

APPENDIX B PLOTS OF THE SAR MEASUREMENTS

Plots of the measured SAR distributions inside the phantom are given in this Appendix for all tested configurations. The spatial peak SAR values were assessed with the procedure described in this report.

Table 16: GMRS and FRS Band SAR Measurement Plot Numbers

Plot 1	Belt-Clip Position CH#4	Page 25
Plot 2	Belt-Clip Position CH#4 with DC supplemented batteries	Page 26
Plot 3	Belt-Clip Position CH#11	Page 27
Plot 4	Face Position CH#4	Page 28
Plot 5	Face Position CH#11	Page 29
Graph 1	Belt-Clip Position CH#4	Page 30
Graph 2	Belt-Clip Position CH#4	Page 30
Graph 3	Belt-Clip Position CH#11	Page 31
Graph 4	Face Position CH#4	Page 31
Graph 5	Face Position CH#11	Page 32

Refer to table 13 for a numbered list of the SAR plots.

450MHz Validation Plot Numbers

Plot 1	Validation 450MHz 29 th April 2003	Page 33
Plot 2	Validation 450MHz 30 th April 2003	Page 34
Plot 3	Validation 450MHz 1 st May 2003	Page 35
Graph 1	Validation 450MHz 29 th April 2003	Page 36
Graph 2	Validation 450MHz 30 th April 2003	Page 36
Graph 3	Validation 450MHz 1 st May 2003	Page 37

Test Date: 30th April 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [M030411 - Intertek - Belt Clip Position 30-04-03.da4](#)

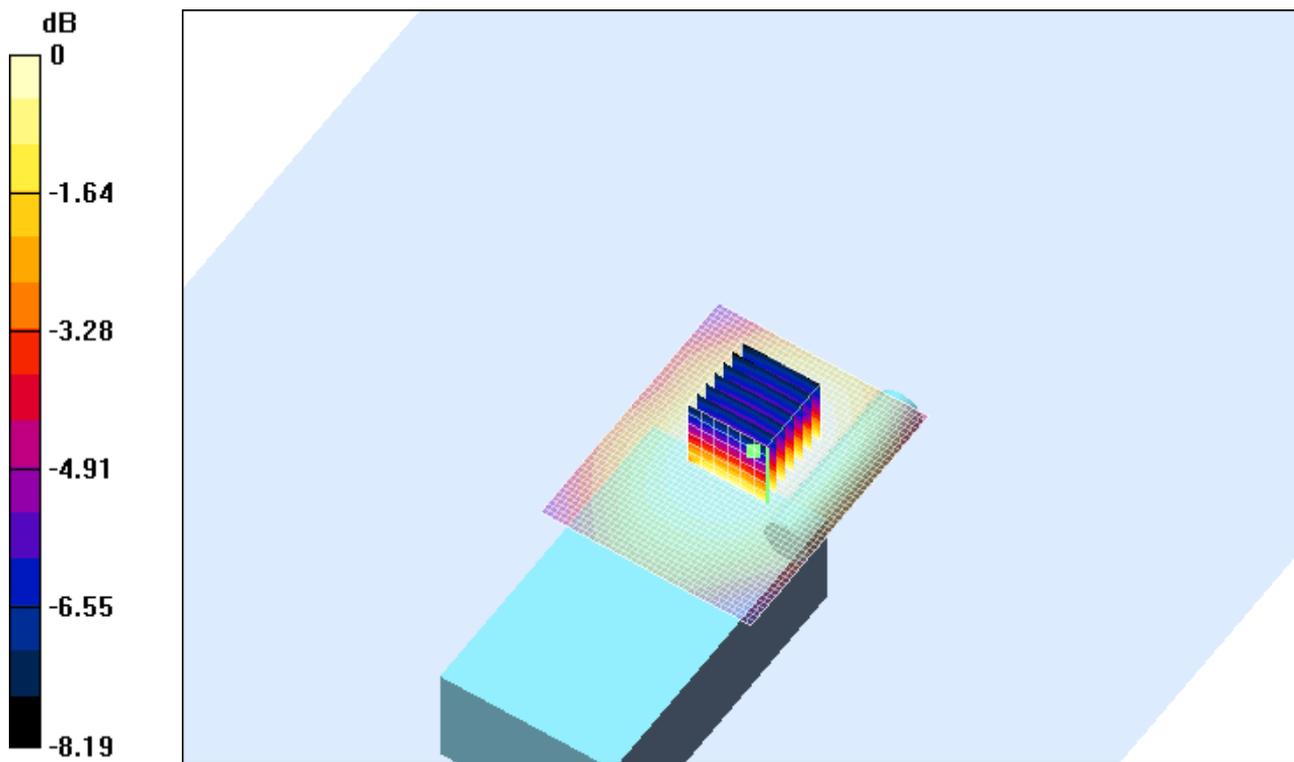
DUT: Intertek 450MHz; Type: Portable Transceiver; Serial: GMRS/FRS, Model 21 - 1905
Program: Belt Clip Position

Communication System: CW 450 MHz; Frequency: 462.637 MHz; Duty Cycle: 1:1
 Medium: FCC 450MHz Body; ($\sigma = 0.929013 \text{ mho/m}$, $\epsilon_r = 54.8868$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Flat 2.2 Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 9.1; Serial: P 9.1
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 4 Test 3/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Channel 4 Test 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 38.9 V/m
 Peak SAR = 2.67 W/kg
 SAR(1 g) = 1.87 mW/g; SAR(10 g) = 1.35 mW/g
 Power Drift = -1 dB



SAR MEASUREMENT PLOT 1

Ambient Temperature	19.8°C
Liquid Temperature	19.6°C
Humidity	50%

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Test Date: 30th April 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [M030411 - Intertek - Belt Clip Position 30-04-03.da4](#)

DUT: Intertek 450MHz; Type: Portable Transceiver; Serial: GMRS/FRS, Model 21 – 1905

Program: Belt Clip Position with DC power supply supplementing the batteries

Communication System: CW 450 MHz; Frequency: 462.637 MHz; Duty Cycle: 1:1
 Medium: FCC 450MHz Body; ($\sigma = 0.929013 \text{ mho/m}$, $\epsilon_r = 54.8868$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Flat 2.2 Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 9.1; Serial: P 9.1
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 4 Test Battery Supplemented With 6V DC/Area Scan (51x81x1): Measurement grid: dx=20mm, dy=20mm

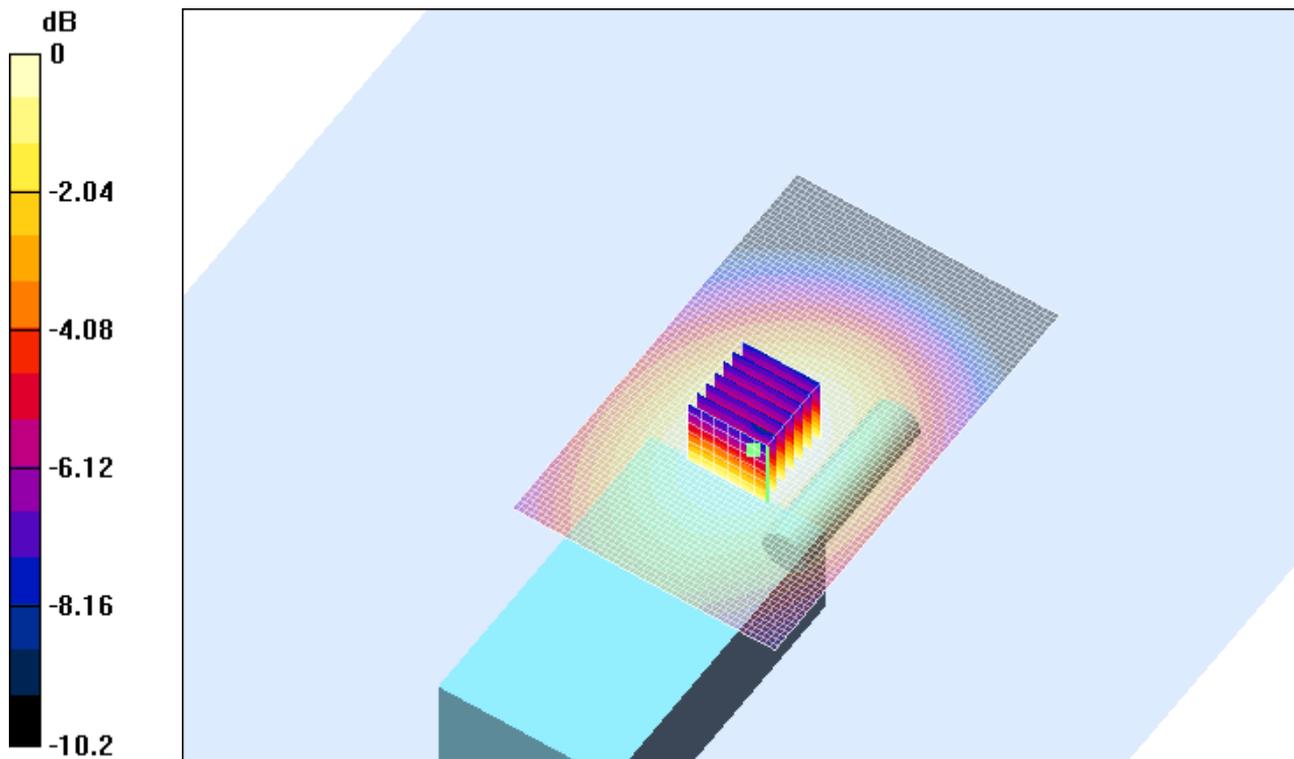
Channel 4 Test Battery Supplemented With 6V DC/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 37.6 V/m

Peak SAR = 2.77 W/kg

SAR(1 g) = 1.93 mW/g; SAR(10 g) = 1.37 mW/g

Power Drift = -0.6 dB



SAR MEASUREMENT PLOT 2

Ambient Temperature	19.8°C
Liquid Temperature	19.6°C
Humidity	50%

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Test Date: 30th April 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [M030411 - Intertek - Belt Clip Position 30-04-03.da4](#)

**DUT: Intertek 450MHz; Type: Portable Transceiver; Serial: GMRS/FRS, Model 21 – 1905
Program: Belt Clip Position**

Communication System: CW 450 MHz; Frequency: 467.637 MHz; Duty Cycle: 1:1
Medium: FCC 450MHz Body; ($\sigma = 0.935402$ mho/m, $\epsilon_r = 54.8313$, $\rho = 1000$ kg/m³)
Phantom section: Flat 2.2 Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 9.1; Serial: P 9.1
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 11 Test/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm

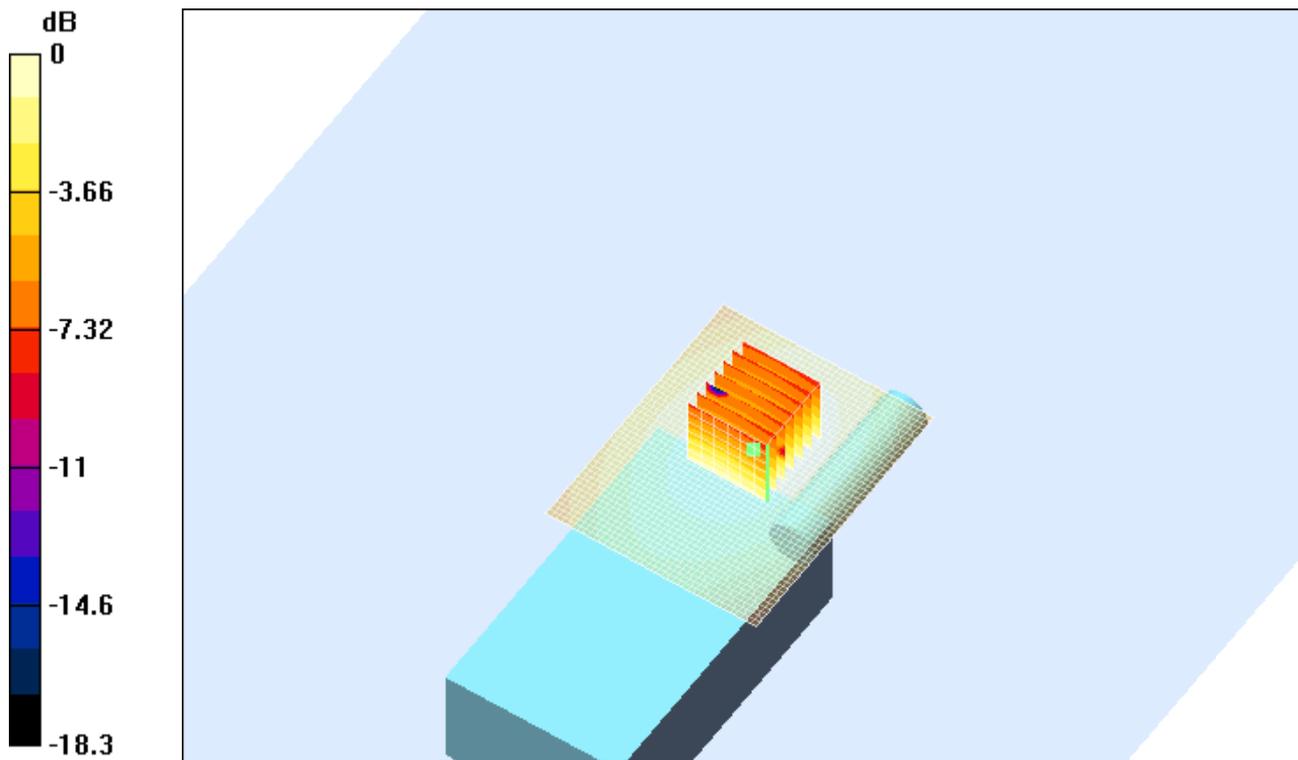
Channel 11 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14 V/m

Peak SAR = 0.488 W/kg

SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.213 mW/g

Power Drift = 0.08 dB



SAR MEASUREMENT PLOT 3

Ambient Temperature	19.8°C
Liquid Temperature	19.6°C
Humidity	50%

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Test Date: 30th April 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [M030411 - Intertek - Face Frontal Position 30-04-03.da4](#)

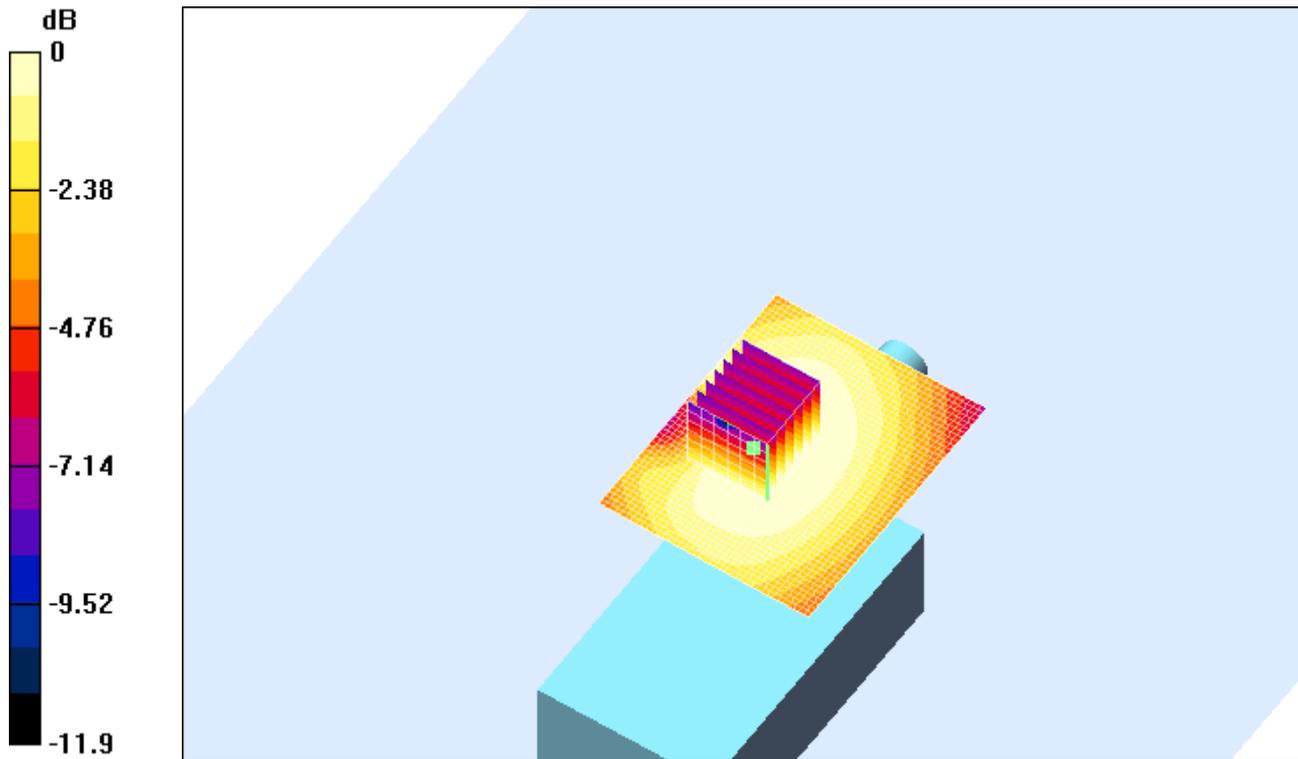
**DUT: Intertek 450MHz; Type: Portable Transceiver; Serial: GMRS/FRS, Model 21 – 1905
Program: Face Frontal Position**

Communication System: CW 450 MHz; Frequency: 462.637 MHz; Duty Cycle: 1:1
Medium: FCC 450MHz Head; ($\sigma = 0.845 \text{ mho/m}$, $\epsilon_r = 41.9$, $\rho = 1000 \text{ kg/m}^3$)
Phantom section: Flat 2.2 Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 9.1; Serial: P 9.1
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 4 Test 2/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Channel 4 Test 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 39.6 V/m
 Peak SAR = 2.61 W/kg
 SAR(1 g) = 1.8 mW/g; SAR(10 g) = 1.28 mW/g
 Power Drift = -0.8 dB



SAR MEASUREMENT PLOT 4

Ambient Temperature	19.8°C
Liquid Temperature	19.6°C
Humidity	50%

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Test Date: 1st May 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [M030411 - Intertek - Face Frontal Position 01-05-03.da4](#)

DUT: Intertek 450MHz; Type: Portable Transceiver; Serial: GMRS/FRS, Model 21 – 1905

Program: Face Frontal Position

Communication System: CW 450 MHz; Frequency: 467.637 MHz; Duty Cycle: 1:1
 Medium: FCC 450MHz Head; ($\sigma = 0.844718$ mho/m, $\epsilon_r = 41.8989$, $\rho = 1000$ kg/m³)
 Phantom section: Flat 2.2 Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 9.1; Serial: P 9.1
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 11 Test/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm

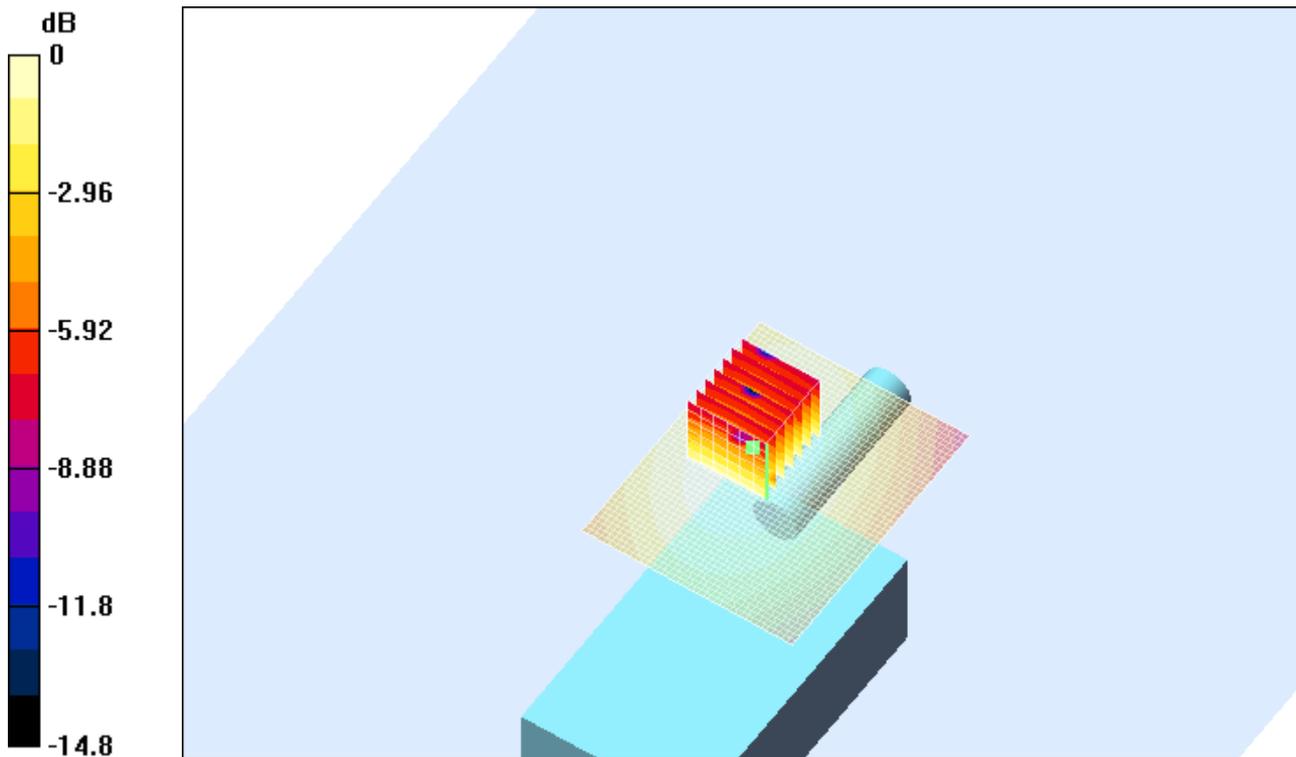
Channel 11 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.8 V/m

Peak SAR = 0.641 W/kg

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.163 mW/g

Power Drift = -0.1 dB

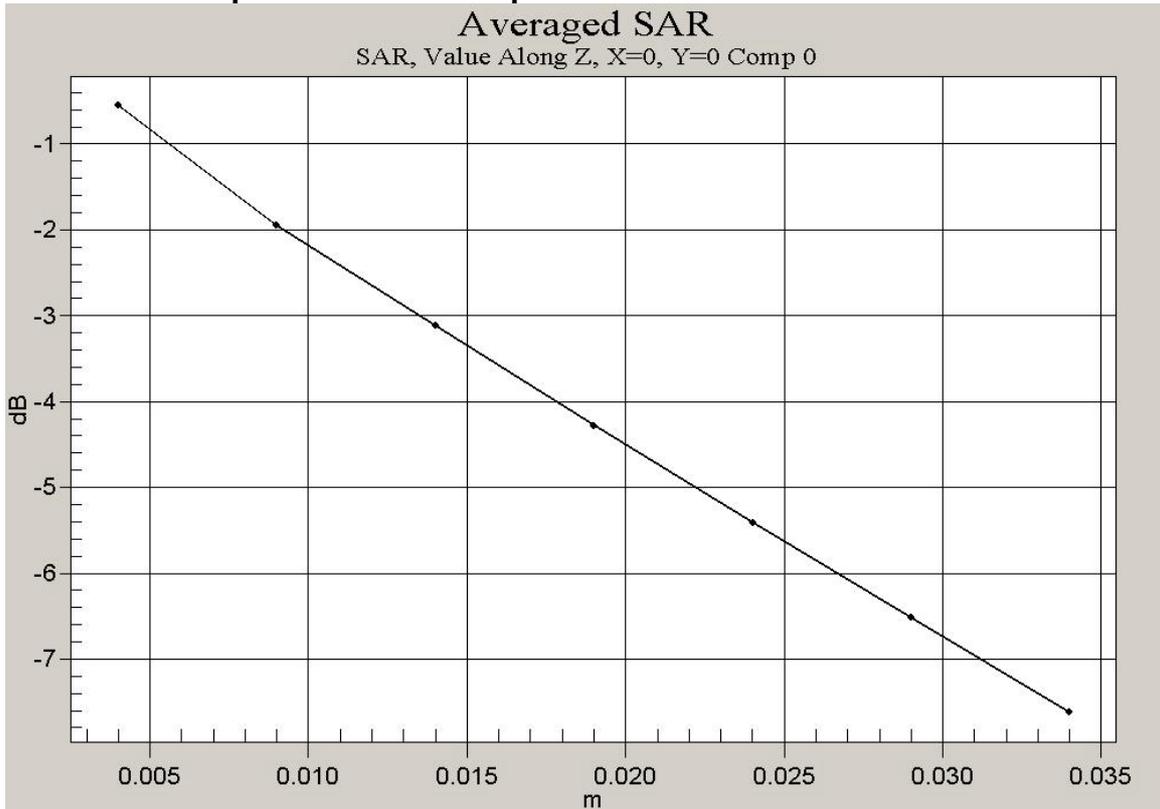


SAR MEASUREMENT PLOT 5

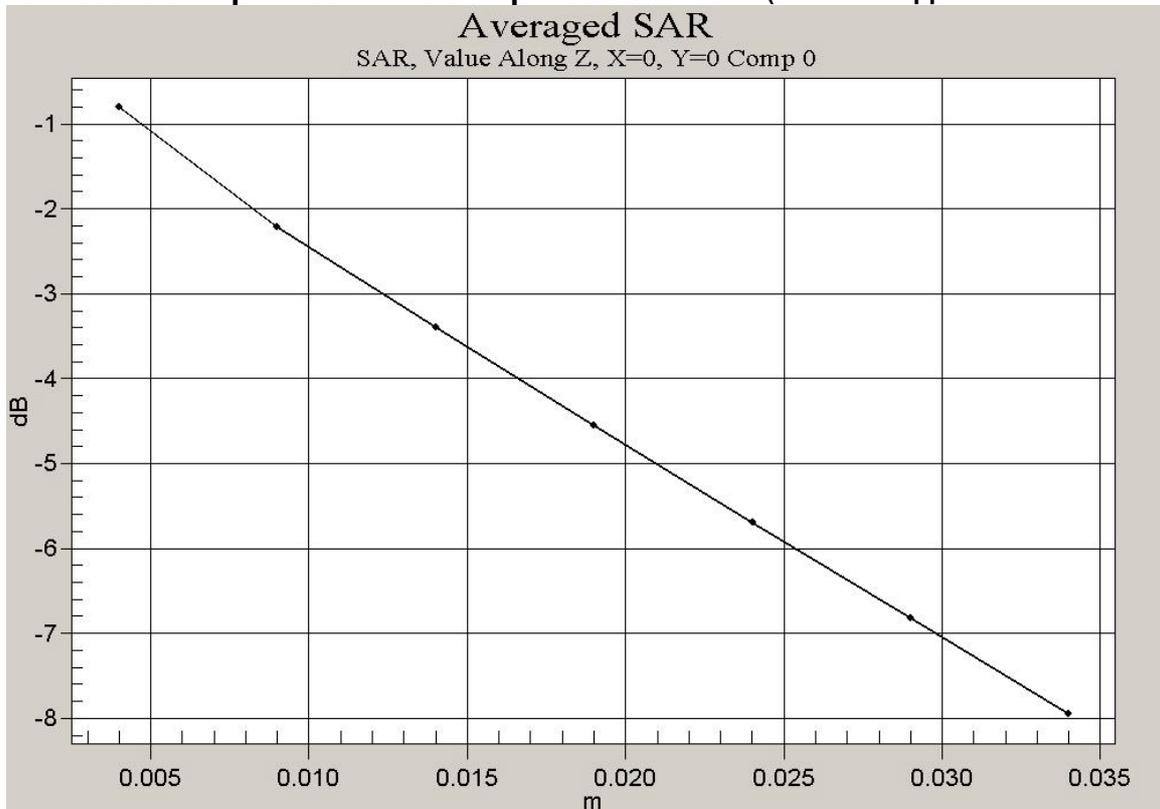
Ambient Temperature	19.8°C
Liquid Temperature	19.5°C
Humidity	47%

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Test Date: 30th April 2003 – Belt-Clip Position CH#4

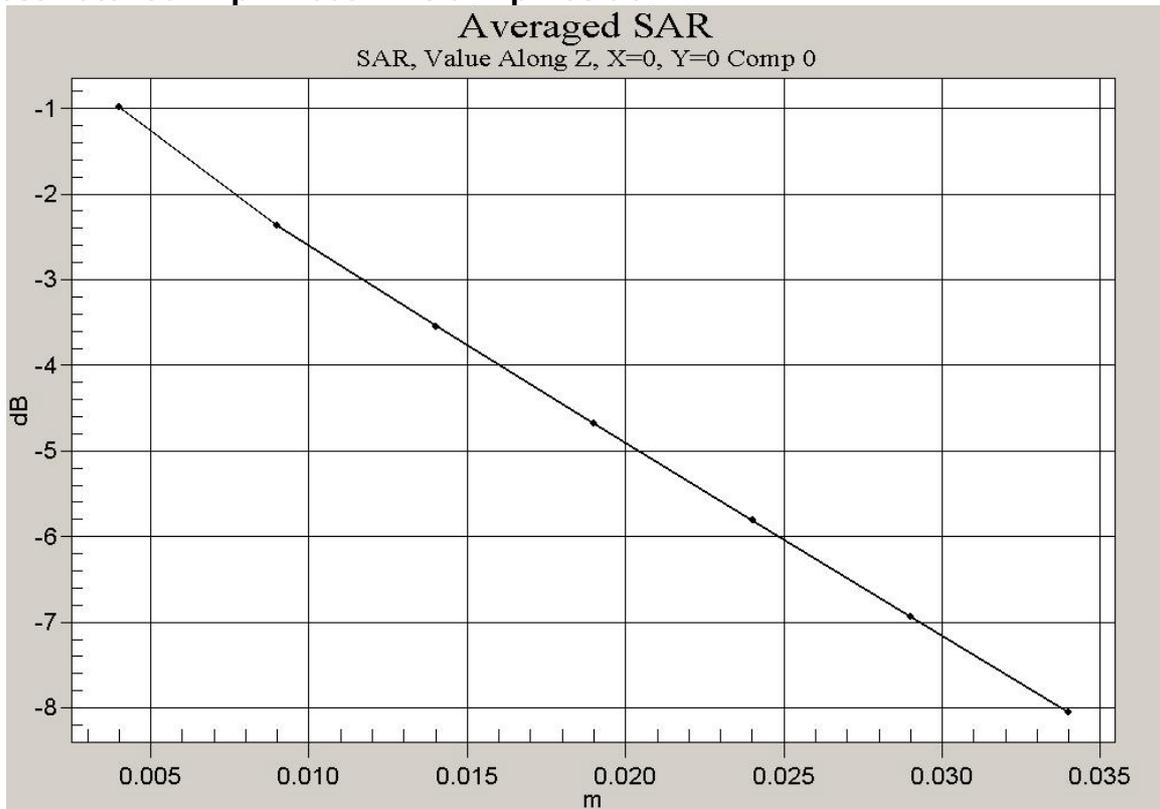


Test Date: 30th April 2003 – Belt-Clip Position CH#4 (With DC Supplemented Batteries)

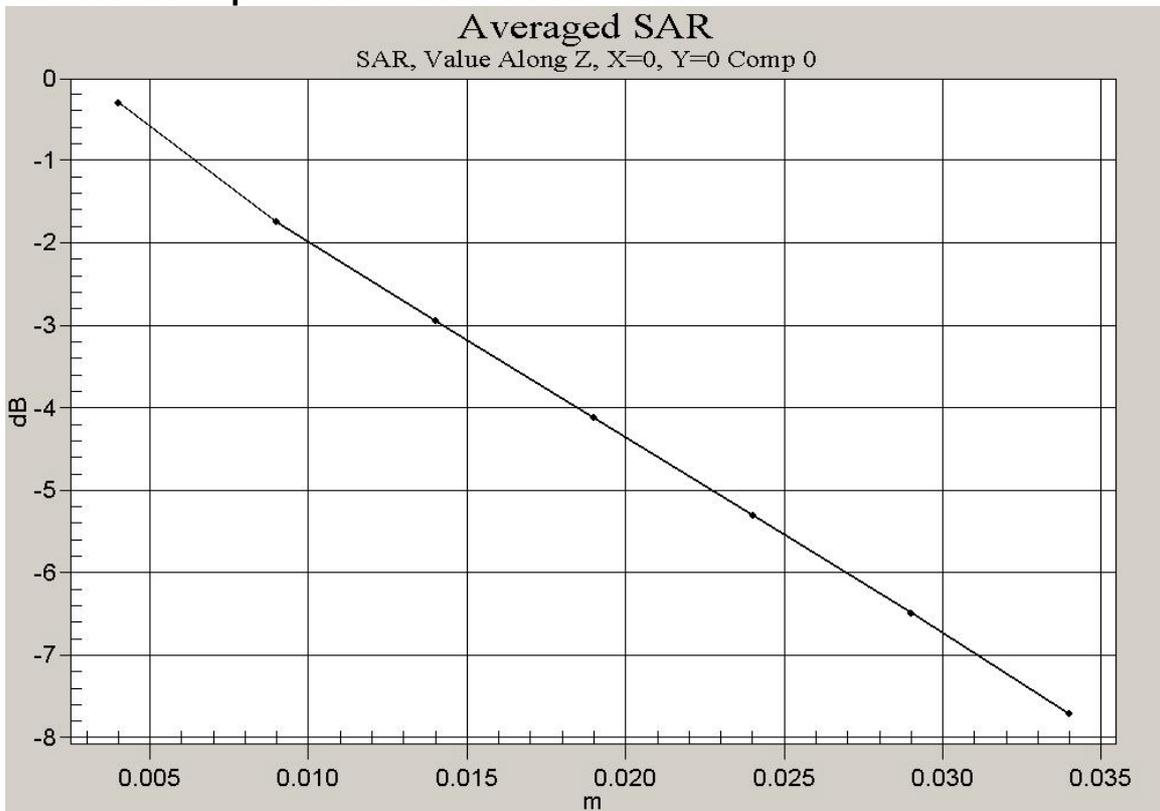


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Test Date: 30th April 2003 – Belt-Clip Position CH#11

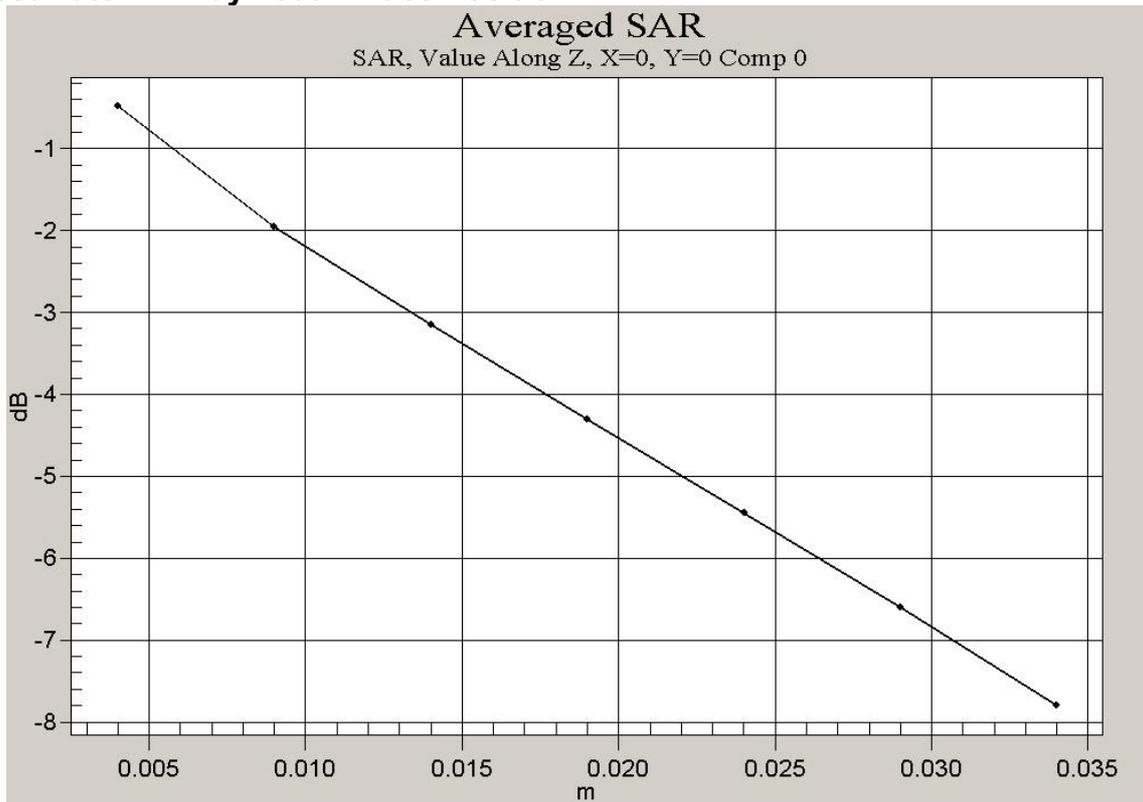


Test Date: 30th April 2003 – Face Position CH#4



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Test Date: 1st May 2003 – Face Position CH#11



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Test Date: 29th April 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [Validation 450 MHz \(DAE442 Probe1377\)29-04-03.da4](#)

DUT: Dipole 450 MHz; Type: D450V2; Serial: 1009

Program: Validation 450 MHz

Communication System: CW 450 MHz; Frequency: 450 MHz; Duty Cycle: 1:1
 Medium: FCC 450MHz Head; ($\sigma = 0.856925$ mho/m, $\epsilon_r = 42.4897$, $\rho = 1000$ kg/m³)
 Phantom section: Flat Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 4.4; Serial: P 4.4
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 1Test/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

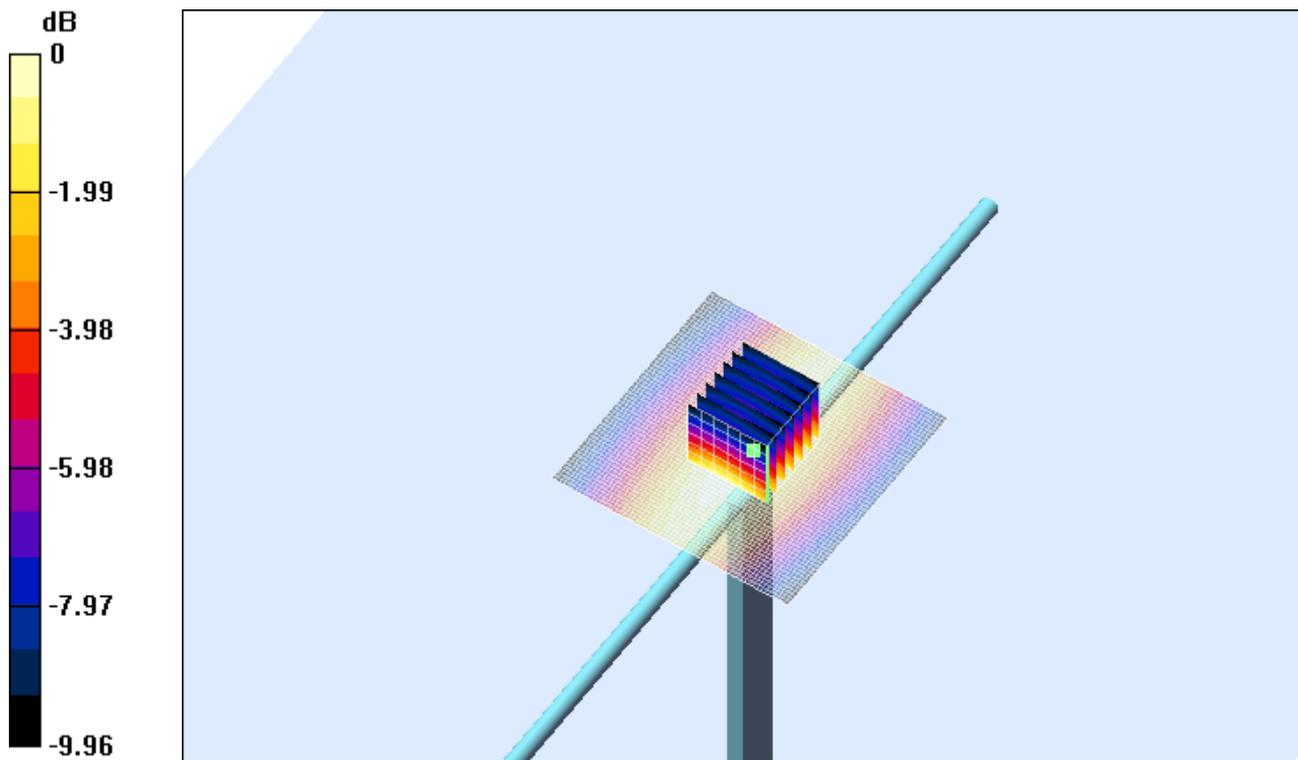
Channel 1Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.7 V/m

Peak SAR = 0.866 W/kg

SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.345 mW/g

Power Drift = 0.04 dB



SAR VALIDATION PLOT 1

Ambient Temperature	21.6°C
Liquid Temperature	21.2°C
Humidity	56%

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Test Date: 30th April 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [Validation 450 MHz \(DAE442 Probe1377\)30-04-03.da4](#)

DUT: Dipole 450 MHz; Type: D450V2; Serial: 1009

Program: Validation 450 MHz

Communication System: CW 450 MHz; Frequency: 450 MHz; Duty Cycle: 1:1
 Medium: FCC 450MHz Head; ($\sigma = 0.844503$ mho/m, $\epsilon_r = 42.2461$, $\rho = 1000$ kg/m³)
 Phantom section: Flat Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 4.4; Serial: P 4.4
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 1Test/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

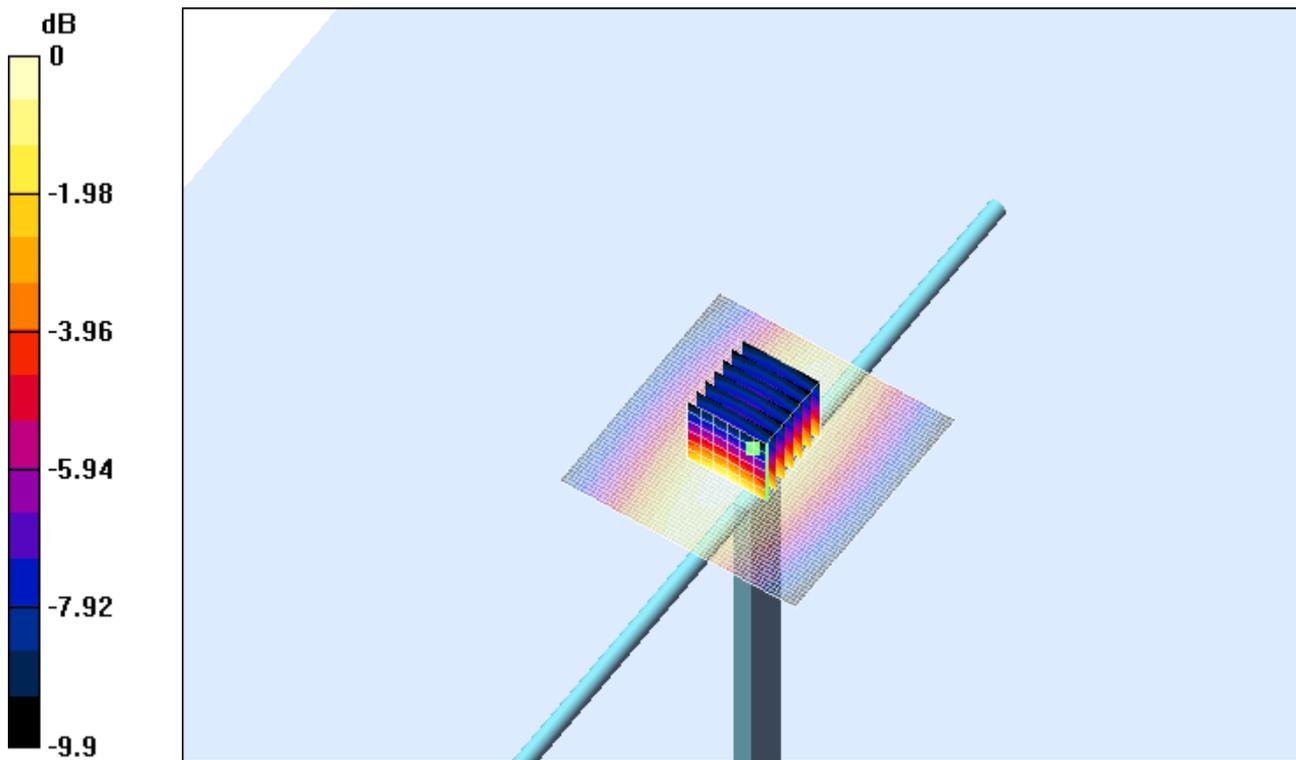
Channel 1Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.7 V/m

Peak SAR = 0.866 W/kg

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.346 mW/g

Power Drift = 0.1 dB



SAR VALIDATION PLOT 2

Ambient Temperature	19.8°C
Liquid Temperature	19.6°C
Humidity	50%

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Test Date: 1st May 2003

Test Laboratory: EMC Technologies Pty Ltd

File Name: [Validation 450 MHz \(DAE442 Probe1377\)01-05-03.da4](#)

DUT: Dipole 450 MHz; Type: D450V2; Serial: 1009

Program: Validation 450 MHz

Communication System: CW 450 MHz; Frequency: 450 MHz; Duty Cycle: 1:1
 Medium: FCC 450MHz Head; ($\sigma = 0.831613 \text{ mho/m}$, $\epsilon_r = 42.3175$, $\rho = 1000 \text{ kg/m}^3$)
 Phantom section: Flat Section

Dasy Configuration:

- Probe: ET3DV6 - SN1377; ConvF(7.2, 7.2, 7.2); Calibrated: 6/09/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn442; Calibrated: 23/10/2002
- Phantom: Flat Phantom 4.4; Serial: P 4.4
- Measurement SW: DASY4, V4.1 Build 33; Postprocessing SW: SEMCAD, V1.6 Build 109

Channel 1Test/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

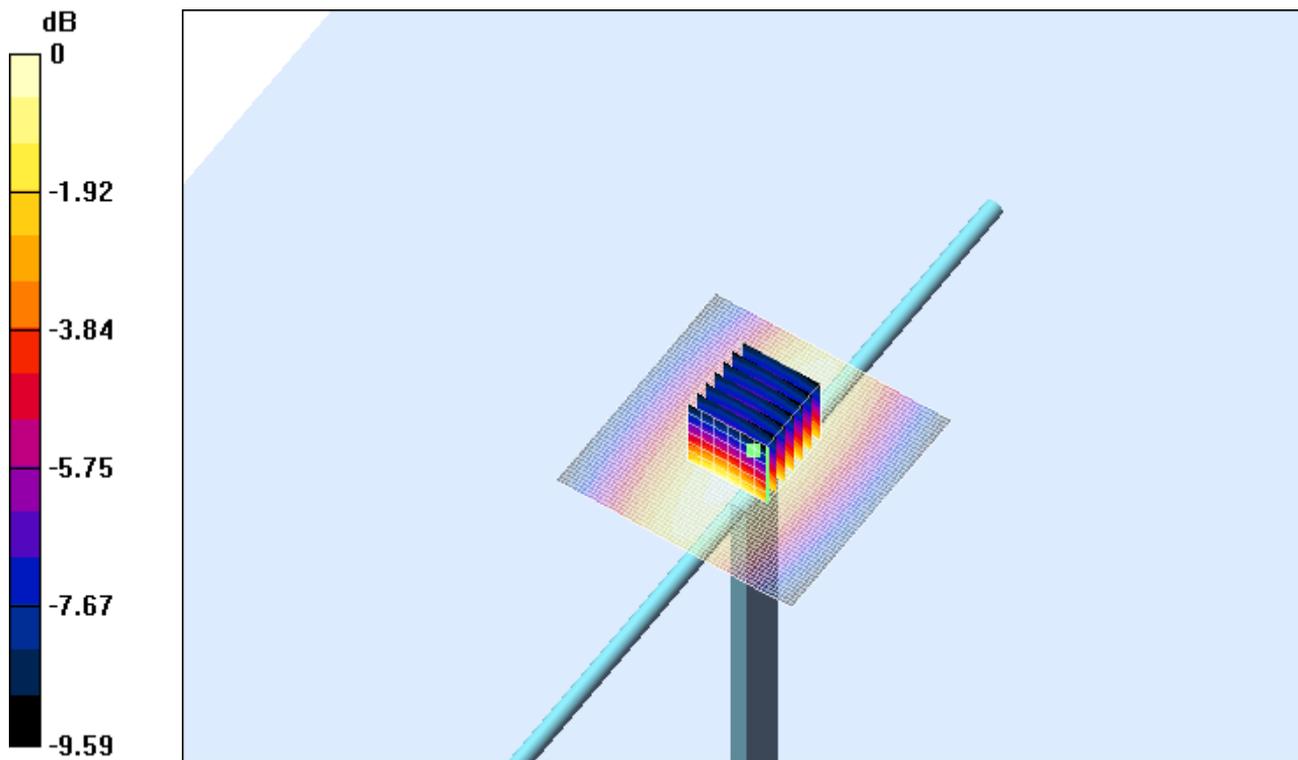
Channel 1Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.5 V/m

Peak SAR = 0.711 W/kg

SAR(1 g) = 0.468 mW/g; SAR(10 g) = 0.311 mW/g

Power Drift = 0.2 dB

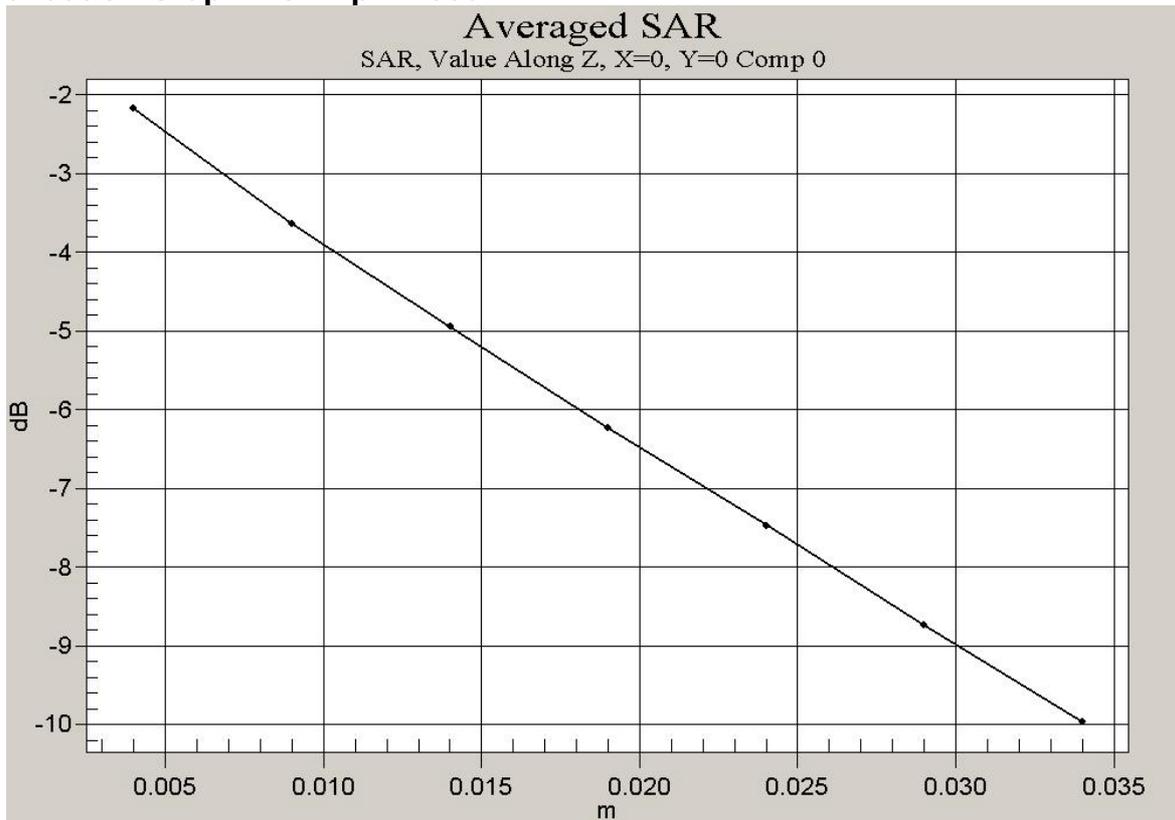


SAR Validation PLOT 3

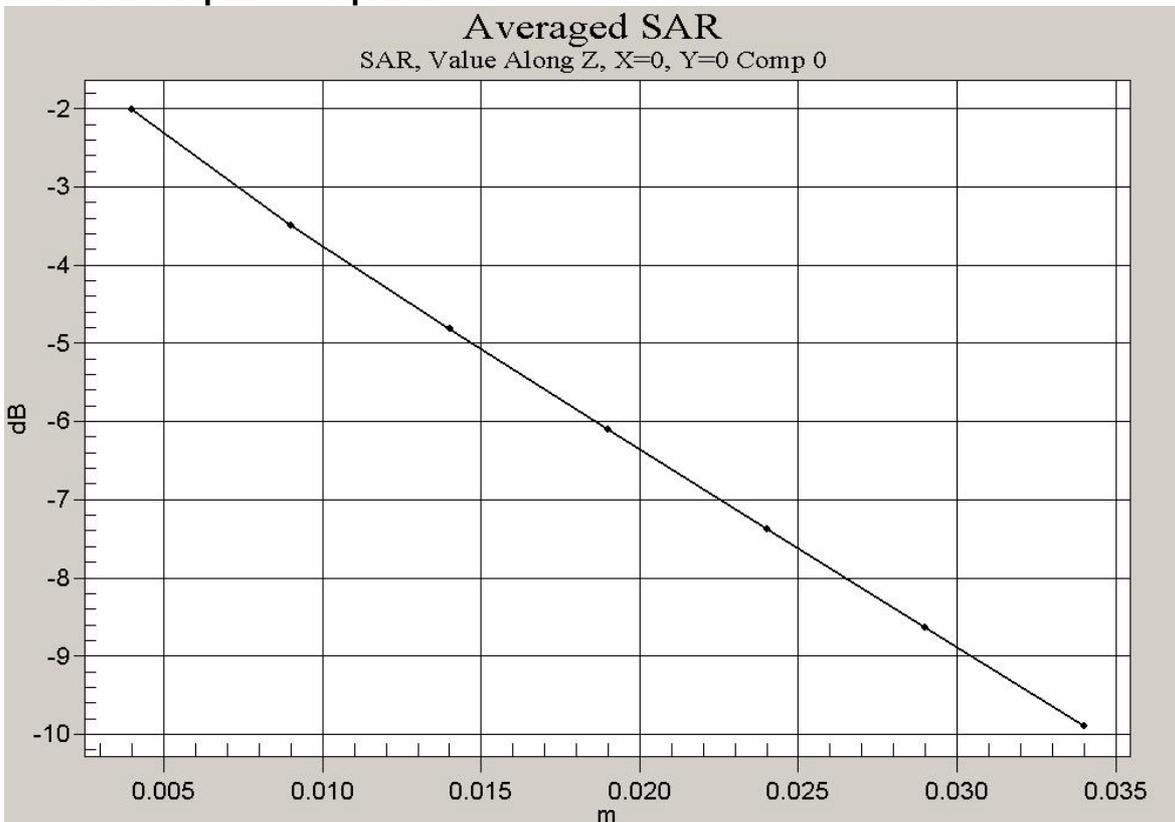
Ambient Temperature	19.8°C
Liquid Temperature	19.5°C
Humidity	47%

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Validation Graph: 29th April 2003

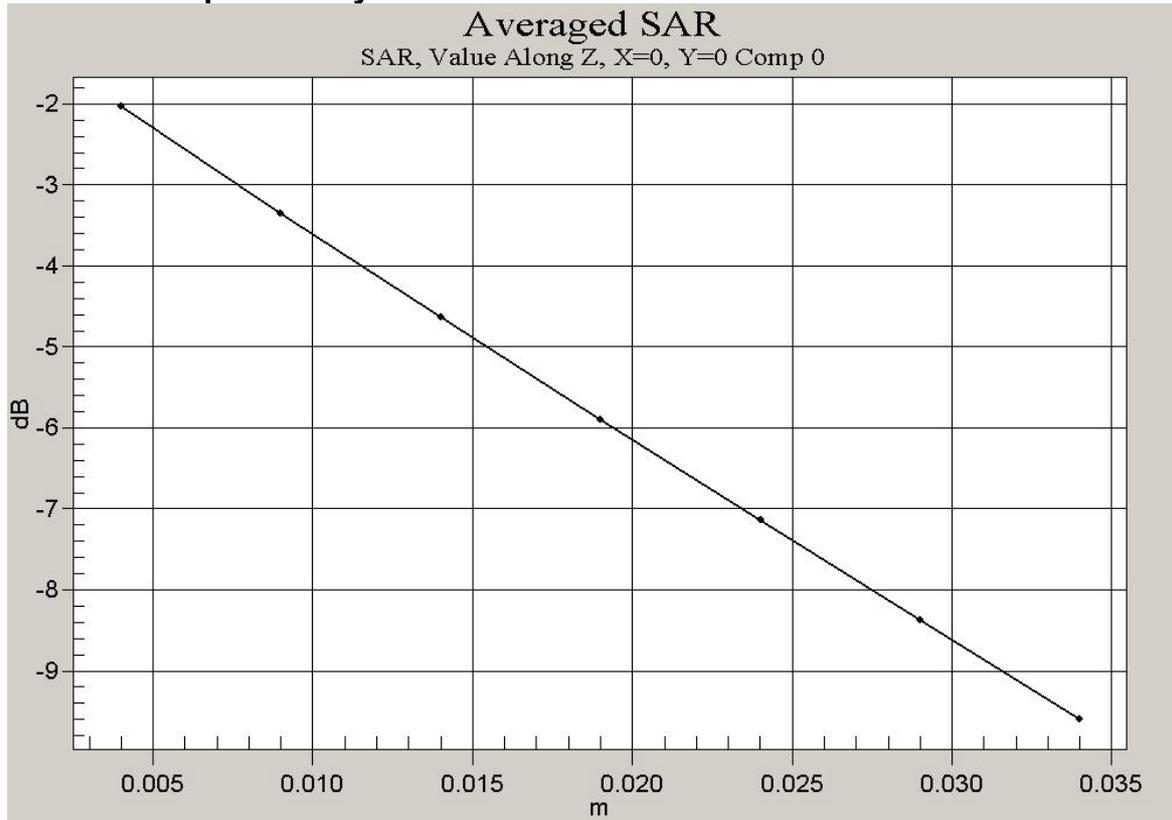


Validation Graph: 30th April 2003



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Validation Graph: 1st May 2003



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APPENDIX C

SAR TESTING EQUIPMENT CALIBRATION CERTIFICATE ATTACHMENTS

Calibration Certificate Attachments

1. 450 MHz Dipole Calibration Sheet	6 pages
2. E-Field Probe Calibration Sheet	11 Pages
3. 450MHz Conversion Factor Calibration Sheet	3 Pages
4. Thickness Details of AndreT Flat Phantom (PL870)	1 Page
5. Dielectric Properties of AndreT Phantom (PL870)	1 Page