Date/Time: 07/30/04 19:35:26

Test Laboratory: Advance Data Technology

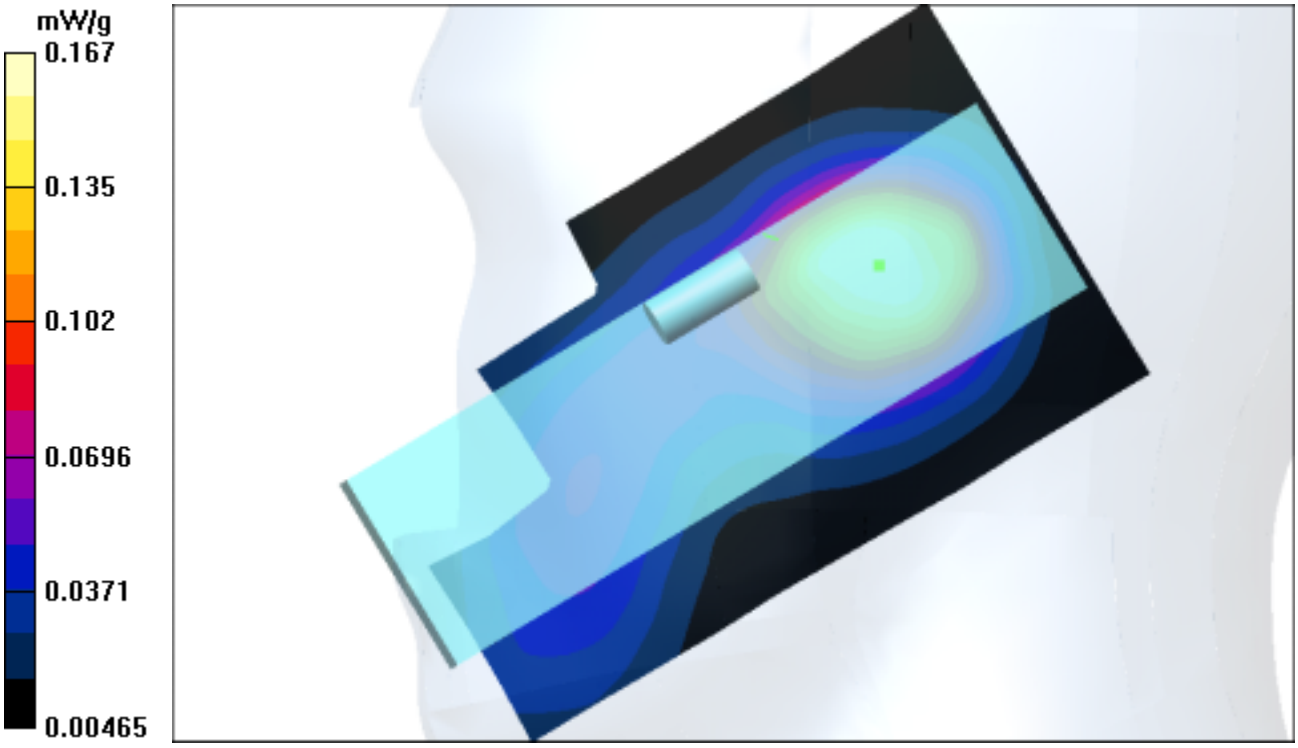
S668C LeftHeadSide Tilt PCS1900 Mode 6 Ch512

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1850.2 MHz

Communication System: PCS 1900 ; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4123 mho/m, ε_r = 39.1887, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Low Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 8.64 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.175 mW/g

Tilt position - Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.221 W/kg
SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.0975 mW/g
Reference Value = 8.64 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.167 mW/g



Date/Time: 07/30/04 20:11:40

Test Laboratory: Advance Data Technology

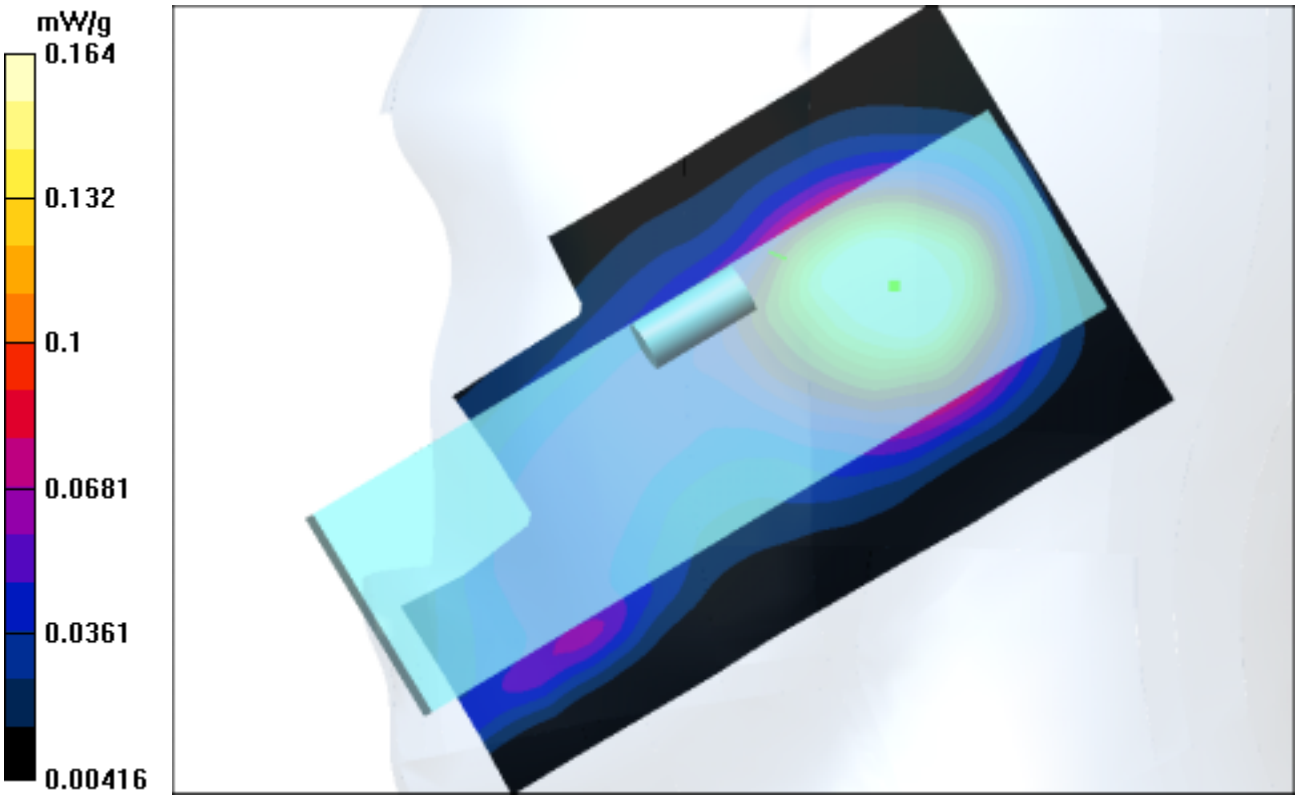
S668C LeftHeadSide Tilt PCS1900 Mode 6 Ch661

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1880 MHz

Communication System: PCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4381 mho/m, ε_r = 39.0443, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Middle Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 8.82 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.182 mW/g

Tilt position - Middle Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.152 mW/g; SAR(10 g) = 0.0939 mW/g
Reference Value = 8.82 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.164 mW/g



Date/Time: 07/30/04 20:47:08

Test Laboratory: Advance Data Technology

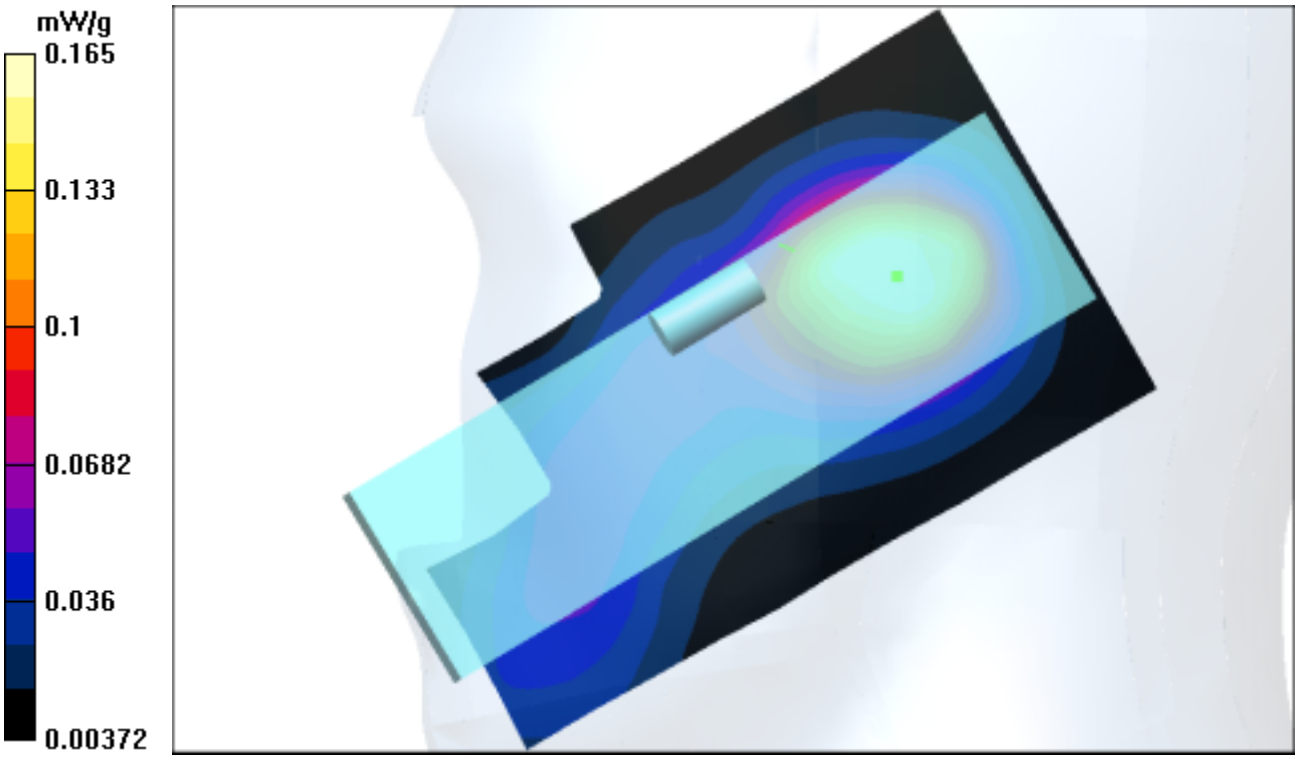
S668C LeftHeadSide Tilt PCS1900 Mode 6 Ch810

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1909.8 MHz

Communication System: PCS 1900 ; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.465 mho/m, ε_r = 39.0672, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - High Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 8.4 V/m
Power Drift = 0.01 dB
Maximum value of SAR = 0.176 mW/g

Tilt position - High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.0949 mW/g
Reference Value = 8.4 V/m
Power Drift = 0.01 dB
Maximum value of SAR = 0.165 mW/g



Date/Time: 07/30/04 21:41:04

Test Laboratory: Advance Data Technology

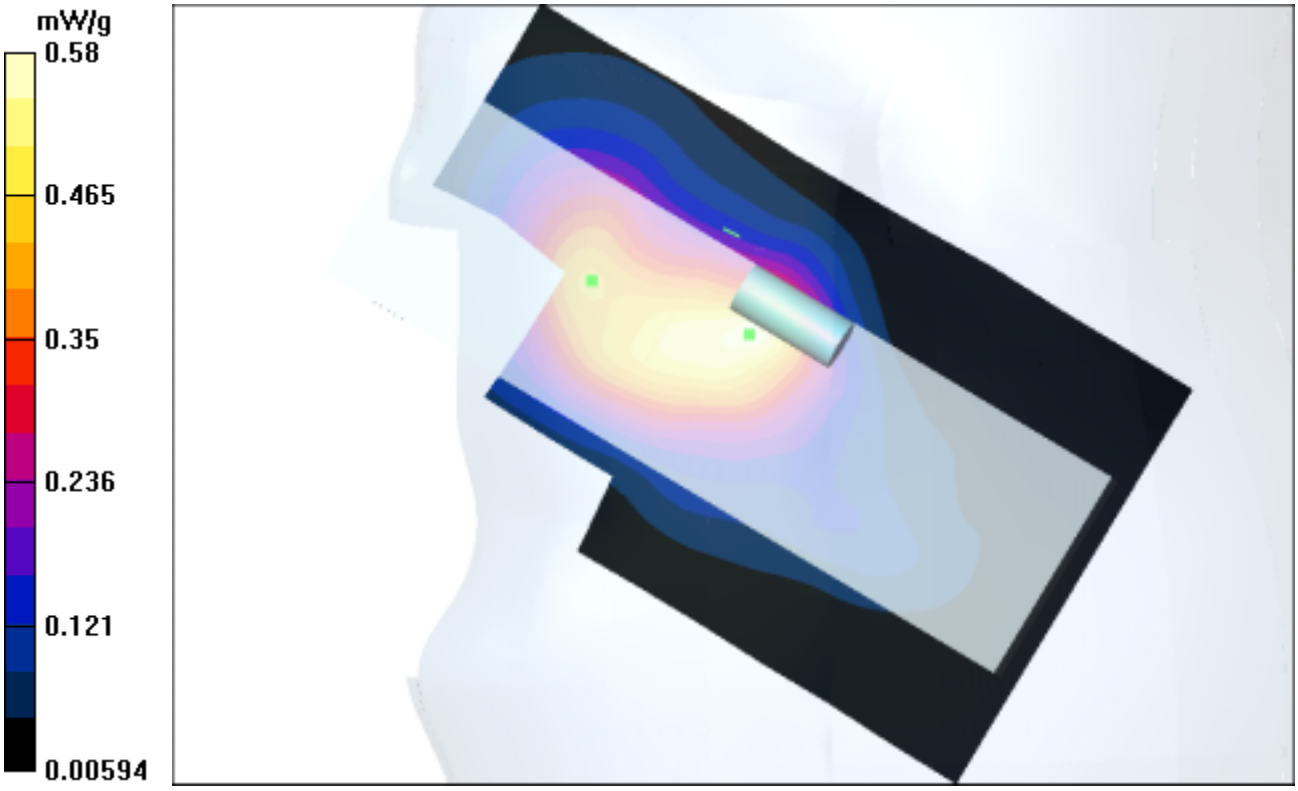
S668C RightHeadSide Cheek PCS1900 Mode 7 Ch512

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1850.2 MHz

Communication System: PCS 1900 ; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4123 mho/m, ε_r = 39.1887, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Low Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 5.25 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.564 mW/g

Touch position - Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 1.1 W/kg
SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.296 mW/g
Reference Value = 5.25 V/m
Power Drift = -0.9 dB
Maximum value of SAR = 0.58 mW/g



Date/Time: 07/30/04 22:05:38

Test Laboratory: Advance Data Technology

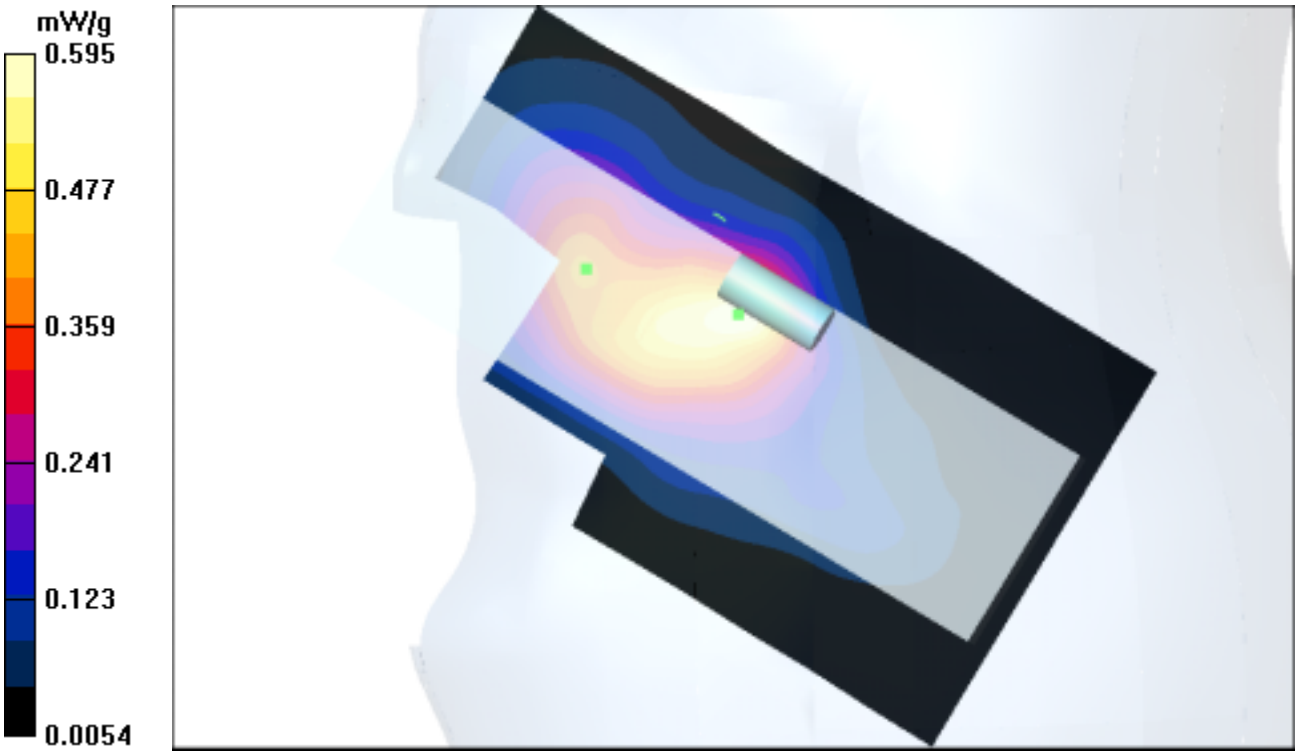
S668C RightHeadSide Cheek PCS1900 Mode 7 Ch661

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1880 MHz

Communication System: PCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4381 mho/m, ε_r = 39.0443, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Middle Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 5.1 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 0.605 mW/g

Touch position - Middle Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.577 mW/g; SAR(10 g) = 0.307 mW/g
Reference Value = 5.1 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 0.595 mW/g



Date/Time: 07/30/04 22:33:10

Test Laboratory: Advance Data Technology

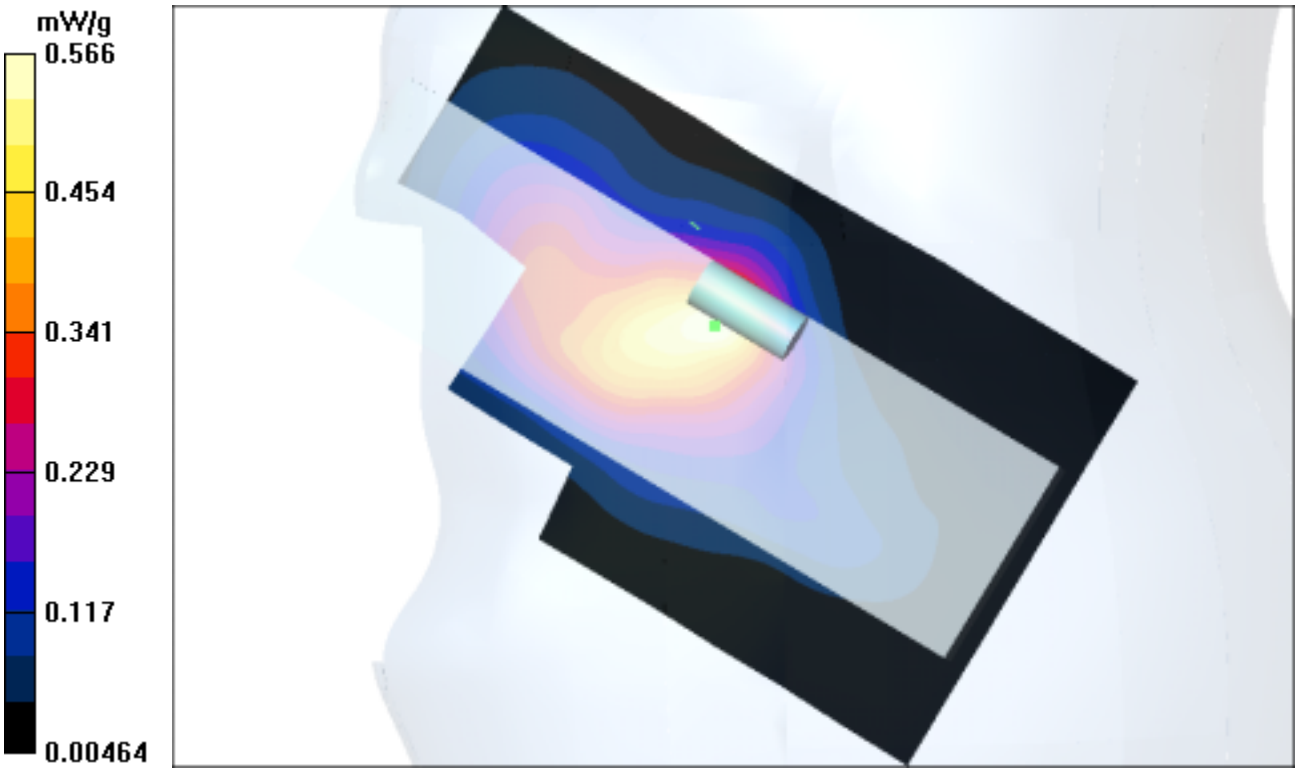
S668C RightHeadSide Cheek PCS1900 Mode 7 Ch810

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1909.8 MHz

Communication System: PCS 1900 ; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.465 mho/m, ε_r = 39.0672, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - High Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 4.96 V/m
Power Drift = -0.08 dB
Maximum value of SAR = 0.576 mW/g

Touch position - High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.542 mW/g; SAR(10 g) = 0.283 mW/g
Reference Value = 4.96 V/m
Power Drift = -0.08 dB
Maximum value of SAR = 0.566 mW/g



Date/Time: 07/30/04 22:56:38

Test Laboratory: Advance Data Technology

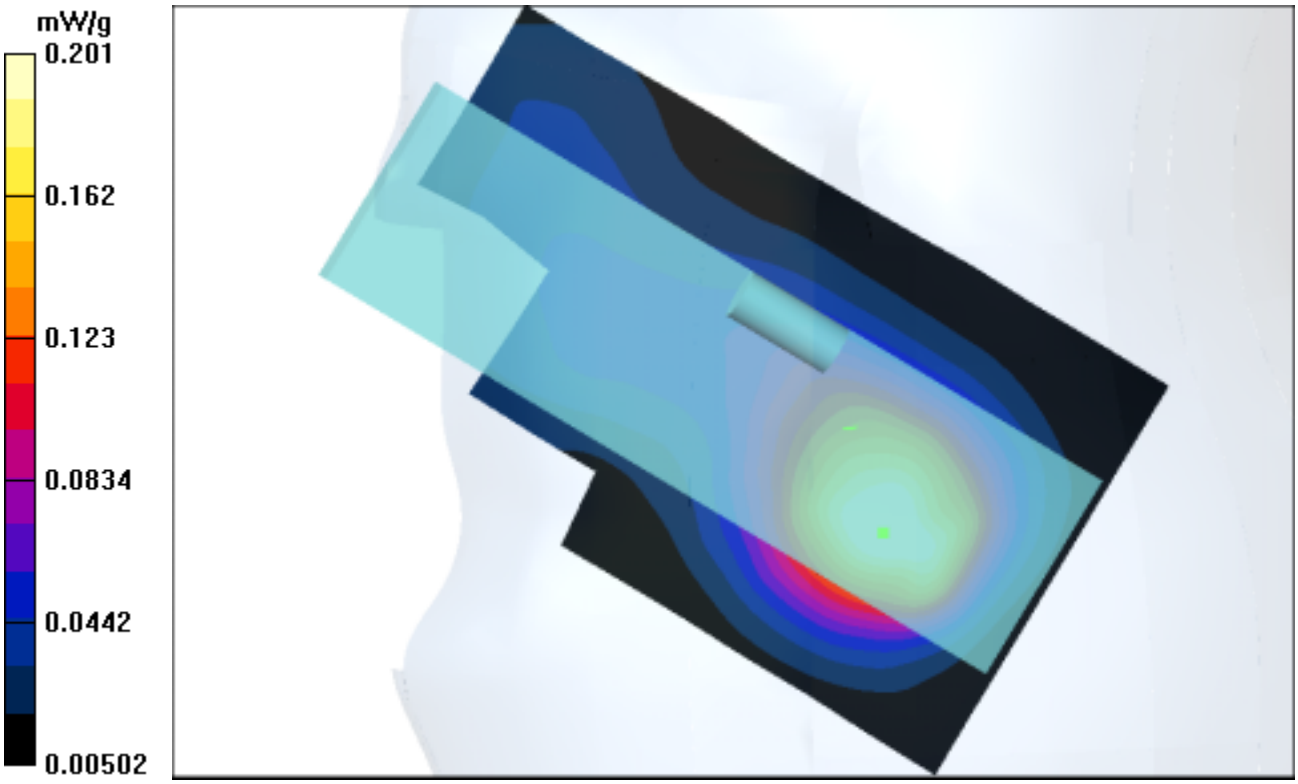
S668C RightHeadSide Tilt PCS1900 Mode 8 Ch512

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1850.2 MHz

Communication System: PCS 1900 ; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4123 mho/m, ε_r = 39.1887, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Low Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 8.75 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 0.213 mW/g

Tilt position - Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.187 mW/g; SAR(10 g) = 0.115 mW/g
Reference Value = 8.75 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 0.201 mW/g



Date/Time: 07/30/04 23:20:22

Test Laboratory: Advance Data Technology

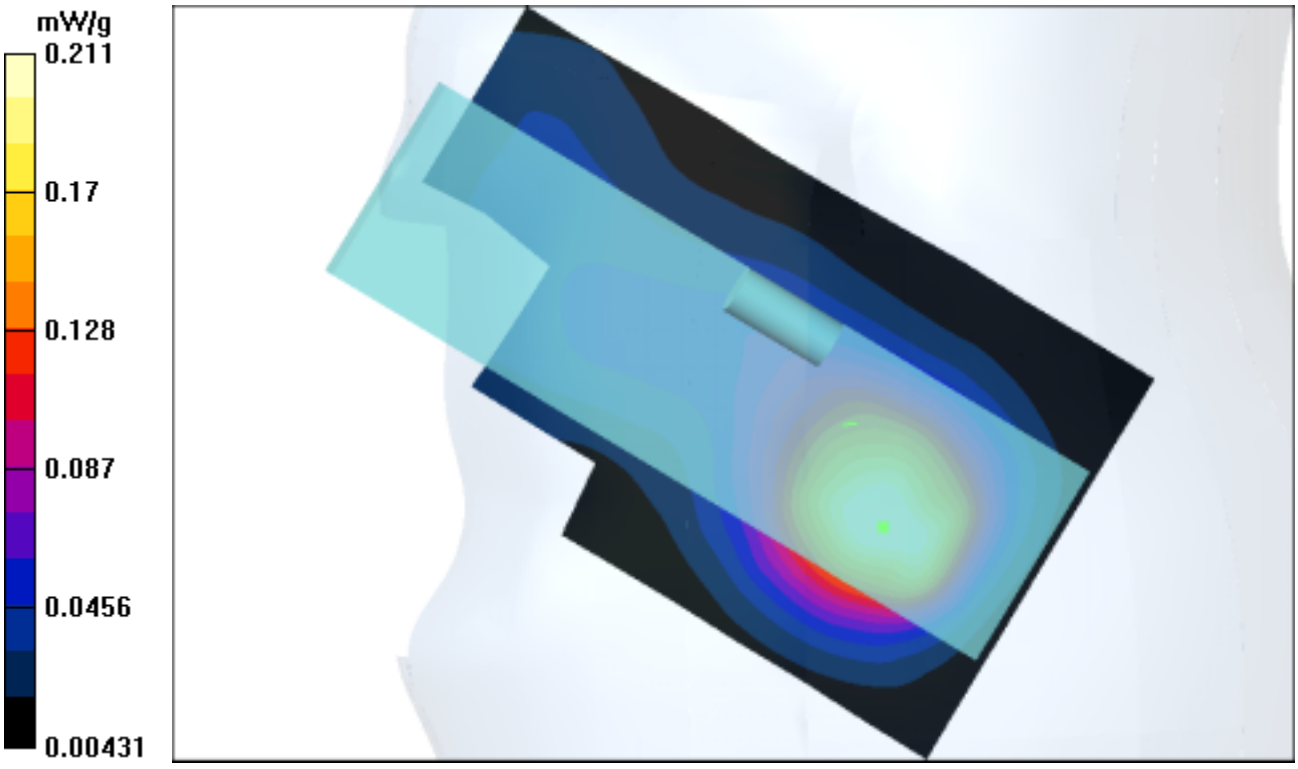
S668C RightHeadSide Tilt PCS1900 Mode 8 Ch661

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1880 MHz

Communication System: PCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4381 mho/m, ε_r = 39.0443, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Middle Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 9.07 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.22 mW/g

Tilt position - Middle Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.293 W/kg
SAR(1 g) = 0.189 mW/g; SAR(10 g) = 0.11 mW/g
Reference Value = 9.07 V/m
Power Drift = -0.2 dB
Maximum value of SAR = 0.211 mW/g



Date/Time: 07/30/04 23:44:48

Test Laboratory: Advance Data Technology

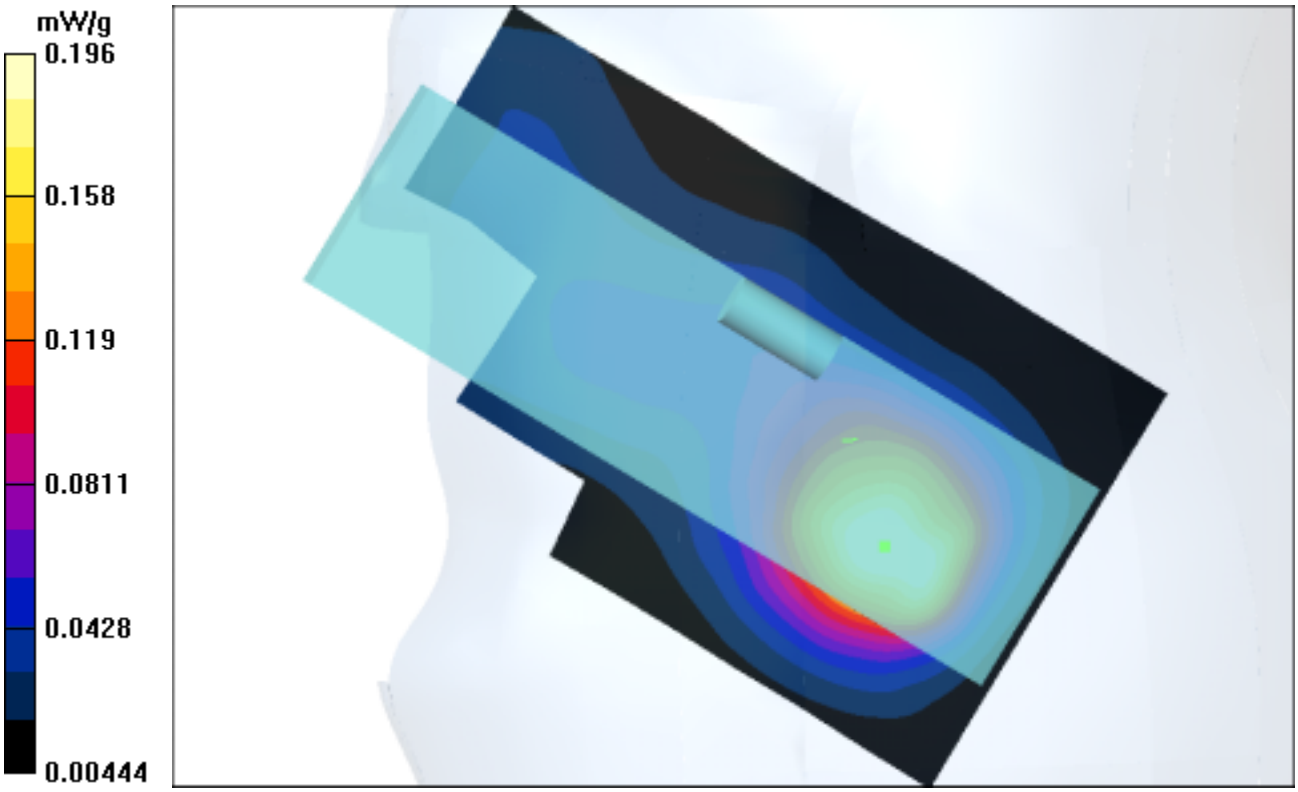
S668C RightHeadSide Tilt PCS1900 Mode 8 Ch810

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1909.8 MHz

Communication System: PCS 1900 ; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.465 mho/m, ε_r = 39.0672, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - High Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 8.73 V/m
Power Drift = 0.01 dB
Maximum value of SAR = 0.208 mW/g

Tilt position - High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.273 W/kg
SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.109 mW/g
Reference Value = 8.73 V/m
Power Drift = 0.01 dB
Maximum value of SAR = 0.196 mW/g



Date/Time: 07/30/04 12:16:18

Test Laboratory: Advance Data Technology

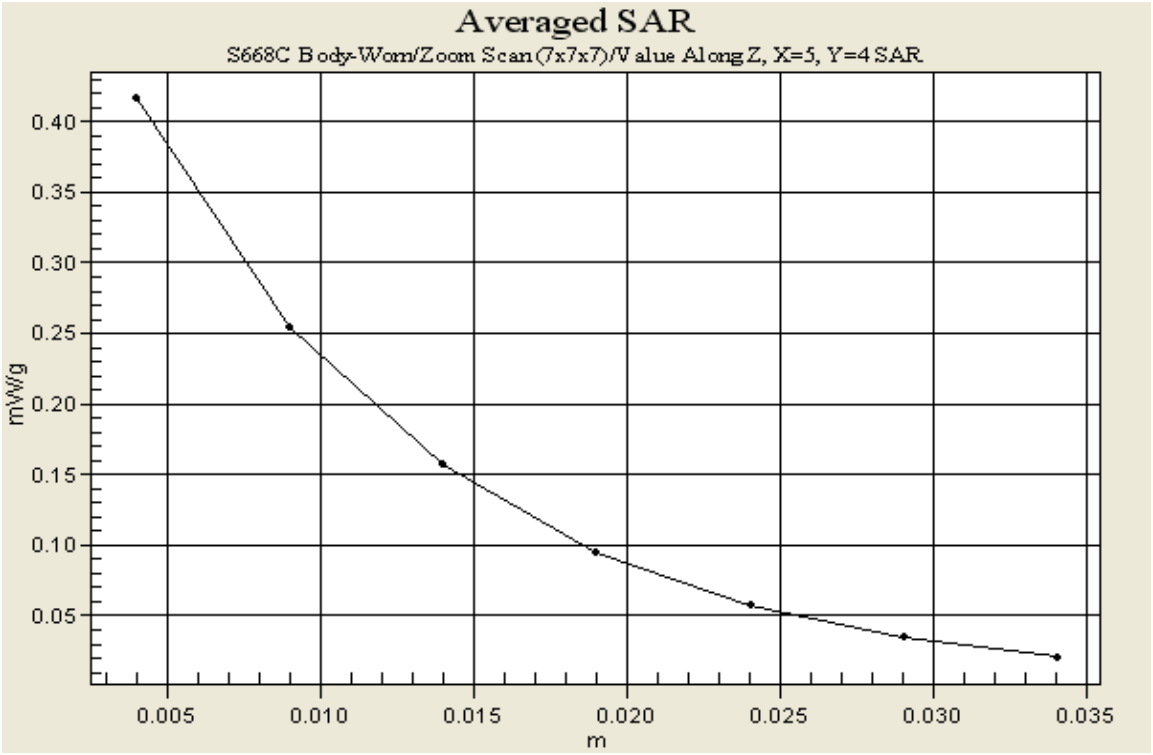
S668C BodyWorn Bottom PCS1900 GPRS Mode 2 Ch661

DUT: Mobil Phone ; Type: S668C ; Test Channel Frequency: 1880 MHz

Communication System: PCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:4; Modulation Type: GMSK
Medium: MSL1900 (σ = 1.522 mho/m, ε_r = 50.8721, ρ = 1000 kg/m^3) ; Liquid Level : 155mm
Phantom section: Flat Section ; DUT test position : Body ; Antenna Type : External Antenna
Separation Distance : 15 mm (The bottom side of the EUT to the Phantom)
Air Temp. : 22.0 degrees ; Liquid Temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(4.8, 4.8, 4.8) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Middle Channel/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 10.2 V/m
Power Drift = 0.2 dB
Maximum value of SAR = 0.441 mW/g

Middle Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.636 W/kg
SAR(1 g) = 0.391 mW/g; SAR(10 g) = 0.239 mW/g
Reference Value = 10.2 V/m
Power Drift = 0.2 dB
Maximum value of SAR = 0.417 mW/g



Date/Time: 07/30/04 19:10:12

Test Laboratory: Advance Data Technology

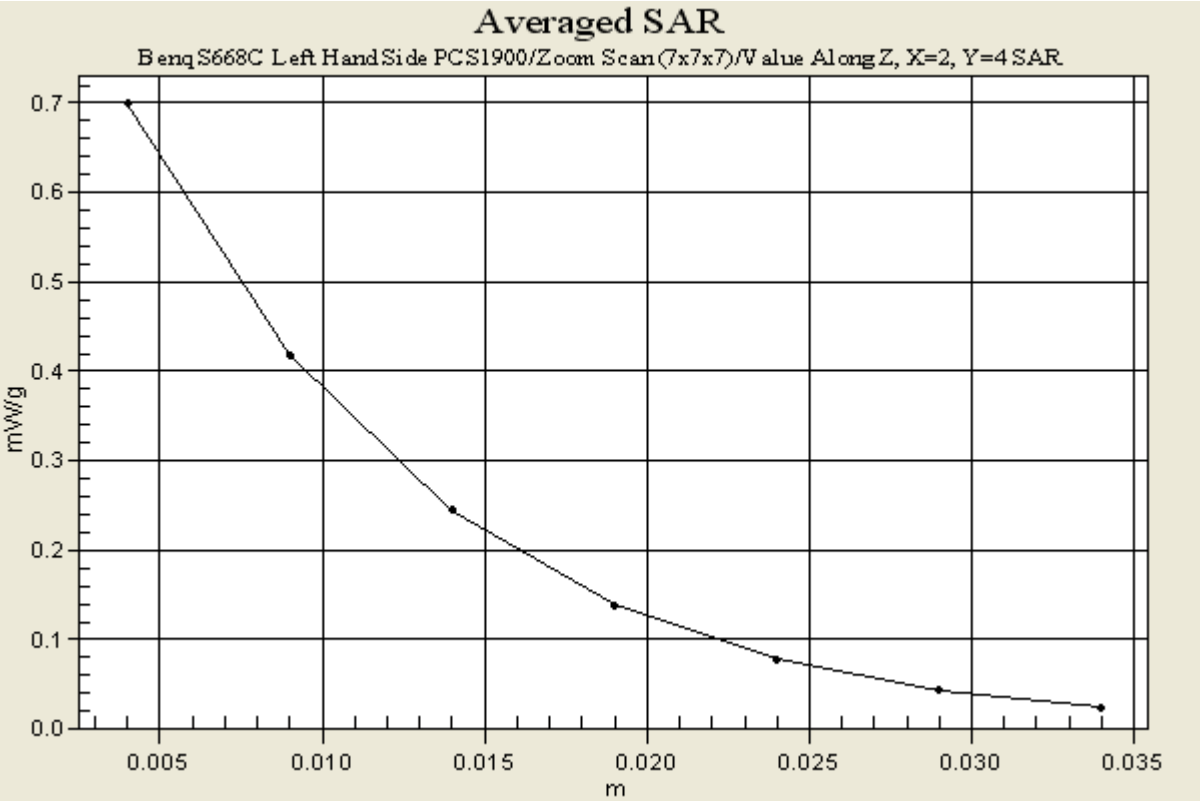
S668C LeftHeadSide Cheek PCS1900 Mode 5 Ch661

DUT: Mobile Phone ; Type: S668C ; Test Channel Frequency: 1880 MHz

Communication System: PCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:8.3;
Medium: HSL1900 (σ = 1.4381 mho/m, ε_r = 39.0443, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: GMSK
Antenna type : External Antenna ; Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Middle Channel/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 4.76 V/m
Power Drift = 0.05 dB
Maximum value of SAR = 0.704 mW/g

Touch position - Middle Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.635 mW/g; SAR(10 g) = 0.365 mW/g
Reference Value = 4.76 V/m
Power Drift = 0.05 dB
Maximum value of SAR = 0.699 mW/g



A3 : SYSTEM VALIDATION

Date/Time: 07/30/04 10:25:38

Test Laboratory: Advance Data Technology

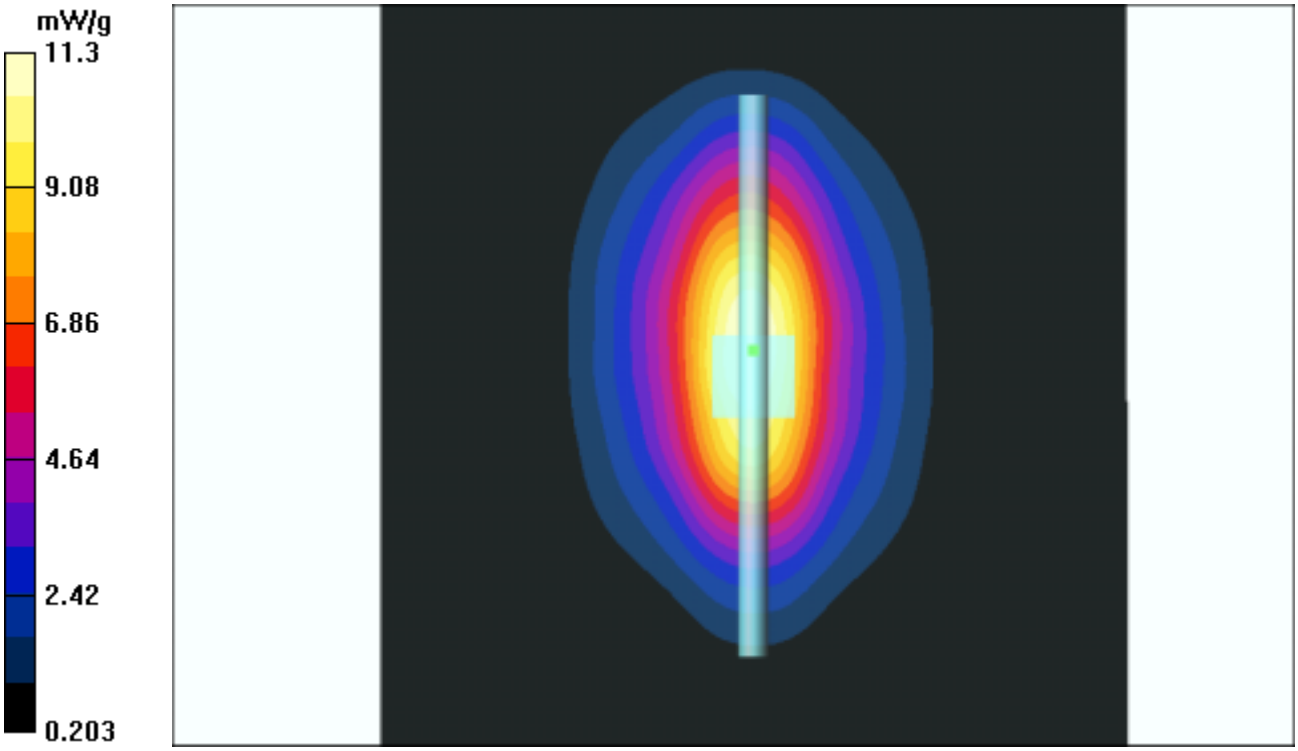
System Validation Check MSL 1900MHz

DUT: Dipole 1900 MHz ; Type: D1900V2 ; Test Channel Frequency: 1900 MHz

Communication System: CW ; Frequency: 1900 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL1900 (σ = 1.5435 mho/m, ε_r = 50.8185, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(4.8, 4.8, 4.8) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 91.6 V/m
Power Drift = -0.03 dB
Maximum value of SAR = 11.4 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 17.7 W/kg
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.15 mW/g
Reference Value = 91.6 V/m
Power Drift = -0.03 dB
Maximum value of SAR = 11.3 mW/g



Date/Time: 07/30/04 17:10:54

Test Laboratory: Advance Data Technology

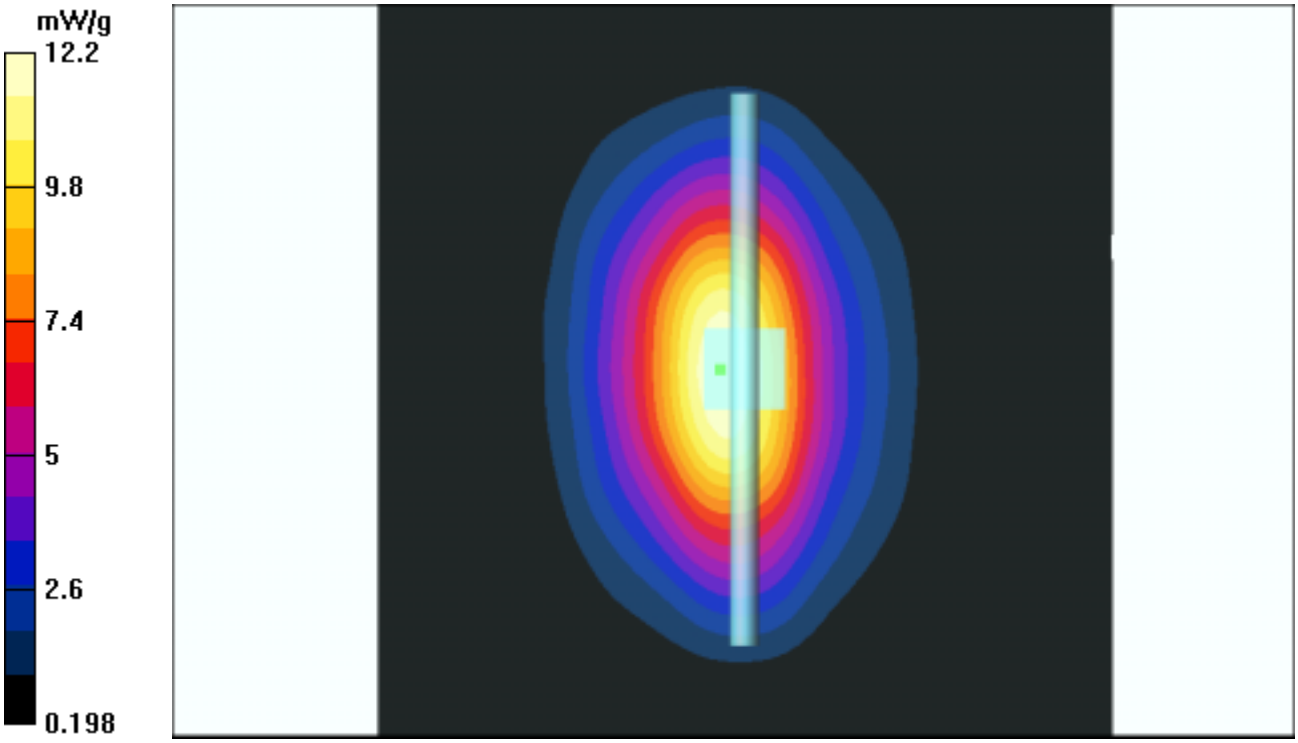
System Validation Check HSL 1900MHz

DUT: Dipole 1900 MHz ; Type: D1900V2 ; Test Channel Frequency: 1900 MHz

Communication System: CW ; Frequency: 1900 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL1900 (σ = 1.4563 mho/m, ε_r = 39.0532, ρ = 1000 kg/m^3) ; Liquid level : 155mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.0 degrees ; Liquid temp. : 21.0 degrees
DASY4 Configuration:
- Probe: ET3DV6 - SN1790 ; ConvF(5.1, 5.1, 5.1) ; Calibrated: 2003/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2003/8/15
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

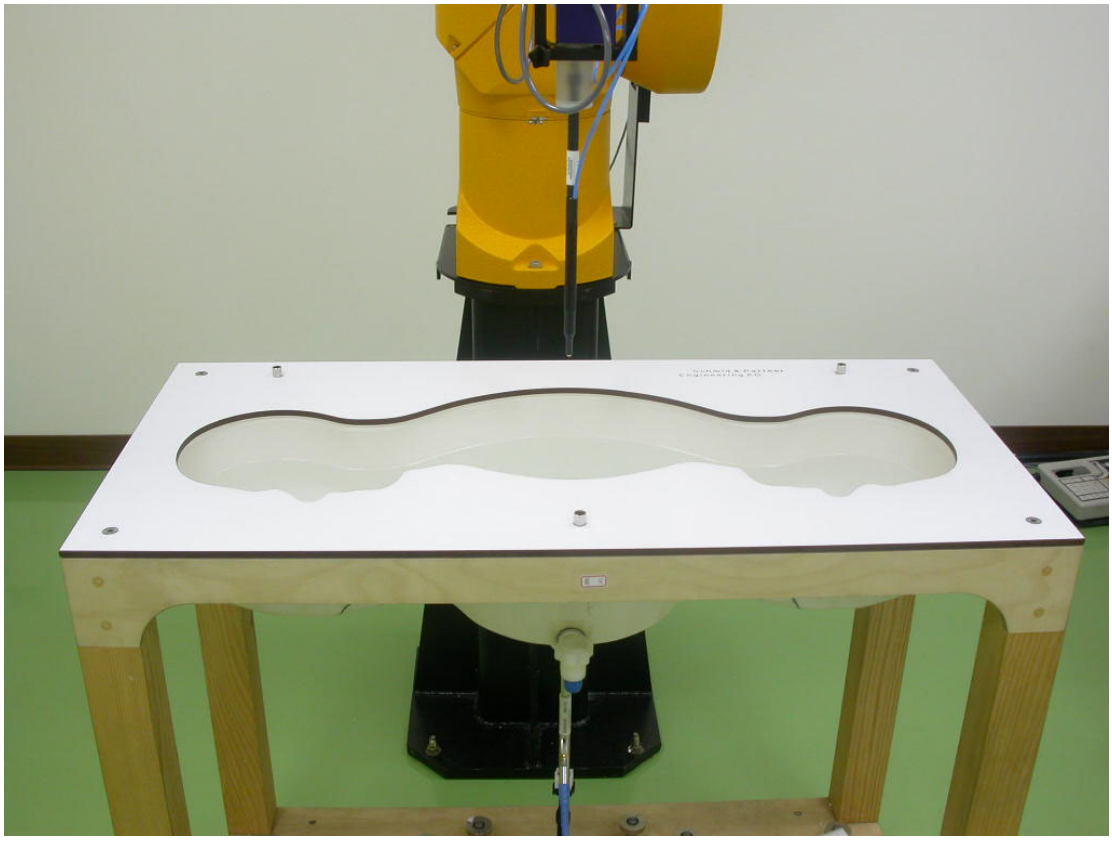
d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 94.3 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 12.2 mW/g

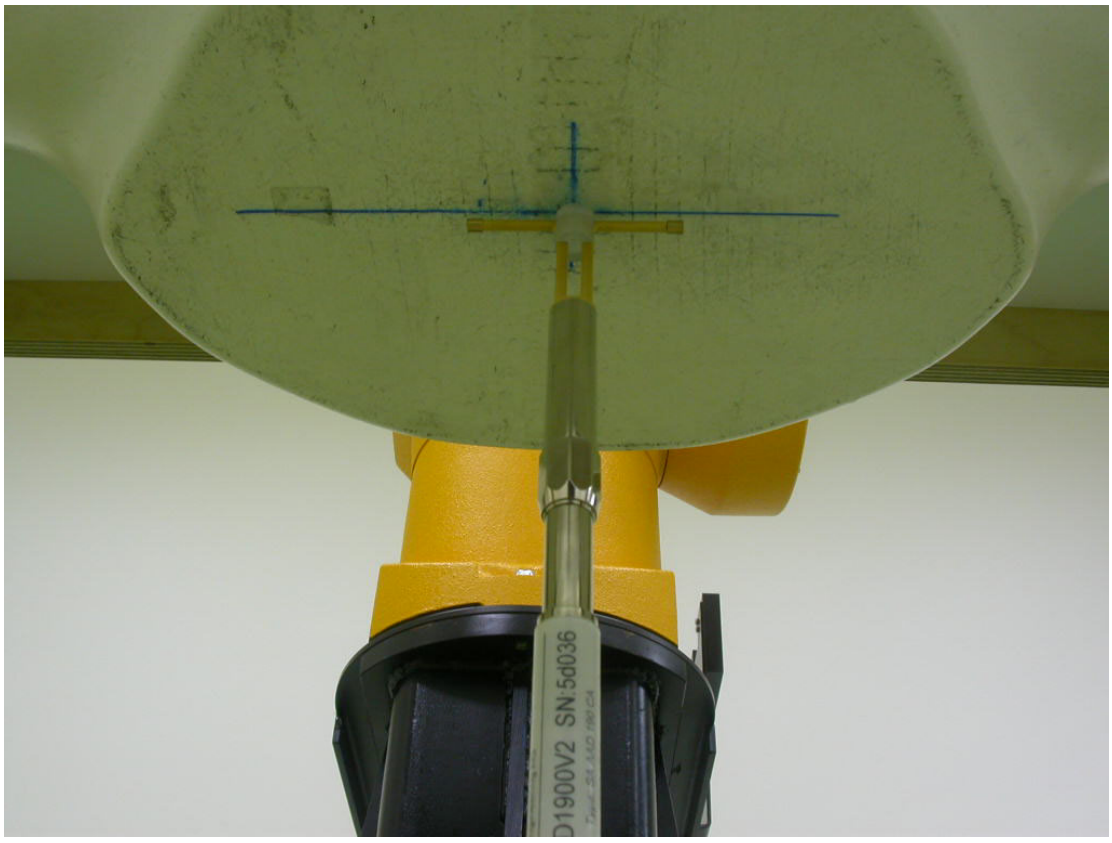
d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 19.6 W/kg
SAR(1 g) = 10.9 mW/g; SAR(10 g) = 5.57 mW/g
Reference Value = 94.3 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 12.2 mW/g



APPENDIX B : ADT SAR MEASUREMENT SYSTEM

APPENDIX C: PHOTOGRAPHS OF SYSTEM VALIDATION





APPENDIX D: SYSTEM CERTIFICATE & CALIBRATION

D1: SAM PHANTOM

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 CA
Series No	TP-1150 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

[1] CENELEC EN 50361
[2] IEEE P1528-200x draft 6.5
[3] IEC PT 62209 draft 0.9
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 28.02.2002

Signature / Stamp

Schmid & Partner Engineering AG
Zeughausstrasse 43, CH-8004 Zurich
Tel. +41 1 245 97 00, Fax +41 1 245 97 79

D2: DOSIMETRIC E-FIELD PROBE

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

IMPORTANT NOTICE

USAGE OF PROBES IN ORGANIC SOLVENTS

Diethylene Gycol Monobuthy Ether (the basis for liquids above 1 GHz), as many other organic solvents, is a very effective softener for synthetic materials. These solvents can cause irreparable damage to certain SPEAG products, except those which are explicitly declared as compliant with organic solvents.

Compatible Probes:

- ET3DV6
- ET3DV6R
- ES3DV2
- ER3DV6
- H3DV6

Important Note for ET3DV6 Probes:

The ET3DV6 probes shall not be exposed to solvents longer than necessary for the measurements and shall be cleaned daily after use with warm water and stored dry.

s p e a g

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info@speag.com, http://www.speag.com

Schmid & Partner Engineering AG

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

Client **Auden > Chunghwa Telecom**

CALIBRATION CERTIFICATE

Object(s)	ET3DV6 - SN:1790
Calibration procedure(s)	QA CAL-01.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	August 29, 2003
Condition of the calibrated item	In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
RF generator HP 8684C	US3642U01700	4-Aug-99 (SPEAG, in house check Aug-02)	In house check: Aug-05
Power sensor E4412A	MY41495277	2-Apr-03 (METAS, No 252-0250)	Apr-04
Power sensor HP 8481A	MY41092180	18-Sep-02 (Agilent, No. 20020918)	Sep-03
Power meter EPM E4419B	GB41293874	2-Apr-03 (METAS, No 252-0250)	Apr-04
Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03
Fluke Process Calibrator Type 702	SN: 6295803	3-Sep-01 (ELCAL, No.2360)	Sep-03

	Name	Function	Signature
Calibrated by:	Nico Vetterli	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: August 28, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

Schmid & Partner Engineering AG

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Probe ET3DV6

SN:1790

Manufactured: May 28, 2003
Last calibration: August 29, 2003

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6 SN:1790

Sensitivity in Free Space

Diode Compression

NormX	**1.74** $\mu V/(V/m)^2$	DCP X	**96**	mV
NormY	**1.69** $\mu V/(V/m)^2$	DCP Y	**96**	mV
NormZ	**1.76** $\mu V/(V/m)^2$	DCP Z	**96**	mV

Sensitivity in Tissue Simulating Liquid

Head 900 MHz ε_r = 41.5 ± 5% σ = 0.97 ± 5% mho/m

Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	**6.4** ± 9.5% (k=2)	Boundary effect:	
ConvF Y	**6.4** ± 9.5% (k=2)	Alpha	**0.48**
ConvF Z	**6.4** ± 9.5% (k=2)	Depth	**2.13**

Head 1800 MHz ε_r = 40.0 ± 5% σ = 1.40 ± 5% mho/m

Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	**5.1** ± 9.5% (k=2)	Boundary effect:	
ConvF Y	**5.1** ± 9.5% (k=2)	Alpha	**0.49**
ConvF Z	**5.1** ± 9.5% (k=2)	Depth	**2.70**

Boundary Effect

Head **900 MHz** **Typical SAR gradient: 5 % per mm**

Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	9.4	5.2
SAR_{be} [%]	With Correction Algorithm	0.2	0.4

Head **1800 MHz** **Typical SAR gradient: 10 % per mm**

Probe Tip to Boundary		**1 mm**	**2 mm**
SAR_{be} [%]	Without Correction Algorithm	13.9	9.5
SAR_{be} [%]	With Correction Algorithm	0.2	0.1

Sensor Offset

Probe Tip to Sensor Center	**2.7**	mm
Optical Surface Detection	**1.6 ± 0.2**	mm

Receiving Pattern (ϕ), θ = 0°