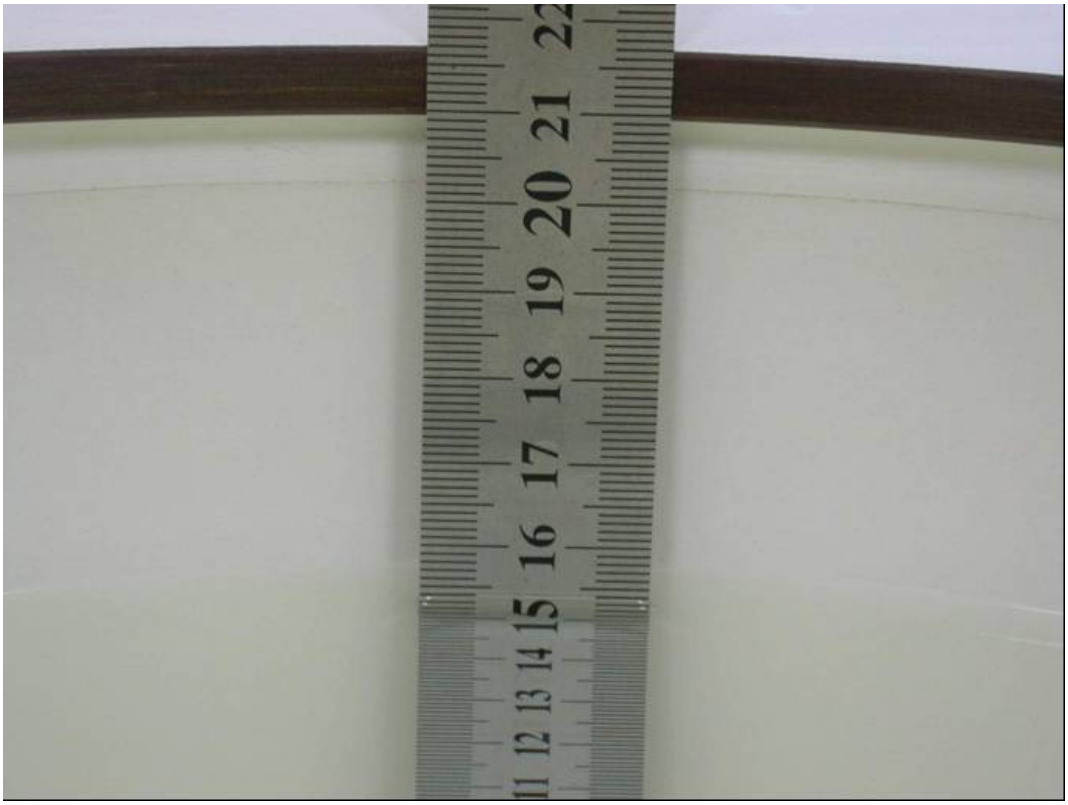
APPENDIX A: TEST DATA
Liquid Level Photo

MSL 2600MHz D=154mm



MSL 2600MHz D=155mm

MSL 2600MHz D=150mm

Date/Time: 2007/6/1 11:44:40

Test Laboratory: Advance Data Technology

n6000-5M-Mode 1

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.08 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.648 mW/g

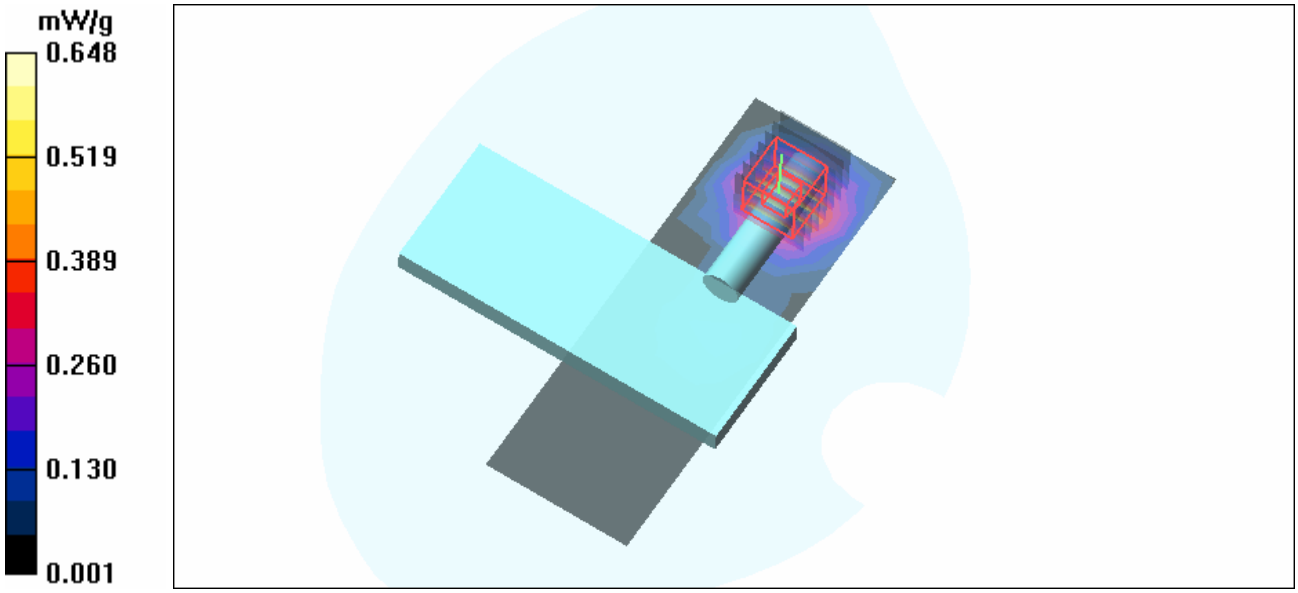
Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.0 V/m

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.306 mW/g

Maximum value of SAR (measured) = 0.634 mW/g



Date/Time: 2007/6/1 12:20:04

Test Laboratory: Advance Data Technology

n6000-5M-Mode 1

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2587.5 MHz

Communication System: FCC Wimax ; Frequency: 2587.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2587.5 MHz; σ = 2.19 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.575 mW/g

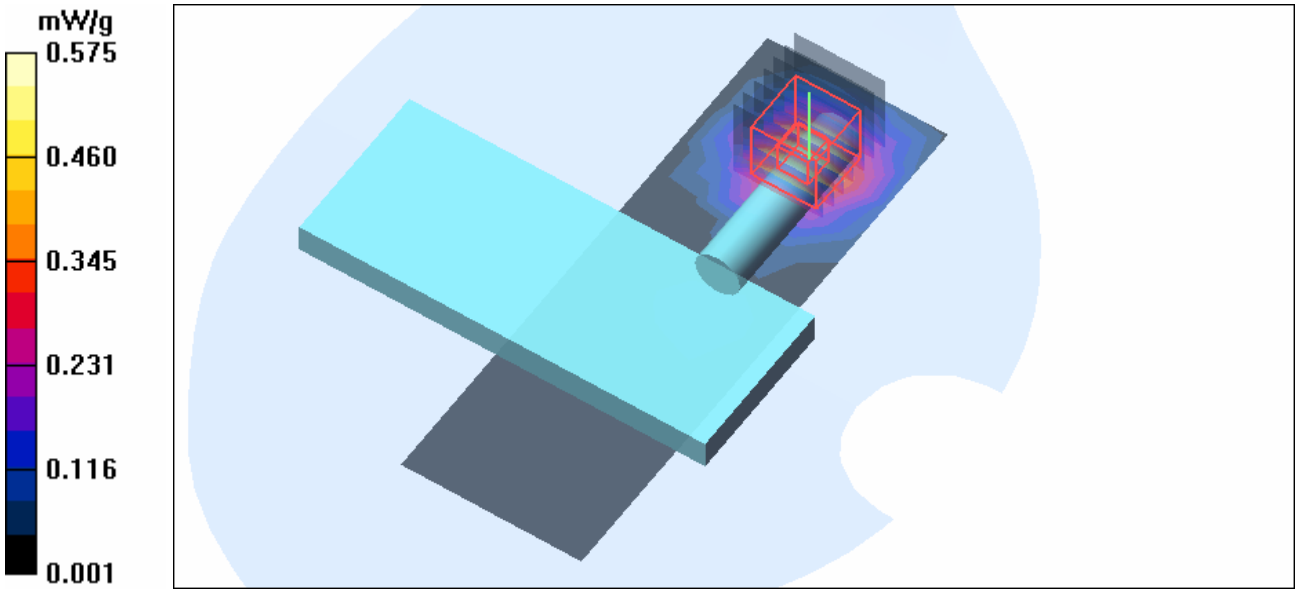
Mid Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.4 V/m

Peak SAR (extrapolated) = 0.971 W/kg

SAR(1 g) = 0.520 mW/g; SAR(10 g) = 0.268 mW/g

Maximum value of SAR (measured) = 0.573 mW/g



Date/Time: 2007/6/1 12:59:03

Test Laboratory: Advance Data Technology

n6000-5M-Mode 1

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2685 MHz

Communication System: FCC Wimax ; Frequency: 2685 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

High Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

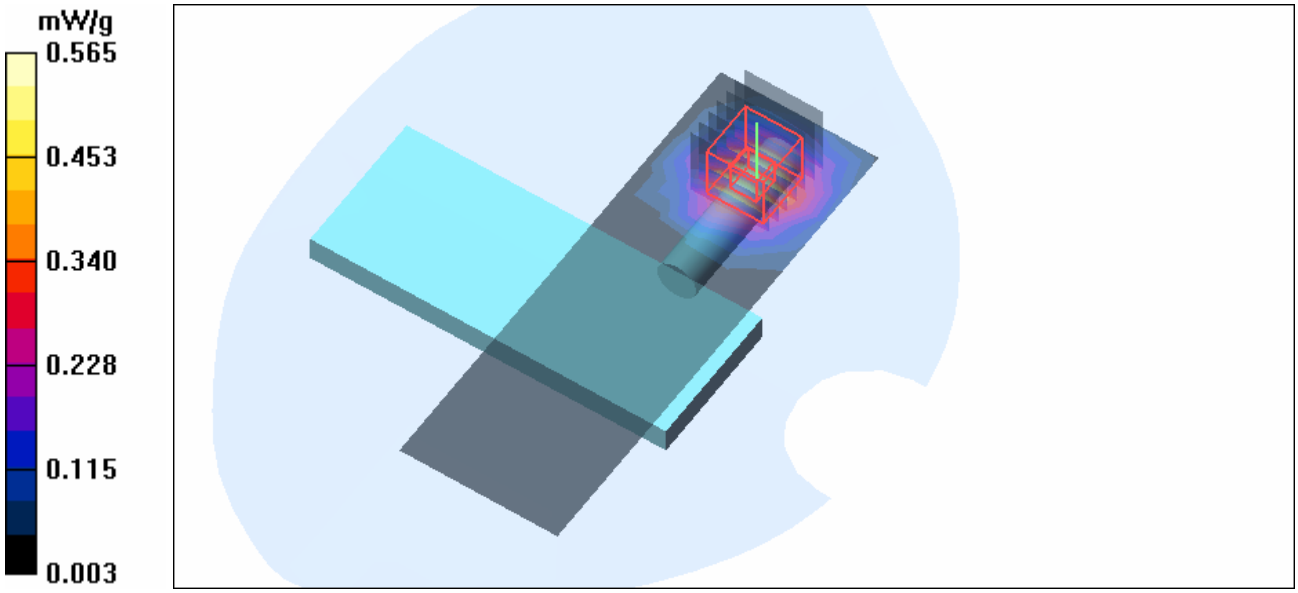
Maximum value of SAR (measured) = 0.565 mW/g

High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.7 V/m

Peak SAR (extrapolated) = 0.984 W/kg

SAR(1 g) = 0.514 mW/g; SAR(10 g) = 0.261 mW/g



Date/Time: 2007/6/1 13:20:16

Test Laboratory: Advance Data Technology

n6000-5M-Mode 2

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.08 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.032 mW/g

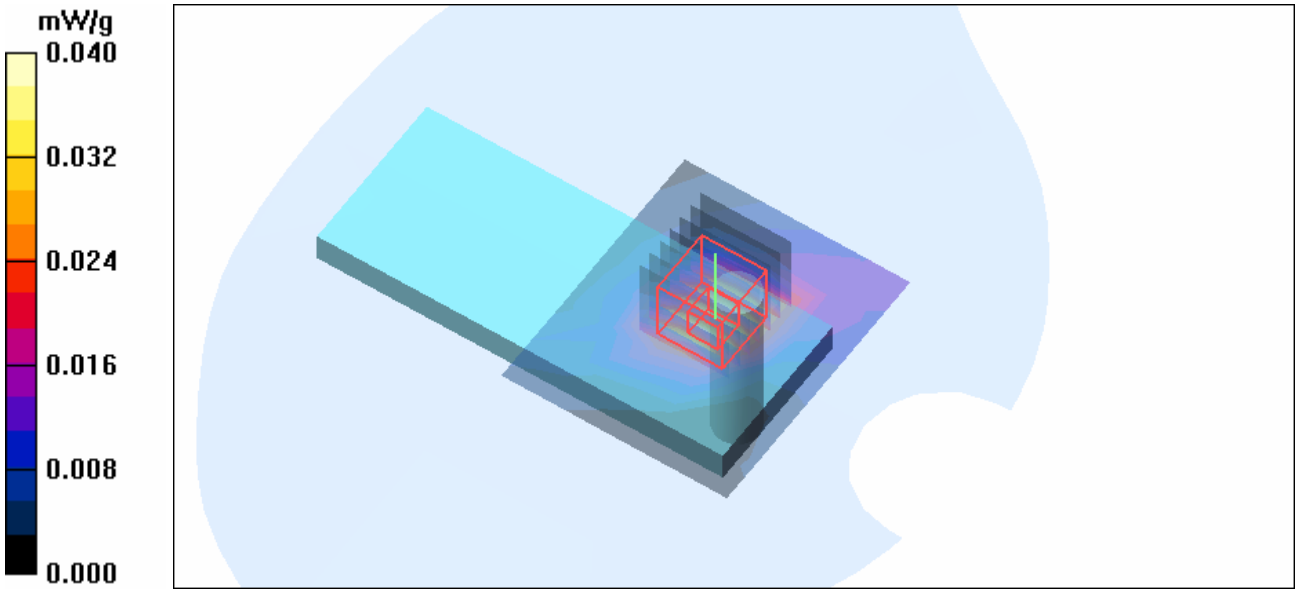
Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.33 V/m

Peak SAR (extrapolated) = 0.069 W/kg

SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.019 mW/g

Maximum value of SAR (measured) = 0.040 mW/g



Date/Time: 2007/6/1 13:36:46

Test Laboratory: Advance Data Technology

n6000-5M-Mode 3

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.08 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.236 mW/g

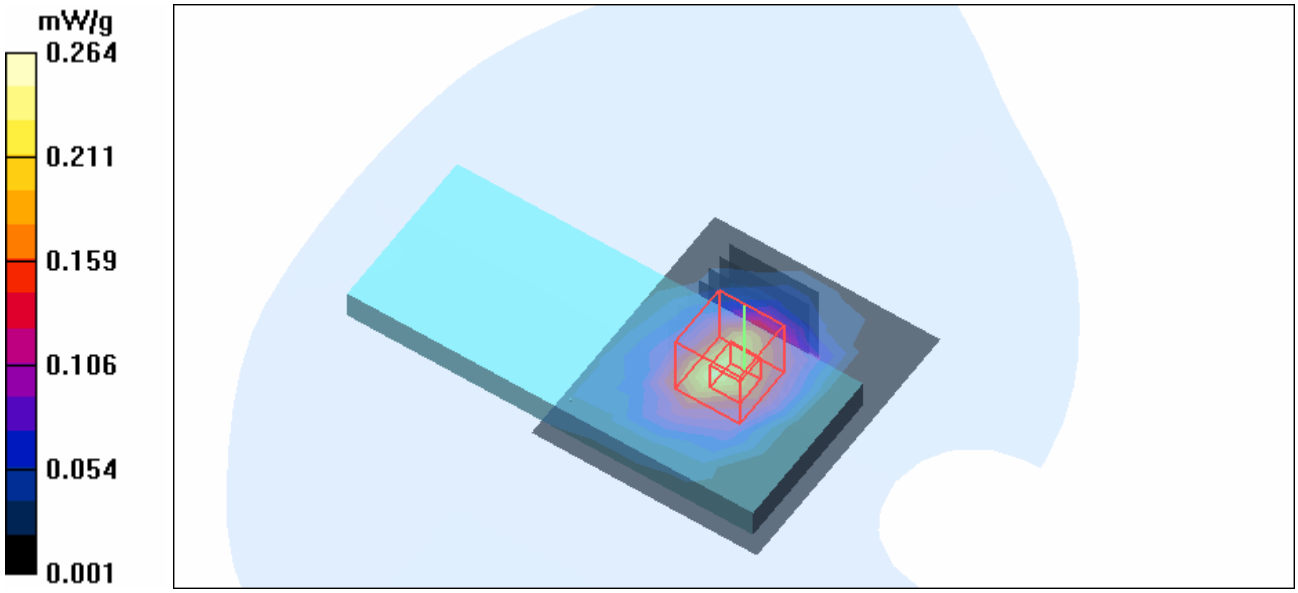
Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.48 V/m

Peak SAR (extrapolated) = 0.441 W/kg

SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.123 mW/g

Maximum value of SAR (measured) = 0.264 mW/g



Date/Time: 2007/6/1 13:59:25

Test Laboratory: Advance Data Technology

N800C-5M-Mode 4

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.08 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 11 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.432 mW/g

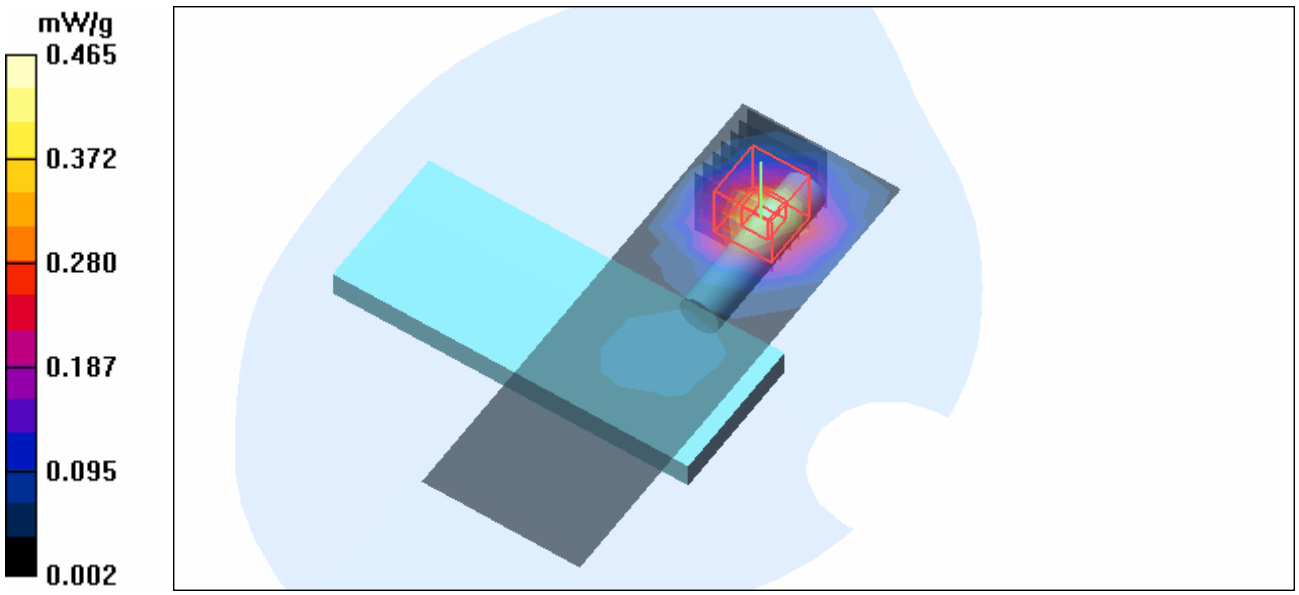
Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.6 V/m

Peak SAR (extrapolated) = 0.763 W/kg

SAR(1 g) = 0.408 mW/g; SAR(10 g) = 0.212 mW/g

Maximum value of SAR (measured) = 0.465 mW/g



Date/Time: 2007/6/1 14:39:25

Test Laboratory: Advance Data Technology

c600-5M-Mode 5

DUT: Wimax 2.5GHz PC card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM

Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.08 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 154 mm

Phantom section: Flat Section ; Separation distance : 12 mm (The bottom side of the EUT to the Phantom)

Antenna type : Dipole Antenna ; Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.432 mW/g

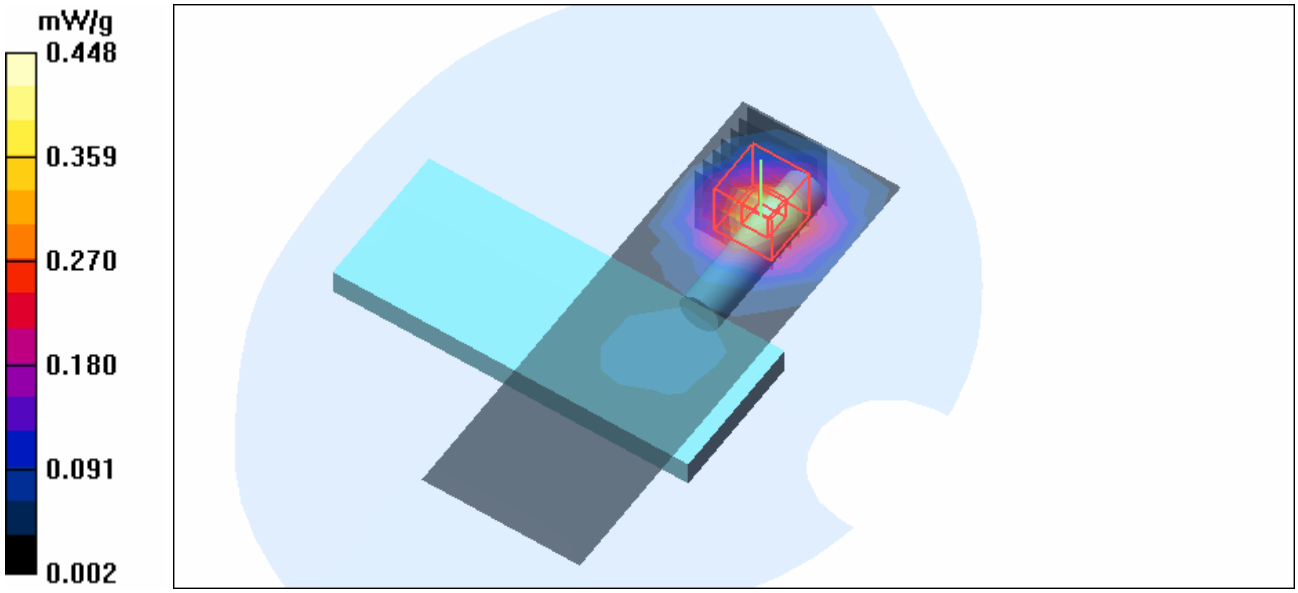
Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.0 V/m

Peak SAR (extrapolated) = 0.729 W/kg

SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.178 mW/g

Maximum value of SAR (measured) = 0.448 mW/g



Date/Time: 2007/5/15 20:07:11

Test Laboratory: Advance Data Technology

n6000-10M-Mode 6

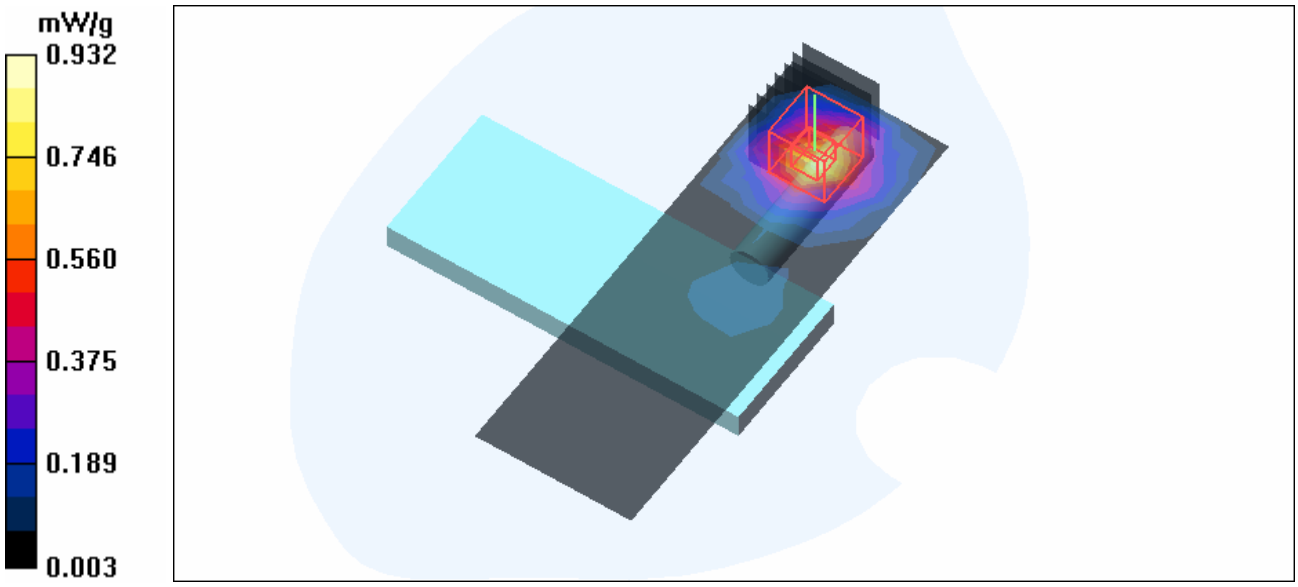
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

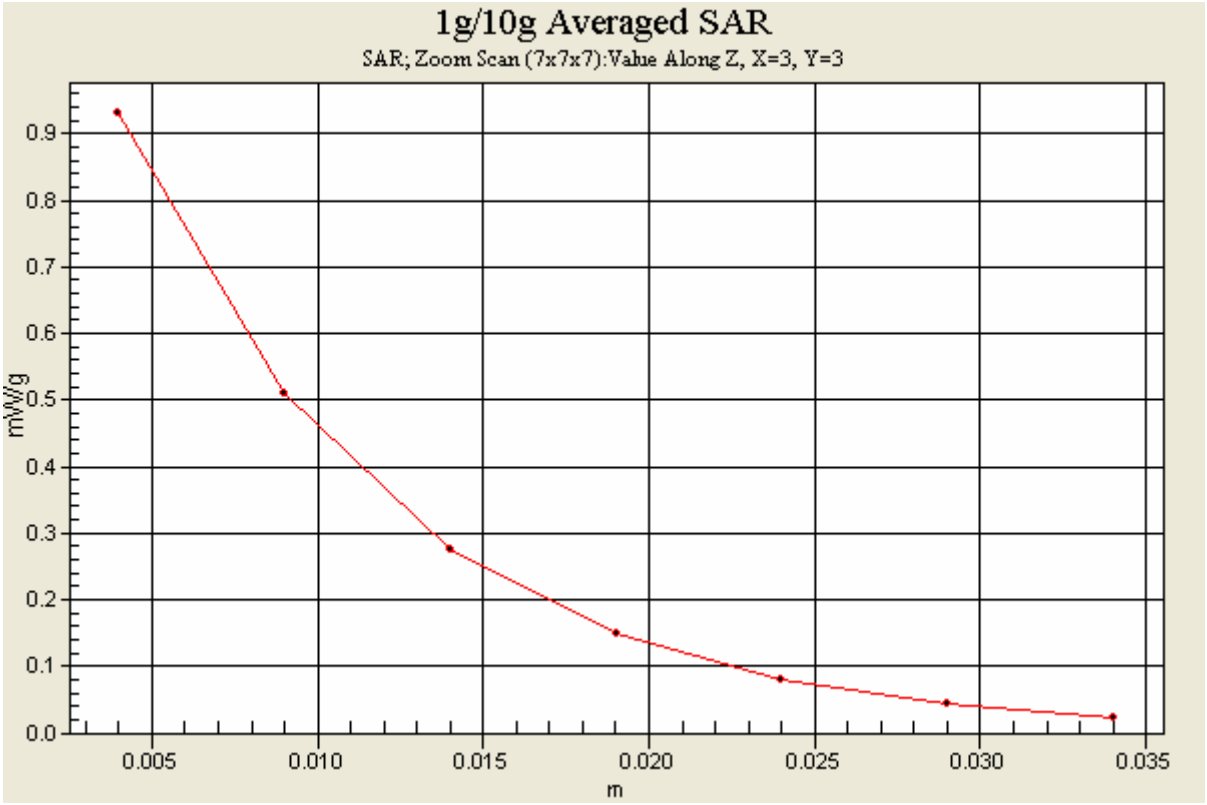
Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.06 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.878 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.2 V/m
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.932 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan (7x7x7):Value Along Z, X=3, Y=3
mW/g
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 2007/5/15 20:27:17

Test Laboratory: Advance Data Technology

n6000-10M-Mode 6

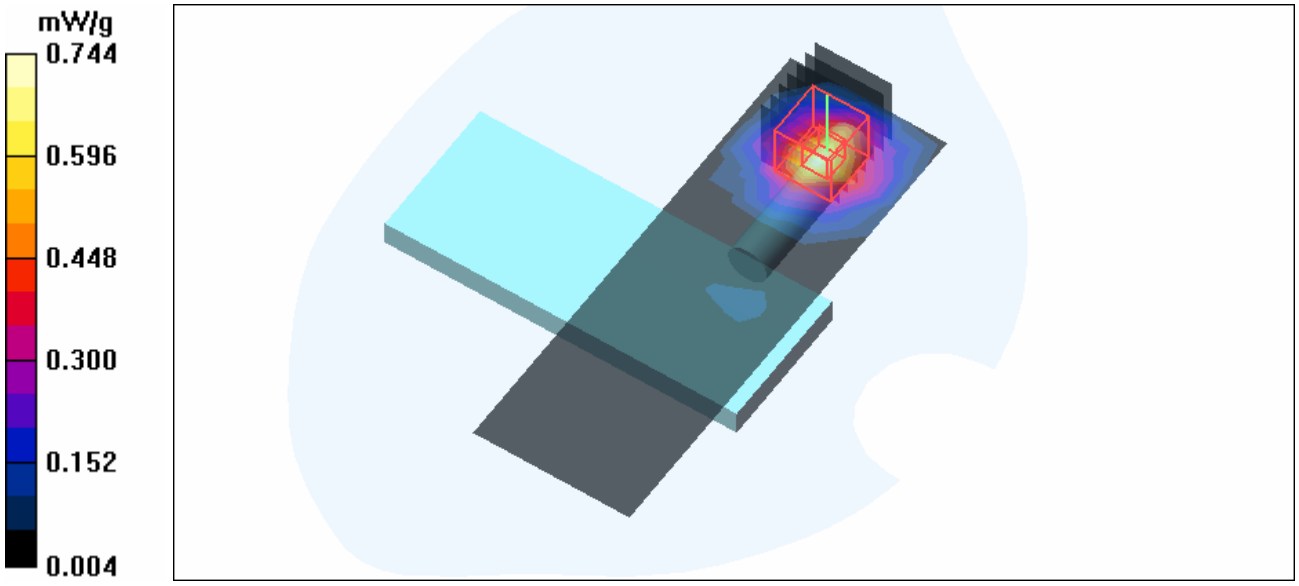
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2587.5 MHz

Communication System: FCC Wimax ; Frequency: 2587.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2587.5 MHz; σ = 2.17 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.740 mW/g

Mid Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.9 V/m
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.675 mW/g; SAR(10 g) = 0.341 mW/g
Maximum value of SAR (measured) = 0.744 mW/g



Date/Time: 2007/5/15 20:49:17

Test Laboratory: Advance Data Technology

n6000-10M-Mode 6

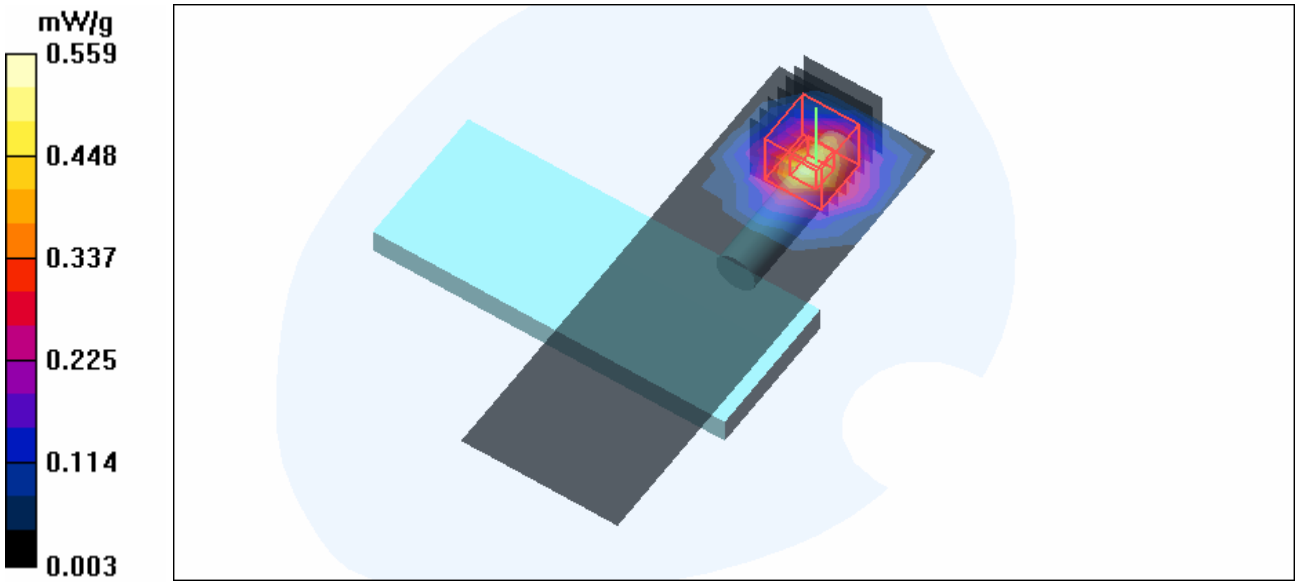
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2685 MHz

Communication System: FCC Wimax ; Frequency: 2685 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2685 MHz; σ = 2.26 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

High Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.518 mW/g

High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.9 V/m
Peak SAR (extrapolated) = 0.984 W/kg
SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.247 mW/g
Maximum value of SAR (measured) = 0.559 mW/g



Date/Time: 2007/5/15 21:26:20

Test Laboratory: Advance Data Technology

n6000-10M-Mode 7

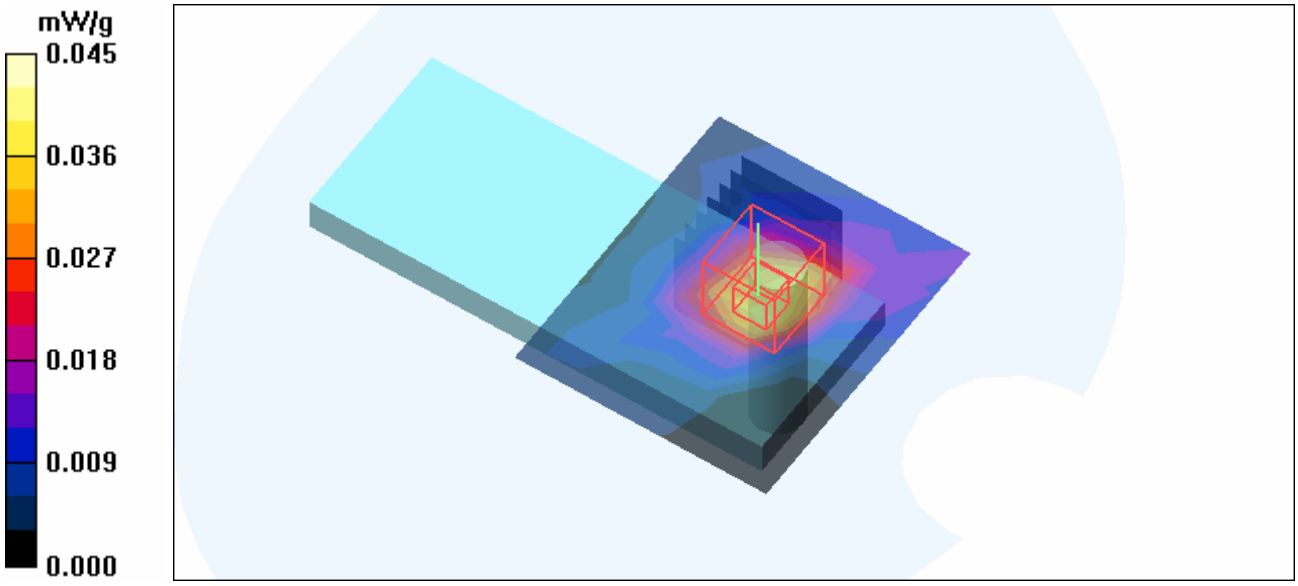
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.06 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.039 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.48 V/m
Peak SAR (extrapolated) = 0.077 W/kg
SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.045 mW/g



Date/Time: 2007/5/15 21:44:10

Test Laboratory: Advance Data Technology

n6000-10M-Mode 8

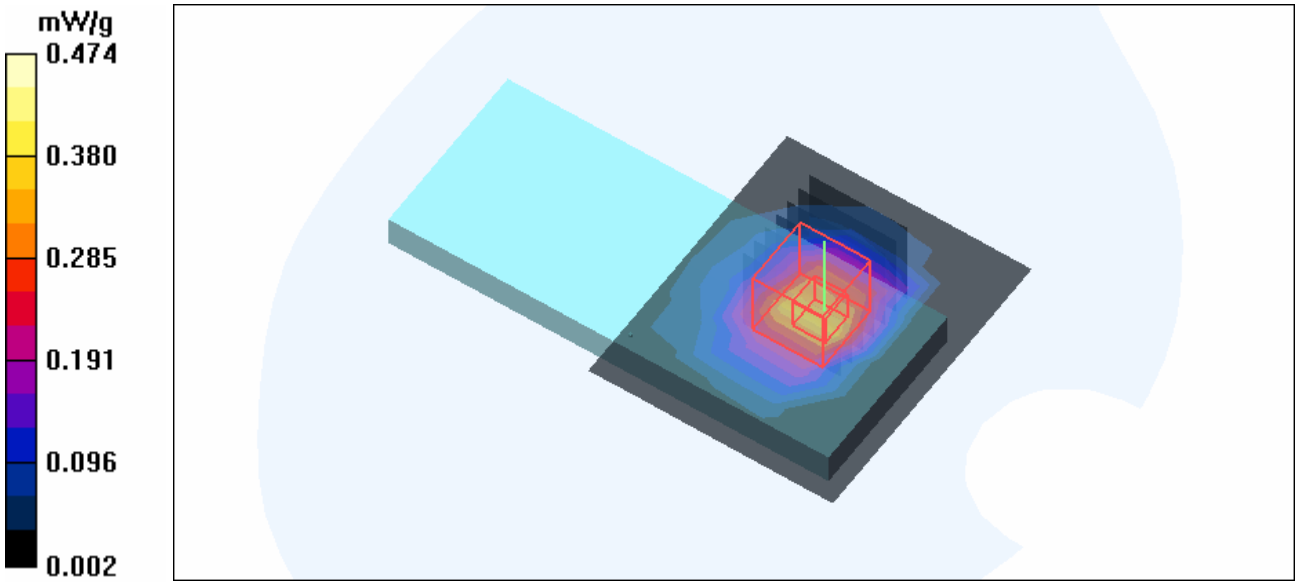
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.06 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The bottom side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.346 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.28 V/m
Peak SAR (extrapolated) = 0.791 W/kg
SAR(1 g) = 0.426 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.474 mW/g



Date/Time: 2007/5/15 22:06:43

Test Laboratory: Advance Data Technology

n800c-10M-Mode 9

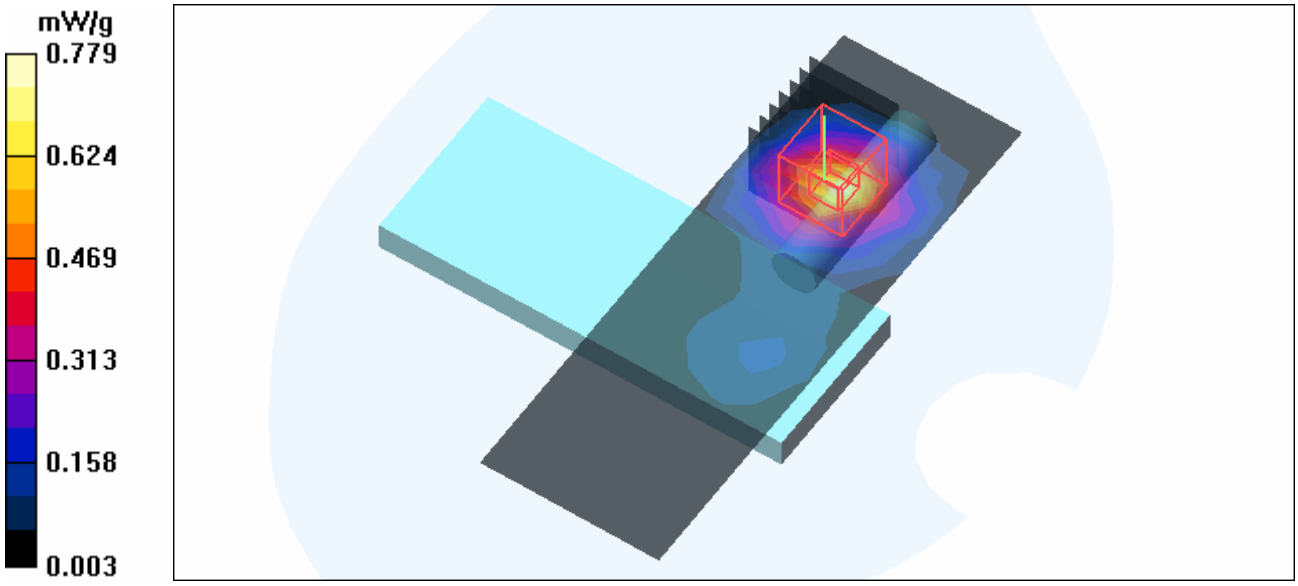
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.06 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 11 mm (The bottom side of the EUT to the Phantom)
Antenna type : PIFA Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.763 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.2 V/m
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.358 mW/g
Maximum value of SAR (measured) = 0.779 mW/g



Date/Time: 2007/5/15 22:42:27

Test Laboratory: Advance Data Technology

c600-10M-Mode 10

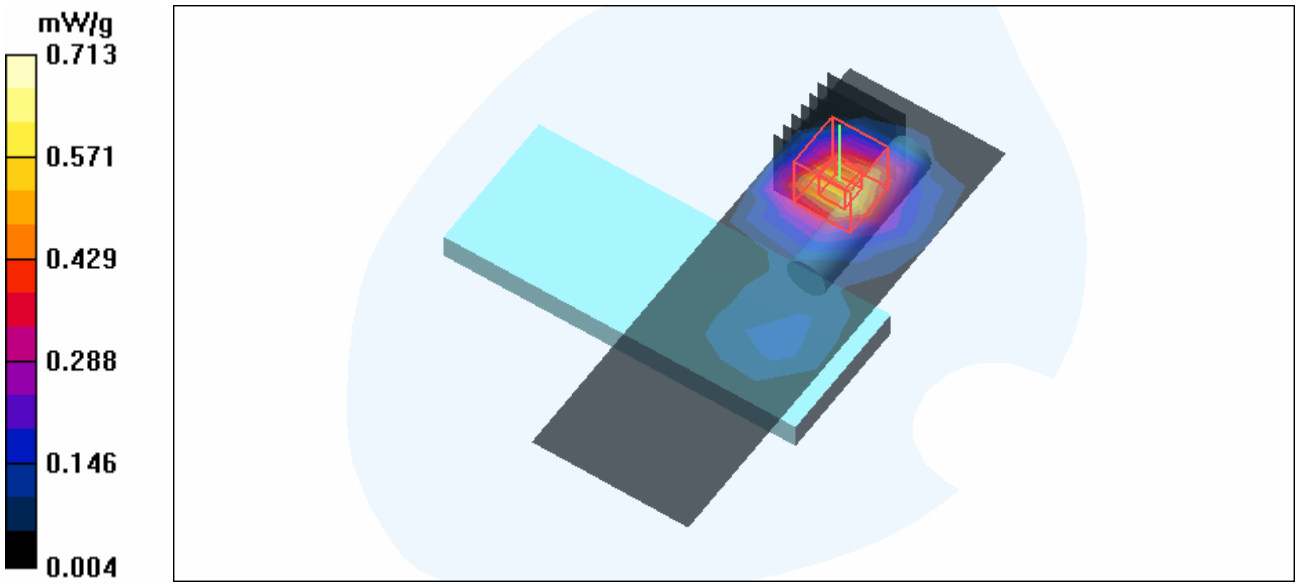
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.06 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 12 mm (The bottom side of the EUT to the Phantom)
Antenna type : PIFA Antenna ; Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2006/9/7
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.589 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.7 V/m
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.713 mW/g



Date/Time: 2007/9/4 09:46:33

Test Laboratory: Advance Data Technology

n6000-5M-Mode 11

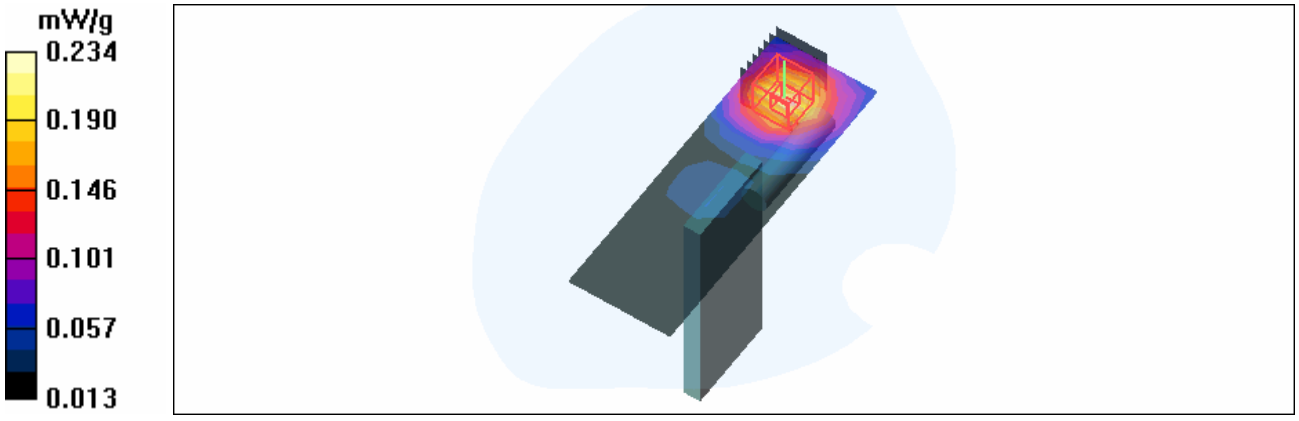
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

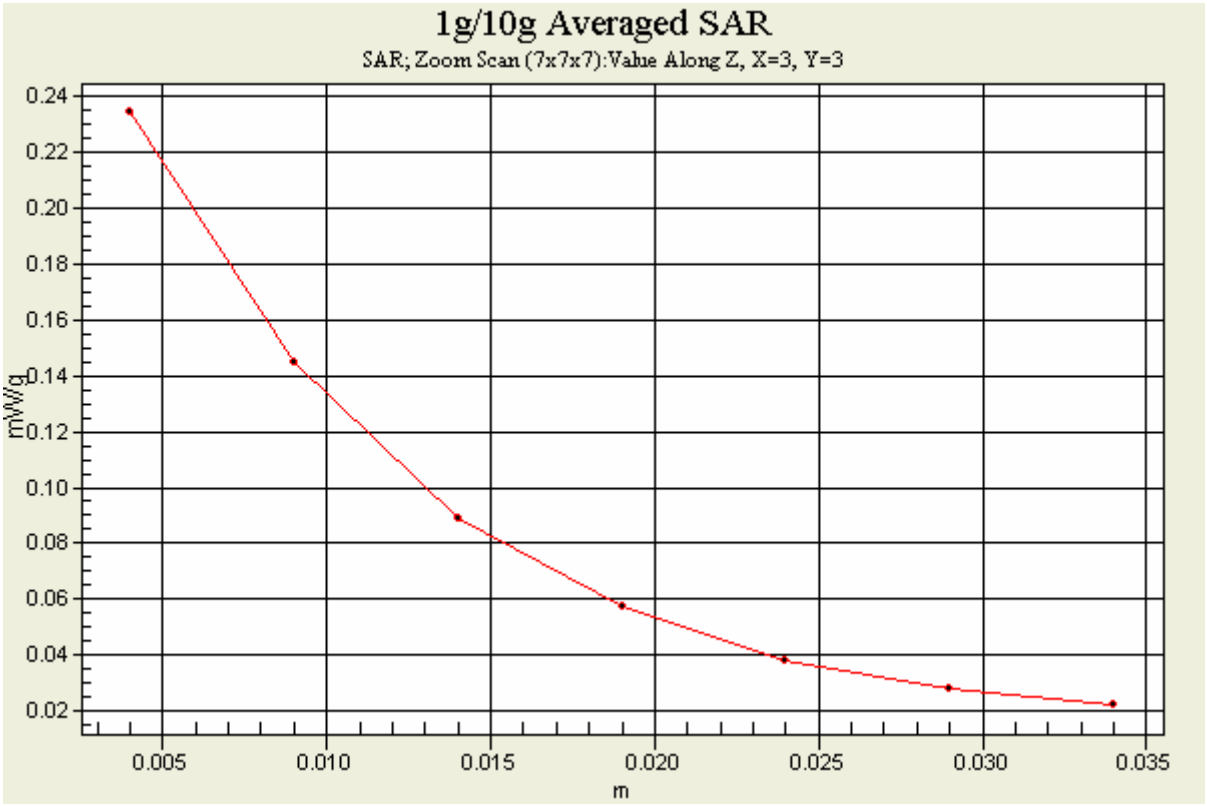
Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.227 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.57 V/m
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.234 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan (7x7x7):Value Along Z, X=3, Y=3
mW/g
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 2007/9/4 10:12:29

Test Laboratory: Advance Data Technology

n6000-5M-Mode 11

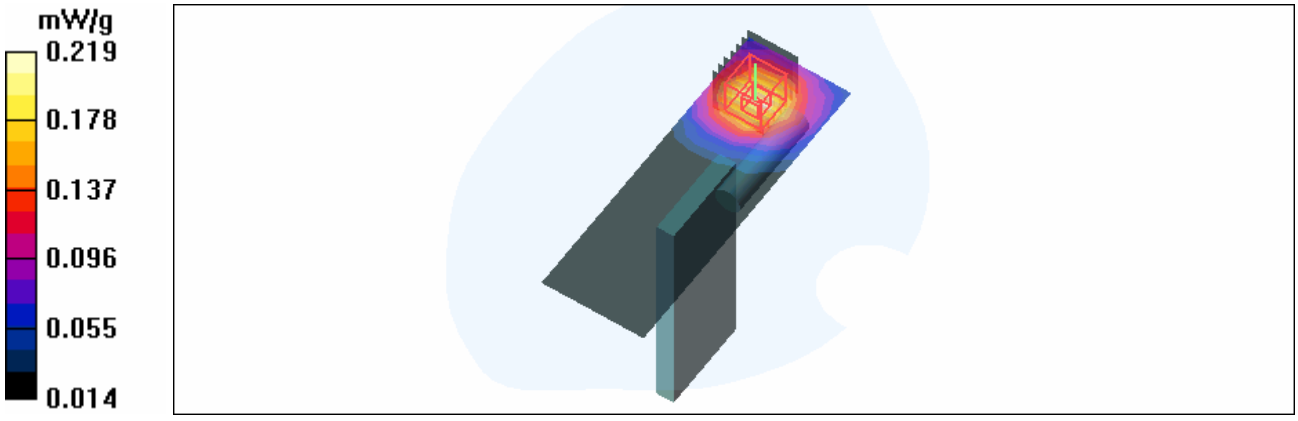
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2587.5 MHz

Communication System: FCC Wimax ; Frequency: 2587.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2587.5 MHz; σ = 2.16 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.210 mW/g

Mid Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.02 V/m
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.219 mW/g



Date/Time: 2007/9/4 10:30:19

Test Laboratory: Advance Data Technology

n6000-5M-Mode 11

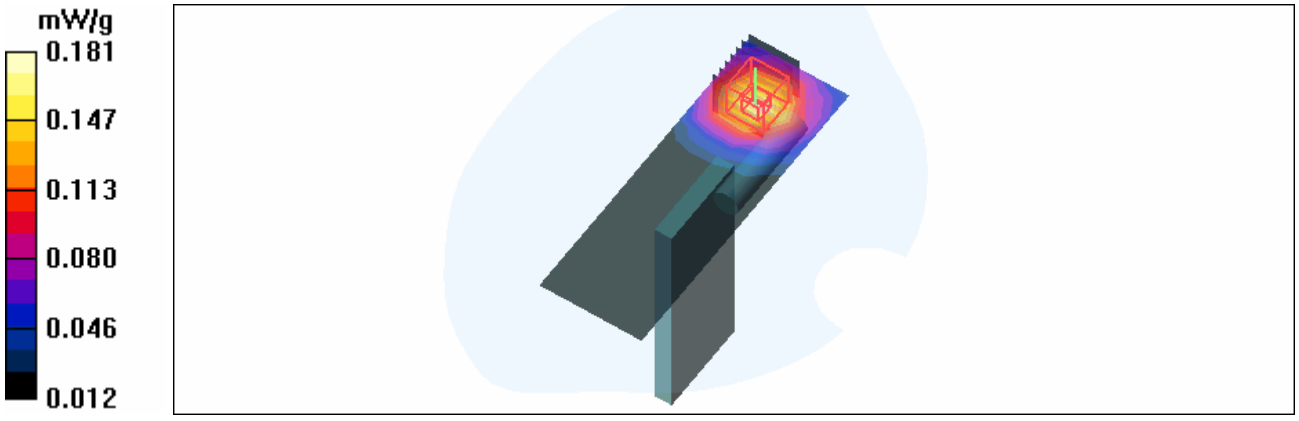
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2685 MHz

Communication System: FCC Wimax ; Frequency: 2685 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2685 MHz; σ = 2.27 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

High Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.182 mW/g

High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.96 V/m
Peak SAR (extrapolated) = 0.264 W/kg
SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.181 mW/g



Date/Time: 2007/9/4 10:48:30

Test Laboratory: Advance Data Technology

n6000-5M-Mode 12

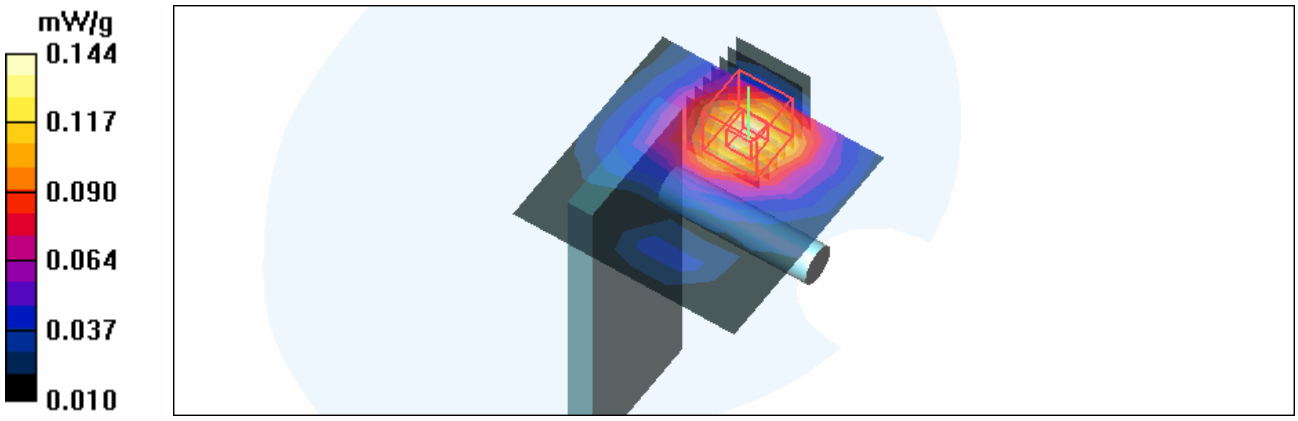
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.144 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.39 V/m
Peak SAR (extrapolated) = 0.213 W/kg
SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.080 mW/g



Date/Time: 2007/9/4 11:04:38

Test Laboratory: Advance Data Technology

n6000-5M-Mode 13

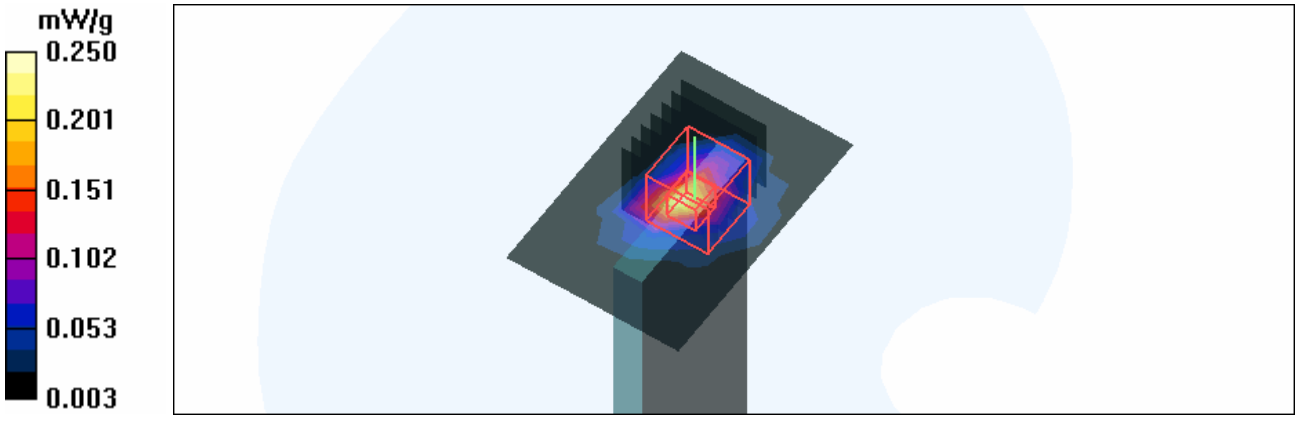
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.235 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.9 V/m
Peak SAR (extrapolated) = 0.459 W/kg
SAR(1 g) = 0.210 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.250 mW/g



Date/Time: 2007/9/4 11:20:41

Test Laboratory: Advance Data Technology

N800C-5M-Mode 14

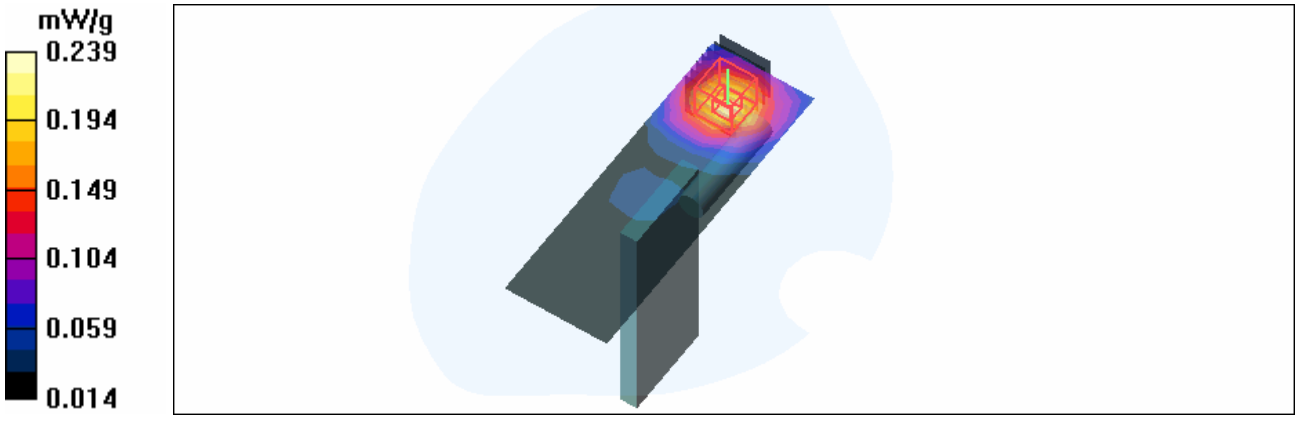
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.235 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.14 V/m
Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.129 mW/g
Maximum value of SAR (measured) = 0.239 mW/g



Date/Time: 2007/9/4 11:39:19

Test Laboratory: Advance Data Technology

C600-5M-Mode 15

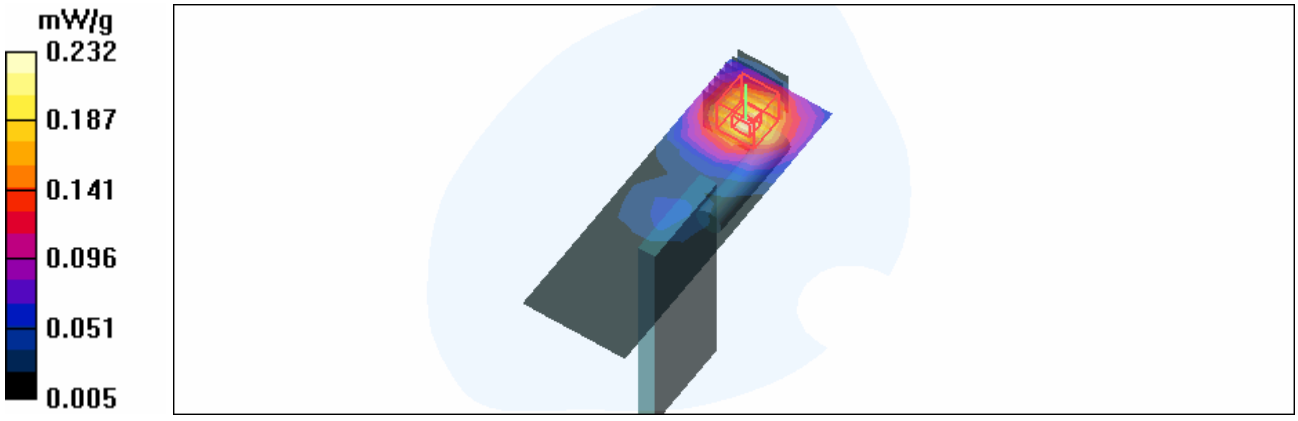
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P005 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.232 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.76 V/m
Peak SAR (extrapolated) = 0.334 W/kg
SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.128 mW/g
Maximum value of SAR (measured) = 0.230 mW/g



Date/Time: 2007/9/4 13:17:09

Test Laboratory: Advance Data Technology

n6000-10M-Mode 16

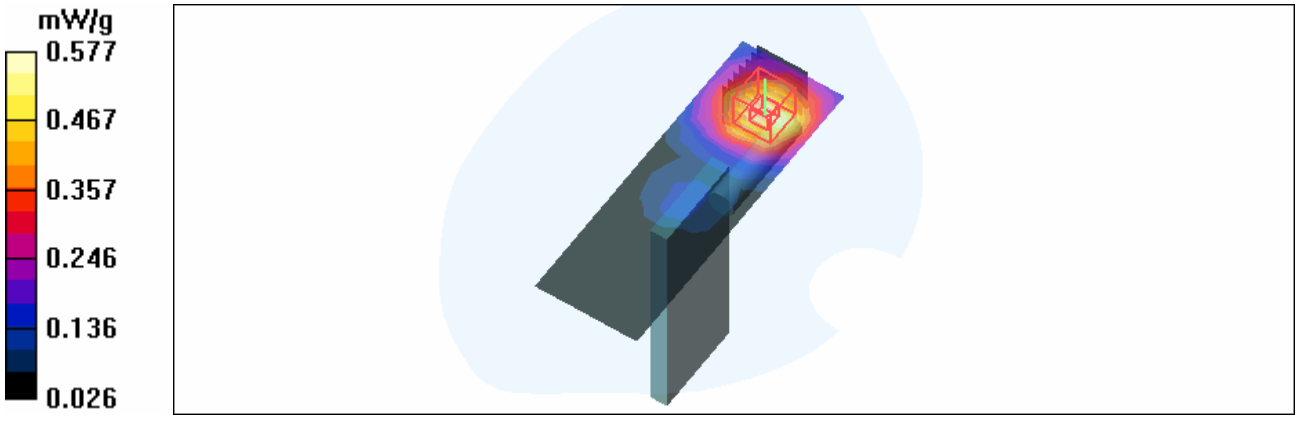
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

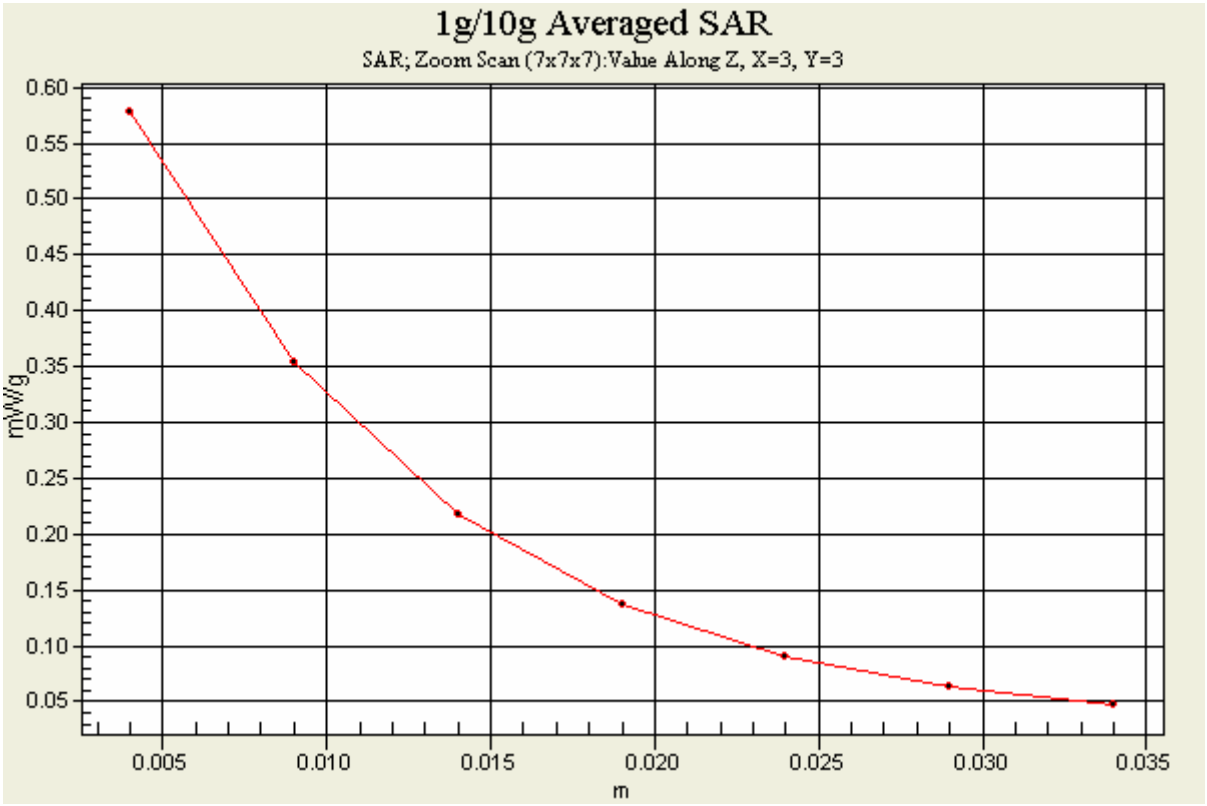
Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.604 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.14 V/m
Peak SAR (extrapolated) = 0.840 W/kg
SAR(1 g) = 0.528 mW/g; SAR(10 g) = 0.320 mW/g
Maximum value of SAR (measured) = 0.577 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan (7x7x7):Value Along Z, X=3, Y=3
mW/g
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 2007/9/4 13:36:14

Test Laboratory: Advance Data Technology

n6000-10M-Mode 16

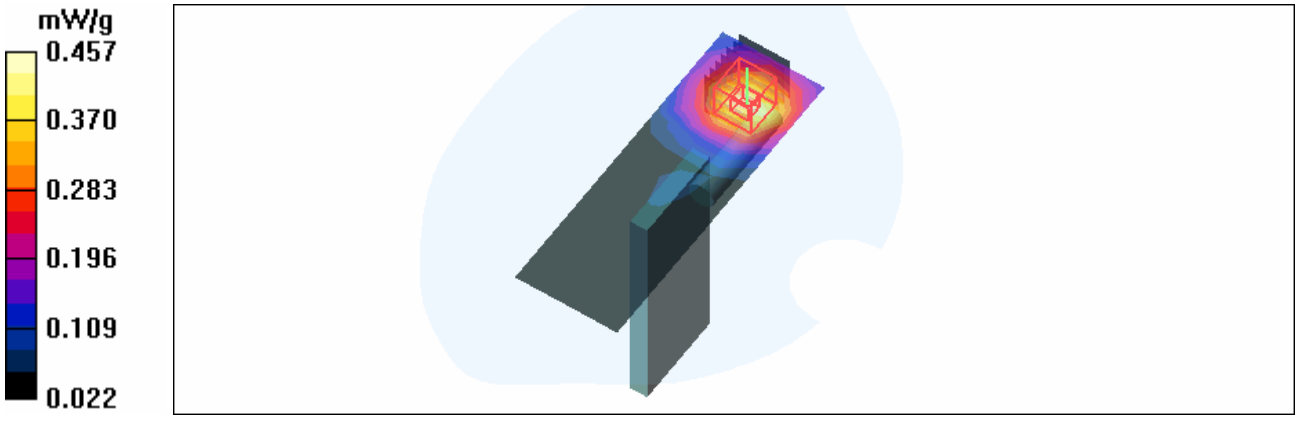
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2587.5 MHz

Communication System: FCC Wimax ; Frequency: 2587.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2587.5 MHz; σ = 2.16 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.473 mW/g

Mid Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.35 V/m
Peak SAR (extrapolated) = 0.677 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.253 mW/g
Maximum value of SAR (measured) = 0.457 mW/g



Date/Time: 2007/9/4 13:54:06

Test Laboratory: Advance Data Technology

n6000-10M-Mode 16

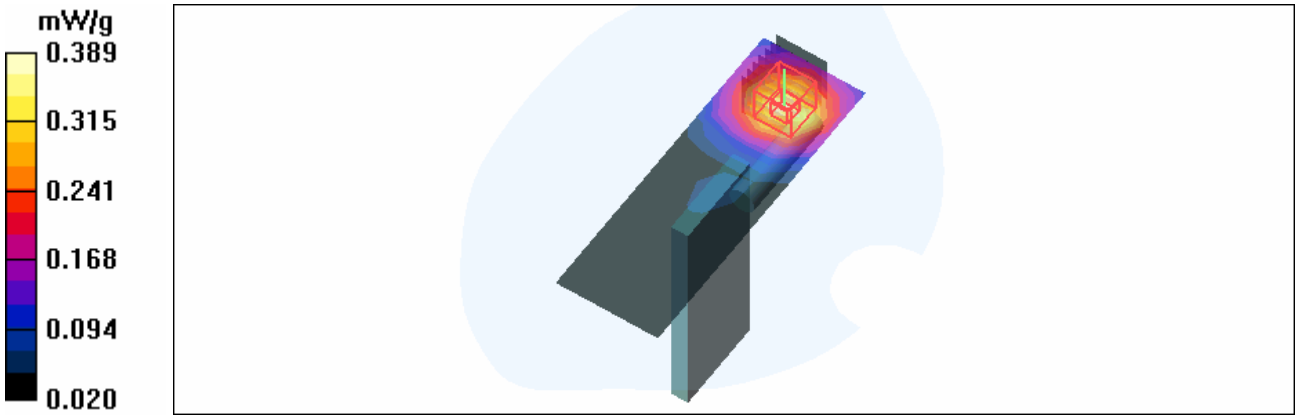
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2685 MHz

Communication System: FCC Wimax ; Frequency: 2685 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2685 MHz; σ = 2.27 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

High Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.391 mW/g

High Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.92 V/m
Peak SAR (extrapolated) = 0.586 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.214 mW/g
Maximum value of SAR (measured) = 0.389 mW/g



Date/Time: 2007/9/4 14:12:37

Test Laboratory: Advance Data Technology

n6000-10M-Mode 17

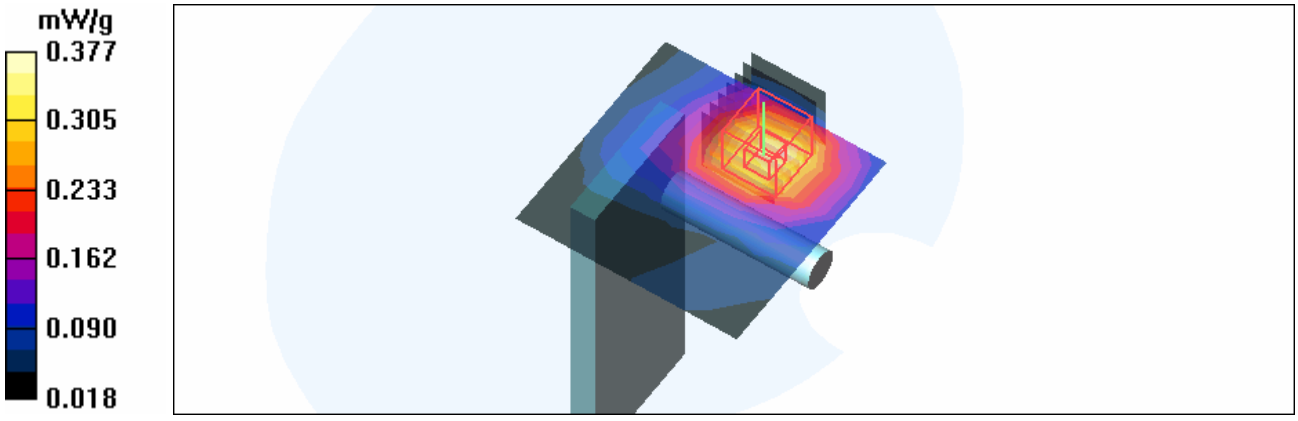
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.362 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.08 V/m
Peak SAR (extrapolated) = 0.558 W/kg
SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.206 mW/g
Maximum value of SAR (measured) = 0.377 mW/g



Date/Time: 2007/9/4 14:30:57

Test Laboratory: Advance Data Technology

n6000-10M-Mode 18

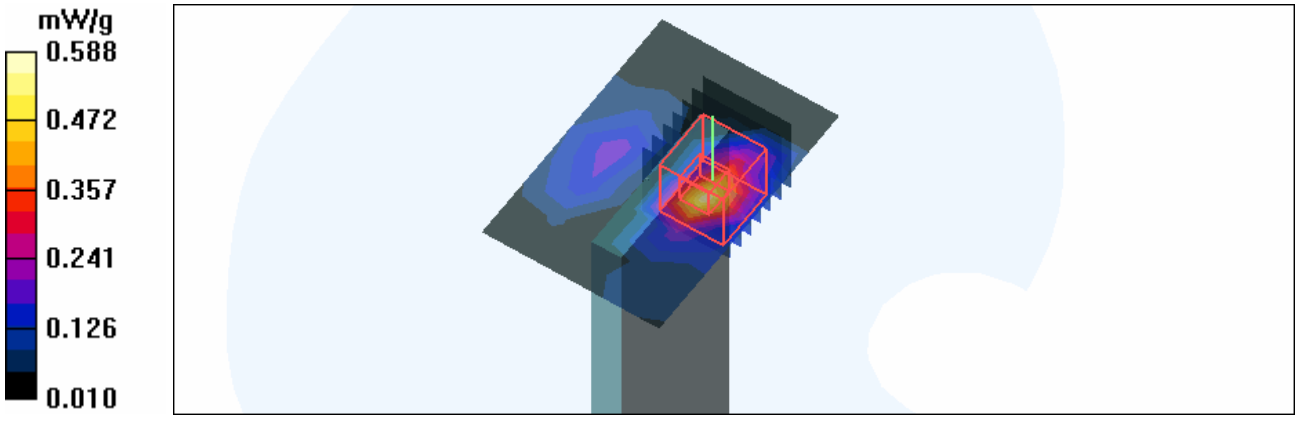
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.558 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.49 V/m
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.229 mW/g
Maximum value of SAR (measured) = 0.588 mW/g



Date/Time: 2007/9/4 14:48:11

Test Laboratory: Advance Data Technology

N800C-10M-Mode 19

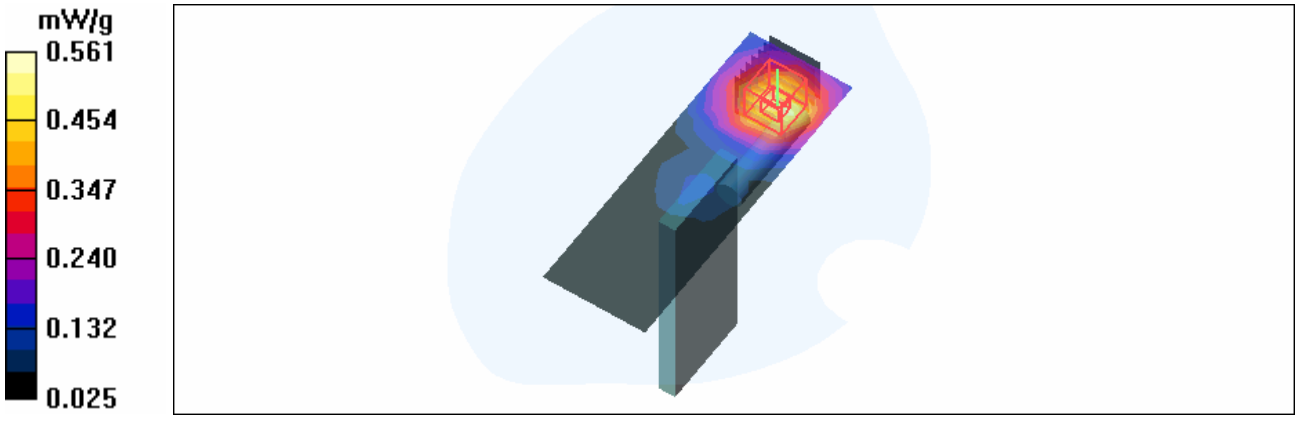
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.538 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.88 V/m
Peak SAR (extrapolated) = 0.815 W/kg
SAR(1 g) = 0.514 mW/g; SAR(10 g) = 0.311 mW/g
Maximum value of SAR (measured) = 0.561 mW/g



Date/Time: 2007/9/4 15:06:06

Test Laboratory: Advance Data Technology

C600-10M-Mode 20

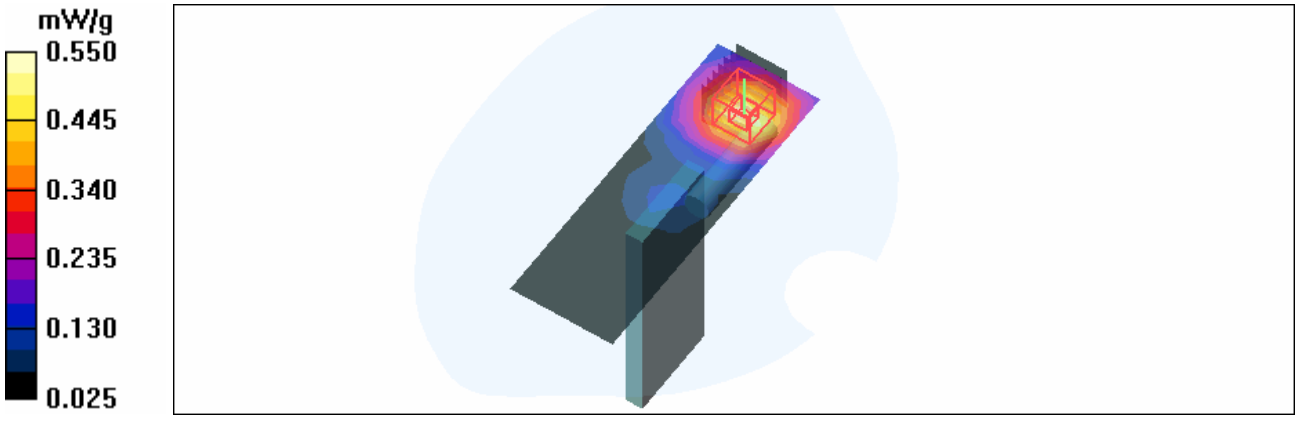
DUT: Wimax 2.5GHz PC Card ; Type: 125PCB120P010 ; Test Frequency: 2508.5 MHz

Communication System: FCC Wimax ; Frequency: 2508.5 MHz ; Duty Cycle: 1:1 ; Modulation type: OFDM
Medium: MSL2600 Medium parameters used: f = 2508.5 MHz; σ = 2.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)
Antenna type : Dipole Antenna ; Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2007/3/23
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.549 mW/g

Low Channel/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.05 V/m
Peak SAR (extrapolated) = 0.806 W/kg
SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.550 mW/g



Date/Time: 2007/6/1 10:38:54

Test Laboratory: Advance Data Technology

System Validation Check-MSL 2600MHz

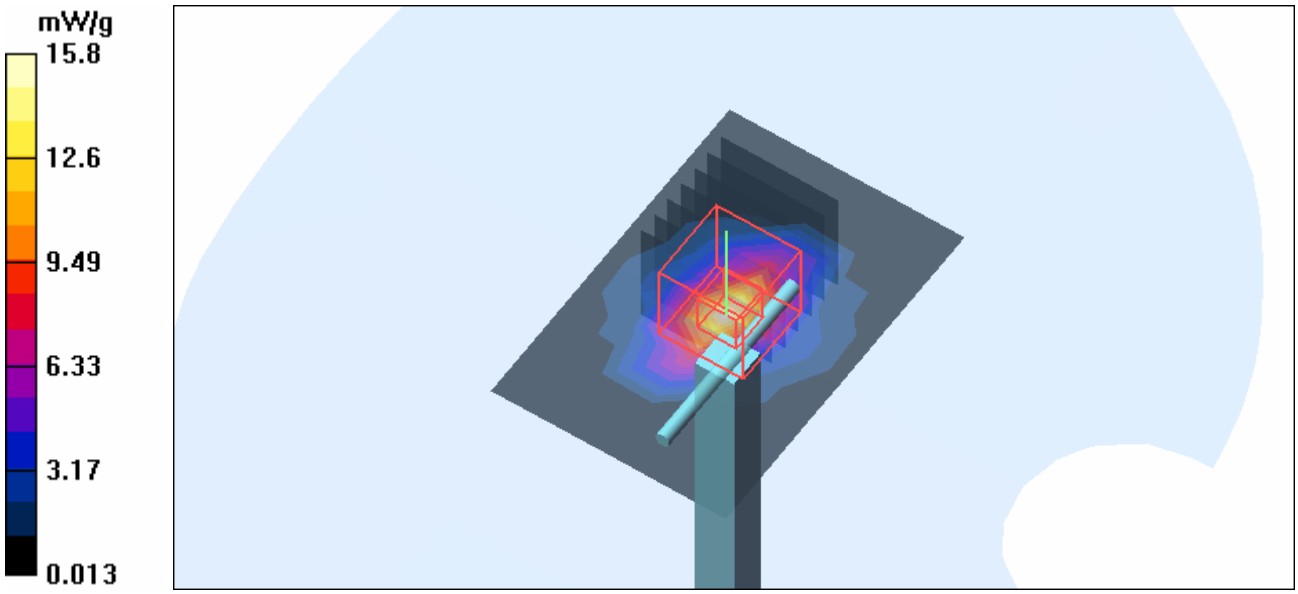
DUT: Dipole 2600 MHz ; Type: D2600V2 ; Serial: 1003 ; Test Frequency: 2600 MHz

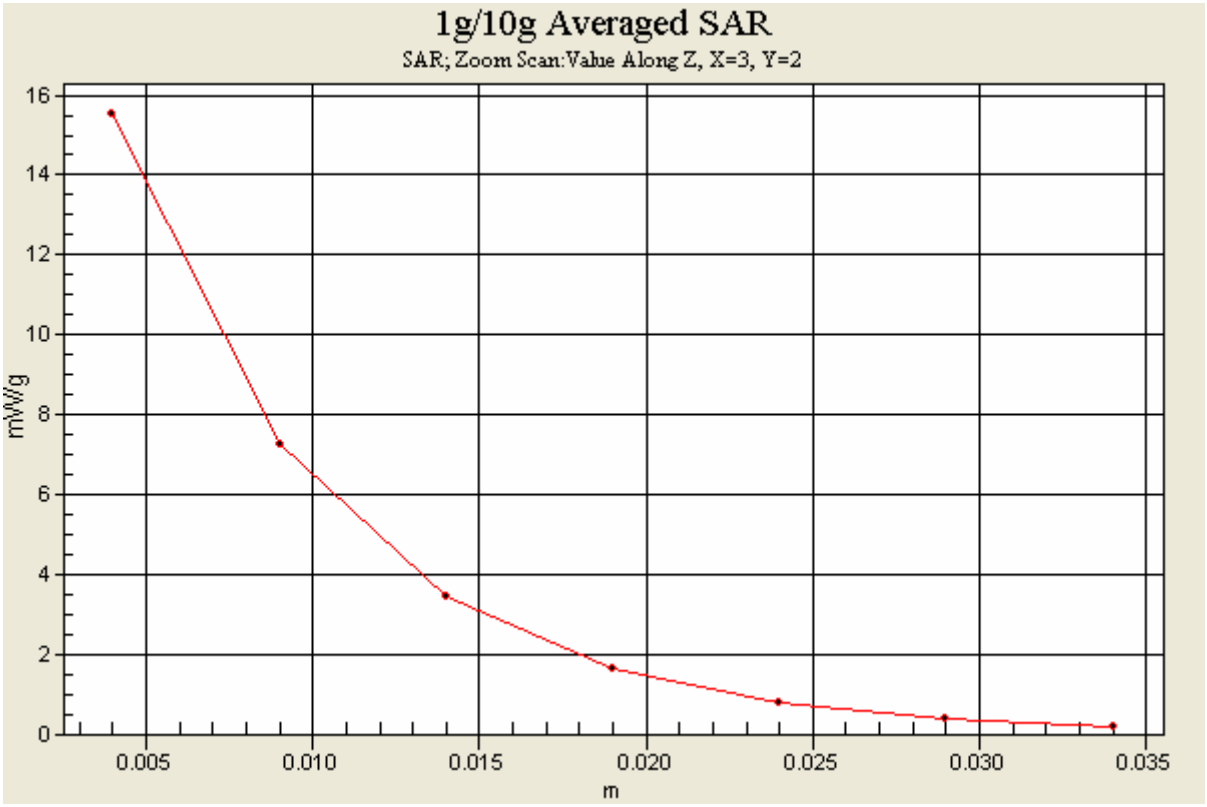
Communication System: CW ; Frequency: 2600 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL2600;Medium parameters used: f = 2600 MHz; σ = 2.19 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.7 degrees ; Liquid temp. : 21.5 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2006/9/7
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 15.8 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.5 V/m; Power Drift = -0.129 dB
Peak SAR (extrapolated) = 29.4 W/kg
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 5.99 mW/g
Maximum value of SAR (measured) = 15.5 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=3, Y=2
mW/g
16
14
12
10
8
6
4
2
0
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 2007/5/15 18:42:04

Test Laboratory: Advance Data Technology

System Validation Check-MSL 2600MHz

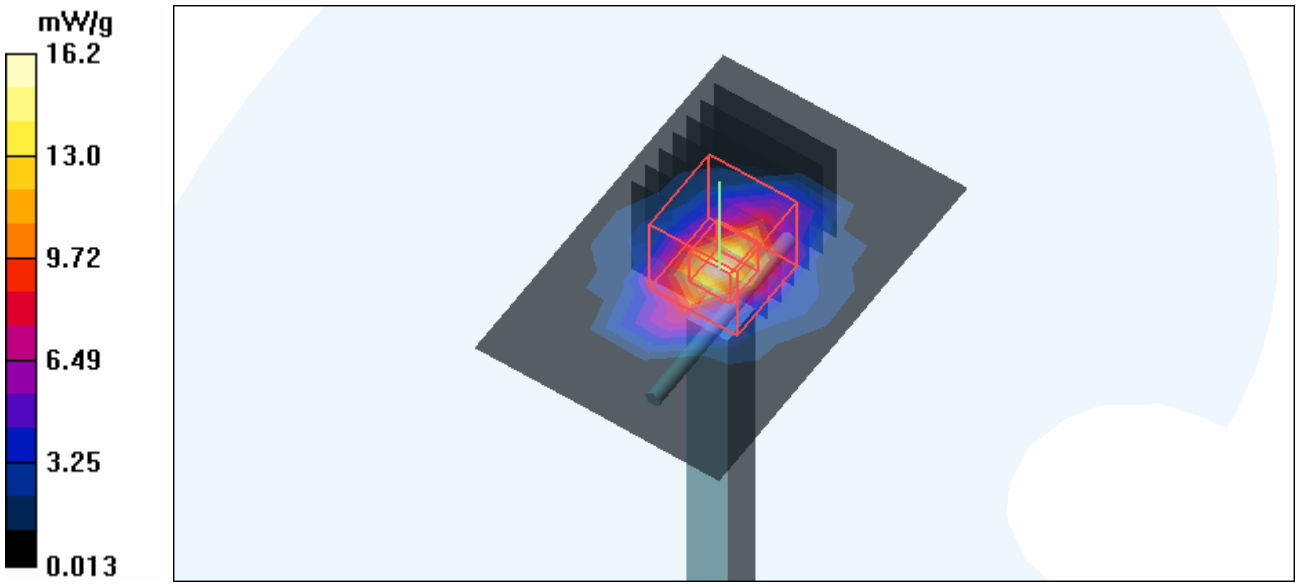
DUT: Dipole 2600 MHz ; Type: D2600V2 ; Serial: 1003 ; Test Frequency: 2600 MHz

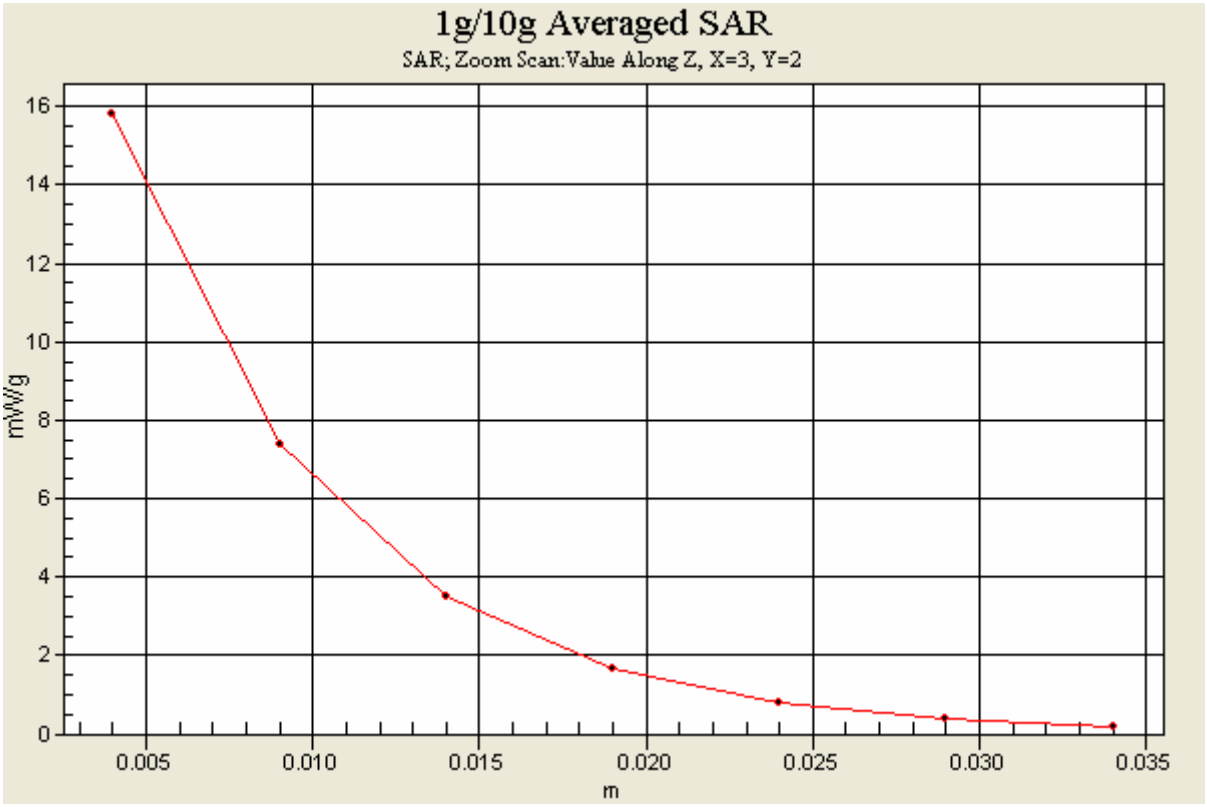
Communication System: CW ; Frequency: 2600 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL2600;Medium parameters used: f = 2600 MHz; σ = 2.19 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.1 degrees ; Liquid temp. : 22.2 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(7.83, 7.83, 7.83) ; Calibrated: 2006/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2006/9/7
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 16.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.5 V/m; Power Drift = -0.102 dB
Peak SAR (extrapolated) = 30.1 W/kg
SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.05 mW/g
Maximum value of SAR (measured) = 15.8 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=3, Y=2
mW/g
16
14
12
10
8
6
4
2
0
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 2007/9/4 08:50:40

Test Laboratory: Advance Data Technology

System Validation Check-MSL 2600MHz

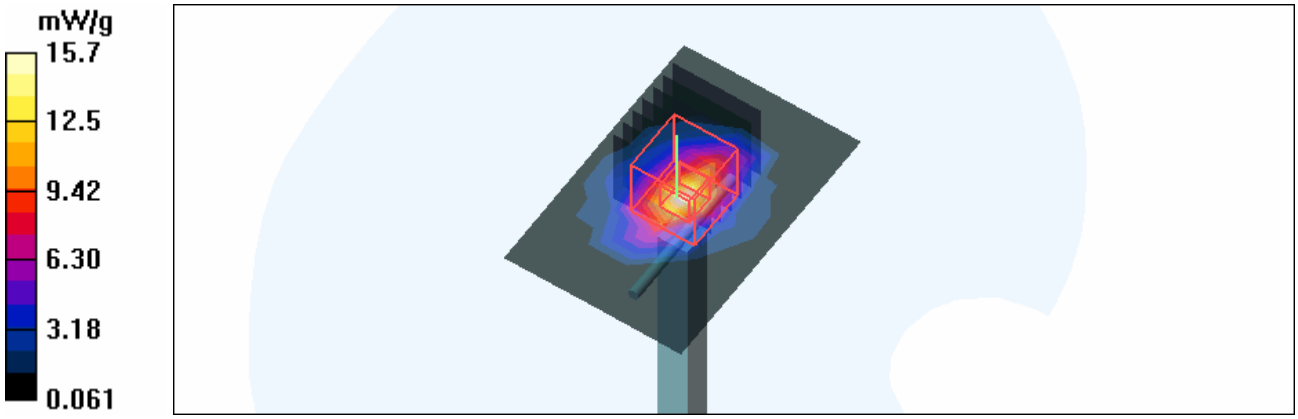
DUT: Dipole 2600 MHz ; Type: D2600V2 ; Serial: 1003 ; Test Frequency: 2600 MHz

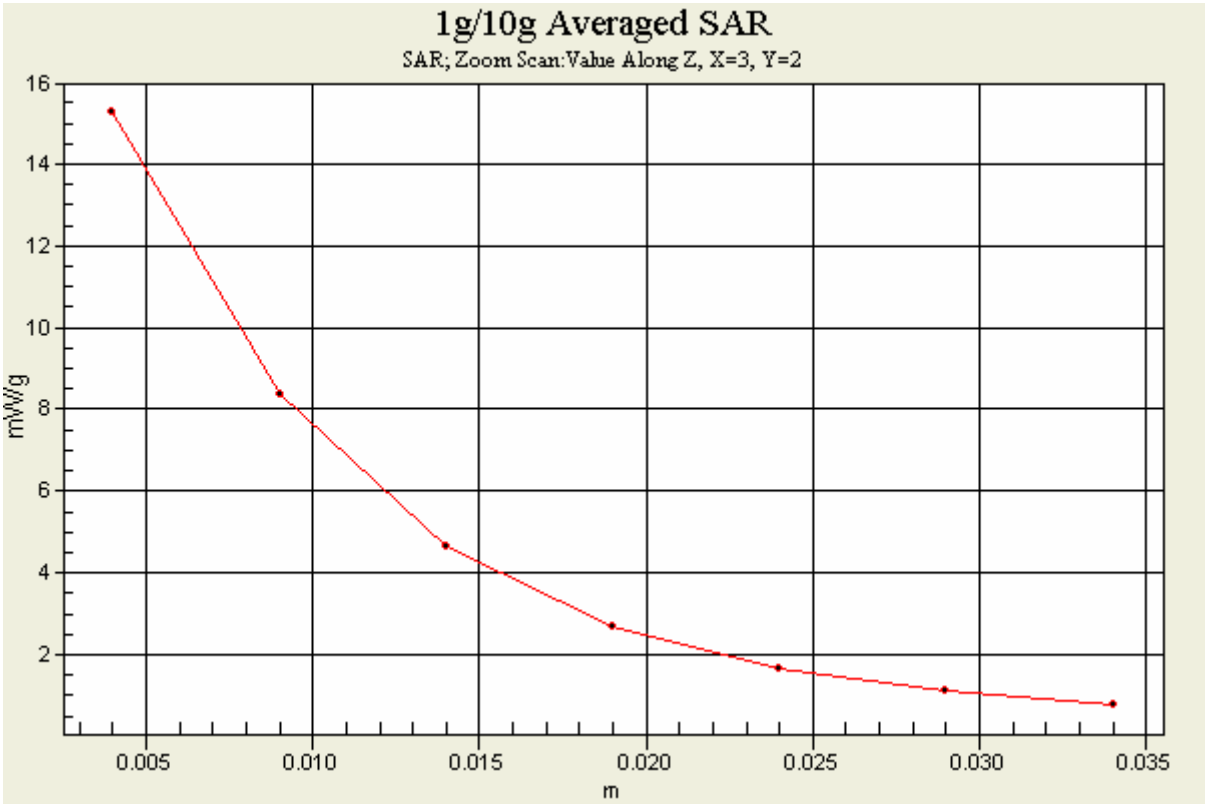
Communication System: CW ; Frequency: 2600 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL2600;Medium parameters used: f = 2600 MHz; σ = 2.18 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.9 degrees ; Liquid temp. : 22.0 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3506 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2007/3/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2007/3/23
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 15.7 mW/g

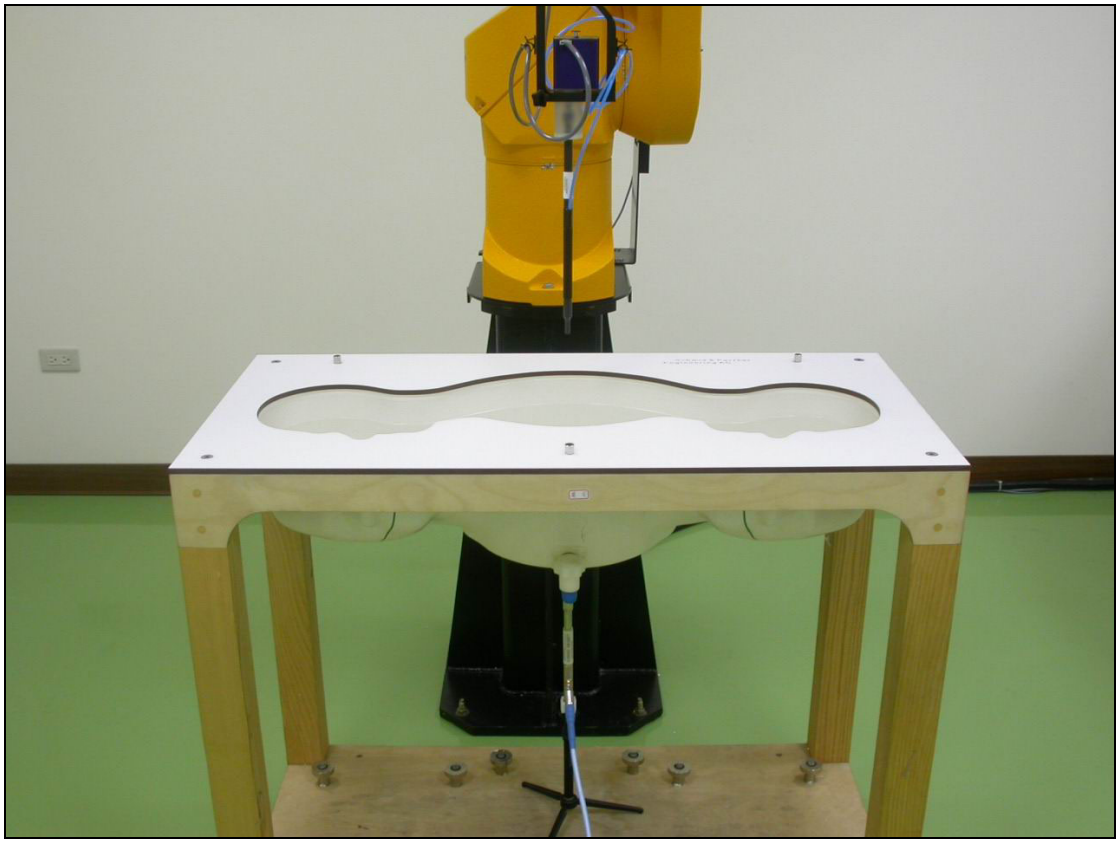
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 82.0 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 25.0 W/kg
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 5.97 mW/g
Maximum value of SAR (measured) = 15.3 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=3, Y=2
mW/g
16
14
12
10
8
6
4
2
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

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

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: EX3-3504_Nov06

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3504
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-14.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	November 23, 2006
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	2-Jan-06 (SPEAG, No. ES3-3013_Jan06)	Jan-07
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: November 23, 2006

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV3

SN:3504

Manufactured:	December 15, 2003
Last calibrated:	March 23, 2005
Recalibrated:	November 23, 2006

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3504

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.600** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**95** mV
NormY	**0.600** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**95** mV
NormZ	**0.630** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**95** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **5200 MHz** **Typical SAR gradient: 25 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	10.4	4.3
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

TSL **5800 MHz** **Typical SAR gradient: 30 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	8.4	2.3
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

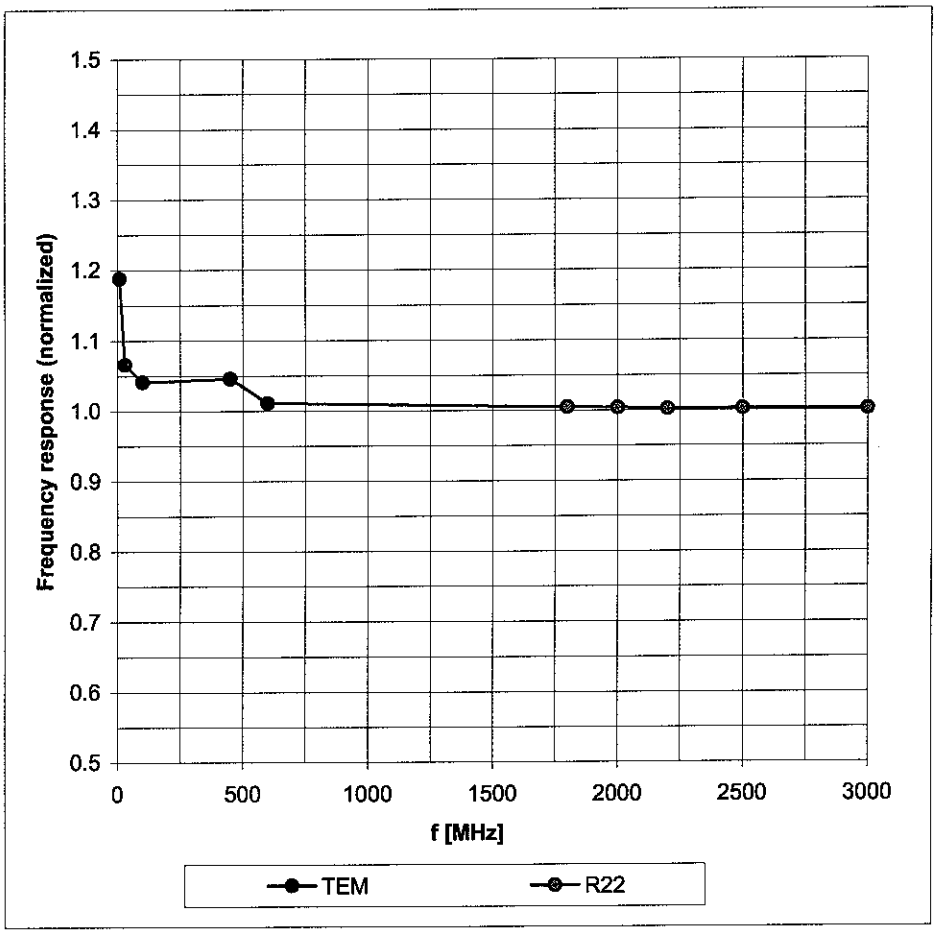
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

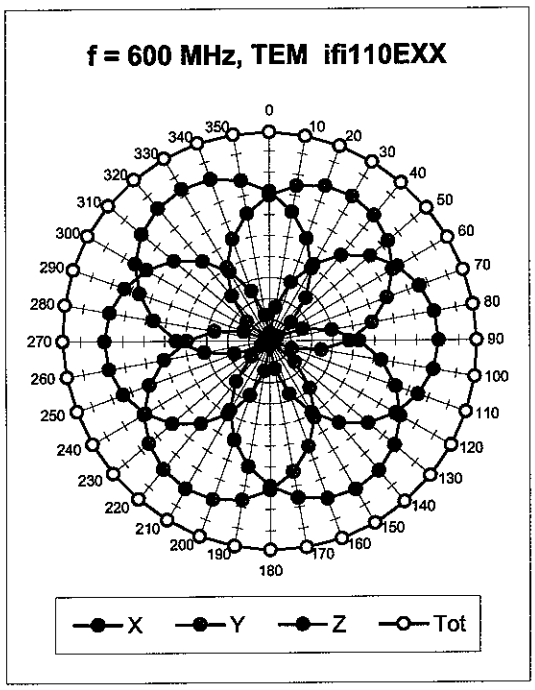
Frequency Response of E-Field

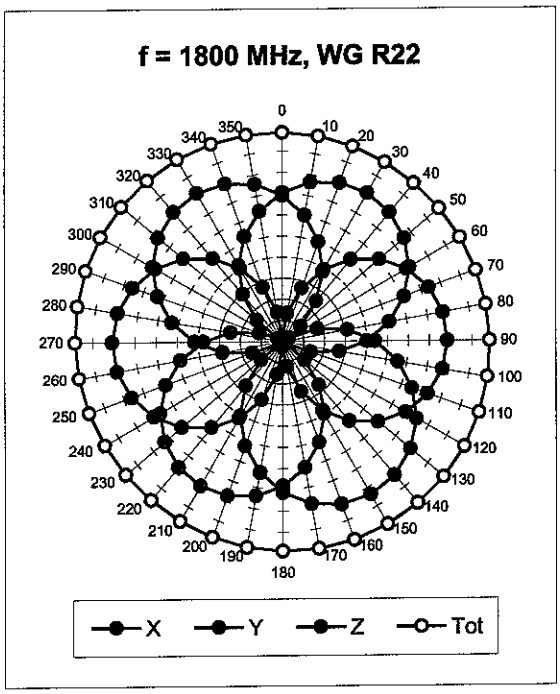
(TEM-Cell:ifi110 EXX, Waveguide: R22)

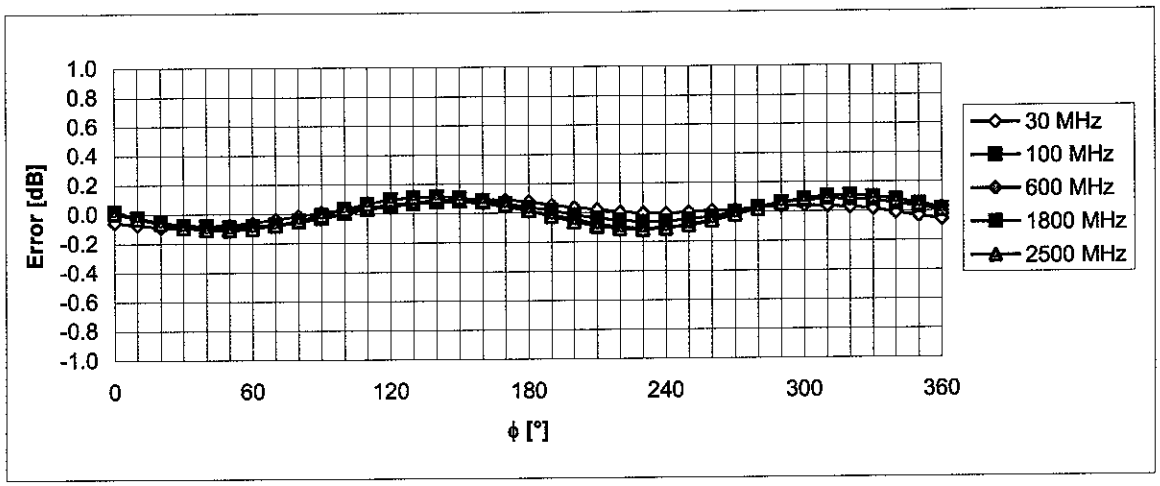


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



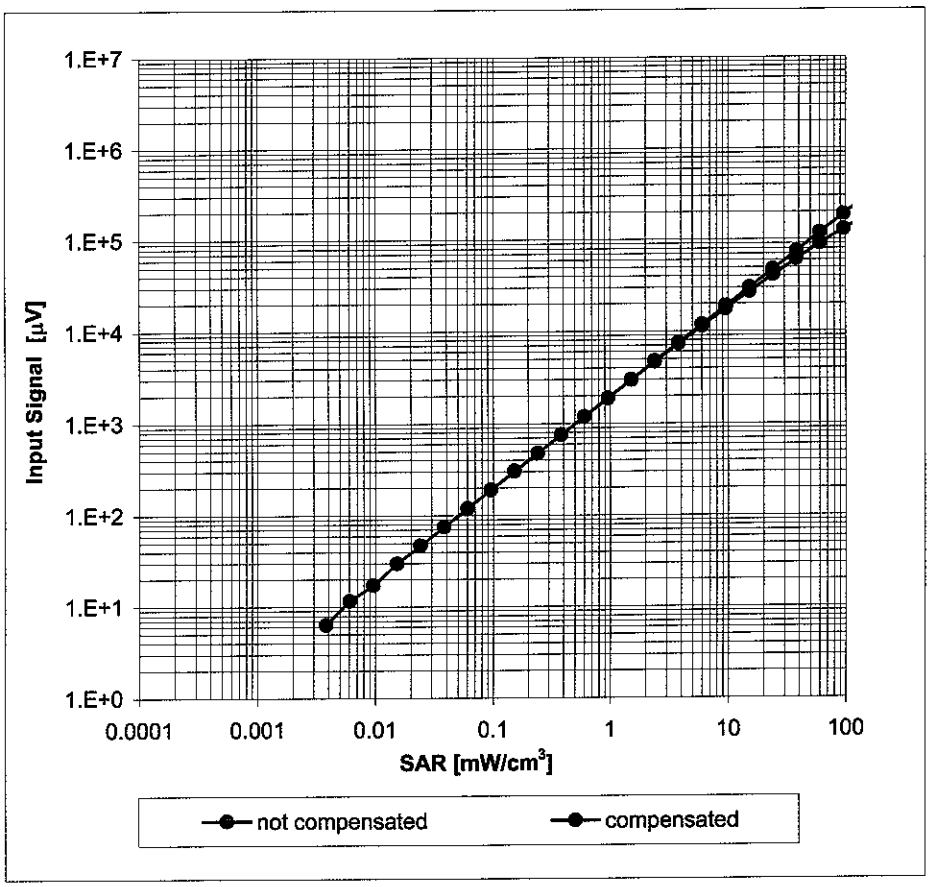


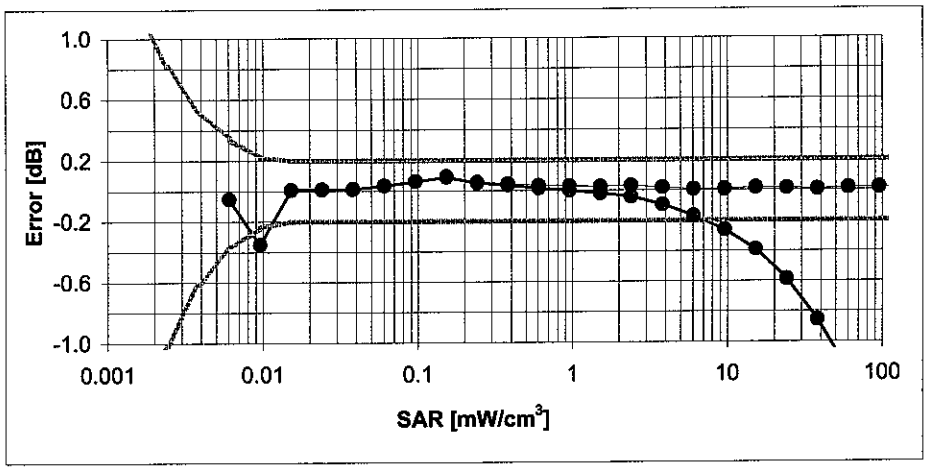


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

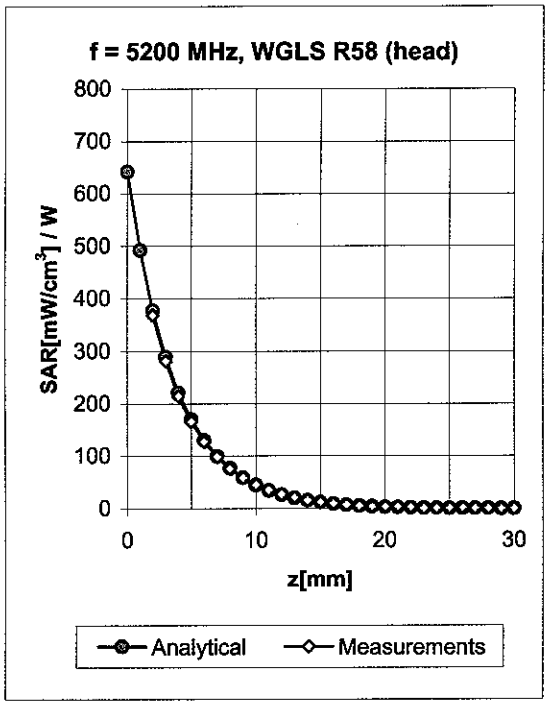
(Waveguide R22, f = 1800 MHz)

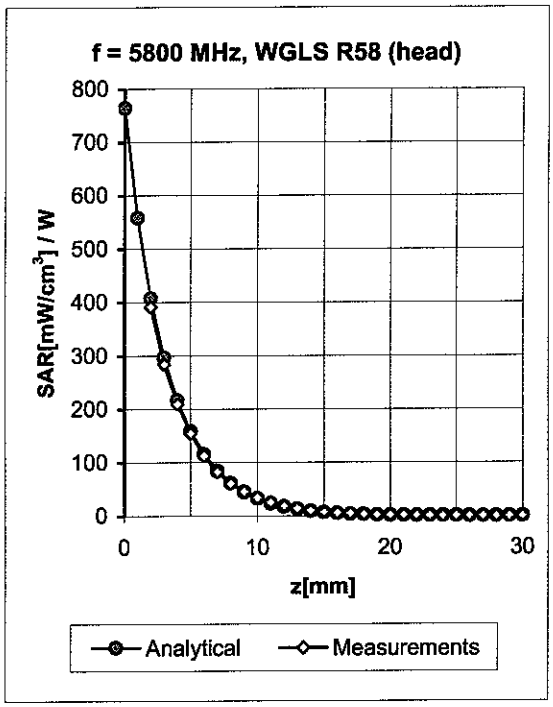




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



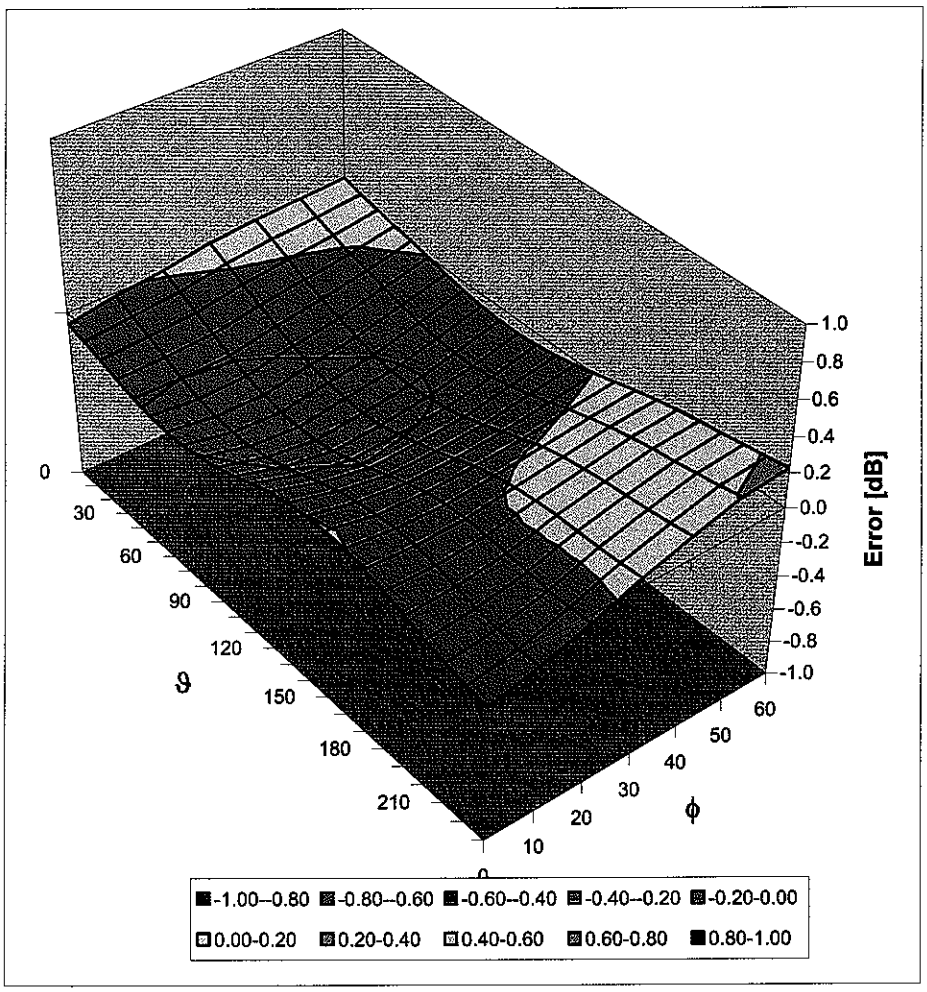


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty	
4950	± 50 / ± 100	Head	36.3 ± 5%	4.40 ± 5%	0.32	1.75	5.46	± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.35	1.80	5.00	± 13.1% (k=2)
5300	± 50 / ± 100	Head	35.9 ± 5%	4.76 ± 5%	0.35	1.80	4.78	± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.32	1.80	4.74	± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.35	1.78	4.58	± 13.1% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.37	1.00	8.07	± 11.8% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.33	1.00	7.83	± 11.8% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.50	0.91	7.06	± 13.1% (k=2)
4950	± 50 / ± 100	Body	49.4 ± 5%	5.01 ± 5%	0.38	1.70	4.68	± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.35	1.70	4.42	± 13.1% (k=2)
5300	± 50 / ± 100	Body	48.5 ± 5%	5.42 ± 5%	0.37	1.65	4.05	± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.35	1.65	4.09	± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.35	1.65	4.24	± 13.1% (k=2)

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: EX3-3506_Mar07

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3506
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-14.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	March 20, 2007
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: March 21, 2007

Calibration Laboratory of
Schmid & Partner
Engineering AG
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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV3

SN:3506

Manufactured:	February 18, 2004
Last calibrated:	April 20, 2006
Recalibrated:	March 20, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3506

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.810** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**97** mV
NormY	**0.880** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**94** mV
NormZ	**0.810** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**92** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

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

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	3.4	1.1
SAR_{be} [%]	With Correction Algorithm	0.0	0.1

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	4.6	2.7
SAR_{be} [%]	With Correction Algorithm	0.2	0.4

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

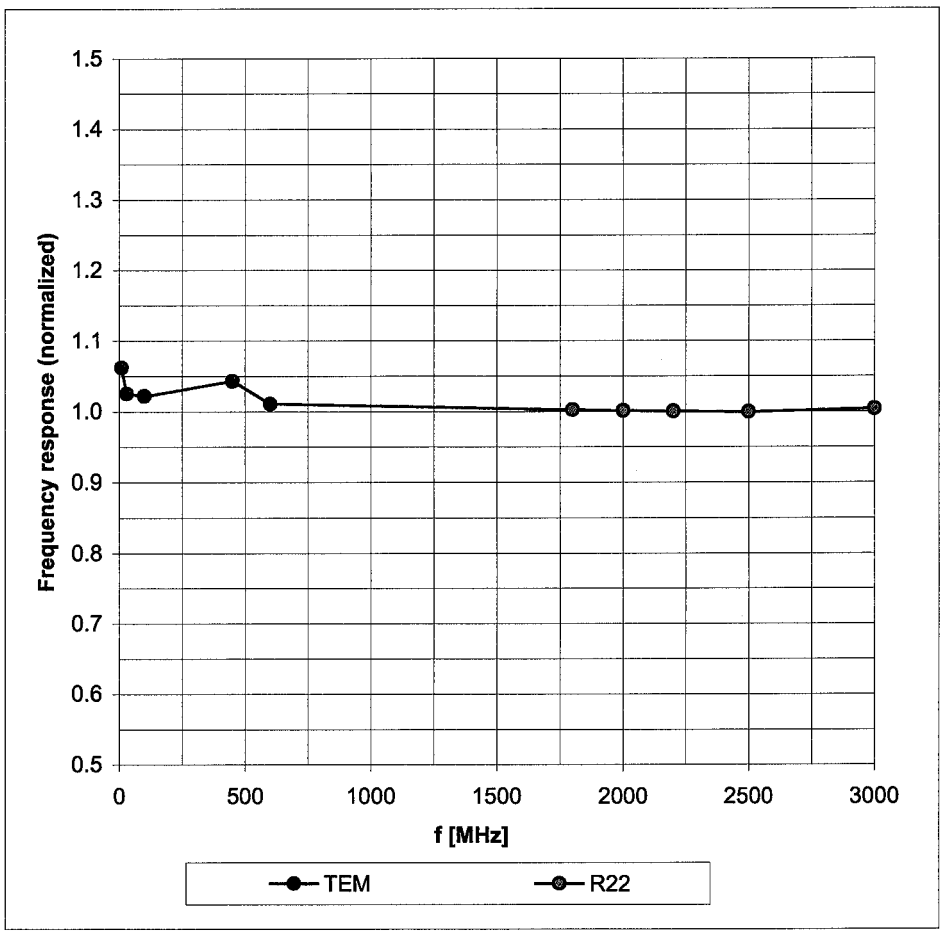
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

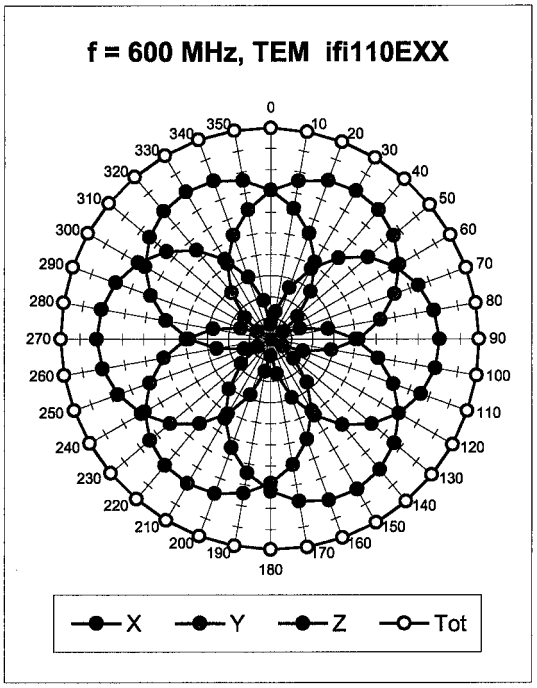
Frequency Response of E-Field

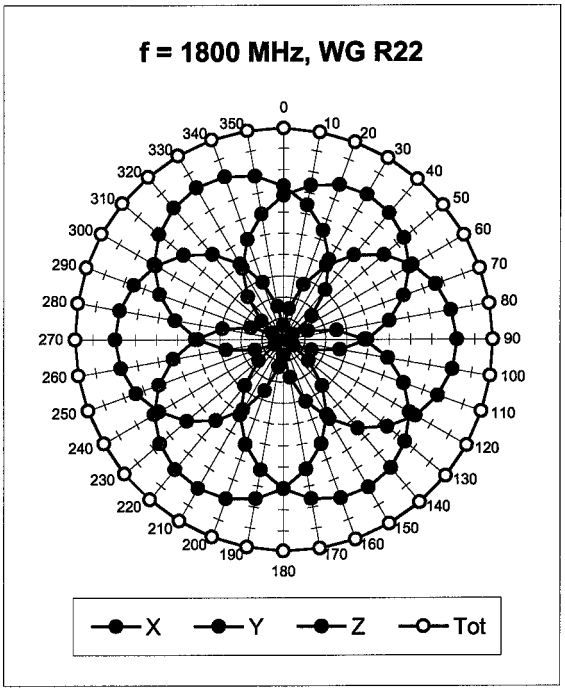
(TEM-Cell:ifi110 EXX, Waveguide: R22)

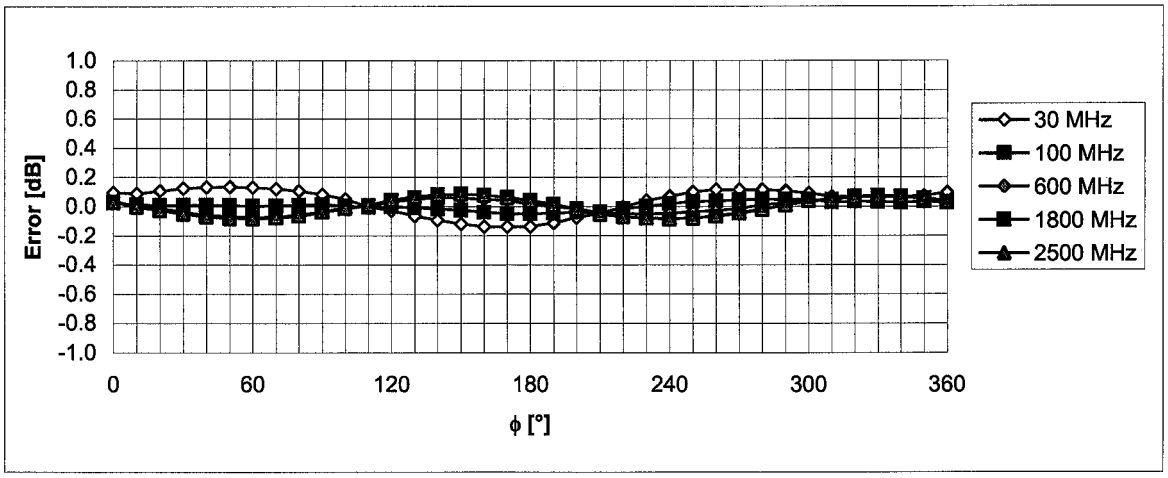


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



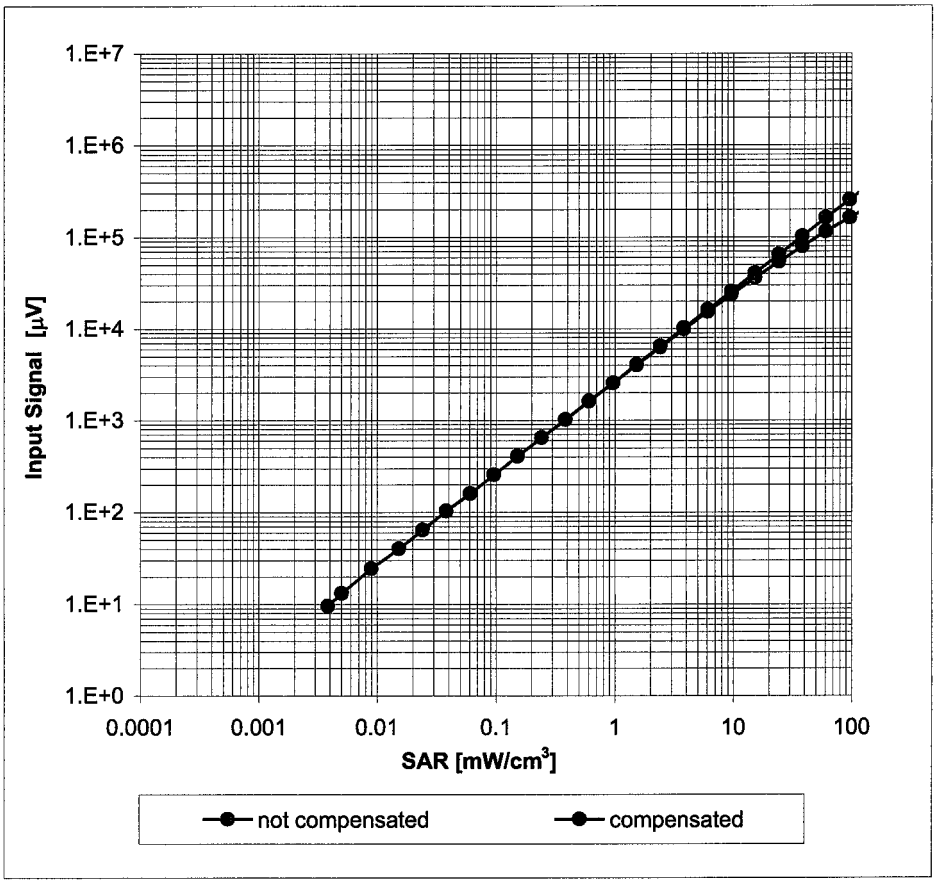


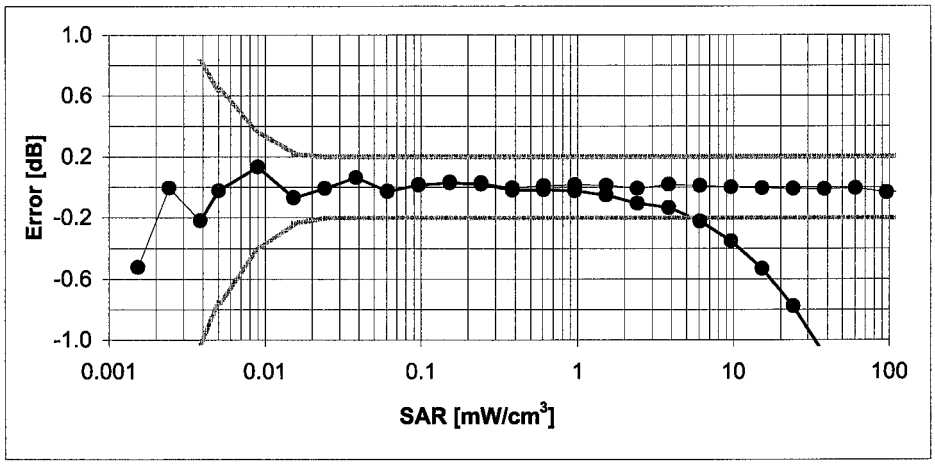


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

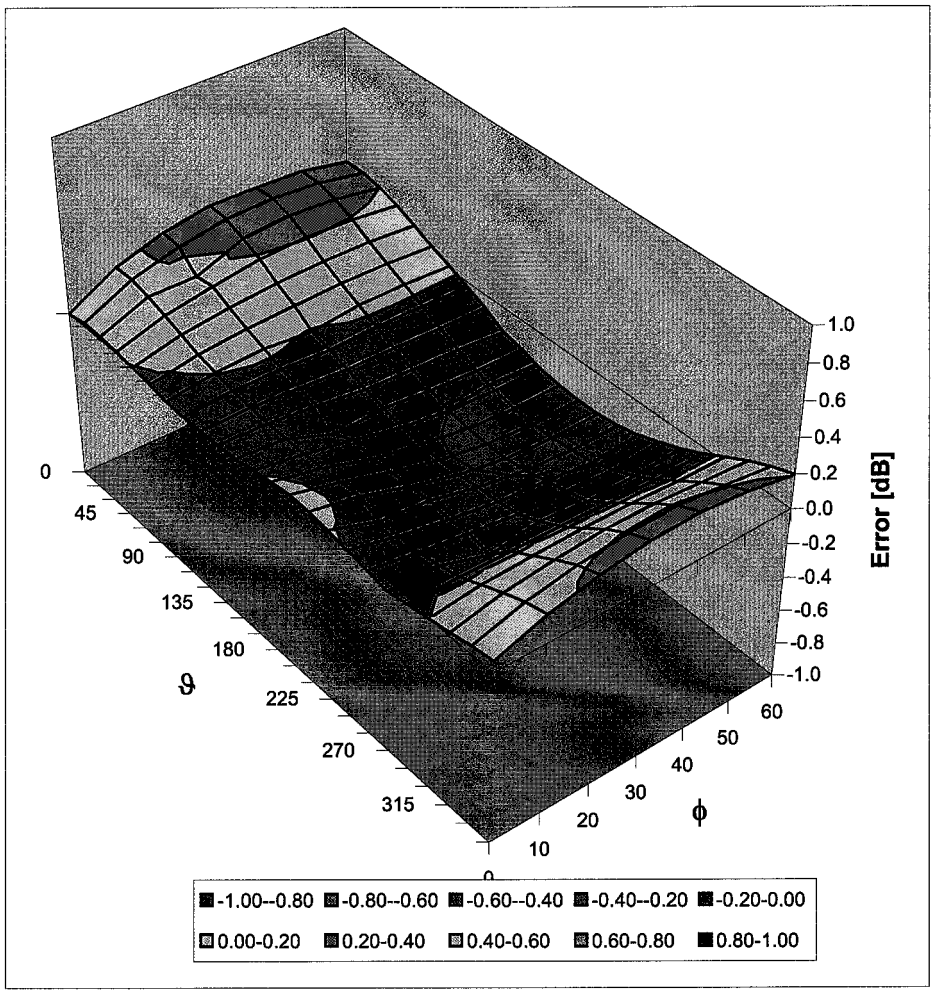
Conversion Factor Assessment

f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.45	0.80	9.77 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.19	1.20	8.48 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.18	1.29	8.12 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.39	1.00	7.80 ± 11.8% (k=2)
4950	± 50 / ± 100	Head	36.3 ± 5%	4.40 ± 5%	0.35	1.75	5.54 ± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.35	1.75	4.92 ± 13.1% (k=2)
5300	± 50 / ± 100	Head	35.9 ± 5%	4.76 ± 5%	0.33	1.75	4.77 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.35	1.75	4.55 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.35	1.75	4.40 ± 13.1% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.50	0.80	9.89 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.18	1.16	8.72 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.14	1.45	8.09 ± 11.0% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.42	1.00	7.92 ± 11.8% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.42	1.00	7.67 ± 11.8% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.42	1.00	7.28 ± 11.8% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.49	0.88	6.80 ± 13.1% (k=2)
4950	± 50 / ± 100	Body	49.4 ± 5%	5.01 ± 5%	0.37	1.80	4.66 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.37	1.80	4.48 ± 13.1% (k=2)
5300	± 50 / ± 100	Body	48.5 ± 5%	5.42 ± 5%	0.35	1.80	4.14 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.33	1.80	4.11 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.30	1.80	4.20 ± 13.1% (k=2)

[C] **The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

D3: DAE

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: DAE3-510_Sep06

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AA - SN: 510
Calibration procedure(s)	QA CAL-06.v12 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	September 07, 2006
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	7-Oct-05 (Sintrel, No.E-050073)	Oct-06
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1002	15-Jun-06 (SPEAG, in house check)	In house check Jun-07

	Name	Function	Signature
Calibrated by:	Daniel Steinacher	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 7, 2006

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters contain technical information as a result from the performance test and require no uncertainty.
- *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
- *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
- *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
- *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
- *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
- *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
- *Input resistance:* DAE input resistance at the connector, during internal auto-zeroing and during measurement.
- *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
- *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.194 ± 0.1% (k=2)	404.254 ± 0.1% (k=2)	404.622 ± 0.1% (k=2)
Low Range	3.97522 ± 0.7% (k=2)	3.96545 ± 0.7% (k=2)	3.95957 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	42 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	200000	200000.2	0.00
Channel X	+ Input	20000	20007.72	0.04
Channel X	- Input	20000	-19999.52	0.00
Channel Y	+ Input	200000	199999.5	0.00
Channel Y	+ Input	20000	20005.14	0.03
Channel Y	- Input	20000	-20000.72	0.00
Channel Z	+ Input	200000	200000.5	0.00
Channel Z	+ Input	20000	20006.06	0.03
Channel Z	- Input	20000	-20002.05	0.01

Low Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	2000	1999.9	0.00
Channel X	+ Input	200	200.02	0.01
Channel X	- Input	200	-200.32	0.16
Channel Y	+ Input	2000	2000.0	0.00
Channel Y	+ Input	200	199.46	-0.27
Channel Y	- Input	200	-200.72	0.36
Channel Z	+ Input	2000	1999.9	0.00
Channel Z	+ Input	200	199.12	-0.44
Channel Z	- Input	200	-201.06	0.53

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	17.19	16.90
	- 200	-16.29	-16.91
Channel Y	200	14.52	14.16
	- 200	-15.49	-15.51
Channel Z	200	-8.86	-9.32
	- 200	7.79	7.80

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.86	-0.06
Channel Y	200	0.60	-	4.31
Channel Z	200	-2.51	-0.39	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15894	16343
Channel Y	16116	16300
Channel Z	16080	16129

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.39	-0.84	1.32	0.26
Channel Y	-1.02	-1.58	0.05	0.26
Channel Z	0.18	-0.50	1.13	0.28

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.2001	199.6
Channel Y	0.2001	198.3
Channel Z	0.2001	199.1

8. Low Battery Alarm Voltage (verified during pre test)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	–0.01	-8	-9

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: DAE3-579_Mar07

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AA - SN: 579
Calibration procedure(s)	QA CAL-06.v12 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	March 23, 2007
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	13-Oct-06 (Elcal AG, No: 5492)	Oct-07
Keithley Multimeter Type 2001	SN: 0810278	03-Oct-06 (Elcal AG, No: 5478)	Oct-07
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1002	15-Jun-06 (SPEAG, in house check)	In house check Jun-07

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: March 23, 2007

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters contain technical information as a result from the performance test and require no uncertainty.
- *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
- *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
- *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
- *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
- *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
- *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
- *Input resistance:* DAE input resistance at the connector, during internal auto-zeroing and during measurement.
- *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
- *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.413 ± 0.1% (k=2)	404.494 ± 0.1% (k=2)	404.245 ± 0.1% (k=2)
Low Range	3.95259 ± 0.7% (k=2)	3.97903 ± 0.7% (k=2)	3.93943 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	200000	200000.1	0.00
Channel X	+ Input	20000	20006.33	0.03
Channel X	- Input	20000	-19997.11	-0.01
Channel Y	+ Input	200000	200000.5	0.00
Channel Y	+ Input	20000	20004.32	0.02
Channel Y	- Input	20000	-20000.97	0.00
Channel Z	+ Input	200000	199999.9	0.00
Channel Z	+ Input	20000	20004.59	0.02
Channel Z	- Input	20000	-19999.75	0.00

Low Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	2000	2000	0.00
Channel X	+ Input	200	199.93	-0.03
Channel X	- Input	200	-200.74	0.37
Channel Y	+ Input	2000	2000	0.00
Channel Y	+ Input	200	199.24	-0.38
Channel Y	- Input	200	-200.94	0.47
Channel Z	+ Input	2000	2000	0.00
Channel Z	+ Input	200	199.04	-0.48
Channel Z	- Input	200	-201.32	0.66

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	6.88	6.91
	- 200	-5.38	-6.84
Channel Y	200	4.74	6.33
	- 200	-2.86	-7.65
Channel Z	200	8.17	8.22
	- 200	-9.67	-10.56

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	0.28	0.44
Channel Y	200	1.03	-	2.52
Channel Z	200	-2.54	0.78	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16336	17367
Channel Y	16187	16706
Channel Z	15808	16822

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-1.09	-2.34	-0.23	0.35
Channel Y	-2.38	-3.71	-1.13	0.33
Channel Z	0.31	-1.04	1.49	0.37

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.2001	201.8
Channel Y	0.2001	204.8
Channel Z	0.2001	206.1

8. Low Battery Alarm Voltage (verified during pre test)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	–0.01	-8	-9

D4: SYSTEM VALIDATION DIPOLE

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

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Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No. D2600V2-1003_Jan07

CALIBRATION CERTIFICATE

Object	D2600V2 - SN: 1003
Calibration procedure(s)	QA CAL-05.v6 Calibration procedure for dipole validation kits
Calibration date:	January 5, 2007
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	03-Oct-06 (METAS, No. 217-00608)	Oct-07
Power sensor HP 8481A	US37292783	03-Oct-06 (METAS, No. 217-00608)	Oct-07
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference Probe ES3DV2	SN 3025	19-Oct-06 (SPEAG, No. ES3-3025_Oct06)	Oct-07
DAE4	SN: 907	20-Jul-06 (SPEAG, No. DAE4-907_Jul06)	Jul-07

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-05)	In house check: Oct-07
RF generator Agilent E4421B	MY41000675	11-May-05 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Nov-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: January 8, 2007

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.9 ± 6 %	2.11 mho/m ± 6 %
Body TSL temperature during test	(22.5 ± 0.2) °C	-------	------

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	14.5 mW / g
SAR normalized	normalized to 1W	58.0 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**57.6 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.43 mW / g
SAR normalized	normalized to 1W	25.7 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**25.5 mW / g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.5 Ω - 1.2 jΩ
Return Loss	– 28.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 23, 2006

DASY4 Validation Report for Body TSL

Date/Time: 05.01.2007 16:58:54

Test Laboratory: SPEAG, Zurich, Switzerland

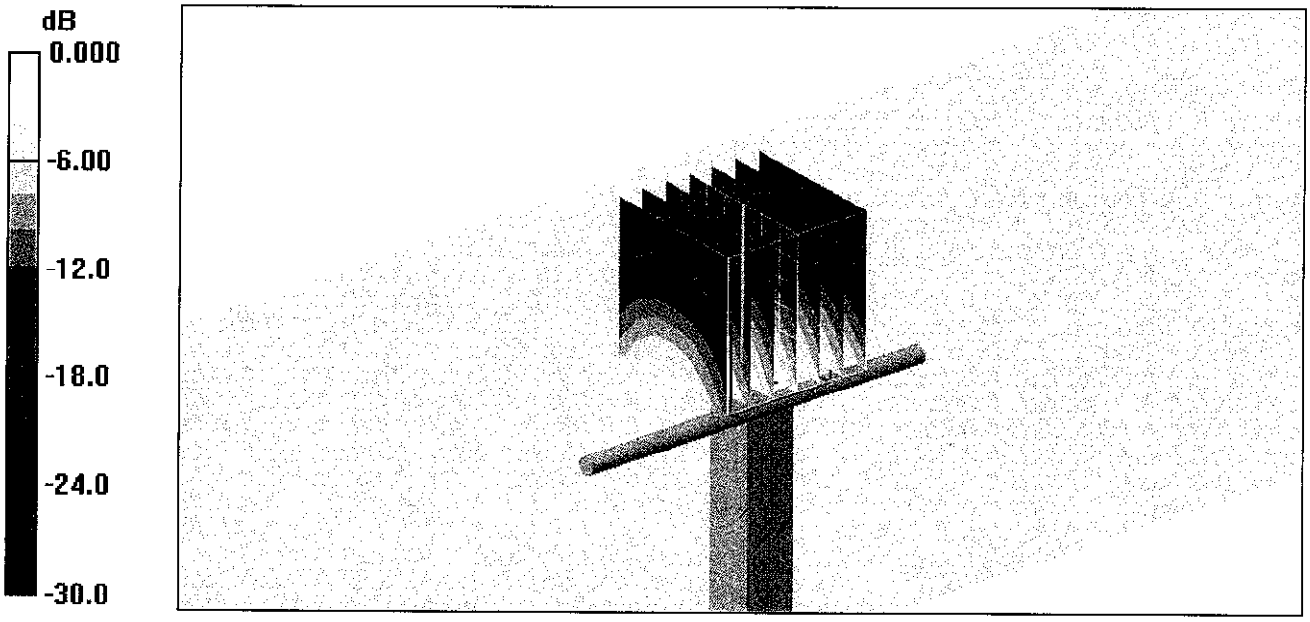
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN1003

Communication System: CW-2600; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB_050815;
Medium parameters used: f = 2600 MHz; σ = 2.1 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025 (HF); ConvF (3.95, 3.95, 3.95); Calibrated: 19.10.2006
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn907; Calibrated: 20.07.2006
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (dist=3mm) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 83.1 V/m; Power Drift = 0.044 dB
Peak SAR (extrapolated) = 32.6 W/kg
SAR(1 g) = 14.5 mW/g; SAR(10 g) = 6.43 mW/g
Maximum value of SAR (measured) = 19.4 mW/g



0 dB = 19.4mW/g

Impedance Measurement Plot for Body TSL