Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.4 Ω - 10.4 jΩ
Return Loss	- 19.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.995 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 18, 2002

DASY4 Validation Report for Head TSL

Date/Time: 26.10.2005 13:50:47

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 450 MHz; Type: D450V2; Serial: D450V2 - SN:1010

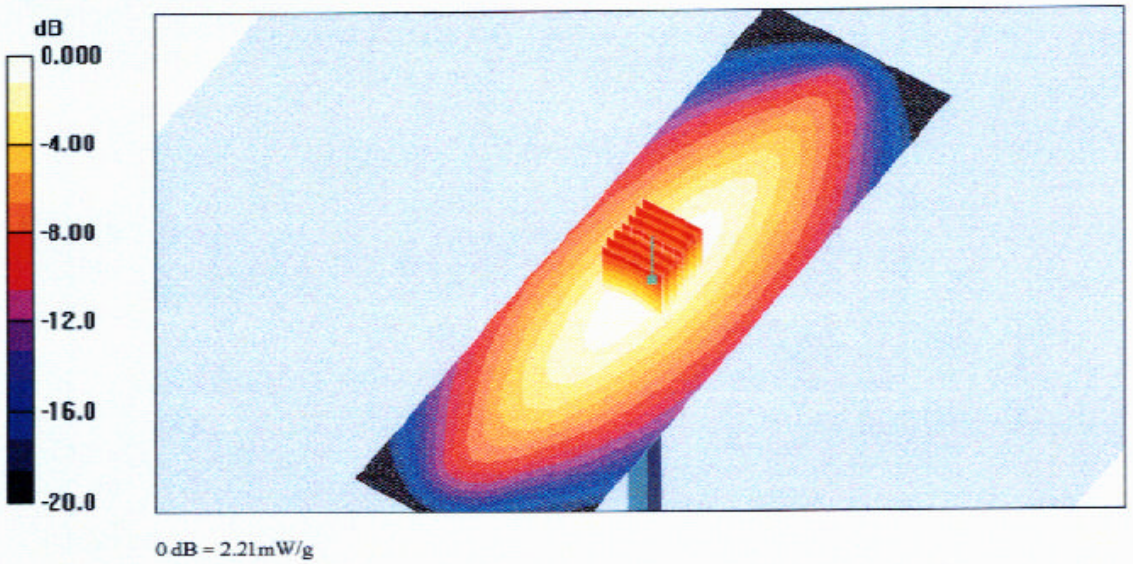
Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1
Medium: HSL450;
Medium parameters used: f = 450 MHz; σ = 0.86 mho/m; ε_r = 44.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (LF); ConvF (6.59, 6.59, 6.59); Calibrated: 11.07.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 4.4; Type: Flat Phantom 4.4
- Measurement SW: DASY4, V4.6 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 159

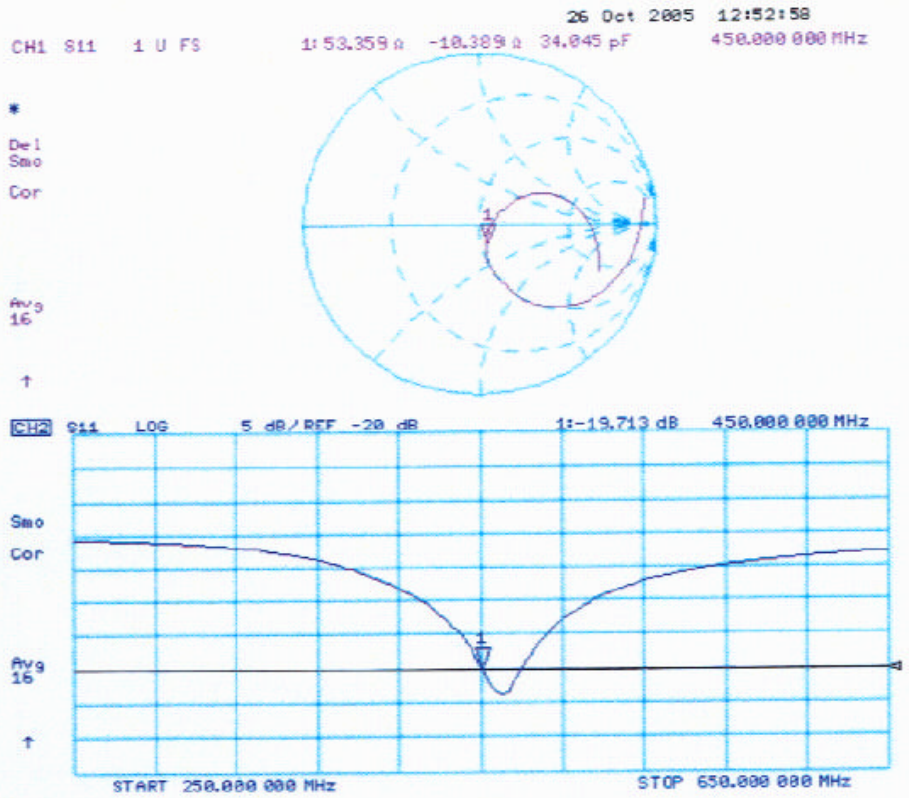
d=15mm, Pin=398mW/Area Scan (61x201x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.18 mW/g

d=15mm, Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.8 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 2.04 mW/g; SAR(10 g) = 1.37 mW/g
Maximum value of SAR (measured) = 2.21 mW/g



0 dB = 2.21mW/g

Impedance Measurement Plot for Head TSL



APPENDIX D - TEST SYSTEM VERIFICATIONS SCANS

Liquid Measurement Result

2006-08-21

Simulant	Freq [MHz]	Parameters	Liquid Temp [°C]	Target Value	Measured Value	Deviation [%]	Limits [%]
Body	450	ε_r	22.0	56.7	56.5	-0.35	±5
		σ	22.0	0.94	0.935	-0.53	±5
		1g SAR	22.0	4.874	4.866	-0.16	± 10
Head	450	ε_r	22.0	43.5	43.3	-0.46	±5
		σ	22.0	0.87	0.85	-2.35	±5
		1g SAR	22.0	4.9	4.83	-1.45	± 10

ε_r = relative permittivity, σ = conductivity and $\rho = 1000 kg/m^3$

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

System Validation for Head

DUT: Dipole 450 MHz; Type: D450V2; Serial: D450V2 - SN: 1010

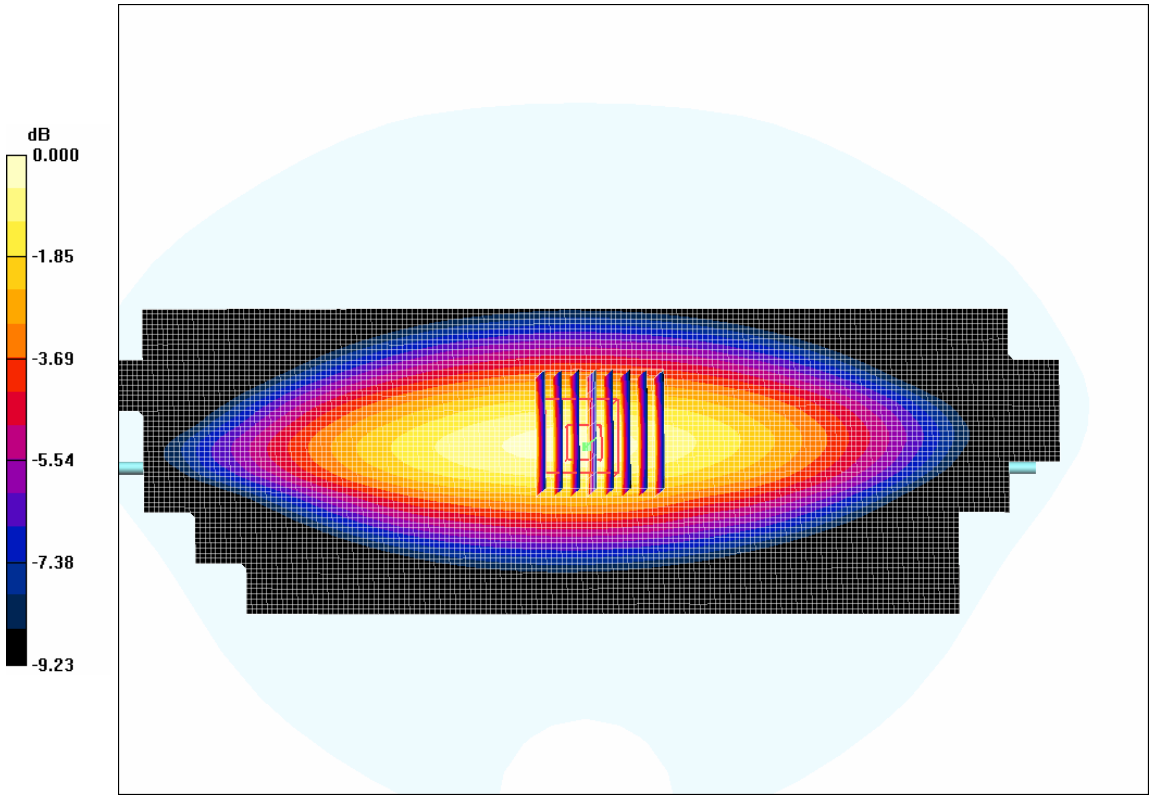
Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; s = 0.85 mho/m; e$_r$ = 43.3; ? = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(7.14, 7.14, 7.14); Calibrated: 5/2/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 10/18/2005
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

d=15mm, Pin=1W/Area Scan (61x201x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.92 mW/g

d=15mm, Pin=1W/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 62.4 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 4.95 W/kg
SAR(1 g) = 4.83 mW/g; SAR(10 g) = 3.22 mW/g
Maximum value of SAR (measured) = 4.88 mW/g



0 dB = 4.88mW/g

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

System Validation for Body

DUT: Dipole 450 MHz; Type: D450V2; Serial: D450V2 - SN: 1010

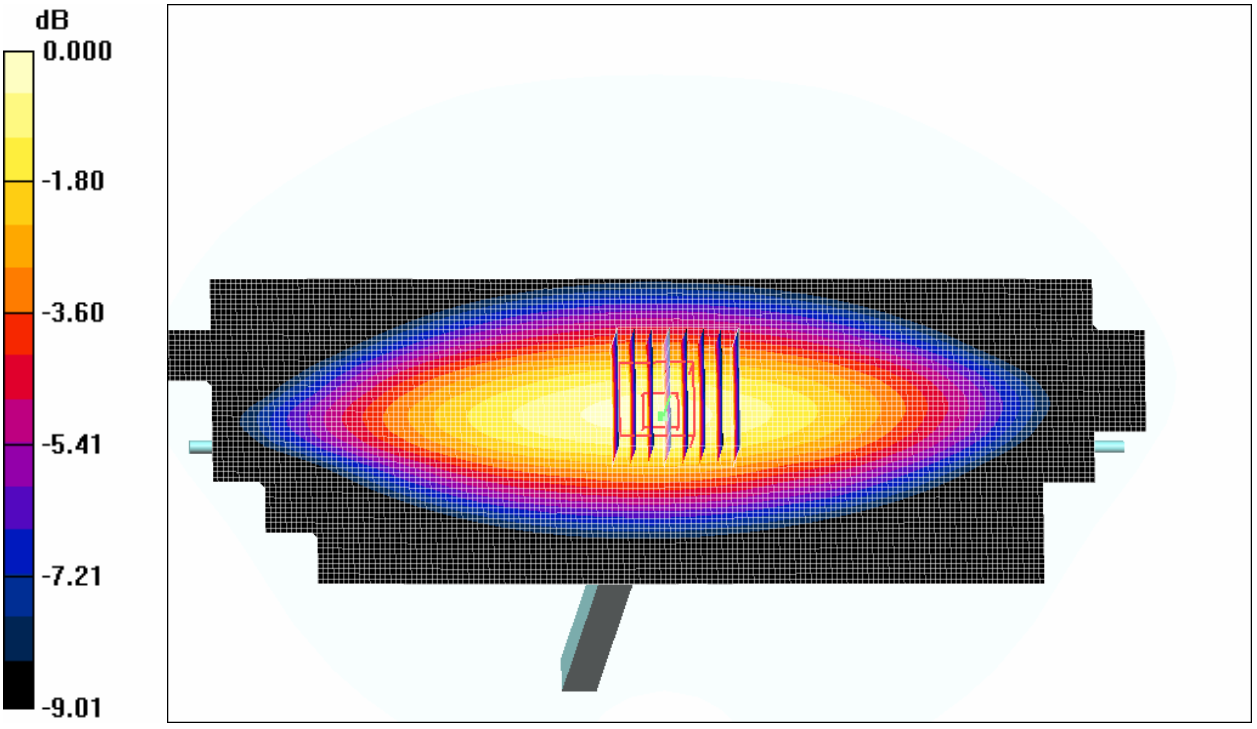
Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; s = 0.935 mho/m; e_r = 56.5; ? = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(7.42, 7.42, 7.42); Calibrated: 5/2/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 10/18/2005
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

d=15mm, Pin=1W/Area Scan (61x201x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.96 mW/g

d=15mm, Pin=1W/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.7 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 4.60 W/kg
SAR(1 g) = 4.866 mW/g; SAR(10 g) = 3.79 mW/g
Maximum value of SAR (measured) = 4.91 mW/g



0 dB = 4.91mW/g

APPENDIX E - EUT SCANS

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

HYT, Body worn with belt clip and headset

DUT: Walki Talki; Type: TC-700U7; Serial: 6927404370130

Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; s = 0.935 mho/m; e_r = 56.5; ? = 1000 kg/m^3
Phantom section: Flat Section

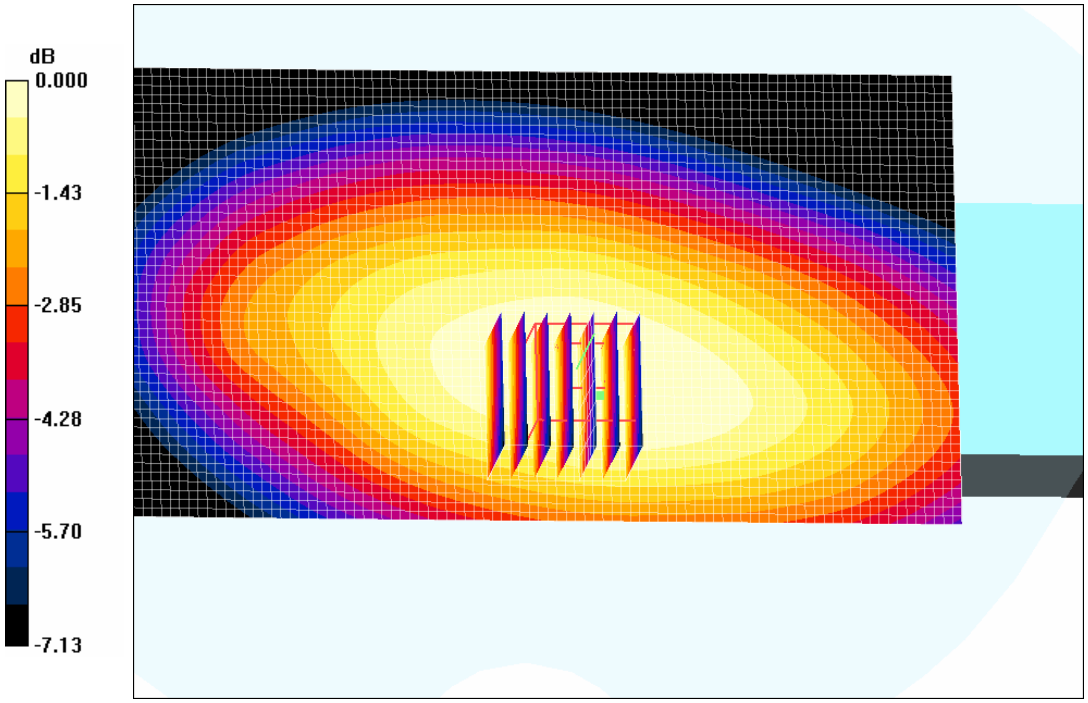
DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(7.42, 7.42, 7.42); Calibrated: 5/2/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 10/18/2005
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Body worn position with belt clip with headset/Area Scan (51x101x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 4.01 mW/g

Body worn position with belt clip with headset/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 72.4 V/m; Power Drift = 0.06dB
Peak SAR (extrapolated) = 3.93 W/kg
SAR(1 g) = 3.82 mW/g; SAR(10 g) = 2.34 mW/g

Maximum value of SAR (measured) = 3.98 mW/g



0 dB = 3.98mW/g

Plot #1

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

HYT, Face position 2.5cm separation to flat phantom

DUT: Walki Talki; Type: TC-700U7; Serial: 6927404370130

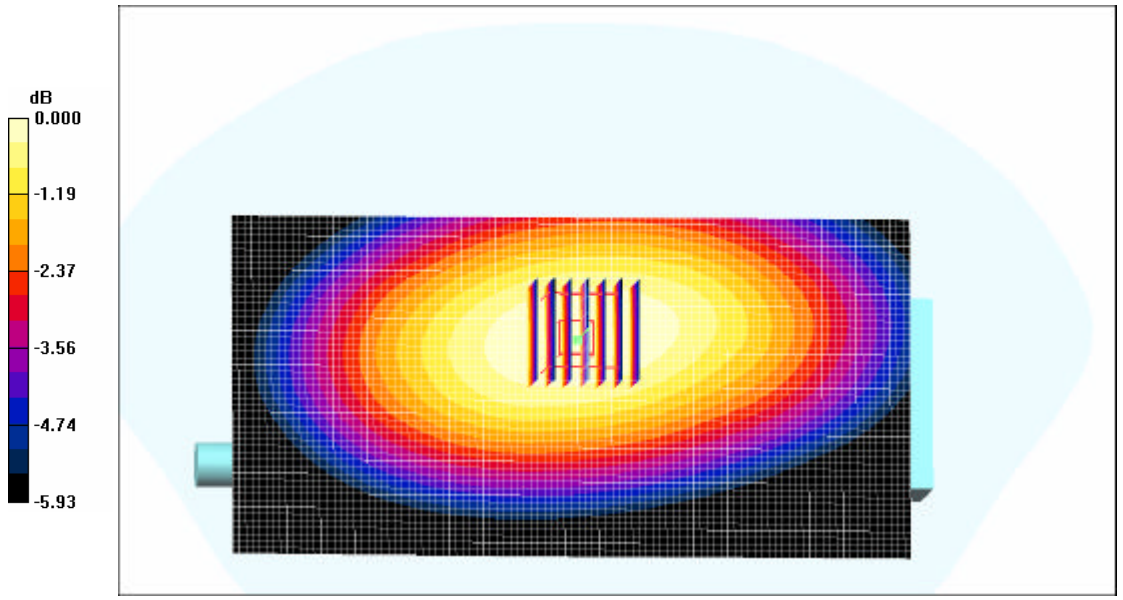
Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 450 MHz; s = 0.85 mho/m; e$_r$ = 43.3; ? = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET 3DV6 - SN1604; ConvF(7.14, 7.14, 7.14); Calibrated: 5/2/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 10/18/2005
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

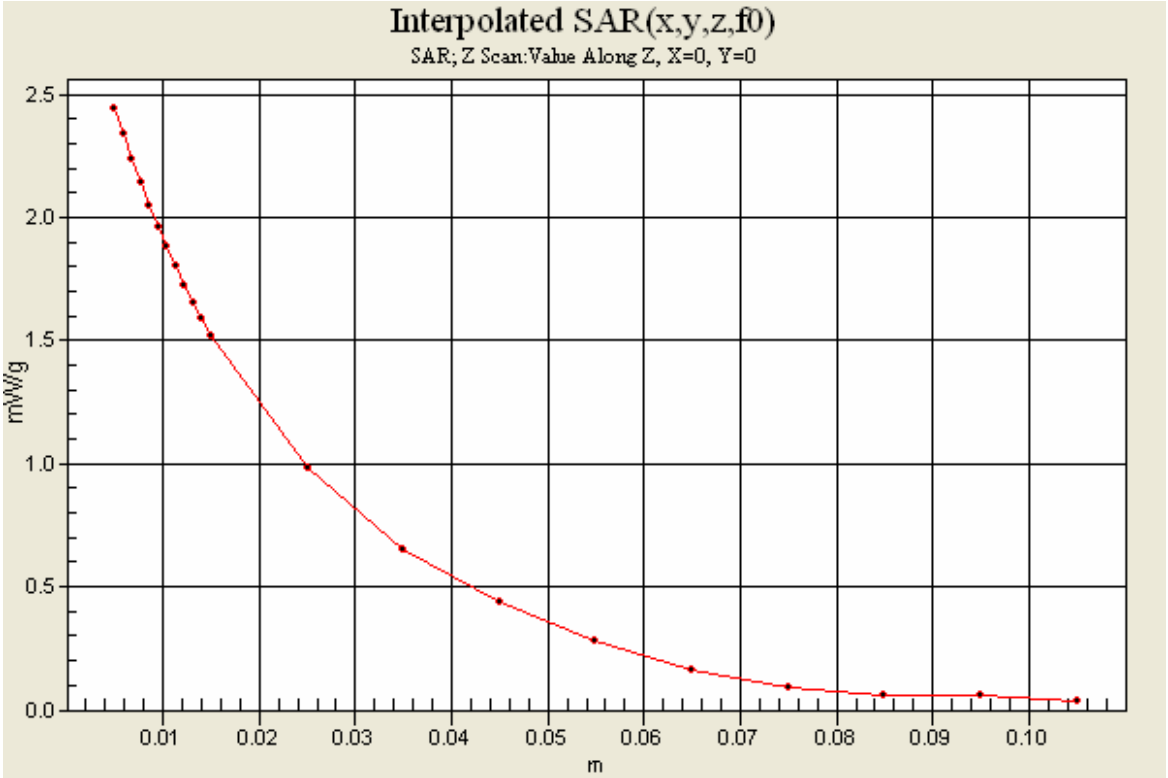
Face position 2.5cm separation to flat phantom/Area Scan (51x101x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 2.56 mW/g

Face position 2.5cm separation to flat phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 68.8 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 2.56 W/kg
SAR(1 g) = 2.24 mW/g; SAR(10 g) = 1.12 mW/g
Maximum value of SAR (measured) = 2.48 mW/g



0 dB = 3.48mW/g

Plot#2


Interpolated SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
m
2.5
2.0
1.5
1.0
0.5
0.0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.10

Z-Axis

APPENDIX F – CONDUCTED OUTPUT POWER MEASUREMENT

Provision Applicable

The measured peak output power should be greater and within 5% than EMI measurement.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Test equipment

Hewlett Packard HP8565E Spectrum Analyzer, Calibration Due Date: 2007-01-11

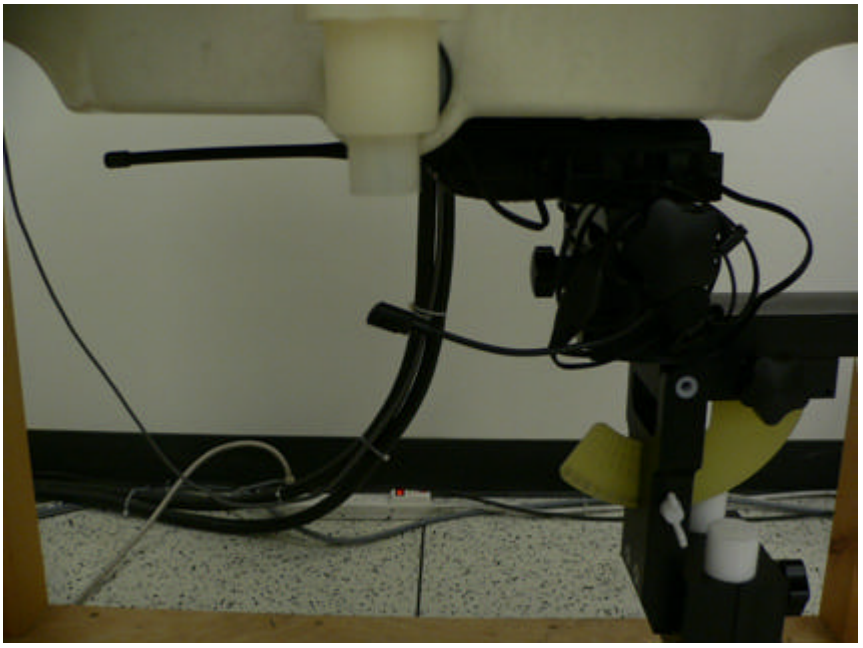
Test Results

Frequency (MHz)	Output Power in dBm	Output Power in Watts
435.975	36.19	4.159

APPENDIX G – EUT TEST POSITION PHOTOS

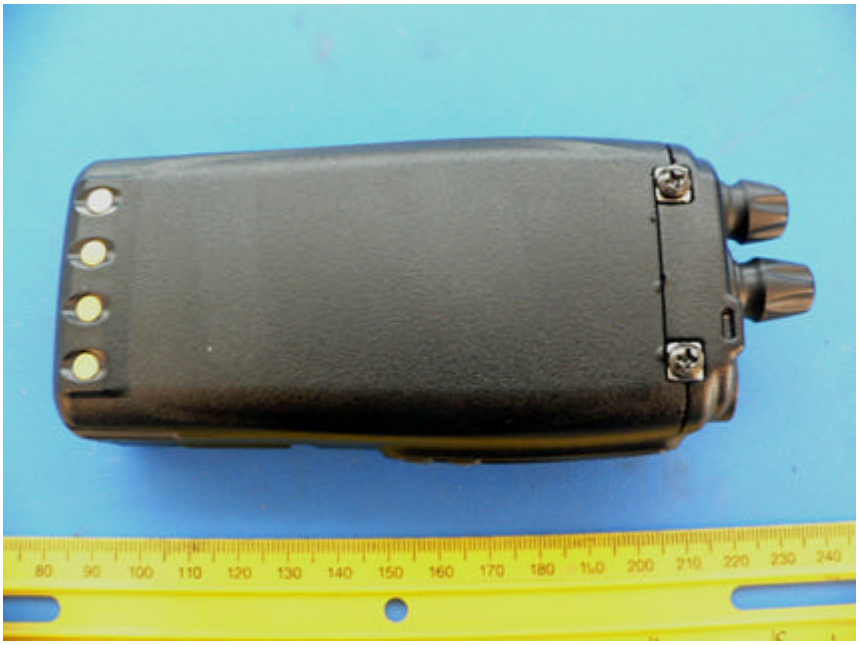
Face 2.5 cm separation to flat phantom

Body Worn with belt clip and accessory



EUT Front View

EUT Review View



EUT – Antenna

EUT – Accessory (headset)

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END OF REPORT