APPENDIX B
PLOTS OF THE SAR MEASUREMENTS

Plots of the measured SAR distributions inside the phantom are given in this Appendix for the "Lap Arm Held" and "Tablet" tested configurations. The spatial peak SAR values were assessed with the procedure described in this report.

NOTE on SAR Plots: The measured SAR levels in the Tablet position were < 0.1mW/g and consequently the "hotspot" was not always clearly defined. The measurement results are only just above the noise floor and the measurement sensitivity of the SAR system. The plots and graphs for these positions were included for information.

NOTE on SAR Graphs: The Z-axis scans listed in this appendix do not always show a consistent decay over distance. This is not due to an incorrect liquid level but is due to the very steep field gradients in the 5-6 GHz band. At distances of greater than 20mm, the SAR levels are in the noise floor, and the calculated levels should be ignored. This is an artefact caused by the DASY4 SEMCAD software algorithms. According to the DASY4 manufacturer the artifact is "…due to the very rapid decay of the fields within the liquid at this frequency, the values far away from the phantom's surface are so low, that SEMCAD currently identifies them as noise." SPEAG has advised that this problem will be rectified in the next build of the software.

For reference the Validation Z-axis scans show the expected field decay over distance.

Table 21: 5200 MHz Band SAR Measurement Plot Numbers

Table 22: 5800 MHz Band SAR Measurement Plot Numbers

Table 23: 5GHz Validation Plots

Test Date: 09 February 2004

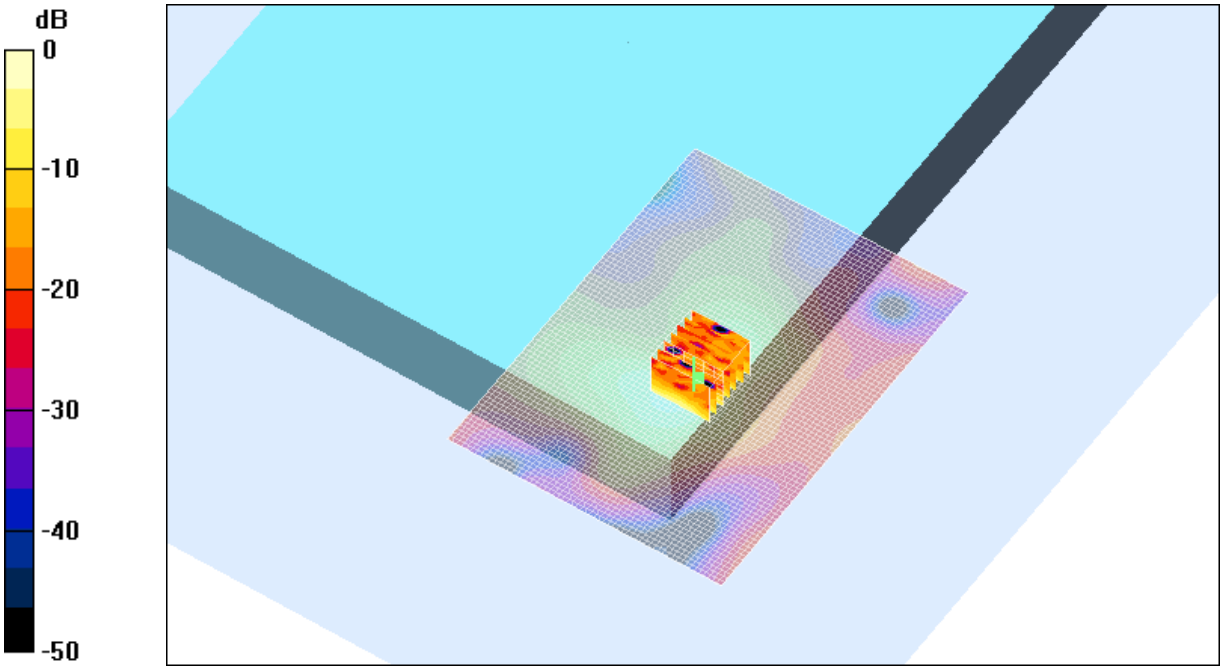
File Name: Arm Held OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna A 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5180 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.14952 mho/m, ε_r = 45.461, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 36 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 3.22 V/m
Power Drift = 0.2 dB
Maximum value of SAR = 0.521 mW/g

Channel 36 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.422 mW/g; SAR(10 g) = 0.141 mW/g
Reference Value = 3.22 V/m
Power Drift = 0.2 dB
Maximum value of SAR = 0.607 mW/g



0 dB = 0.607mW/g

SAR MEASUREMENT PLOT 1

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

Test Date: 09 February 2004

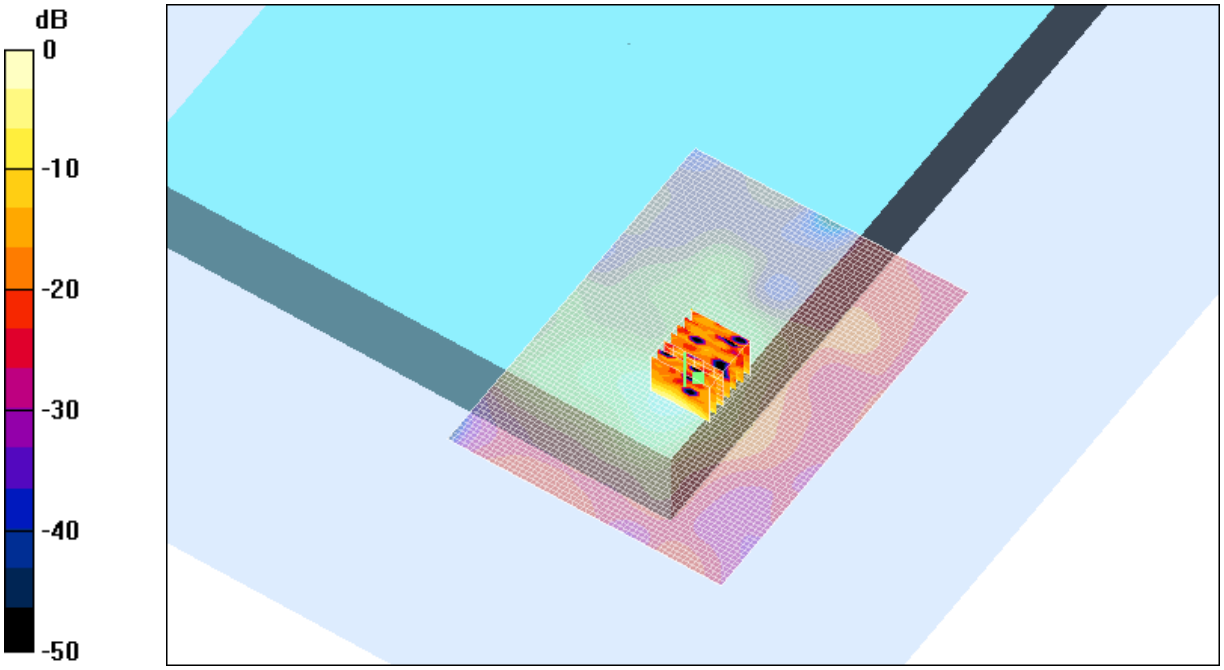
File Name: Arm Held OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna A 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5240 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.24874 mho/m, ε_r = 45.3307, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 48 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 3.39 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 0.621 mW/g

Channel 48 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.165 mW/g
Reference Value = 3.39 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 0.717 mW/g



0 dB = 0.717mW/g

SAR MEASUREMENT PLOT 2

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

Test Date: 09 February 2004

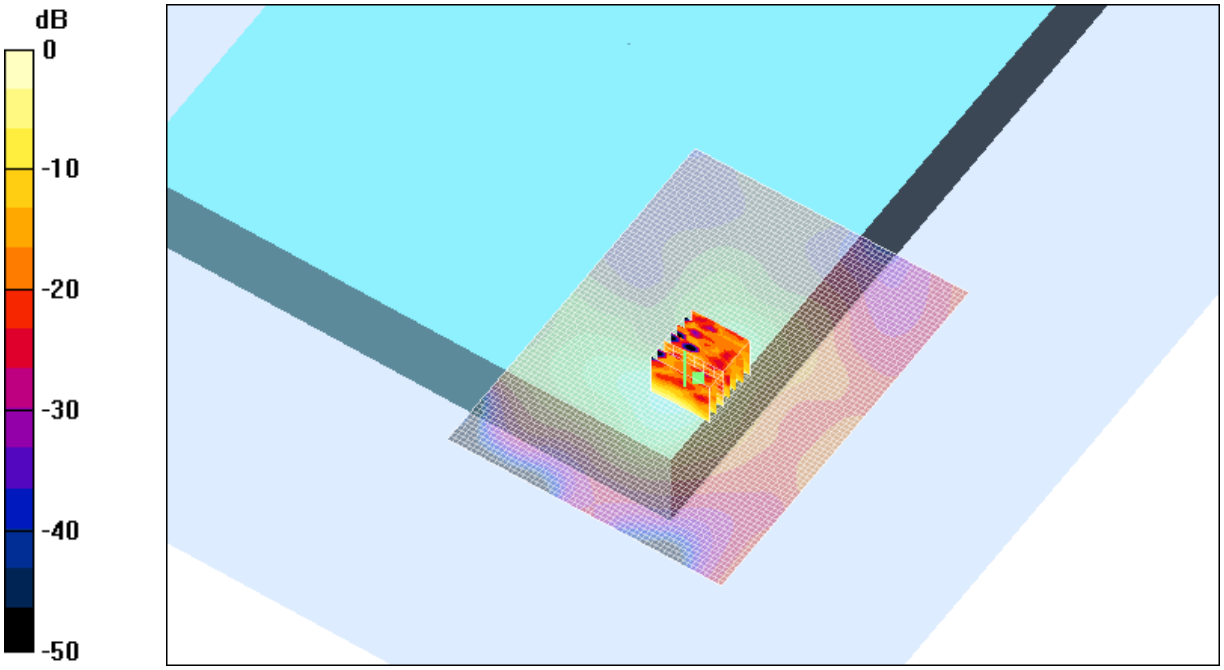
File Name: Arm Held OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna A 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5320 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.39992 mho/m, ε_r = 45.1001, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 64 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 3.43 V/m
Power Drift = 0.3 dB
Maximum value of SAR = 0.689 mW/g

Channel 64 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 2.22 W/kg
SAR(1 g) = 0.586 mW/g; SAR(10 g) = 0.191 mW/g
Reference Value = 3.43 V/m
Power Drift = 0.3 dB
Maximum value of SAR = 0.831 mW/g

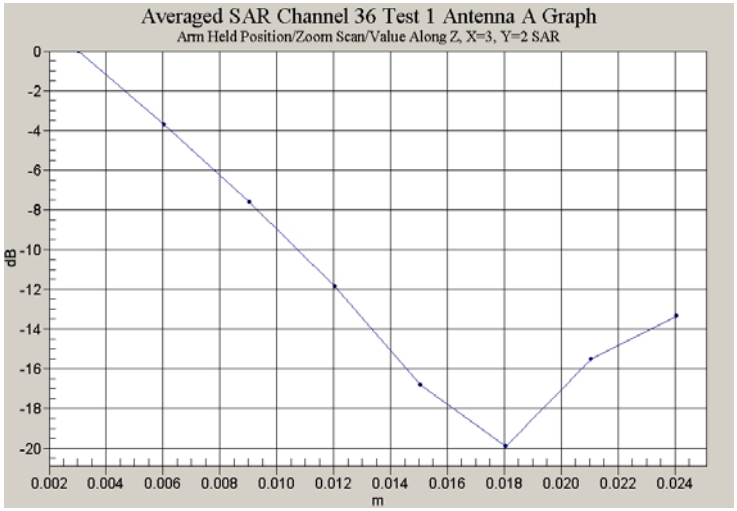


0 dB = 0.831mW/g

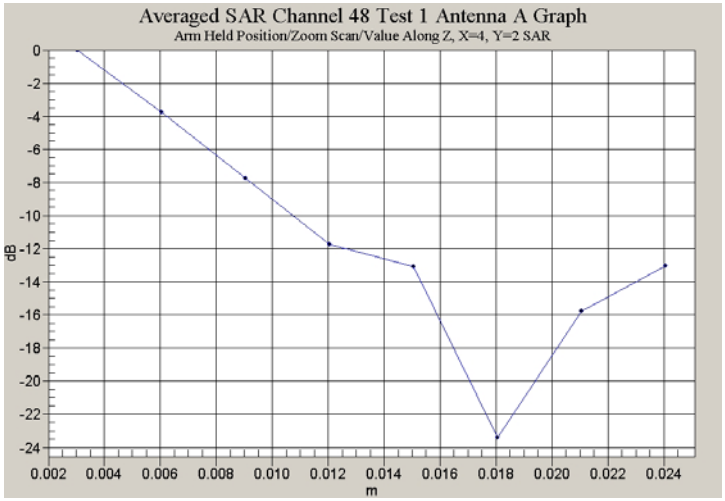
SAR MEASUREMENT PLOT 3

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

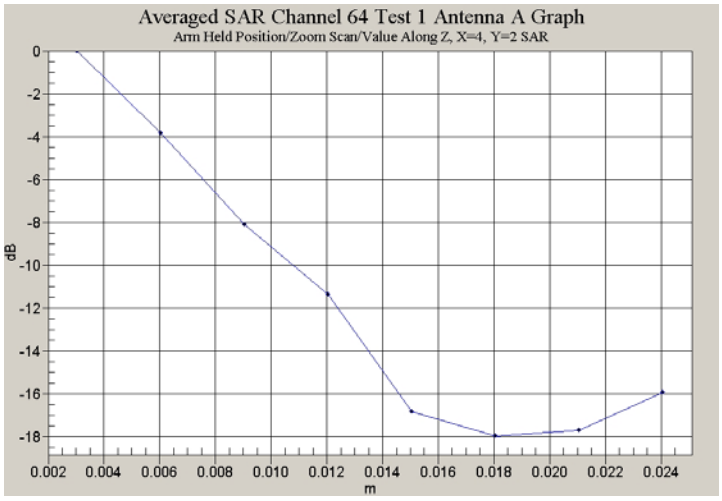
Z-axis scan for Plot 1



Z-axis scan for Plot 2



Z-axis scan for Plot 3



Test Date: 09 February 2004

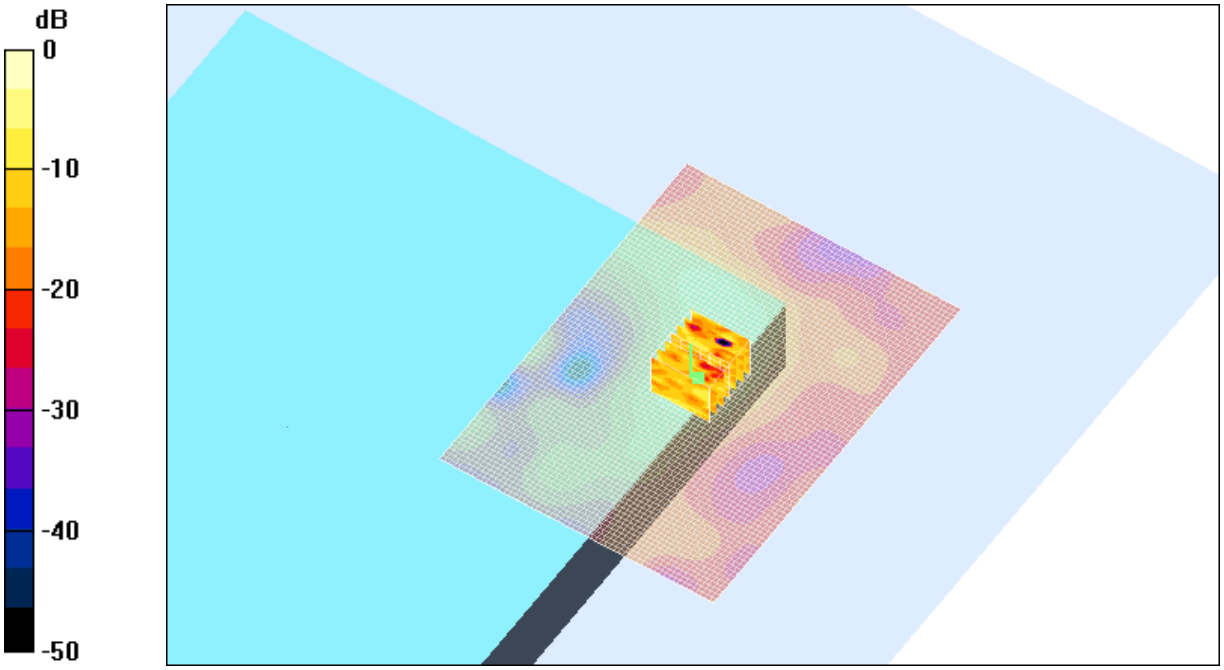
File Name: Arm Held OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna B 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5180 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.14952 mho/m, ε_r = 45.461, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 36 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 2.38 V/m
Power Drift = 0.4 dB
Maximum value of SAR = 0.251 mW/g

Channel 36 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 0.899 W/kg
SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.065 mW/g
Reference Value = 2.38 V/m
Power Drift = 0.4 dB
Maximum value of SAR = 0.311 mW/g



0 dB = 0.311mW/g

SAR MEASUREMENT PLOT 4

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

Test Date: 09 February 2004

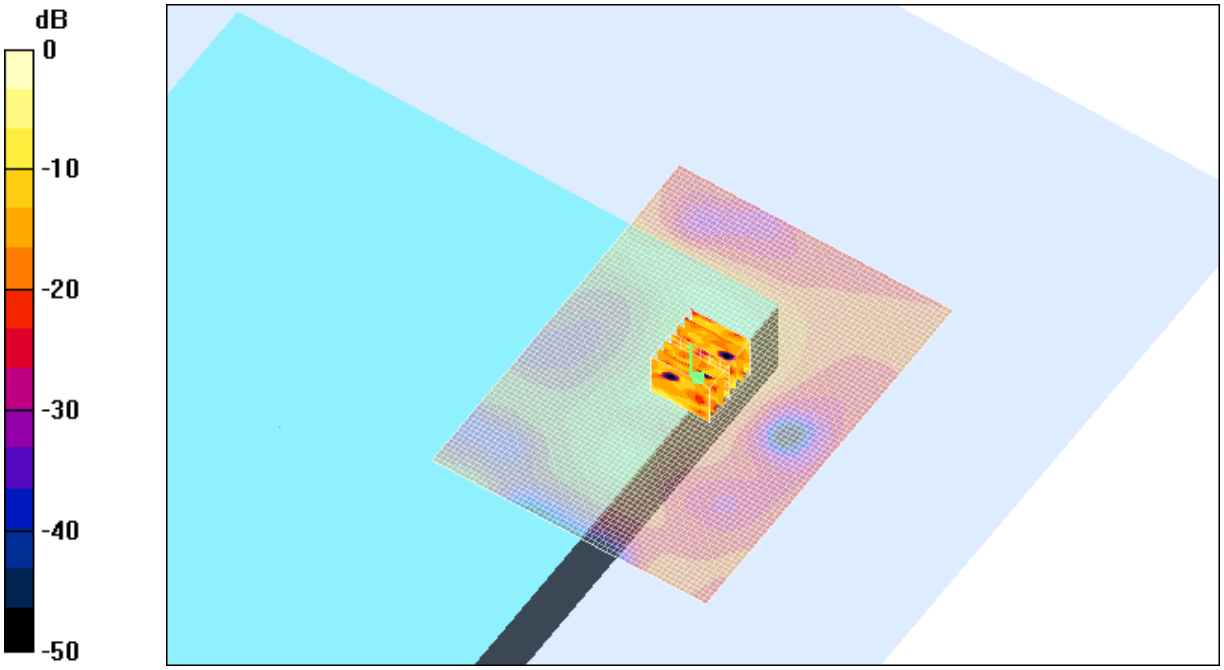
File Name: Arm Held OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna B 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5240 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.24874 mho/m, ε_r = 45.3307, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 48 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 2.7 V/m
Power Drift = -0.4 dB
Maximum value of SAR = 0.296 mW/g

Channel 48 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.076 mW/g
Reference Value = 2.7 V/m
Power Drift = -0.4 dB
Maximum value of SAR = 0.346 mW/g



0 dB = 0.346mW/g

SAR MEASUREMENT PLOT 5

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

Test Date: 09 February 2004

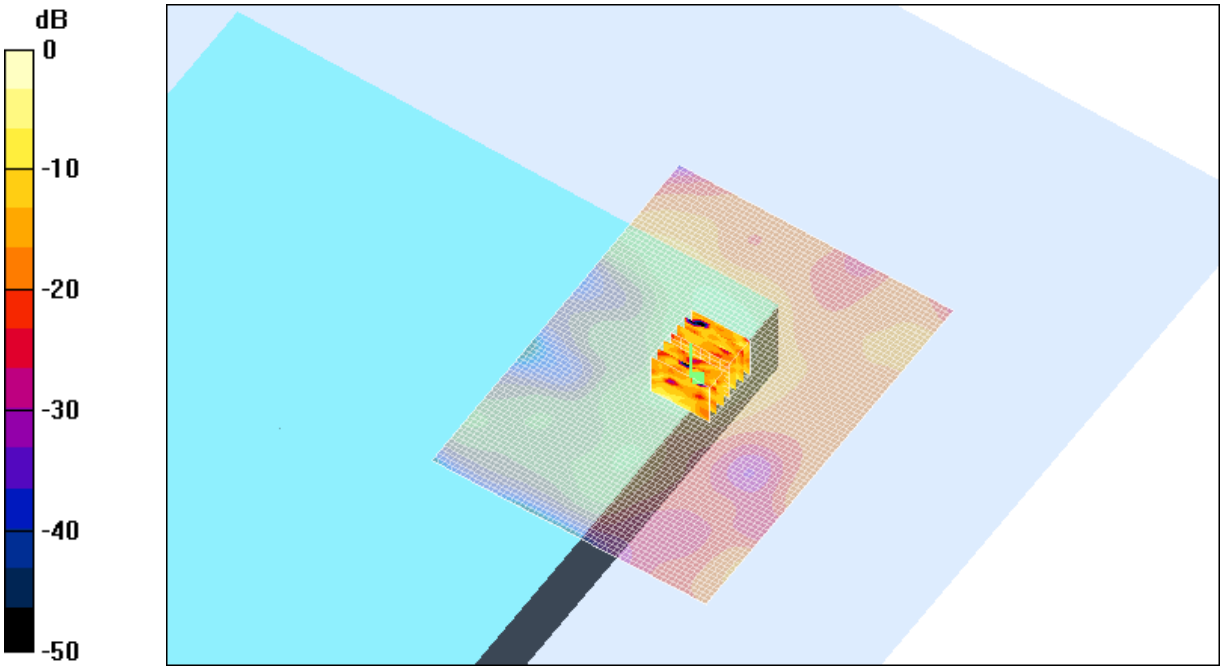
File Name: Arm Held OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna B 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5320 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.39992 mho/m, ε_r = 45.1001, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 64 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 2.75 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 0.335 mW/g

Channel 64 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.081 mW/g
Reference Value = 2.75 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 0.346 mW/g

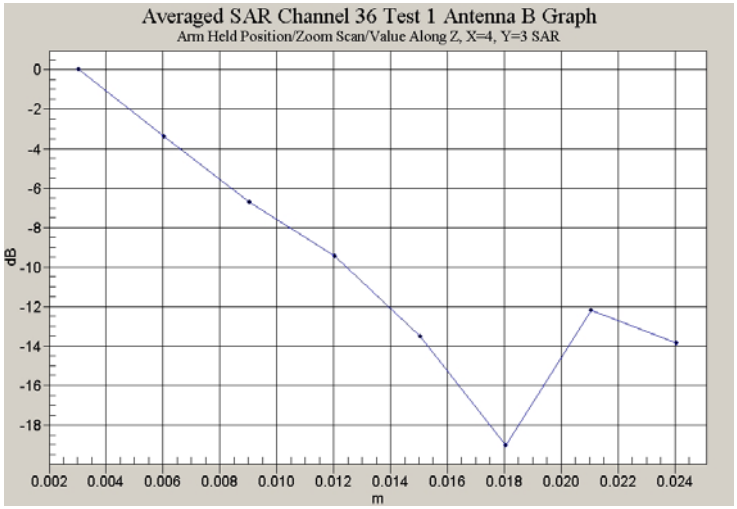


0 dB = 0.346mW/g

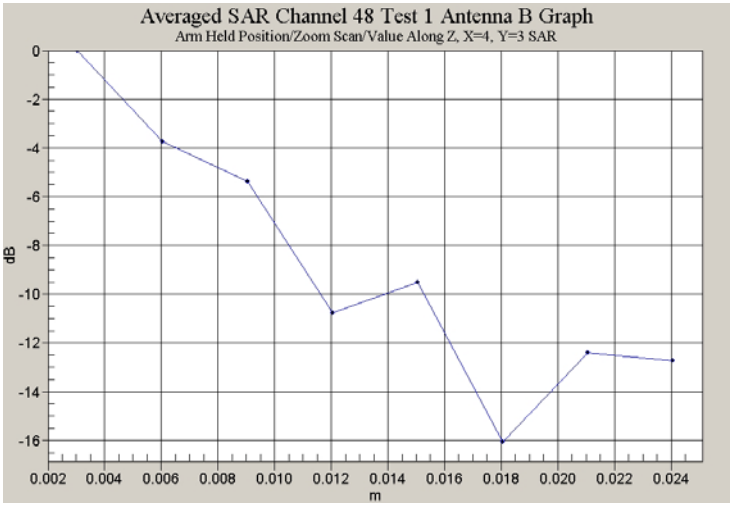
SAR MEASUREMENT PLOT 6

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

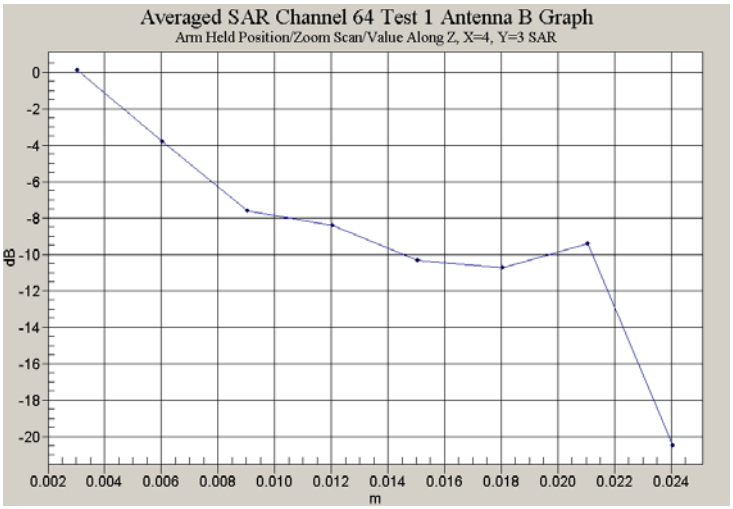
Z-axis graph for Plot 4



Z-axis graph for Plot 5



Z-axis graph for Plot 6



Test Date: 09 February 2004

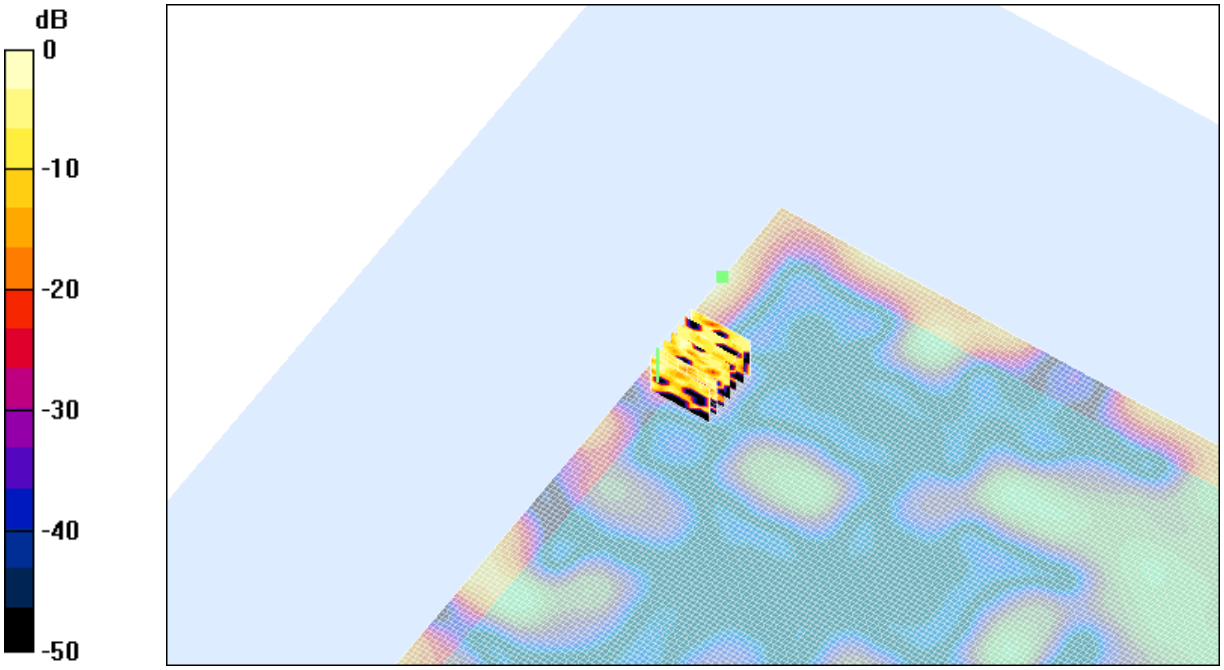
File Name: Tablet OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna A Prescan 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5240 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.24874 mho/m, ε_r = 45.3307, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 48 Test/Area Scan (131x161x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 1.05 V/m
Power Drift = -0.4 dB
Maximum value of SAR = 0.021 mW/g

Channel 48 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 1435.4 W/kg
SAR(1 g) = 0.00966 mW/g; SAR(10 g) = 0.00566 mW/g
Reference Value = 1.05 V/m
Power Drift = -0.4 dB
Maximum value of SAR = 0.046 mW/g



0 dB = 0.046mW/g

SAR MEASUREMENT PLOT 7

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

Test Date: 09 February 2004

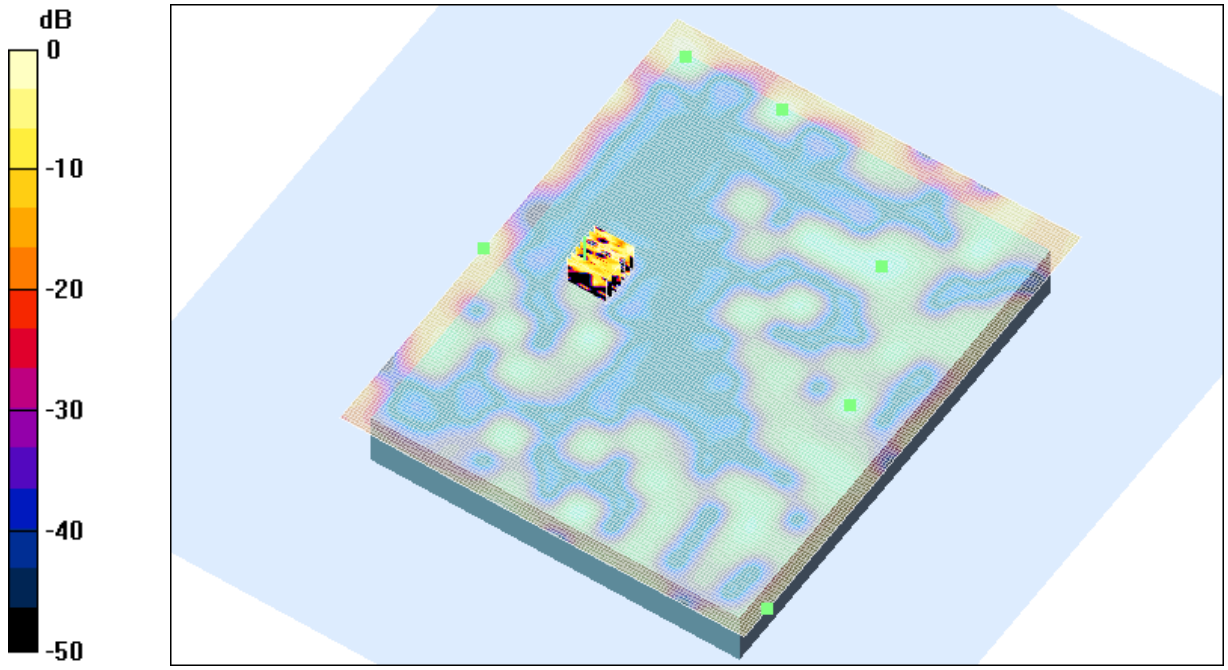
File Name: Tablet OFDM 5.25 GHz Mace 2 Atheros 11abg Antenna B Prescan 09-02-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5250 MHz; Frequency: 5240 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.24874 mho/m, ε_r = 45.3307, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(2.05, 2.05, 2.05)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 48 Test/Area Scan (131x161x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 0.957 V/m
Power Drift = -0.5 dB
Maximum value of SAR = 0.023 mW/g

Channel 48 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 1744.4 W/kg
SAR(1 g) = 0.006 mW/g; SAR(10 g) = 0.00246 mW/g
Reference Value = 0.957 V/m
Power Drift = -0.5 dB
Maximum value of SAR = 0.035 mW/g



0 dB = 0.035mW/g

SAR MEASUREMENT PLOT 8

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**61 %**

Test Date: 21 January 2004

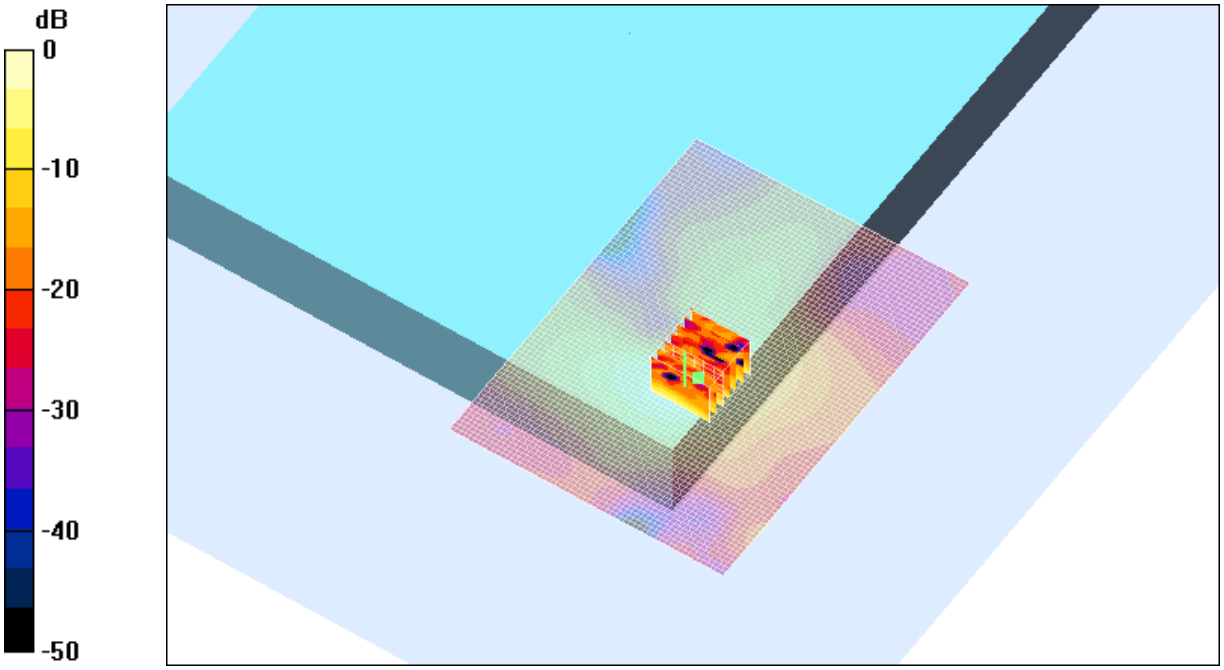
File Name: Arm Held OFDM 5.77 GHz Mace 2 Atheros 11abg Antenna A - 21-01-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5770 MHz; Frequency: 5745 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.90304 mho/m, ε_r = 43.7266, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(1.8, 1.8, 1.8)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 149 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 3.94 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 1.42 mW/g

Channel 149 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 0.894 mW/g; SAR(10 g) = 0.291 mW/g
Reference Value = 3.94 V/m
Power Drift = 0.1 dB
Maximum value of SAR = 1.26 mW/g



0 dB = 1.26mW/g

SAR MEASUREMENT PLOT 9

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**53 %**

Test Date: 21 January 2004

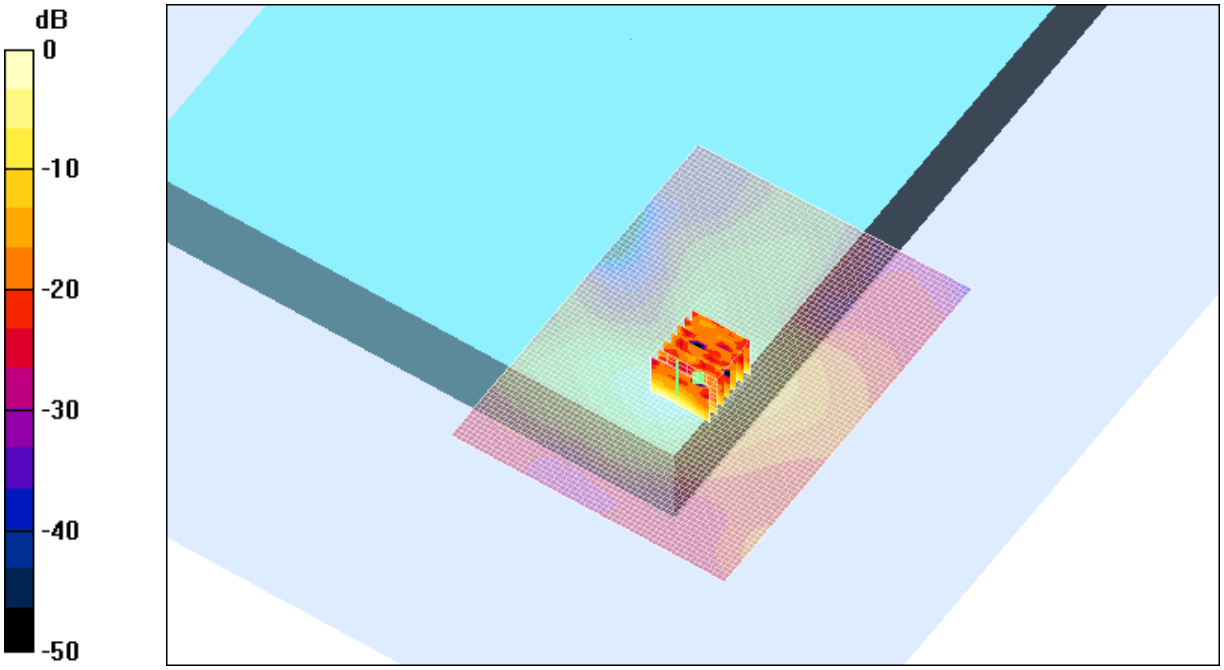
File Name: Arm Held OFDM 5.77 GHz Mace 2 Atheros 11abg Antenna A - 21-01-04.da4

DUT: Fujitsu Tablet MACE/MACE2 with Atheros 11abg Module; Type: WLL 4030 Module; Serial: MAC: 009096-6CAE3F

* Communication System: OFDM 5770 MHz; Frequency: 5785 MHz; Duty Cycle: 1:1
* Medium: Body 5600 MHz; (σ = 5.97776 mho/m, ε_r = 43.6271, ρ = 1000 kg/m^3)
- Electronics: DAE3 Sn442; Probe: ES3DV3- SN3029; ConvF(1.8, 1.8, 1.8)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 157 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Reference Value = 4.62 V/m
Power Drift = 0.5 dB
Maximum value of SAR = 1.95 mW/g

Channel 157 Test/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Peak SAR (extrapolated) = 4.2 W/kg
SAR(1 g) = 0.964 mW/g; SAR(10 g) = 0.317 mW/g
Reference Value = 4.62 V/m
Power Drift = 0.3 dB
Maximum value of SAR = 1.47 mW/g



0 dB = 1.47mW/g

SAR MEASUREMENT PLOT 10

Ambient Temperature	**21.6 Degrees Celsius**
Liquid Temperature	**20.8 Degrees Celsius**
Humidity	**53 %**