

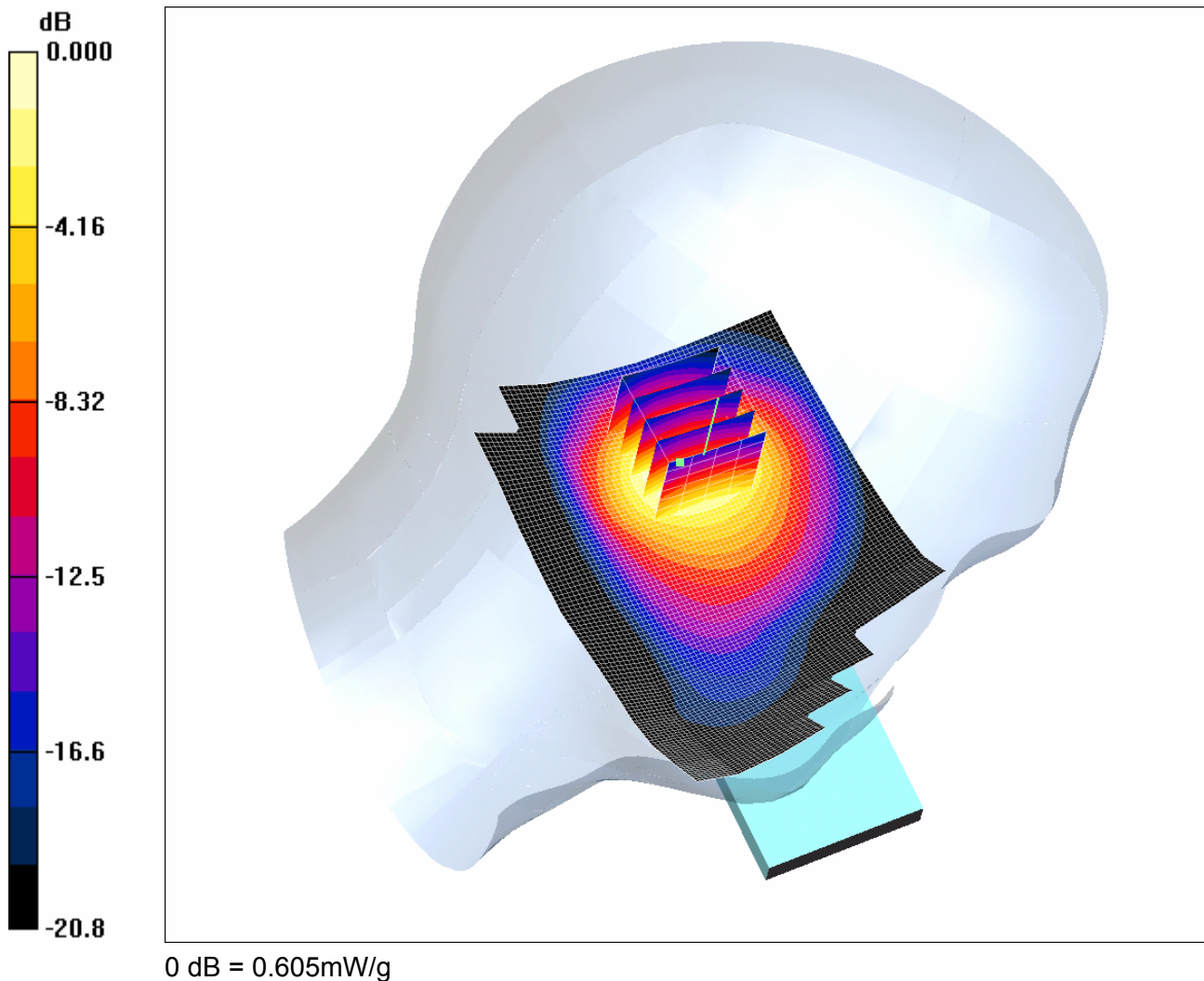
Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72912JD01/006: Tilt Left PCS CH660

Date: 10/12/2007

DUT: Panasonic VS7x; Type: VS7x (Sample C8); Serial: 004401220367144



Communication System: PCS 1900; Frequency: 1879.8 MHz; Duty Cycle: 1:8.3

Medium: 1900 MHz HSL Medium parameters used (interpolated): $f = 1879.8$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.98, 4.98, 4.98); Calibrated: 06/07/2007

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 24/05/2007

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Left - Middle/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.671 mW/g

Tilt Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.2 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.302 mW/g

Maximum value of SAR (measured) = 0.605 mW/g

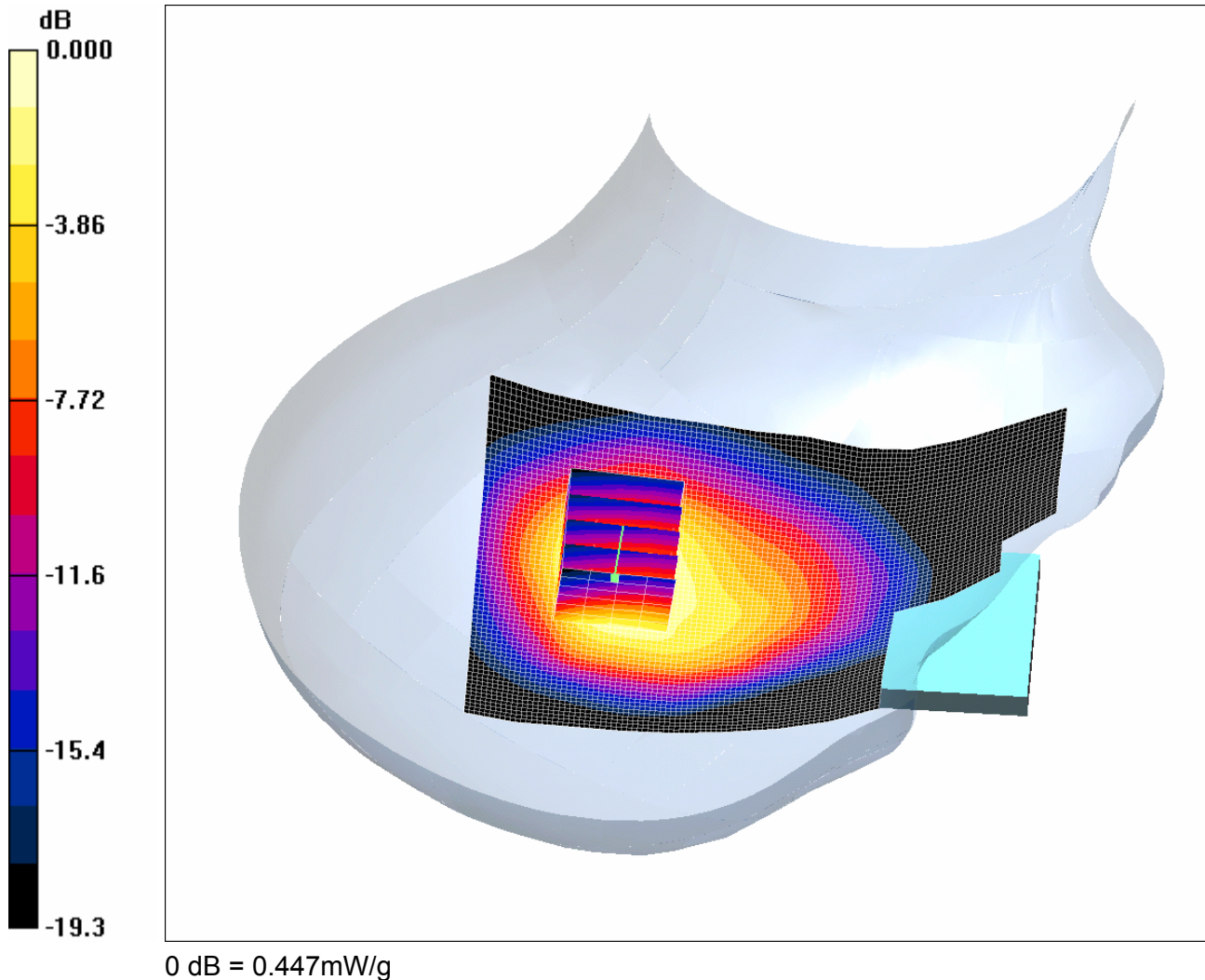
Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72912JD01/007: Touch Right PCS CH660

Date: 10/12/2007

DUT: Panasonic VS7x; Type: VS7x (Sample C8); Serial: 004401220367144



Communication System: PCS 1900; Frequency: 1879.8 MHz; Duty Cycle: 1:8.3

Medium: 1900 MHz HSL Medium parameters used (interpolated): $f = 1879.8$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.98, 4.98, 4.98); Calibrated: 06/07/2007

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 24/05/2007

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Middle/Area Scan (71x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.462 mW/g

Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 18.3 V/m; Power Drift = 0.064 dB

Peak SAR (extrapolated) = 0.688 W/kg

SAR(1 g) = 0.412 mW/g; SAR(10 g) = 0.238 mW/g

Maximum value of SAR (measured) = 0.447 mW/g

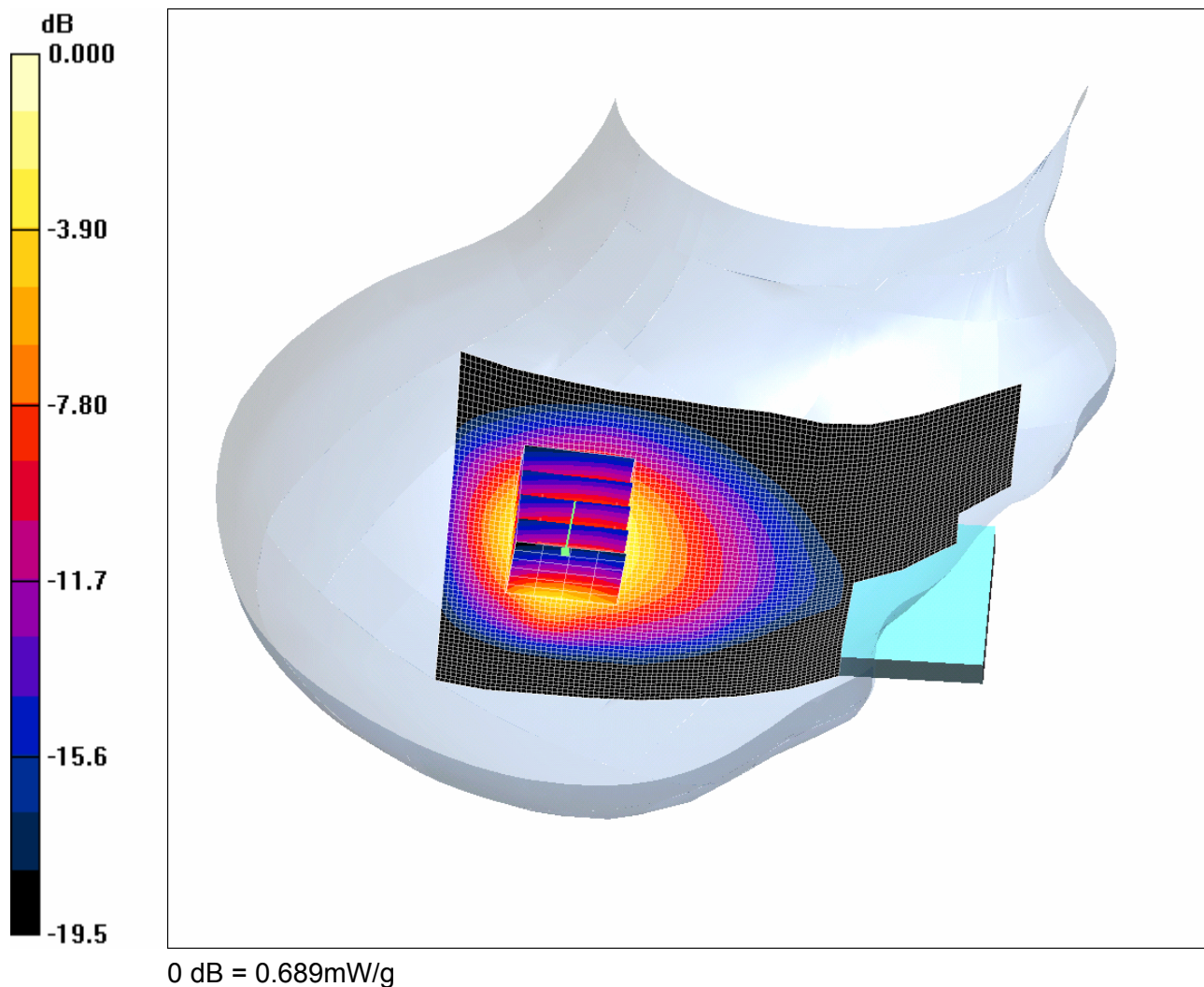
Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72912JD01/008: Tilt Right PCS CH660

Date: 10/12/2007

DUT: Panasonic VS7x; Type: VS7x (Sample C8); Serial: 004401220367144



Communication System: PCS 1900; Frequency: 1879.8 MHz; Duty Cycle: 1:8.3

Medium: 1900 MHz HSL Medium parameters used (interpolated): $f = 1879.8$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.98, 4.98, 4.98); Calibrated: 06/07/2007

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 24/05/2007

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Right - Middle/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.803 mW/g

Tilt Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.1 V/m; Power Drift = 0.048 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.643 mW/g; SAR(10 g) = 0.354 mW/g

Maximum value of SAR (measured) = 0.689 mW/g

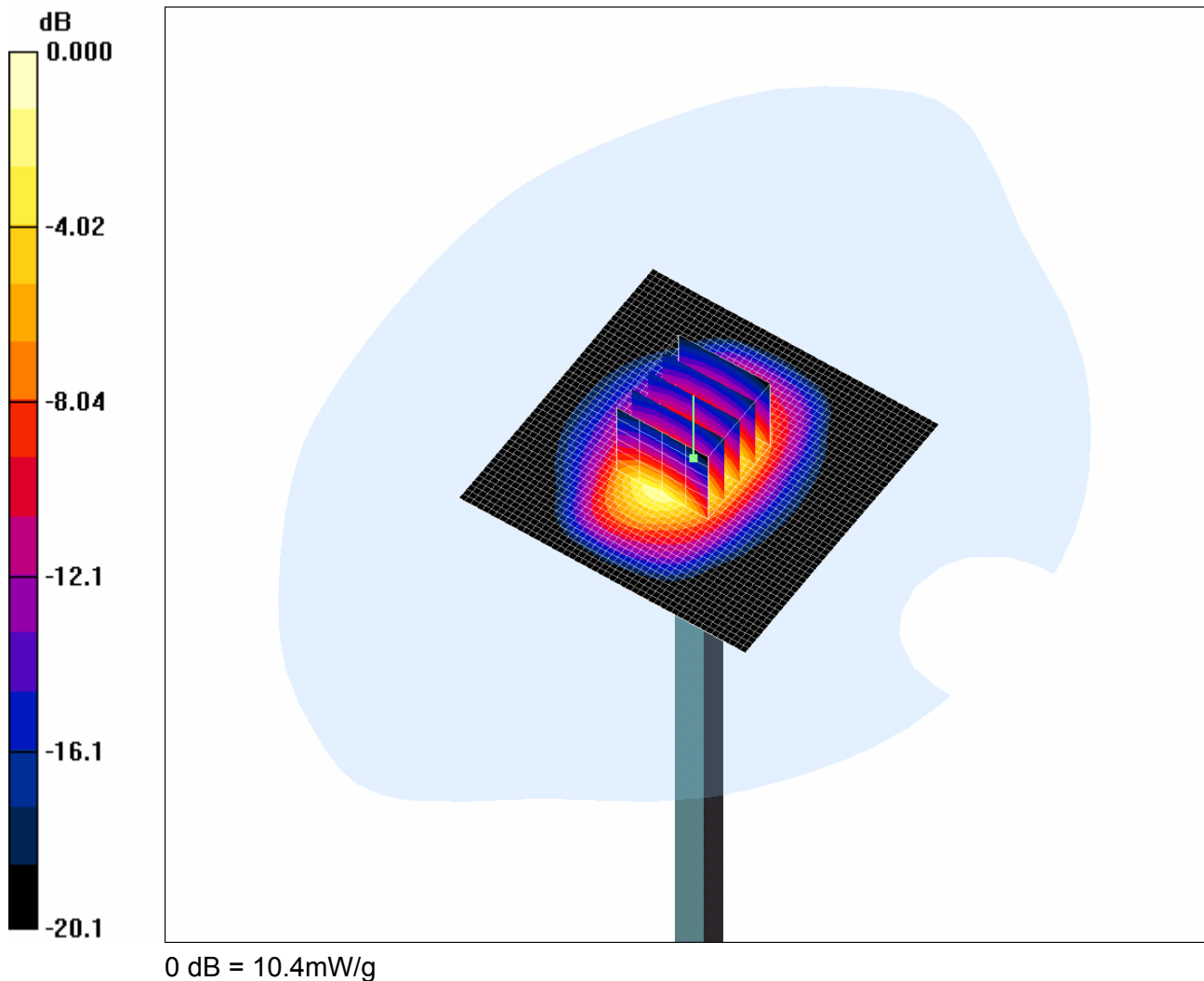
Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72912JD01/009: System Performance Check 1900MHz Head 10 12 07

Date: 10/12/2007

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540



Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz HSL Medium parameters used: $f = 1900$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.98, 4.98, 4.98); Calibrated: 06/07/2007

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 24/05/2007

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 13.8 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 87.6 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.32 mW/g; SAR(10 g) = 4.67 mW/g

Maximum value of SAR (measured) = 10.4 mW/g

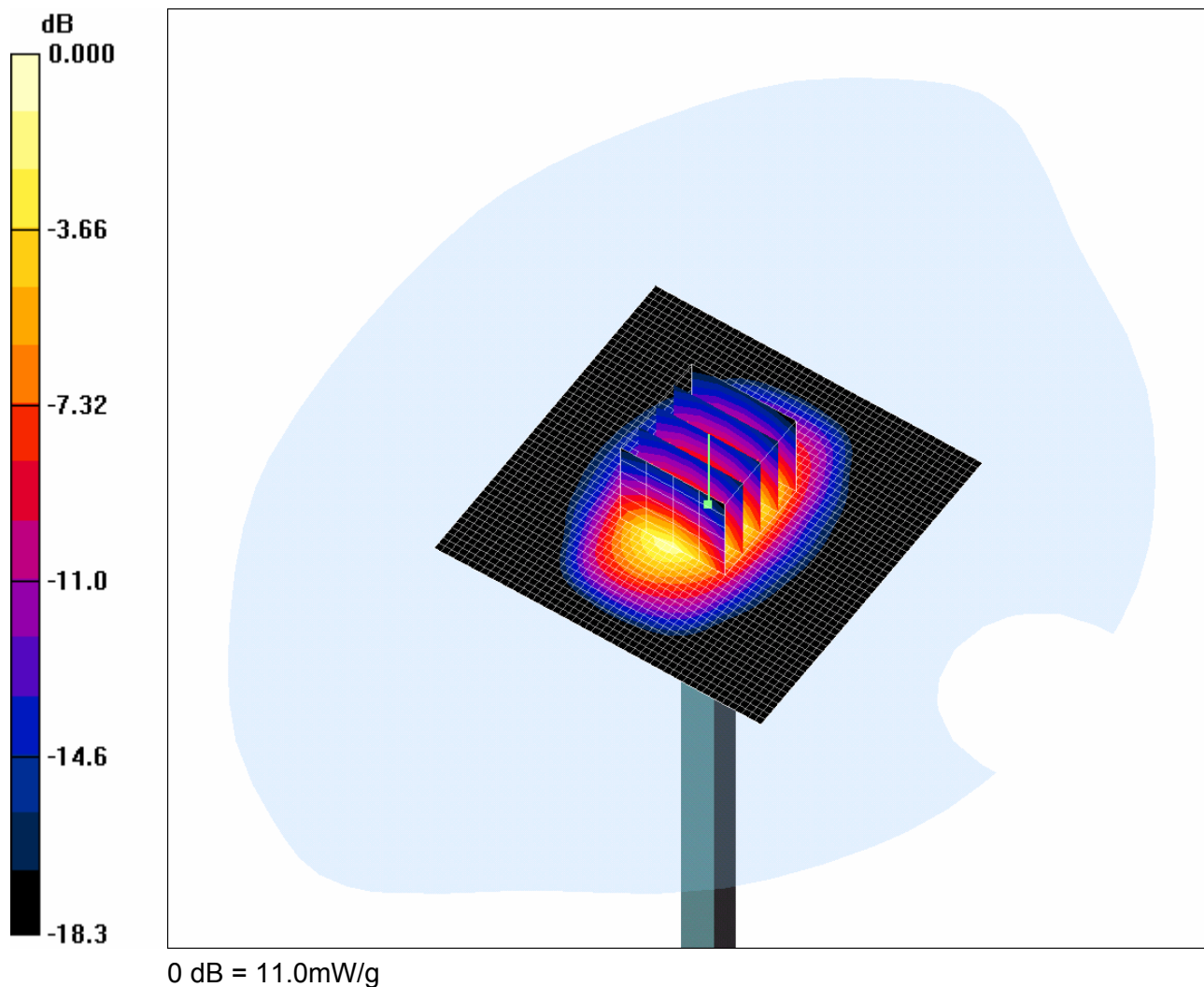
Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72912JD01/010: System Performance Check 1900MHz Body 10 12 07

Date: 10/12/2007

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540



Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz MSL Medium parameters used: $f = 1900$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 24/05/2007

- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 14.2 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 91.3 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.75 mW/g; SAR(10 g) = 4.99 mW/g

Maximum value of SAR (measured) = 11.0 mW/g

Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

Appendix 5. Validation of System

Prior to the assessment, the system was verified in the flat region of the phantom.

A 1900 MHz dipole was used. A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of $\pm 5\%$ for the 1900 MHz dipole. The applicable verification (normalised to 1 Watt).

Date:10/12/2007

Validation Dipole and Serial Number:D1900V2:SN:540

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	23.0 °C	23.0 °C	ϵ_r	53.30	52.37	-0.02	5.00
				σ	1.52	1.49	-0.02	5.00
				1g SAR	38.00	39.00	2.63	5.00
				10g SAR	20.70	19.96	-3.57	5.00

Date:10/12/2007

Validation Dipole and Serial Number:D1900V2:SN:540

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Head	1900	23.0 °C	23.0 °C	ϵ_r	40.00	41.61	0.04	5.00
				σ	1.40	1.46	0.05	5.00
				1g SAR	36.10	37.28	3.27	5.00
				10g SAR	19.30	18.68	-3.21	5.00

Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

Appendix 6. Simulated Tissues

The body mixture consists of water and glycol. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

Ingredient	Frequency
	1800/1900 MHz Body
De-Ionised Water	69.79%
Diglycol Butyl Ether (DGBE)	30.00%
Salt	0.20%

Ingredient	Frequency
	1800/1900 MHz Head
De-Ionised Water	55.41%
Diglycol Butyl Ether (DGBE)	44.51%
Salt	0.08%

Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS7x

To: OET Bulletin 65 Supplement C: (2001-01)

Appendix 7. DASY4 System Details

A.7.1. DASY4 SAR Measurement System

RFI Global Services Ltd, SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller; teach pendant (Joystick), and remote control. This is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. The data acquisition electronics (DAE) performs signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection etc. The DAE is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

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To: OET Bulletin 65 Supplement C: (2001-01)

A.7.2. DASY4 SAR System Specifications

Robot System

Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of Axis:	6
Serial Number:	F00/SD89A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+

Data Acquisition Electronic (DAE) System

Serial Number:	DAE3 SN:394
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Cell Controller

PC:	Dell Precision 340
Operating System:	Windows 2000
Data Card:	DASY4 Measurement Server
Serial Number:	1080

Data Converter

Features:	Signal Amplifier, multiplexer, A/D converted and control logic.
Software:	DASY4 Software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock.

PC Interface Card

Function:	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 bit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.
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To: OET Bulletin 65 Supplement C: (2001-01)

DASY4 SAR System Specifications (Continued)

E-Field Probe

Model:	ET3DV6
Serial No:	1528
Construction:	Triangular core fibre optic detection system
Frequency:	10 MHz to 3 GHz
Linearity:	±0.2 dB (30 MHz to 3 GHz)
Probe Length (mm):	337
Probe Diameter (mm):	12
Tip Length (mm):	10
Tip Diameter (mm):	6.8
Sensor X Offset (mm):	2.7
Sensor Y Offset (mm):	2.7
Sensor Z Offset (mm):	2.7

Phantom

Phantom:	SAM Phantom
Shell Material:	Fibreglass
Thickness:	2.0 ±0.1 mm
