivity in tissue simulating liquid

 Head 900 MHz; $\epsilon_r=41.5 \pm 5\%$, $\sigma=0.97 \pm 5\%$ S/m.

Parameter	Value
ConvF X	7.1
ConvF Y	7.1
ConvF Z	7.1

Boundary effect	
Alpha	0.34
Depth	2.41

 Head 1800 MHz / 1900MHz; $\epsilon_r=40 \pm 5\%$, $\sigma=1.40 \pm 5\%$ S/m.

Parameter	Value
ConvF X	5.5
ConvF Y	5.5
ConvF Z	5.5

Boundary effect	
Alpha	0.42
Depth	2.76

 Muscle 1900 MHz; $\epsilon_r=53.3 \pm 5\%$, $\sigma=1.52 \pm 5\%$ S/m.

Parameter	Value
ConvF X	4.9
ConvF Y	4.9
ConvF Z	4.9

Boundary effect	
Alpha	0.42
Depth	2.76

Probe tip to sensor center: 2.7 mm

Optical Surface Detection: 1.4 ± 0.2 mm