EMITECH GROUPE

RE051-15-101375-1-A Ed. 0

SAR TEST REPORT

According to the standard:
EN 62209-1: 2006

Equipment under test:
Horizontal case for Smartphone
Duthilleul Process

Tested with a SAMSUNG Galaxy S4 (GT-I9505)

Company:
Mr. DUTHILLEUL

DISTRIBUTION: Mr. DUTHILLEUL **Company: -**

Number of pages: 36

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0	May 11, 2015	Creation	Emmanuel TOUTAIN	Olivier ROY

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EQUIPMENT UNDER TEST:

Reference 1:	Horizontal case for Smartphone - Duthilleul Process (protective device)
Serial number:	-
Reference 2:	SAMSUNG Galaxy S4 (GT-I9505) (mobile phone)
Serial number:	R21D49GZXNE (IMEI 356843055848140)

MANUFACTURER: -

APPLICANT:

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Person(s) present(s) during the test:	-
DATE(S) OF TEST(S):	April 27, 28, 29 and 30, 2015
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TEST(S) OPERATOR(S):	Emmanuel TOUTAIN

SUMMARY

1. INTRODUCTION

In this test report, Specific Absorption Rate (SAR) measurements for the mobile phone SAMSUNG Galaxy S4 (GT-I9505) used with the protective device Horizontal case for Smartphone - Duthilleul Process are presented.

The measurements were made according to the EN 62209-1 standard for evaluating the SAR level attenuation provided by the protective device.
Full SAR testing according to the EN 62209-1 standard is not required by the applicant; the testing program is described in §7. MEASUREMENT RESULTS.

2. REFERENCE DOCUMENTS

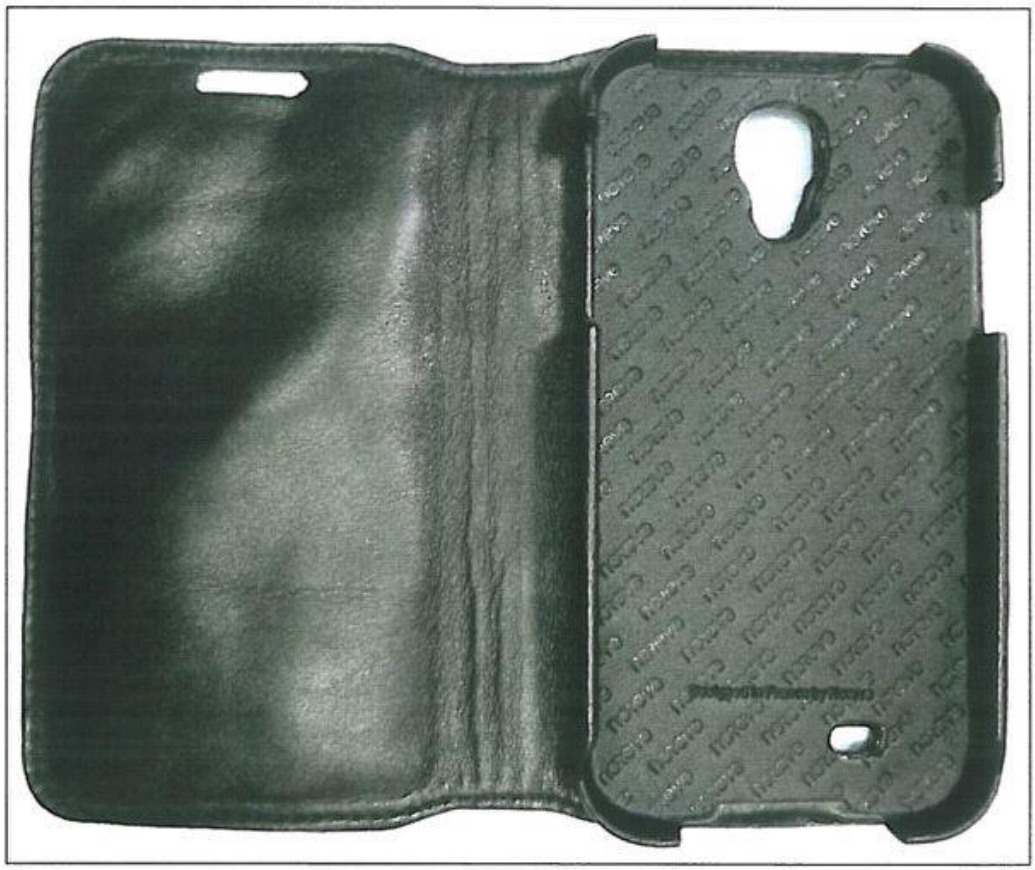
The reference documents referred throughout this report are listed below.
These reference documents are applicable to the entire report, although extensions (version, date and amendment) are not repeated.

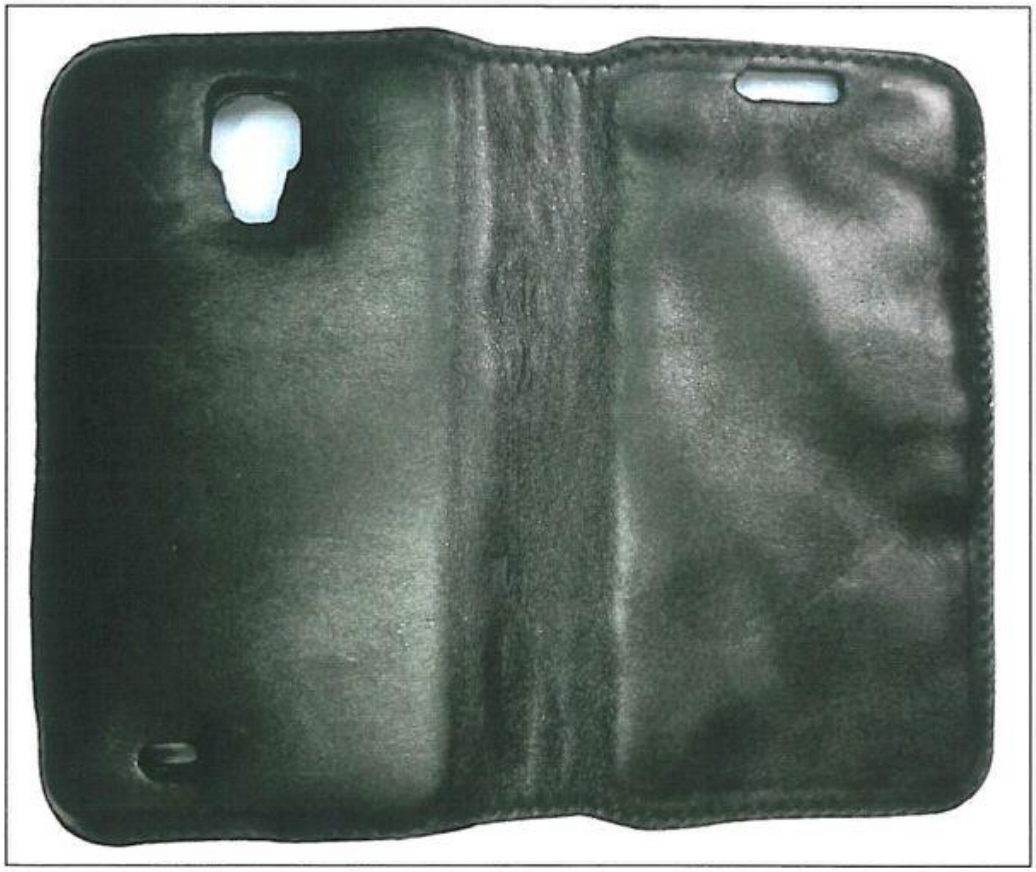
Reference	Document title	Date
EN 62209-1	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)	2006

3. PRESENTATION OF EQUIPMENT FOR TESTING PURPOSES

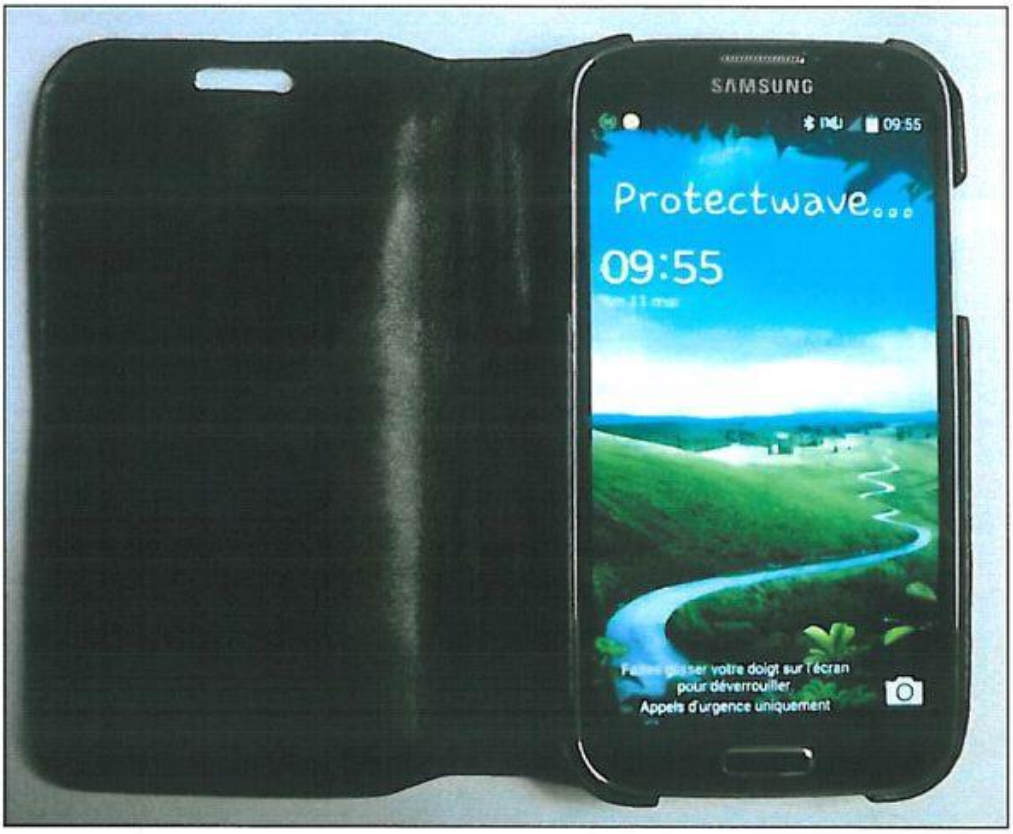
The photographs of the mobile phone SAMSUNG Galaxy S4 (GT-I9505) and the protective device Horizontal case for Smartphone - Duthilleul Process are shown in Fig. 1.

The standards used by the mobile phone for this test are the GSM in the 900 and 1800MHz frequency bands and the WCDMA in the 2100MHz frequency band, the antenna is integrated.

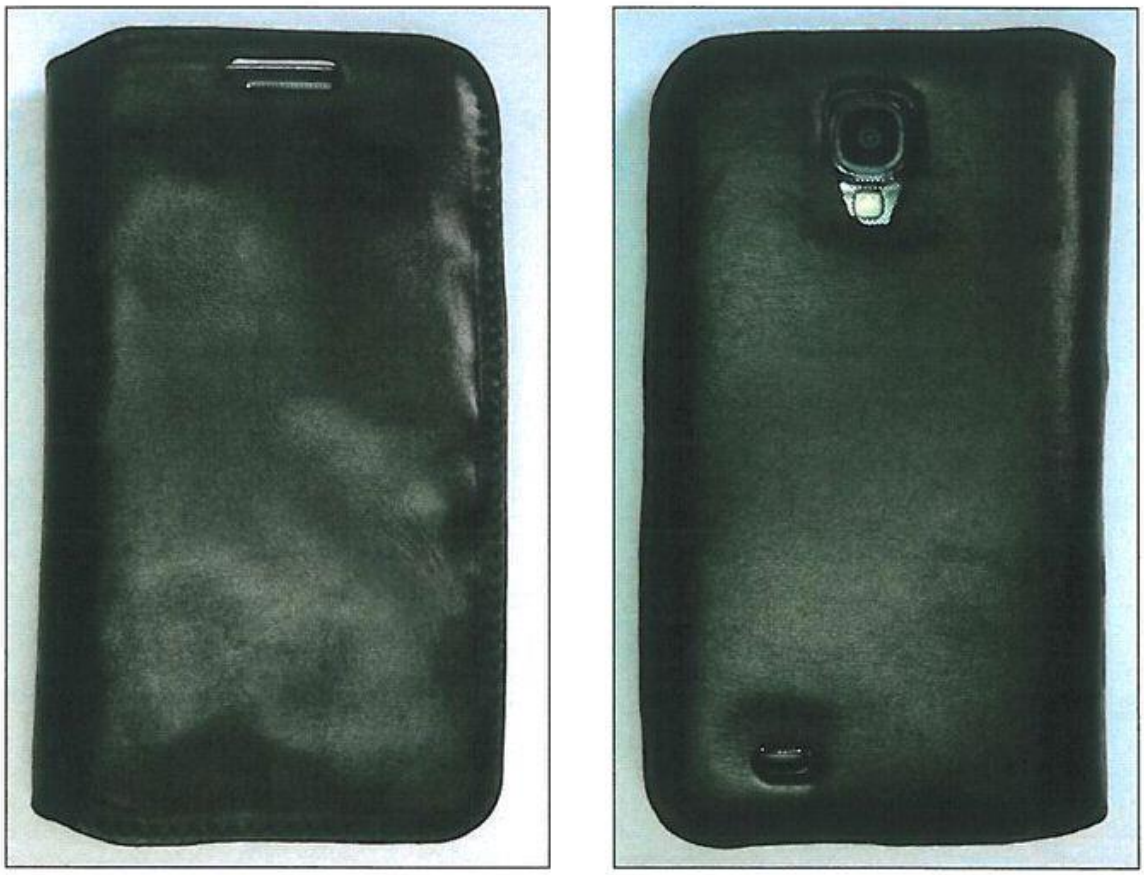




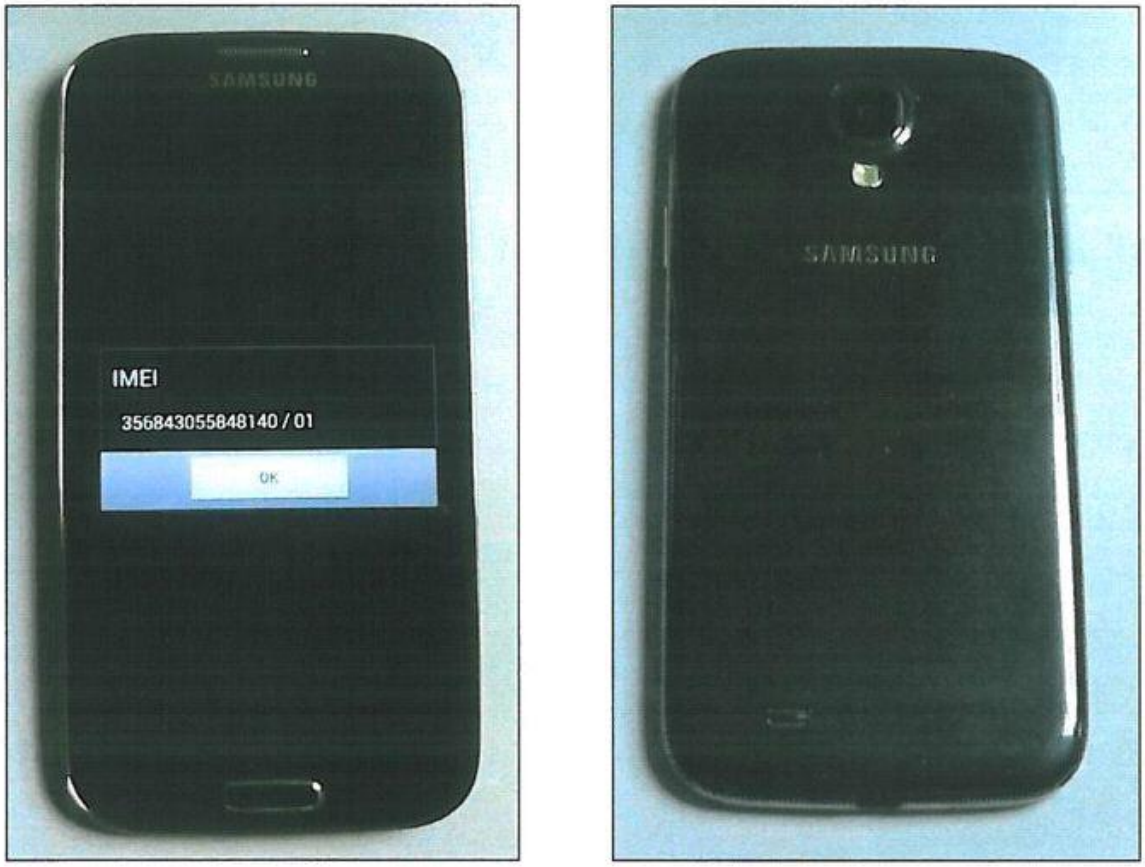
Front and rear sides of the protective device



Mobile phone into the protective device



Front and rear sides of the protective device with the mobile phone for the testing



Front and rear sides of the mobile phone

Markings of the mobile phone

Fig. 1: Photographs of equipment under test

4. TESTS RESULTS SUMMARY

Configuration	SAR level attenuation								
	GSM900			GSM1800			WCDMA2100		
	Channel			Channel			Channel		
	975	038	124	512	699	885	9612	9750	9888
SAMSUNG Galaxy S4 (GT-I9505) + Horizontal case for Smartphone - Duthilleul Process	81.4%	78.7%	91.7%	81.0%	78.7%	78.6%	85.9%	84.9%	81.4%

This test report only relates to SAR measurements; radiated performances evaluation of the mobile phone with and without the protective device is not part of this report.

5. ENVIRONNEMENTAL CONDITIONS

Condition	Measured Value
Liquid Temperature	*See Graphical Representations and §14*
Ambient Temperature	*See Graphical Representations and §14*

6. EQUIPMENT USED FOR THE TESTING

Platform	Equipment	Type	Manufacturer	Internal Number	Software Version
1 BTS Simulator	CMU200	Radio tester	Rohde-Schwarz	7361	
2 DASY4	DASY4	Software	Speag	7321	V4.5 Build 19
	ES3DV3	E-Field Probe	Speag	9485	
	DAE3	Data acquisition	Speag	7192	
	D900V2	Dipole 900MHz	Speag	7194	
	D1800V2	Dipole 1800MHz	Speag	7193	
	D1950V3	Dipole 1950MHz	Speag	7197	
	SAM	Phantom	Speag	7204	
3 Liquid Measure	HP85070C	Software	Hewlett-Packard	-	C1.01
	HP8753C	Network analyzer	Hewlett-Packard	1402	
	HP85070C	Dielectric probe	Hewlett-Packard	7218	
	922	Thermometer	Testo	6980	
4 System Check	2024	Signal generator	Marconi	7215	
	ZHL42	Amplifier	Mini-circuits	7209	
	PMC18-2	Power Supply	Kikusui	7214	
	NRVS	Power meter	Rohde-Schwarz	7212	
	NRV-Z31	Probe power meter	Rohde-Schwarz	7211	
	RK100	Coupler	MEB	7210	
	3877	Coupler	Suhner	7208	
	33-3-34	Attenuator	Weinschel Engineering	7213	
	R411810124 R411806124	Attenuator	Radiall	7315	
	R404563000	50 ohms load	Radiall	7313	
	253023-01	Coaxial cable	Hytem	7419	

7. MEASUREMENT RESULTS

The output power and frequency are controlled using a base station simulator. The mobile phone is set to transmit at its highest output peak power level.

The mobile phone is measured in the "cheek" position on left side of the phantom at the low, centre and high frequencies of GSM 900-1800 and WCDMA 2100 operating bands with and without the protective device.

Measurement results for GSM900 (SAR values averaged over a mass of 10g):

Configuration	Phantom	Position	SAR 10g (W/kg)		
			Channel 975 880.2 MHz	Channel 038 897.6 MHz	Channel 124 914.8 MHz
Mobile phone	Left side	Cheek	0.138	0.166	0.258
Mobile phone + protective device	Left side	Cheek	0.0257	0.0353	0.0214

Measurement results for GSM1800 (SAR values averaged over a mass of 10g):

Configuration	Phantom	Position	SAR 10g (W/kg)		
			Channel 512 1710.2 MHz	Channel 699 1747.6 MHz	Channel 885 1784.8 MHz
Mobile phone	Left side	Cheek	0.229	0.182	0.179
Mobile phone + protective device	Left side	Cheek	0.0435	0.0387	0.0382

Measurement results for WCDMA2100 (SAR values averaged over a mass of 10g):

Configuration	Phantom	Position	SAR 10g (W/kg)		
			Channel 9612 1922.4 MHz	Channel 9750 1950.0 MHz	Channel 9888 1977.6 MHz
Mobile phone	Left side	Cheek	0.255	0.306	0.305
Mobile phone + protective device	Left side	Cheek	0.036	0.0463	0.0568

8. GRAPHICAL REPRESENTATIONS

The graphical representations are shown in Fig. 2 to Fig. 19.

DUT: SAMSUNG GT-I9505

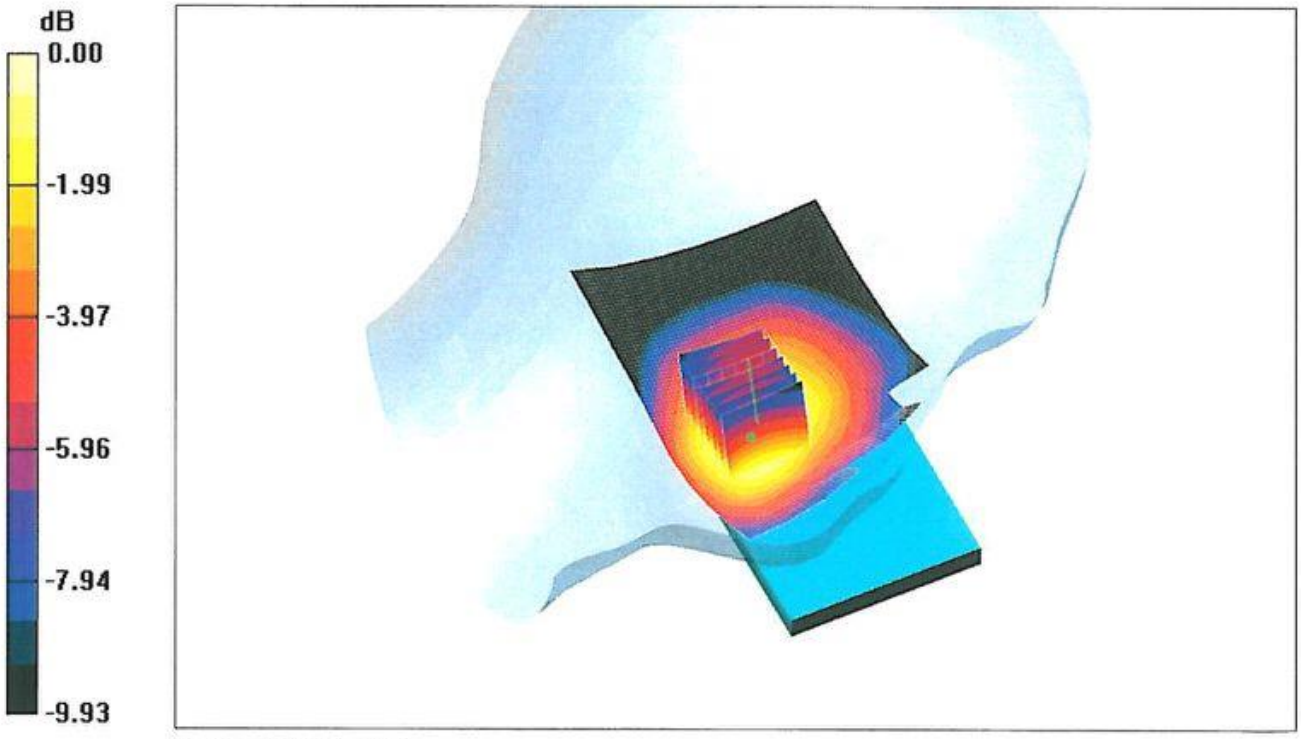
Communication System: E-GSM 900; Frequency: 880.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.93$ mho/m, $\varepsilon_r = 41.4$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.214 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 0.239 W/kg
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.138 mW/g
Maximum value of SAR (measured) = 0.208 mW/g



0 dB = 0.208mW/g

Fig. 2: SAR distribution for GSM900 of the mobile phone:
channel 975 (880.2 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

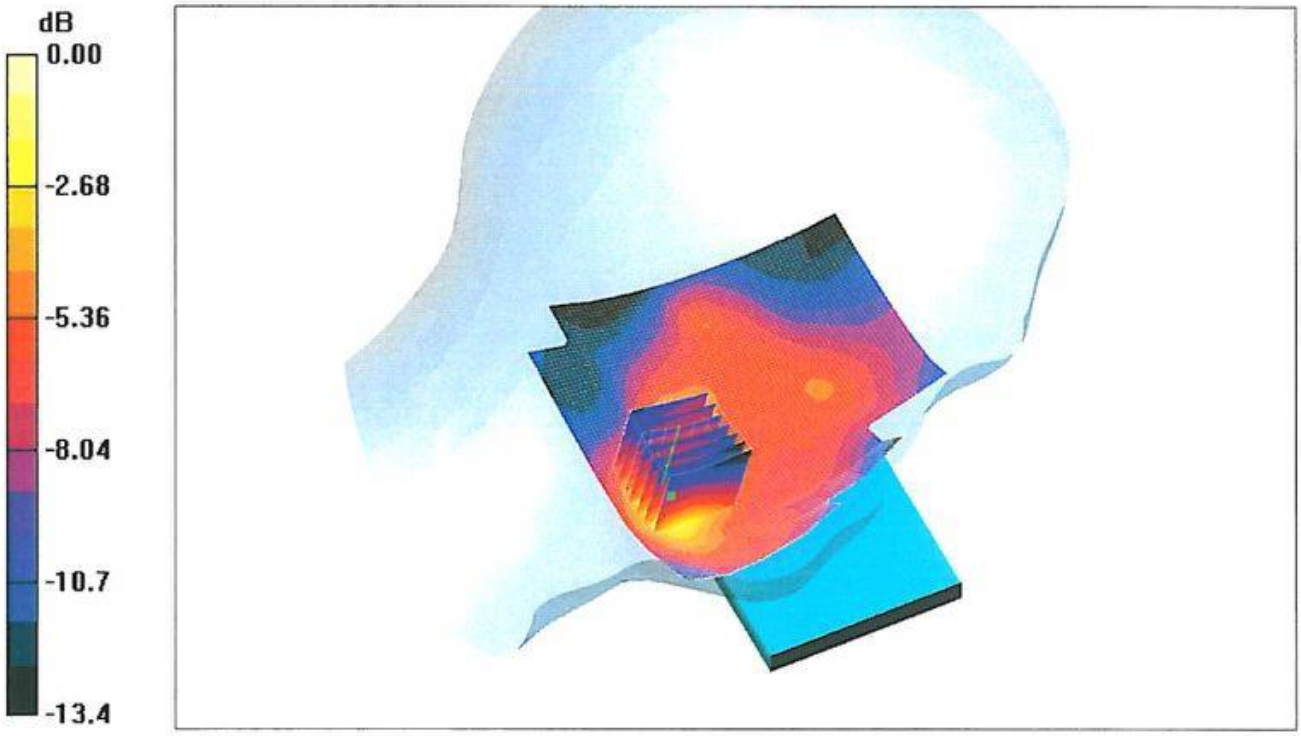
Communication System: E-GSM 900; Frequency: 880.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.93$ mho/m, $\varepsilon_r = 41.4$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.8°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.042 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.10 V/m; Power Drift = -0.154 dB
Peak SAR (extrapolated) = 0.081 W/kg
SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.054 mW/g



0 dB = 0.054mW/g

Fig. 3: SAR distribution for GSM900 of the mobile phone with the protective device: channel 975 (880.2 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

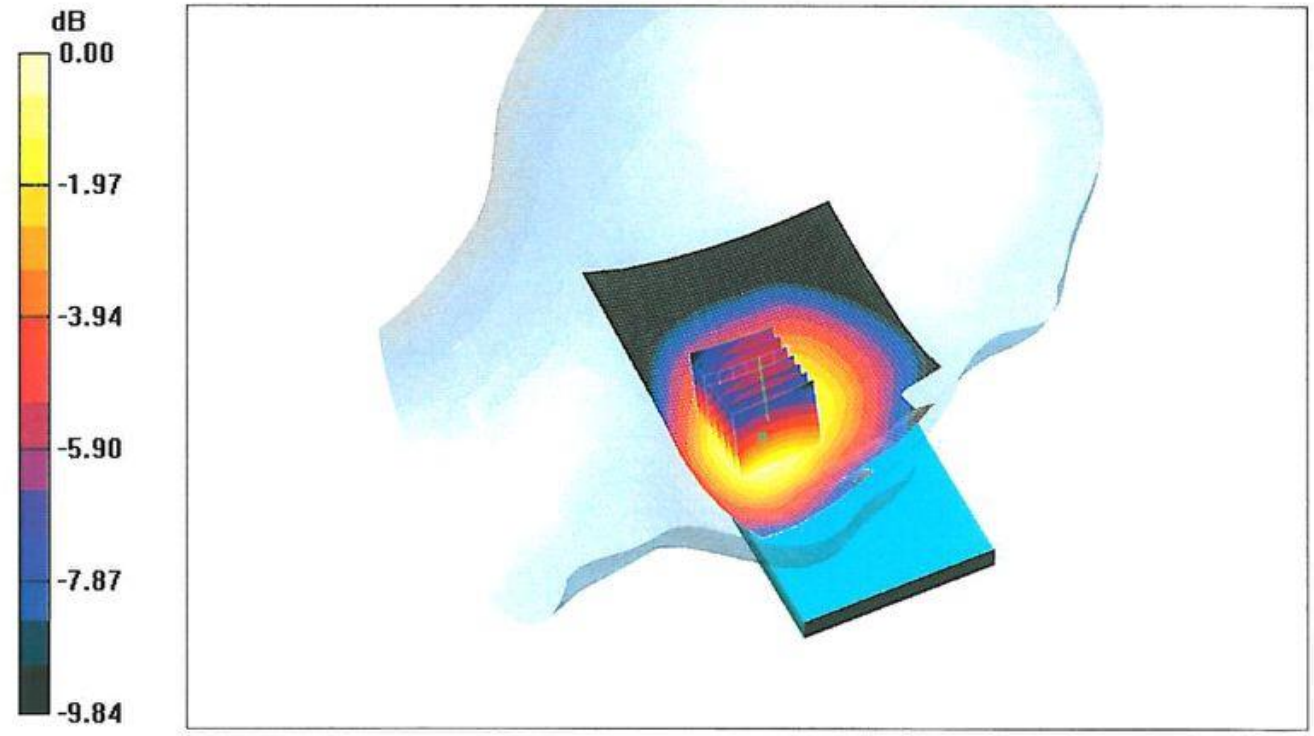
Communication System: E-GSM 900; Frequency: 897.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.95$ mho/m, $\varepsilon_r = 41$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.5°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.262 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.4 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.291 W/kg
SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.166 mW/g
Maximum value of SAR (measured) = 0.246 mW/g



0 dB = 0.246mW/g

Fig. 4: SAR distribution for GSM900 of the mobile phone:
channel 038 (897.6 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

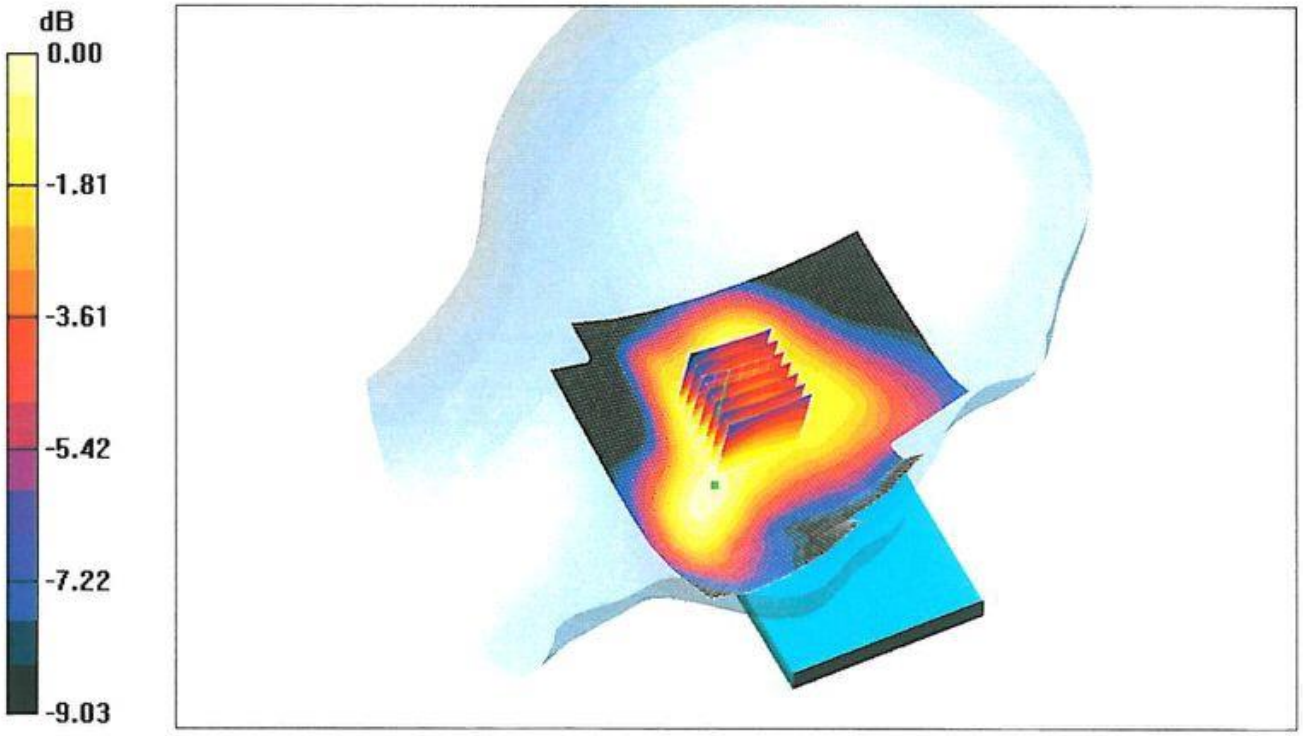
Communication System: E-GSM 900; Frequency: 897.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.95$ mho/m, $\varepsilon_r = 41$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.044 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.28 V/m; Power Drift = 0.207 dB
Peak SAR (extrapolated) = 0.055 W/kg
SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.047 mW/g



0 dB = 0.047mW/g

Fig. 5: SAR distribution for GSM900 of the mobile phone with the protective device: channel 038 (897.6 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

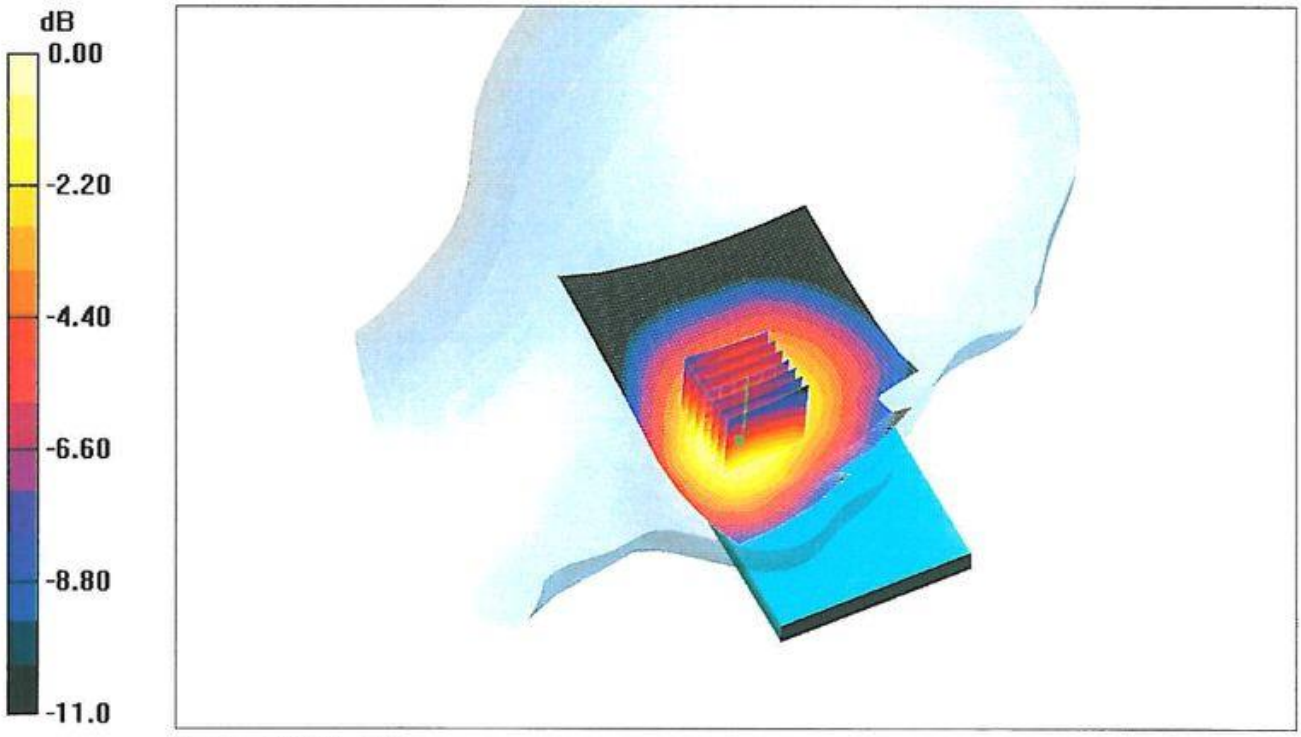
Communication System: E-GSM 900; Frequency: 914.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.97$ mho/m, $\varepsilon_r = 40.7$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.7°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.377 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.190 dB
Peak SAR (extrapolated) = 0.454 W/kg
SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.390 mW/g



0 dB = 0.390mW/g

Fig. 6: SAR distribution for GSM900 of the mobile phone:
channel 124 (914.8 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

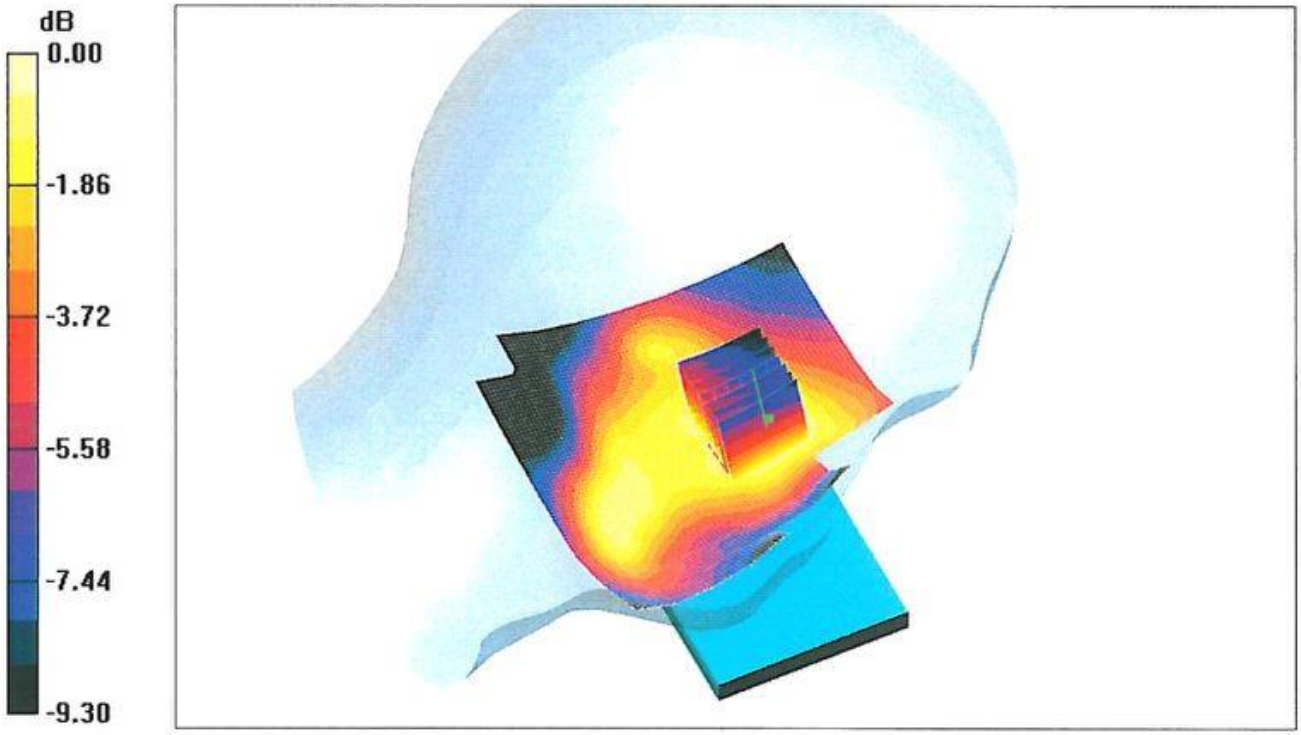
Communication System: E-GSM 900; Frequency: 914.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.97$ mho/m, $\varepsilon_r = 40.7$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.5°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.034 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.04 V/m; Power Drift = -0.090 dB
Peak SAR (extrapolated) = 0.043 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.034 mW/g



0 dB = 0.034mW/g

Fig. 7: SAR distribution for GSM900 of the mobile phone with the protective device: channel 124 (914.8 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

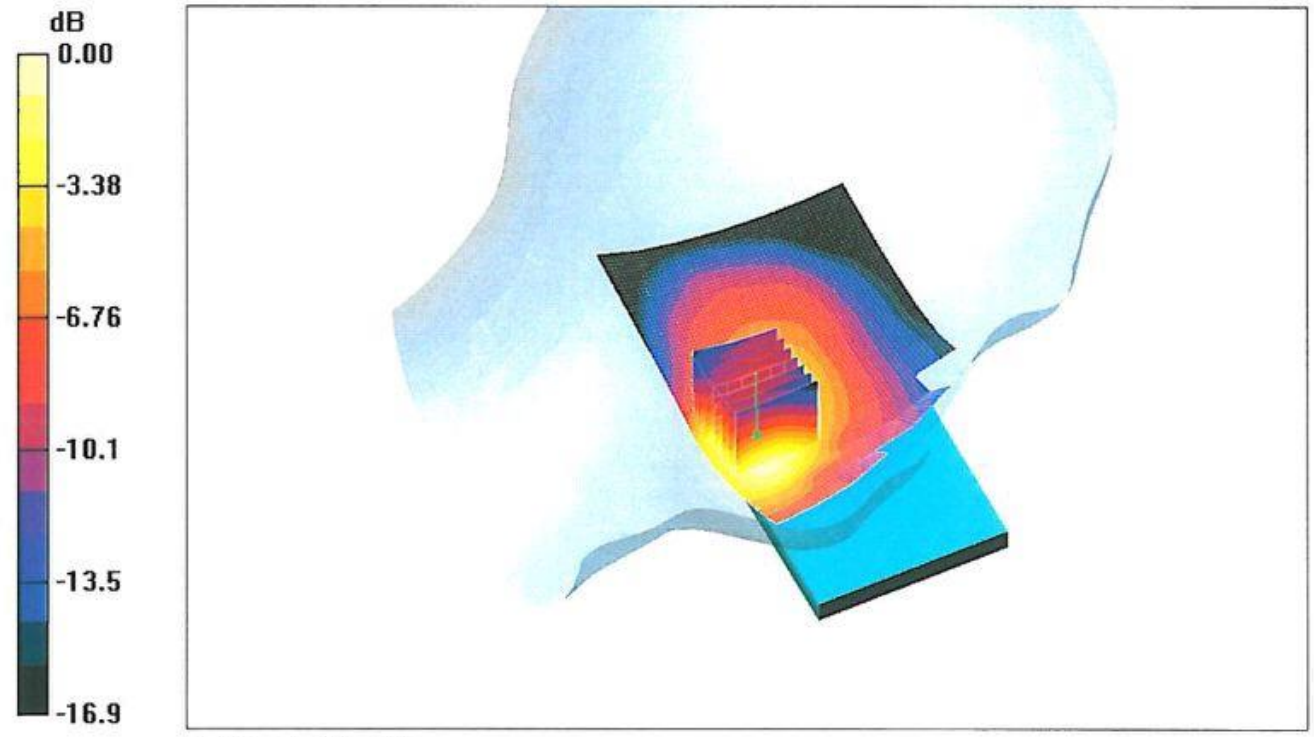
Communication System: GSM 1800; Frequency: 1710.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: σ = 1.38 mho/m, ε_r = 38.5; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.459 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 0.536 W/kg
SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.229 mW/g
Maximum value of SAR (measured) = 0.423 mW/g



0 dB = 0.423mW/g

Fig. 8: SAR distribution for GSM1800 of the mobile phone:
channel 512 (1710.2 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

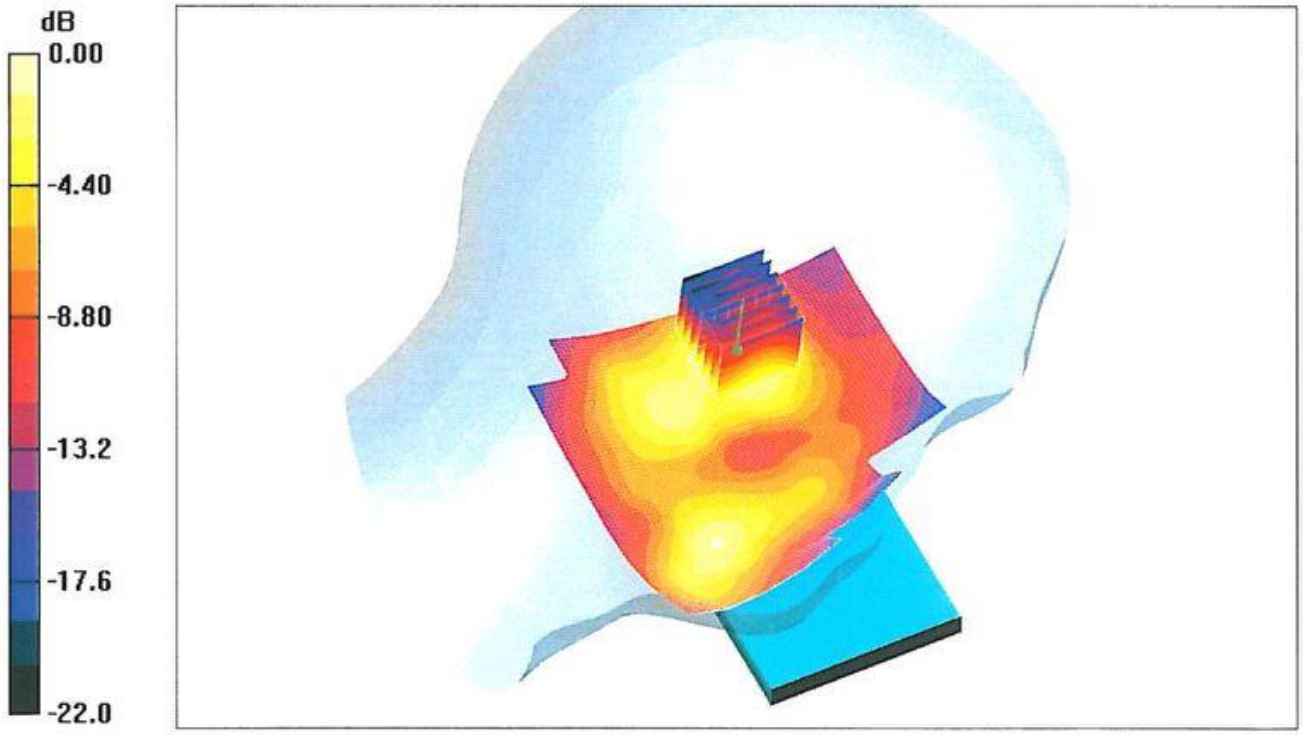
Communication System: GSM 1800; Frequency: 1710.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.38$ mho/m, $\varepsilon_r = 38.5$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.6°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.109 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.94 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.103 mW/g



0 dB = 0.103mW/g

Fig. 9: SAR distribution for GSM1800 of the mobile phone with the protective device: channel 512 (1710.2 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

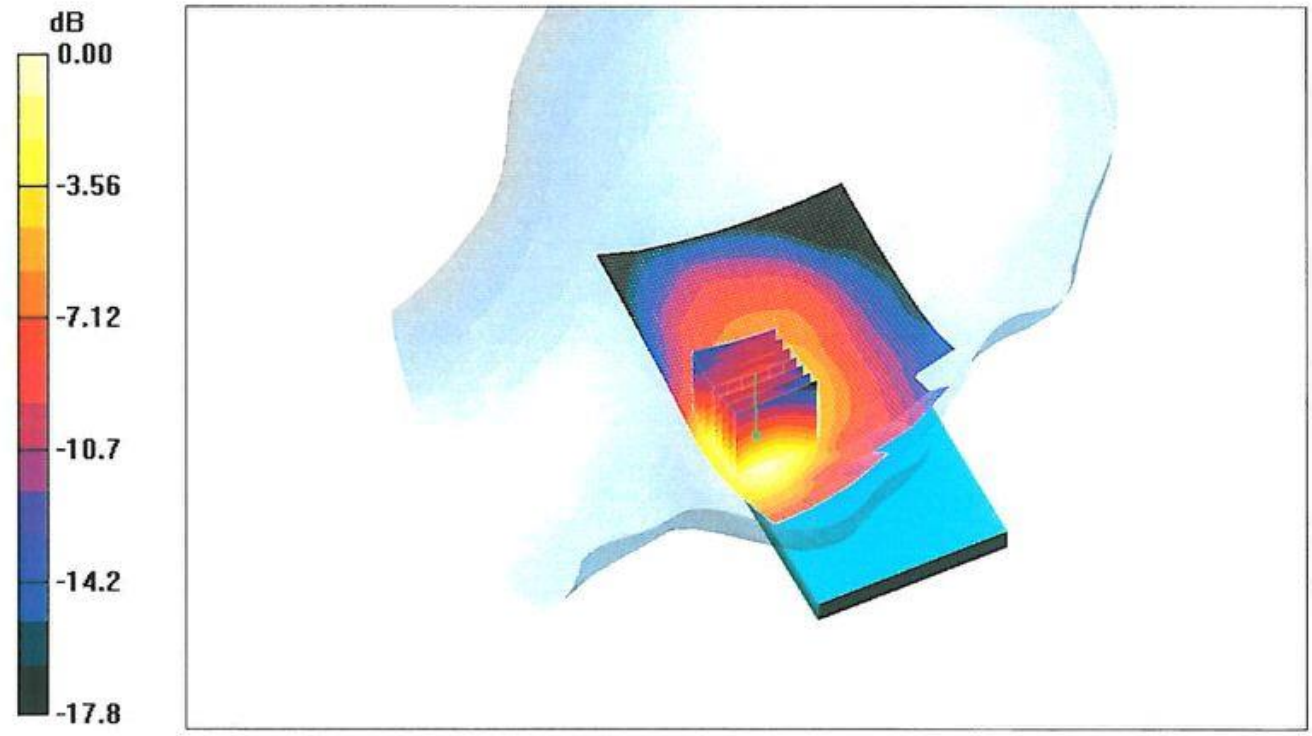
Communication System: GSM 1800; Frequency: 1747.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: σ = 1.42 mho/m, ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.5°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.362 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.79 V/m; Power Drift = -0.111 dB
Peak SAR (extrapolated) = 0.440 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.182 mW/g
Maximum value of SAR (measured) = 0.341 mW/g



0 dB = 0.341mW/g

Fig. 10: SAR distribution for GSM1800 of the mobile phone: channel 699 (1747.6 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

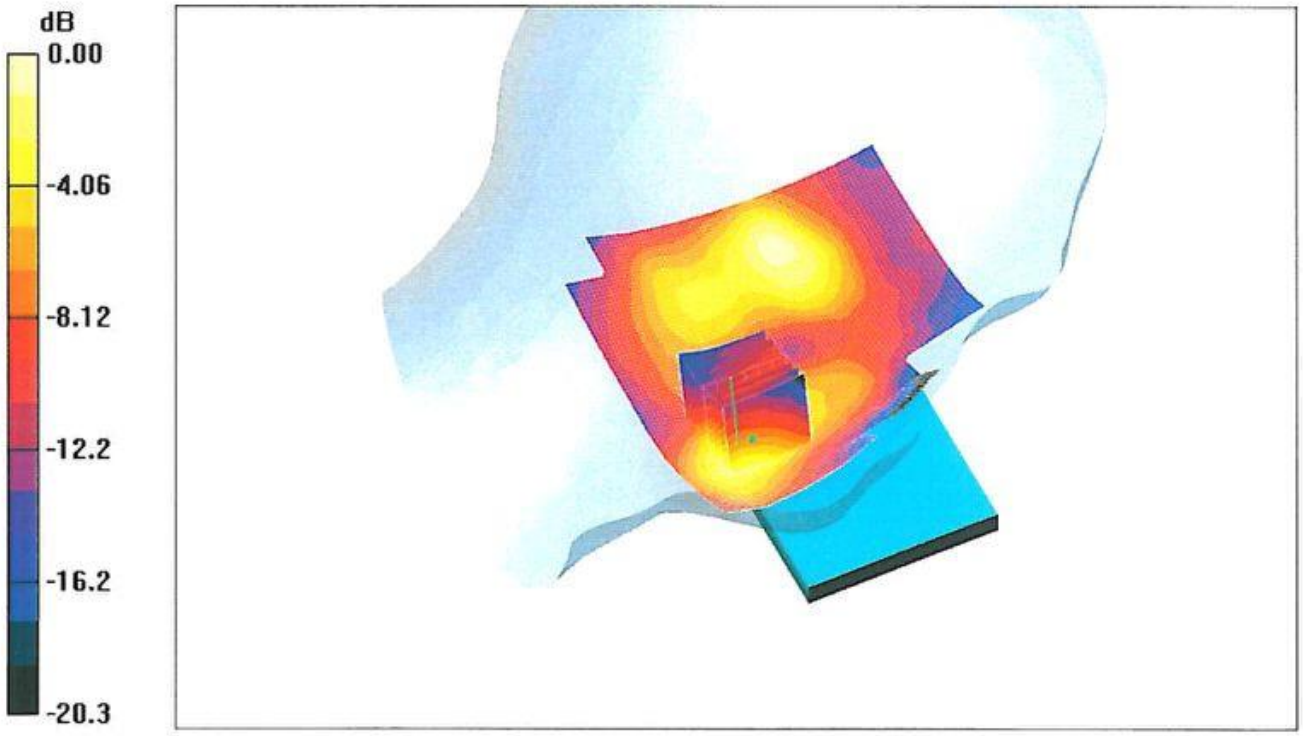
Communication System: GSM 1800; Frequency: 1747.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: σ = 1.42 mho/m, ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.081 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.69 V/m; Power Drift = -0.093 dB
Peak SAR (extrapolated) = 0.116 W/kg
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.084mW/g

Fig. 11: SAR distribution for GSM1800 of the mobile phone with the protective device: channel 699 (1747.6 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

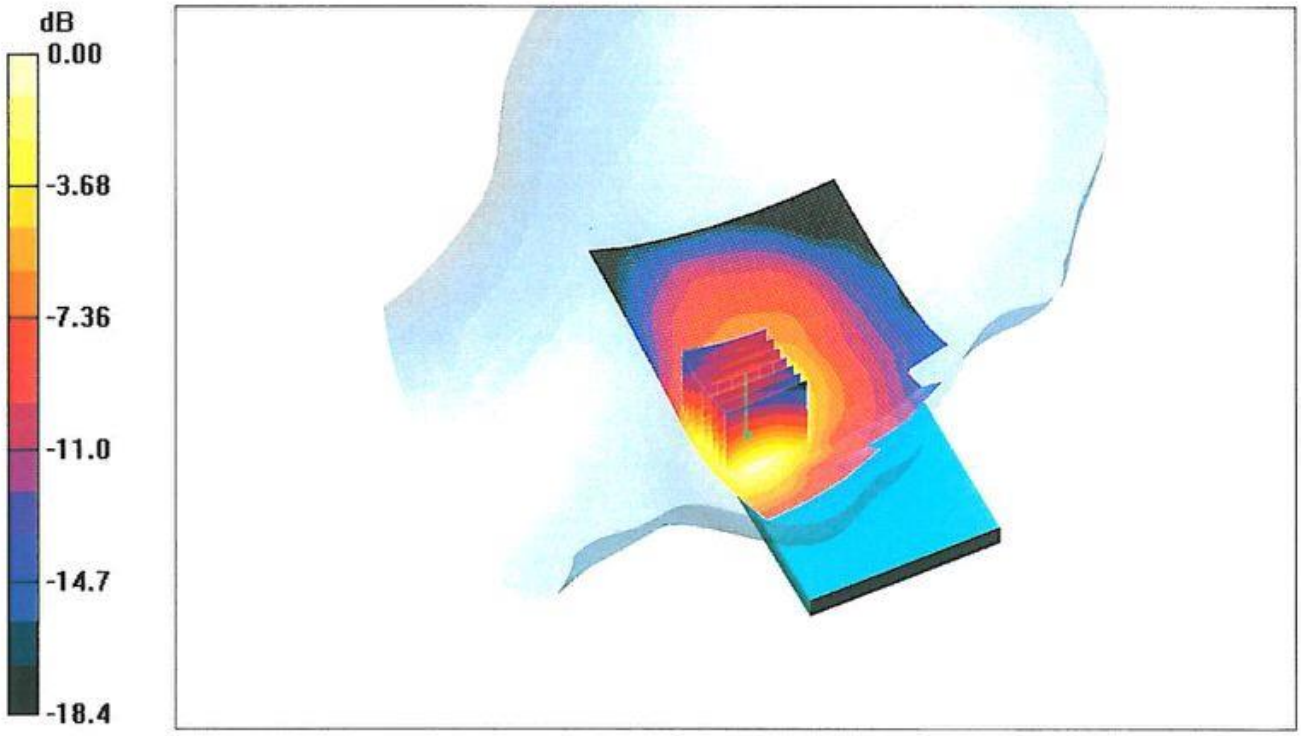
Communication System: GSM 1800; Frequency: 1784.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.45$ mho/m, $\varepsilon_r = 38.2$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.363 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.32 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.447 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.179 mW/g
Maximum value of SAR (measured) = 0.341 mW/g



0 dB = 0.341mW/g

Fig. 12: SAR distribution for GSM1800 of the mobile phone: channel 885 (1784.8 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

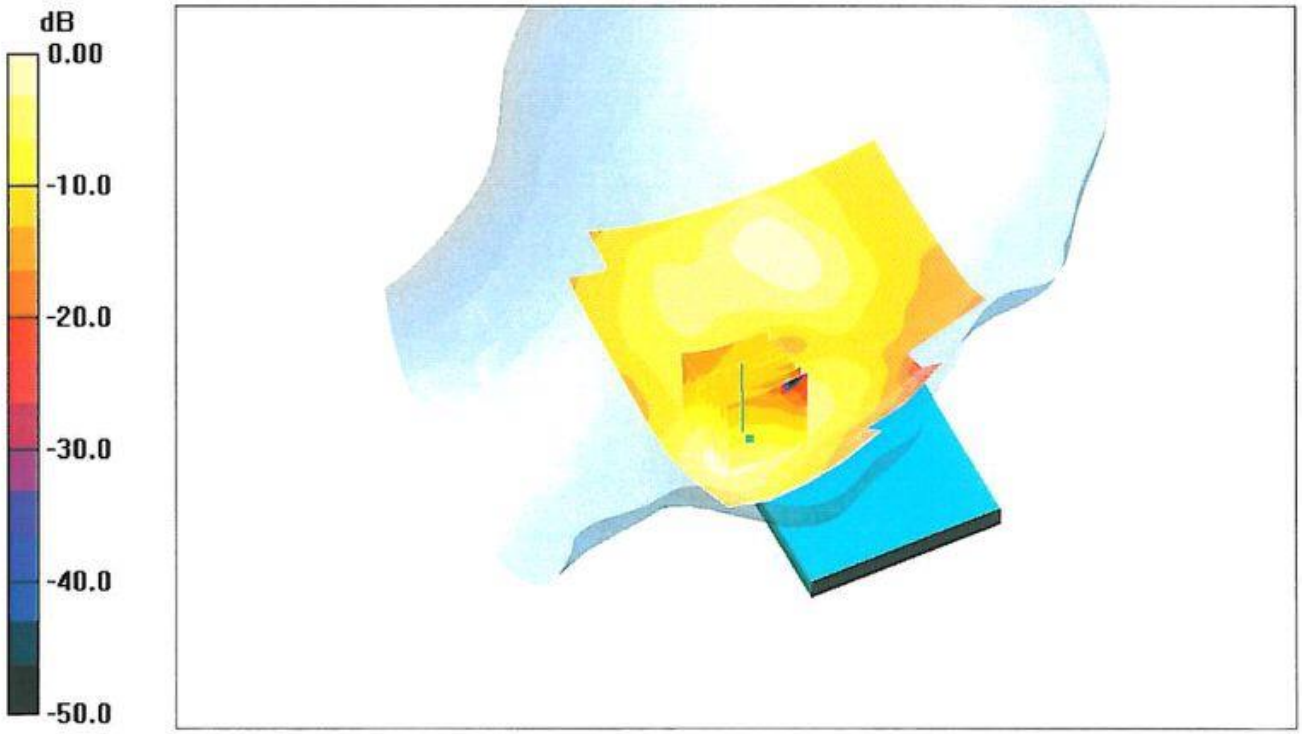
Communication System: GSM 1800; Frequency: 1784.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: σ = 1.45 mho/m, ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.7°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.080 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.26 V/m; Power Drift = -0.116 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.081 mW/g



0 dB = 0.081mW/g

Fig. 13: SAR distribution for GSM1800 of the mobile phone with the protective device: channel 885 (1784.8 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

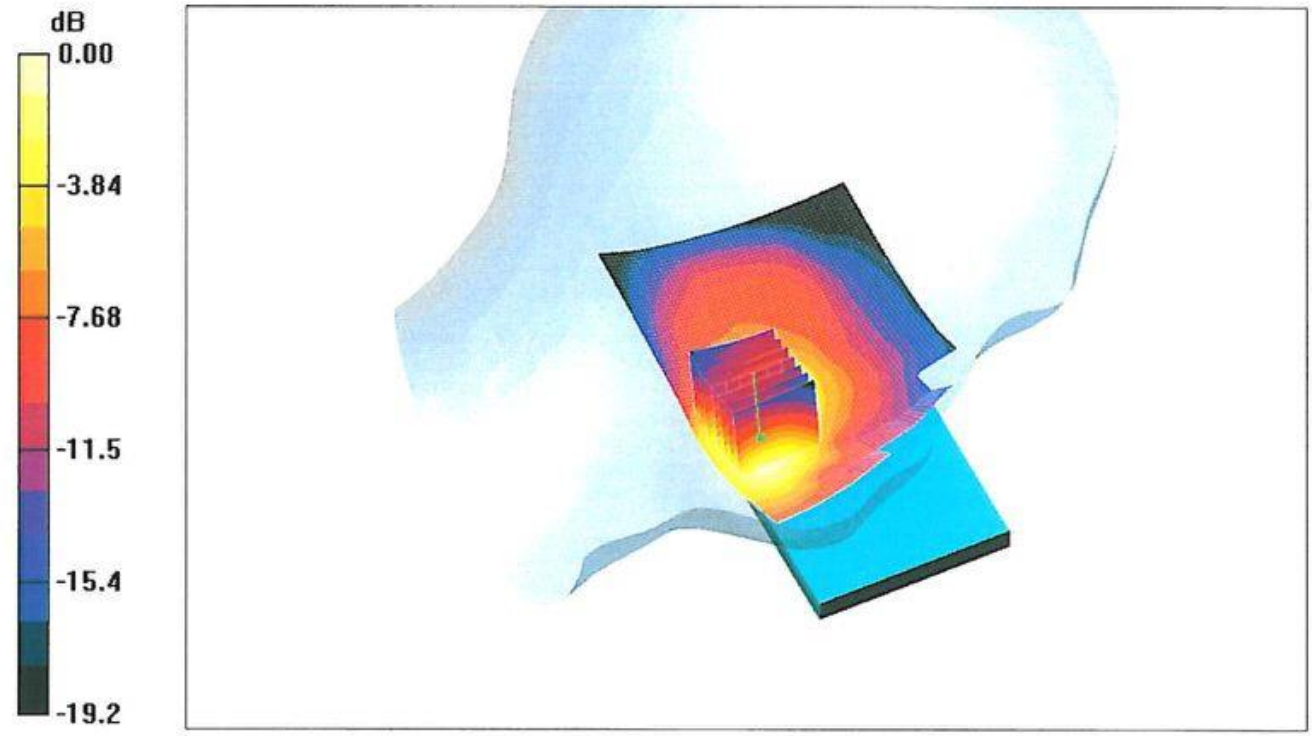
Communication System: WCDMA 2100; Frequency: 1922.4 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.39 mho/m, ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.9°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.540 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = -0.138 dB
Peak SAR (extrapolated) = 0.666 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.255 mW/g
Maximum value of SAR (measured) = 0.498 mW/g



0 dB = 0.498mW/g

Fig. 14: SAR distribution for WCDMA2100 of the mobile phone: channel 9612 (1922.4 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

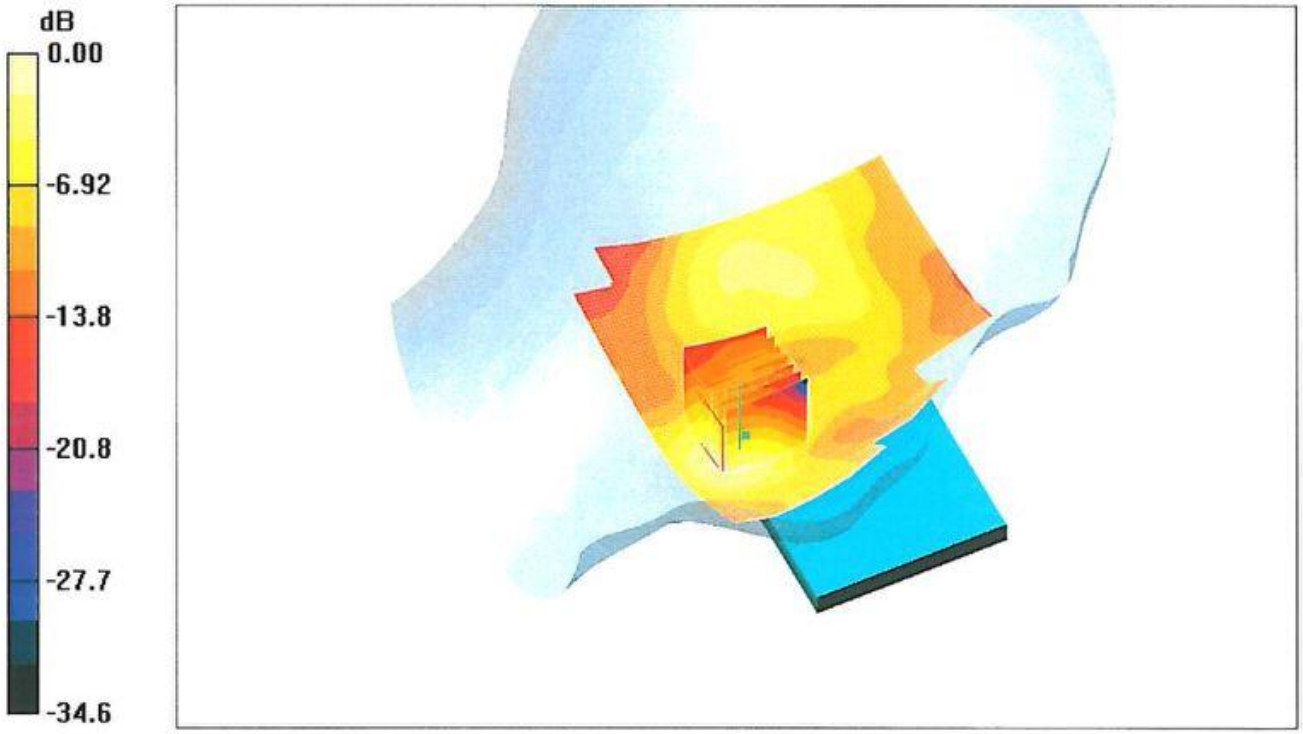
Communication System: WCDMA 2100; Frequency: 1922.4 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.39$ mho/m, $\varepsilon_r = 38.3$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.8°C, Liquid temperature: 22.2°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.077 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.18 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 0.114 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.080 mW/g



0 dB = 0.080mW/g

Fig. 15: SAR distribution for WCDMA2100 of the mobile phone with the protective device: channel 9612 (1922.4 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

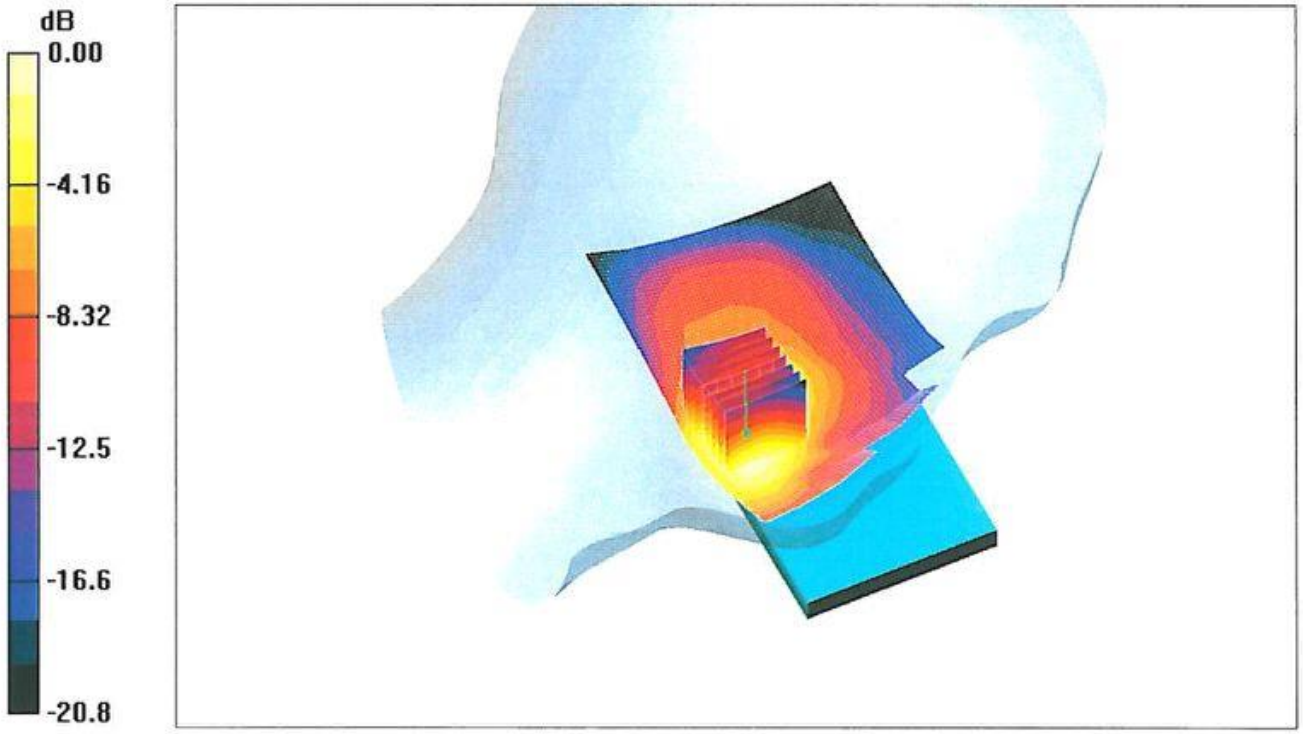
Communication System: WCDMA 2100; Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.43 mho/m, ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.9°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.659 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.9 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 0.804 W/kg
SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.306 mW/g
Maximum value of SAR (measured) = 0.603 mW/g



0 dB = 0.603mW/g

Fig. 16: SAR distribution for WCDMA2100 of the mobile phone: channel 9750 (1950.0 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

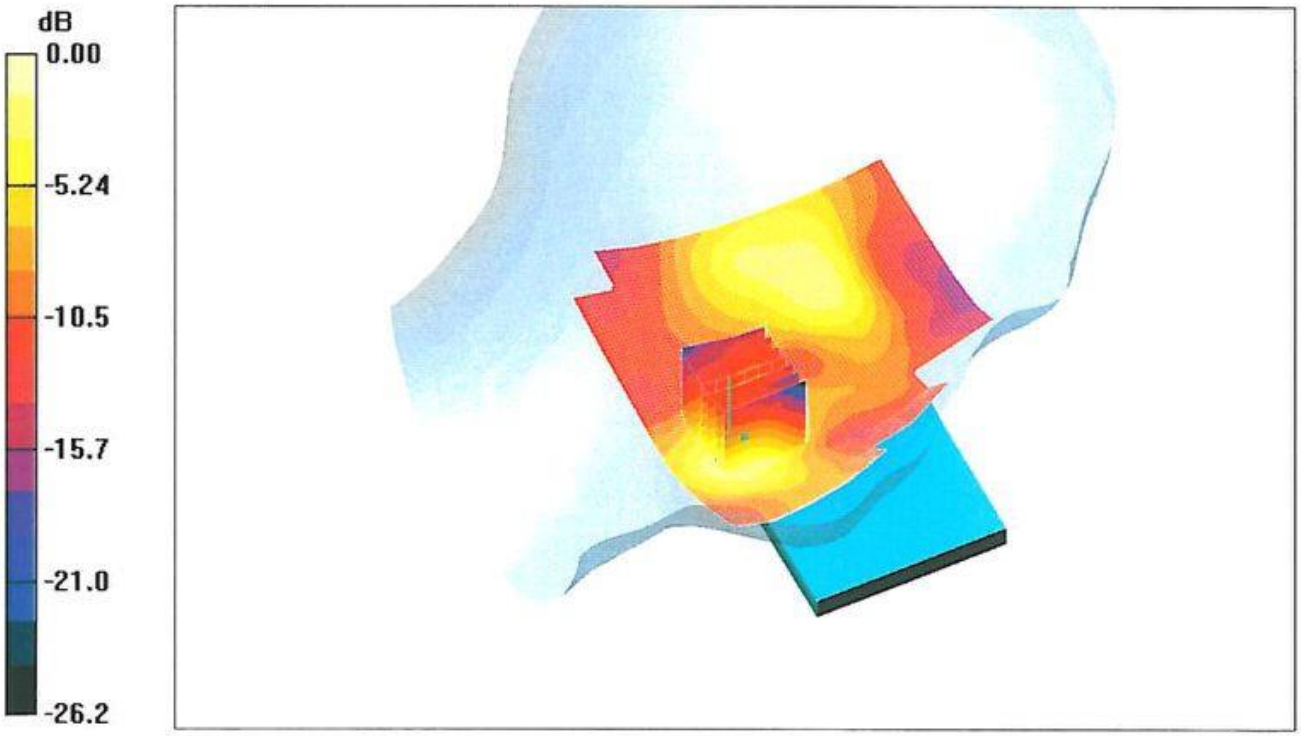
Communication System: WCDMA 2100; Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.43 mho/m, ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.7°C, Liquid temperature: 22.1°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.102 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.49 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.106 mW/g



0 dB = 0.106mW/g

Fig. 17: SAR distribution for WCDMA2100 of the mobile phone with the protective device: channel 9750 (1950.0 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505

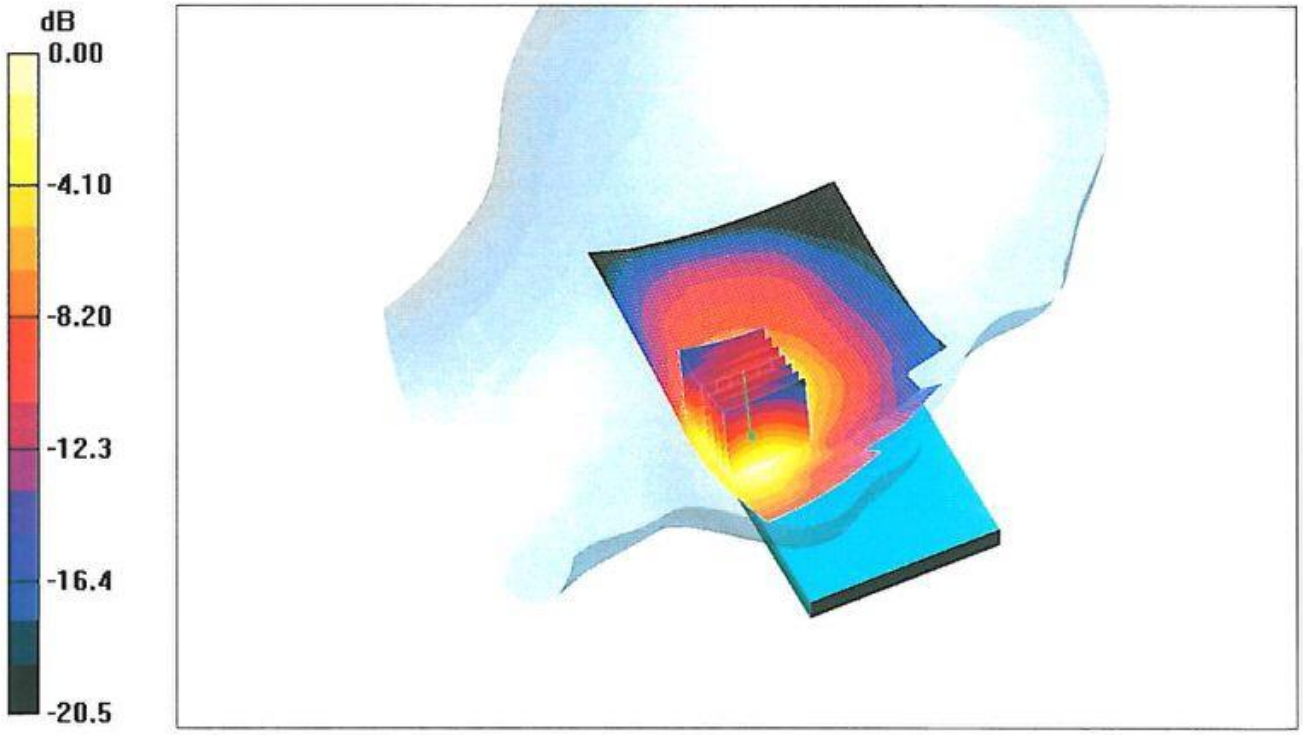
Communication System: WCDMA 2100; Frequency: 1977.6 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.46$ mho/m, $\varepsilon_r = 38.1$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.6°C, Liquid temperature: 22.0°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.644 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.3 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 0.824 W/kg
SAR(1 g) = 0.514 mW/g; SAR(10 g) = 0.305 mW/g
Maximum value of SAR (measured) = 0.607 mW/g



0 dB = 0.607mW/g

Fig. 18: SAR distribution for WCDMA2100 of the mobile phone: channel 9888 (1977.6 MHz), cheek position, left side

DUT: SAMSUNG GT-I9505 + Horizontal case for Smartphone

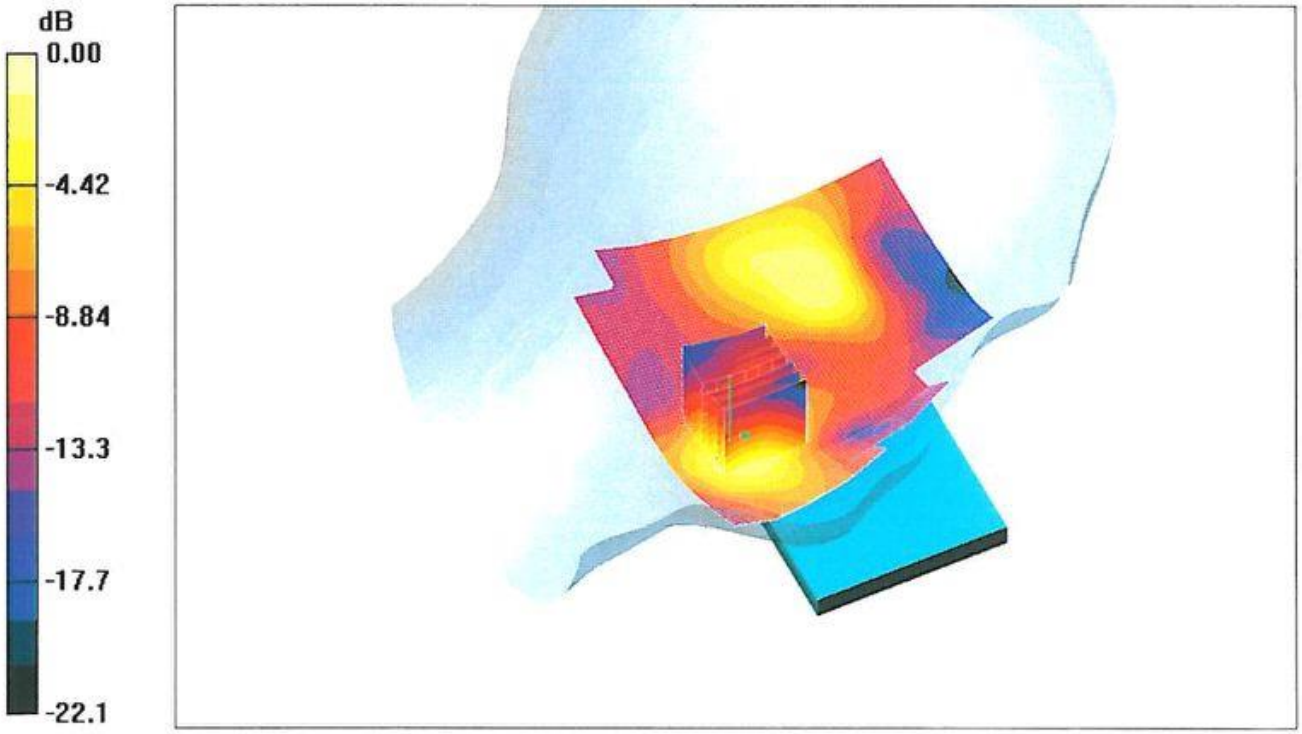
Communication System: WCDMA 2100; Frequency: 1977.6 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.46 mho/m, ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.9°C, Liquid temperature: 22.2°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.126 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.68 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 0.189 W/kg
SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.131 mW/g



0 dB = 0.131mW/g

Fig. 19: SAR distribution for WCDMA2100 of the mobile phone with the protective device: channel 9888 (1977.6 MHz), cheek position, left side

9. PHOTOGRAPHS OF THE MOBILE PHONE UNDER TEST

The photographs of the mobile phone under test are shown in Fig. 20 and Fig. 21.

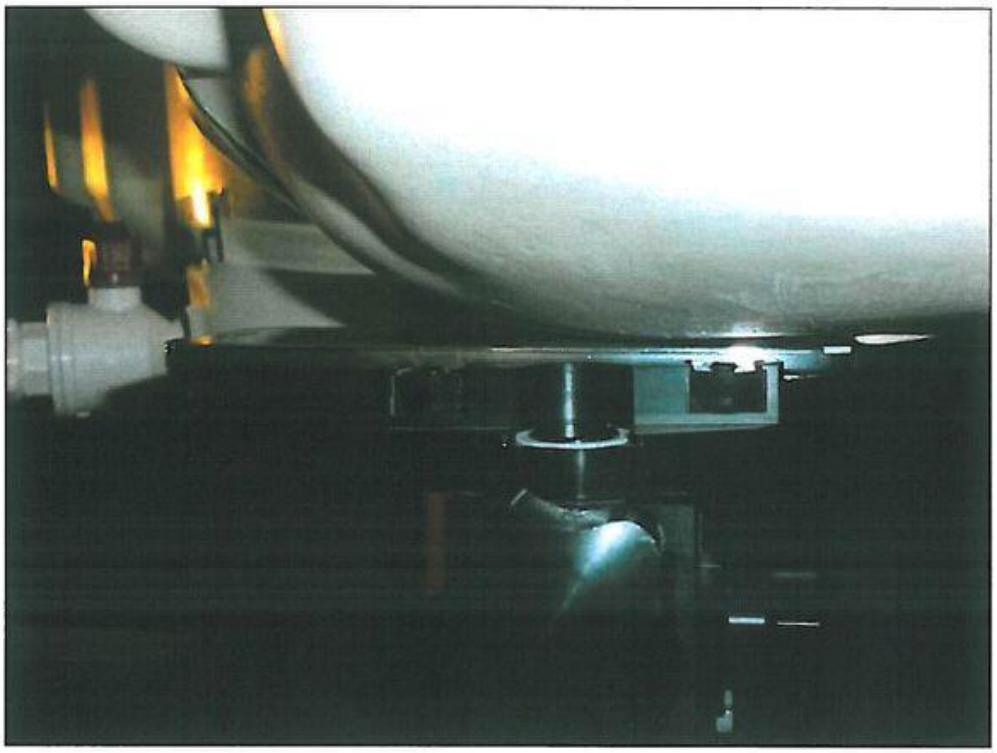


Fig. 20: Mobile phone in cheek position on left side

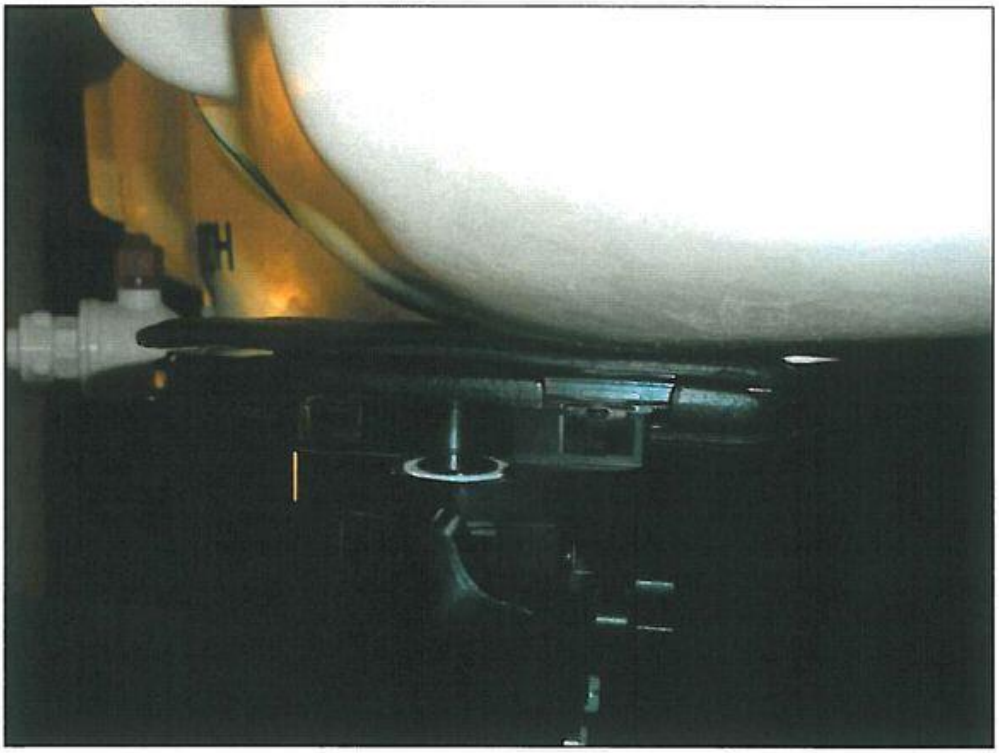


Fig. 21: Mobile phone into the protective device in cheek position on left side

10. MEASUREMENT UNCERTAINTY

The expanded uncertainty with a confidence interval of 95% shall not exceed 30% for averaged SAR values in the range from 0.4 to 10W/kg.

The uncertainty of the measurements was evaluated according to the EN 62209-1. The expanded uncertainty is ± 24.0%.

Source of uncertainty	Tolerance/ uncertainty (%)	Probability distribution	Divisor	Ci	Standard Uncertainty (%)
Measurement System					
Probe Calibration	± 6.7	Normal	1	1	± 6.7
Axial Isotropy	± 4.7	Rectangular	√3	1	± 2.7
Hemispherical Isotropy	± 9.6	Rectangular	√3	1	± 5.5
Boundary Effect	± 1.0	Rectangular	√3	1	± 0.6
Linearity	± 4.7	Rectangular	√3	1	± 2.7
Detection Limits	± 1.0	Rectangular	√3	1	± 0.6
Readout Electronics	± 0.3	Normal	1	1	± 0.3
Response Time	± 0.8	Rectangular	√3	1	± 0.5
Integration Time	± 2.6	Rectangular	√3	1	± 1.5
RF Ambient Conditions - Noise	± 3.0	Rectangular	√3	1	± 1.7
RF Ambient Conditions - Reflections	± 3.0	Rectangular	√3	1	± 1.7
Probe Positioner Mechanical Restrictions	± 0.4	Rectangular	√3	1	± 0.2
Probe Positioning with respect to Phantom Shell	± 2.9	Rectangular	√3	1	± 1.7
Post-Processing	± 2.0	Rectangular	√3	1	± 1.2
Test Sample Related					
Test Sample Positioning	± 2.9	Normal	1	1	± 2.9
Device Holder Uncertainty	± 3.6	Normal	1	1	± 3.6
Drift of Output Power	± 5.0	Rectangular	√3	1	± 2.9
Phantom and Set-Up					
Phantom Uncertainty (shape and thickness tolerances)	± 4.0	Rectangular	√3	1	± 2.3
Liquid Conductivity (Target)	± 5.0	Rectangular	√3	0.43	± 1.2
Liquid Conductivity (Measurement)	± 2.5	Normal	1	0.43	± 1.1
Liquid Permittivity (Target)	± 5.0	Rectangular	√3	0.49	± 1.4
Liquid Permittivity (Measurement)	± 2.5	Normal	1	0.49	± 1.2
Combined standard uncertainty					± 12.0
Expanded uncertainty (confidence interval of 95%)					± 24.0

11. TEST CONDITIONS

The equipment is controlled during test using platform n° 1 (BTS simulator) referenced in paragraph 6 of this test report. The following test conditions are given for information; the maximum output powers were not measured.

Standard:	GSM (900 & 1800 MHz)
Crest factor:	8
Modulation:	GMSK
Maximum output power:	GSM 900 Class 4: Tx level 5 = 33 dBm (± 2dB)
	GSM 1800 Class 1: Tx level 0 = 30 dBm (± 2dB)
Standard:	WCDMA (2100 MHz)
Crest factor:	1
Modulation:	QPSK
Maximum output power:	Class 3 = 24 dBm (+1dB,-3dB)
Configuration:	Mode RMC 12.2kbps with all TPC bits = "1"

12. MEASUREMENT SYSTEM DESCRIPTION

The automated near-field scanning system Dosimetric Assessment System DASY4 from Schmid & Partner Engineering AG was used. The measurement is performed using platform n° 2 referenced in paragraph 6 ("Equipment used for the testing") of this report. The system consists of a computer controlled, high precision robotics system, robot controller, extreme near-field probes and the phantom containing the liquid. The six axis robot precisely positions the probe at the points of maximum electromagnetic field. A device holder made of low-loss dielectric material is used to maintain the test position of the equipment under test against the phantom. The measurements were conducted in an RF controlled environment (i.e. semi anechoic room). Fig. 22 shows the system.

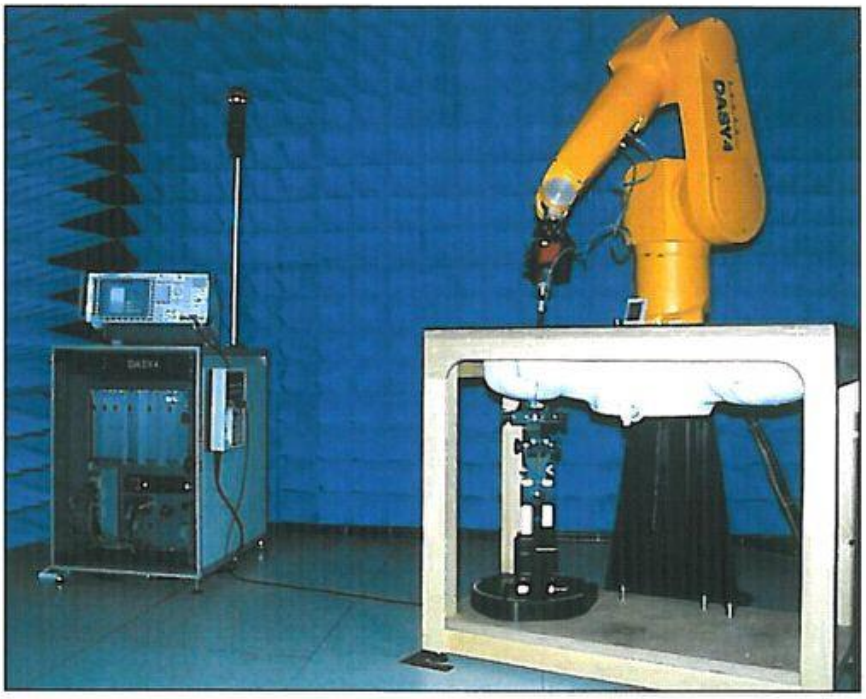


Fig. 22: The measurement setup with equipment under test

13. LIQUID MEASUREMENT: TEST CONDITIONS & RESULTS

The measurement is performed using platform n° 3 referenced in paragraph 6 ("Equipment used for the testing") of this report. The following ingredients (in % by weight) are theoretical and given for information.

900 MHz liquid: Sucrose 56.50 %
De-ionised water 40.92 %
NaCl salt 1.48 % - HEC 1.00 % - Bactericide 0.10 %

1800 MHz liquid: Diethylenglykol-monobutylether 44.92 %
De-ionised water 54.90 %
NaCl salt 0.18 %

1950 MHz liquid: Diethylenglykol-monobutylether 45.00 %
De-ionised water 55.00 %

The dielectric parameters of the head simulating liquid were controlled prior to assessment (contact probe method). Dielectric properties measured:

Frequency (MHz)	ε_r (F/m) Targeted value	ε_r (F/m) Measured value	σ (S/m) Targeted value	σ (S/m) Measured value	Liquid temperature (°C)	Ambient temperature (°C)
880	41.5 ± 5 %	41.4	0.95 ± 5 %	0.93	21.3	22.5
895	41.5 ± 5 %	41.1	0.96 ± 5 %	0.94		
900	41.5 ± 5 %	41.0	0.97 ± 5 %	0.95		
915	41.5 ± 5 %	40.7	0.97 ± 5 %	0.97		
1710	40.1 ± 5 %	38.5	1.34 ± 5 %	1.38	21.4	22.3
1750	40.1 ± 5 %	38.4	1.37 ± 5 %	1.42		
1785	40.0 ± 5 %	38.2	1.39 ± 5 %	1.45		
1800	40.0 ± 5 %	38.2	1.40 ± 5 %	1.46		
1920	40.0 ± 5 %	38.3	1.40 ± 5 %	1.39	21.9	23.0
1950	40.0 ± 5 %	38.2	1.40 ± 5 %	1.43		
1980	40.0 ± 5 %	38.1	1.40 ± 5 %	1.46		

14. SYSTEM CHECK: TEST CONDITIONS & RESULTS

The measurement is performed using platform n° 4 referenced in paragraph 6 ("Equipment used for the testing") of this report.

Measurement conditions: The measurements were performed in the flat section of the SAM phantom filled with liquids simulating tissue. The validation dipole input power was 250mW.
Prior to the assessment, the dipole were used to check whether the system was operating within its specification of ± 10 %.

Measurement results: The results are hereafter below and shown in Fig. 23 to Fig. 25.

Frequency (MHz)	SAR 1g (W/kg) Targeted value	SAR 1g (W/kg) Measured value
900	1.725 ± 10 %	1.68
1800	4.95 ± 10 %	5.10
1950	5.225 ± 10 %	5.34

DUT: Dipole 900 MHz

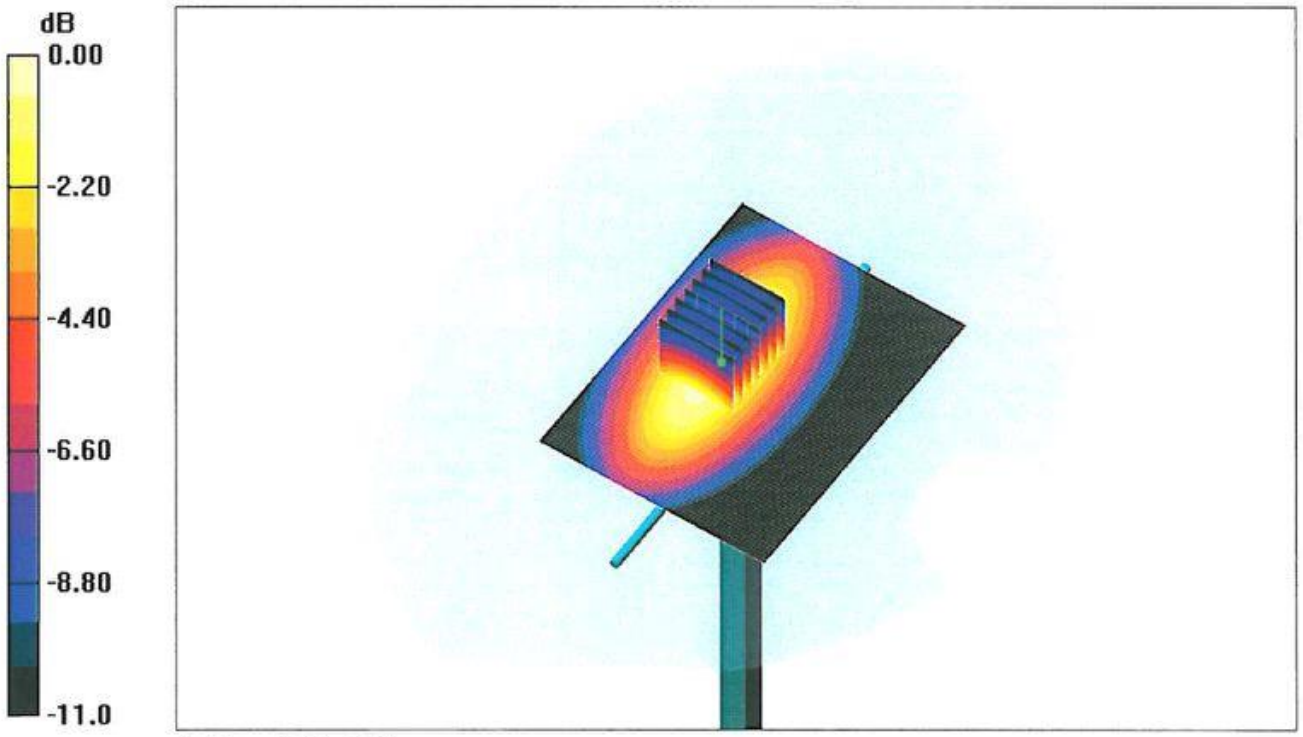
Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 0.95$ mho/m, $\varepsilon_r = 41$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section

Program Notes: Ambient temperature: 23.7°C, Liquid temperature: 21.6°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(6.15, 6.15, 6.15); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.05 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.2 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 3.95 W/kg
SAR(1 g) = 2.61 mW/g; SAR(10 g) = 1.68 mW/g
Maximum value of SAR (measured) = 3.08 mW/g



0 dB = 3.08mW/g

Fig. 23: 900 MHz system check result

DUT: Dipole 1800 MHz

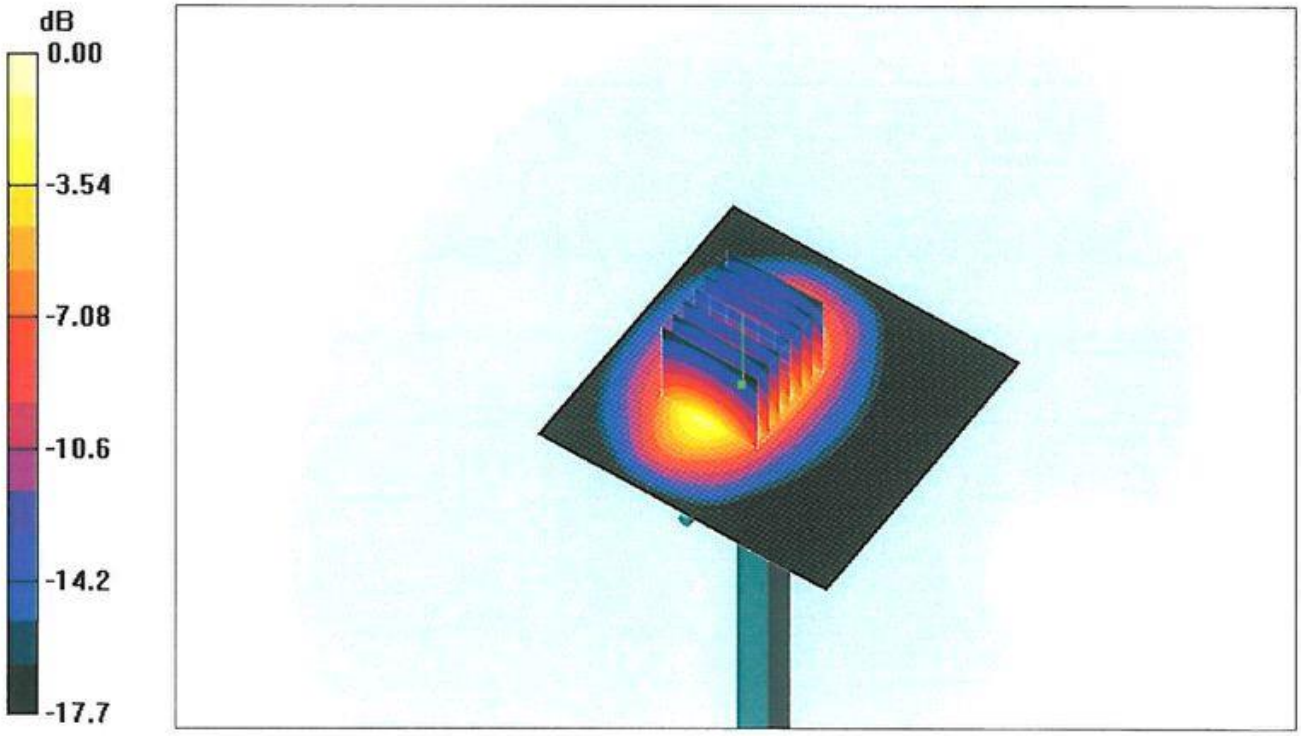
Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.46$ mho/m, $\varepsilon_r = 38.2$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section

Program Notes: Ambient temperature: 22.5°C, Liquid temperature: 21.5°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.07, 5.07, 5.07); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.9 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 83.8 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 18.6 W/kg
SAR(1 g) = 9.88 mW/g; SAR(10 g) = 5.1 mW/g
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

Fig. 24: 1800 MHz system check result

DUT: Dipole 1950 MHz

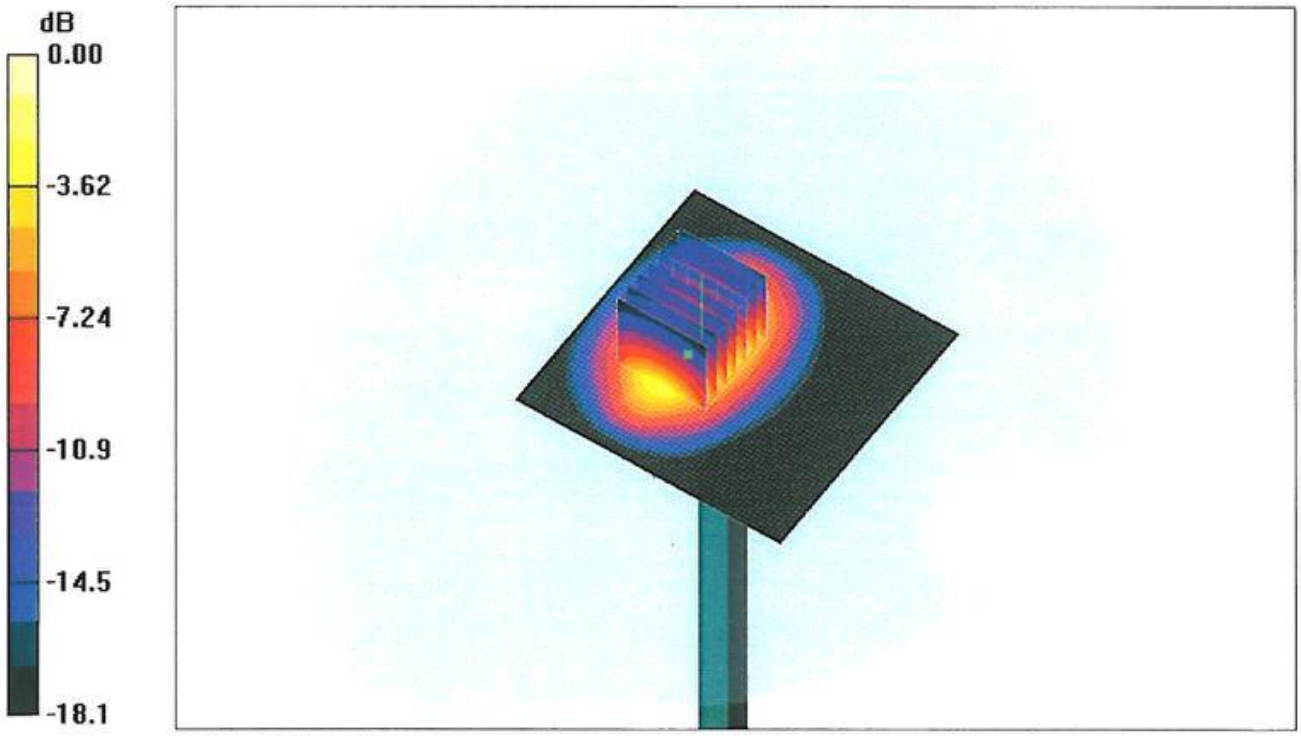
Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.43 mho/m, ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

Program Notes: Ambient temperature: 23.2°C, Liquid temperature: 22.0°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(4.91, 4.91, 4.91); Calibrated: 8/22/2014
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 8/14/2014
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.3 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 79.6 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 19.5 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.34 mW/g
Maximum value of SAR (measured) = 13.2 mW/g

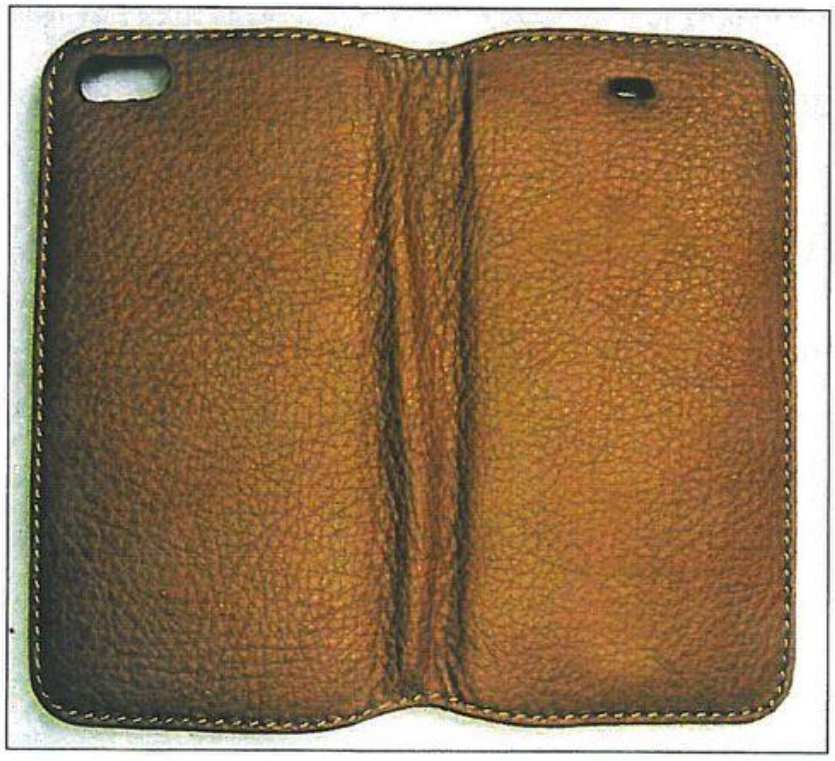


0 dB = 13.2mW/g

Fig. 25: 1950 MHz system check result

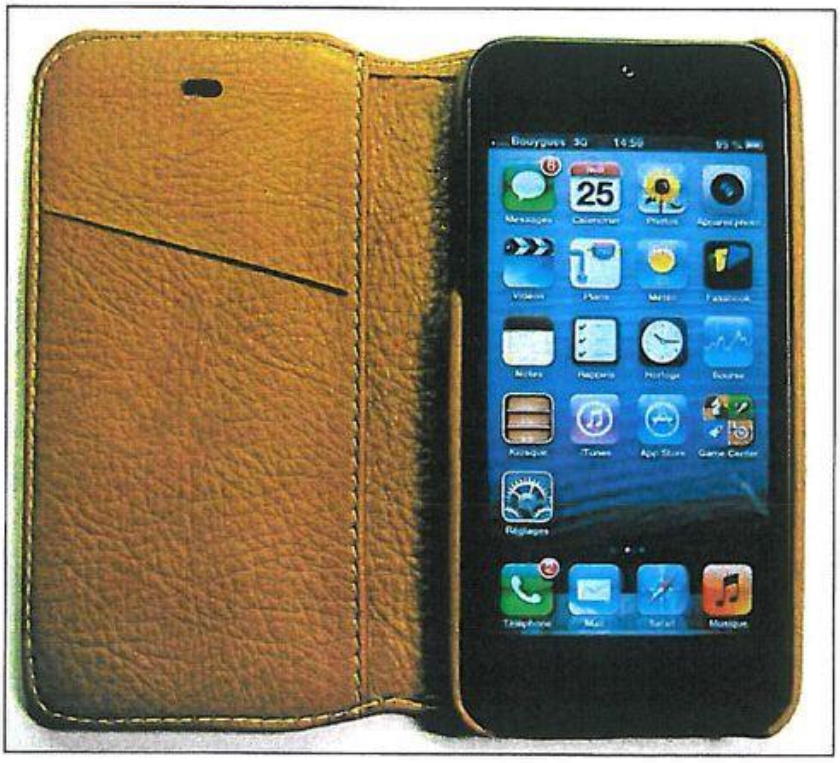
□□□ End of report □□□

Housse ouverte : vue intérieure



Housse ouverte : vue extérieure

Housse fermée : face avant (trou pour l'écouteur) et face arrière (trou pour la caméra)



Téléphone dans la housse

Téléphone et son marquage

Fig. 1: Photographies de l'équipement en essai

4. SYNTHESE DES RESULTATS

Bande GSM900 (Position Joue – Côté Gauche)	DAS 10g (W/kg)		
	Canal 975 880.2 MHz	Canal 038 897.6 MHz	Canal 124 914.8 MHz
Téléphone seul	0.441	0.397	0.402
Téléphone avec la housse	0.0170	0.0163	0.0173
Atténuation du niveau de DAS	**96.1%**	**95.9%**	**95.7%**

Bande GSM1800 (Position Joue – Côté Gauche)	DAS 10g (W/kg)		
	Canal 512 1710.2 MHz	Canal 699 1747.6 MHz	Canal 885 1784.8 MHz
Téléphone seul	0.216	0.215	0.223
Téléphone avec la housse	0.0106	0.0104	0.0106
Atténuation du niveau de DAS	**95.1%**	**95.2%**	**95.2%**

Bande WCDMA2100 (Position Joue – Côté Gauche)	DAS 10g (W/kg)		
	Canal 9612 1922.4 MHz	Canal 9750 1950.0 MHz	Canal 9888 1977.6 MHz
Téléphone seul	0.463	0.454	0.547
Téléphone avec la housse	0.0189	0.015	0.0282
Atténuation du niveau de DAS	**95.9%**	**96.7%**	**94.8%**

Ce rapport d'essais ne concerne que les mesures du niveau de DAS; l'évaluation des performances rayonnées du téléphone mobile avec et sans le dispositif de protection ne fait pas l'objet de ce rapport.

5. CONDITIONS ENVIRONNEMENTALE

Condition	Valeur mesurée
Température du liquide	*Voir représentations graphiques du DAS*
Température ambiante	*Voir représentations graphiques du DAS*

6. EQUIPEMENTS UTILISES POUR L'ESSAI

Identifiant Plateforme	N° de compteur Emitech	Equipment	Type	Constructeur	Version logicielle
1 Simulateur de BTS	7361	CMU200	Testeur radio	Rohde-Schwarz	
2 DASY4	7321	DASY4	Logiciel	Speag	V4.5 Build 19
	9485	ES3DV3	Sonde de champ E	Speag	
	7192	DAE3	Acquisition de données	Speag	
	7194	D900V2	Dipôle 900MHz	Speag	
	7193	D1800V2	Dipôle 1800MHz	Speag	
	7197	D1950V3	Dipôle 1950MHz	Speag	
	7204	SAM	Fantôme	Speag	
3 Mesure du liquide	-	HP85070C	Logiciel	Hewlett-Packard	C1.01
	1402	HP8753C	Analyseur de réseau	Hewlett-Packard	
	7218	HP85070C	Sonde diélectrique	Hewlett-Packard	
	6980	922	Thermomètre	Testo	
4 Validation du système	7215	2024	Générateur de signal	Marconi	
	7209	ZHL42	Amplificateur	Mini-circuits	
	7214	PMC18-2	Alimentation	Kikusui	
	7212	NRVS	Wattmètre	Rohde-Schwarz	
	7211	NRV-Z31	Sonde wattmètre	Rohde-Schwarz	
	7210	RK100	Coupleur	MEB	
	7208	3877	Coupleur	Suhner	
	7213	33-3-34	Atténuateur	Weinschel Engineering	
	7315	R411810124 R411806124	Atténuateur	Radiall	
	9161	17-0193	Charge 50 Ohms	Diconex	
	7313	R404563000	Charge 50 Ohms	Radiall	

7. RESULTATS DE MESURES

La puissance de sortie et la fréquence du téléphone mobile sont contrôlées en utilisant un simulateur de station de base. Le téléphone mobile est réglé pour transmettre à son niveau de puissance de sortie de crête le plus élevé.

Le téléphone mobile est mesuré en position « joue » sur le côté gauche pour les fréquences basses, moyennes et hautes de chaque bande de transmission.

Résultat des mesures pour le GSM900 (Valeurs DAS moyennées dans 10g) :

Configuration	Fantôme	Position	DAS 10g (W/kg)		
			Canal 975 880.2 MHz	Canal 038 897.6 MHz	Canal 124 914.8 MHz
Téléphone seul	Côté gauche	Joue	0.441	0.397	0.402
Téléphone dans la housse	Côté gauche	Joue	0.0170	0.0163	0.0173

Résultat des mesures pour le GSM1800 (Valeurs DAS moyennées dans 10g) :

Configuration	Fantôme	Position	DAS 10g (W/kg)		
			Canal 512 1710.2 MHz	Canal 699 1747.6 MHz	Canal 885 1784.8 MHz
Téléphone seul	Côté gauche	Joue	0.216	0.215	0.223
Téléphone dans la housse	Côté gauche	Joue	0.0106	0.0104	0.0106

Résultat des mesures pour le WCDMA2100 (Valeurs DAS moyennées dans 10g) :

Configuration	Fantôme	Position	DAS 10g (W/kg)		
			Canal 9612 1922.4 MHz	Canal 9750 1950.0 MHz	Canal 9888 1977.6 MHz
Téléphone seul	Côté gauche	Joue	0.463	0.454	0.547
Téléphone dans la housse	Côté gauche	Joue	0.0189	0.015	0.0282

8. REPRESENTATIONS GRAPHIQUES DU BALAYAGE GROSSIER

Les représentations graphiques du balayage grossier par rapport aux positions du téléphone et de l'oreille sont montrées dans les Fig. 2 à Fig. 19.

DUT: Apple iPhone 5 (Model A1429)

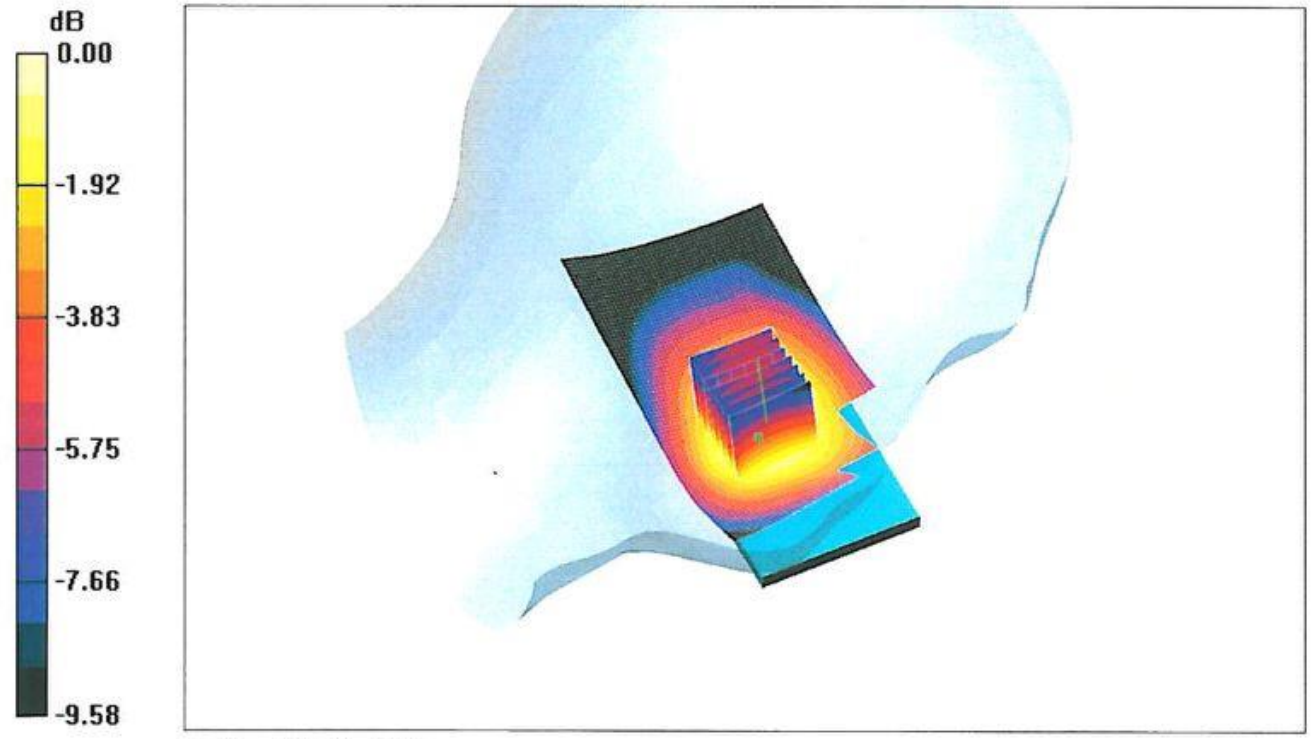
Communication System: E-GSM 900; Frequency: 880.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.94$ mho/m, $\varepsilon_r = 41.5$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 23.1°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.626 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 0.735 W/kg
SAR(1 g) = 0.583 mW/g; SAR(10 g) = 0.441 mW/g
Maximum value of SAR (measured) = 0.644 mW/g



0 dB = 0.644mW/g

Fig. 2: Distribution du DAS en GSM900 du téléphone seul: canal 975 (880.2MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

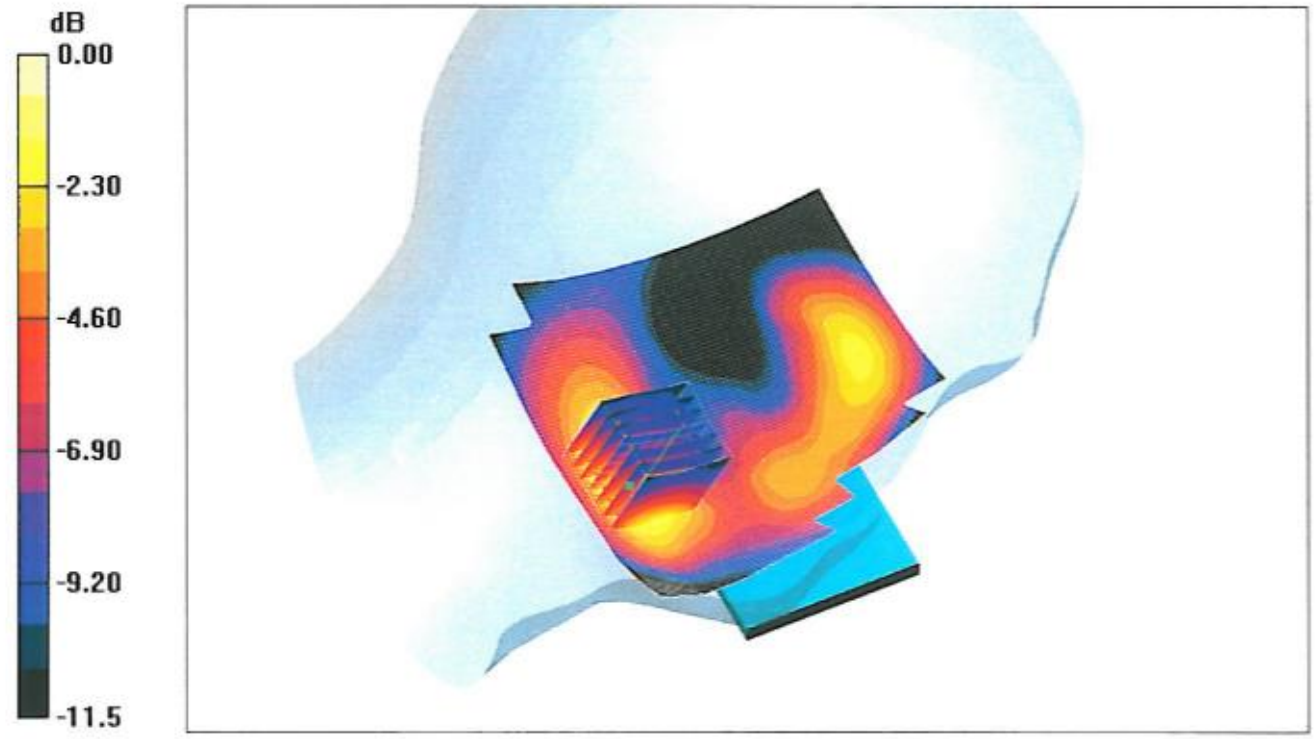
Communication System: E-GSM 900; Frequency: 880.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.94$ mho/m, $\varepsilon_r = 41.5$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C Liquid temperature: 23.2°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.031 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.64 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.050 W/kg
SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Fig. 3: Distribution du DAS en GSM900 du téléphone dans la housse : canal 975 (880.2MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

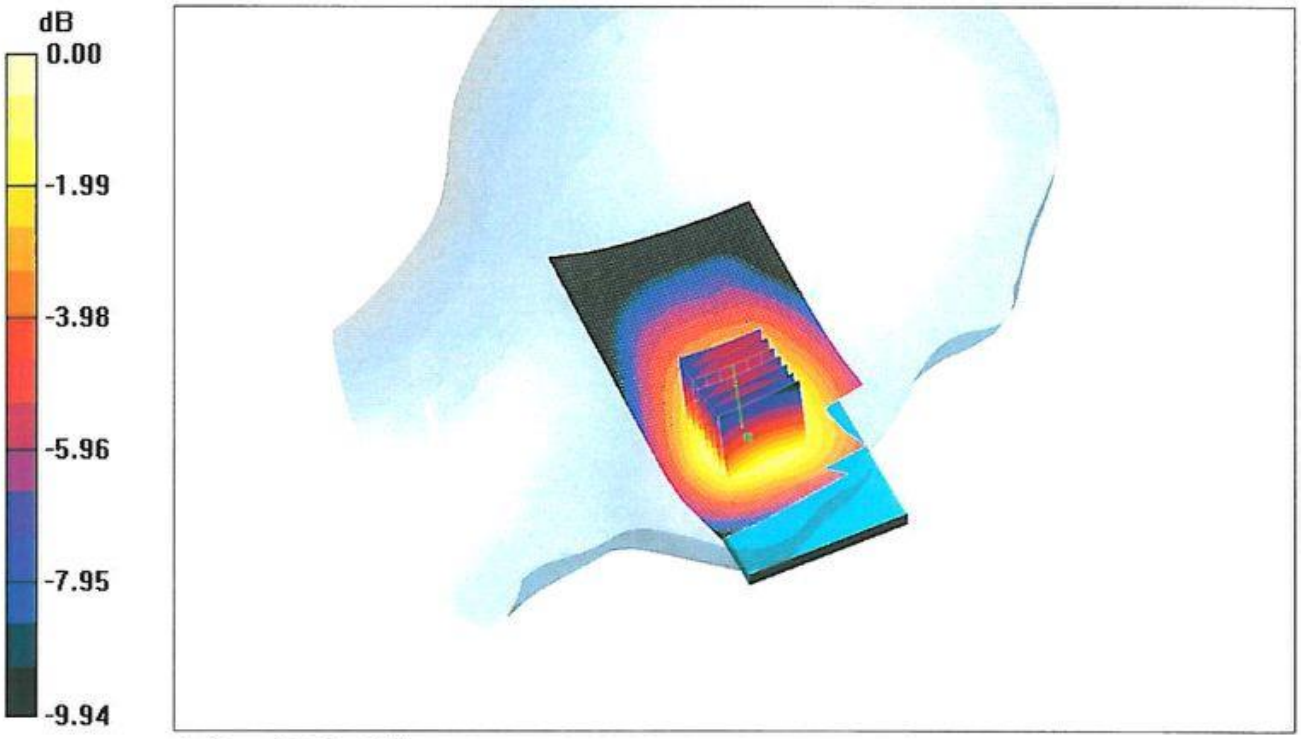
Communication System: E-GSM 900; Frequency: 897.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.96$ mho/m, $\varepsilon_r = 41.2$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.2°C, Liquid temperature: 23.1°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.578 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.1 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 0.673 W/kg
SAR(1 g) = 0.529 mW/g; SAR(10 g) = 0.397 mW/g
Maximum value of SAR (measured) = 0.583 mW/g



0 dB = 0.583mW/g

Fig. 4: Distribution du DAS en GSM900 du téléphone seul: canal 038 (897.6MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

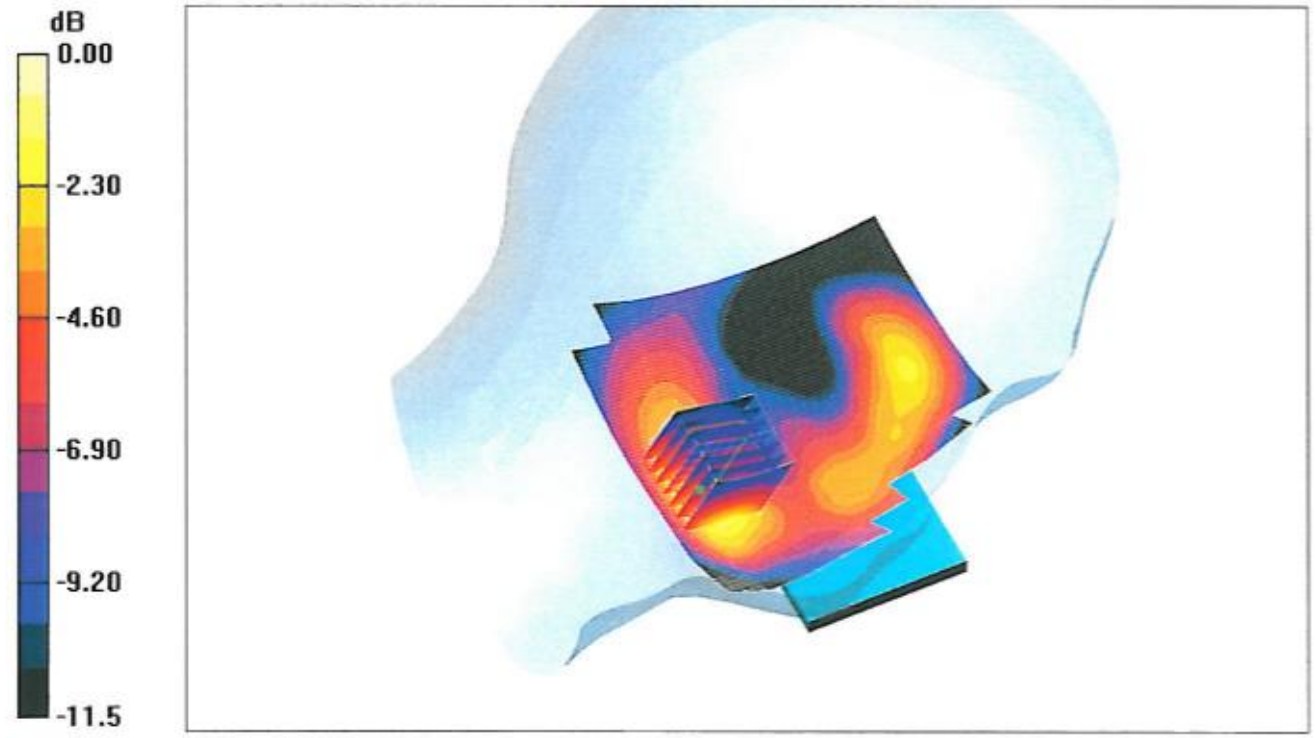
Communication System: E-GSM 900; Frequency: 897.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.96$ mho/m, $\varepsilon_r = 41.2$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.6°C Liquid temperature: 23.1°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.030 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.61 V/m; Power Drift = 0.166 dB
Peak SAR (extrapolated) = 0.048 W/kg
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.032 mW/g



0 dB = 0.032mW/g

Fig. 5: Distribution du DAS en GSM900 du téléphone dans la housse : canal 038 (897.6MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

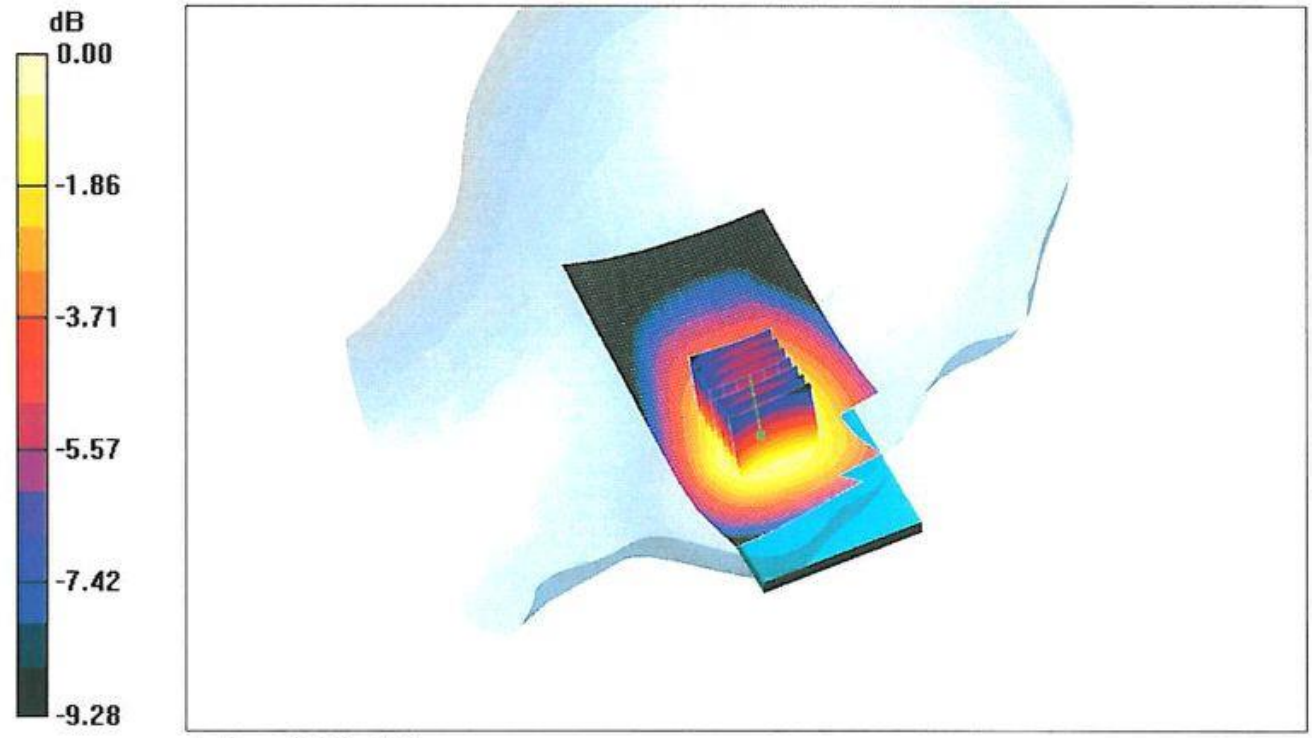
Communication System: E-GSM 900; Frequency: 914.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.98$ mho/m, $\varepsilon_r = 41.1$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 22.8°C, Liquid temperature: 23.1°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.584 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.088 dB
Peak SAR (extrapolated) = 0.678 W/kg
SAR(1 g) = 0.535 mW/g; SAR(10 g) = 0.402 mW/g
Maximum value of SAR (measured) = 0.589 mW/g



0 dB = 0.589mW/g

Fig. 6: Distribution du DAS en GSM900 du téléphone seul: canal 124 (914.8MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

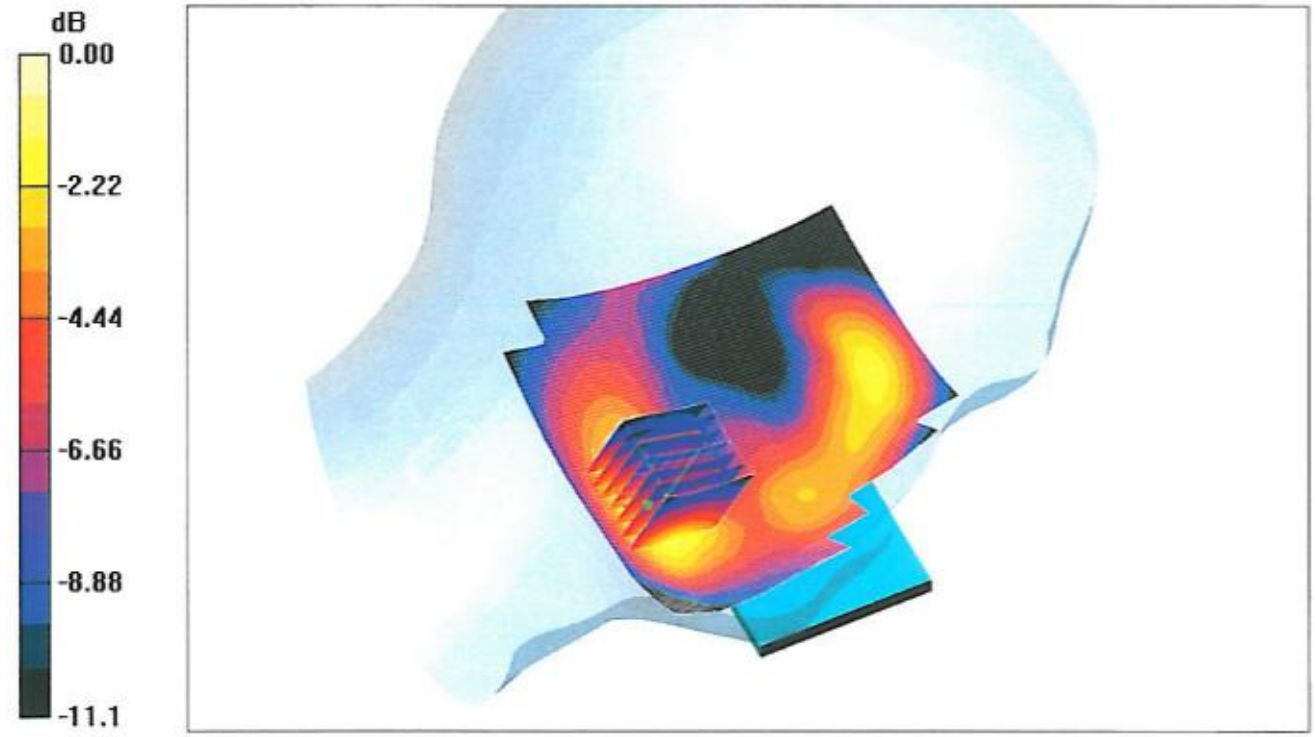
Communication System: E-GSM 900; Frequency: 914.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0.98$ mho/m, $\varepsilon_r = 41.1$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 24.0°, Liquid temperature: 23.0°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.030 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.85 V/m; Power Drift = -0.192 dB
Peak SAR (extrapolated) = 0.049 W/kg
SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Fig. 7: Distribution du DAS en GSM900 du téléphone dans la housse : canal 124 (914.8MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

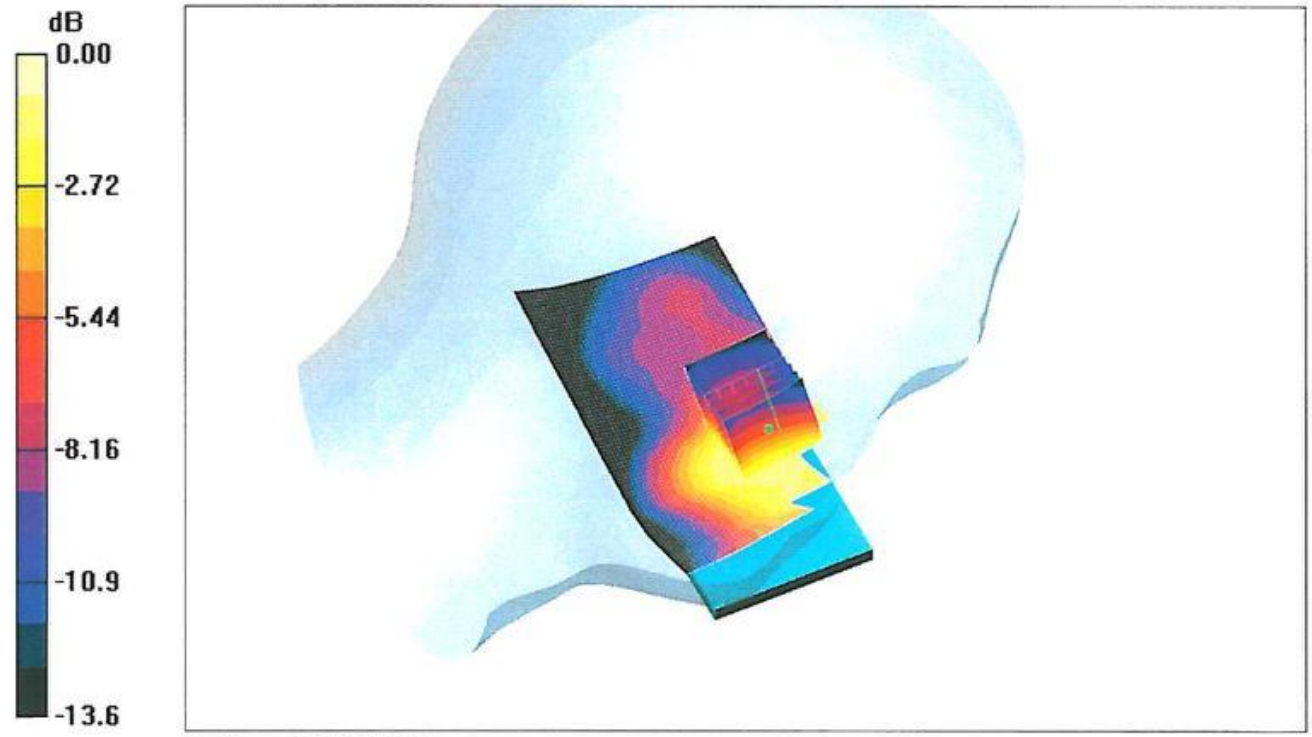
Communication System: GSM 1800; Frequency: 1710.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.36$ mho/m, $\varepsilon_r = 38.5$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.9°C, Liquid temperature: 21.4°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.379 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.8 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 0.433 W/kg
SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.363 mW/g



0 dB = 0.363mW/g

Fig. 8: Distribution du DAS en GSM1800 du téléphone seul: canal 512 (1710.2MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

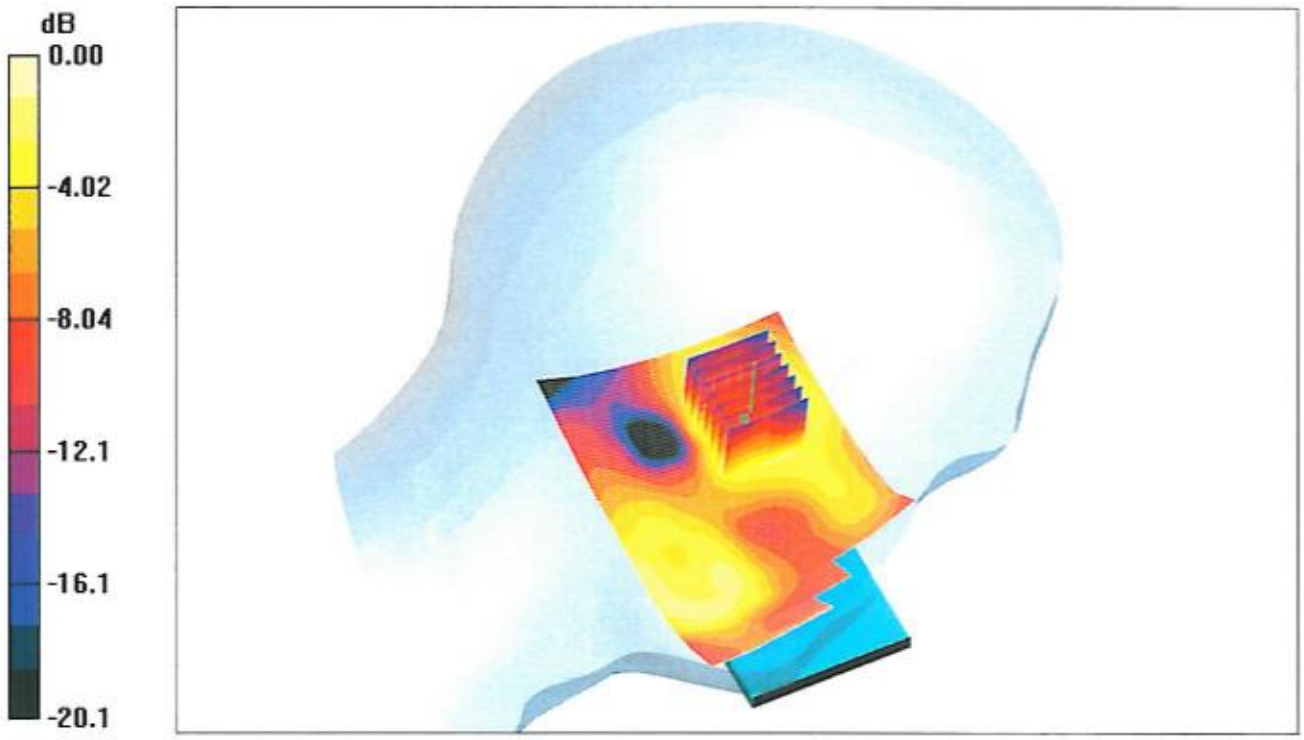
Communication System: GSM 1800; Frequency: 1710.2 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.36$ mho/m, $\varepsilon_r = 38.5$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.4°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.021 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.24 V/m; Power Drift = 0.100 dB
Peak SAR (extrapolated) = 0.028 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.022 mW/g



0 dB = 0.022mW/g

Fig. 9: Distribution du DAS en GSM1800 du téléphone dans la housse : canal 512 (1710.2MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

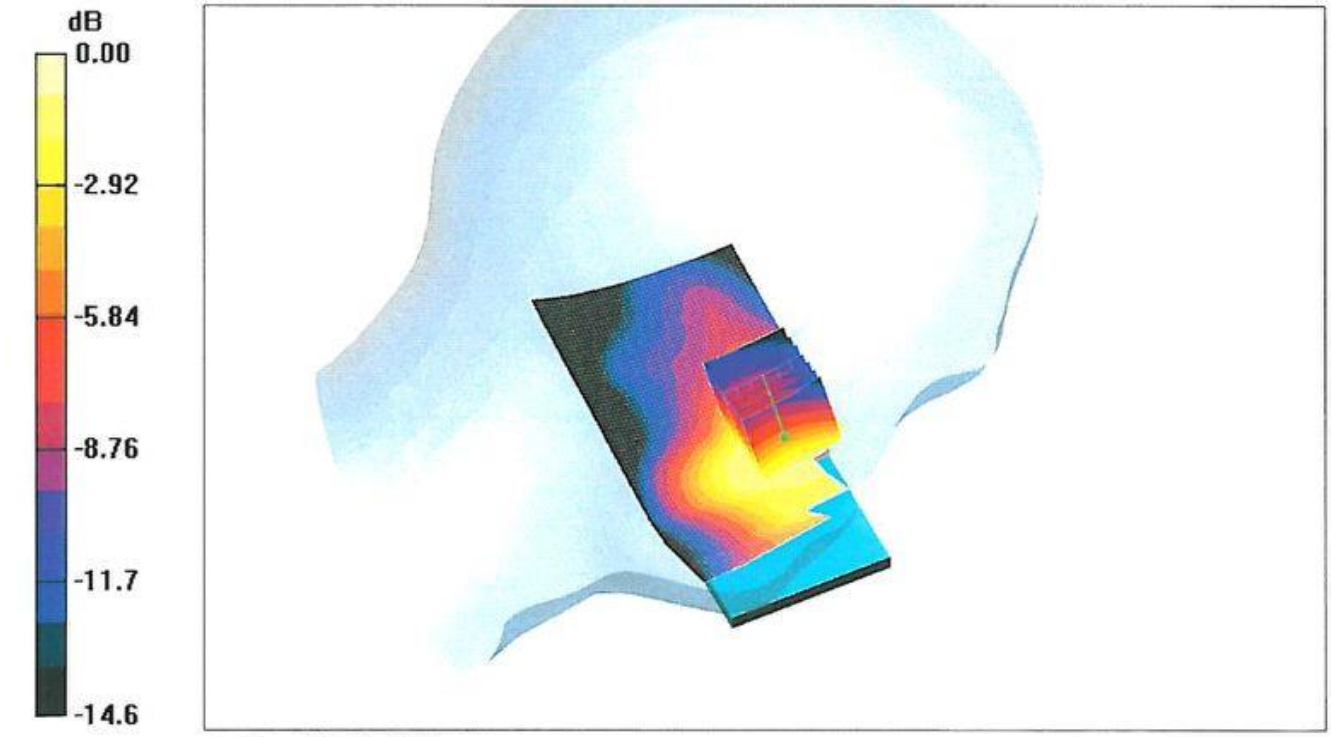
Communication System: GSM 1800; Frequency: 1747.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.39$ mho/m, $\varepsilon_r = 38.3$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.3°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.384 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 0.450 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.215 mW/g
Maximum value of SAR (measured) = 0.369 mW/g



0 dB = 0.369mW/g

Fig. 10: Distribution du DAS en GSM1800 du téléphone seul: canal 699 (1747.6MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

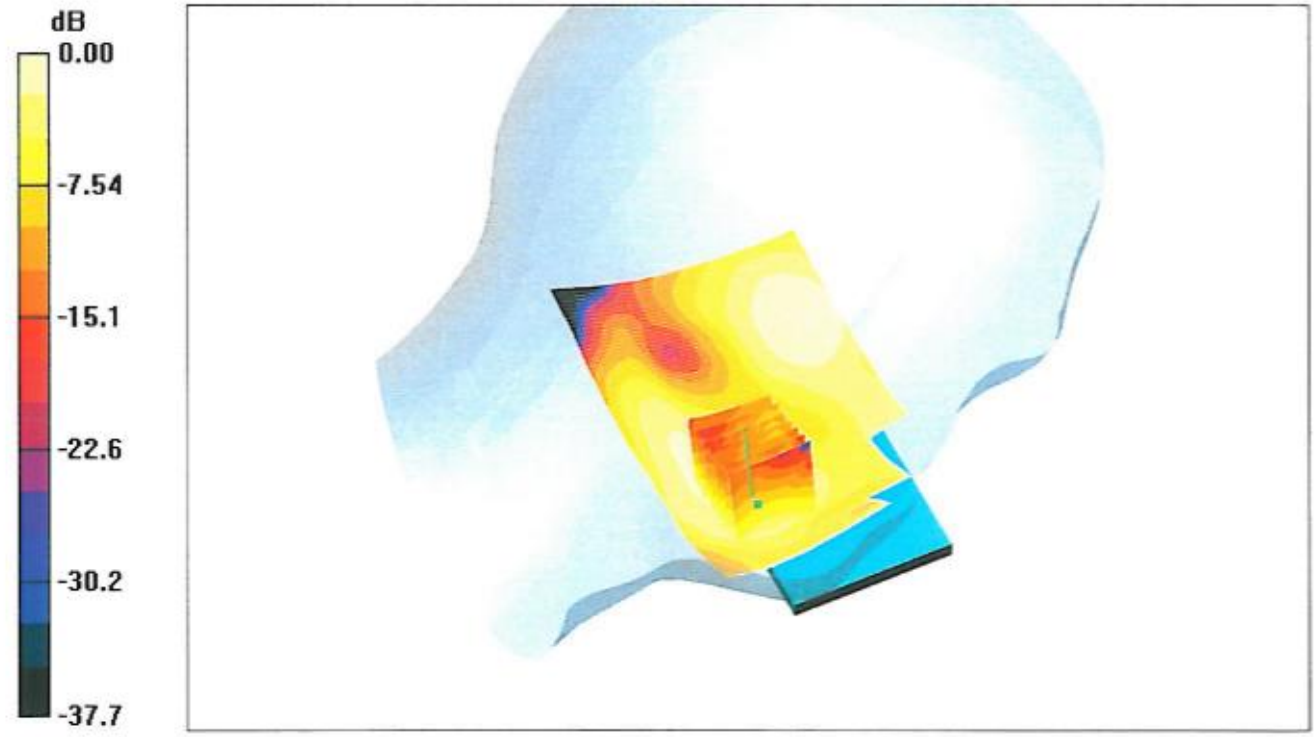
Communication System: GSM 1800; Frequency: 1747.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.39$ mho/m, $\varepsilon_r = 38.3$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.3°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.022 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.34 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 0.032 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.010 mW/g
Maximum value of SAR (measured) = 0.022 mW/g



0 dB = 0.022mW/g

Fig. 11: Distribution du DAS en GSM1800 du téléphone dans la housse : canal 699 (1747.6MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

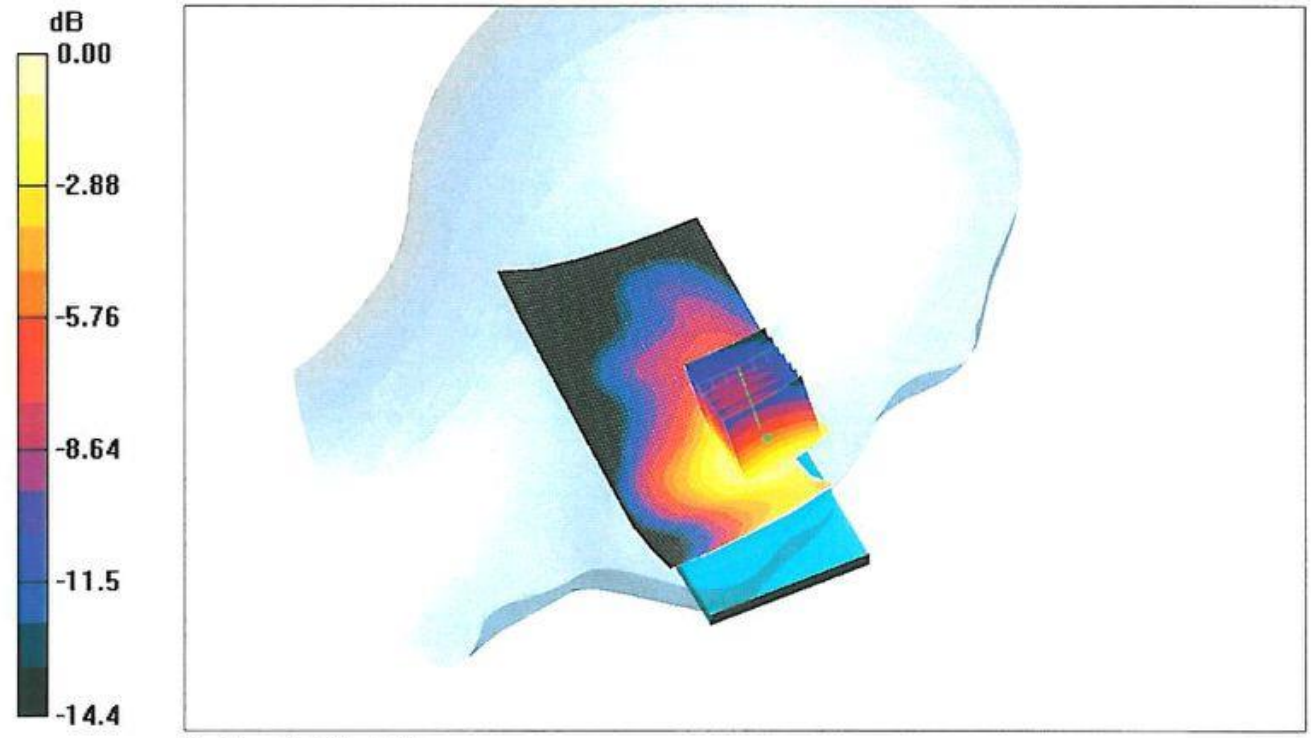
Communication System: GSM 1800; Frequency: 1784.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 1.43$ mho/m, $\varepsilon_r = 38.2$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 21.3°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.399 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.100 dB
Peak SAR (extrapolated) = 0.469 W/kg
SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.223 mW/g
Maximum value of SAR (measured) = 0.387 mW/g



0 dB = 0.387mW/g

Fig. 12: Distribution du DAS en GSM1800 du téléphone seul: canal 885 (1784.8MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

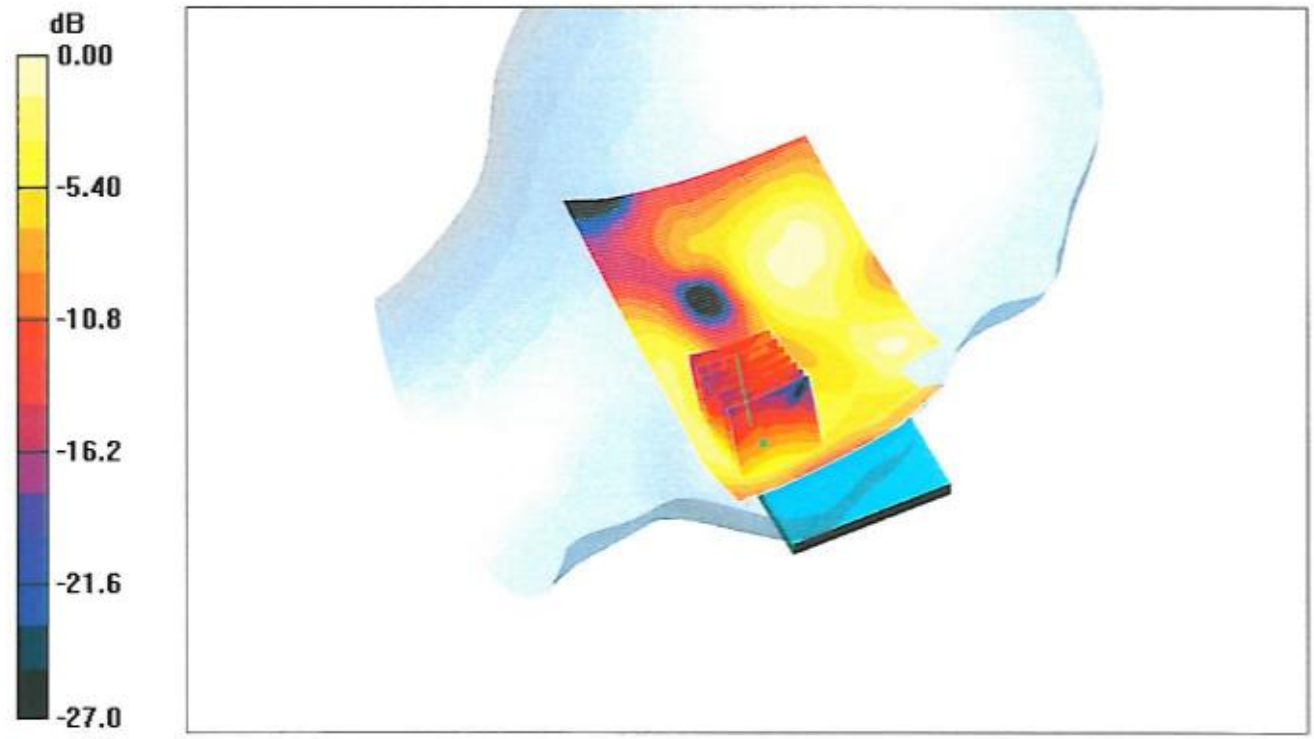
Communication System: GSM 1800; Frequency: 1784.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: σ = 1.43 mho/m, ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.5°C, Liquid temperature: 21.4°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.020 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.33 V/m; Power Drift = 0.133 dB
Peak SAR (extrapolated) = 0.033 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.024 mW/g



0 dB = 0.024mW/g

Fig. 13: Distribution du DAS en GSM1800 du téléphone dans la housse : canal 885 (1784.8MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

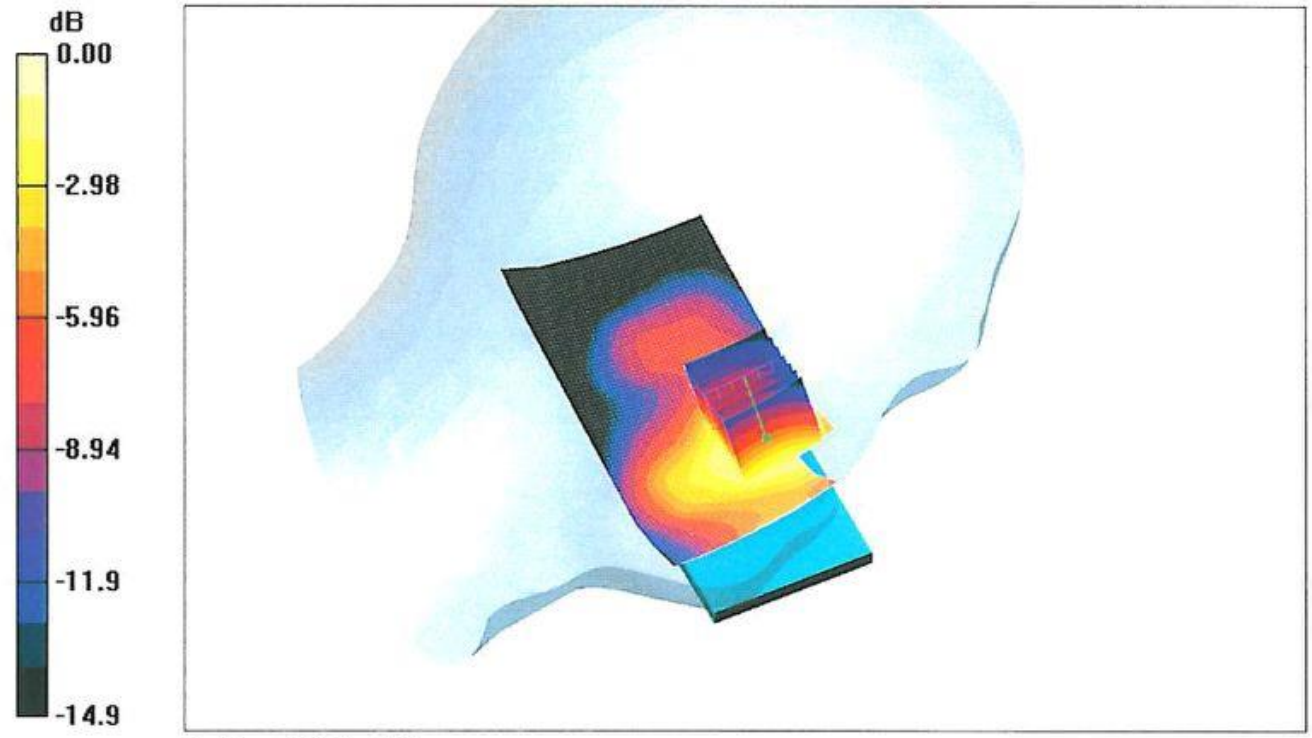
Communication System: WCDMA 2100; Frequency: 1922.4 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.38$ mho/m, $\varepsilon_r = 38.4$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 24.2°C, Liquid temperature: 22.1°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.860 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.3 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.994 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.463 mW/g
Maximum value of SAR (measured) = 0.820 mW/g



0 dB = 0.820mW/g

Fig. 14: Distribution du DAS en WCDMA2100 du téléphone seul: canal 9612 (1922.4MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

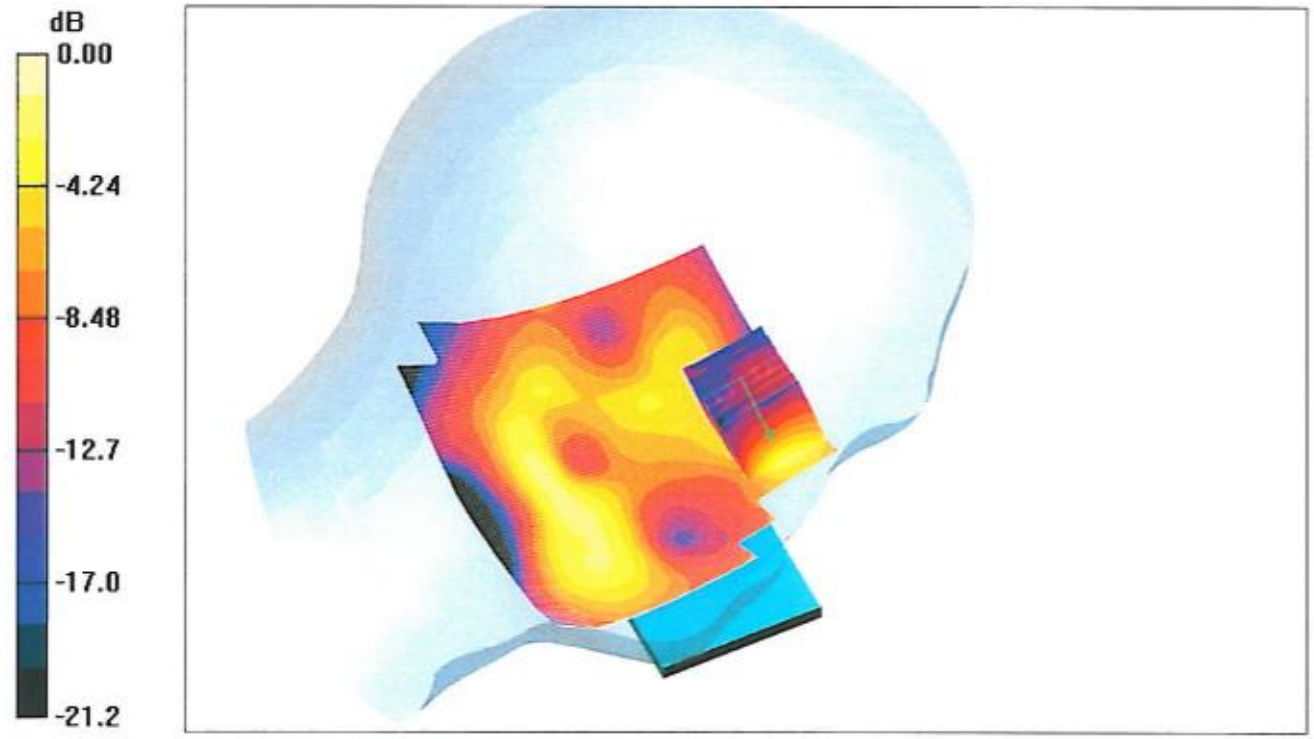
Communication System: WCDMA 2100; Frequency: 1922.4 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.38 mho/m, ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.2°C, Liquid temperature: 22.4°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Low/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.043 mW/g

Cheek Position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.73 V/m; Power Drift = 0.176 dB
Peak SAR (extrapolated) = 0.064 W/kg
SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.044 mW/g



0 dB = 0.044mW/g

Fig. 15: Distribution du DAS en WCDMA2100 du téléphone dans la housse : canal 9612 (1922.4MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

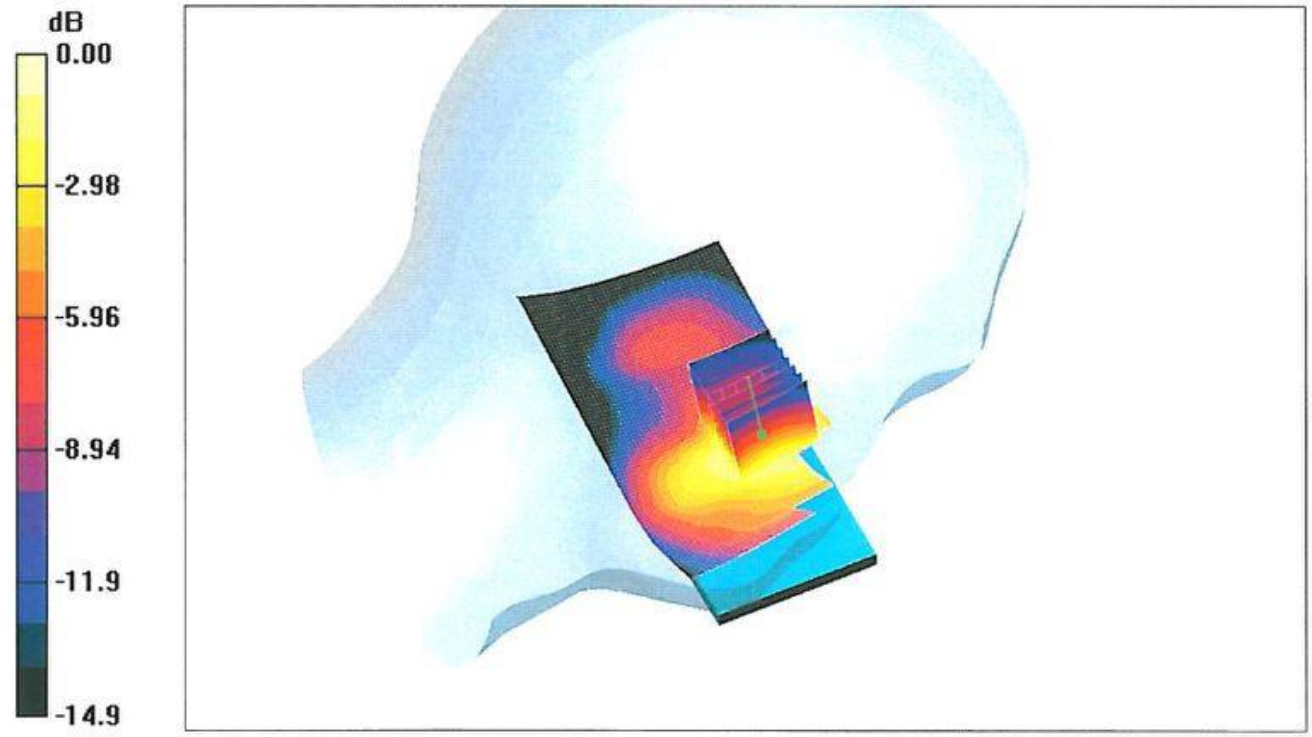
Communication System: WCDMA 2100; Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.42$ mho/m, $\varepsilon_r = 38.3$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.8°C, Liquid temperature: 22.0°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.845 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.7 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 0.986 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.454 mW/g
Maximum value of SAR (measured) = 0.804 mW/g



0 dB = 0.804mW/g

Fig. 16: Distribution du DAS en WCDMA2100 du téléphone seul:
canal 9750 (1950.0MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

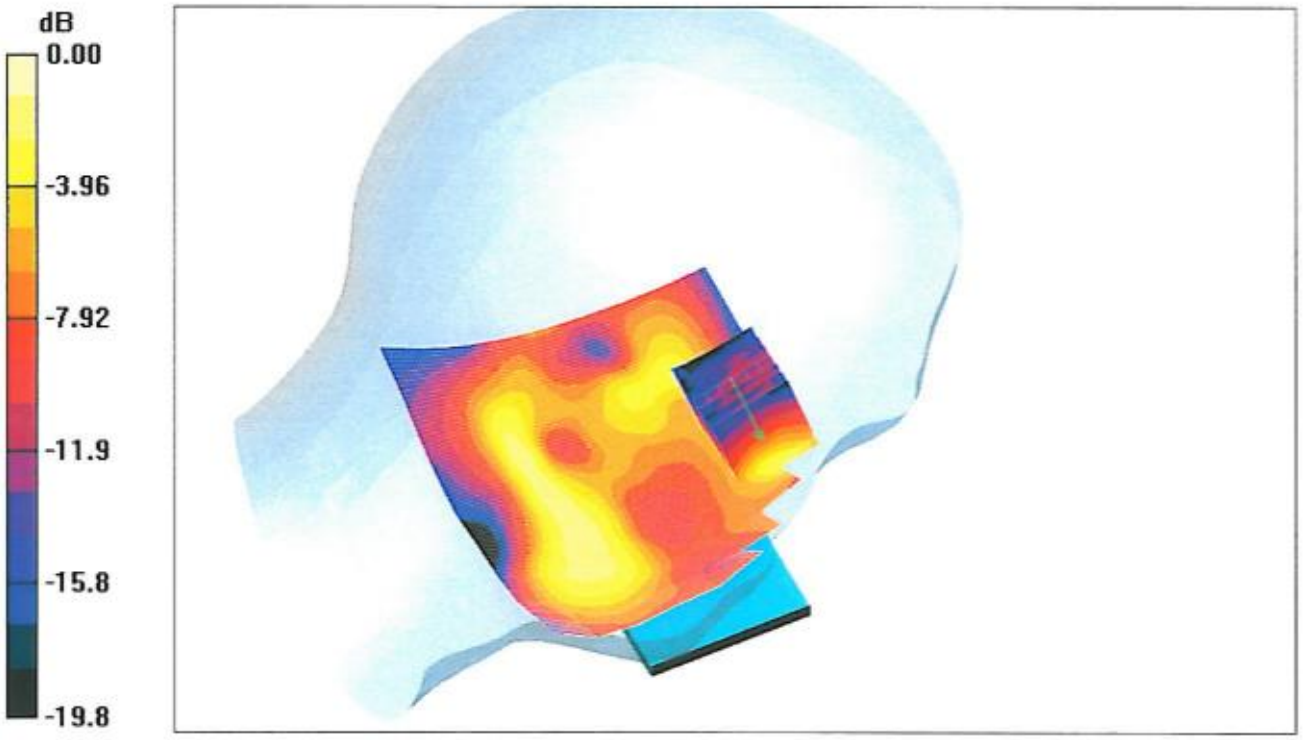
Communication System: WCDMA 2100; Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.42$ mho/m, $\varepsilon_r = 38.3$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.4°C, Liquid temperature: 22.4°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - Middle/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.034 mW/g

Cheek Position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.05 V/m; Power Drift = -0.196 dB
Peak SAR (extrapolated) = 0.052 W/kg
SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.035 mW/g



0 dB = 0.035mW/g

Fig. 17: Distribution du DAS en WCDMA2100 du téléphone dans la housse : canal 9750 (1950.0MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

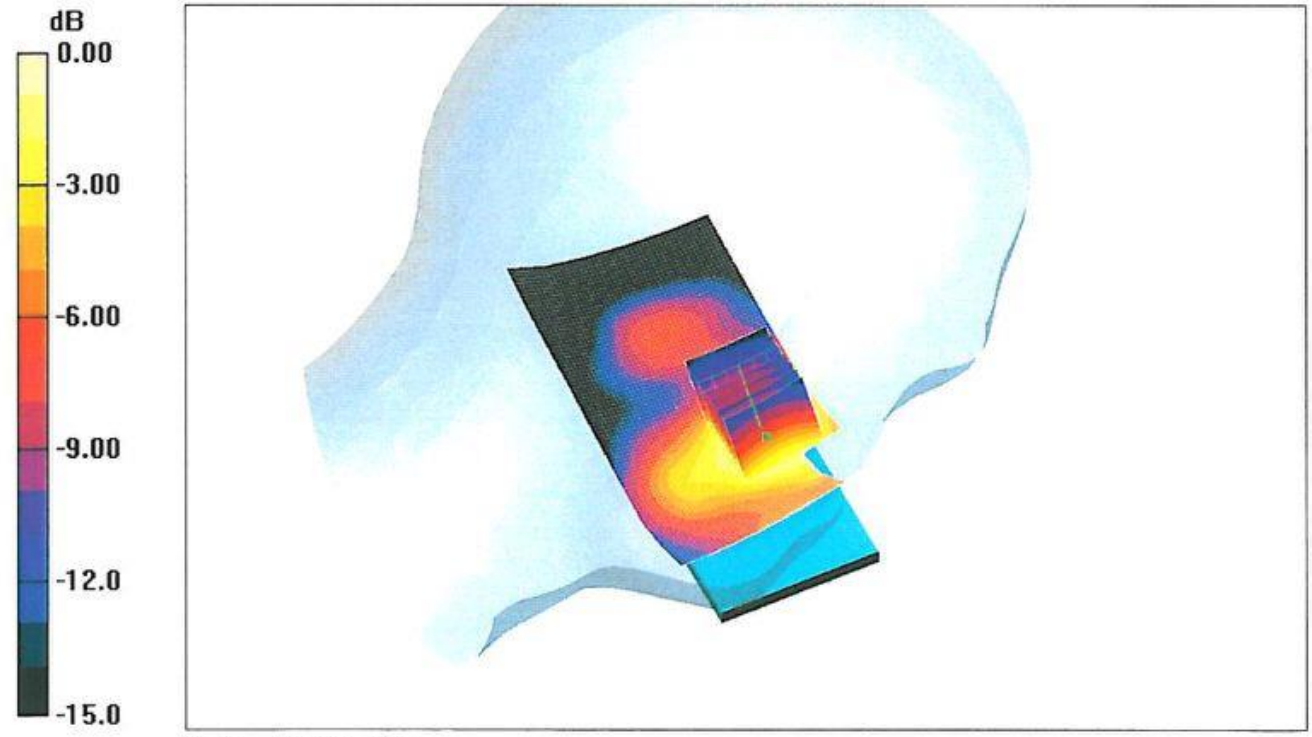
Communication System: WCDMA 2100; Frequency: 1977.6 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.46$ mho/m, $\varepsilon_r = 38.1$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 24.0°C, Liquid temperature: 22.0°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.2 V/m; Power Drift = 0.119 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.846 mW/g; SAR(10 g) = 0.547 mW/g
Maximum value of SAR (measured) = 0.978 mW/g



0 dB = 0.978mW/g

Fig. 18: Distribution du DAS en WCDMA2100 du téléphone seul: canal 9888 (1977.6MHz), position joue, côté gauche

DUT: Apple iPhone 5 (Model A1429)

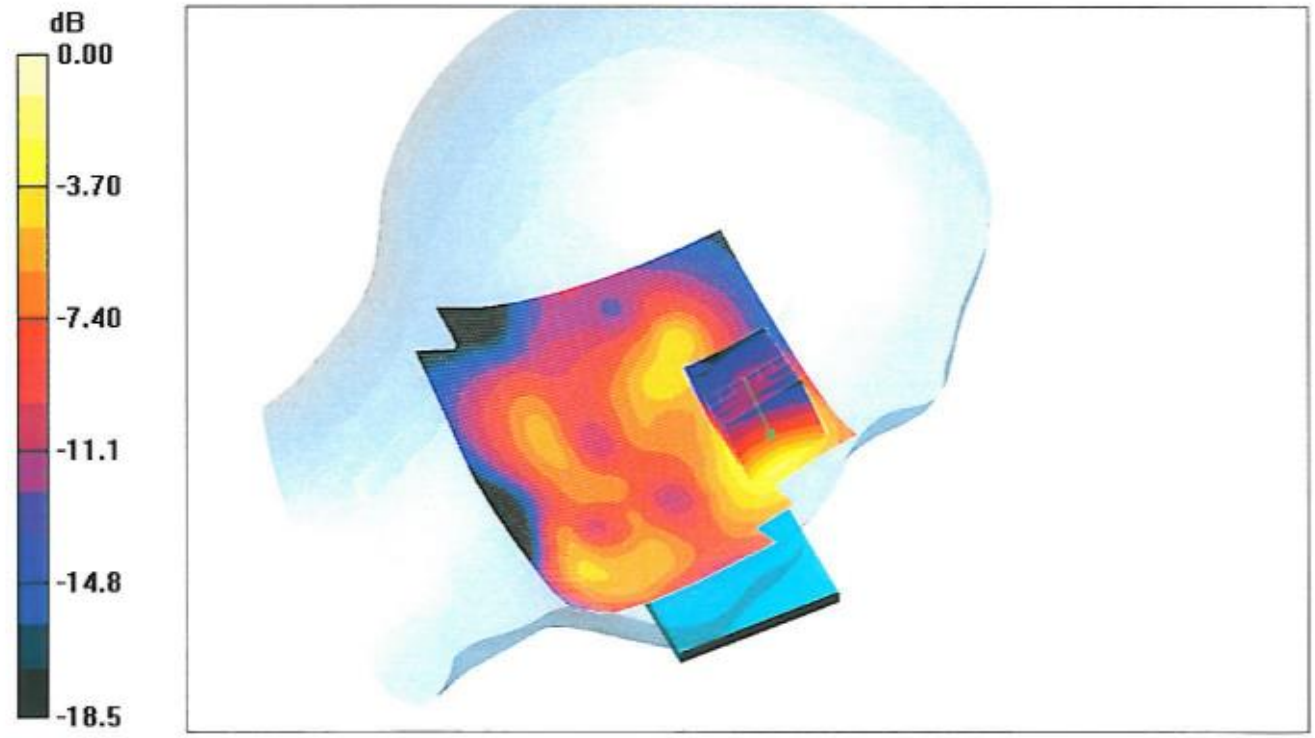
Communication System: WCDMA 2100; Frequency: 1977.6 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 1.46$ mho/m, $\varepsilon_r = 38.1$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Program Notes: Ambient temperature: 23.2°C, Liquid temperature: 22.3°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Cheek Position - High/Area Scan (81x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.058 mW/g

Cheek Position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.76 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.089 W/kg
SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.028 mW/g
Maximum value of SAR (measured) = 0.063 mW/g



0 dB = 0.063mW/g

Fig. 19: Distribution du DAS en WCDMA2100 du téléphone dans la housse : canal 9888 (1977.6MHz), position joue, côté gauche

9. PHOTOGRAPHIES DE L'EQUIPEMENT EN ESSAI

Les photographies de l'équipement en essai sont montrées dans les Fig. 20 et Fig. 21.

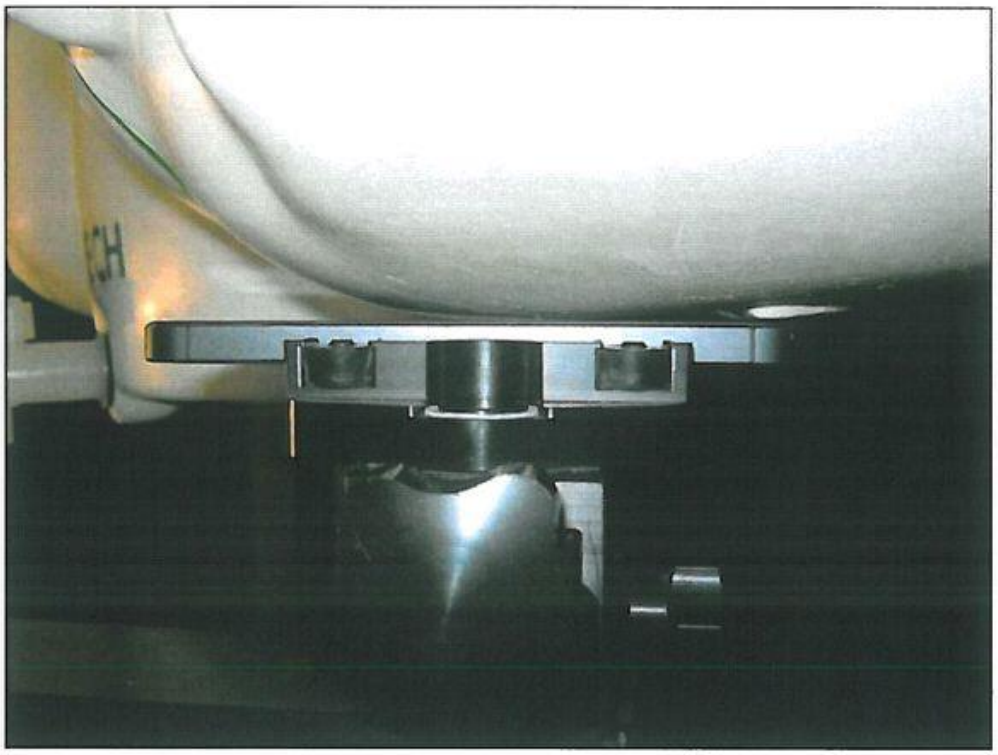


Fig. 20: Position joue sur le côté gauche du téléphone seul

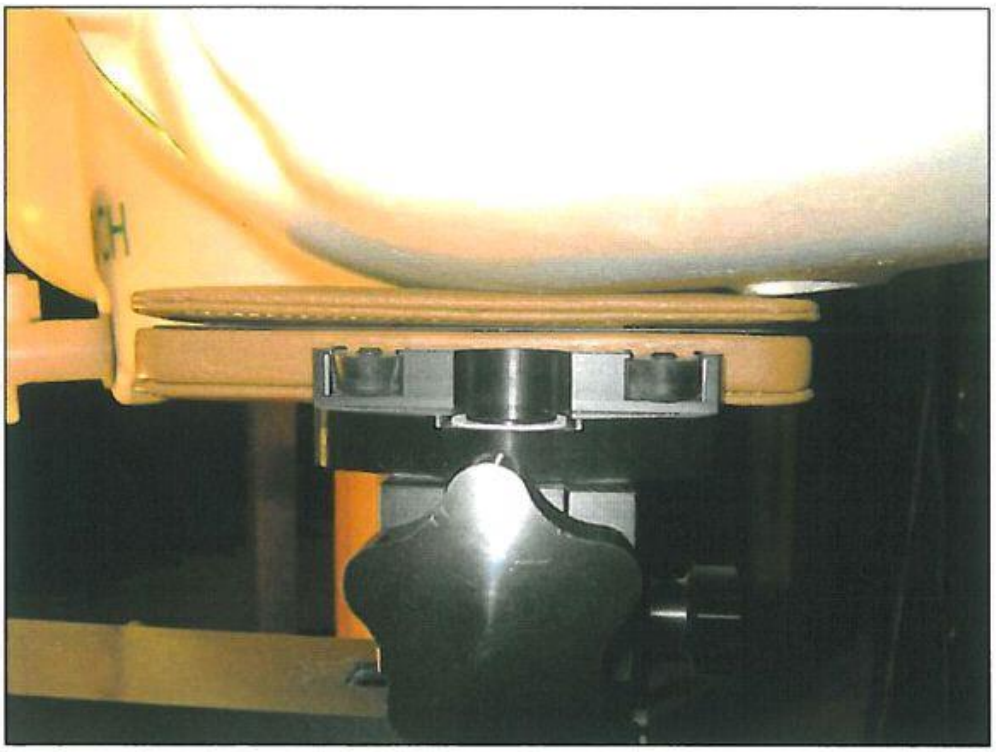


Fig. 21: Position joue sur le côté gauche du téléphone dans la housse

10. INCERTITUDES DE MESURE

L'incertitude élargie maximale avec un intervalle de confiance de 95 % ne doit pas excéder 30 % pour les valeurs des DAS maximal moyenné, dans la gamme de 0,4 W/kg à 10 W/kg.

L'incertitude de mesure a été évaluée selon la norme EN 62209-1. L'incertitude élargie est ± 21.4 %.

SOURCES D'ERREUR	Valeur d'incertitude (%)	Distribution de probabilité	Diviseur	Ci	Incertitude type (%)
Système de mesure					
Etalonnage	± 5.9	Normale	1	1	± 5.9
Isotropie axiale	± 4.7	Rectangulaire	√3	0.7	± 1.9
Isotropie hémisphérique	± 9.6	Rectangulaire	√3	0.7	± 3.9
Effet de bord	± 1.0	Rectangulaire	√3	1	± 0.6
Linéarité	± 4.7	Rectangulaire	√3	1	± 2.7
Limite de détection	± 1.0	Rectangulaire	√3	1	± 0.6
Lectures électroniques	± 0.3	Normale	1	1	± 0.3
Temps de réponse	± 0.8	Rectangulaire	√3	1	± 0.5
Temps d'intégration	± 2.6	Rectangulaire	√3	1	± 1.5
Conditions RF ambiantes - environnement	± 3.0	Rectangulaire	√3	1	± 1.7
Conditions RF ambiantes - réflexions	± 3.0	Rectangulaire	√3	1	± 1.7
Restrictions mécaniques au positionnement de la sonde	± 0.4	Rectangulaire	√3	1	± 0.2
Positionnement de la sonde par rapport à l'enveloppe du fantôme	± 2.9	Rectangulaire	√3	1	± 1.7
Traitement de données	± 1.0	Rectangulaire	√3	1	± 0.6
Echantillon en essai					
Position de l'échantillon	± 2.9	Normale	1	1	± 2.9
Incertitude du support d'appareil	± 3.6	Normale	1	1	± 3.6
Dérive de l'alimentation	± 5.0	Rectangulaire	√3	1	± 2.9
Fantôme et montage					
Incertitude du fantôme (tolérances des formes et d'épaisseur)	± 4.0	Rectangulaire	√3	1	± 2.3
Conductivité du liquide (cible)	± 5.0	Rectangulaire	√3	0.43	± 1.2
Conductivité du liquide (mesure)	± 2.5	Normale	1	0.43	± 1.1
Permittivité du liquide (cible)	± 5.0	Rectangulaire	√3	0.49	± 1.4
Permittivité du liquide (mesure)	± 2.5	Normale	1	0.49	± 1.2
Incertitude type composée					± 10.7
Incertitude élargie (intervalle de confiance de 95%)					± 21.4

11. EVALUATION DE LA VALEUR DE CRETE SPATIALE DU DAS

D'après Schmid & Partner Engineering AG [DASY4 Manual, March 2003, Application Note: Spatial Peak SAR Evaluation].

DAS de crête spatiale

Le logiciel DASY4 inclut toutes les procédures numériques nécessaires pour évaluer les valeurs de crête spatiale de DAS.
La valeur de crête spatiale de DAS peut être calculée sur tout volume requis.
La base de l'évaluation est une mesure de "cube" dans un volume de $30mm^3$ (7x7x7 points). Le volume mesuré comprend les cubes de 1g et 10g avec les valeurs les plus élevées de DAS moyen. À cette fin, le centre du volume mesuré est aligné sur la valeur interpolée du DAS de crête de la zone de balayage précédemment effectuée. L'évaluation totale des valeurs de crête spatiale est effectuée avec le logiciel de post-traitement (SEMCAD). Le système donne toujours les valeurs maximales pour les cubes de 1g et 10g. L'algorithme pour trouver le cube avec le DAS moyen le plus élevé est divisé selon les étapes suivantes:
1. Extraction des données mesurées (grille et valeurs) à partir du balayage-zoom,
2. Calcul de la valeur du DAS à chaque point de mesure basé sur toutes les données stockées (valeurs A/N et paramètres de mesure),
3. Génération d'un maillage à haute résolution dans le volume mesuré,
4. Interpolation de toutes les valeurs mesurées à partir de la grille de mesure vers le maillage à haute résolution,
5. L'extrapolation de l'ensemble de la distribution 3D du champ mesuré à la surface du fantôme à la distance des capteurs dipôles,
6. Calcul du DAS moyen dans 1g et 10g.

Interpolation, extrapolation et détection du maximum

La sonde est étalonnée au centre des capteurs dipôles qui se trouve à 2mm de l'extrémité de la sonde. Lors des mesures, les capteurs dipôles se positionnent à 3mm au-dessus de la surface du fantôme. Ces deux distances sont inclues en tant que paramètre de la sonde dans le fichier de configuration. Le logiciel sait toujours exactement quelle est la distance entre le point mesuré et la surface du fantôme. La sonde ne mesurant pas directement à la surface, les valeurs entre les points mesurés et la surface doivent être extrapolés.
Les routines d'interpolation, d'extrapolation et de recherche du maximum sont basées sur la méthode quadratique modifiée de Shepard [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.].

Détermination de la valeur de crête spatiale du DAS

Les données interpolées sont utilisées pour déterminer la valeur moyenne de DAS dans 1g et 10g en discrétisant spatialement la totalité du volume mesuré. La résolution de cette grille spatiale utilisée pour le calcul du DAS moyen est de 1 mm, soit environ 42875 points interpolés. Les volumes qui en résultent sont définis comme des volumes cubiques contenant les paramètres appropriés du tissu qui sont centrés sur l'emplacement. L'emplacement est défini comme le centre du volume incrémentiel (voxel).

12. CONDITIONS D'ESSAIS DE L'EQUIPEMENT

L'équipement est contrôlé durant l'essai au moyen de la plateforme n° 1 (Simulateur de BTS) référencée au paragraphe 6 de ce rapport d'essai. Ces conditions d'essais sont communiquées à titre d'information ; les puissances maximales n'ont pas été mesurées.

Norme:	GSM (900 & 1800 MHz)
Facteur crête:	8
Modulation:	GMSK
Canal de trafic:	GSM 900: canal bas = 975, canal milieu = 38, canal haut = 124
	GSM 1800: canal bas = 512, canal milieu = 699, canal haut = 885
Puissance maximale:	GSM 900 Classe 4: Niveau Tx 5 = 33 dBm (± 2dB)
	GSM 1800 Classe 1: Niveau Tx 0 = 30 dBm (± 2dB)

Norme:	WCDMA (2100 MHz)
Facteur crête:	1
Modulation:	QPSK
Canal de trafic:	Canal bas = 9612, canal milieu = 9750, canal haut = 9888
Puissance maximale:	Classe 3 = 24 dBm (+1dB,-3dB)

Note : L'équipement en test peut contenir une technologie de diversité d'antenne, comme par exemple le MIMO. Le contrôle de cette antenne n'a pas été fourni par le demandeur de l'essai. Ainsi les performances rayonnées de l'équipement en test dépendent de la configuration de l'essai ; un contrôle de la diversité d'antenne pourrait conduire à des résultats différents de ceux présentés dans ce rapport d'essai.

13. PRESENTATION DU BANC DE MESURE DAS

Le système de balayage de champ proche automatisé DASY4 de Schmid & Partner Engineering AG a été utilisé. Les équipements du banc de mesure DAS sont décrits dans le paragraphe 6 de ce rapport d'essais à la plateforme n° 2 (DASY4). Le système de mesure est constitué d'un PC associé à une électronique d'acquisition et à contrôleur de robot, d'une robotique de haute précision, d'une sonde de mesure de champ proche ainsi que d'un fantôme contenant les liquides. Le robot 6 axes positionne précisément la sonde de champ proche afin de mesurer la distribution interne du champ E. Le téléphone mobile en test est placé sous le fantôme à l'aide d'un positionneur à faible perte diélectrique. Les mesures ont été conduites dans un environnement RF contrôlé (c'est-à-dire dans une chambre semi-anéchoïque). La figure 22 montre le système de mesure.

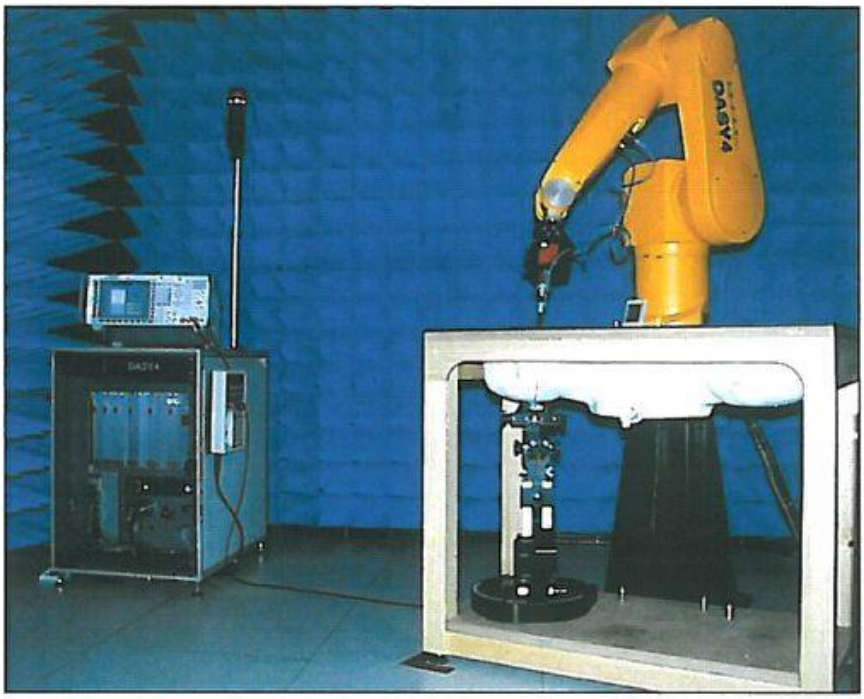


Fig. 22: Le système de mesure avec un téléphone mobile en test.

14. MESURE DES LIQUIDES: CONDITIONS D'ESSAIS & RESULTATS

La mesure des liquides est effectuée au moyen de la plateforme n° 3 (mesure du liquide) référencée au paragraphe 6 de ce rapport d'essai. Les mélanges suivants sont donnés en pourcentage de poids, ils sont théoriques et communiqués à titre d'information.

Liquide 900 MHz:	Saccharose 56.50 % Eau dé ionisée 40.92 % Sel NaCl 1.48 % - HEC 1.00 % - Bactéricide 0.10 %
Liquide 1800 MHz:	Di-éthylène glycol mono-butyle éther 44.92 % Eau dé ionisée 54.90 % Sel NaCl 0.18 %
Liquide 1950 MHz:	Di-éthylène glycol mono-butyle éther 45.00 % Eau dé ionisée 55.00 %

Les paramètres diélectriques des liquides équivalents aux tissus ont été contrôlés avant la qualification (méthode de la sonde de contact).

Propriétés diélectriques mesurées:

Fréquences (MHz)	ε_r (F/m) Valeur cible	ε_r (F/m) Valeur mesurée	σ (S/m) Valeur cible	σ (S/m) Valeur mesurée	Température du liquide (°C)	Température ambiante (°C)
880	41.5 ± 5 %	41.5	0.95 ± 5 %	0.94	23.0	22.3
895	41.5 ± 5 %	41.3	0.96 ± 5 %	0.96		
900	41.5 ± 5 %	41.2	0.97 ± 5 %	0.96		
915	41.5 ± 5 %	41.1	0.97 ± 5 %	0.98		
1710	40.1 ± 5 %	38.5	1.34 ± 5 %	1.36	21.3	23.3
1750	40.1 ± 5 %	38.3	1.37 ± 5 %	1.39		
1785	40.0 ± 5 %	38.2	1.39 ± 5 %	1.43		
1800	40.0 ± 5 %	38.1	1.40 ± 5 %	1.44		
1920	40.0 ± 5 %	38.4	1.40 ± 5 %	1.38	22.1	23.0
1950	40.0 ± 5 %	38.3	1.40 ± 5 %	1.42		
1980	40.0 ± 5 %	38.1	1.40 ± 5 %	1.46		

15. VALIDATION DU SYSTEME : CONDITIONS D'ESSAIS & RESULTATS

La mesure est effectuée au moyen de la plateforme n° 4 (validation du système) référencée au paragraphe 6 de ce rapport d'essai.

Conditions de mesure: Les mesures ont été réalisées sur la partie plane du fantôme SAM rempli avec les liquides équivalents aux tissus. La puissance d'entrée dans le dipôle de validation était 250mW.
Avant chaque qualification, le dipôle de validation est utilisé pour vérifier que le système fonctionne selon ses spécifications à ± 10 %.

Résultats des mesures : Les résultats des mesures sont présentés ci-après et en Fig. 23 à Fig. 25.

Fréquences (MHz)	DAS 10g (W/kg) Valeur cible	DAS 10g (W/kg) Valeur mesurée
900	1.725 ± 10 %	1.72
1800	4.95 ± 10 %	4.94
1950	5.225 ± 10 %	5.32

DUT: Dipole 900 MHz

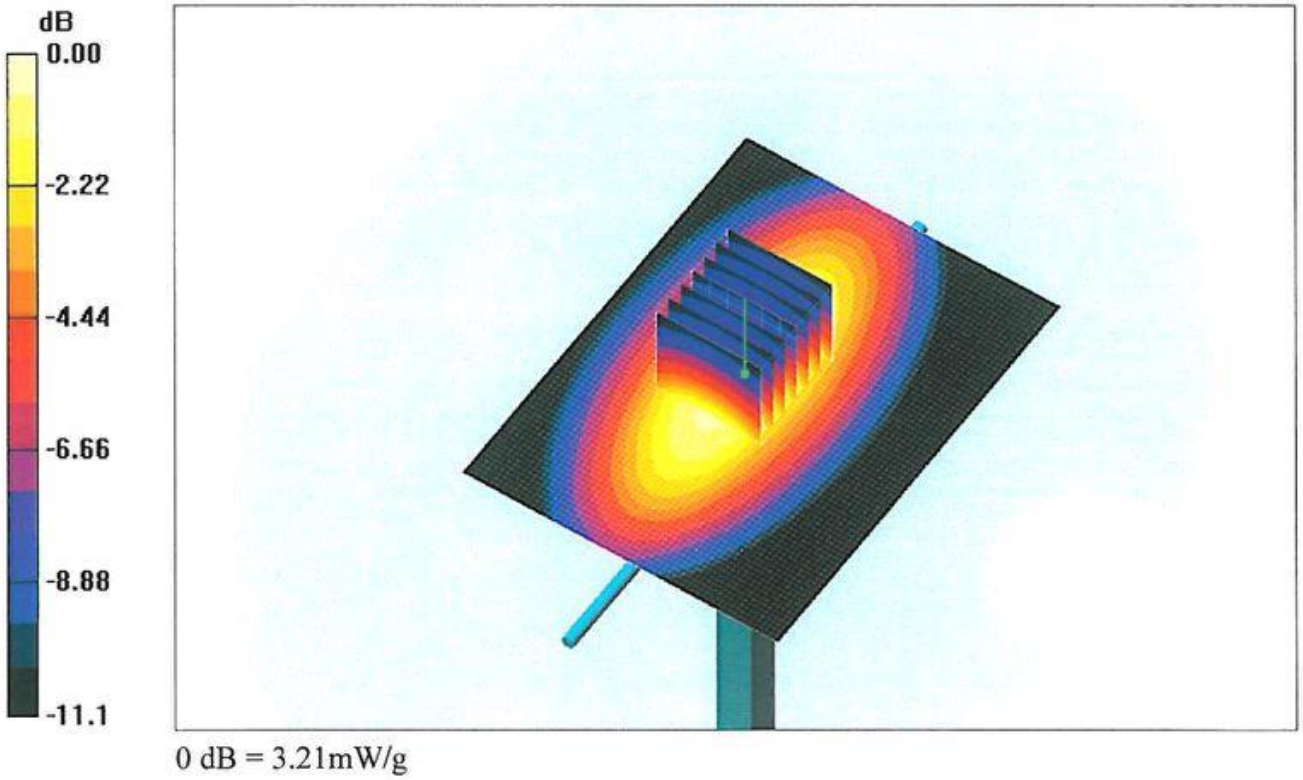
Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 0.96$ mho/m, $\varepsilon_r = 41.2$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section

Program Notes: Ambient temperature: 22.9°C, Liquid temperature: 23.0°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.97, 5.97, 5.97); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.14 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.0 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 4.16 W/kg
SAR(1 g) = 2.7 mW/g; SAR(10 g) = 1.72 mW/g
Maximum value of SAR (measured) = 3.21 mW/g



0 dB = 3.21mW/g

Fig. 23: Résultat de la validation à 900 MHz

DUT: Dipole 1800 MHz

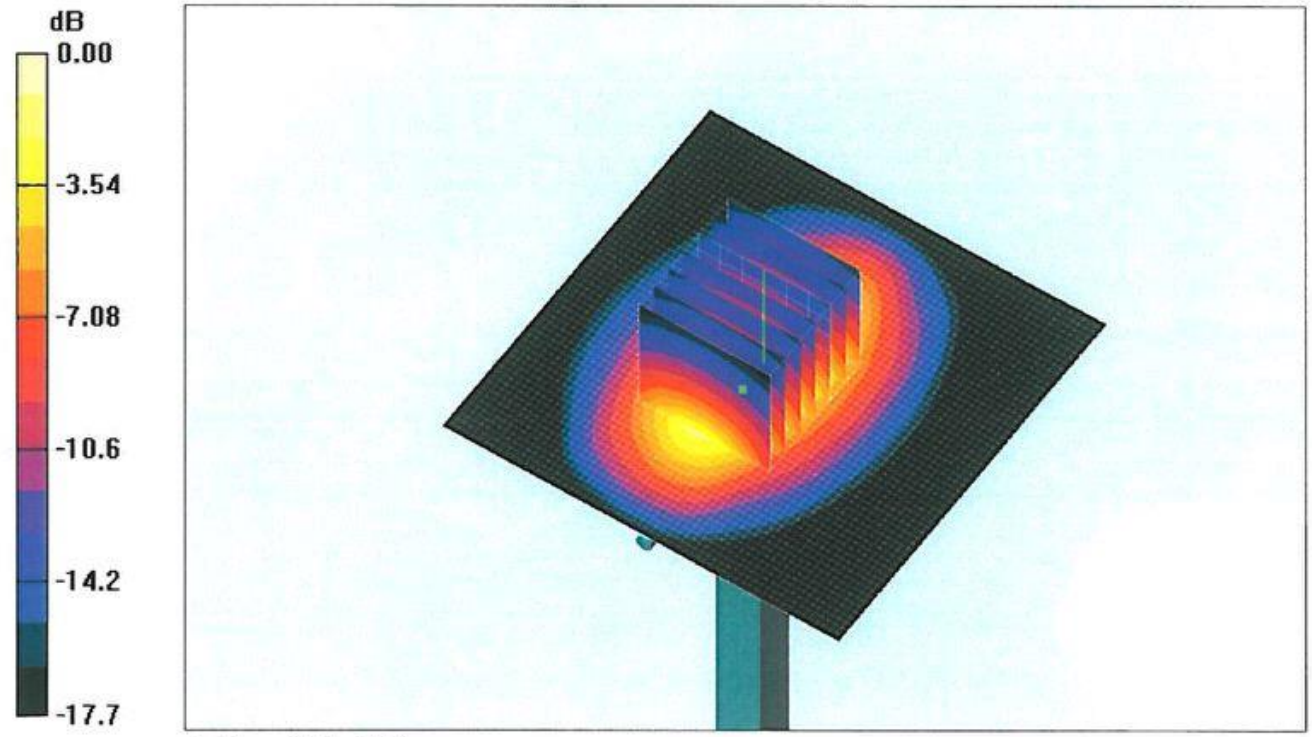
Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.44 mho/m, ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

Program Notes: Ambient temperature: 23.4°C, Liquid temperature: 21.8°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5.22, 5.22, 5.22); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.6 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.3 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 17.0 W/kg
SAR(1 g) = 9.46 mW/g; SAR(10 g) = 4.94 mW/g
Maximum value of SAR (measured) = 12.0 mW/g



0 dB = 12.0mW/g

Fig. 24: Résultat de la validation à 1800 MHz

DUT: Dipole 1950 MHz

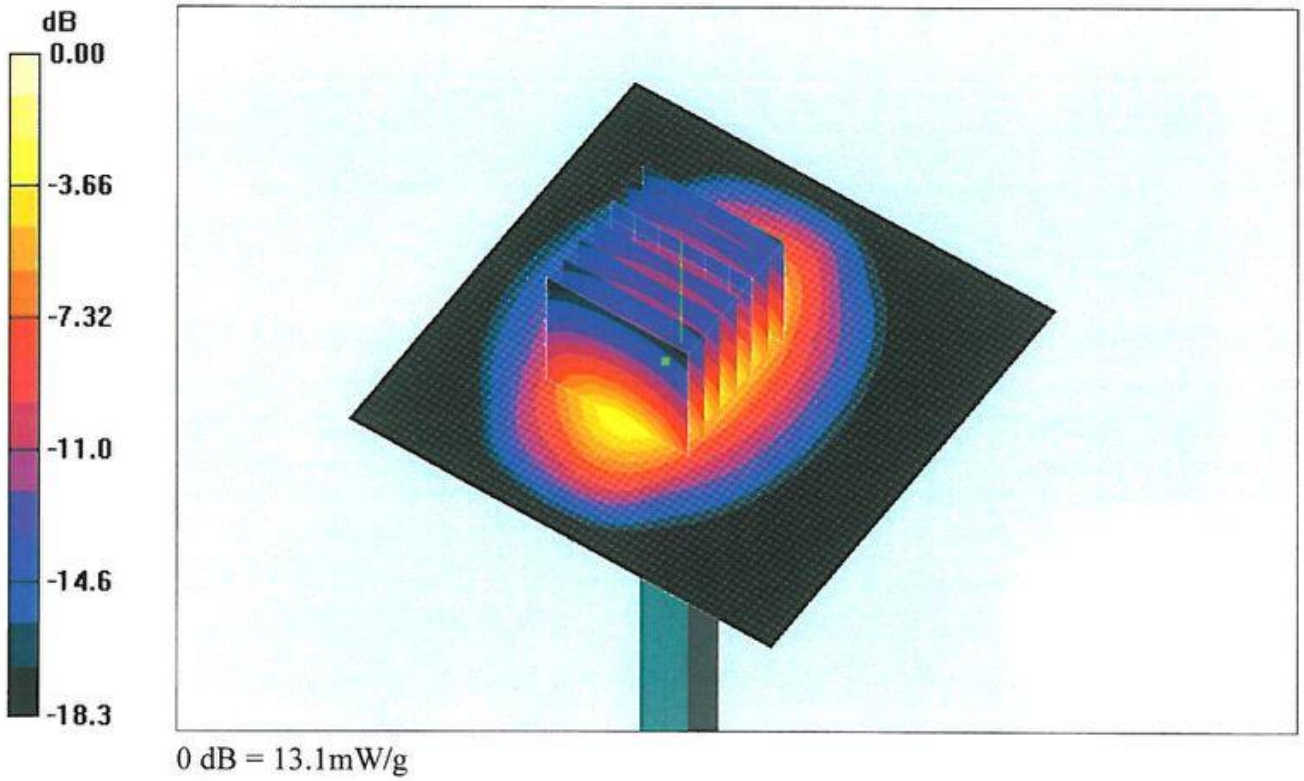
Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1
Medium parameters used: σ = 1.42 mho/m, ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

Program Notes: Ambient temperature: 23.3°C, Liquid temperature: 22.2°C

DASY4 Configuration:
- Probe: ES3DV3 - SN3303; ConvF(5, 5, 5); Calibrated: 7/17/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn402; Calibrated: 3/9/2012
- Phantom: SAM 12; Type: QD; Serial: TP-1111
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.7 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 18.8 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.32 mW/g
Maximum value of SAR (measured) = 13.1 mW/g



0 dB = 13.1mW/g

Fig. 25: Résultat de la validation à 1950 MHz

□□□ Fin du rapport □□□