

**6.4.4.16. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=148mm; 470 MHz; #32**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=148mm\_Head\_470MHz(H2f)****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 470 MHz

Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.887$  mho/m;  $\epsilon_r = 41.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 49.5 V/m; Power Drift = -0.033 dB

Peak SAR (extrapolated) = 2.37 W/kg

**SAR(1 g) = 1.76 mW/g; SAR(10 g) = 1.33 mW/g**

Maximum value of SAR (measured) = 2.11 mW/g

**FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.11 mW/g

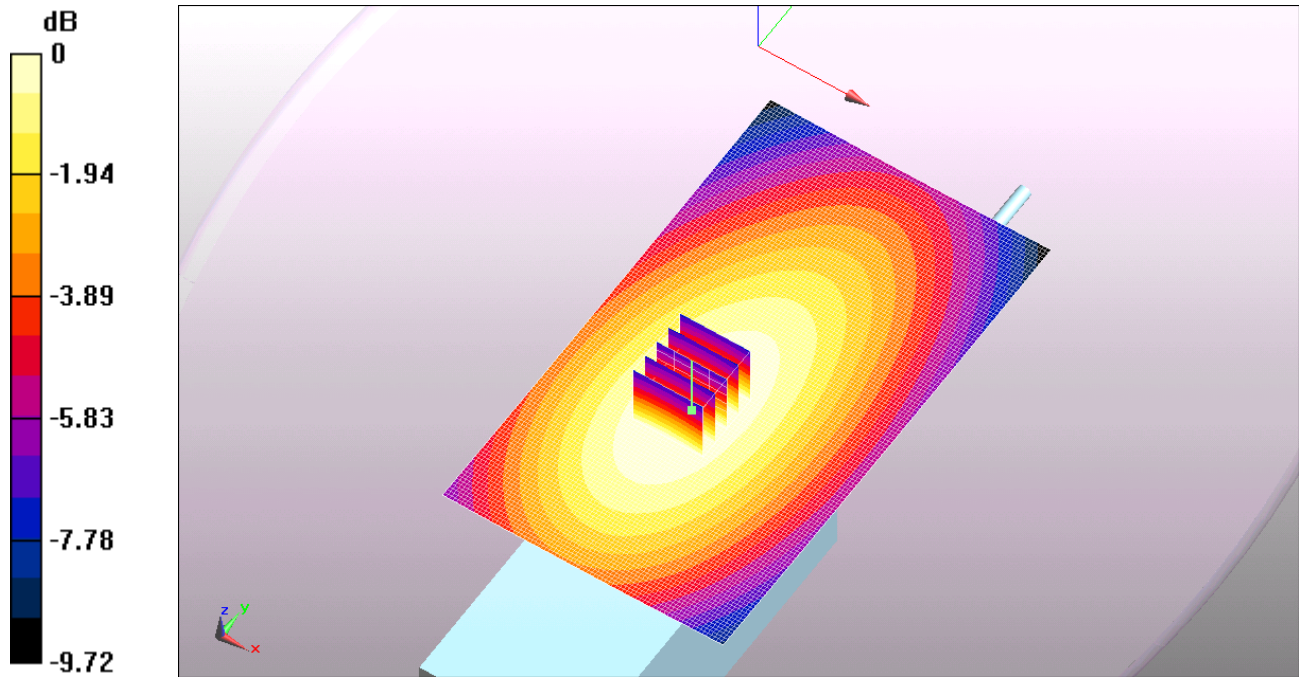
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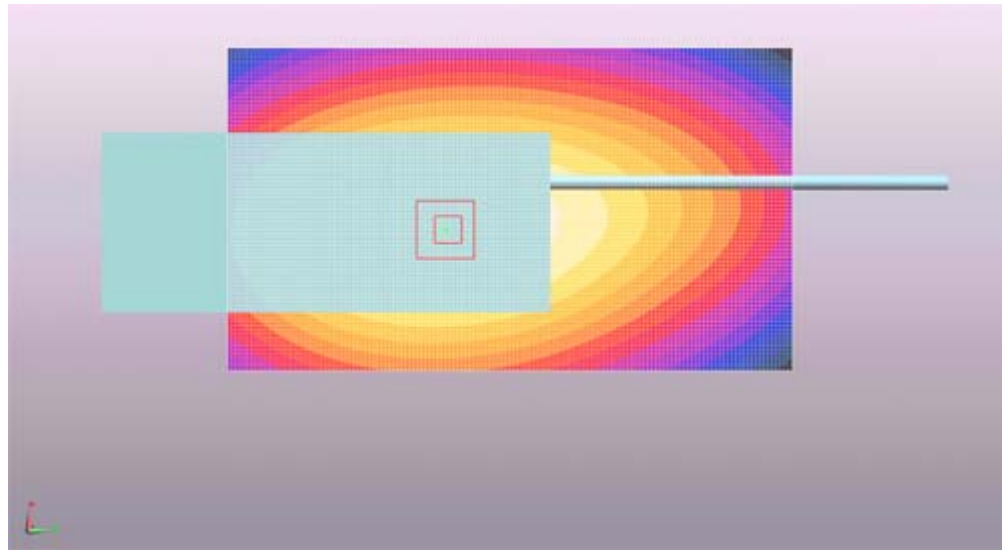
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0 dB = 2.11mW/g



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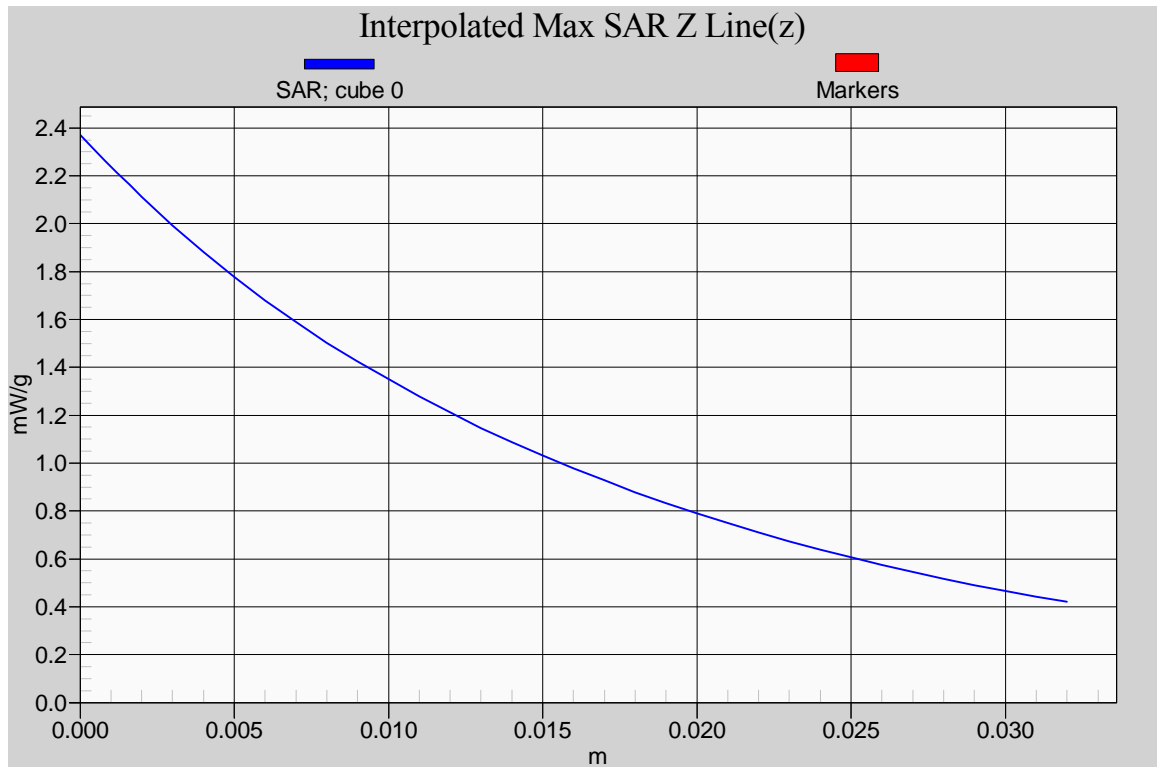
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**6.4.4.17. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; 380 MHz; #33**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Head\_380MHz(L1f)****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.806$  mho/m;  $\epsilon_r = 44.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 50.5 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 2.26 W/kg

**SAR(1 g) = 1.85 mW/g; SAR(10 g) = 1.42 mW/g**

Maximum value of SAR (measured) = 2.03 mW/g

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.02 mW/g

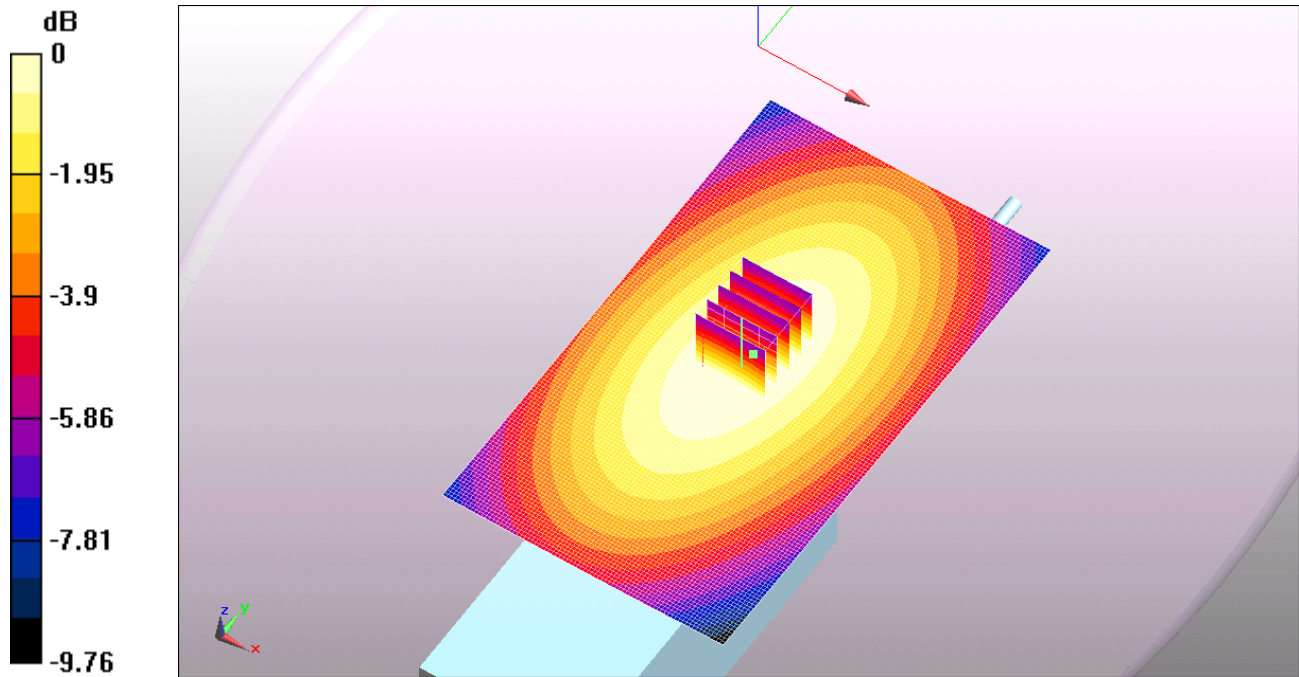
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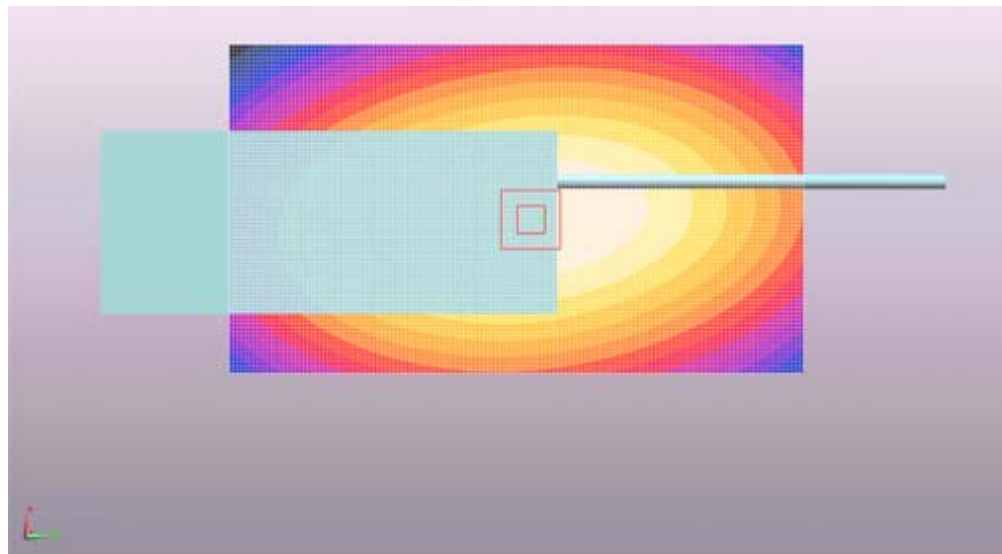
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0 dB = 2.02mW/g



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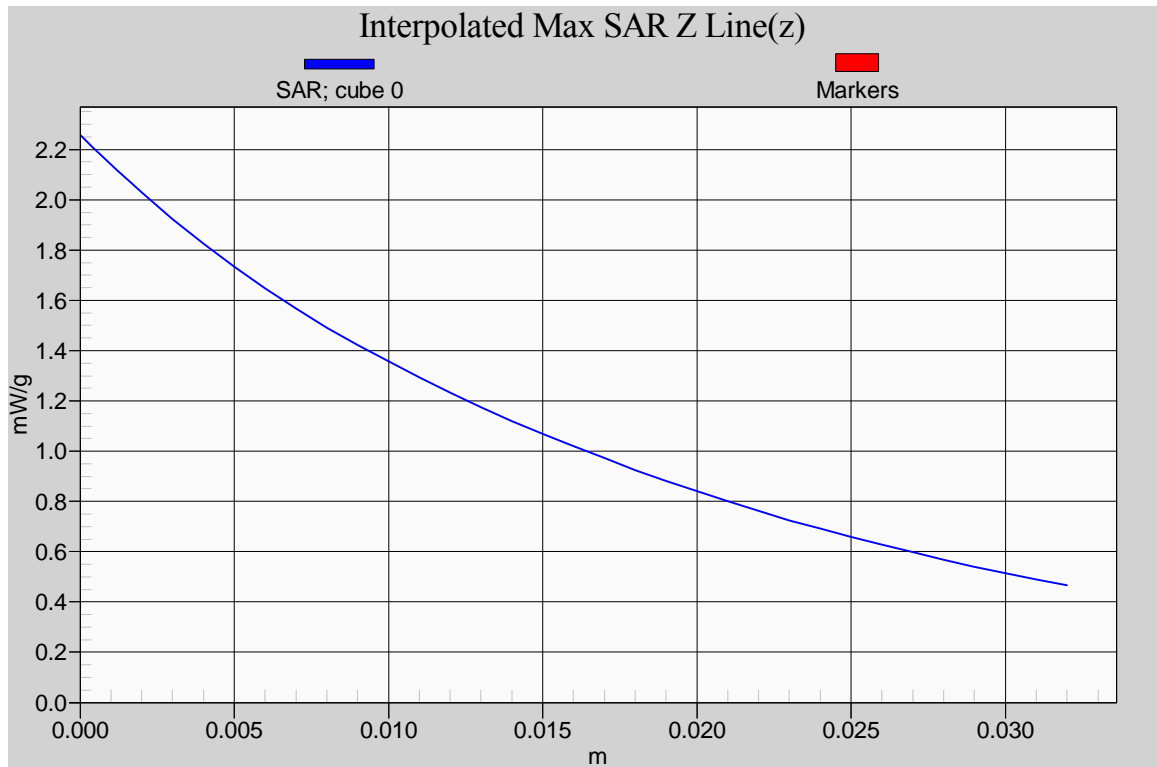
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July 6, 2010

**6.4.4.18. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; 416 MHz; #35**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Head\_416MHz(M1f)****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 416 MHz

Medium parameters used (interpolated):  $f = 416$  MHz;  $\sigma = 0.838$  mho/m;  $\epsilon_r = 43.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 66.2 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 4.02 W/kg

**SAR(1 g) = 3.19 mW/g; SAR(10 g) = 2.44 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 3.61 mW/g

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 3.61 mW/g

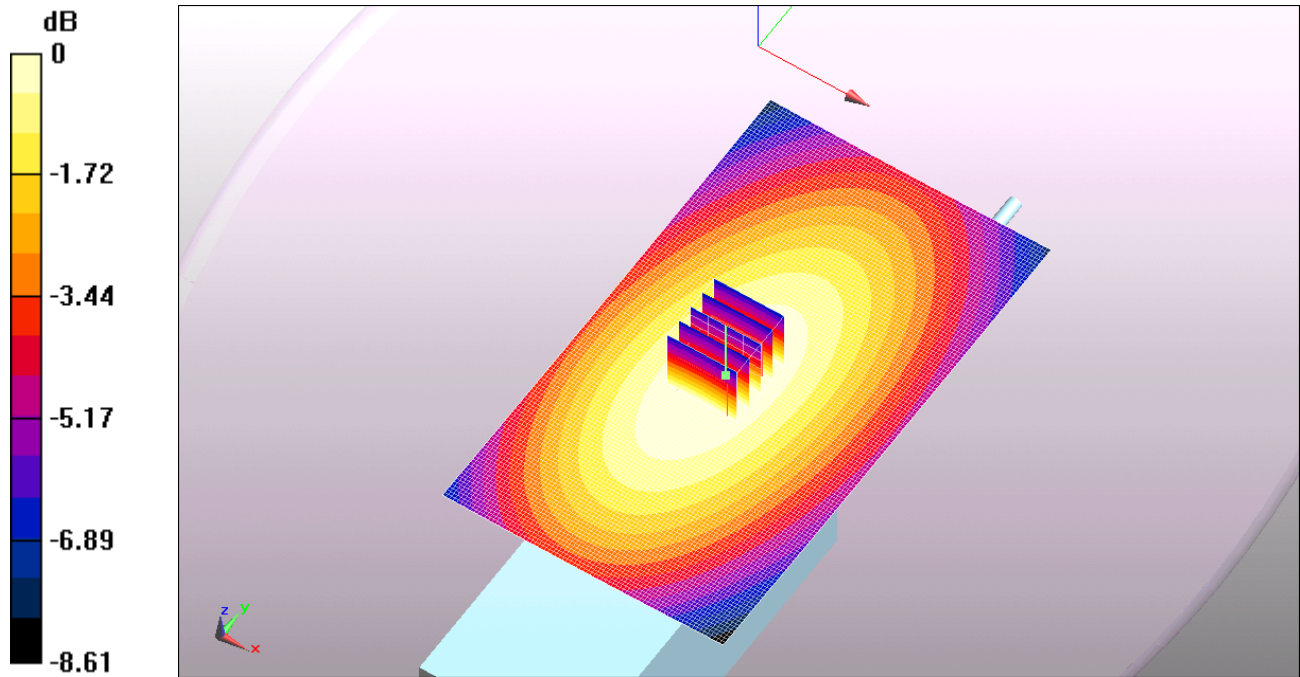
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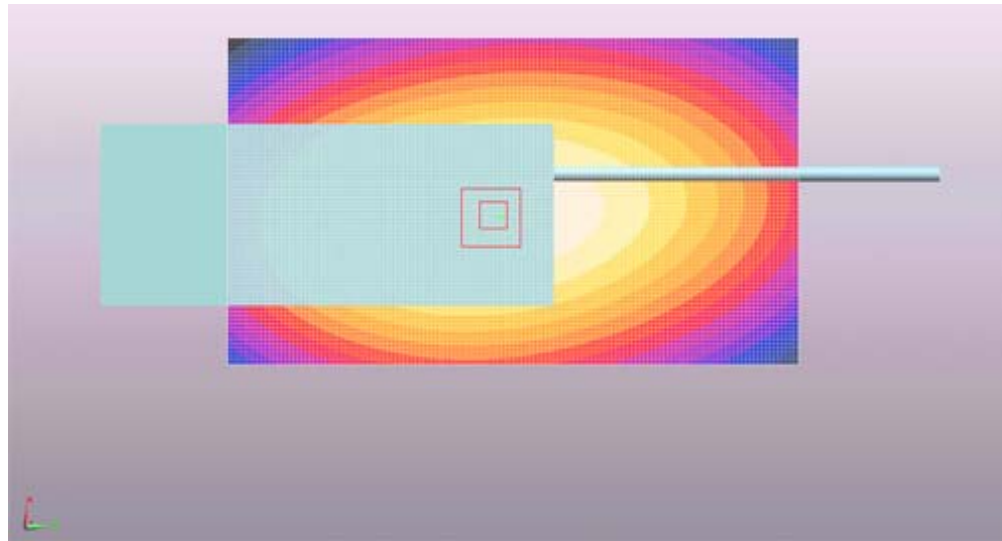
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0 dB = 3.61mW/g



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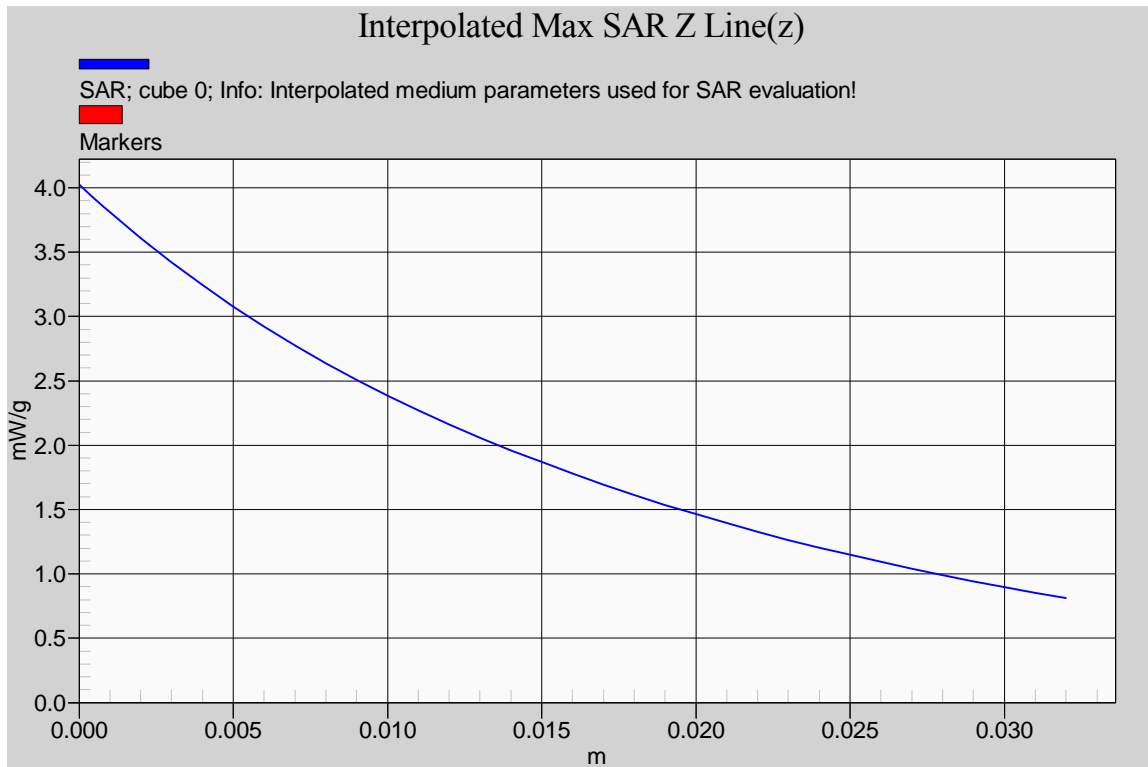
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**6.4.4.19. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; 434 MHz; #36**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Head\_434MHz(M2f)****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 434 MHz

Medium parameters used (interpolated):  $f = 434$  MHz;  $\sigma = 0.853$  mho/m;  $\epsilon_r = 42.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 57.2 V/m; Power Drift = -0.122 dB

Peak SAR (extrapolated) = 3.03 W/kg

**SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.78 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 2.72 mW/g

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 2.72 mW/g

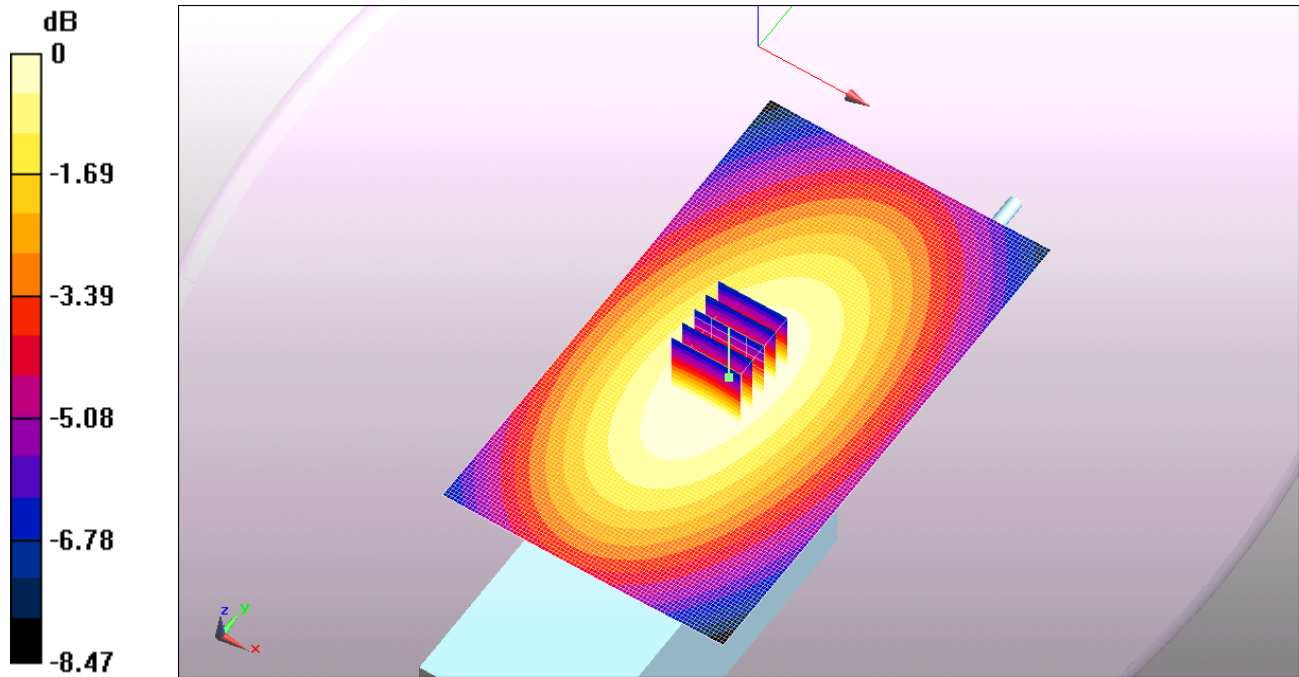
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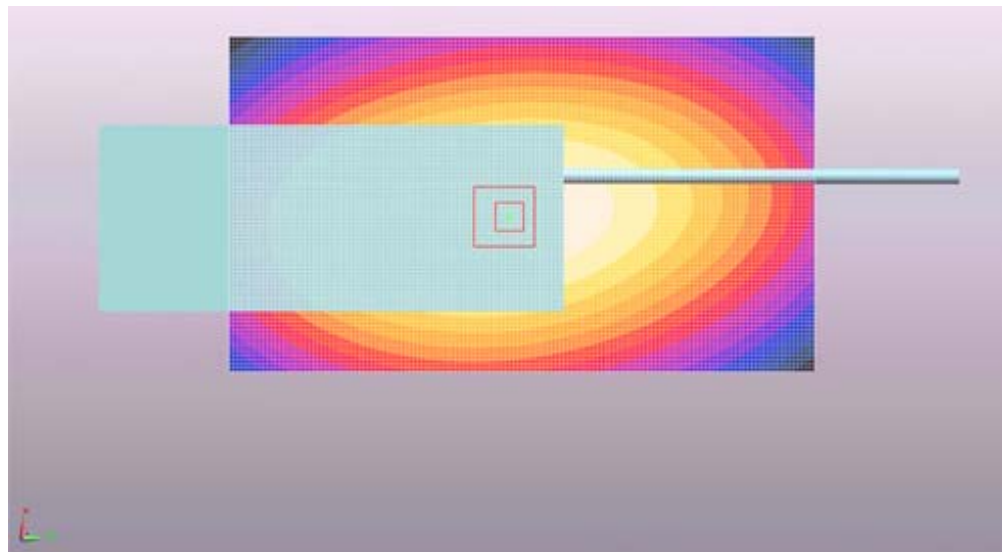
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0 dB = 2.72mW/g



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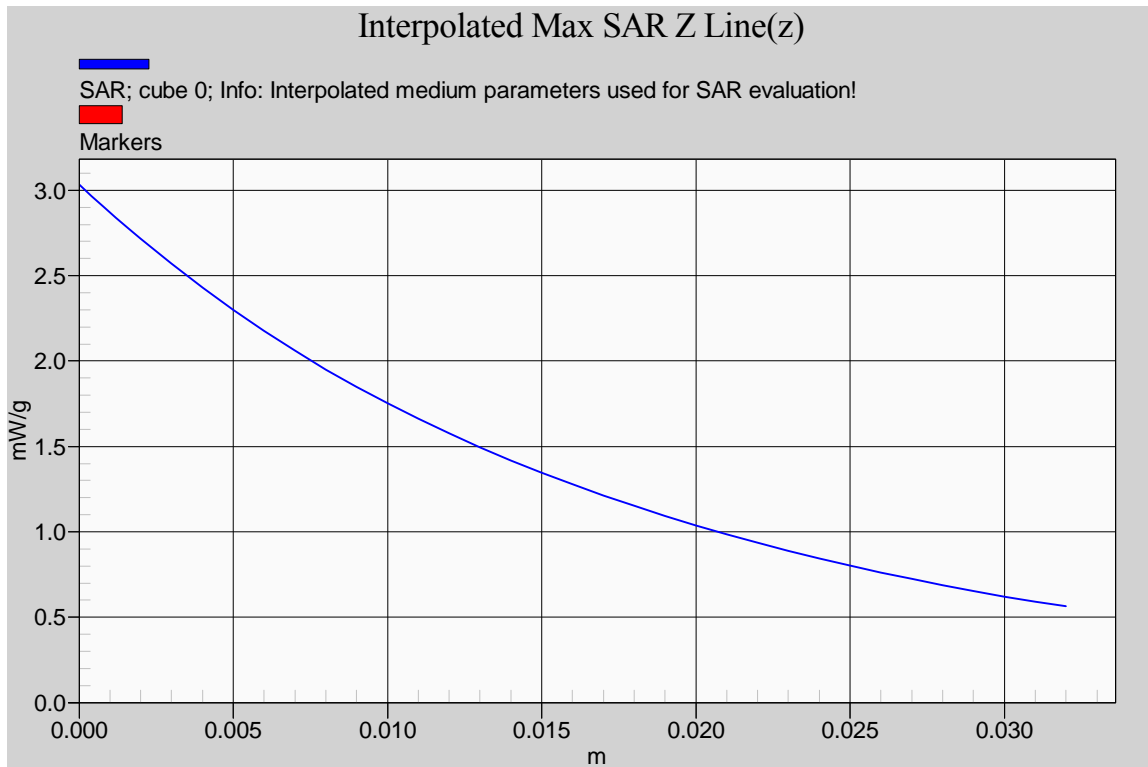
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**6.4.4.20. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; 460 MHz; #38**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Head\_460MHz(H2f)****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 460 MHz

Medium parameters used:  $f = 460$  MHz;  $\sigma = 0.877$  mho/m;  $\epsilon_r = 42.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:**

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 57.6 V/m; Power Drift = -0.202 dB

Peak SAR (extrapolated) = 3.07 W/kg

**SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.75 mW/g**

Maximum value of SAR (measured) = 2.74 mW/g

**FA-S76UC=142mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.76 mW/g

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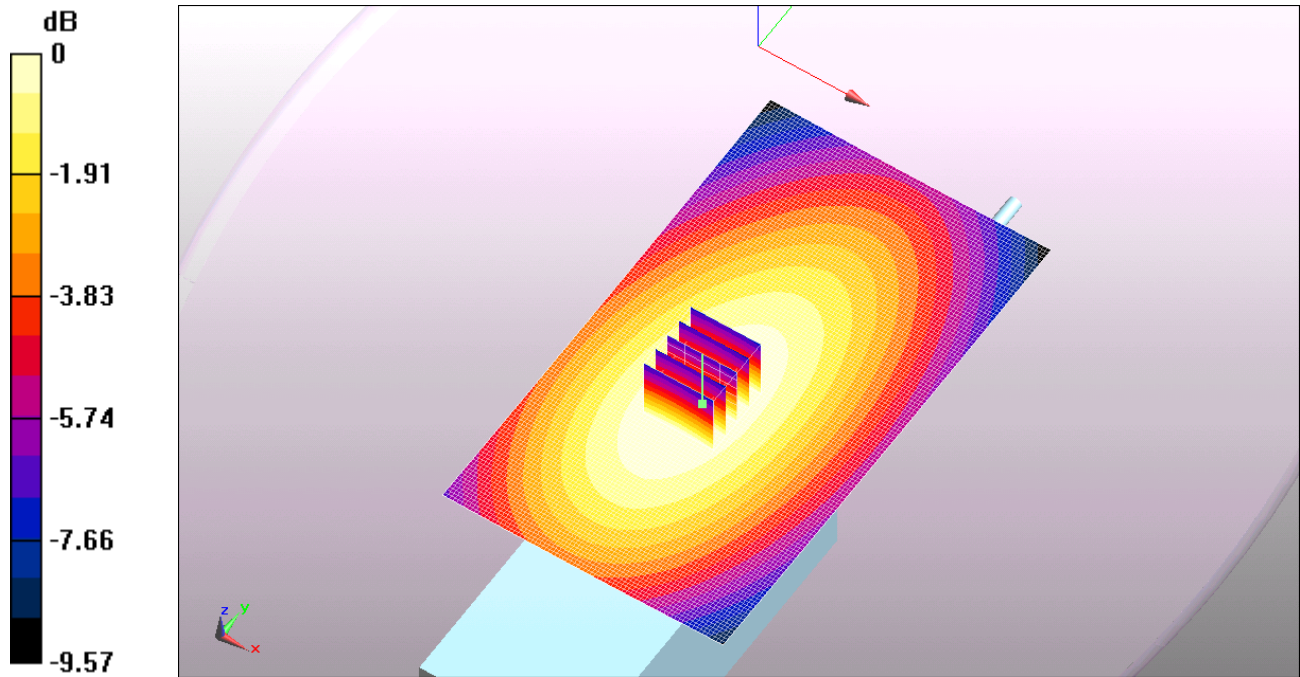
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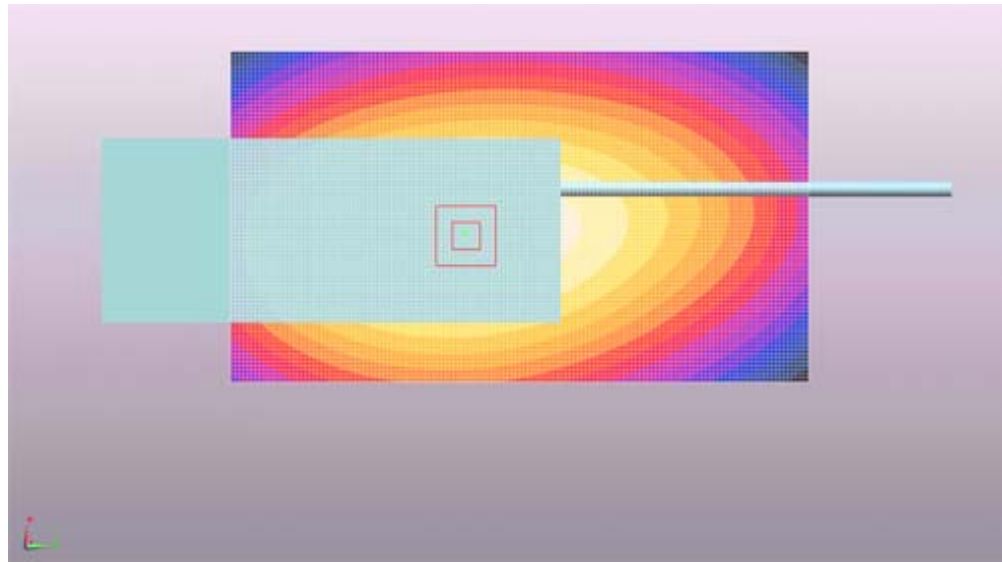
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0 dB = 2.76mW/g



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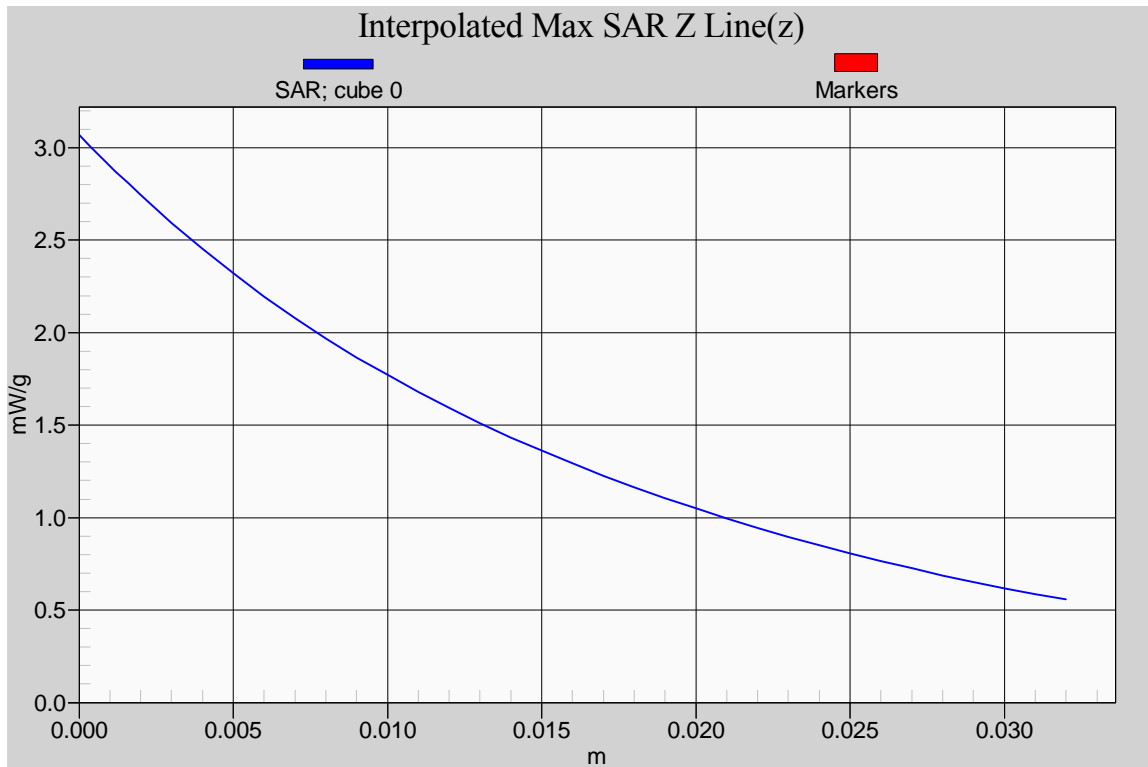
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**6.4.5. Body Configuration Results of Part 1: FA-S58U Antenna**

#	Configuration	Antenna Position	Frequency [MHz]	Channel	MAX SAR <sub>1g</sub> [W/Kg]
*	Occupational/Controlled Exposure Category Limit				8.0
41	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, red ring); 50% duty cycle for PTT; MB-115 Clip, AD-118 ACC Adapter.	FIX	430	Low	3.60
42		FIX	450	Middle	3.69
43		FIX	470	High	3.00

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**6.4.5.1.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S58U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 430 MHz; #41**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S58U\_Body\_430MHz(Lf)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 430 MHz

Medium parameters used:  $f = 430$  MHz;  $\sigma = 0.925$  mho/m;  $\epsilon_r = 56.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 93.3 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 10.1 W/kg

**SAR(1 g) = 7.19 mW/g; SAR(10 g) = 5.19 mW/g**

**Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.**

Maximum value of SAR (measured) = 8.62 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x131x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.55 mW/g

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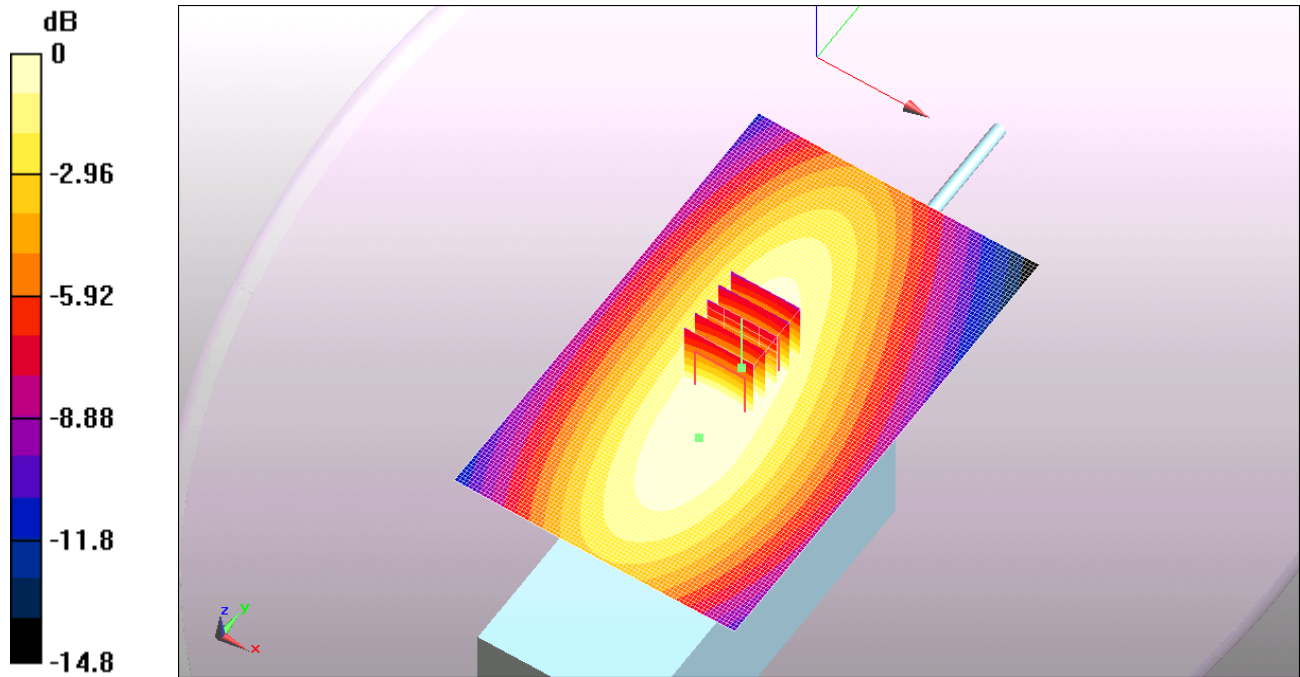
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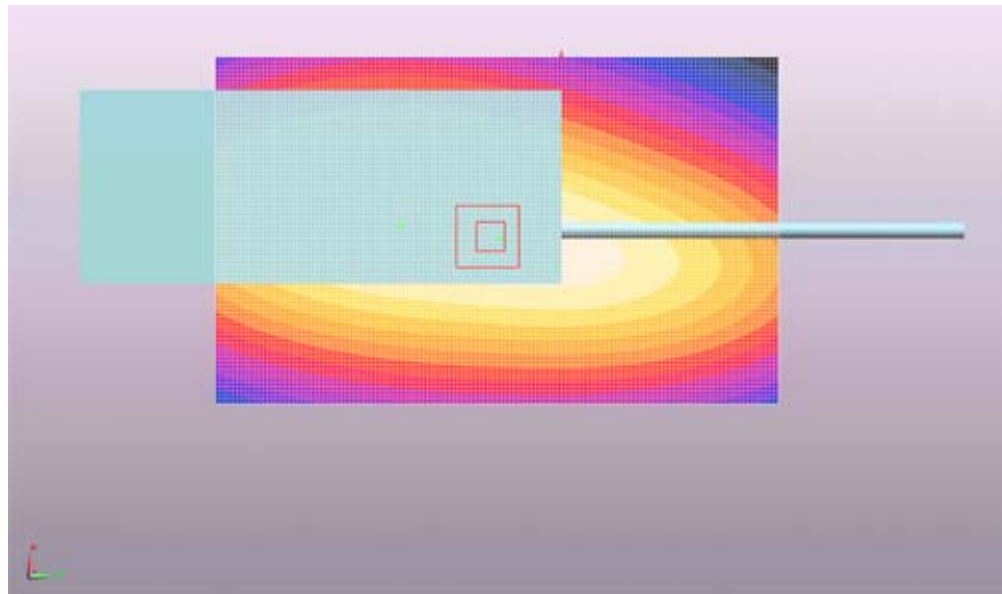
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0 dB = 8.55mW/g



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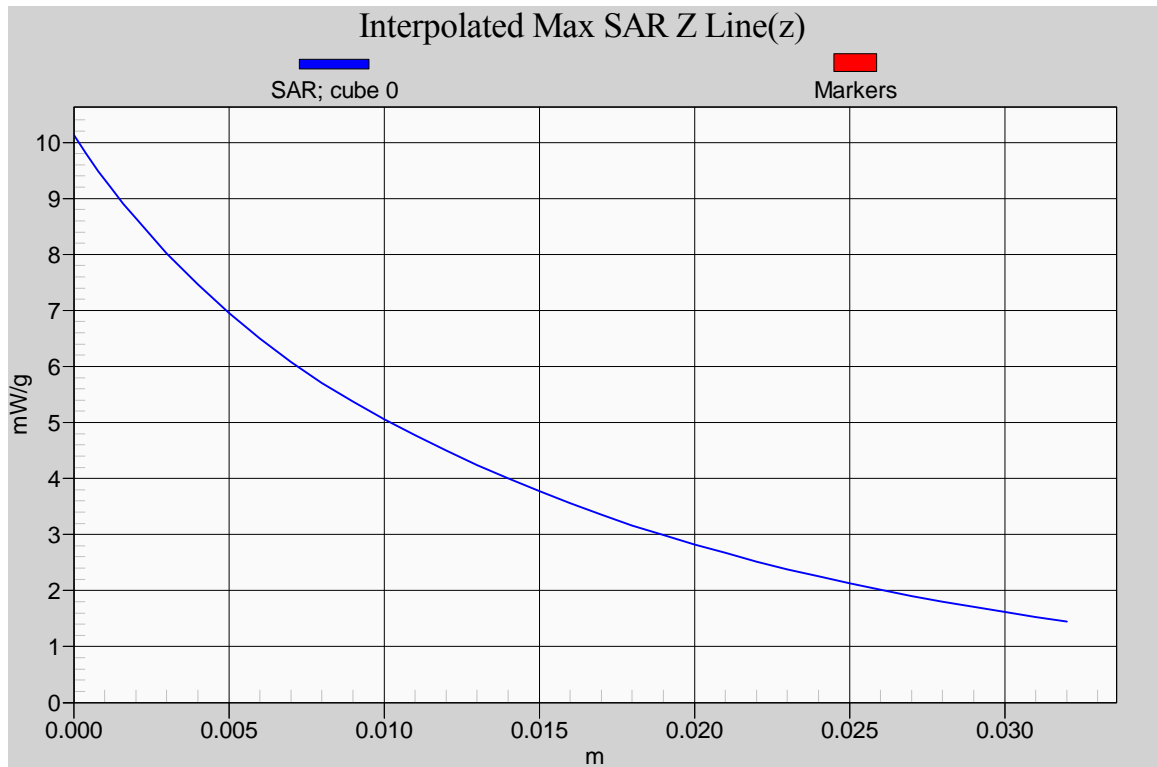
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**6.4.5.2.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S58U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 450 MHz; #42**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S58U\_Body\_450MHz(Mf)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 450 MHz

Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.942$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 99.4 V/m; Power Drift = -0.211 dB

Peak SAR (extrapolated) = 10.2 W/kg

**SAR(1 g) = 7.38 mW/g; SAR(10 g) = 5.43 mW/g**

Maximum value of SAR (measured) = 8.87 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x131x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.95 mW/g

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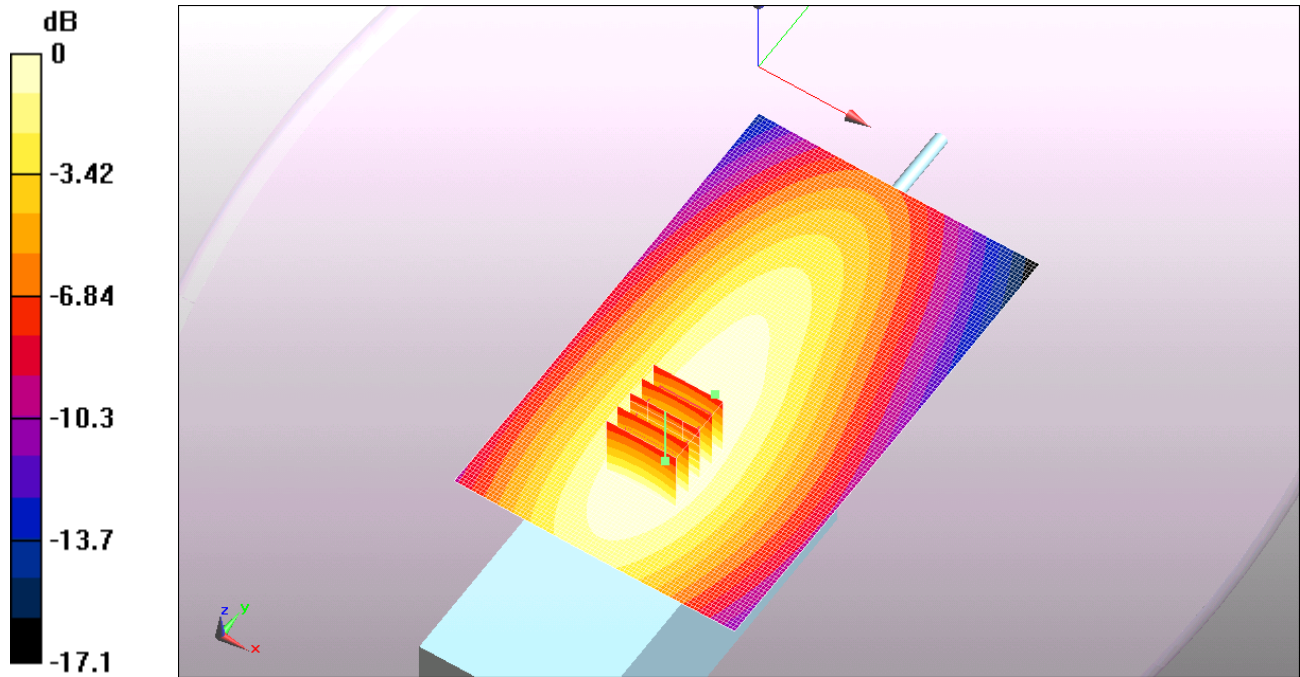
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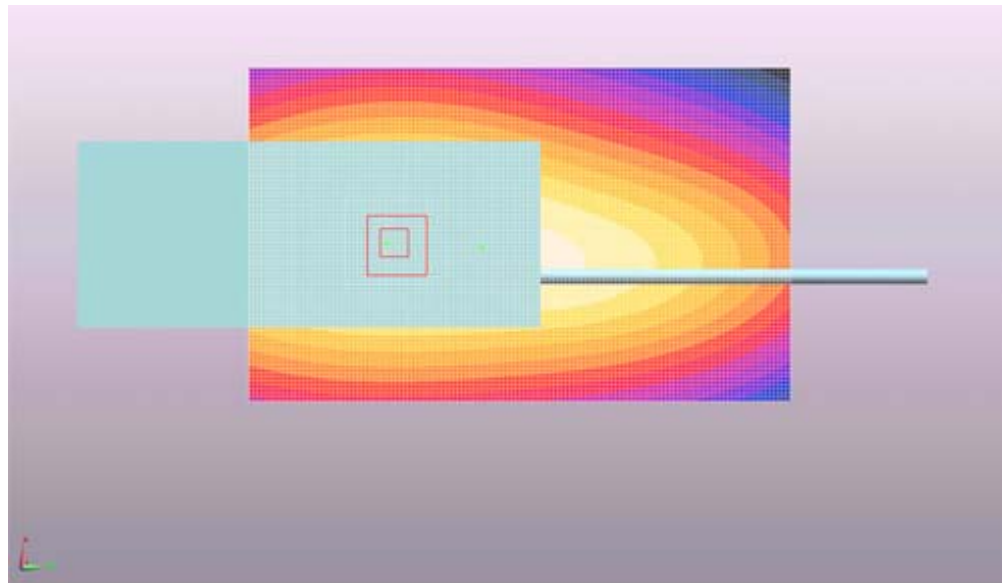
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0 dB = 8.95mW/g



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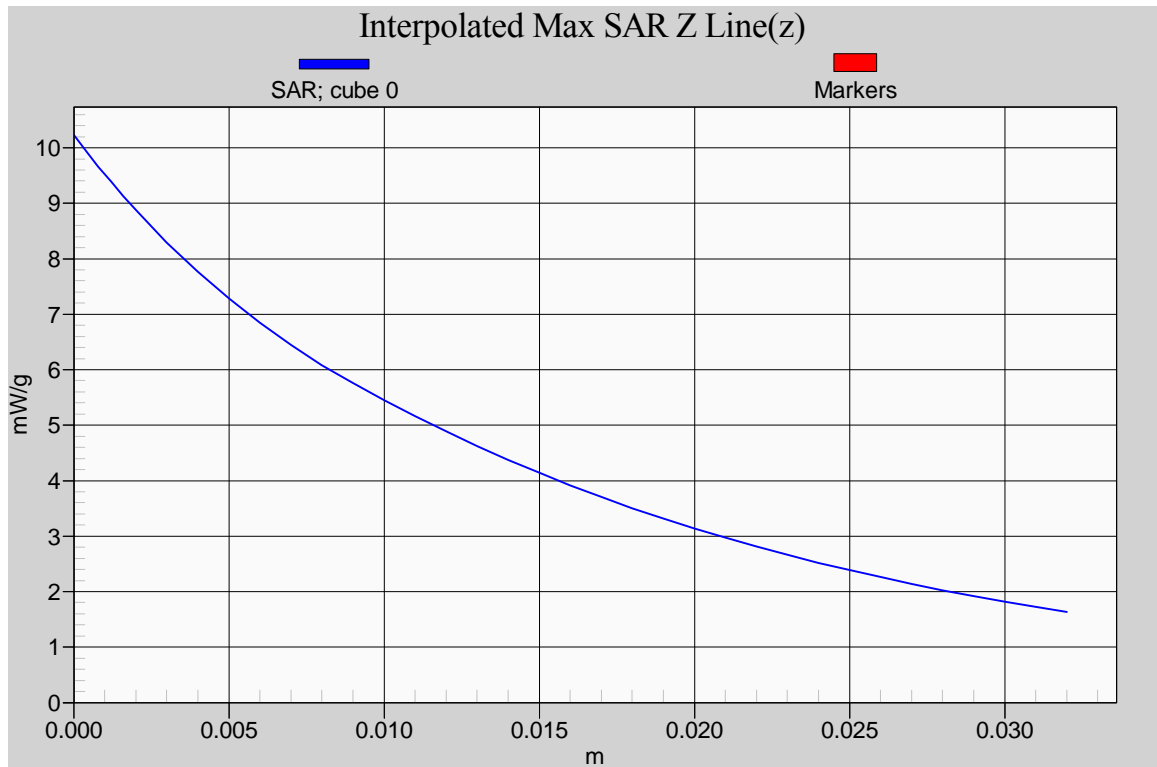
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**6.4.5.3.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S58U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 470 MHz; #43**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S58U\_Body\_470MHz(Hf)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 470 MHz

Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.962$  mho/m;  $\epsilon_r = 55.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 88 V/m; Power Drift = -0.205 dB

Peak SAR (extrapolated) = 8.49 W/kg

**SAR(1 g) = 5.99 mW/g; SAR(10 g) = 4.39 mW/g**

Maximum value of SAR (measured) = 7.36 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x131x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 7.51 mW/g

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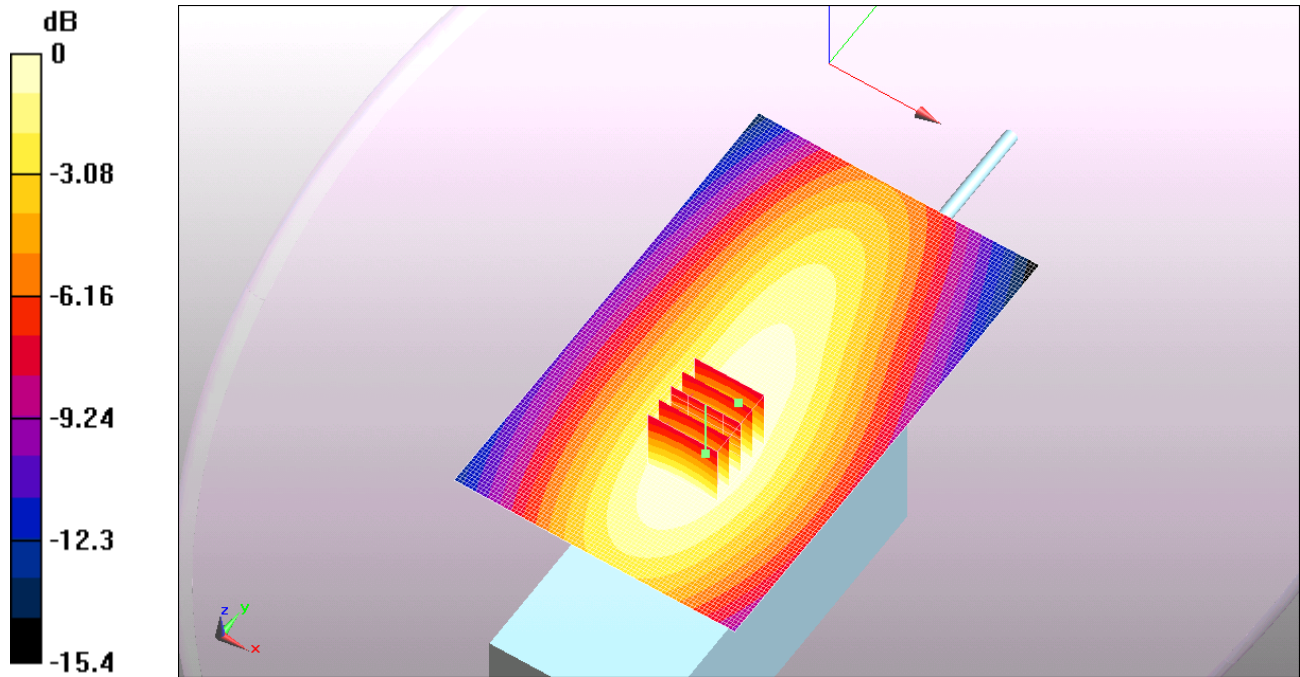
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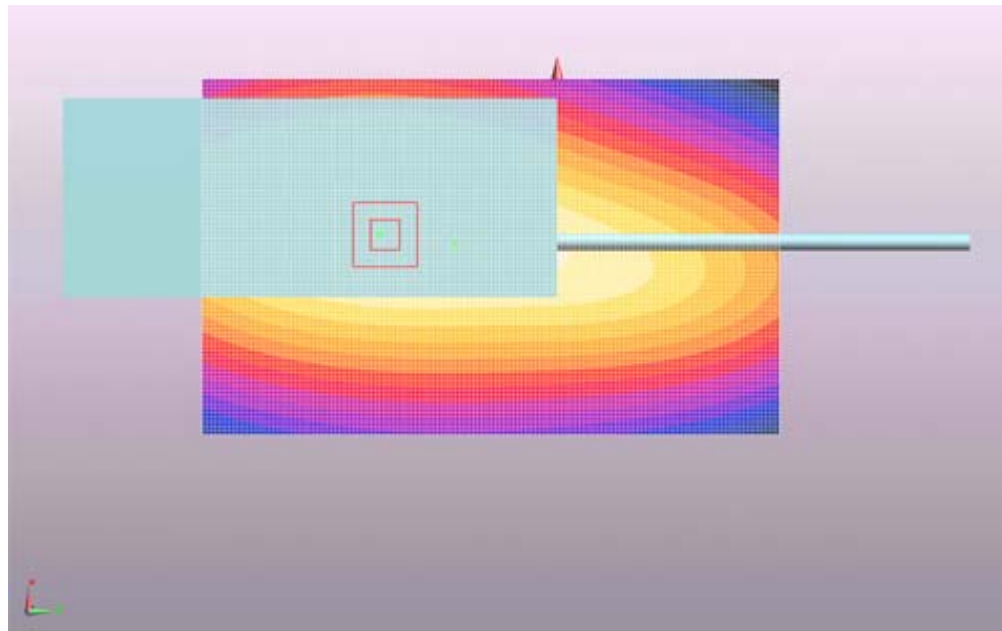
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0 dB = 7.51mW/g



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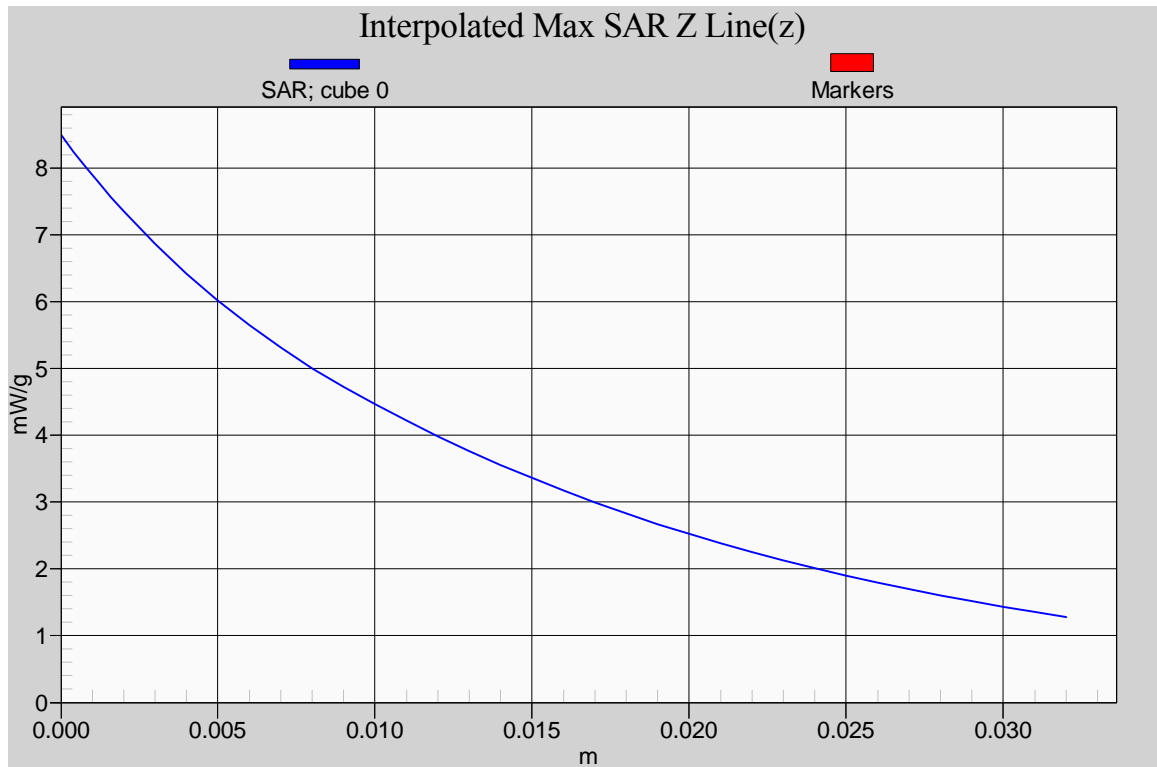
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**6.4.6. Body Configuration Results of Part 2: FA-S30U Antenna**

#	Configuration	Antenna Position	Frequency [MHz]	Channel	MAX SAR <sub>1g</sub> [W/Kg]
*	Occupational/Controlled Exposure Category Limit				8.0
44	¼ helical whip antenna (M/N: FA-S30U, 380~430 MHz, Green ring) 50% duty cycle for PTT; MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1	3.57
45		FIX	392.5	Low-2	4.36
46		FIX	405	Middle	3.40
47		FIX	417.5	High-1	2.38
48		FIX	430	High-2	1.96

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**6.4.6.1.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S30U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 380 MHz; #44**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S30U\_Body\_380MHz(L1f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 57.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 88.2 V/m; Power Drift = -0.089 dB

Peak SAR (extrapolated) = 9.72 W/kg

**SAR(1 g) = 7.13 mW/g; SAR(10 g) = 5.18 mW/g**

Maximum value of SAR (measured) = 8.29 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.3 mW/g

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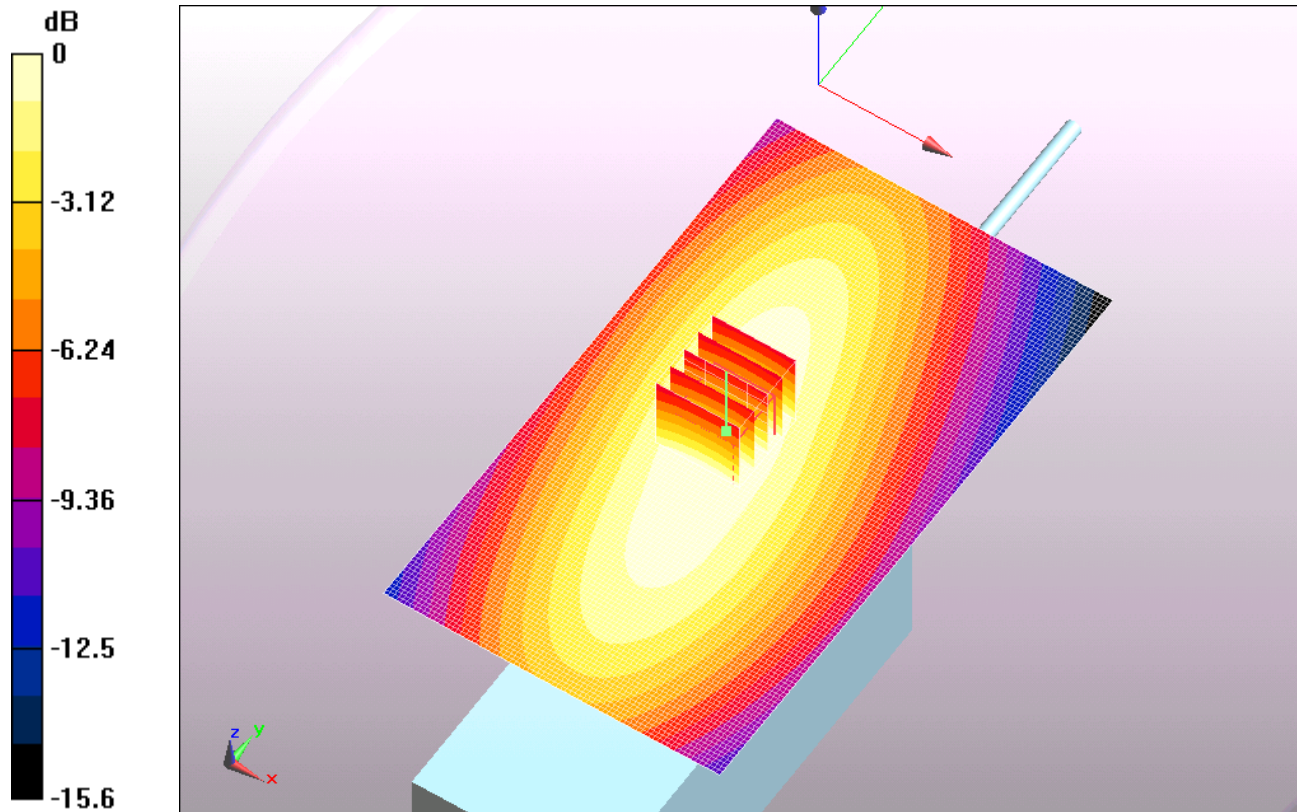
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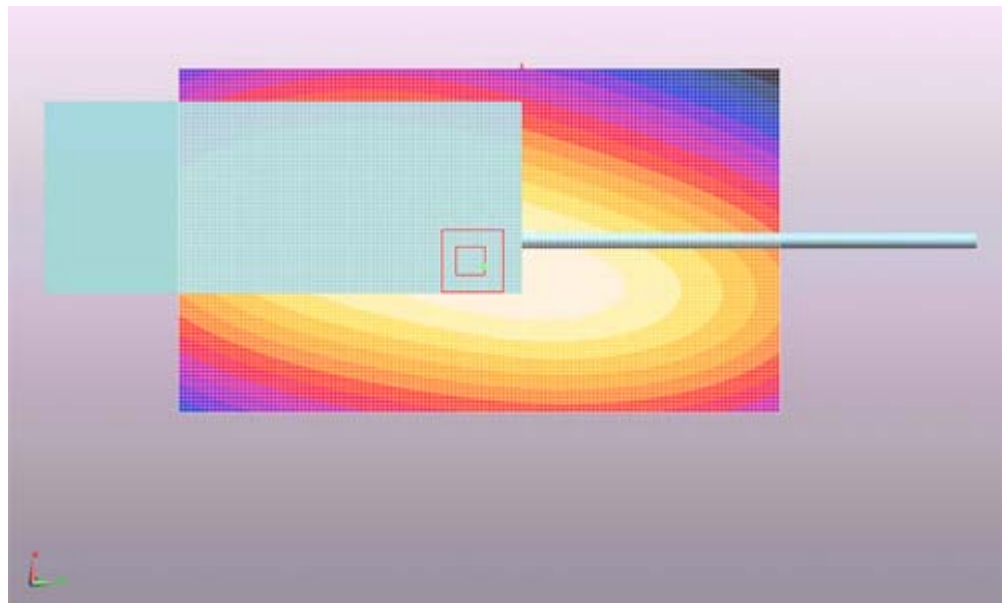
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0 dB = 8.3mW/g



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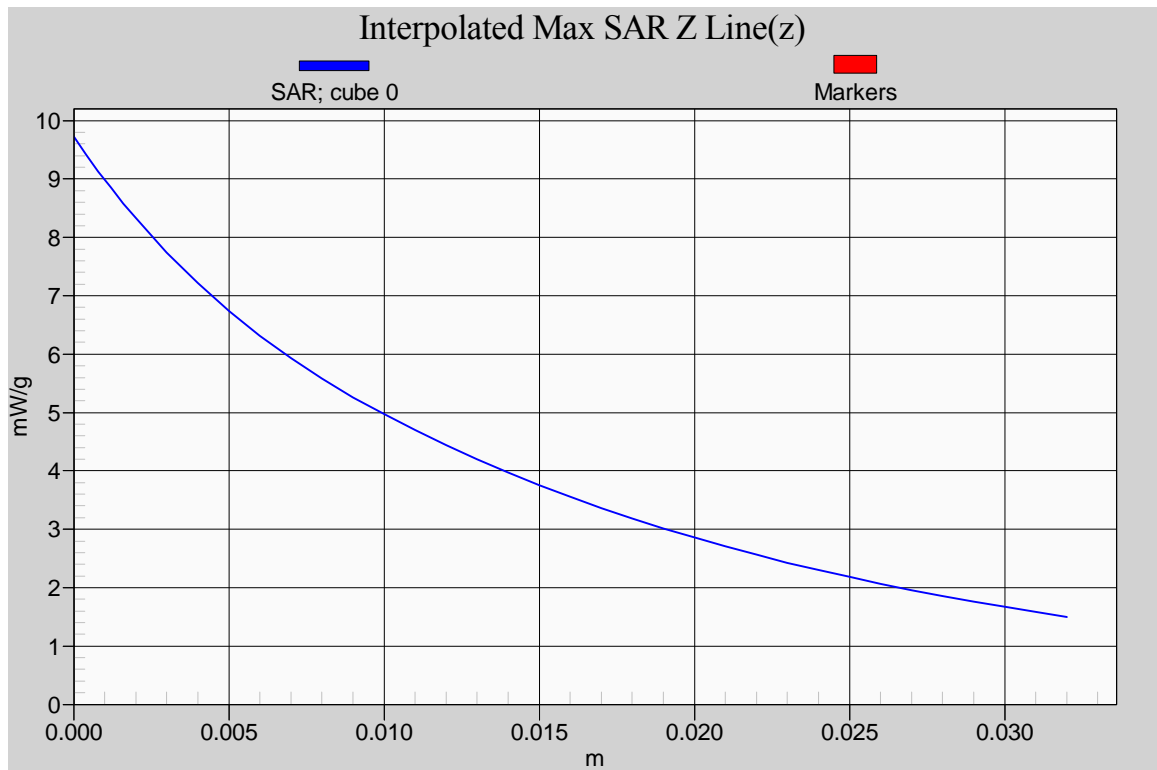
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**6.4.6.2.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S30U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 392.5 MHz; #45**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S30U\_Body\_392.5MHz(L2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 392.5 MHz

Medium parameters used (interpolated):  $f = 392.5$  MHz;  $\sigma = 0.895$  mho/m;  $\epsilon_r = 57$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 99.6 V/m; Power Drift = -0.118 dB

Peak SAR (extrapolated) = 12 W/kg

**SAR(1 g) = 8.71 mW/g; SAR(10 g) = 6.33 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 10.2 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 10.2 mW/g

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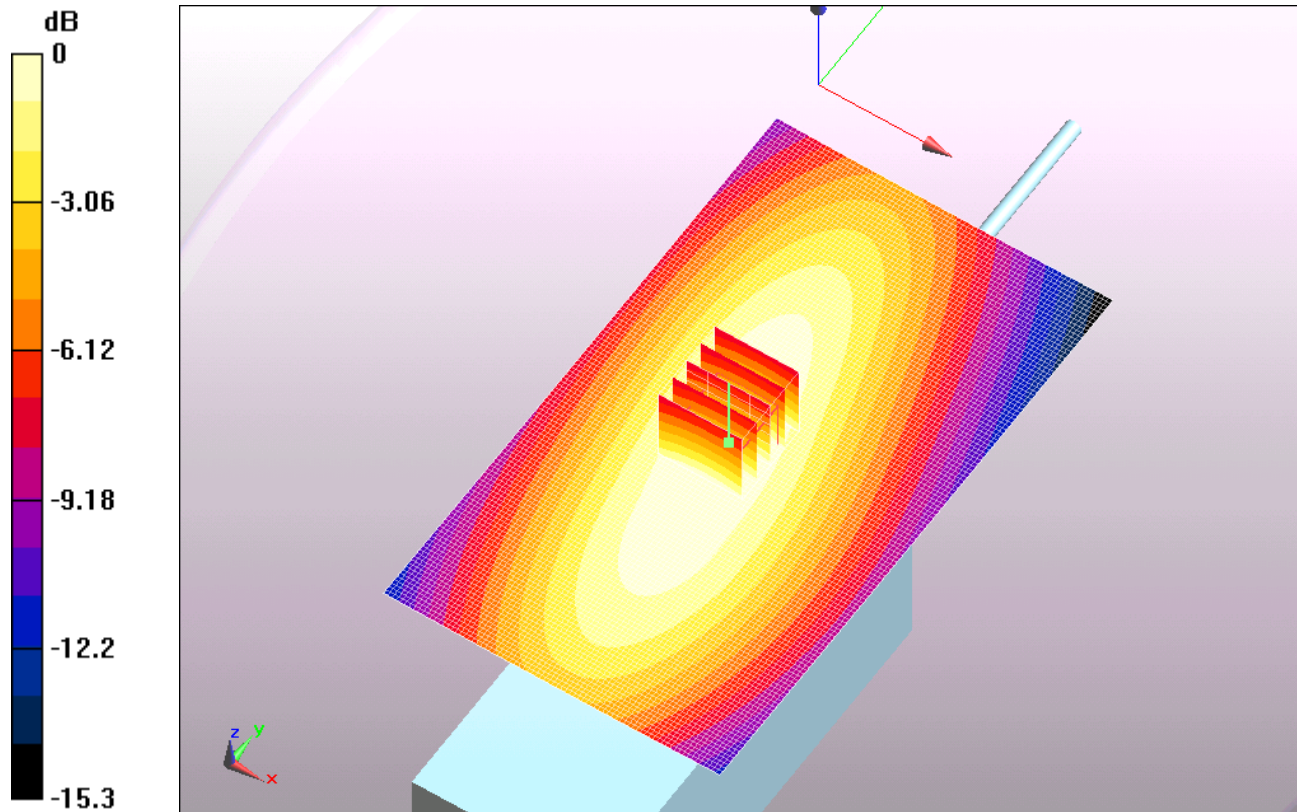
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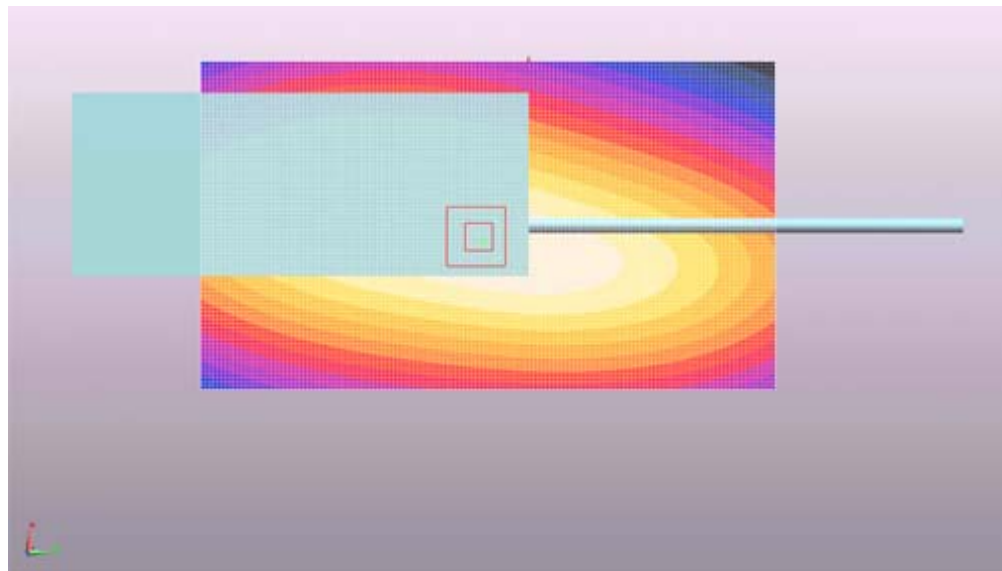
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0 dB = 10.2mW/g



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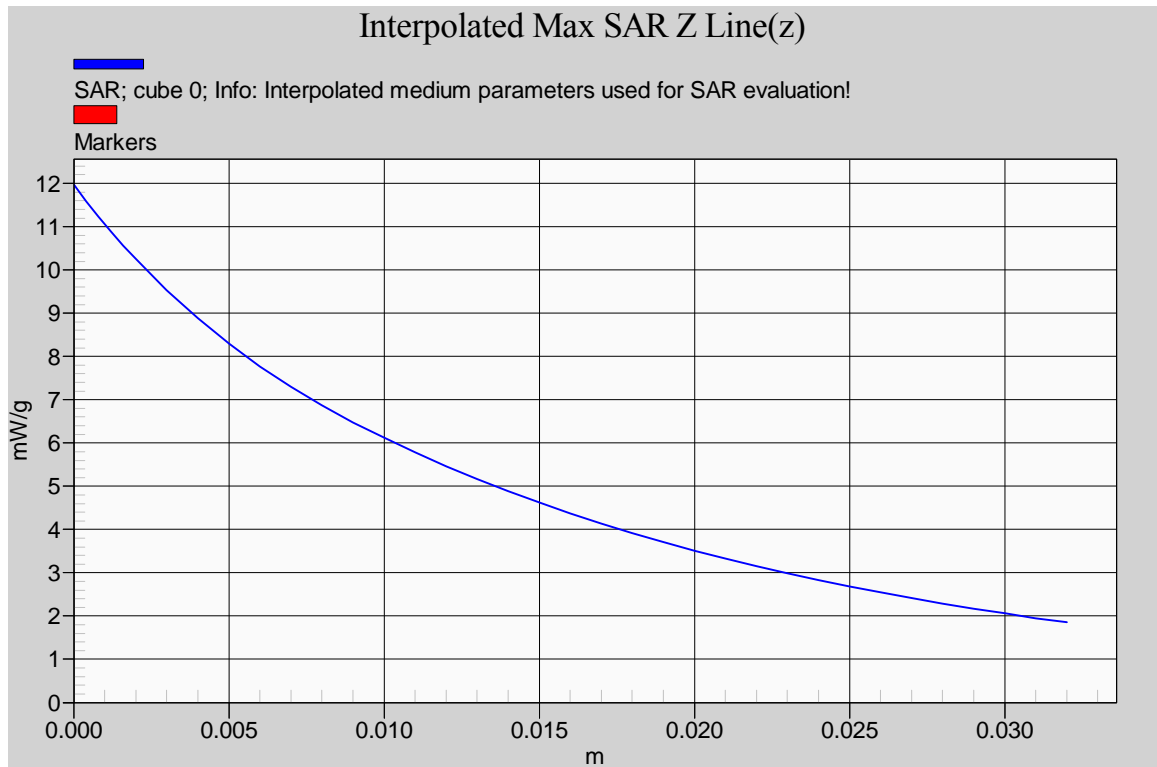
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File #: ICOM-233Q-SAR

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**6.4.6.3.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S30U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 405 MHz; #46**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S30U\_Body\_405MHz(Mf)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 405 MHz

Medium parameters used:  $f = 405$  MHz;  $\sigma = 0.906$  mho/m;  $\epsilon_r = 56.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 90.5 V/m; Power Drift = -0.212 dB

Peak SAR (extrapolated) = 9.35 W/kg

**SAR(1 g) = 6.79 mW/g; SAR(10 g) = 4.92 mW/g**

**Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.**

Maximum value of SAR (measured) = 7.98 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.07 mW/g

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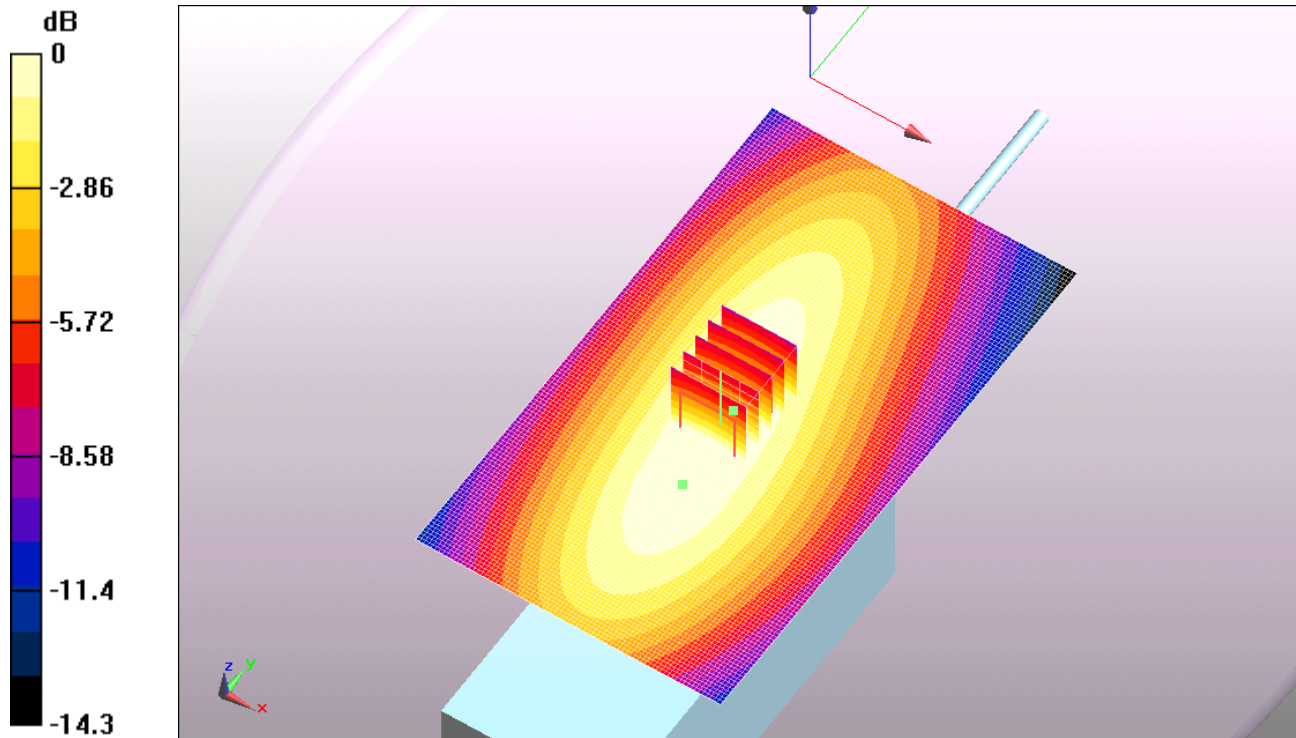
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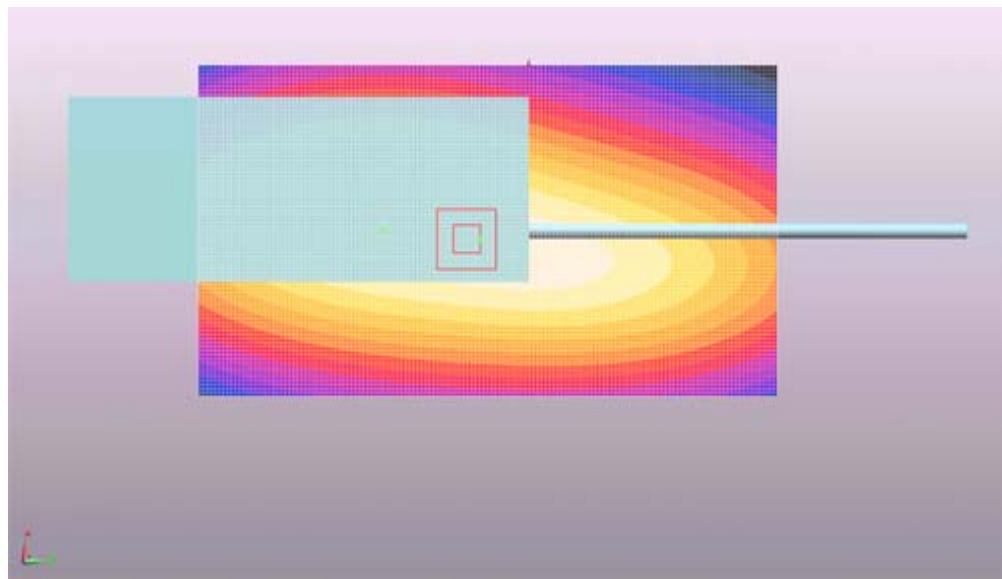
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0 dB = 8.07mW/g



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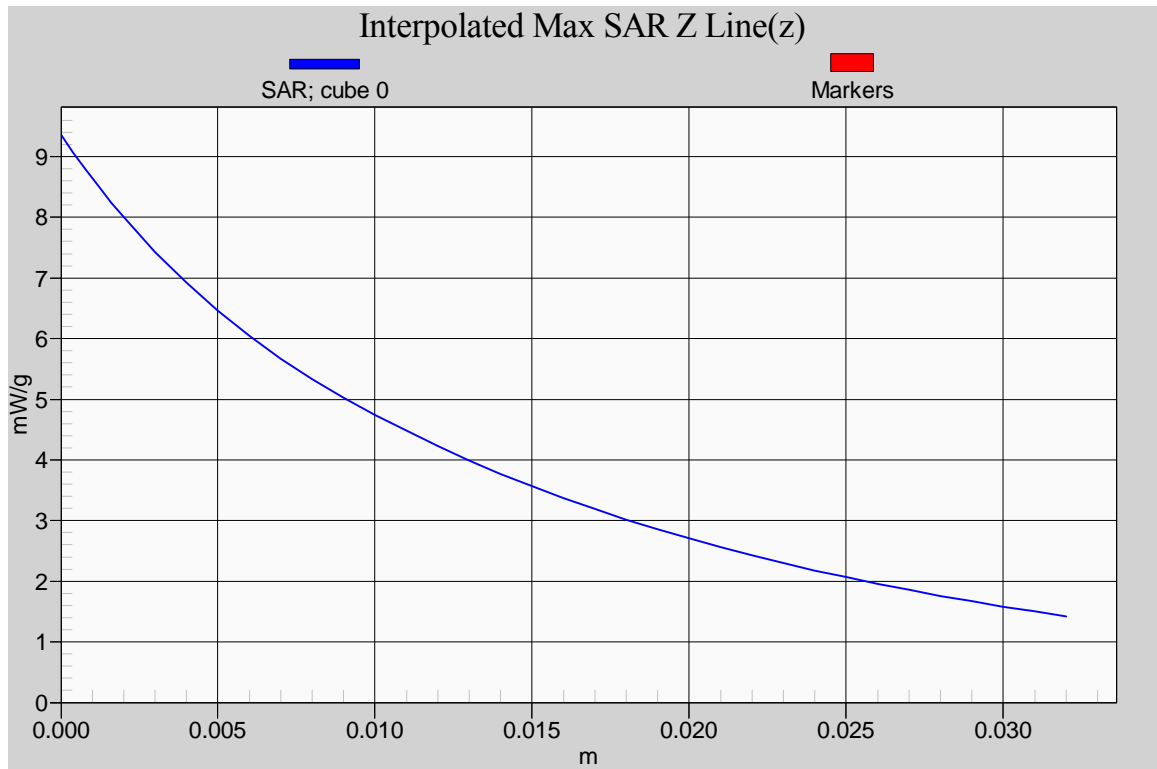
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**6.4.6.4.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S30U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 417.5 MHz; #47**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S30U\_Body\_417.5MHz(H1f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 417.5 MHz

Medium parameters used (interpolated):  $f = 417.5$  MHz;  $\sigma = 0.915$  mho/m;  $\epsilon_r = 56.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 77.4 V/m; Power Drift = -0.191 dB

Peak SAR (extrapolated) = 6.63 W/kg

**SAR(1 g) = 4.76 mW/g; SAR(10 g) = 3.49 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

**Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.**

Maximum value of SAR (measured) = 5.66 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 5.67 mW/g

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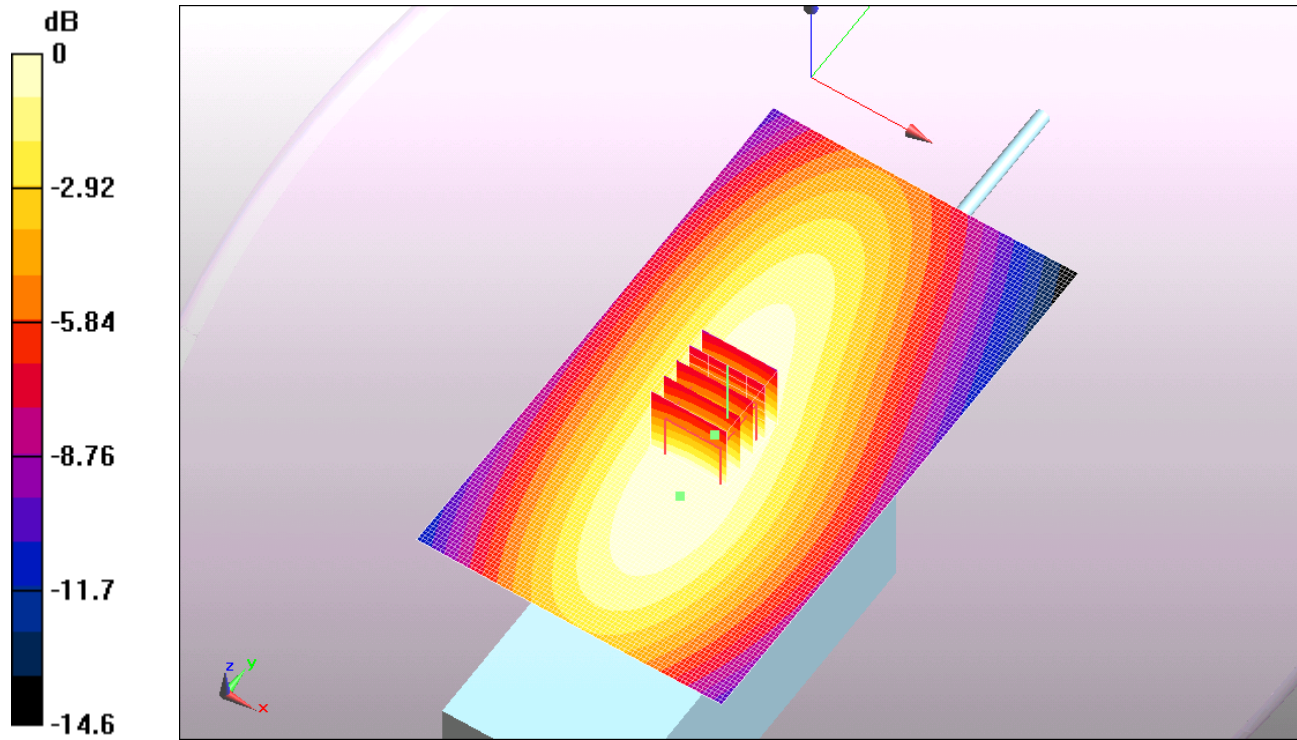
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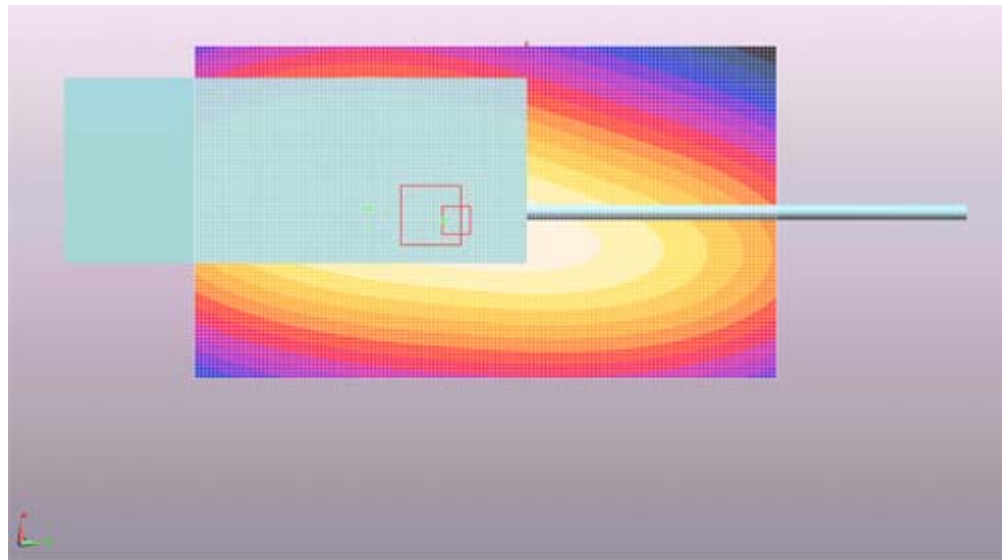
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0 dB = 5.67mW/g



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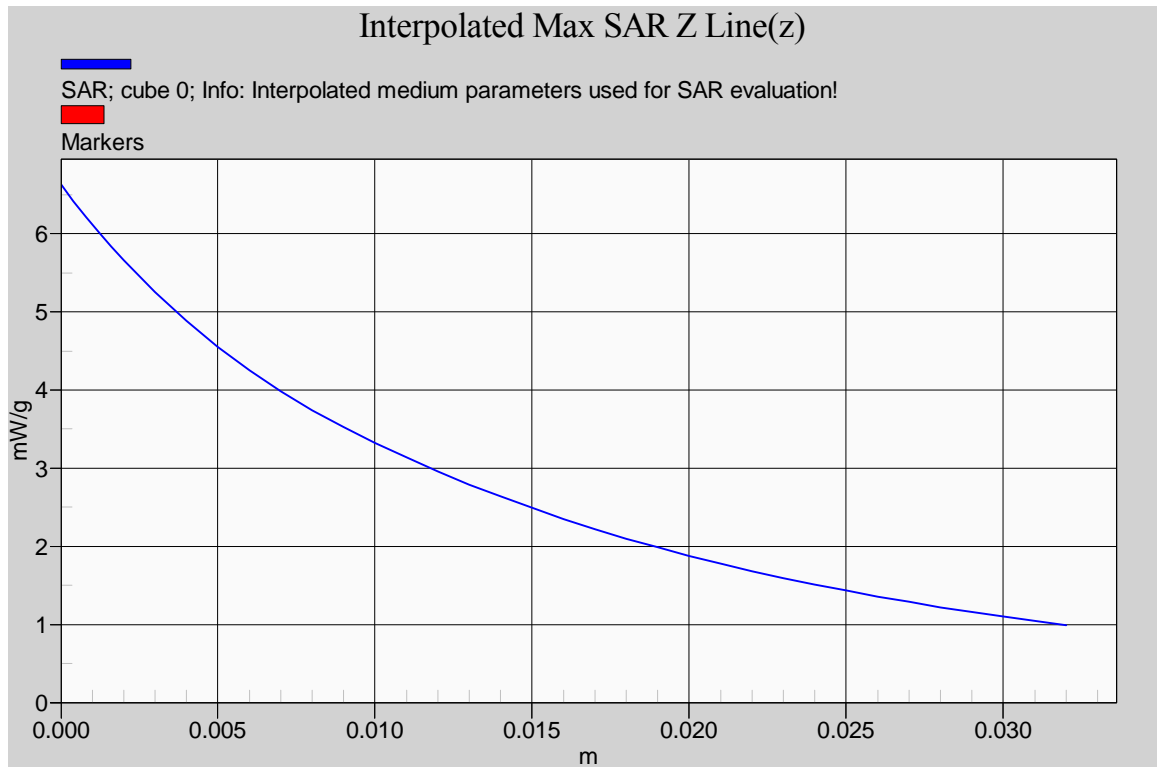
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**6.4.6.5.  $\frac{1}{4}$  helical whip antenna (M/N: FA-S30U), Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 430 MHz; #48**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S30U\_Body\_430MHz(H2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 430 MHz

Medium parameters used:  $f = 430$  MHz;  $\sigma = 0.925$  mho/m;  $\epsilon_r = 56.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 70.1 V/m; Power Drift = -0.126 dB

Peak SAR (extrapolated) = 5.33 W/kg

**SAR(1 g) = 3.91 mW/g; SAR(10 g) = 2.87 mW/g**

**Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.**

Maximum value of SAR (measured) = 4.62 mW/g

**Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 4.64 mW/g

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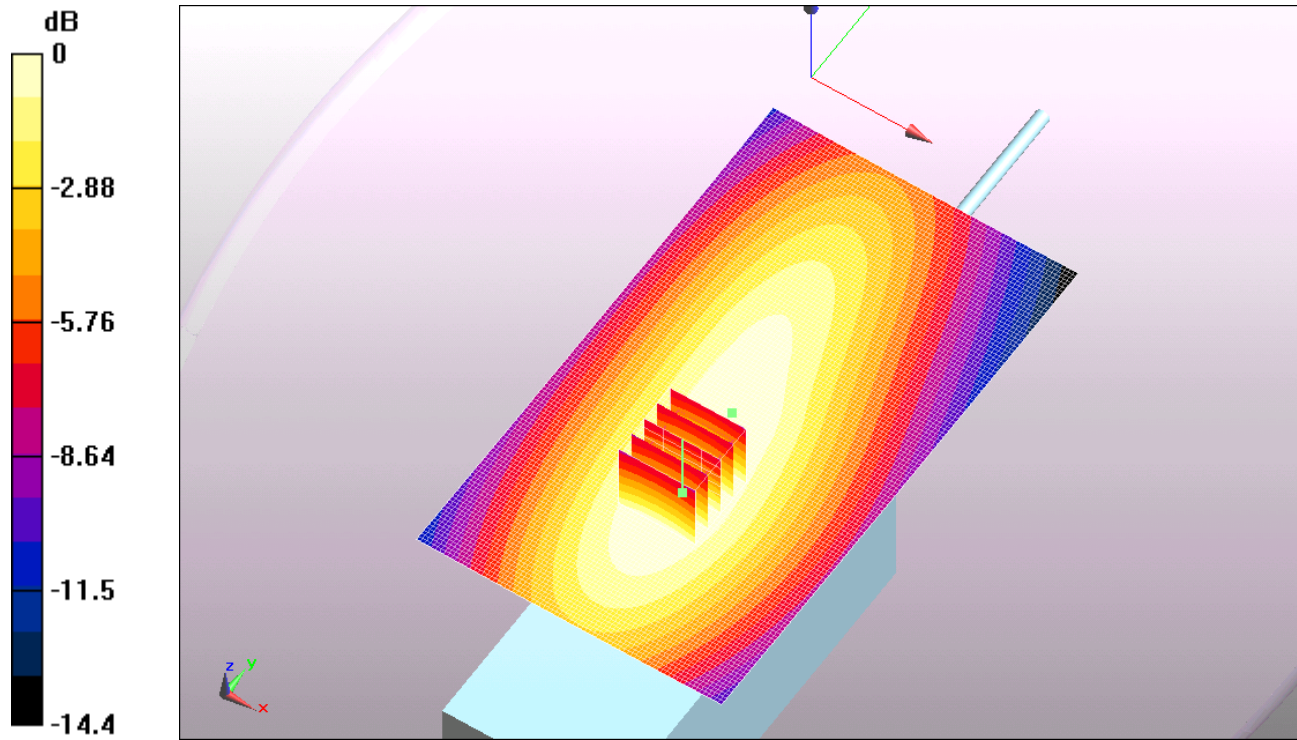
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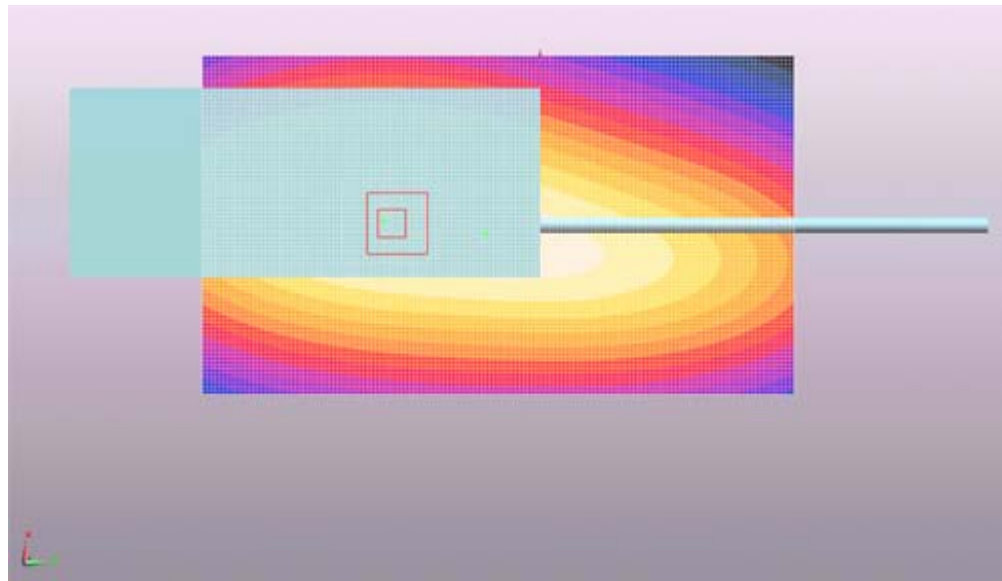
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0 dB = 4.64mW/g



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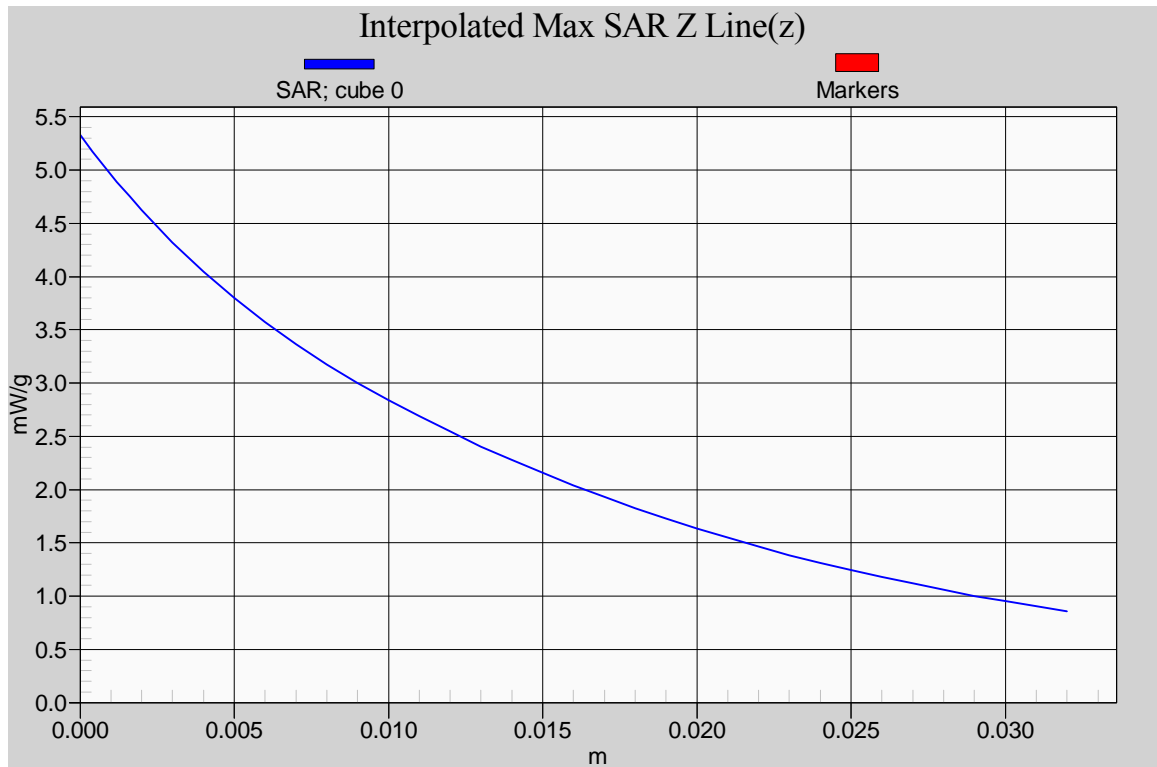
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**6.4.7. Body Configuration Results\* of Part 3: FA-S76UC Cutting Antenna**

#	Configuration	Antenna Position	Frequency [MHz]	Channel	MAX SAR <sub>1g</sub> [W/Kg]
<b>Occupational/Controlled Exposure Category Limit</b>					<b>8.0</b>
49	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=175mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1	3.61
50		FIX	398	Low-2	---
51		FIX	416	Middle-1	1.58
52		FIX	434	Middle-2	1.35
53		FIX	452	High-1	---
54		FIX	470	High-2	1.04
55		¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=165mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1
56	FIX		400	Low-2	3.52
57	FIX		416	Middle-1	---
58	FIX		434	Middle-2	1.92
59	FIX		452	High-1	---
60	FIX		470	High-2	1.38
61	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=156mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1	2.49
62		FIX	398	Low-2	---
63		FIX	420	Middle-1	3.34
64		FIX	434	Middle-2	2.79
65		FIX	452	High-1	---
66		FIX	470	High-2	1.89

\* If the SAR results measured at the low-1 channel and middle-1 channel (or: low-2 channel and middle-2 channel) are below 50% limit, test at the low-2 channel (or: middle-1 channel) is skipped; if the SAR results measured at the high-2 channel and middle-2 channel are below 50% limit, test at the high-1 channel is skipped.

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#	Configuration	Antenna Position	Frequency [MHz]	Channel	MAX SAR <sub>1g</sub> [W/Kg]
*	Occupational/Controlled Exposure Category Limit				8.0
67	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=148mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1	1.76
68		FIX	398	Low-2	---
69		FIX	416	Middle-1	3.66
70		FIX	440	Middle-2	3.43
71		FIX	452	High-1	---
72		FIX	470	High-2	2.24
73	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=142mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1	1.41
74		FIX	398	Low-2	---
75		FIX	416	Middle-1	3.68
76		FIX	434	Middle-2	3.86
77		FIX	452	High-1	---
78		FIX	460	High-2	3.00

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**6.4.7.1.  $\frac{1}{4}$  helical whip cut antenna (M/N: FA-S76UC), length=175mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 380 MHz; #49**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=175mm\_Body\_380MHz(L1f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 57.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 93.1 V/m; Power Drift = -0.132 dB

Peak SAR (extrapolated) = 9.82 W/kg

**SAR(1 g) = 7.22 mW/g; SAR(10 g) = 5.25 mW/g**

Maximum value of SAR (measured) = 8.39 mW/g

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.45 mW/g

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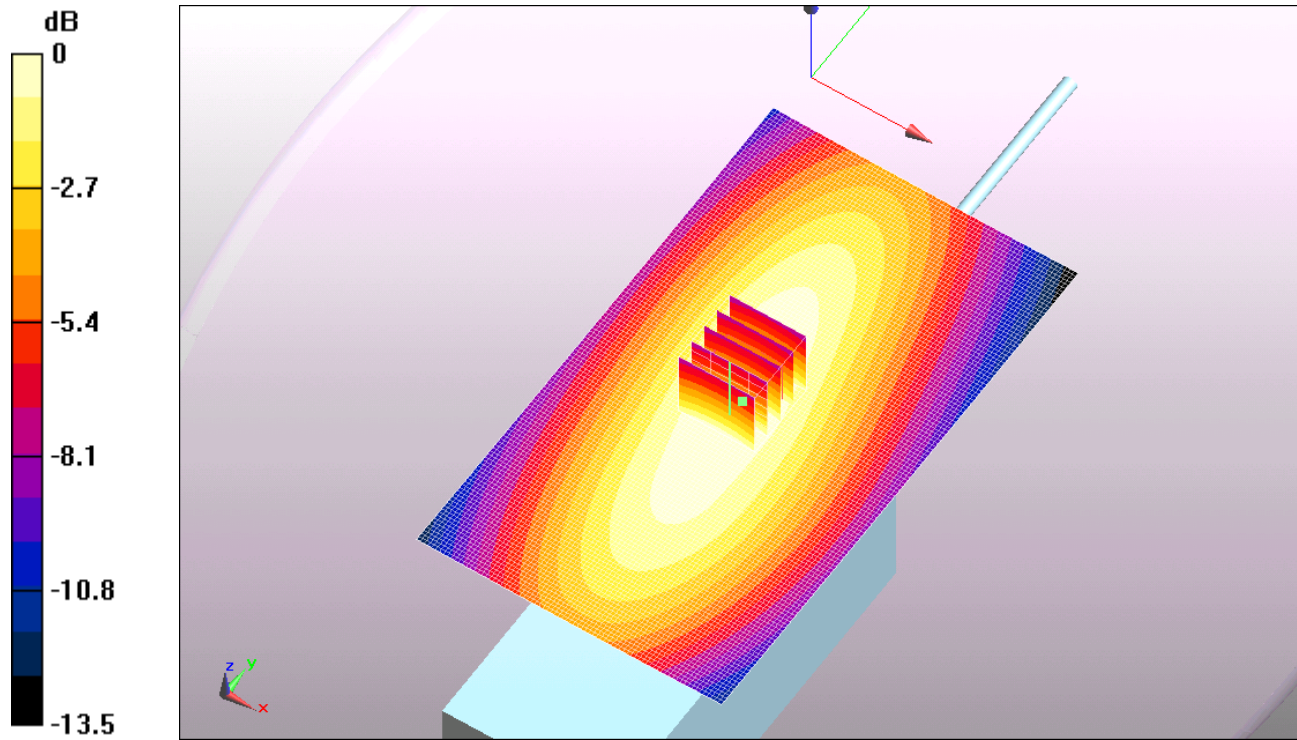
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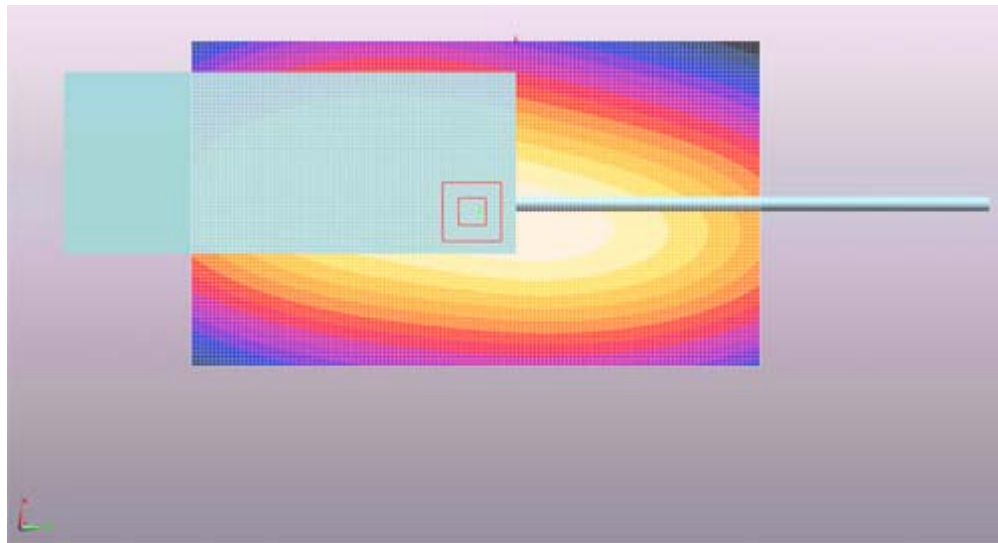
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0 dB = 8.45mW/g



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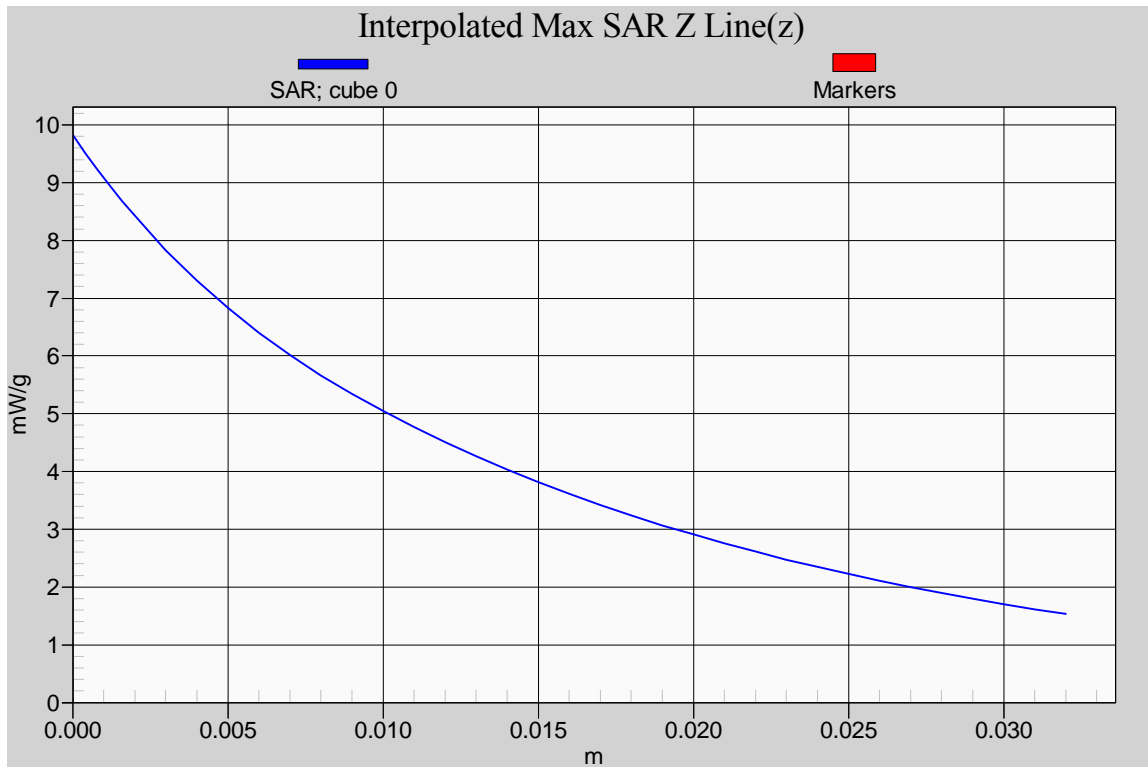
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**6.4.7.2.  $\frac{1}{4}$  helical whip cut antenna (M/N: FA-S76UC), length=175mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 416 MHz; #51**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=175mm\_Body\_416MHz(M1f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 416 MHz

Medium parameters used (interpolated):  $f = 416$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 56.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 61.2 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 4.4 W/kg

**SAR(1 g) = 3.16 mW/g; SAR(10 g) = 2.29 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 3.74 mW/g

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 3.78 mW/g

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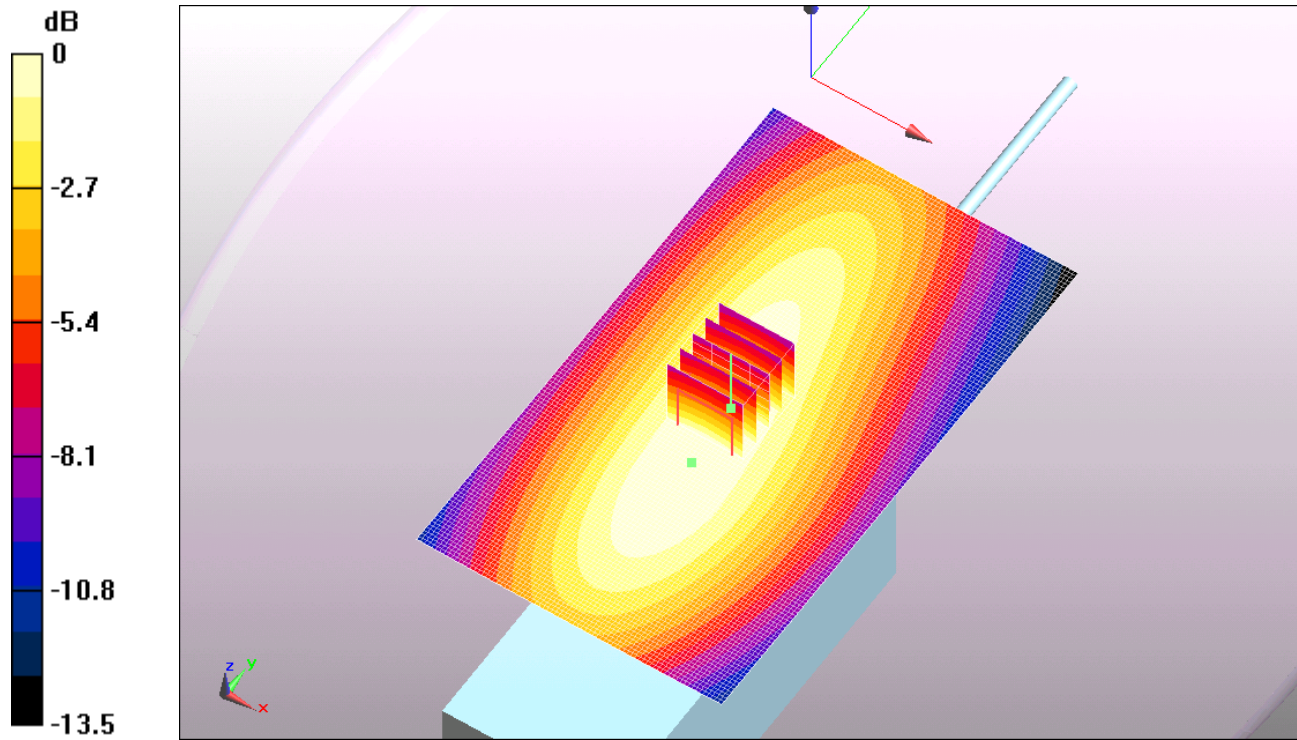
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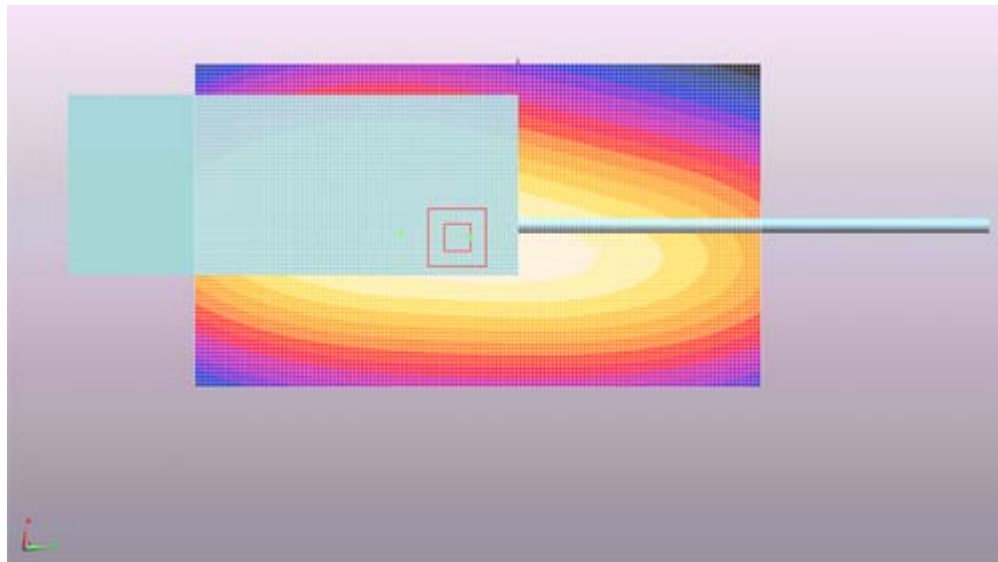
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0 dB = 3.78mW/g



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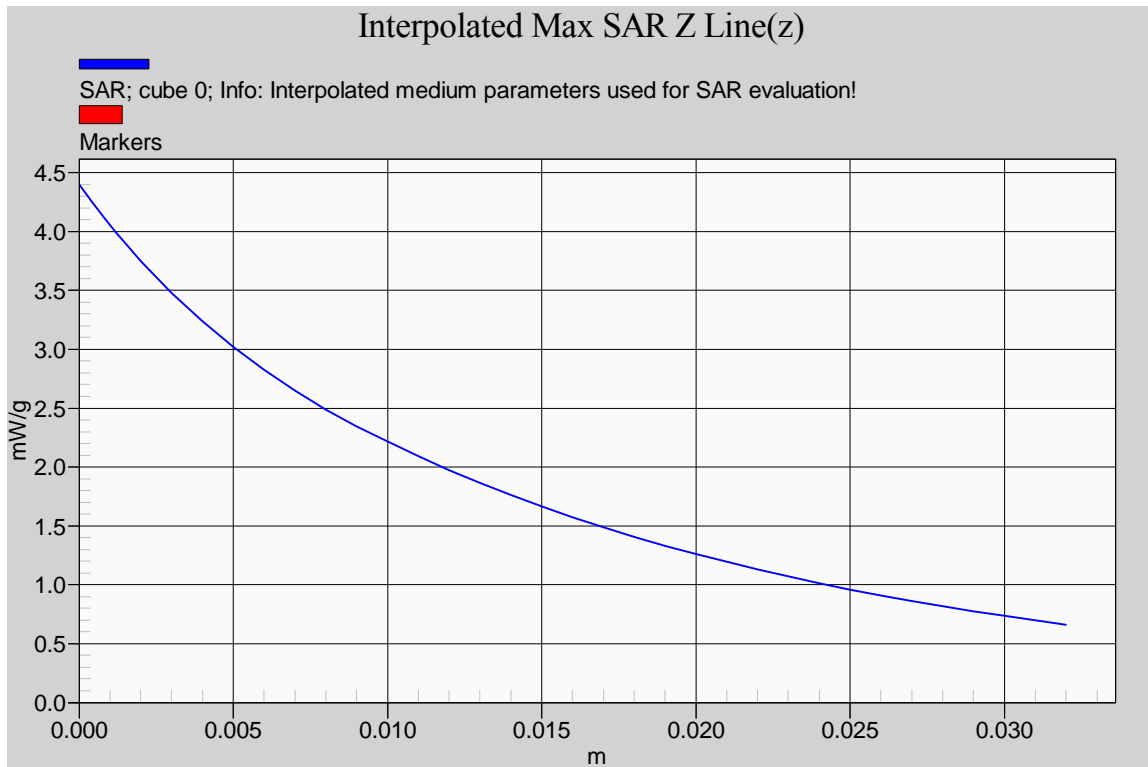
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**6.4.7.3.  $\frac{1}{4}$  helical whip cut antenna (M/N: FA-S76UC), length=175mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 434 MHz; #52**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=175mm\_Body\_434MHz(M2f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 434 MHz

Medium parameters used (interpolated):  $f = 434$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 56.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)****(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 57.4 V/m; Power Drift = -0.112 dB

Peak SAR (extrapolated) = 3.67 W/kg

**SAR(1 g) = 2.69 mW/g; SAR(10 g) = 1.98 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 3.19 mW/g

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 3.21 mW/g

---

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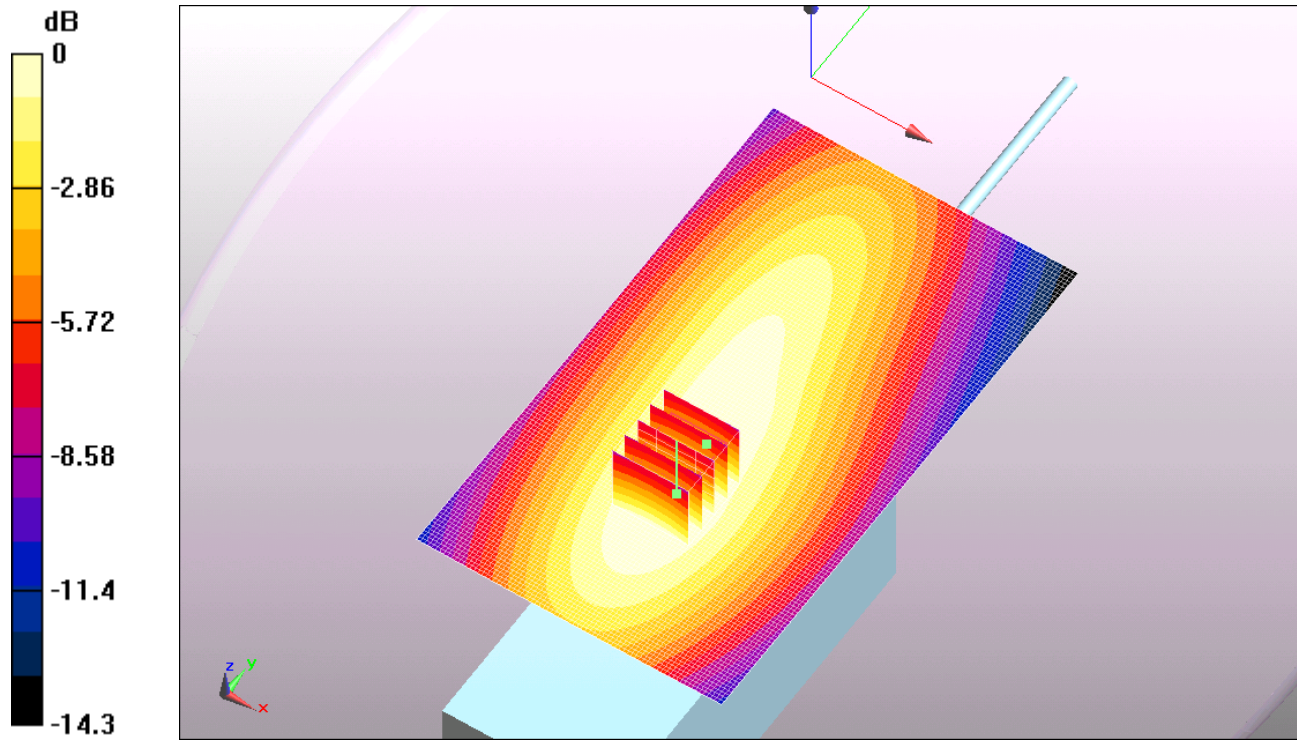
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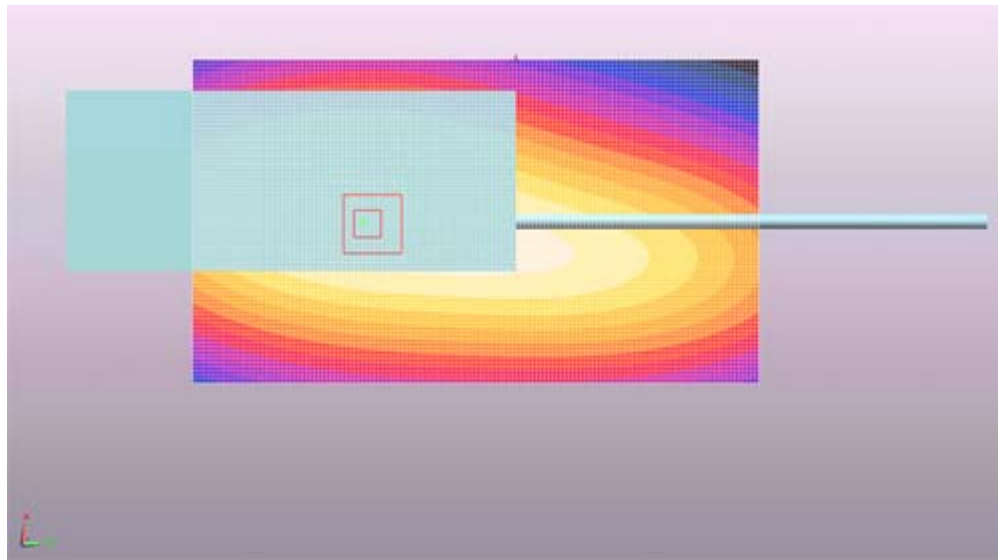
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0 dB = 3.21mW/g



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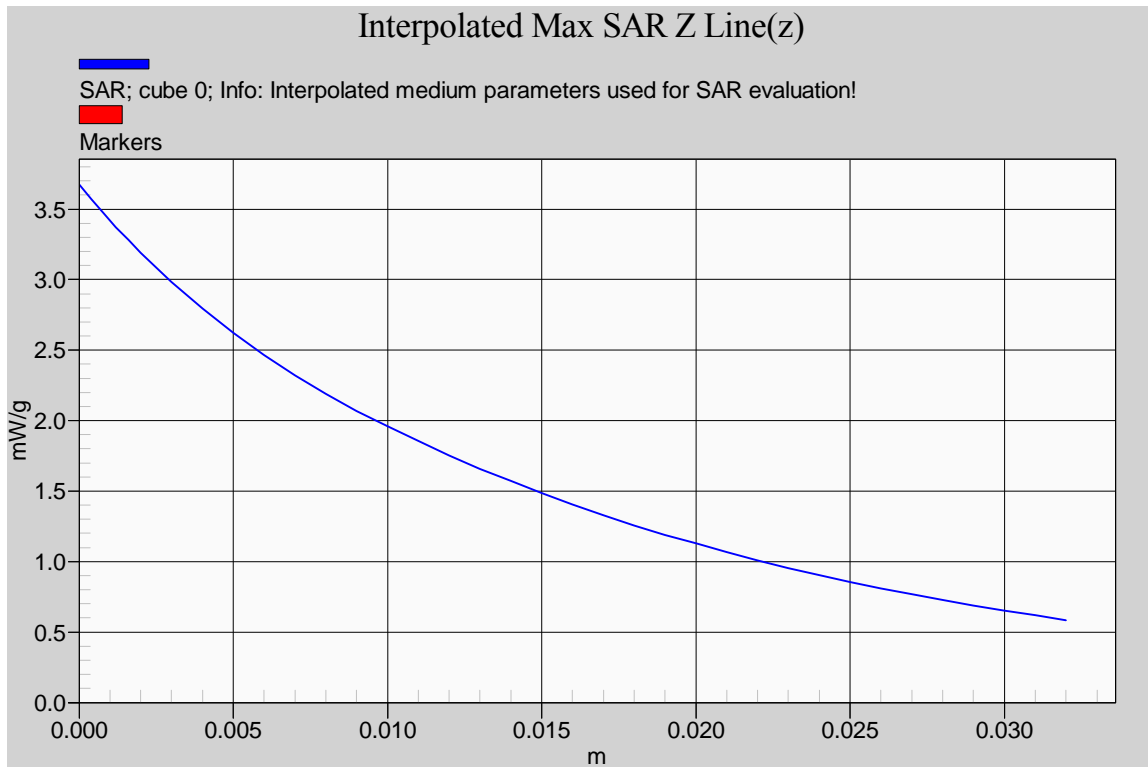
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**6.4.7.4. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=175mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 470 MHz; #54**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=175mm\_Body\_470MHz(H2f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 470 MHz

Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.962$  mho/m;  $\epsilon_r = 55.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 50.5 V/m; Power Drift = -0.178 dB

Peak SAR (extrapolated) = 2.94 W/kg

**SAR(1 g) = 2.07 mW/g; SAR(10 g) = 1.51 mW/g**

Maximum value of SAR (measured) = 2.55 mW/g

**FA-S76UC=175mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.56 mW/g

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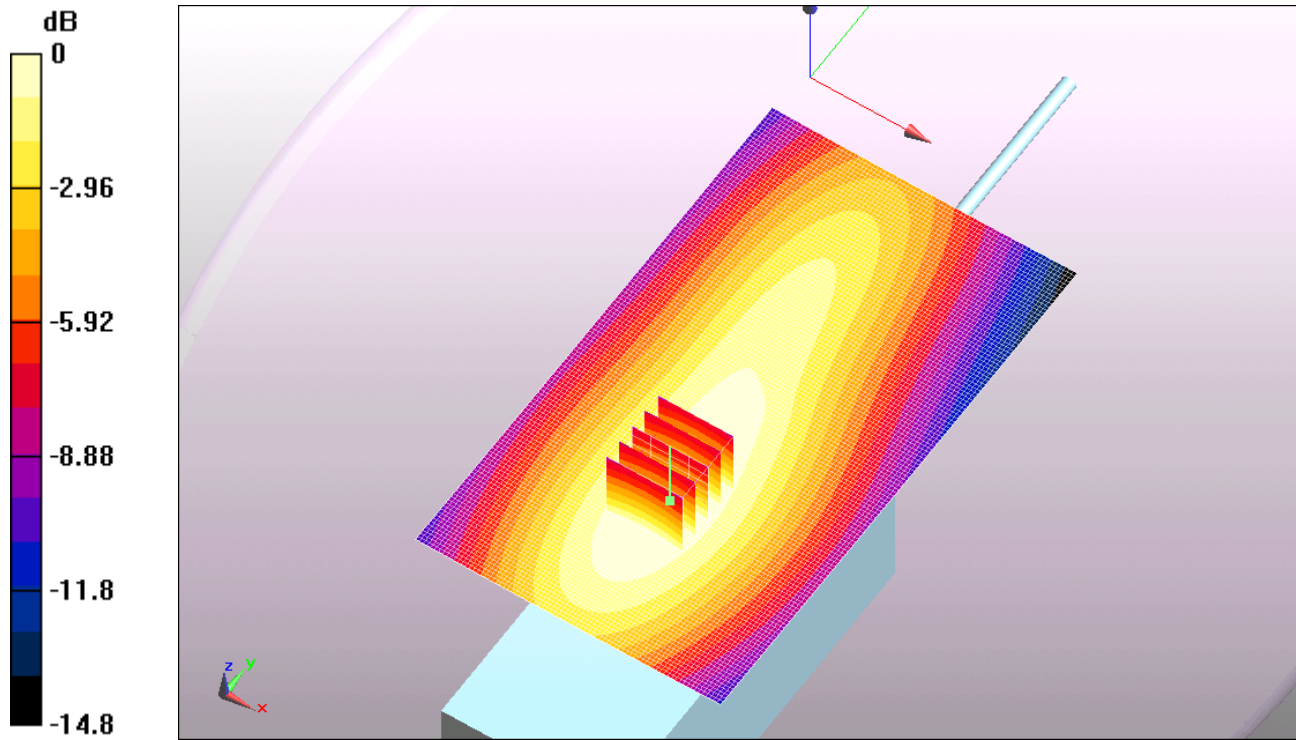
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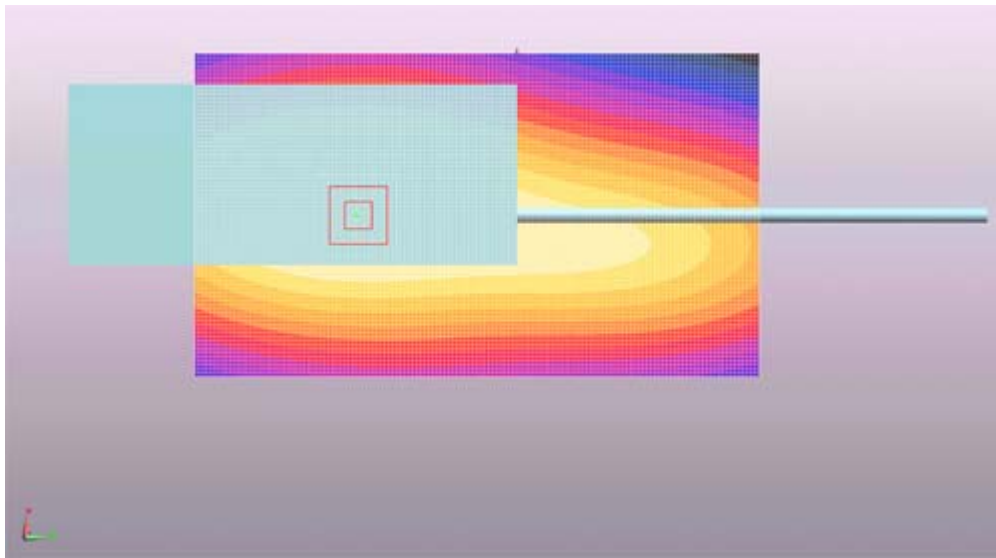
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0 dB = 2.56mW/g



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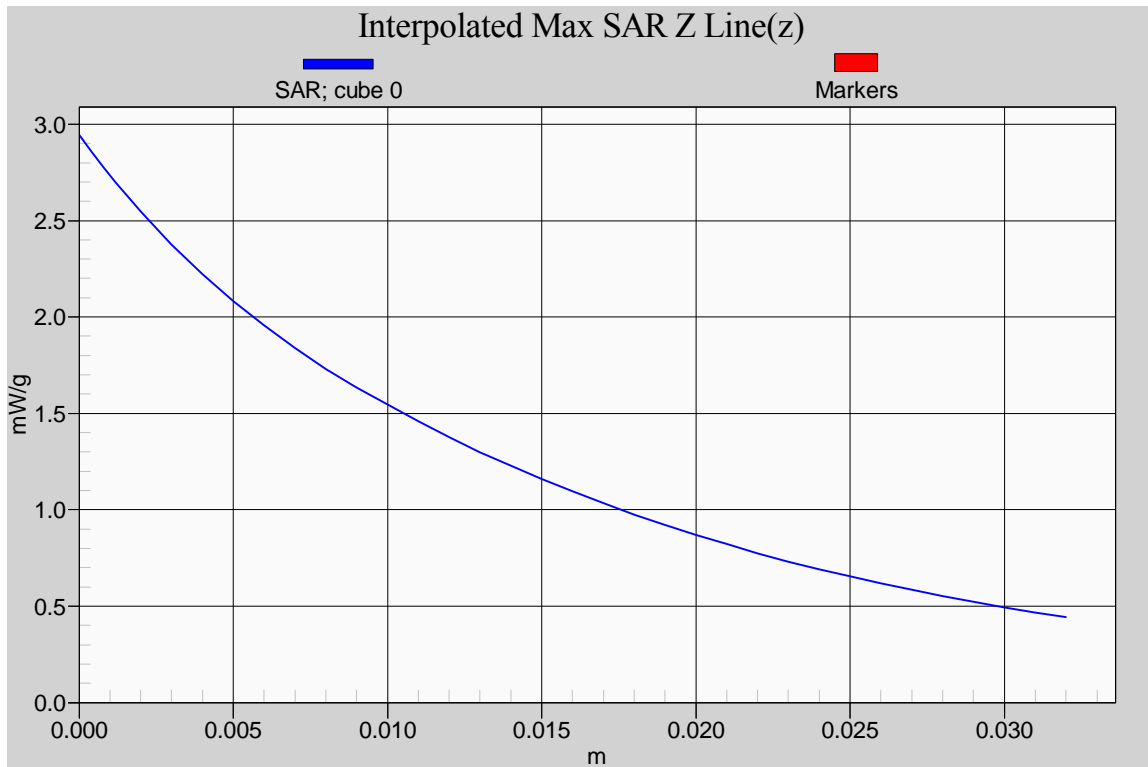
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File #: ICOM-233Q-SAR

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**6.4.7.5. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=165mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 380 MHz; #55**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=165mm\_Body\_380MHz(L1f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 57.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 93.7 V/m; Power Drift = -0.086 dB

Peak SAR (extrapolated) = 9.85 W/kg

**SAR(1 g) = 7.26 mW/g; SAR(10 g) = 5.28 mW/g**

Maximum value of SAR (measured) = 8.45 mW/g

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.48 mW/g

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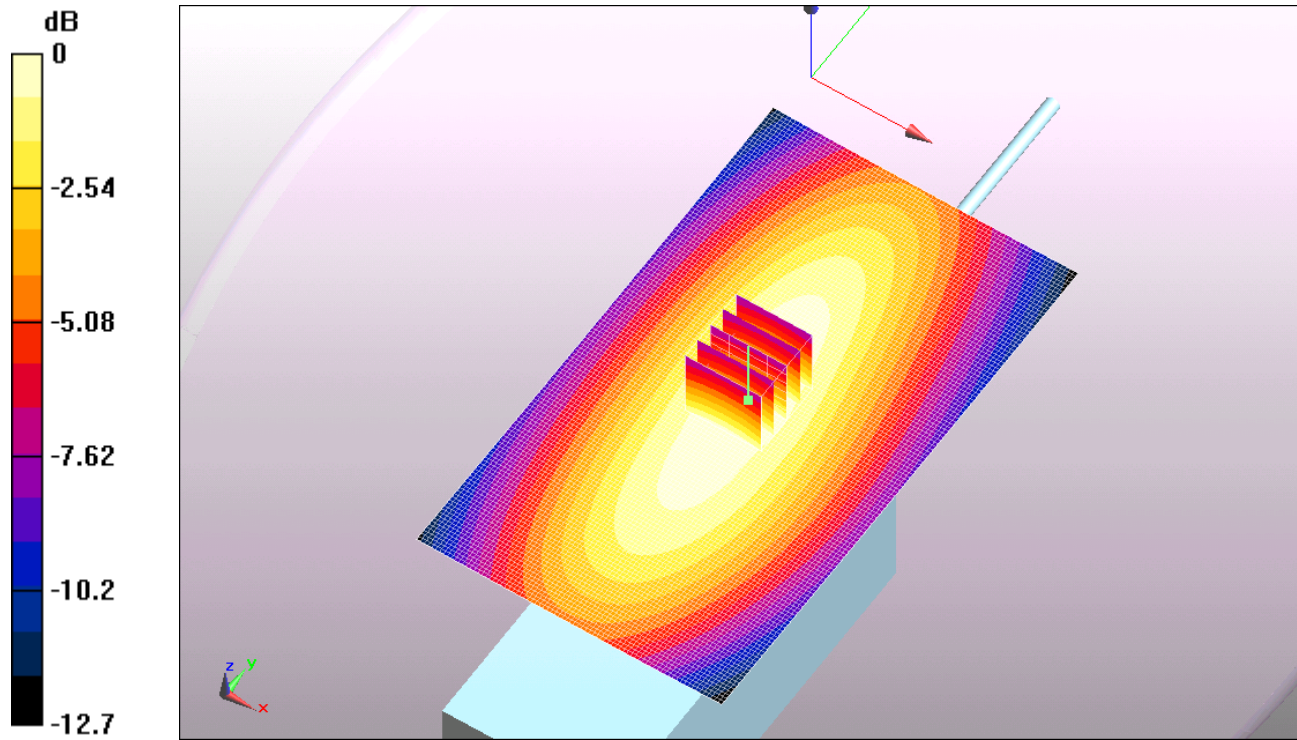
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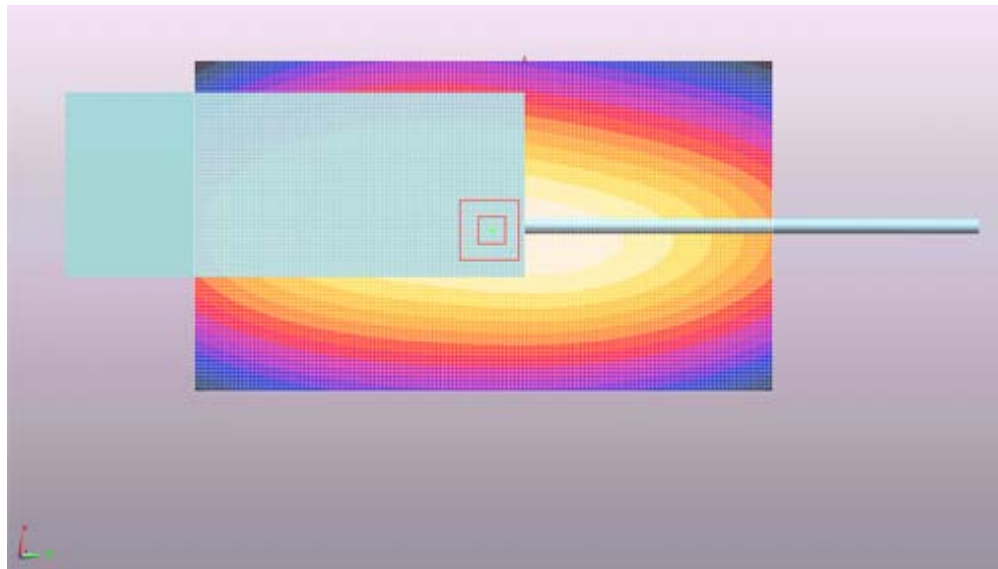
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0 dB = 8.48mW/g



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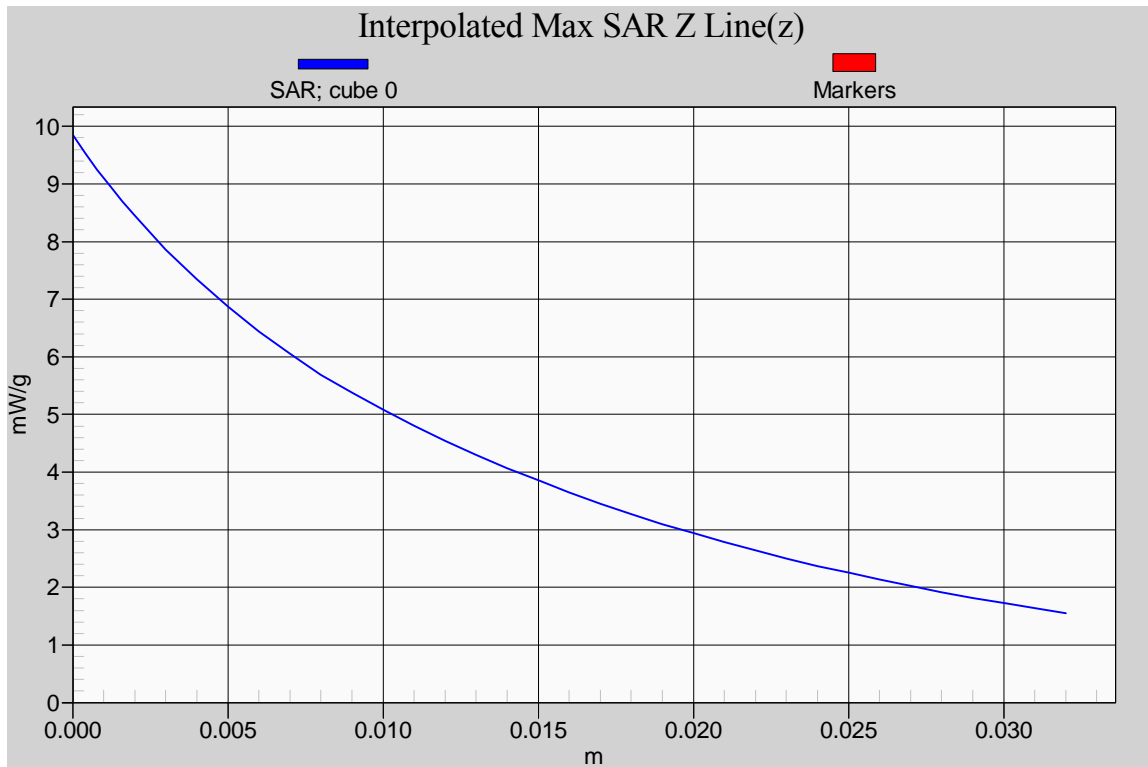
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**6.4.7.6.  $\frac{1}{4}$  helical whip cut antenna (M/N: FA-S76UC), length=165mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 400 MHz; #56**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=165mm\_Body\_400MHz(L2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 400 MHz

Medium parameters used:  $f = 400$  MHz;  $\sigma = 0.899$  mho/m;  $\epsilon_r = 56.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 90.5 V/m; Power Drift = -0.144 dB

Peak SAR (extrapolated) = 9.68 W/kg

**SAR(1 g) = 7.04 mW/g; SAR(10 g) = 5.11 mW/g**

**Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.**

Maximum value of SAR (measured) = 8.27 mW/g

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.25 mW/g

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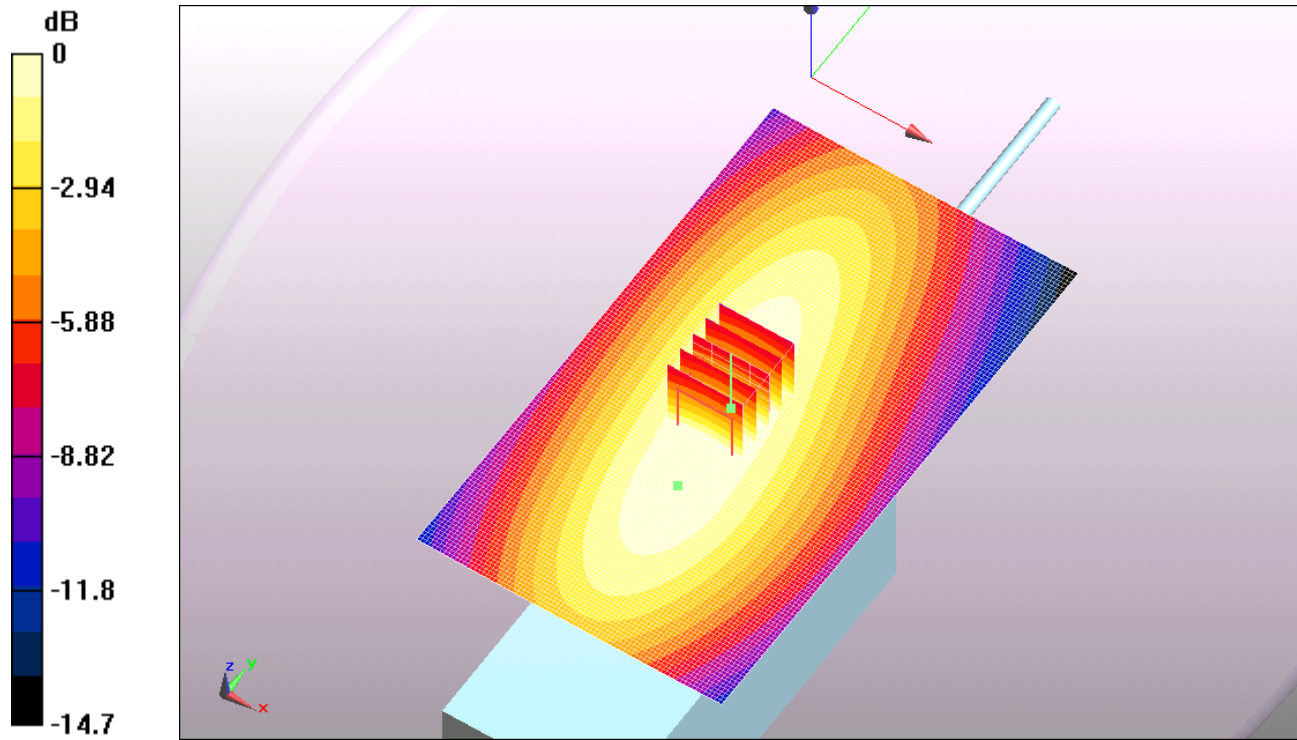
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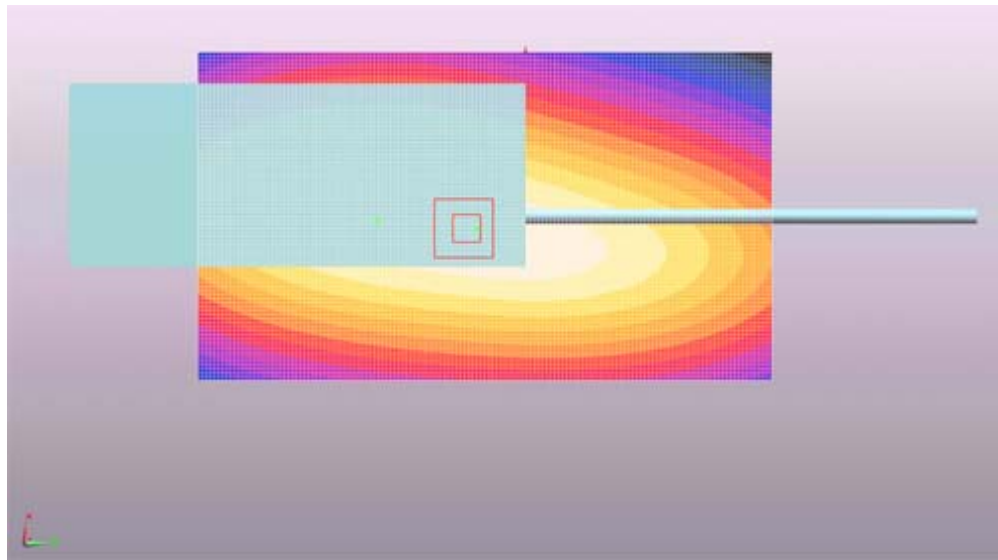
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0 dB = 8.25mW/g



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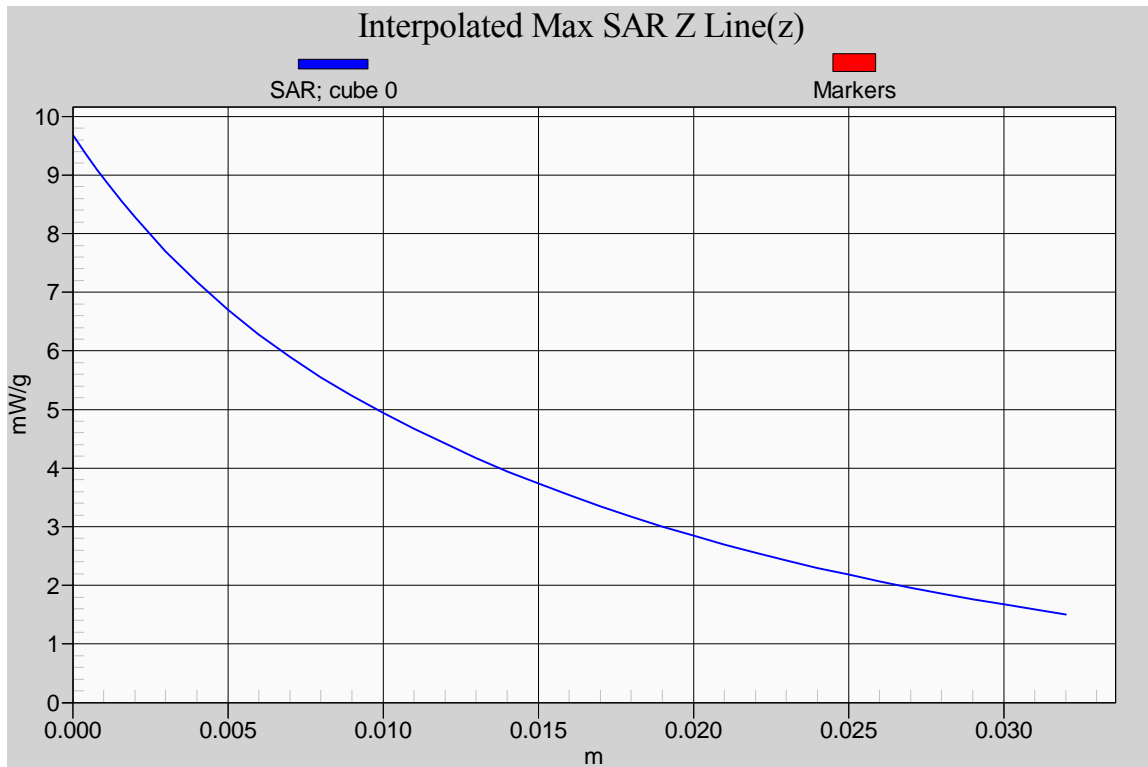
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**6.4.7.7.  $\frac{1}{4}$  helical whip cut antenna (M/N: FA-S76UC), length=165mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 434 MHz; #58**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=165mm\_Body\_434MHz(M2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 434 MHz

Medium parameters used (interpolated):  $f = 434$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 56.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 68.1 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 5.24 W/kg

**SAR(1 g) = 3.83 mW/g; SAR(10 g) = 2.82 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 4.55 mW/g

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 4.55 mW/g

---

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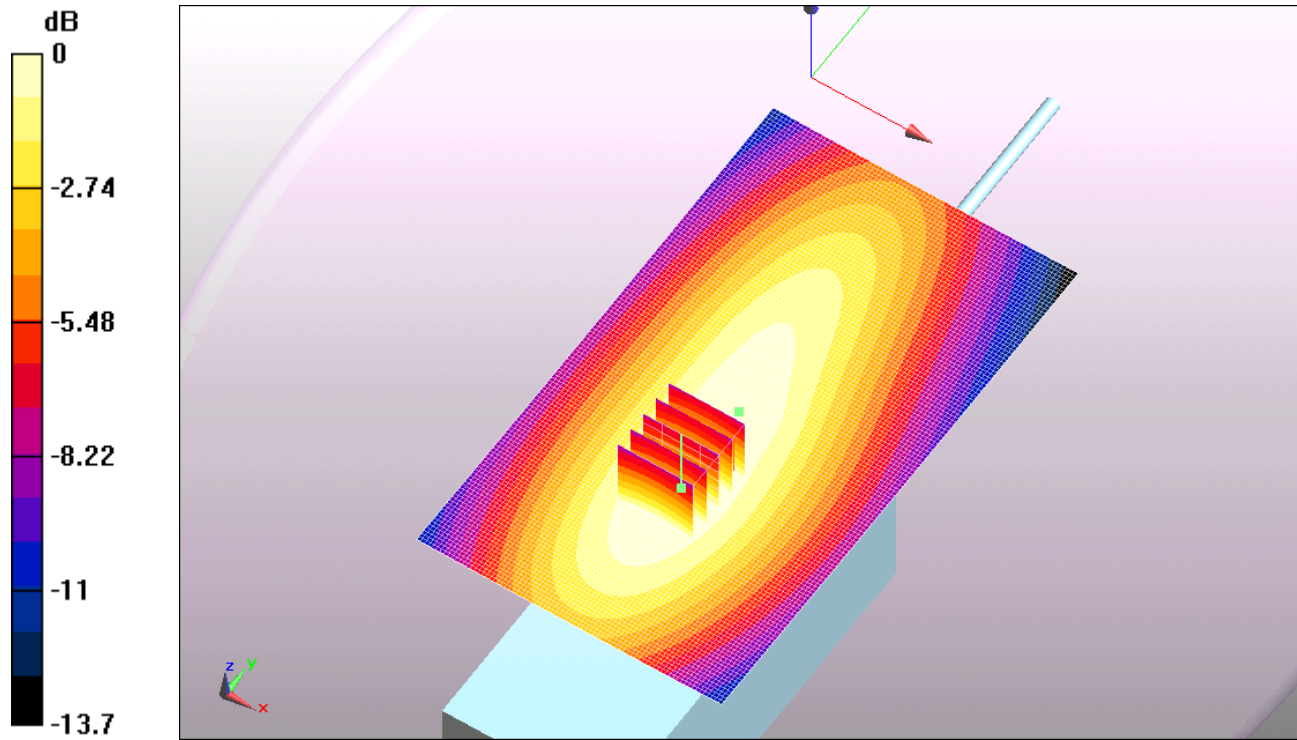
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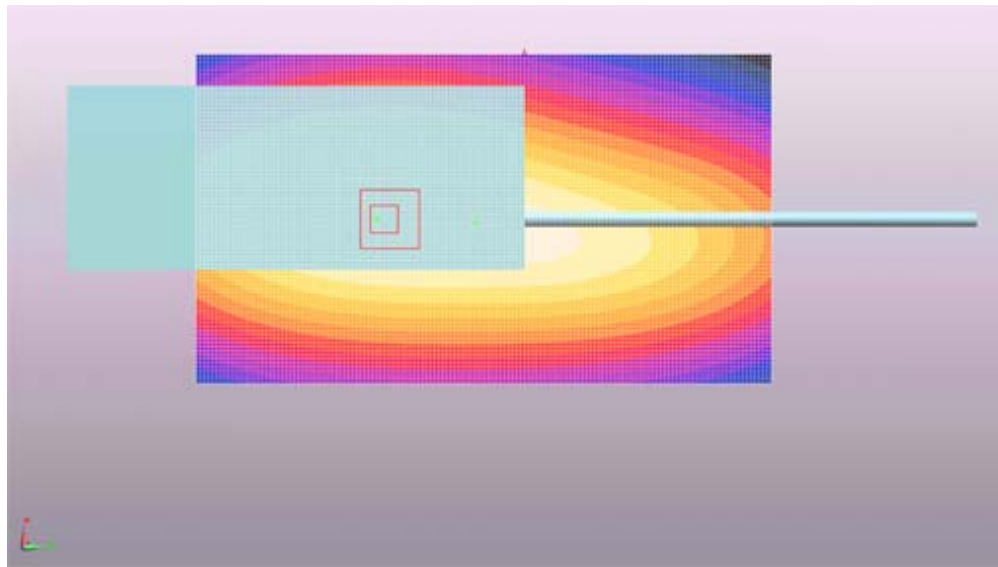
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0 dB = 4.55mW/g



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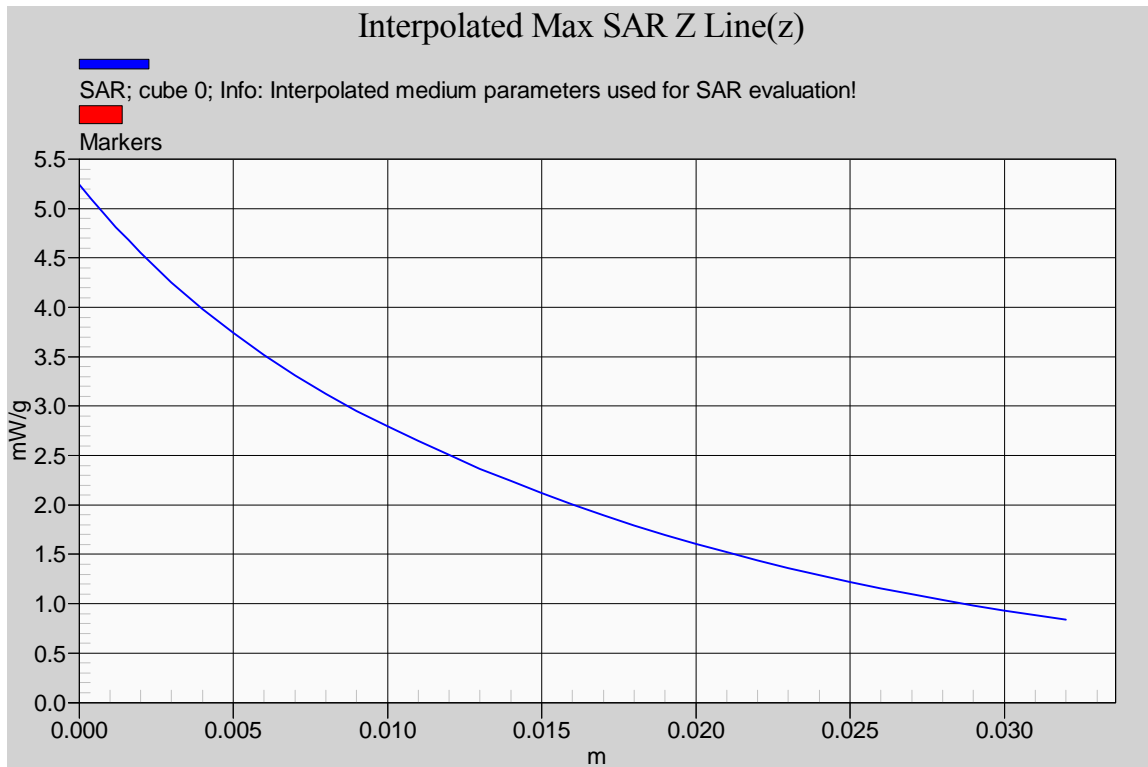
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**6.4.7.8. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=165mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 470 MHz; #60**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=165mm\_Body\_470MHz(H2f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 470 MHz

Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.962$  mho/m;  $\epsilon_r = 55.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASYS Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)****(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 57.6 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 3.9 W/kg

**SAR(1 g) = 2.75 mW/g; SAR(10 g) = 2.02 mW/g**

Maximum value of SAR (measured) = 3.38 mW/g

**FA-S76UC=165mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.41 mW/g

---

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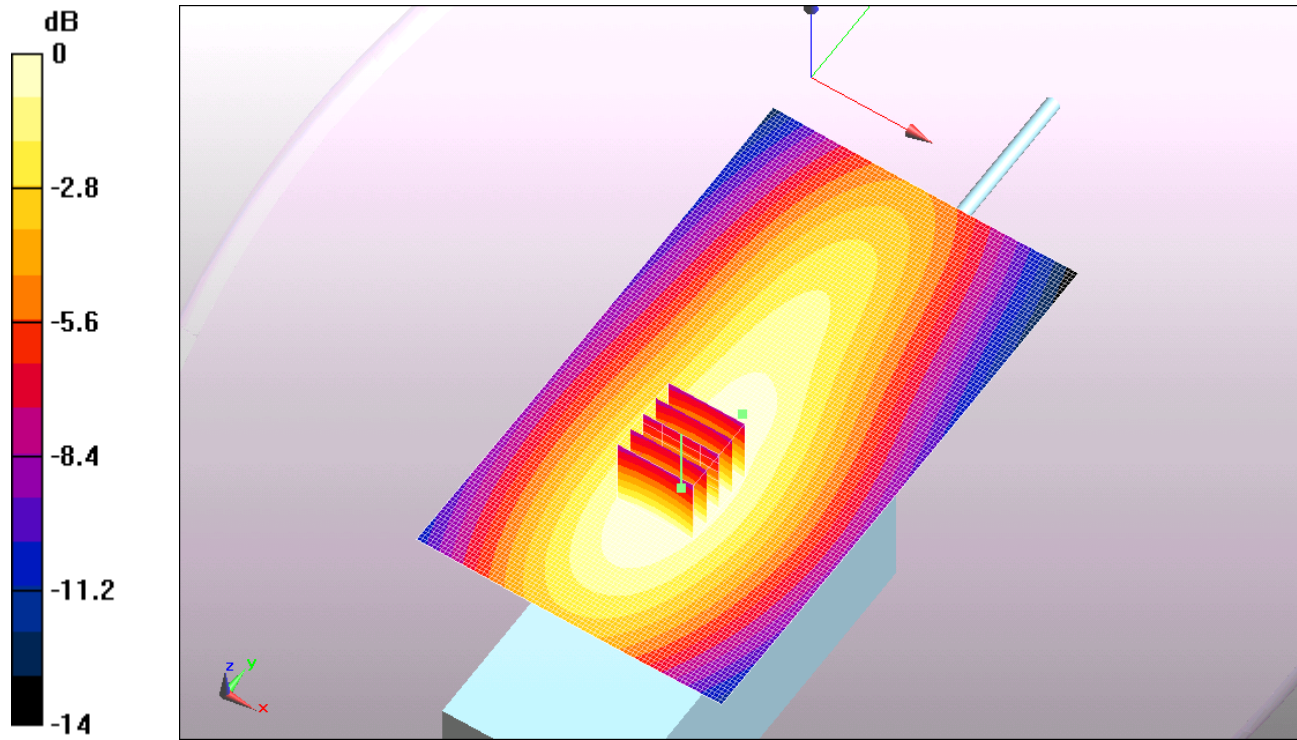
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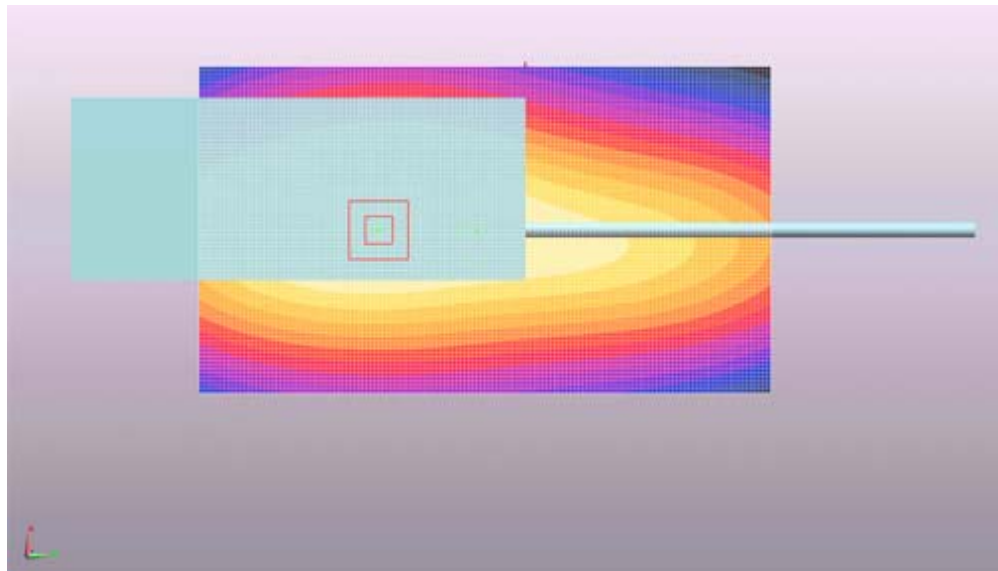
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0 dB = 3.41mW/g



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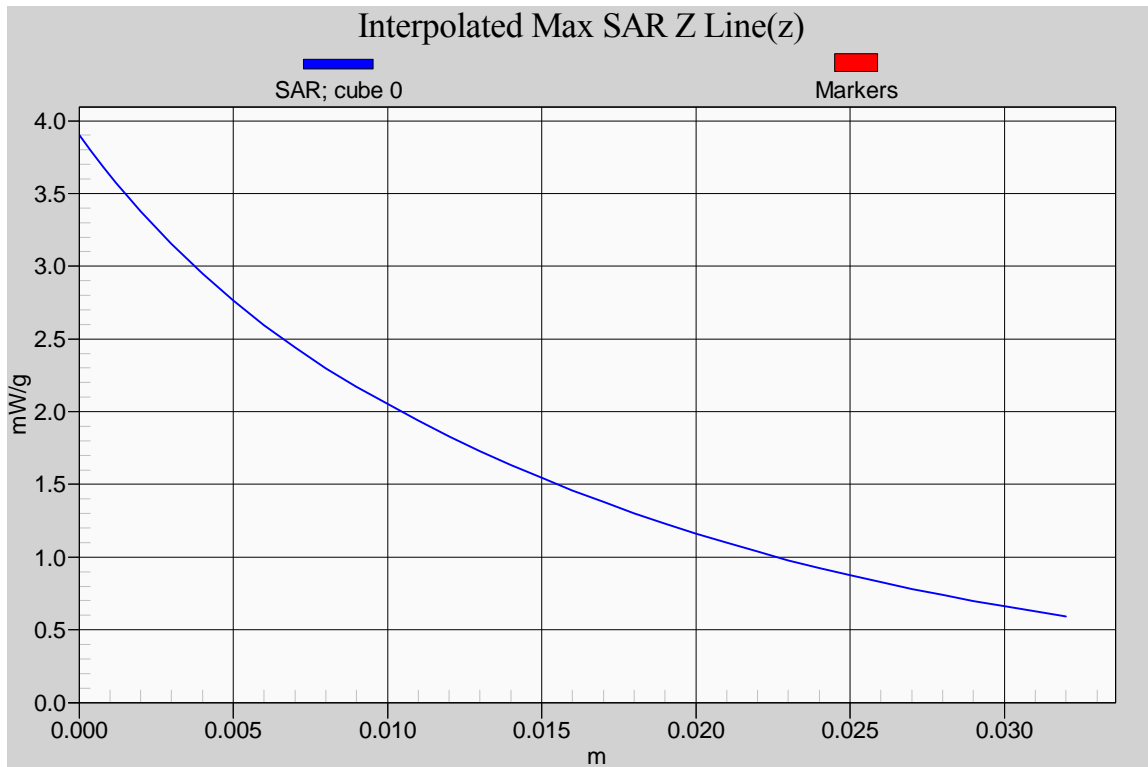
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**6.4.7.9. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=156mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 380 MHz; #61**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=156mm\_Body\_380MHz(L1f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 57.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 75.6 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 6.76 W/kg

**SAR(1 g) = 4.98 mW/g; SAR(10 g) = 3.63 mW/g**

Maximum value of SAR (measured) = 5.78 mW/g

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 5.76 mW/g

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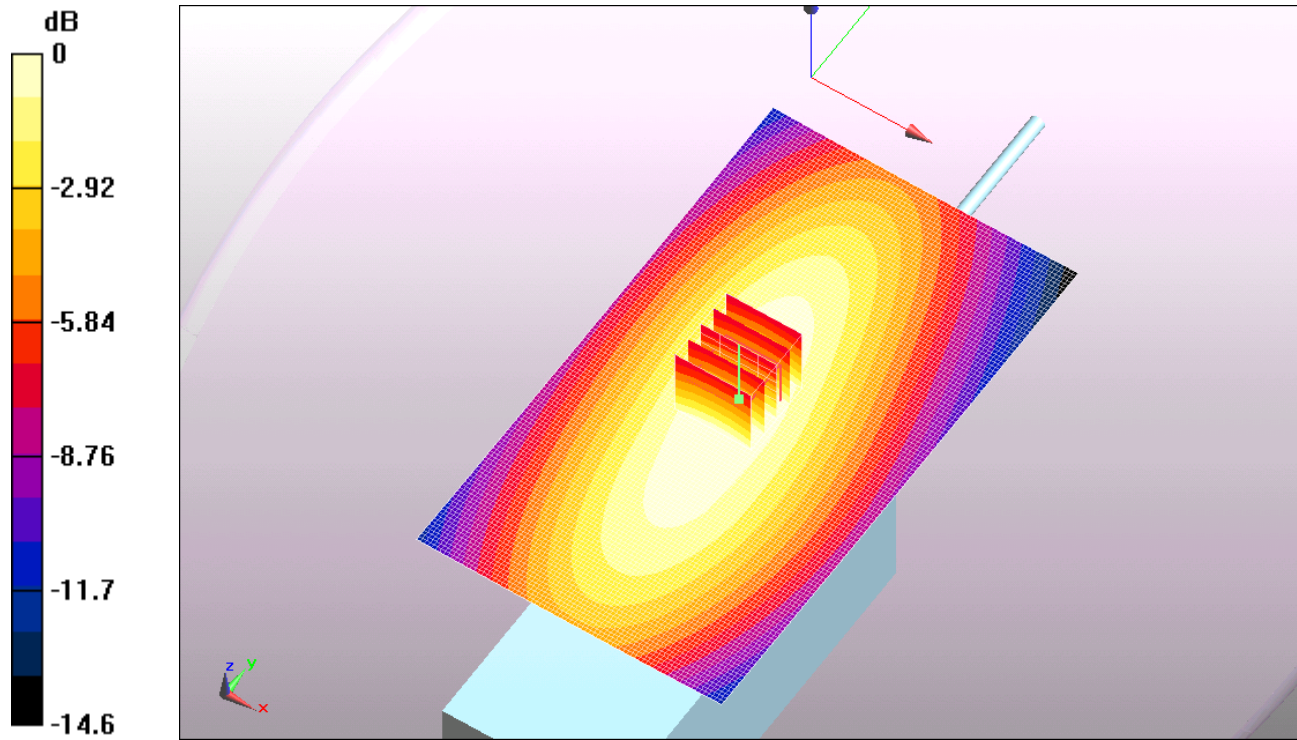
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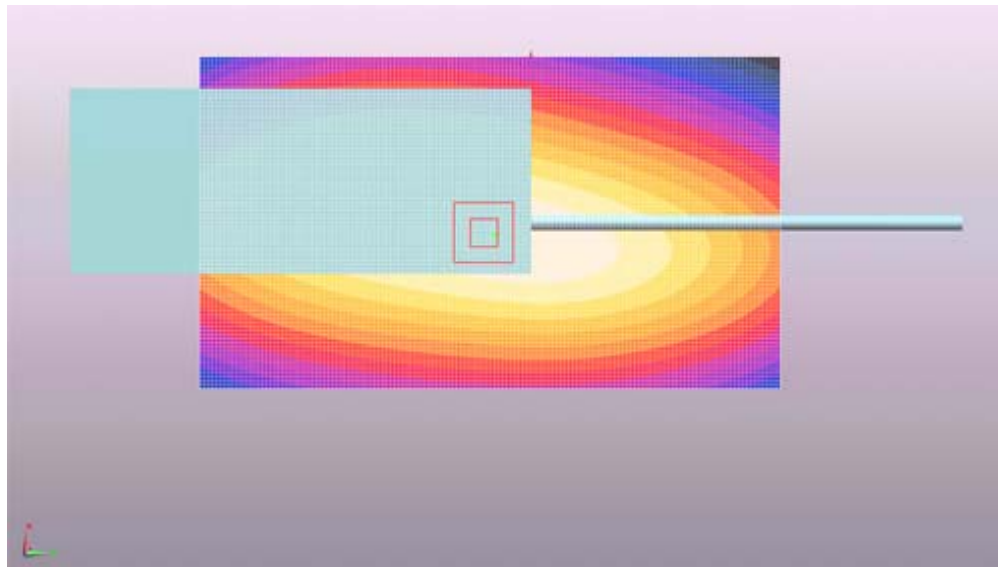
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0 dB = 5.76mW/g



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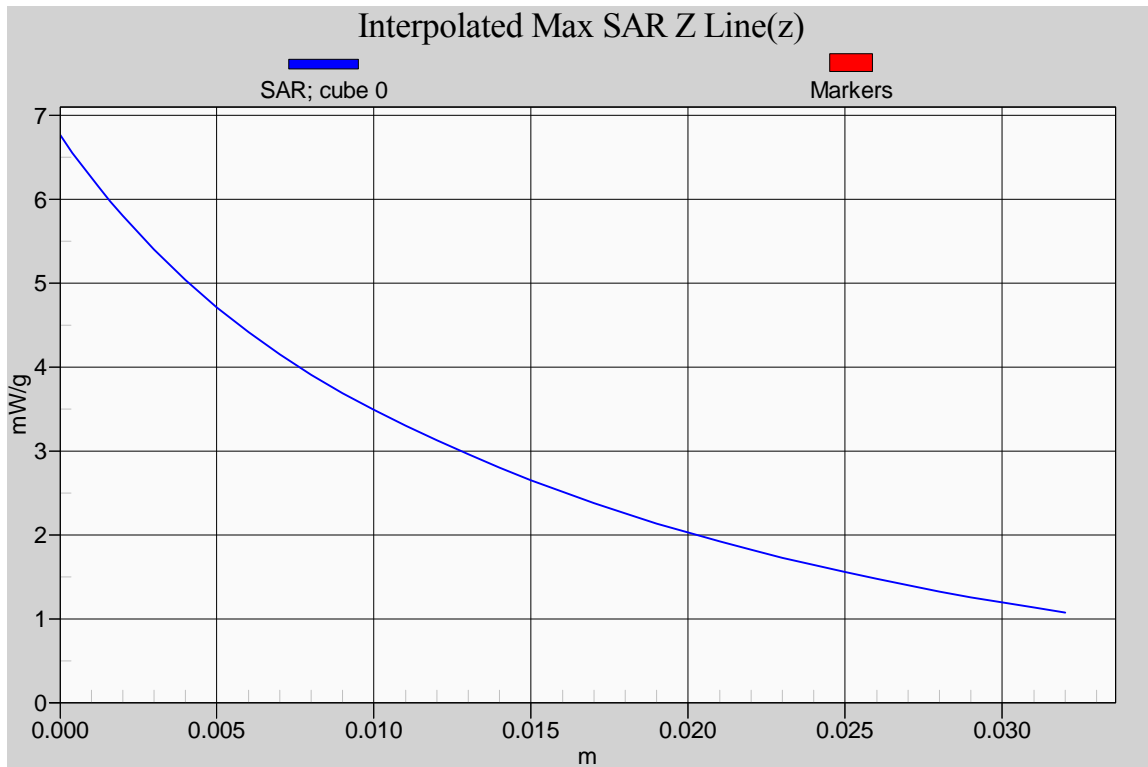
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File #: ICOM-233Q-SAR

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**6.4.7.10. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=156mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 420 MHz; #63**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=156mm\_Body\_420MHz(M1f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 420 MHz

Medium parameters used:  $f = 420$  MHz;  $\sigma = 0.916$  mho/m;  $\epsilon_r = 56.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 89.5 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 9.33 W/kg

**SAR(1 g) = 6.68 mW/g; SAR(10 g) = 4.83 mW/g**

**Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.**

Maximum value of SAR (measured) = 7.93 mW/g

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 7.91 mW/g

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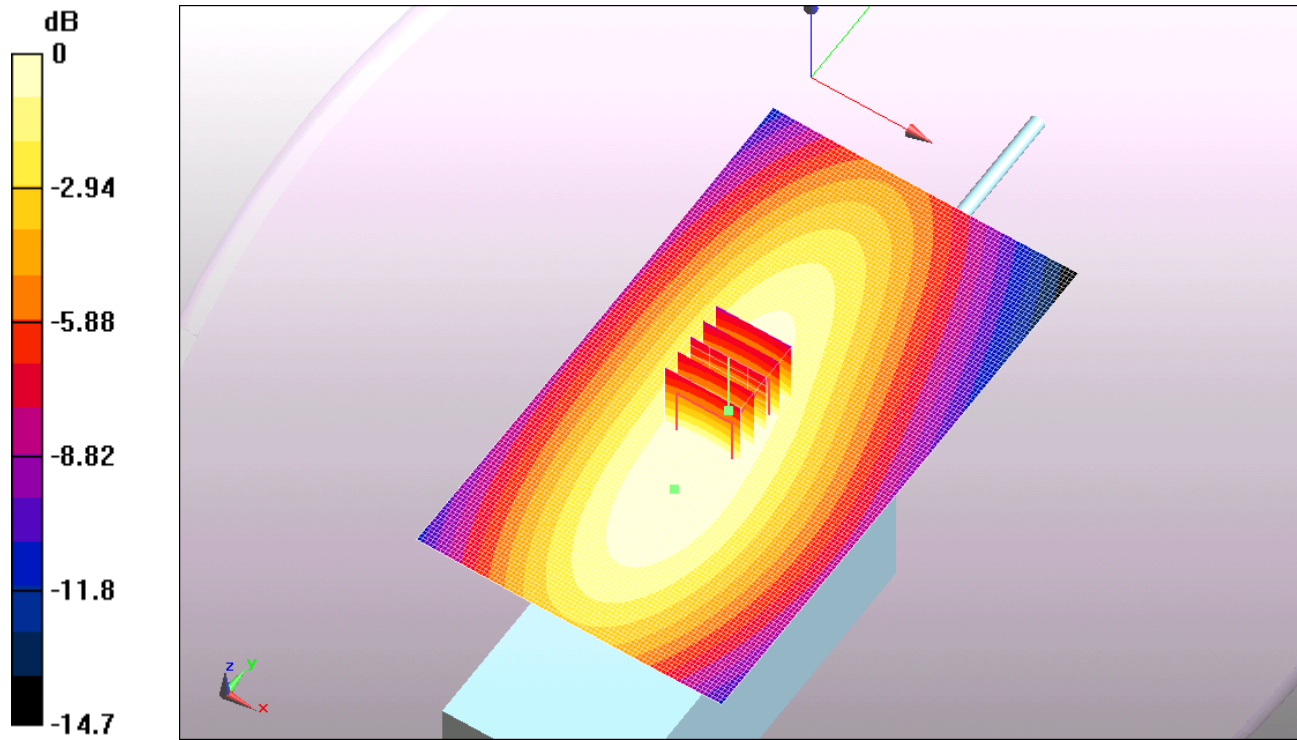
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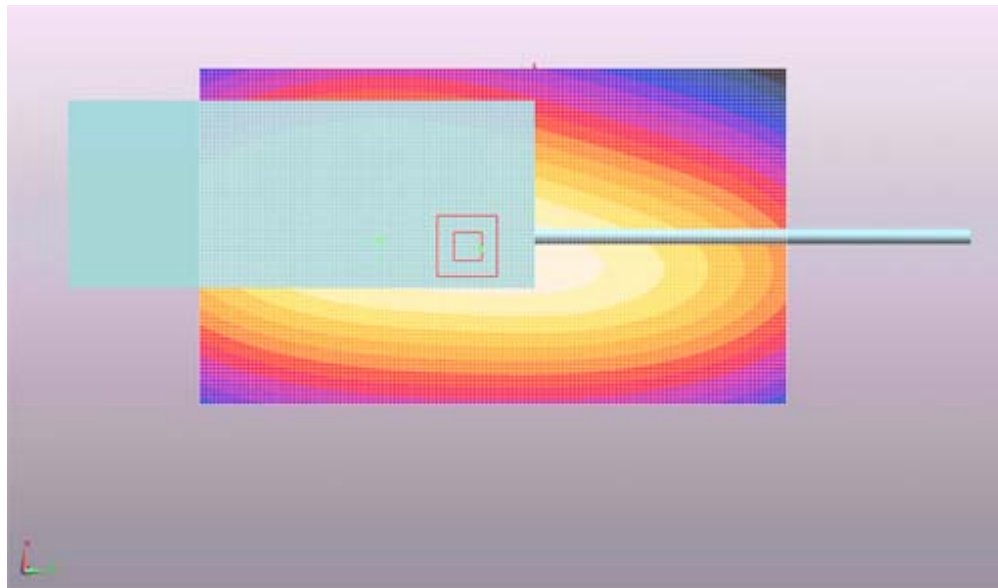
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0 dB = 7.91mW/g



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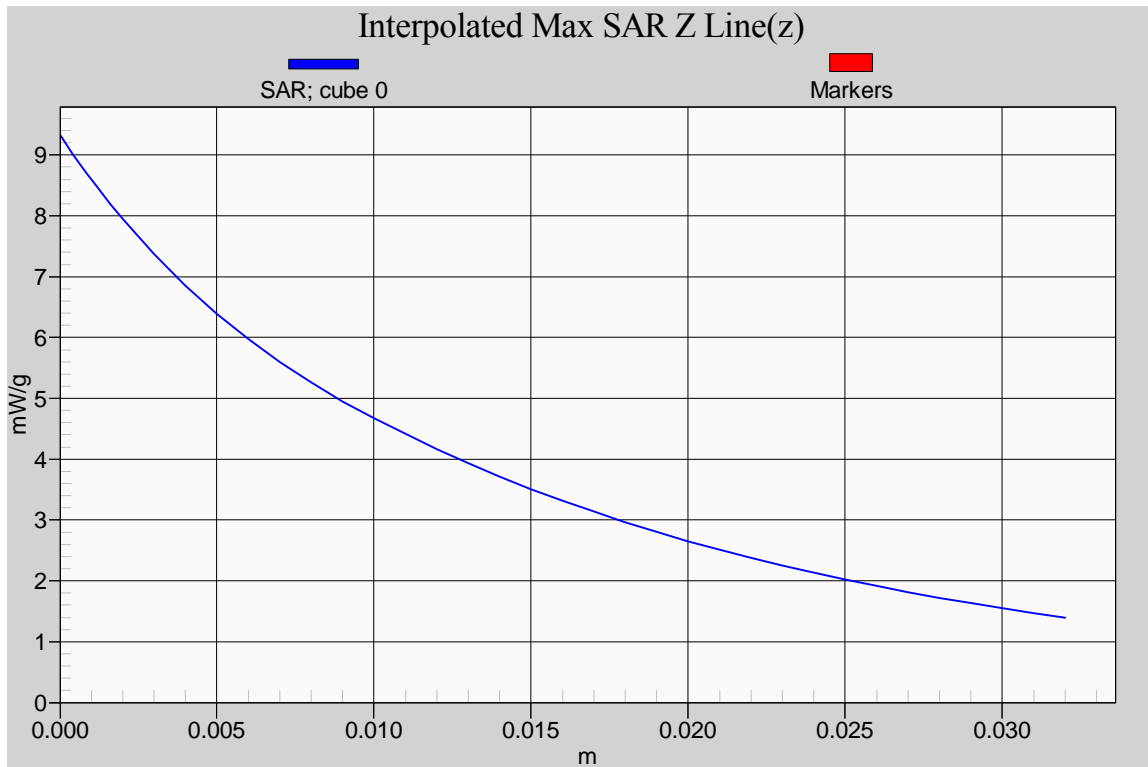
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**6.4.7.11. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=156mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 434 MHz; #64**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=156mm\_Body\_434MHz(M2f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 434 MHz

Medium parameters used (interpolated):  $f = 434$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 56.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 82.2 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 7.87 W/kg

**SAR(1 g) = 5.57 mW/g; SAR(10 g) = 4.02 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 6.7 mW/g

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 6.7 mW/g

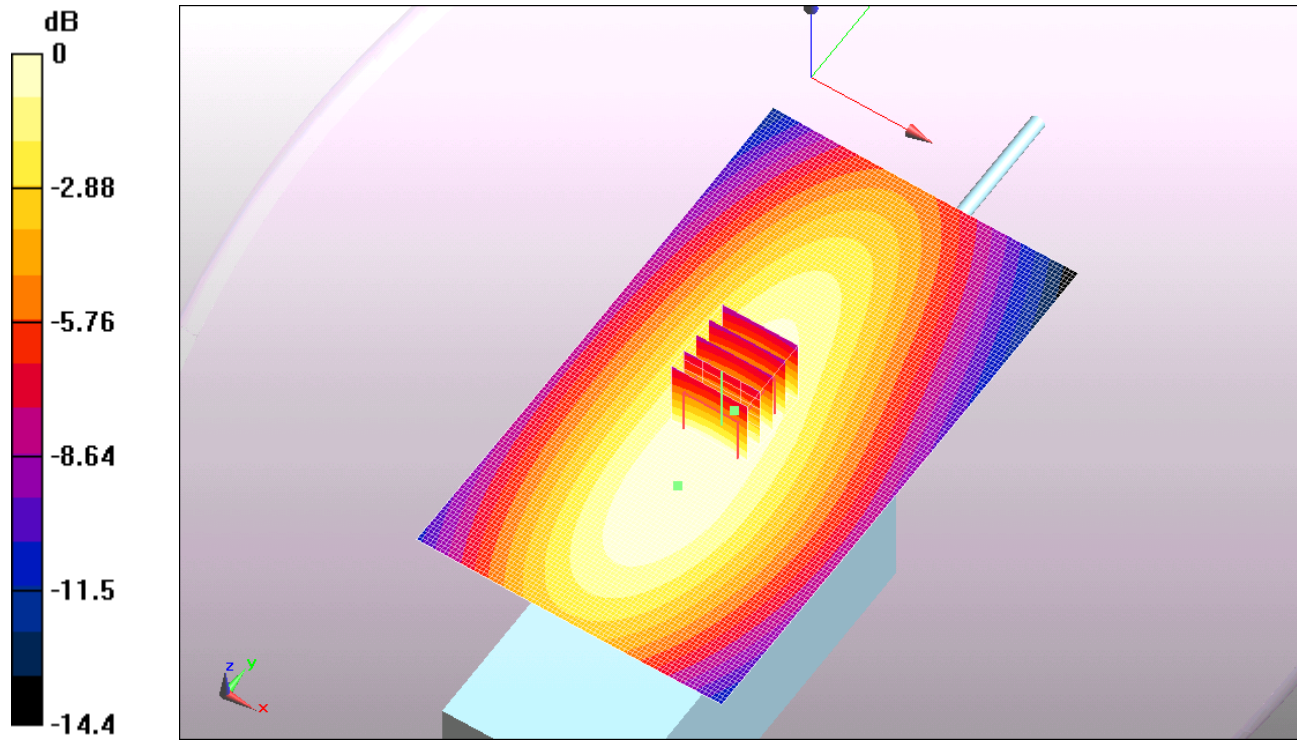
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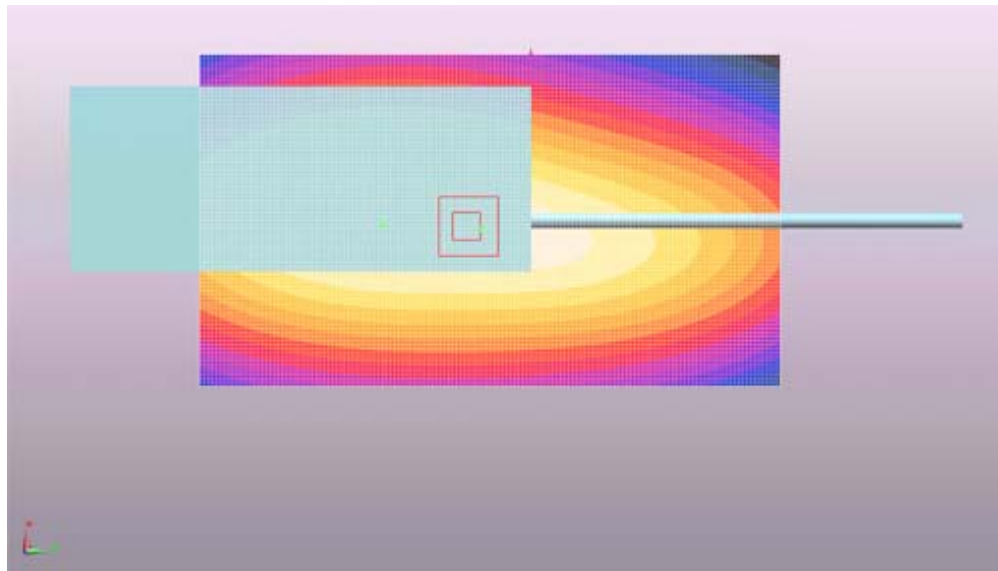
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0 dB = 6.7mW/g



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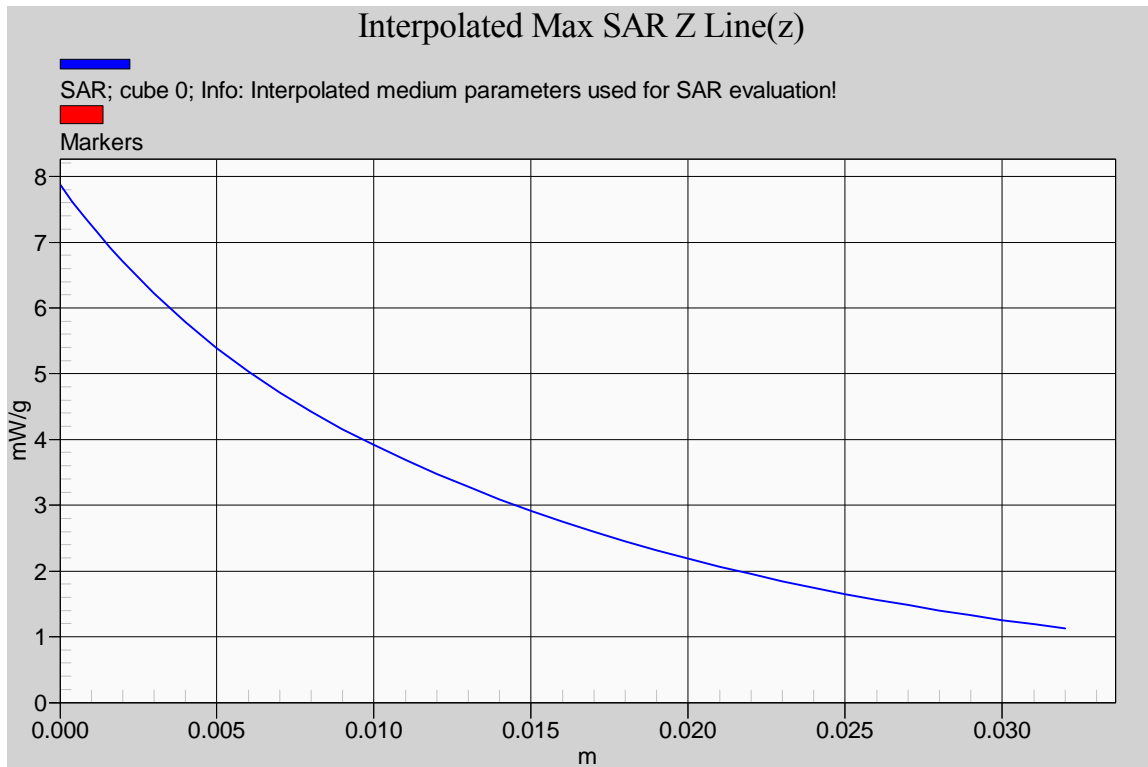
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**6.4.7.12. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=156mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 470 MHz; #66**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=156mm\_Body\_470MHz(H2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 470 MHz

Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.962$  mho/m;  $\epsilon_r = 55.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 68.2 V/m; Power Drift = -0.138 dB

Peak SAR (extrapolated) = 5.35 W/kg

**SAR(1 g) = 3.78 mW/g; SAR(10 g) = 2.77 mW/g**

Maximum value of SAR (measured) = 4.64 mW/g

**FA-S76UC=156mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 4.71 mW/g

---

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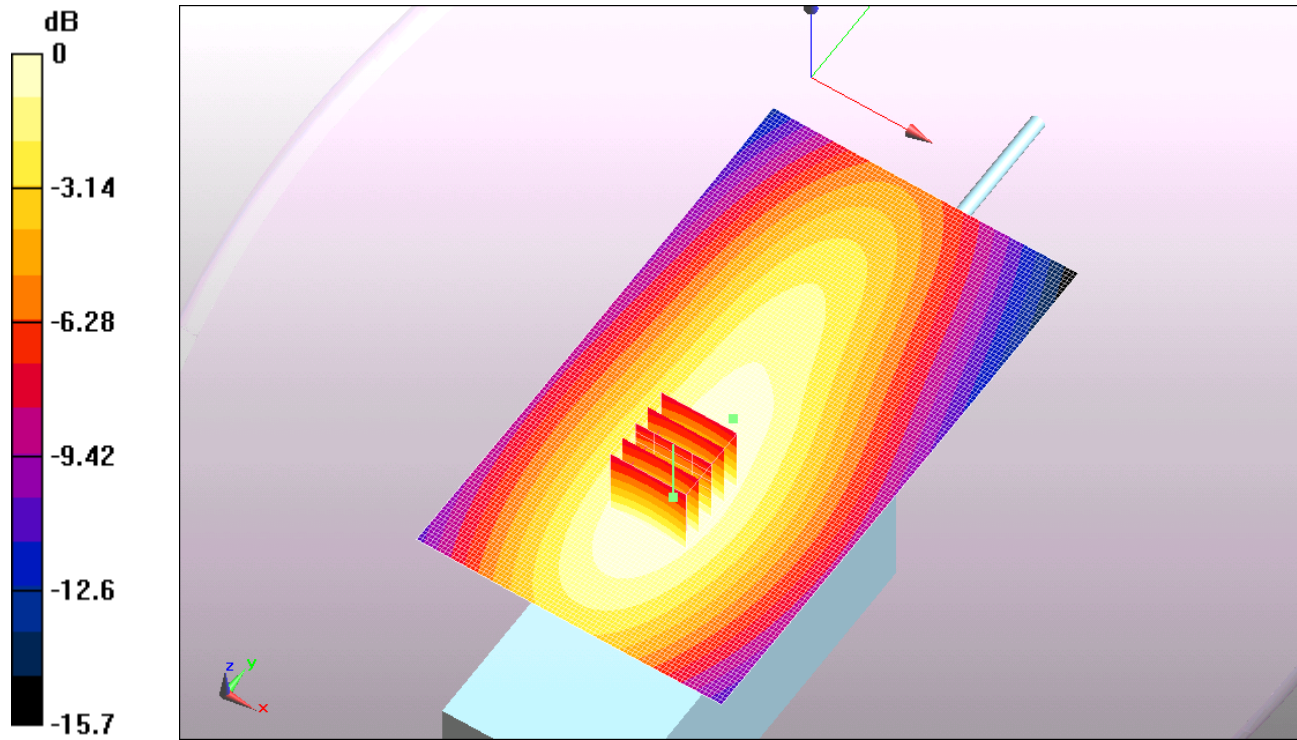
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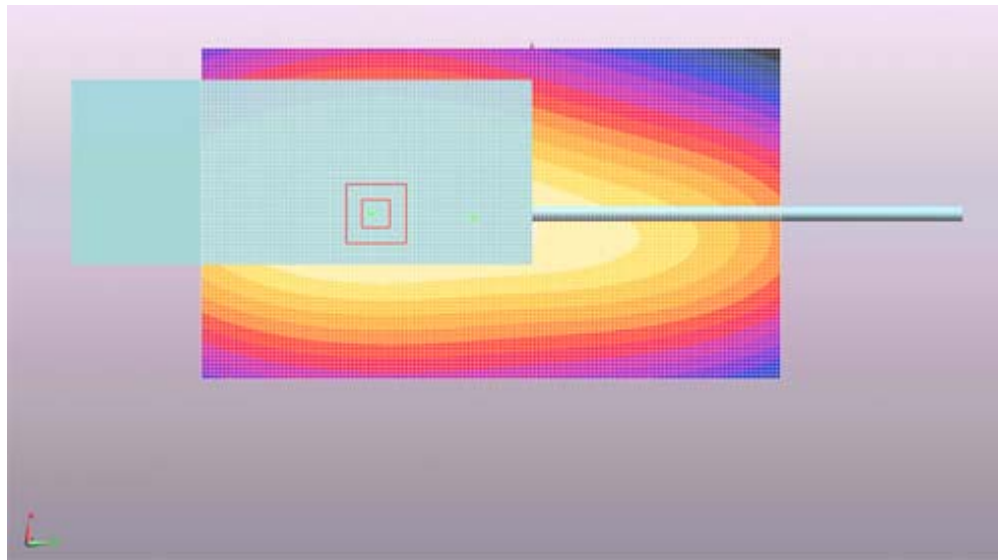
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0 dB = 4.71mW/g



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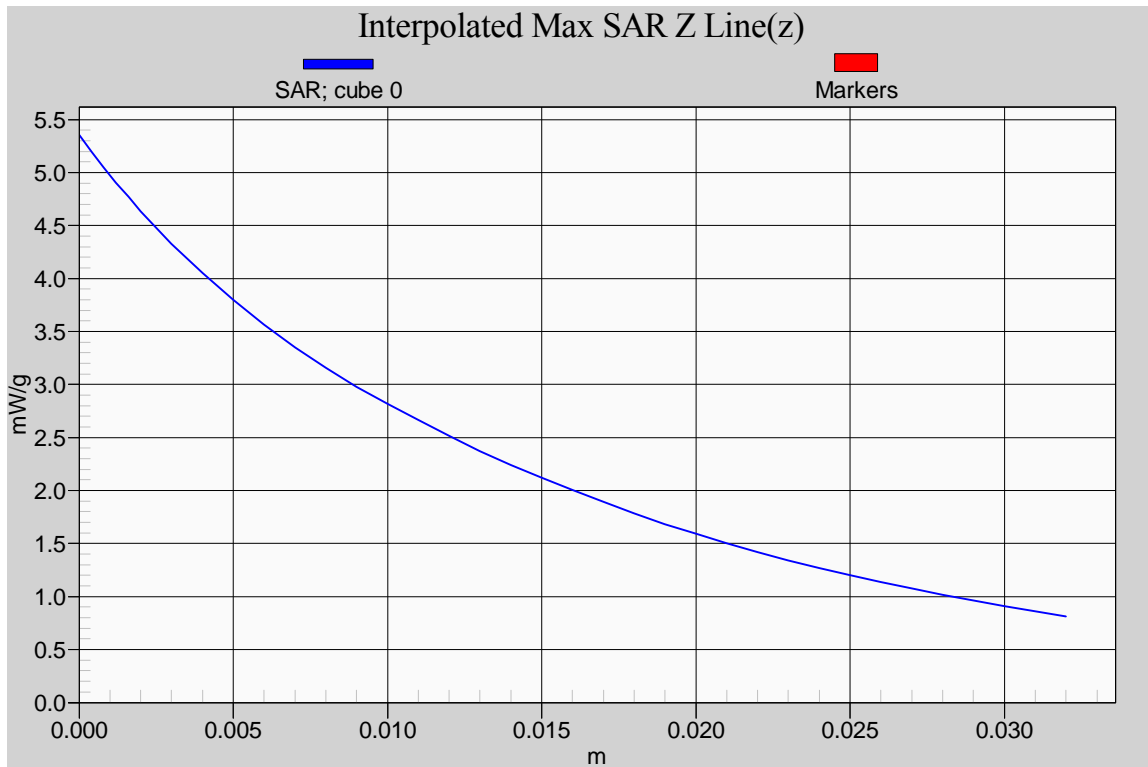
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**6.4.7.13. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=148mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 380 MHz; #67**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=148mm\_Body\_380MHz(L1f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 57.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 64.3 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 4.77 W/kg

**SAR(1 g) = 3.51 mW/g; SAR(10 g) = 2.56 mW/g**

Maximum value of SAR (measured) = 4.08 mW/g

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 4.07 mW/g

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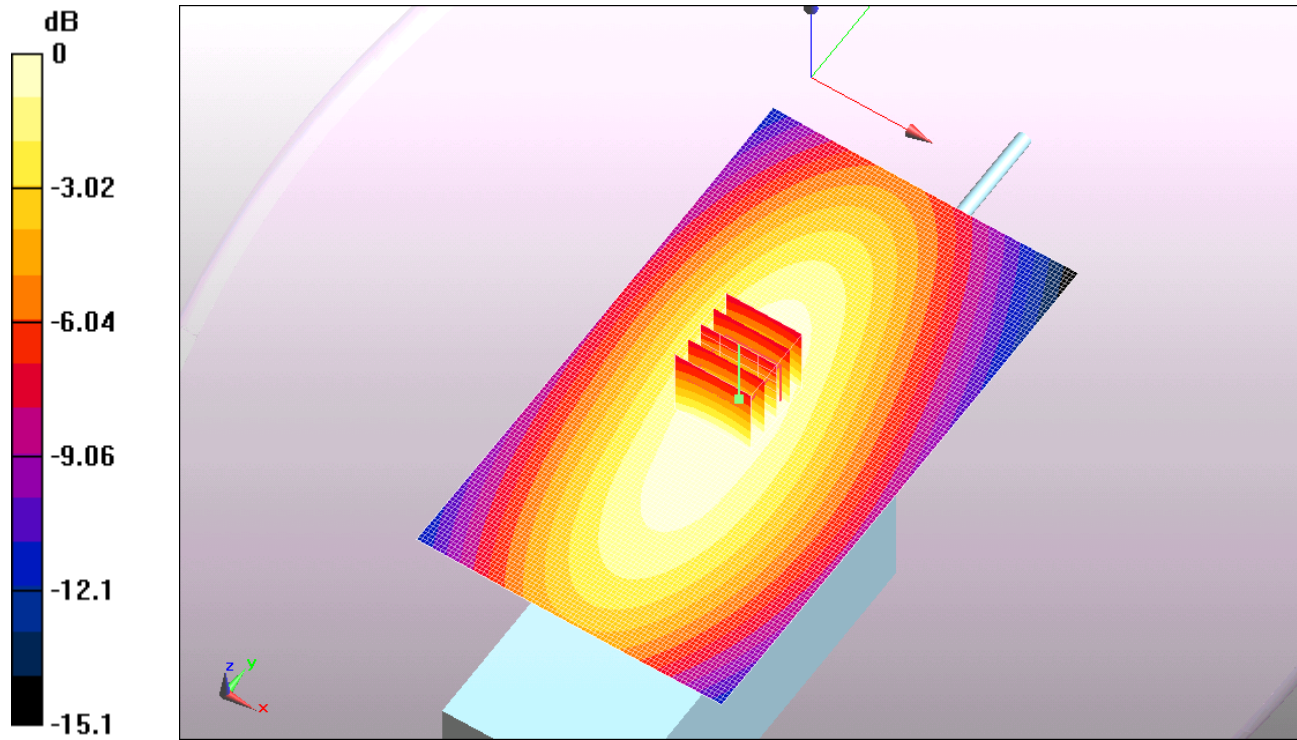
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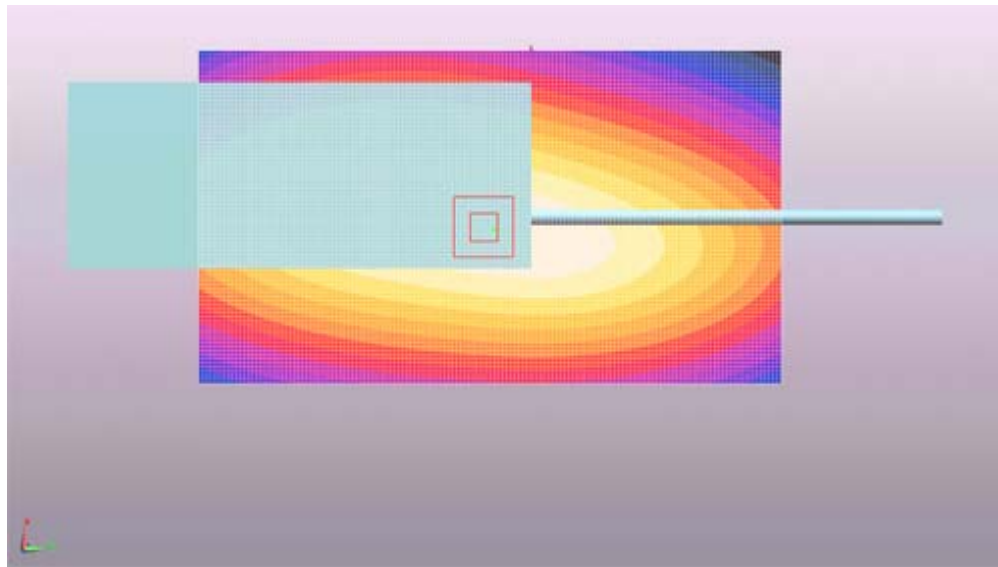
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0 dB = 4.07mW/g



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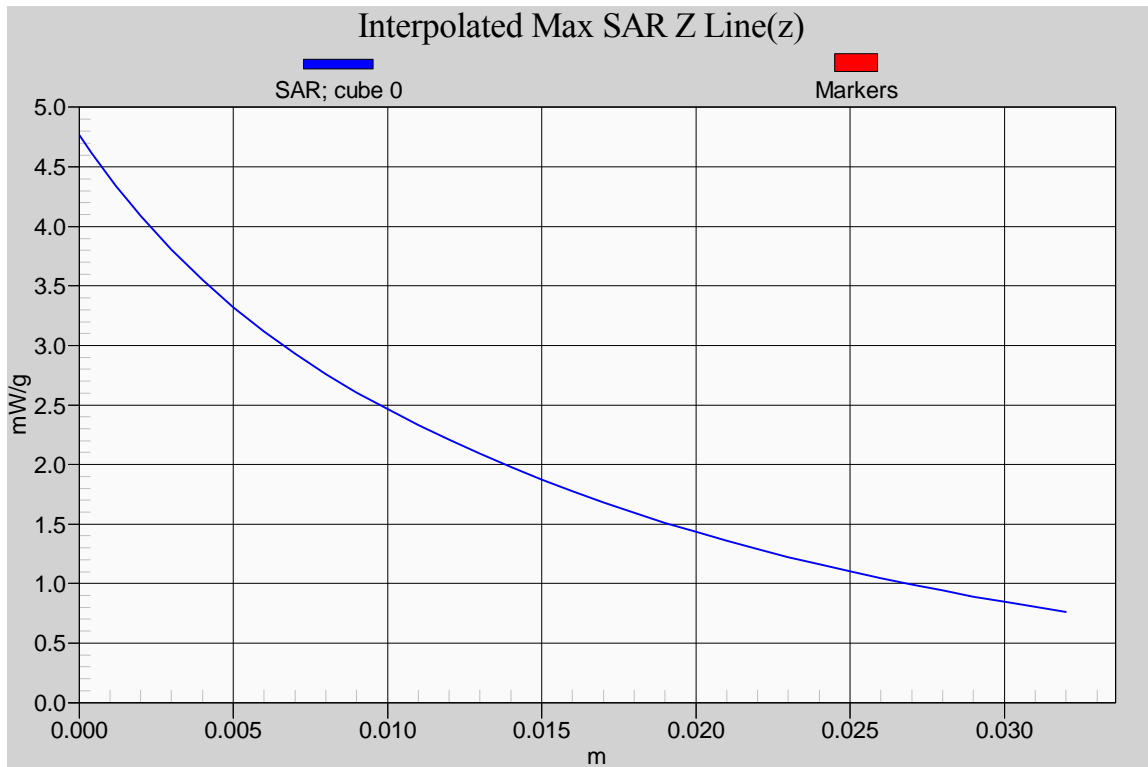
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**6.4.7.14. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=148mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 416 MHz; #69**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=148mm\_Body\_416MHz(M1f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 416 MHz

Medium parameters used (interpolated):  $f = 416$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 56.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 93.5 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 10.2 W/kg

**SAR(1 g) = 7.32 mW/g; SAR(10 g) = 5.32 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 8.65 mW/g

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 8.56 mW/g

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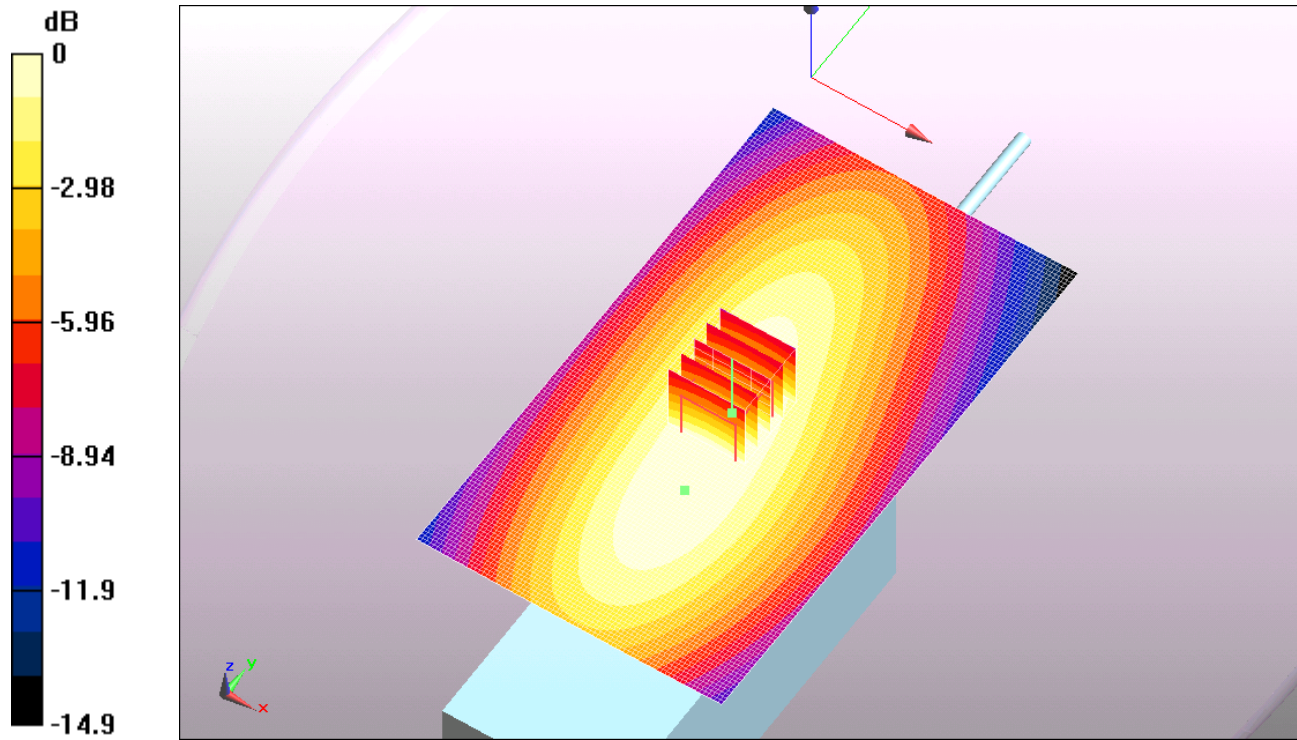
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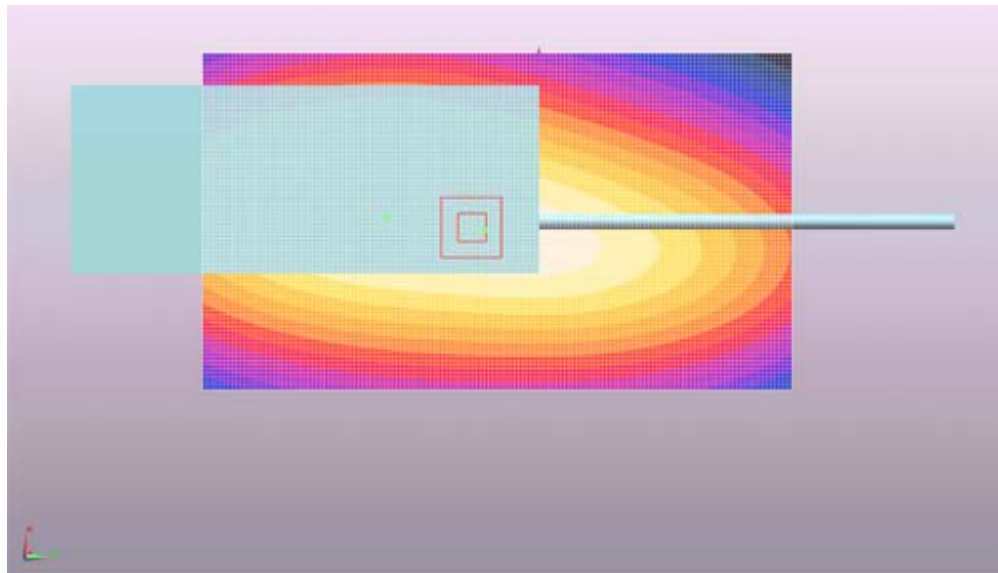
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0 dB = 8.56mW/g



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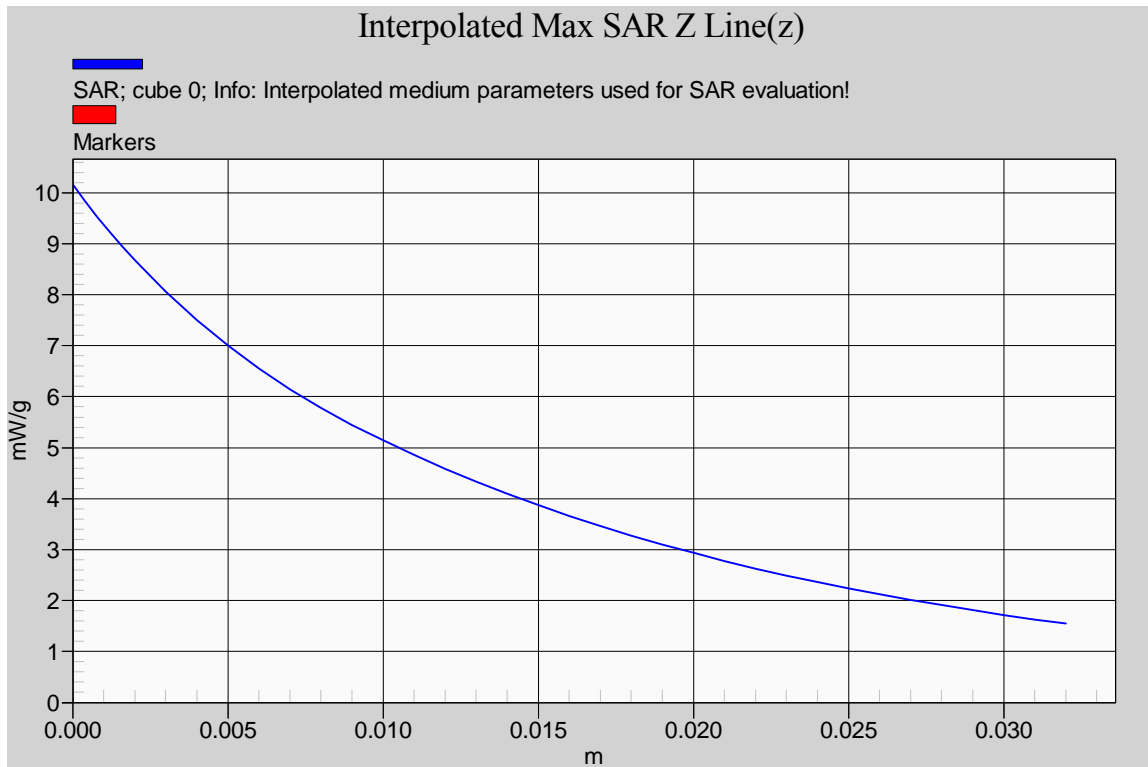
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**6.4.7.15. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=148mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 440 MHz; #70**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=148mm\_Body\_440MHz(M2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 440 MHz

Medium parameters used:  $f = 440$  MHz;  $\sigma = 0.933$  mho/m;  $\epsilon_r = 56.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 92.7 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 9.39 W/kg

**SAR(1 g) = 6.85 mW/g; SAR(10 g) = 5.04 mW/g**

Maximum value of SAR (measured) = 8.15 mW/g

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 8.18 mW/g

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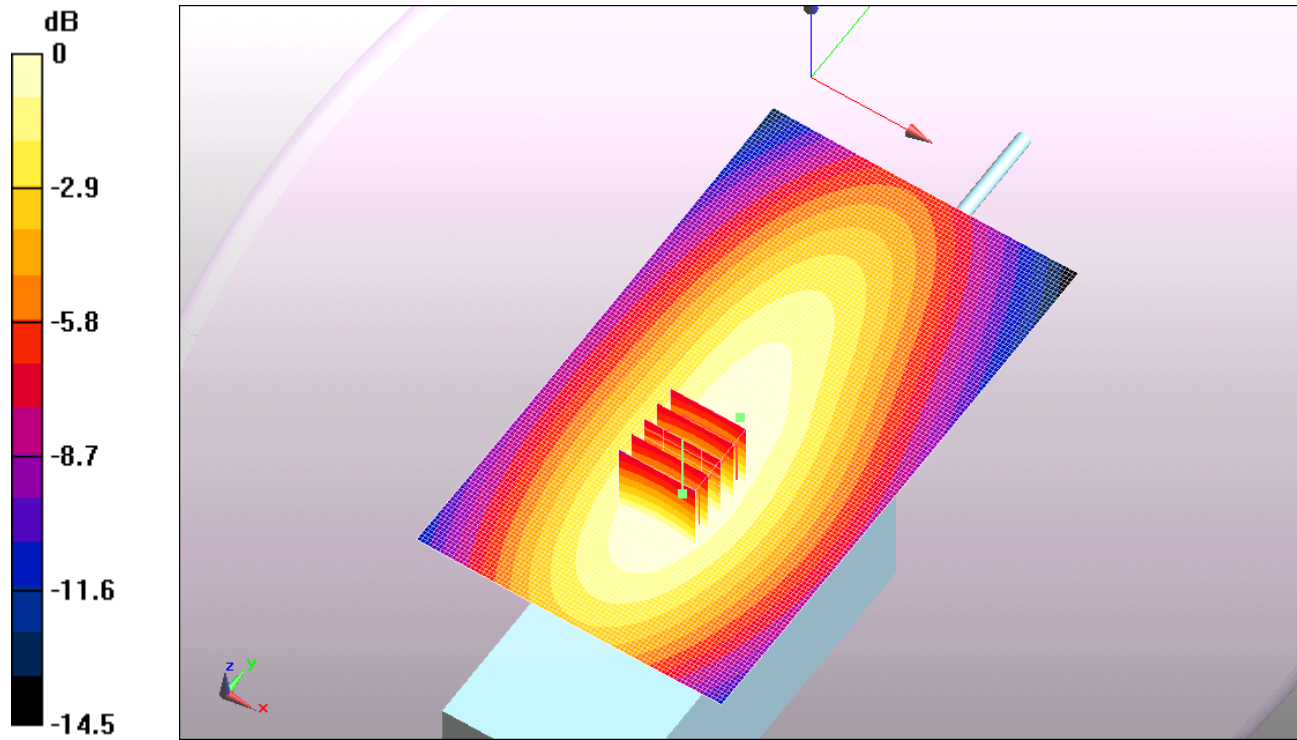
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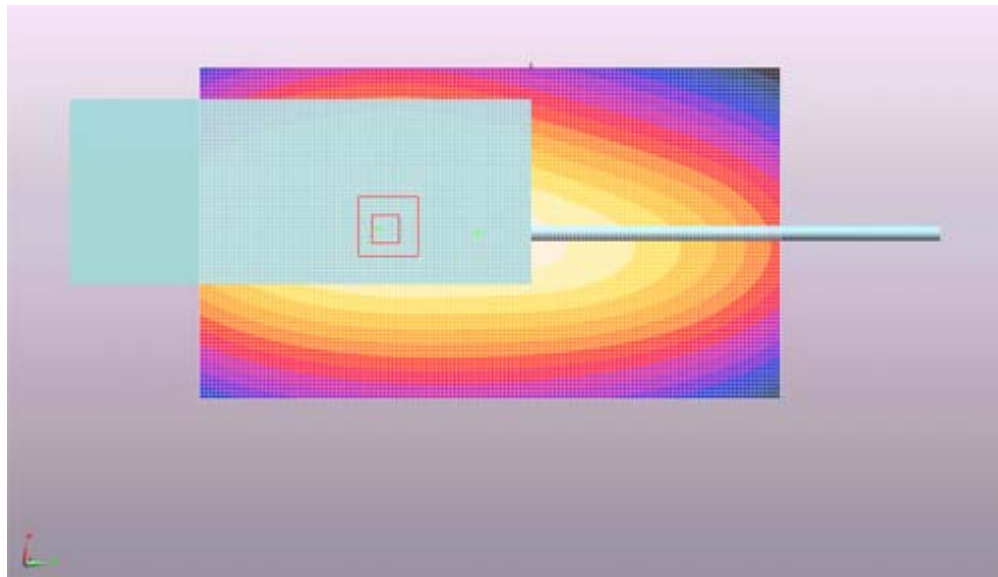
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0 dB = 8.18mW/g



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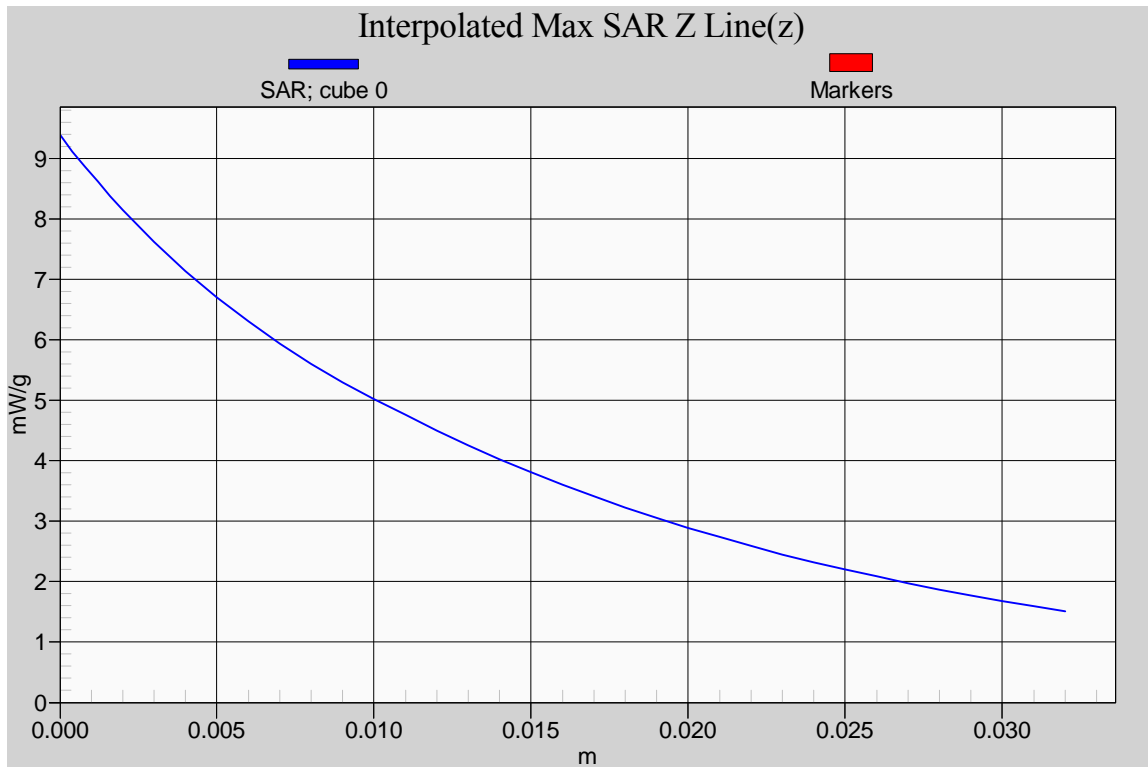
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**6.4.7.16. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=148mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 470 MHz; #72**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=148mm\_Body\_470MHz(H2f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 470 MHz

Medium parameters used:  $f = 470$  MHz;  $\sigma = 0.962$  mho/m;  $\epsilon_r = 55.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASYS5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)****(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 78.3 V/m; Power Drift = -0.201 dB

Peak SAR (extrapolated) = 6.72 W/kg

**SAR(1 g) = 4.74 mW/g; SAR(10 g) = 3.48 mW/g**

Maximum value of SAR (measured) = 5.82 mW/g

**FA-S76UC=148mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 5.92 mW/g

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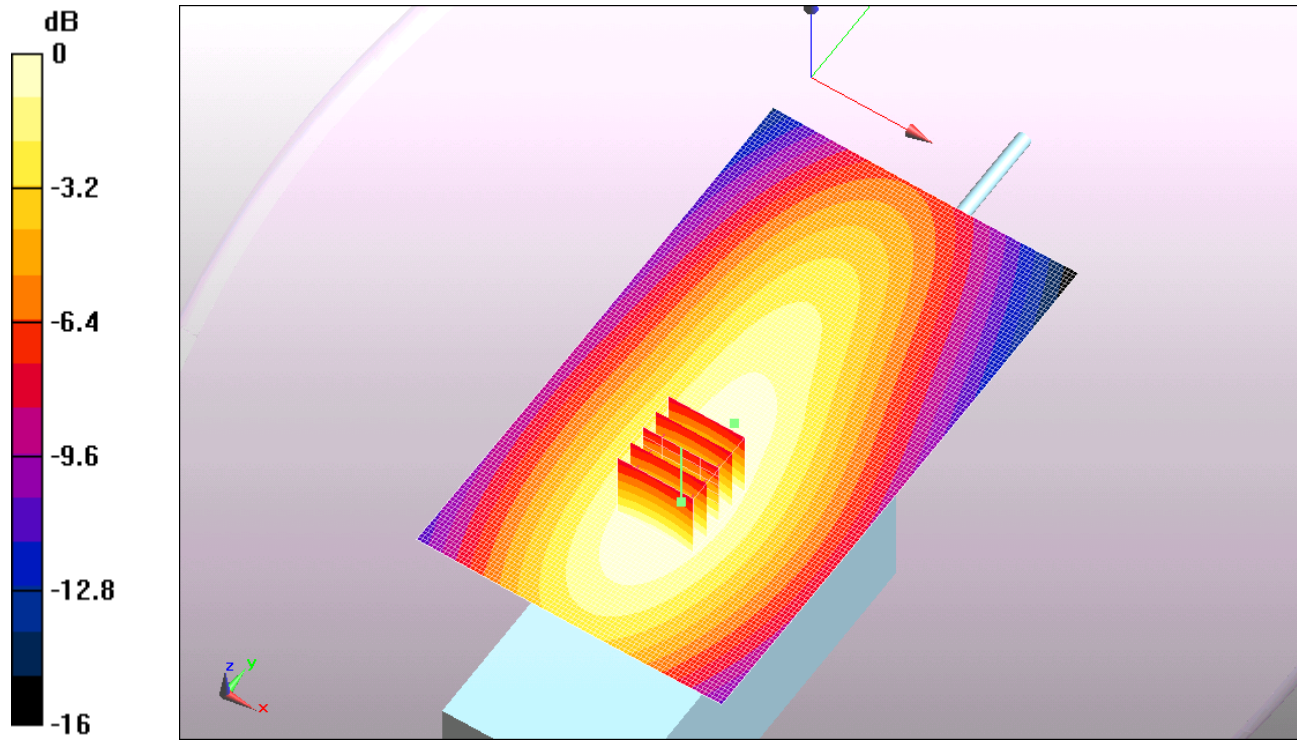
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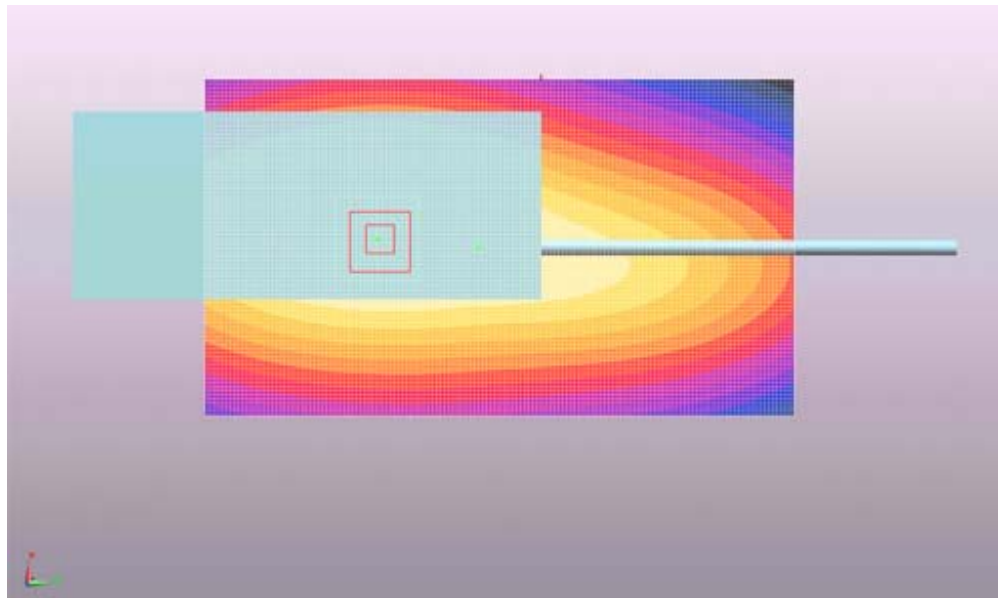
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0 dB = 5.92mW/g



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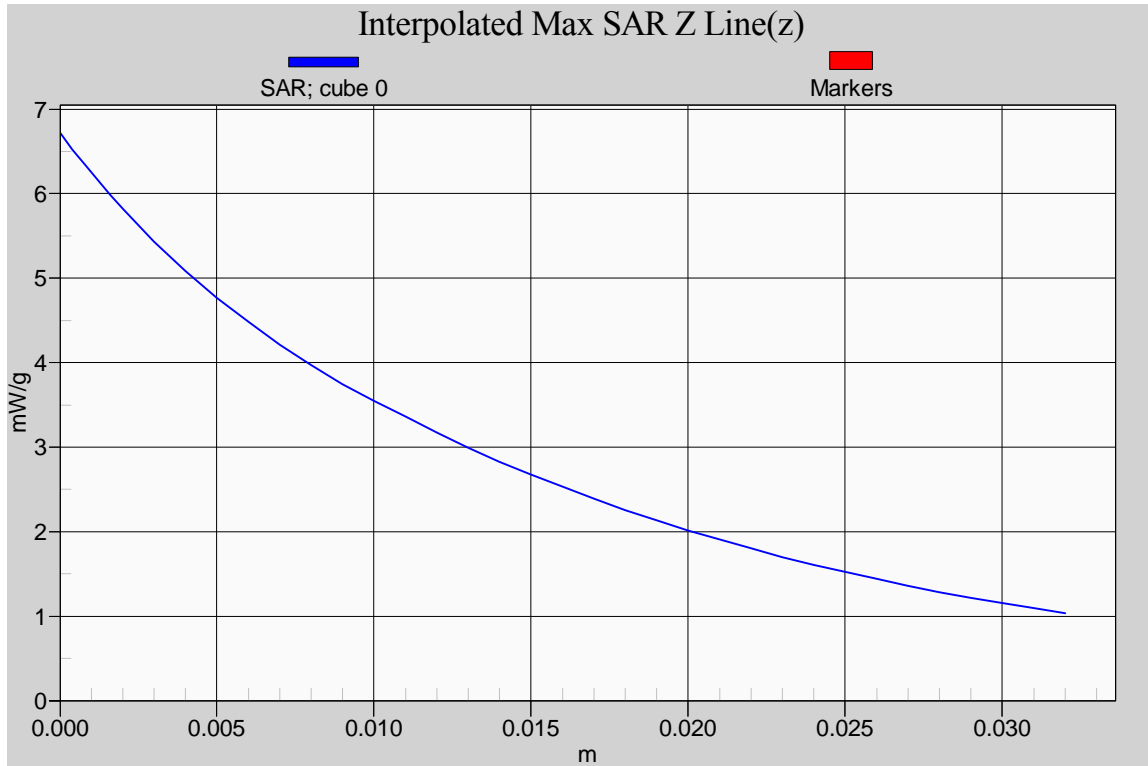
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**6.4.7.17. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 380 MHz; #73**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Body\_380MHz(L1f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 380 MHz

Medium parameters used:  $f = 380$  MHz;  $\sigma = 0.886$  mho/m;  $\epsilon_r = 57.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 57 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 3.82 W/kg

**SAR(1 g) = 2.82 mW/g; SAR(10 g) = 2.05 mW/g**

Maximum value of SAR (measured) = 3.27 mW/g

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.28 mW/g

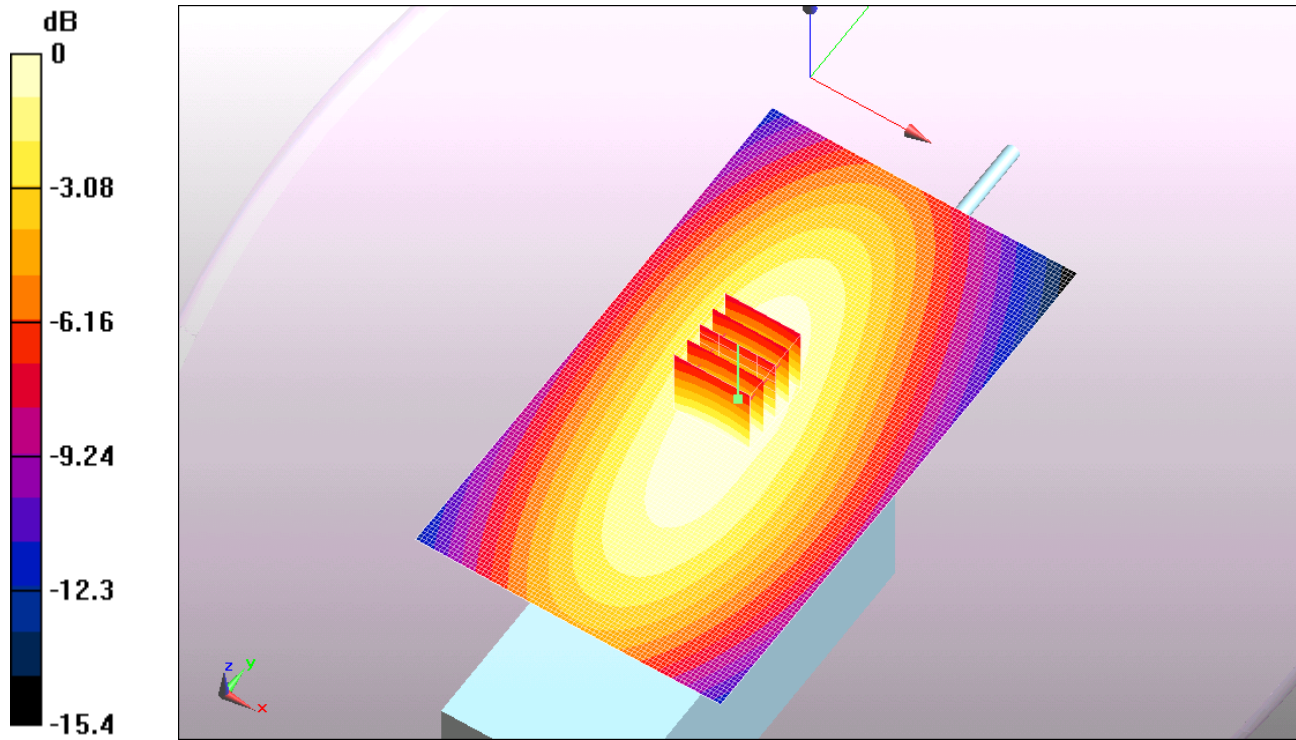
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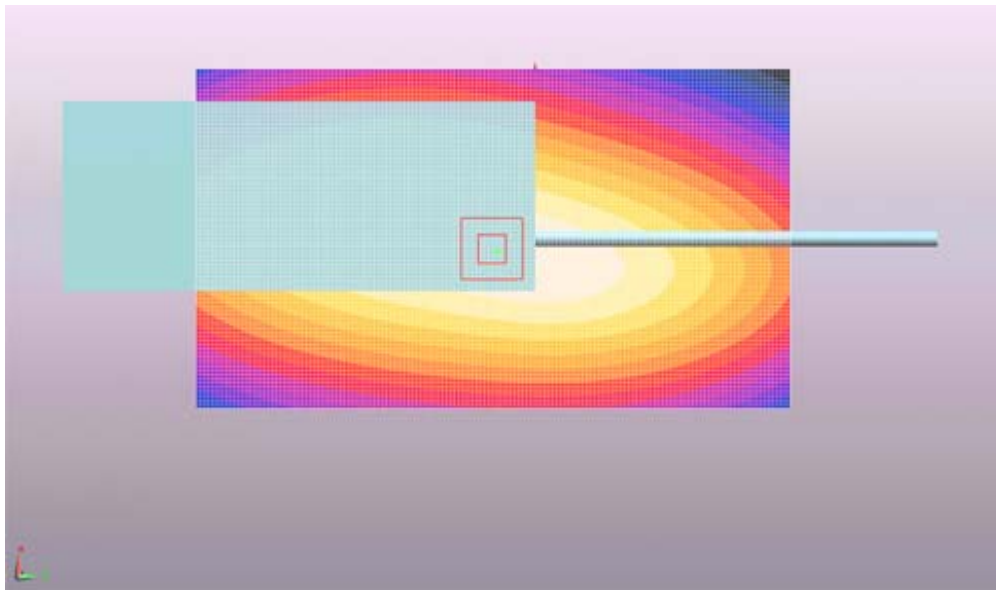
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0 dB = 3.28mW/g



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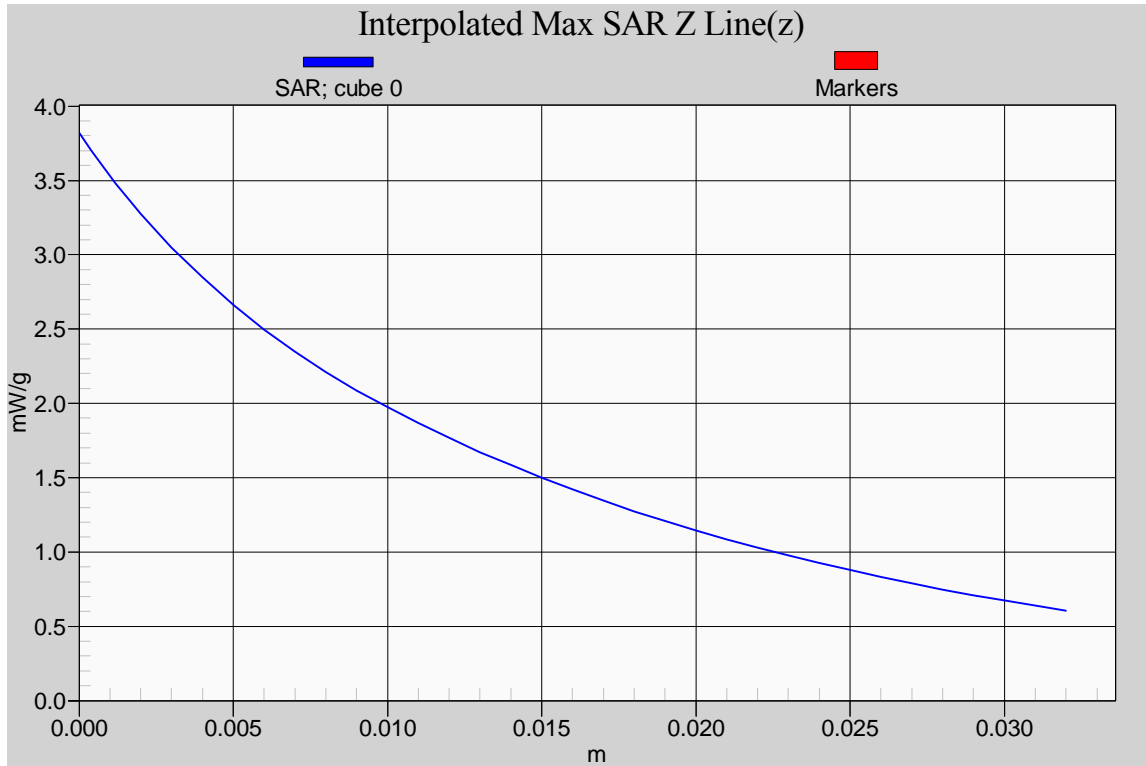
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**6.4.7.18. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 416 MHz; #75**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Body\_416MHz(M1f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 416 MHz

Medium parameters used (interpolated):  $f = 416$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 56.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 94.3 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 10.2 W/kg

**SAR(1 g) = 7.35 mW/g; SAR(10 g) = 5.32 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 8.7 mW/g

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 8.79 mW/g

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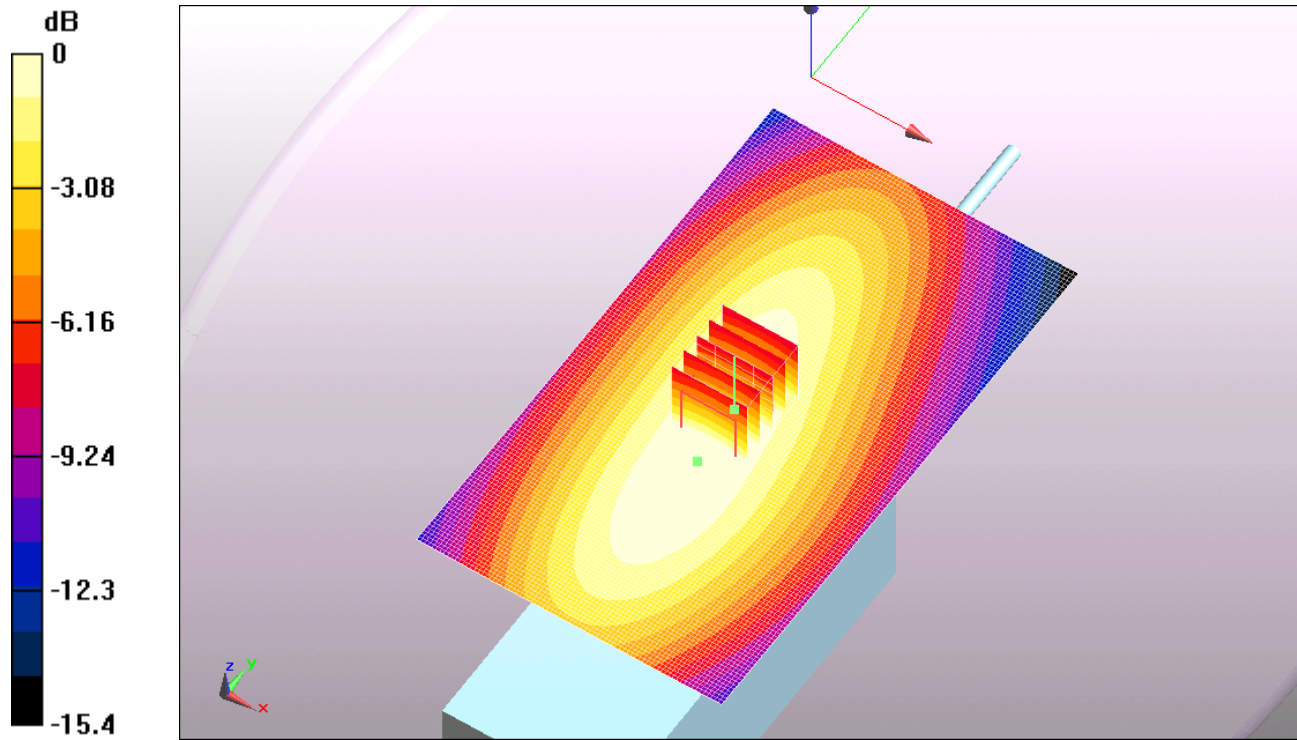
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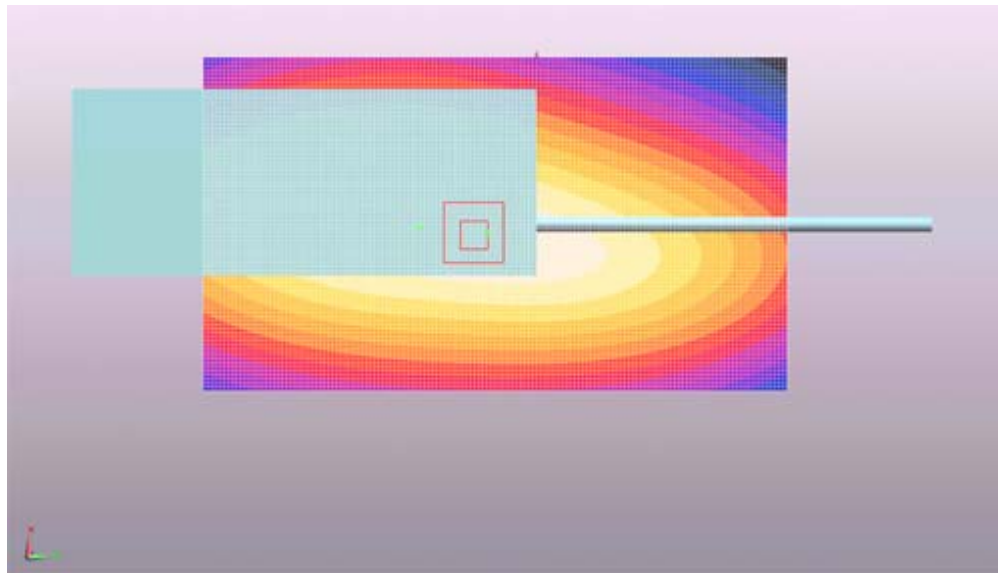
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0 dB = 8.79mW/g



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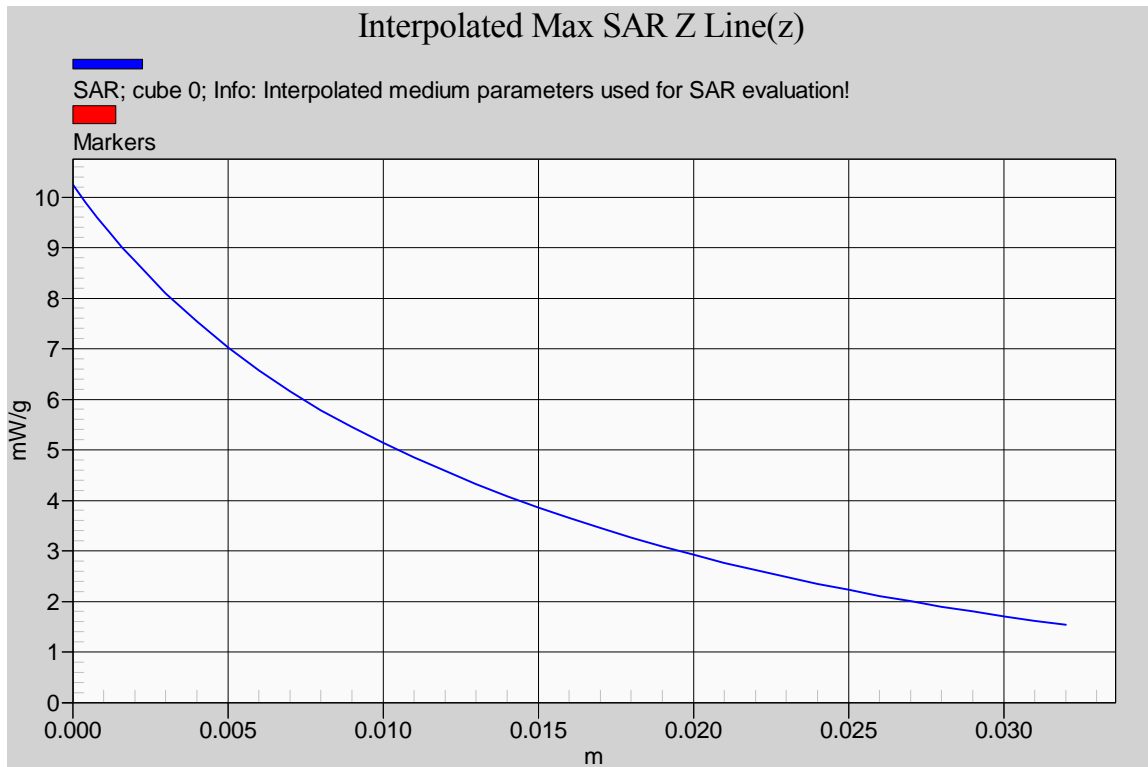
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**6.4.7.19. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 434 MHz; #76**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Body\_434MHz(M2f)\_AD-118**

**DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 434 MHz

Medium parameters used (interpolated):  $f = 434$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 56.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

**(5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 97.4 V/m; Power Drift = -0.030 dB

Peak SAR (extrapolated) = 10.5 W/kg

**SAR(1 g) = 7.72 mW/g; SAR(10 g) = 5.69 mW/g**

Info: Interpolated medium parameters used for SAR evaluation.

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 9.15 mW/g

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 9.18 mW/g

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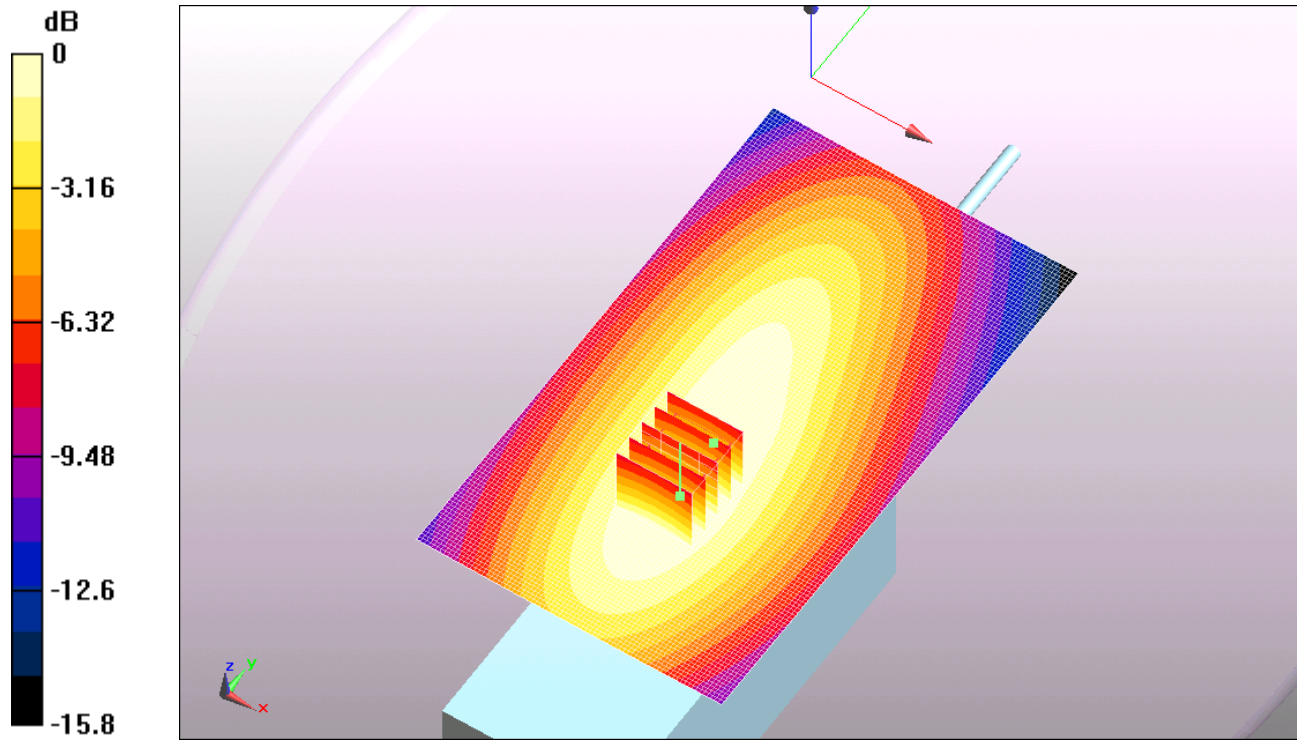
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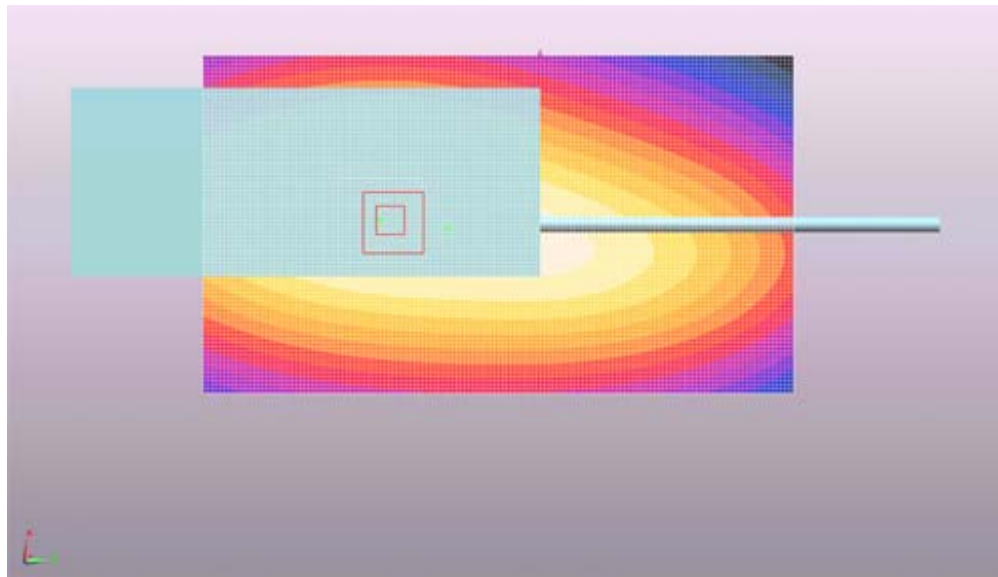
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0 dB = 9.18mW/g



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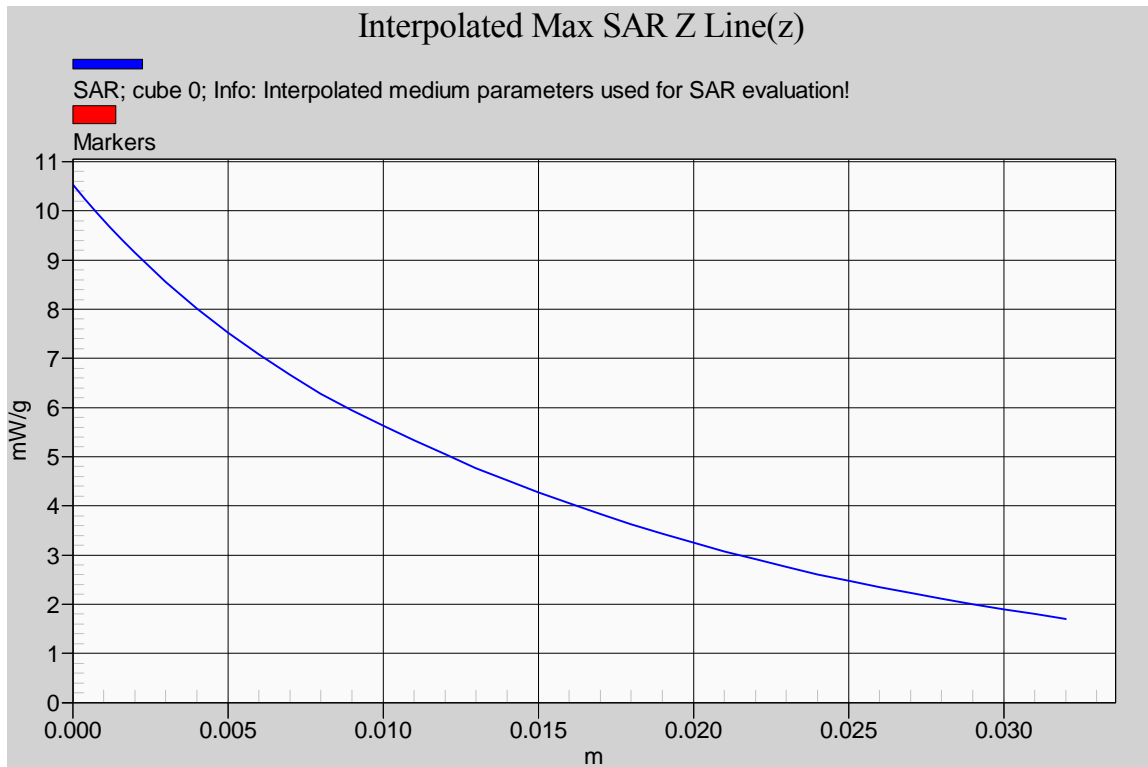
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**6.4.7.20. 1/4 helical whip cut antenna (M/N: FA-S76UC), length=142mm; Belt Clip (M/N: MB-115), ACC Adapter (M/N: AD-118); 460 MHz; #78**

Test Laboratory: UltraTech Group of Labs.

**ICOM-233Q\_FA-S76UC=142mm\_Body\_460MHz(H2f)\_AD-118****DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006**

Communication System: CW; Frequency: 460 MHz

Medium parameters used:  $f = 460$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7)**

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 89.2 V/m; Power Drift = -0.055 dB

Peak SAR (extrapolated) = 8.42 W/kg

**SAR(1 g) = 6 mW/g; SAR(10 g) = 4.41 mW/g**

Maximum value of SAR (measured) = 7.29 mW/g

**FA-S76UC=142mm Configuration/Body Back for AD-118, d=0mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 7.59 mW/g

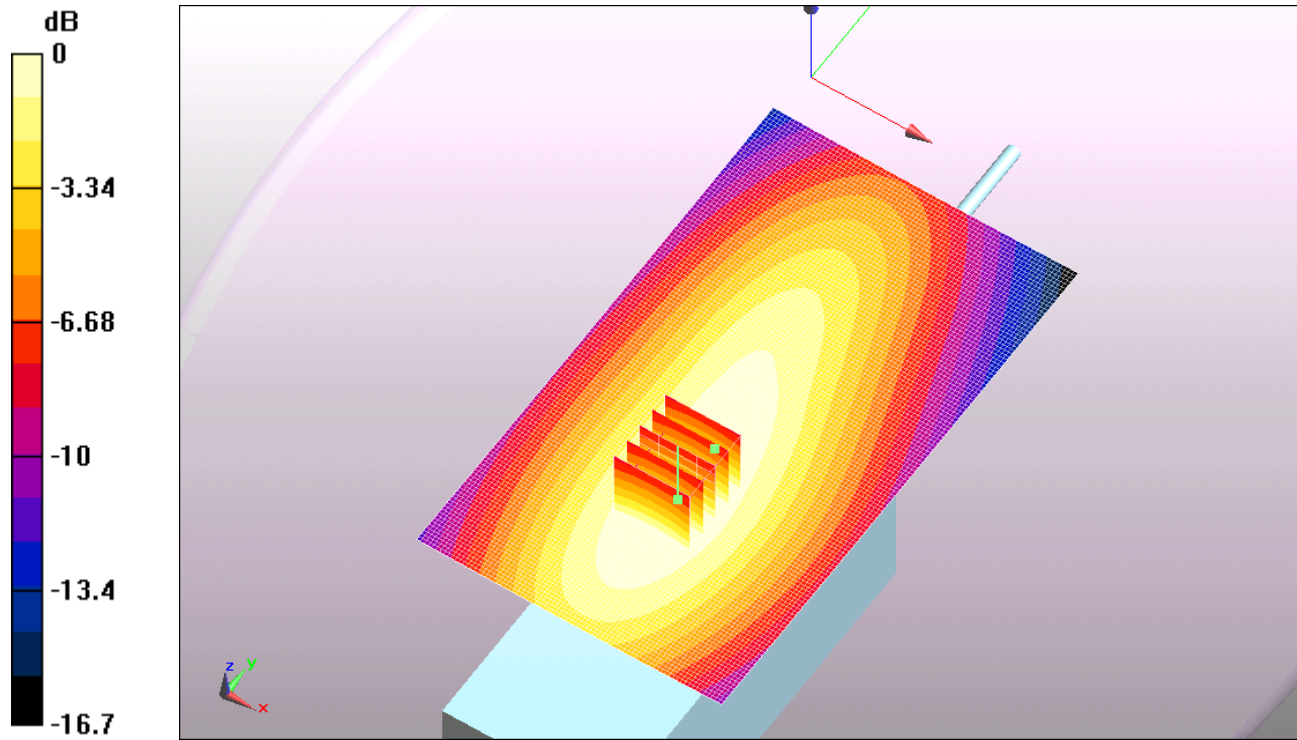
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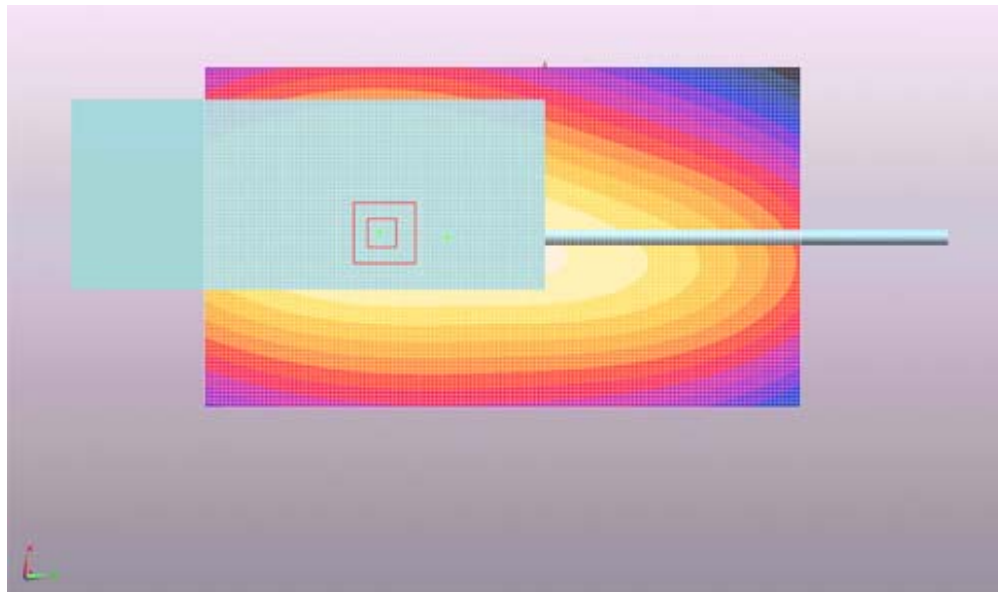
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0 dB = 7.59mW/g



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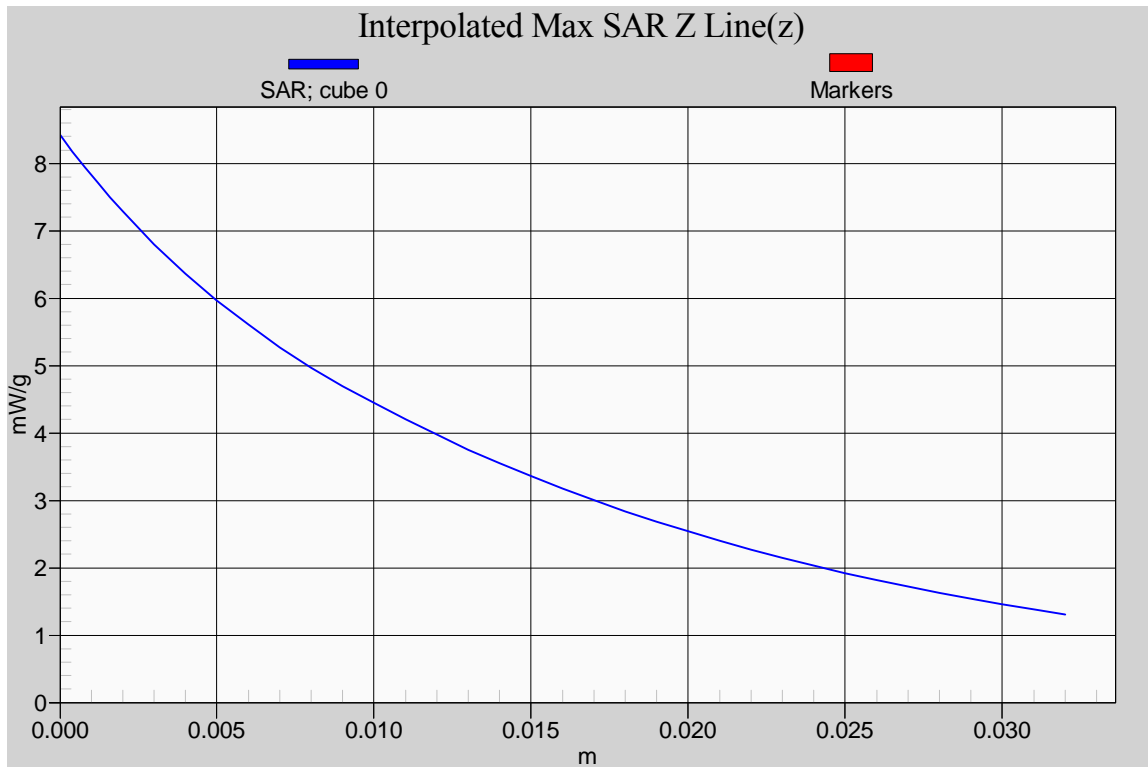
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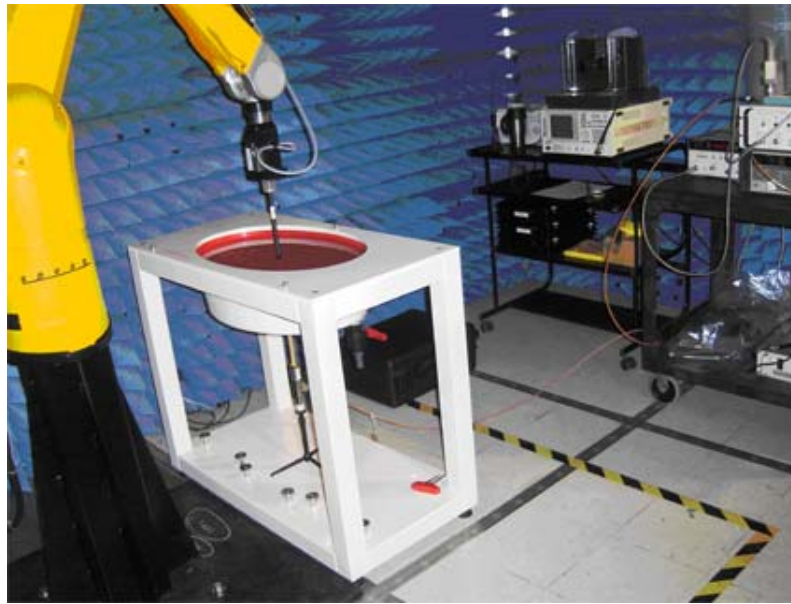
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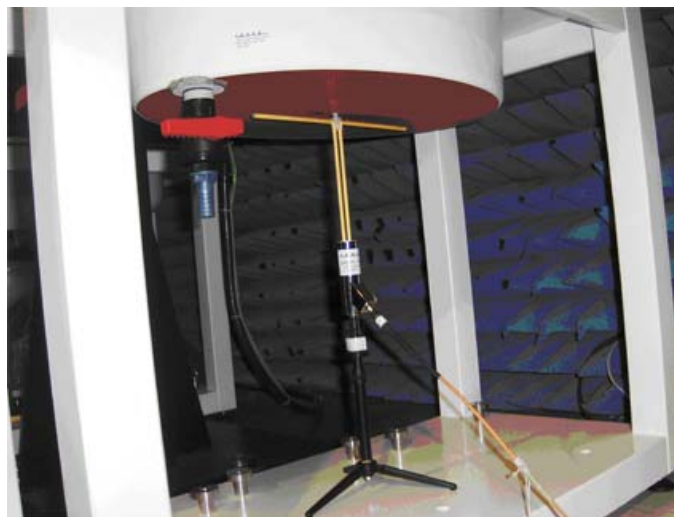
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## EXHIBIT 7. SAR MEASUREMENT SYSTEM VERIFICATION



### 7.1. STANDARD SOURCE

A half-wave dipole is positioned below the bottom of the phantom and centered with its axis parallel to the longest side of the phantom. The distance between the liquid filled phantom bottom surface and the center of the dipole axis,  $s$ , is chosen as specified IEEE 1528 at the specific test frequency (i.e. 15 mm at 835 MHz). A low loss and low dielectric constant spacer is used to establish the correct distance between the top surface of the dipole and the bottom surface of the phantom.



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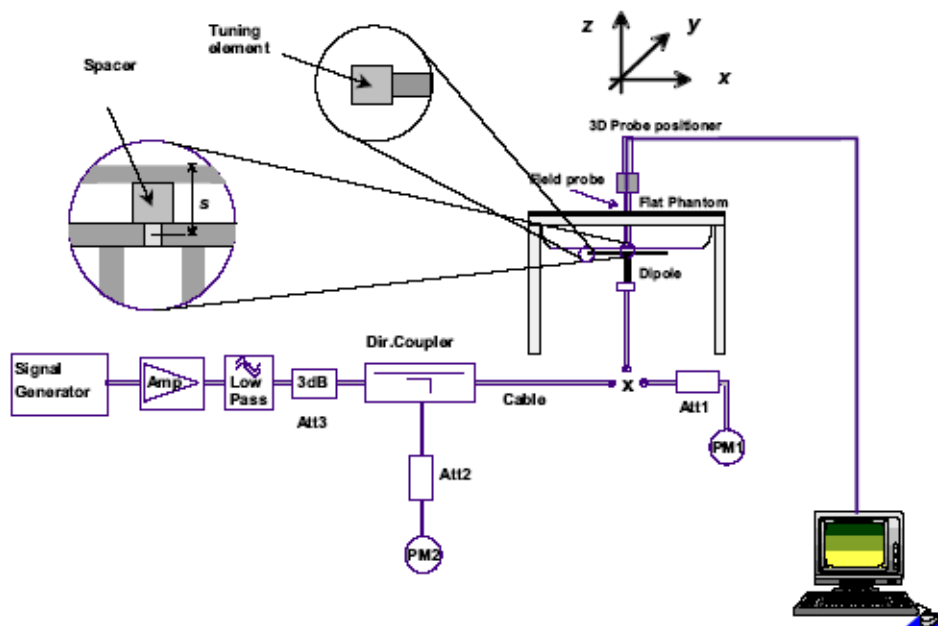
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## 7.2. STANDARD SOURCE INPUT POWER MEASUREMENT

The system validation is performed as shown below or in Figure 7.1 in IEEE 1528.



First the power meter PM1 (including attenuator Att1) is connected to the cable to measure the forward power at the location of the dipole connector (X). The signal generator is adjusted for the desired forward power at the dipole connector (taking into account the attenuation of Att1) as read by power meter PM2. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2. If the signal generator does not allow adjustment in 0.01dB steps, the remaining difference at PM2 must be taken into consideration. PM3 records the reflected power from the dipole to ensure that the value is not changed from the previous value. The reflected power was verified to be at least 20dB below the forward power.

## 7.3. SYSTEM VALIDATION PROCEDURE

A complete 1g-averaged SAR measurement is performed. The measured 1g-averaged SAR value is normalized to a forward power of 1W to a half-wave dipole and compared with the reference SAR value for the reference dipole and flat phantom shown in columns 2 and 3 of Table 7.1 in IEEE 1528.

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**7.4. VERIFICATION RESULT**

**7.4.1. Reference SAR values at 450 MHz\***

	Head Tissue	Body Tissue
Reference SAR <sub>1g</sub> [W/Kg]	4.58	4.69
Reference SAR <sub>peak</sub> [W/Kg]	6.75	6.82
Measured SAR <sub>1g</sub> [W/Kg]	4.48	4.52
Measured SAR <sub>peak</sub> [W/Kg]	6.80	7.08

\* SAR values in 7.4.1 are normalized to a forward power of 1 W.

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**7.4.2. Verification Data at 450 MHz****7.4.2.1. Verification for 450MHz Head Tissue:**

Test Laboratory: UltraTech Group of Labs.

**SystemPerformanceCheck-D450MHz\_Head**

**DUT: Dipole 450 MHz D450V3; Type: SA AAD 045 CA; Serial: 1063**

Communication System: CW; Frequency: 450 MHz

Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.867$  mho/m;  $\epsilon_r = 42.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASYS, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**System Verification Configuration for 450MHz Head/d=15mm, Pin=250mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 41.5 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 1.7 W/kg

**SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.743 mW/g**

Maximum value of SAR (measured) = 1.43 mW/g

**System Verification Configuration for 450MHz Head/d=15mm, Pin=250mW, dist=2.0mm (EX-Probe)/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.42 mW/g

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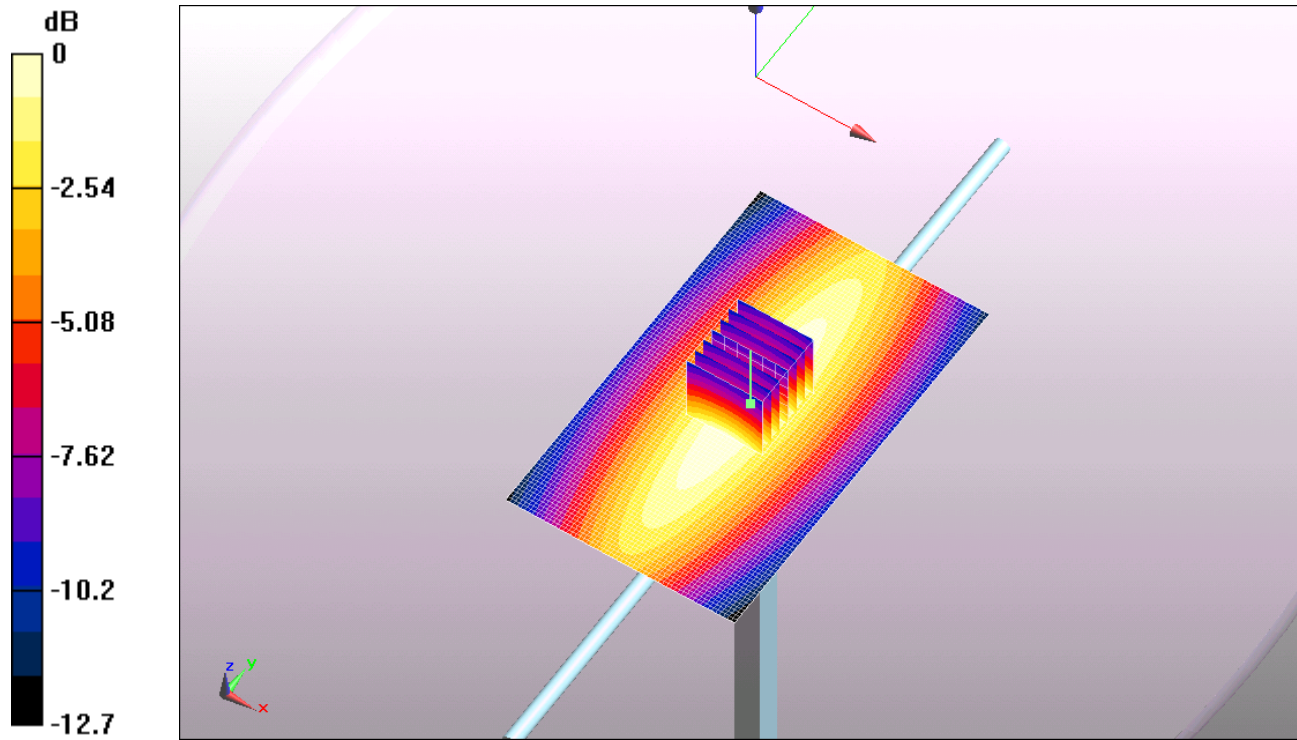
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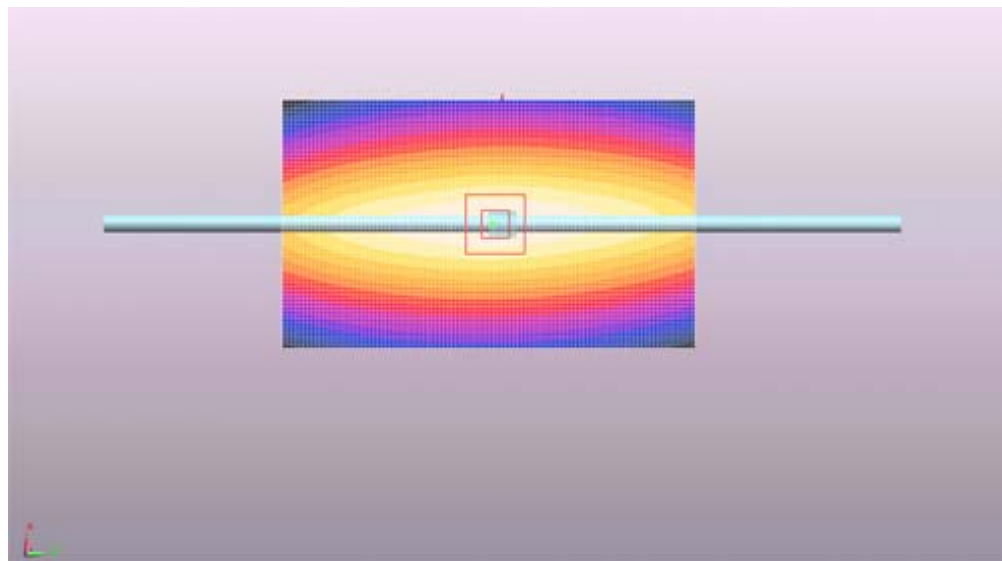
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0 dB = 1.42mW/g



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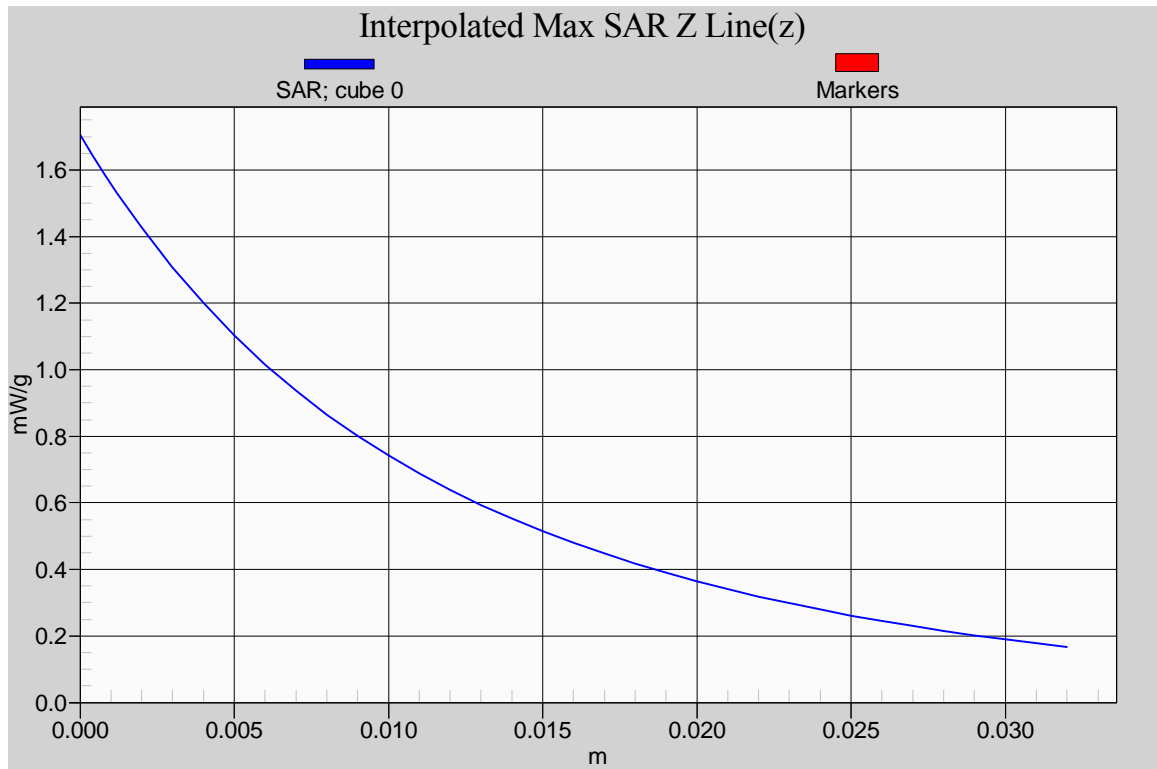
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**7.4.2.2. Verification for 450MHz Body Tissue:**

Test Laboratory: UltraTech Group of Labs.

**SystemPerformanceCheck-D450MHz\_Body****DUT: Dipole 450 MHz D450V3; Type: SA AAD 045 CA; Serial: 1063**

Communication System: CW; Frequency: 450 MHz

Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.942$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.8, 9.8, 9.8); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY52, V52.2 Build 0; SEMCAD X Version 14.0 Build 59

**System Verification Configuration for 450MHz Body/d=15mm, Pin=250mW, dist=2.0mm (EX-Probe)/Zoom Scan**

**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 39.5 V/m; Power Drift = -0.00726 dB

Peak SAR (extrapolated) = 1.77 W/kg

**SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.753 mW/g**

Maximum value of SAR (measured) = 1.45 mW/g

**System Verification Configuration for 450MHz Body/d=15mm, Pin=250mW, dist=2.0mm (EX-Probe)/Area Scan**

**(61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.45 mW/g

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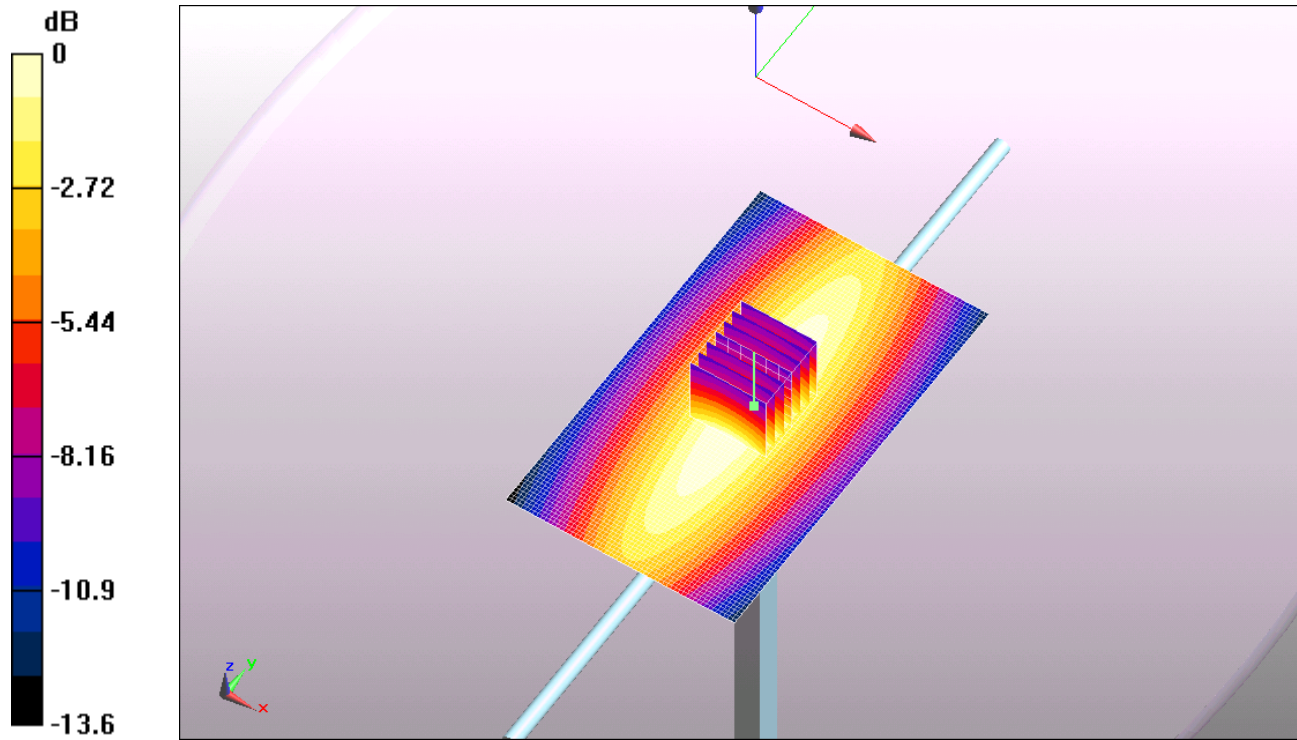
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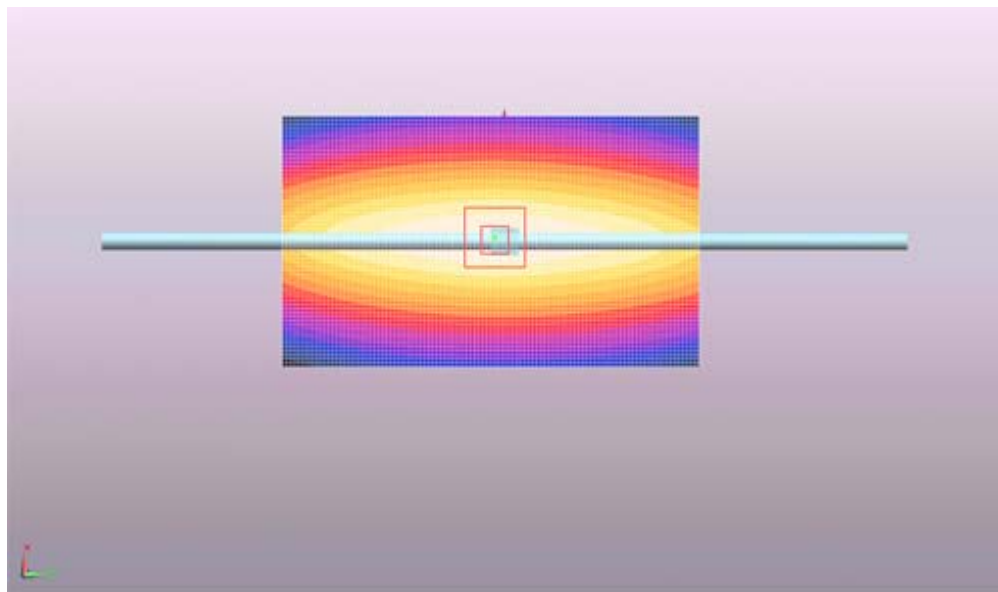
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0 dB = 1.45mW/g



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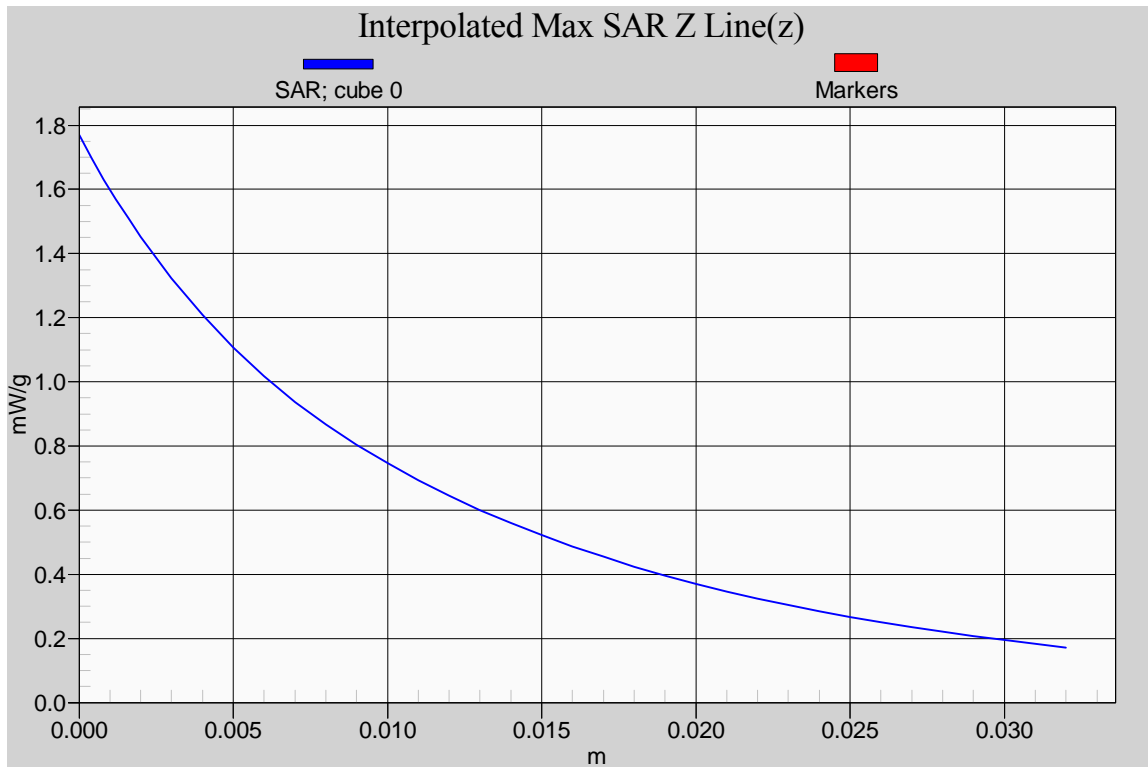
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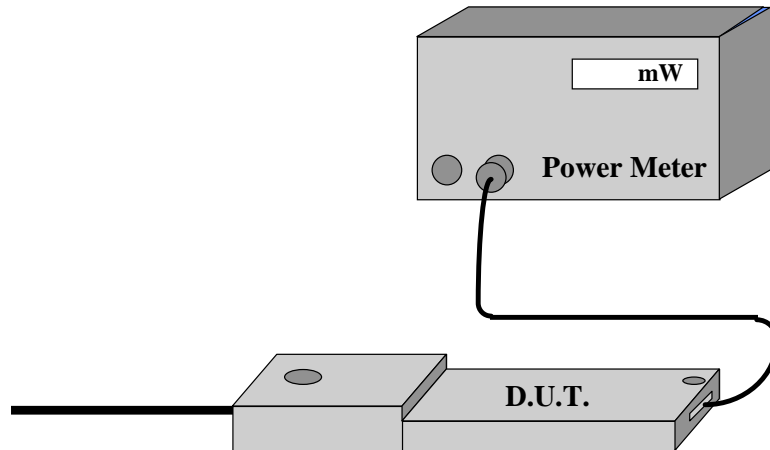
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## EXHIBIT 8. D.U.T. POWER MEASUREMENT

Whenever possible, a conducted power measurement is performed. To accomplish this, we utilize a fully charged battery, a calibrated power meter and a cable adapter provided by the manufacturer. The data of the cable and related circuit losses are also provided by the manufacturer. The power measurement is then performed across the operational band and the channel with the highest output power is recorded.



Power measurement is performed before and after the SAR to verify if the battery was delivering full power at the time of testing. A difference in output power would determine a need for battery replacement and to repeat the SAR test.

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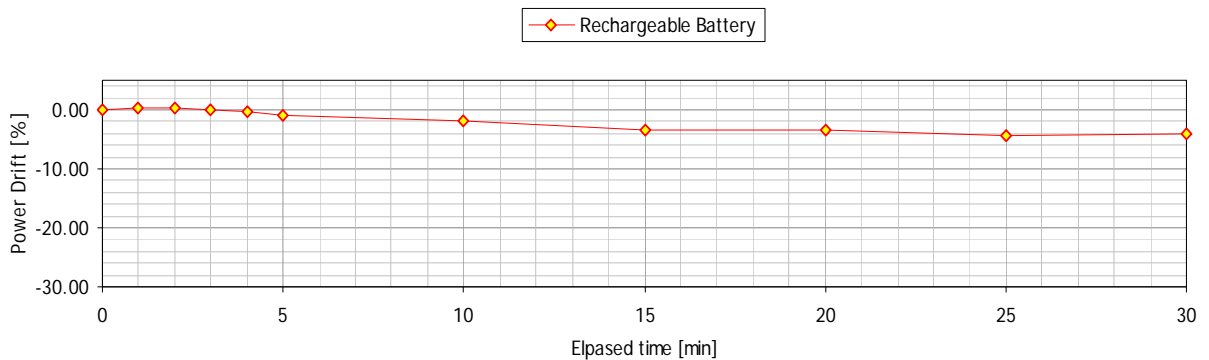
### 8.1. RF CONDUCTED OUTPUT POWER MEASUREMENT

Fundamental Frequency (MHz)	Measured RF output power conducted (W)
380	5.14
392.5	5.61
398	5.13
400	5.08
405	5.05
416	5.04
417.5	4.97
420	5.36
430	5.15
434	5.33
440	5.19
450	5.15
452	5.12
460	5.28
470	5.12

### 8.2. SAR DRIFT MEASUREMENT

The local SAR was measured at the arbitrary location in the vicinity of the antenna fed point in the simulated tissue at 450 MHz during the period of 30 minute for rechargeable Li-Ion battery pack.

The power (SAR) drift after 30 minutes of the continuous transmission at the maximum power level was found to be less than  $\pm 5\%$ .



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## EXHIBIT 9. TISSUE DIELECTRIC PARAMETER CALIBRATION

### 9.1. SIMULATED TISSUE

Simulated Tissue: Suggested in a paper by George Hartsgrove and colleagues in University of Ottawa Ref.: Bioelectromagnetics 8:29-36 (1987)

Ingredient	Quantity
Water	40.4 %
Sugar	56.0 %
Salt	2.5 %
HEC	1.0 %
Bactericide	0.1 %

**Table 9.1 Example of composition of simulated tissue**

This simulated tissue is mainly composed of water, sugar and salt. At higher frequencies, in order to achieve the proper conductivity, the solution does not contain salt. Also, at these frequencies, D.I. water and alcohol is preferred.

Target Frequency (MHz)	Head		Body	
	$\epsilon_r$	$\sigma$ (S/m)	$\epsilon_r$	$\sigma$ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

( $\epsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho = 1000 \text{ Kg/m}^3$ \*)

\* The actual mass density of the equivalent tissue varies based on the composition of the tissue from 990 Kg/m<sup>3</sup> to 1,300 Kg/m<sup>3</sup>.

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## 9.2. MEASUREMENT OF ELECTRICAL CHARACTERISTICS OF SIMULATED TISSUE

HP Dielectric Strength Probe System (open-ended coaxial transmission-line probe/sensor) was used.

### 9.2.1. Equipment set-up

The equipment consists of a probe connected to one port of a vector network analyzer. The probe is an open-ended coaxial line, as shown in Figure 9.2.1.1. Cylindrical coordinates ( $\rho$ ,  $\phi$ ,  $z$ ) are used where  $\rho$  is the radial distance from the axis,  $\phi$  is the angular displacement around the axis,  $z$  is the displacement along the axis,  $a$  is the inner conductor radius, and  $b$  is the outer conductor inner radius.

The sample holder is a non-metallic container that is large compared with the size of the probe immersed in it. A probe with an outer diameter  $b$  of 2 to 4 mm is suitable for the measurement of tissue-equivalent materials in the 300 MHz to 3 GHz frequency range. This probe size is commensurate with sample volumes of 50 cc or higher. Larger probes of up to 7 mm outer diameter  $b$  may be used with larger sample volumes. A flange is typically included to better represent the infinite ground-plane assumption used in admittance calculations.

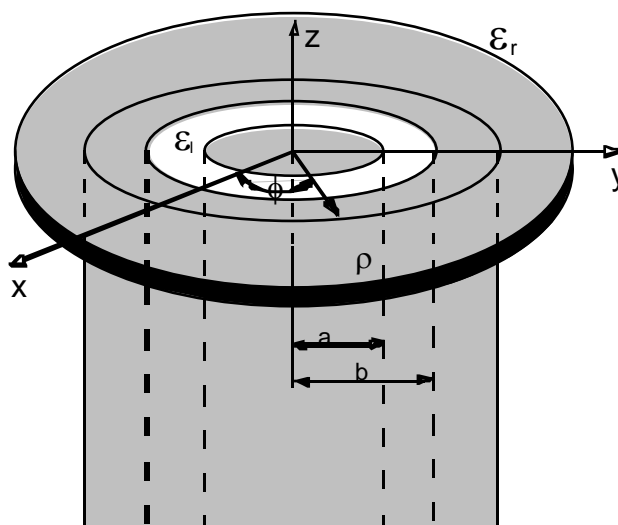


Figure 9.2.1. An open-ended coaxial probe with inner and outer radii  $a$  and  $b$ , respectively

The accuracy of the short-circuit measurement should be verified for each calibration at a number of frequencies. A short circuit can be achieved by gently pressing a piece of aluminum foil against the open end. For best electrical contact, the probe end should be flat and free of oxidation. Larger the sensors generally have better foil short-circuit repeatability. It is possible to obtain good contact with some commercial 4.6 mm probes using the metal-disk short-circuit supplied with the kit. For best repeatability, it may be necessary to press the disk by hand.

The network analyzer is configured to measure the magnitude and phase of the admittance. A one-port reflection calibration is performed at the plane of the probe by placing materials for which the reflection coefficient can be calculated in contact with the probe. Three standards are needed for the calibration, typically a short circuit, air, and de-ionized water at a well-defined temperature (other reference liquids such as methanol or ethanol may be used for calibration). The calibration is a key part of the measurement procedure, and it is therefore important to ensure that it

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has been performed correctly. It can be checked by re-measuring the short circuit to ensure that a reflection coefficient of  $\Gamma = -1.0$  (linear units) is obtained consistently.

### 9.2.2. *Measurement procedure*

- a) Configure and calibrate the network analyzer and probe system.
- b) Place the sample in a non-metallic container and immerse the probe. A fixture or clamp is recommended to stabilize the probe, mounted such that the probe face is at an angle with respect to the liquid surface to minimize trapped air bubbles beneath the flange.
- c) Measure the complex admittance with respect to the probe aperture.
- d) Compute the complex relative permittivity  $\epsilon_r = \epsilon'_r - j\sigma/\omega\epsilon_0$ .

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### 9.3. SIMULATED TISSUE MEASUREMENT RESULTS

<b>Tissue calibration type</b>	HP Dielectric Strength Probe System (M/N: 85070C)	
<b>Tissue calibration date</b> [MM/DD/YYYY]	05/06/2010	05/06/2010
<b>Tissue calibrated by</b>	Steven Lu	Steven Lu
<b>Room temperature</b> [°C]	23.2	23.2
<b>Room humidity</b> [%]	40	40
<b>Simulated tissue temperature</b> [°C]	23.2	23.2
<b>Tissue calibration frequency</b> [MHz]	450	450
<b>Tissue Type</b>	Brain	Muscle
<b>Target conductivity</b> [S/m]	0.87	0.94
<b>Target dielectric constant</b>	43.5	56.7
<b>Composition (by weight)</b> [%]	DI Water (38.56 %) Sugar (56.32 %) Salt (3.95 %) HEC (0.25 %) Bactericide (0.92 %)	DI Water (51.16 %) Sugar (46.78 %) Salt (1.49 %) HEC (0.13 %) Bactericide (0.44 %)
<b>Measured conductivity</b> [S/m]	0.87 (-0.3%)	0.94 (+0.2%)
<b>Measured dielectric constant</b>	42.3 (-2.8%)	55.9 (-1.4 %)
<b>Penetration depth (plane wave excitation)</b> [mm]	42.6	44.3

#### 9.3.1. 450 MHz Brain Tissue

Frequency [MHz]	Meas. after 5min			DI Water at 20°C			Init. Meas.		
	$\epsilon'$	$\epsilon''$	$\sigma$ [S/m]	$\epsilon'$	$\epsilon''$	$\sigma$ [S/m]	$\epsilon'$	$\epsilon''$	$\sigma$ [S/m]
415.000	43.1313	36.2583	0.84	78.9705	1.5553	0.04	42.9367	35.7408	0.83
450.000	42.2613	34.6396	0.87	78.9680	1.6430	0.04	42.1290	34.1351	0.85
485.000	41.5793	33.2852	0.90	79.0742	1.8057	0.05	41.4178	32.8214	0.89

#### 9.3.2. 450 MHz Muscle Tissue

Frequency [MHz]	Meas. after 5min			DI Water at 20°C			Init. Meas.		
	$\epsilon'$	$\epsilon''$	$\sigma$ [S/m]	$\epsilon'$	$\epsilon''$	$\sigma$ [S/m]	$\epsilon'$	$\epsilon''$	$\sigma$ [S/m]
415.000	56.5653	39.5650	0.91	78.9705	1.5553	0.04	56.6617	39.8051	0.92
450.000	55.9147	37.6113	0.94	78.9680	1.6430	0.04	56.0659	37.8880	0.95
485.000	55.4489	36.1011	0.97	79.0742	1.8057	0.05	55.5706	36.3353	0.98

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## EXHIBIT 10. SAR MEASUREMENT UNCERTAINTY

### 10.1. MEASUREMENT UNCERTAINTY EVALUATION FOR SAR TEST

Error Description	Uncertainty value	Prob. Dist.	Div.	(c <sub>i</sub> ) 1g	(c <sub>i</sub> ) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(vi) v <sub>eff</sub>
<b>Measurement System</b>								
Probe Calibration	±5.5 %	N	1	1	1	±5.5 %	±5.5 %	∞
Axial Isotropy	±4.7 %	R	√3	0.7	0.7	±1.9 %	±1.9 %	∞
Hemispherical Isotropy	±9.6 %	R	√3	0.7	0.7	±3.9 %	±3.9 %	∞
Boundary Effects	±1.0 %	R	√3	1	1	±0.6 %	±0.6 %	∞
Linearity	±4.7 %	R	√3	1	1	±2.7 %	±2.7 %	∞
System Detection Limits	±1.0 %	R	√3	1	1	±0.6 %	±0.6 %	∞
Readout Electronics	±0.3 %	R	√3	1	1	±0.3 %	±0.3 %	∞
Response Time	±0.8 %	N	1	1	1	±0.5 %	±0.5 %	∞
Integration Time	±2.6 %	R	√3	1	1	±1.5 %	±1.5 %	∞
RF Ambient Noise	±3.0 %	R	√3	1	1	±1.7 %	±1.7 %	∞
RF Ambient Reflections	±3.0 %	R	√3	1	1	±1.7 %	±1.7 %	∞
Probe Positioner	±0.4 %	R	√3	1	1	±0.2 %	±0.2 %	∞
Probe Positioning	±2.9 %	R	√3	1	1	±1.7 %	±1.7 %	∞
Max. SAR Eval.	±1.0 %	R	√3	1	1	±0.6 %	±0.6 %	∞
<b>Test Sample Related</b>								
Device Positioning	±2.9 %	N	1	1	1	±2.9 %	±2.9 %	145
Device Holder	±3.6 %	N	1	1	1	±3.6 %	±3.6 %	5
Power Drift	±5.0 %	R	√3	1	1	±2.9 %	±2.9 %	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty	±4.0 %	R	√3	1	1	±2.3 %	±2.3 %	∞
Liquid Conductivity (target)	±5.0 %	R	√3	0.64	0.43	±1.8 %	±1.2 %	∞
Liquid Conductivity (meas.)	±2.5 %	N	1	0.64	0.43	±1.6 %	±1.1 %	∞
Liquid Permittivity (target)	±5.0 %	R	√3	0.6	0.49	±1.7 %	±1.4 %	∞
Liquid Permittivity (meas.)	±2.5 %	N	1	0.6	0.49	±1.5 %	±1.2 %	∞
Combined Std. Uncertainty						±10.7 %	±10.5 %	387
<b>Expanded STD Uncertainty</b>						<b>±21.5 %</b>	<b>±21.0 %</b>	

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## EXHIBIT 11. ADDITIONAL TEST INSTRUMENTS LIST

Name	Type	Serial Number (SN)	Calibration Date (or Due Date)
Synchronized Microwave Sweeper	GT9000S	91026	Due Date: Oct. 19, 2010
Dipole Antenna	D450V3	1063	Feb. 02, 2009
Power Meter (HP)	HP 436A HP 436A	2016A07747 2709A27515	Due Date: Oct. 22, 2010 Due Date: Aug. 10, 2010
Directional Coupler (narda)	Model 3020A	35482	N/A
Spectrum Analyzer (ADVANTEST)	R3271	15050203	Due Date: Feb. 09, 2011
Network Analyzer (HP)	8753D	3410J02042	Due Date: June 27, 2011
RF Amplifier (KALMUS)	Model 720FC	062293-5	N/A

## EXHIBIT 12. PROBE CALIBRATION CERTIFICATE

See Appendix 1.

## EXHIBIT 13. VALIDATION DIPOLE CALIBRATION CERTIFICATE

See Appendix 2.

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