CERTIFICATE OF COMPLIANCE
SAR EVALUATION

Test Lab:	Applicant Information:
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FCC Rule Part(s):	**2.1093; ET Docket 96-326**
FCC ID:	**K66VXA-150**
Model(s):	**VXA-150**
EUT Type:	**Portable PTT Air Band Radio Transceiver**
Modulation:	**AM**
Tx Frequency Range:	**118.000 - 136.975 MHz**
Conducted Power Tested:	**1.55 W (118.000 MHz)**
	1.53 W (127.500 MHz)
	1.43 W (136.975 MHz)
IC Rule Part(s):	**RSS-102 Issue 1**

This wireless portable device has been shown to be compliant for localized Specific Absorption Rate (SAR) for controlled environment/occupational exposure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in ANSI/IEEE Std. C95.3-1999.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Celltech Research Inc. certifies that no party to this application has been denied FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

Shawn McMillen
General Manager
Celltech Research Inc.

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1.0 INTRODUCTION

This measurement report shows compliance of the VERTEX STANDARD CO., LTD. Model: VXA-150 Portable Air Band PTT AM Radio Transceiver FCC ID: K66VXA-150 with the regulations and procedures specified in FCC Part 2.1093, ET Docket 96-326 Rules (controlled exposure), and RSS-102 Issue 1 of Industry Canada for mobile and portable devices. The test procedures, as described in American National Standards Institute C95.1-1992 (1), FCC OET Bulletin 65, Supplement C (Edition 01-01) were employed. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 DESCRIPTION of Equipment Under Test (EUT)

Rule Part(s)	FCC 2.1093 ET Docket 96.326 IC RSS-102 Issue 1	**Modulation**	AM
EUT Type	Portable Air Band PTT Radio Transceiver	**Tx Frequency Range (MHz)**	118.000 - 136.975
FCC ID	K66VXA-150	**Conducted Power Tested**	1.55 W (118.000 MHz) 1.53 W (127.500 MHz) 1.43 W (136.975 MHz)
Model No.(s)	VXA-150	**Antenna Type(s)**	Helical Whip
Serial No.	Pre-production	**Power Supply**	Ni-Cd Battery (DC 7.2V 700mAh)

Front of EUT

Right Side of EUT

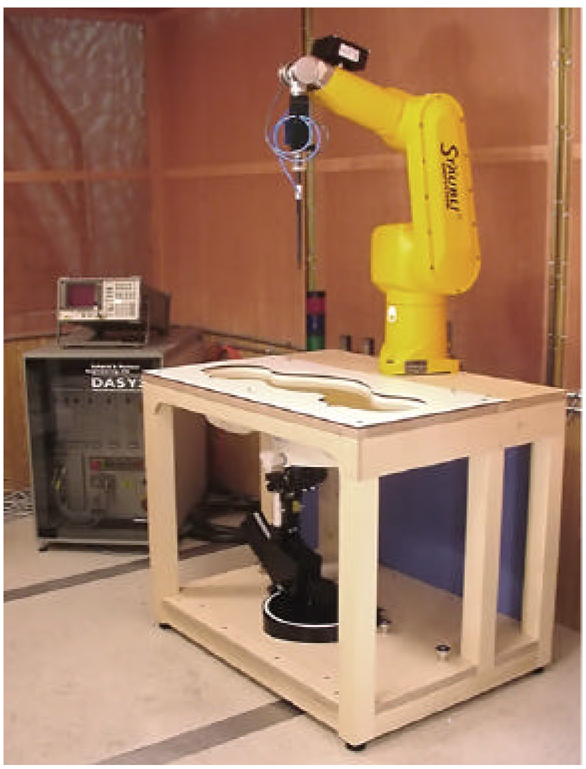
Left Side of EUT

Back of EUT

EUT with Spkr/Mic

3.0 SAR MEASUREMENT SYSTEM

Celltech Research SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or body equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.



DASY3 SAR Measurement System with SAM phantom

4.0 SAR MEASUREMENT SUMMARY

The measurement results were obtained with the EUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the EUT are reported in Appendix A.

Face-Held SAR Measurements

Freq. (MHz)	Channel	Mode	Conducted Power (W)	Antenna Position	Separation Distance (cm)	SAR (w/kg)	
						100% Duty Cycle	50% Duty Cycle
118.000	Low	CW	1.55	Fixed	2.5	0.0753	0.0377
127.500	Mid	CW	1.53	Fixed	2.5	0.917	0.459
136.975	High	CW	1.43	Fixed	2.5	0.134	0.067
Mixture Type: Brain Dielectric Constant: 52.3 Conductivity: 0.76			**ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Controlled Exposure/Occupational BRAIN: 8.0 W/kg (averaged over 1 gram)**				

Notes:

1. The SAR values found were below the maximum limit of 8.0 w/kg (controlled exposure).
2. The highest face-held SAR value found was 0.917 w/kg (100% duty cycle).
3. The EUT was tested for face-held SAR with a 2.5 cm separation distance between the front of the EUT and the outer surface of the planar phantom.
4. Ambient TEMPERATURE: 23.0 °C
   Relative HUMIDITY: 57.4 %
   Atmospheric PRESSURE: 100.4 kPa

Face-held SAR Test Setup
2.5cm Separation Distance

Body-Worn SAR Measurements

Freq. (MHz)	Channel	Mode	Conducted Power (W)	Antenna Position	Belt-Clip Separation Distance (cm)	SAR (w/kg)	
						100% Duty Cycle	50% Duty Cycle
118.000	Low	CW	1.55	Fixed	1.4	3.24	1.62
127.500	Mid	CW	1.53	Fixed	1.4	0.487	0.244
136.975	High	CW	1.43	Fixed	1.4	0.144	0.072
Mixture Type: Body Dielectric Constant: 61.9 Conductivity: 0.80			ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Controlled Exposure/Occupational BODY: 8.0 W/kg (averaged over 1 gram)				

Notes:

1. The SAR values found were below the maximum limit of 8.0 w/kg (controlled exposure).
2. The highest body-worn SAR value found was 3.24 w/kg (100% duty cycle).
3. The EUT was tested for body-worn SAR with the attached belt-clip providing a 1.4cm separation distance between the back of the EUT and the outer surface of the planar phantom.
4. Ambient TEMPERATURE: 23.0 °C
   Relative HUMIDITY: 57.4 %
   Atmospheric PRESSURE: 100.4 kPa

Body-worn SAR Test Setup
with 1.4cm Belt-Clip

5.0 DETAILS OF SAR EVALUATION

The VERTEX STANDARD CO., LTD. Model: VXA-150 Portable Air Band PTT AM Radio Transceiver was found to be compliant for localized Specific Absorption Rate (Controlled Exposure) based on the following test provisions and conditions:

1. The EUT was tested in a face-held configuration with the front of the device placed parallel to the outer surface of the planar phantom and with a 2.5cm separation distance.
2. The EUT was tested in a body-worn configuration with the attached belt-clip touching the outer surface of the planar phantom and providing a 1.4cm separation distance between the back of the EUT and the outer surface of the planar phantom.
3. The EUT was evaluated for SAR at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimize drift. The conducted power levels were checked before and after each test.
4. The conducted power was measured according to the procedures described in FCC Part 2.1046.
5. The device was operated continuously in the transmit mode for the duration of the test.
6. The location of the maximum spatial SAR distribution (Hot Spot) was determined relative to the device and its antenna.
7. The EUT was tested with a fully charged battery.

6.0 EVALUATION PROCEDURES

The Specific Absorption Rate (SAR) evaluation was performed in the following manner:

a. (i) The evaluation was performed in the applicable area of the phantom depending on the type of device being tested. For devices held to the ear during normal operation, both the left and right ear positions were evaluated in accordance with FCC OET Bulletin 65, Supplement C (Edition 01-01).

(ii) For body-worn and face-held devices the planar section of the phantom was used.

b. The SAR was determined by a pre-defined procedure within the DASY3 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm.

c. For frequencies below 500MHz a 4x4x7 matrix was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. For frequencies above 500MHz a 5x5x7 matrix was performed. SAR values were then calculated using a 3-D spline interpolation algorithm and averaged over spatial volumes of 1 and 10 grams.

d. If the EUT had any appreciable drift over the course of the evaluation, then the EUT was re-evaluated. Any unusual anomalies over the course of the test also warranted a re-evaluation.

7.0 SAR SAFETY LIMITS

EXPOSURE LIMITS	SAR (W/Kg)	
	(General Population / Uncontrolled Exposure Environment)	**(Occupational / Controlled Exposure Environment)**
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1g of tissue)	1.60	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10g)	4.0	20.0

Notes:

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.

2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

8.0 SYSTEM VALIDATION

Prior to the assessment, the system was verified in the planar section of the phantom with a 900MHz dipole for devices operating below 1GHz, and an 1800MHz dipole for devices operating above 1GHz. A forward power of 250mW was applied to the dipole and system was verified to a tolerance of $\pm$10%. The applicable verifications are as follows (see Appendix B for validation test plot):

Dipole Validation Kit	Target SAR 1g (w/kg)	Measured SAR 1g (w/kg)
D900V2	2.78	2.75

9.0 SIMULATED TISSUES

The brain and body mixtures consist of a viscous gel using hydroxethylcellulose (HEC) gelling agent and saline solution. Preservation with a bactericide is added and visual inspection is made to ensure air bubbles are not trapped during the mixing process. The fluid was prepared according to standardized procedures and measured for dielectric parameters (permitivity and conductivity).

INGREDIENT	**MIXTURE %**		
	900MHz Brain (Validation)	**150MHz Brain**	**150MHz Body**
Water	51.07	38.35	46.6
Sugar	47.31	55.5	49.7
Salt	1.15	5.15	2.6
HEC	0.23	1.0	1.0
Bactericide	0.24	0.1	0.1

10.0 TISSUE PARAMETERS

The dielectric parameters of the fluids were verified prior to the SAR evaluation using an 85070C Dielectric Probe Kit and an 8753E Network Analyzer. The dielectric parameters of the fluid are as follows:

Equivalent Tissue	**Dielectric Constant** e_r	**Conductivity s (mho/m)**	**r (Kg/m^3)**
Brain (900MHz Validation)	42.4 ± 5%	0.97 ± 5%	1000
Brain (150MHz)	52.3 ± 5%	0.76 ± 5%	1000
Body (150MHz)	61.9 ± 5%	0.80 ± 5%	1000

11.0 ROBOT SYSTEM SPECIFICATIONS

Specifications

POSITIONER:	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability:	0.02 mm
No. of axis:	6

Data Acquisition Electronic (DAE) System

Cell Controller	
Processor:	Pentium III
Clock Speed:	450 MHz
Operating System:	Windows NT
Data Card:	DASY3 PC-Board
Data Converter	
Features:	Signal Amplifier, multiplexer, A/D converter, and control logic
Software:	DASY3 software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock

PC Interface Card

Function:	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 bit A/D converter for surface detection system serial link to robot direct emergency stop output for robot

E-Field Probe

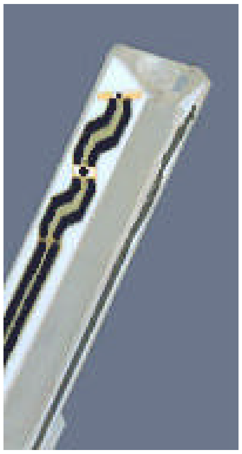
Model:	ET3DV6
Serial No.:	1590
Construction:	Triangular core fiber optic detection system
Frequency:	10 MHz to 6 GHz
Linearity:	± 0.2 dB (30 MHz to 3 GHz)

Phantom

Type:	SAM V4.0C
Shell Material:	Fiberglass
Thickness:	2.0 ± 0.1 mm
Volume:	Approx. 20 liters

12.0 PROBE SPECIFICATION (ET3DV6)

Construction: Symmetrical design with triangular core
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g. glycol)
Calibration: In air from 10 MHz to 2.5 GHz
In brain simulating tissue at frequencies of 900 MHz
and 1.8 GHz (accuracy ± 8%)
Frequency: 10 MHz to > 6 GHz; Linearity: ± 0.2 dB
(30 MHz to 3 GHz)
Directivity: ± 0.2 dB in brain tissue (rotation around probe axis)
± 0.4 dB in brain tissue (rotation normal to probe axis)
Dynam. Rnge: 5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Srfce. Detect. ± 0.2 mm repeatability in air and clear liquids over
diffuse reflecting surfaces
Dimensions: Overall length: 330 mm
Tip length: 16 mm
Body diameter: 12 mm
Tip diameter: 6.8 mm
Distance from probe tip to dipole centers: 2.7 mm
Application: General dosimetry up to 3 GHz
Compliance tests of mobile phone


ET3DV6 E-Field Probe

13.0 SAM PHANTOM V4.0C

The SAM phantom V4.0C is a fiberglass shell phantom with a 2.0mm shell thickness for left and right head and flat planar area integrated in a wooden table. The shape of the fiberglass shell corresponds to the phantom defined by SCC34-SC2. The device holder positions are adjusted to the standard measurement positions in the three sections.


SAM Phantom

14.0 DEVICE HOLDER

The DASY3 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.


Device Holder

15.0 TEST EQUIPMENT LIST

SAR MEASUREMENT SYSTEM		
EQUIPMENT	***SERIAL NO.***	***CALIBRATION DATE***
DASY3 System -Robot -ET3DV6 E-Field Probe -DAE -900MHz Validation Dipole -1800MHz Validation Dipole -SAM Phantom V4.0C	 599396-01 1590 383 054 247 N/A	 N/A Mar 2001 Sept 1999 June 2001 June 2001 N/A
85070C Dielectric Probe Kit	N/A	N/A
Gigatronics 8652A Power Meter -Power Sensor 80701A -Power Sensor 80701A	1835272 1833535 1833542	Oct 1999 Oct 1999 Oct 1999
E4408B Spectrum Analyzer	US39240170	Nov 1999
8594E Spectrum Analyzer	3543A02721	Mar 2000
8753E Network Analyzer	US38433013	Nov 1999
8648D Signal Generator	3847A00611	N/A
5S1G4 Amplifier Research Power Amplifier	26235	N/A

16.0 MEASUREMENT UNCERTAINTIES

Uncertainty Description	Error	Distribution	Weight	Standard Deviation	Offset
Probe Uncertainty					
Axial isotropy	±0.2 dB	U-Shaped	0.5	±2.4 %	
Spherical isotropy	±0.4 dB	U-Shaped	0.5	±4.8 %	
Isotropy from gradient	±0.5 dB	U-Shaped	0	±	
Spatial resolution	±0.5 %	Normal	1	±0.5 %	
Linearity error	±0.2 dB	Rectangle	1	±2.7 %	
Calibration error	±3.3 %	Normal	1	±3.3 %	
SAR Evaluation Uncertainty					
Data acquisition error	±1 %	Rectangle	1	±0.6 %	
ELF and RF disturbances	±0.25 %	Normal	1	±0.25 %	
Conductivity assessment	±5 %	Rectangle	1	±5.8 %	
Spatial Peak SAR Evaluation Uncertainty					
Extrapolated boundary effect	±3 %	Normal	1	±3 %	±5 %
Probe positioning error	±0.1 mm	Normal	1	±1 %	
Integrated and cube orientation	±3 %	Normal	1	±3 %	
Cube Shape inaccuracies	±2 %	Rectangle	1	±1.2 %	
Device positioning	±6 %	Normal	1	±6 %	
Combined Uncertainties				±11.7 %	±5 %

Measurement uncertainties in SAR measurements are difficult to quantify due to several variables including biological, physiological, and environmental.

According to ANSI/IEEE C95.3, the overall uncertainties are difficult to assess and will vary with the type of meter and usage situation. However, accuracy's of ± 1 to 3 dB can be expected in practice, with greater uncertainties in near-field situations and at higher frequencies (shorter wavelengths), or areas where large reflecting objects are present. Under optimum measurement conditions, SAR measurement uncertainties of at least ± 2dB can be expected.

According to CENELEC, typical worst-case uncertainty of field measurements is ± 5 dB.
For well-defined modulation characteristics the uncertainty can be reduced to ± 3 dB.

17.0 REFERENCES

(1) ANSI, *ANSI/IEEE C95.1: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 Ghz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992;*

(2) Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65, FCC, Washington, D.C. 20554, 1997;

(3) Thomas Schmid, Oliver Egger, and Neils Kuster, “Automated E-field scanning system for dosimetric assessments”, IEEE *Transaction on Microwave Theory and Techniques,* Vol. 44, pp. 105 – 113, January, 1996.

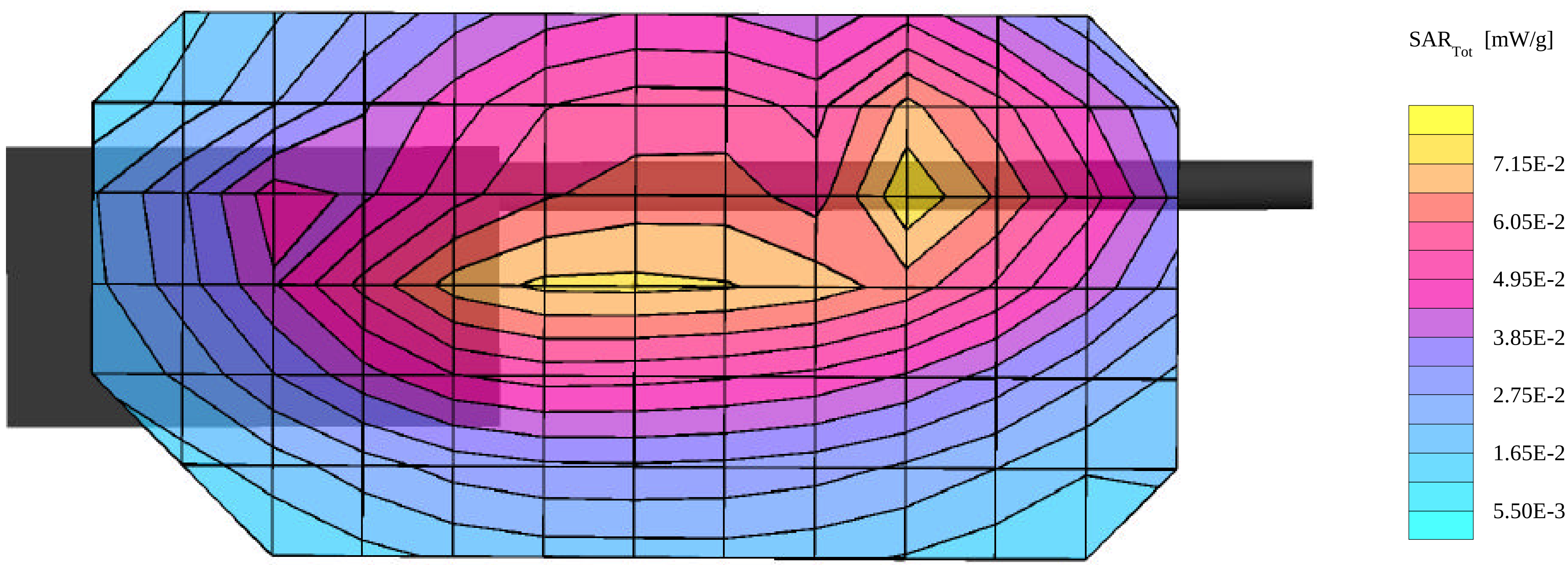
(4) Niels Kuster, Ralph Kastle, and Thomas Schmid, “Dosimetric evaluation of mobile communications equipment with know precision”, IEICE Transactions of Communications, vol. E80-B, no. 5, pp. 645 – 652, May 1997.

APPENDIX A - SAR MEASUREMENT DATA

Vertex Standard Co., Ltd. FCC ID: K66VXA-150

SAM Phantom; Flat Section; Position: (90°,35°)
Probe: ET3DV6 - SN1590; ConvF(7.71,7.71,7.71); Crest factor: 1.0
150MHz Brain : σ = 0.76 mho/m ε_r = 52.3 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 4x4x7;
SAR (1g): 0.0753 mW/g, SAR (10g): 0.0547 mW/g

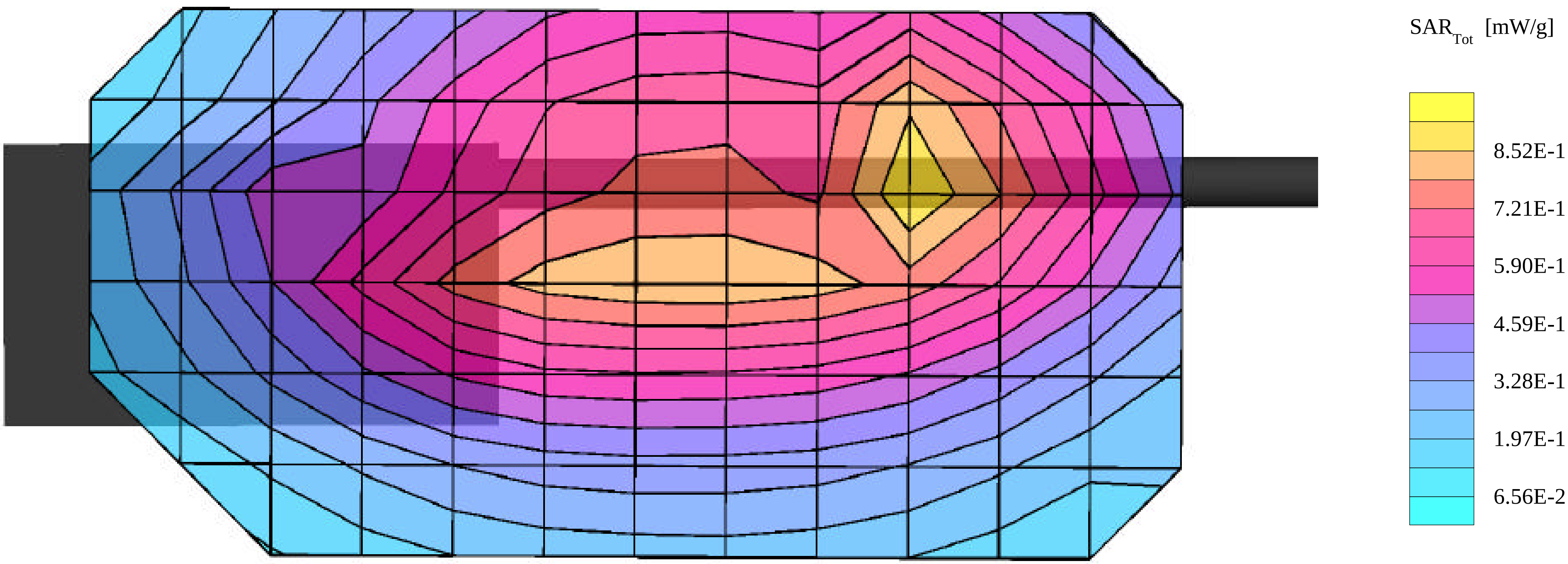
Face SAR at 2.5 cm Separation Distance
Radio Transceiver Model: VXA-150
Continuous Wave Mode
Low Channel [118.000 MHz]
Conducted Power: 1.55 Watts
Date Tested: September 19, 2001



Vertex Standard Co., Ltd. FCC ID: K66VXA-150

SAM Phantom; Flat Section; Position: (90°,35°)
Probe: ET3DV6 - SN1590; ConvF(7.71,7.71,7.71); Crest factor: 1.0
150MHz Brain : σ = 0.76 mho/m ε_r = 52.3 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 4x4x7;
SAR (1g): 0.917 mW/g, SAR (10g): 0.675 mW/g

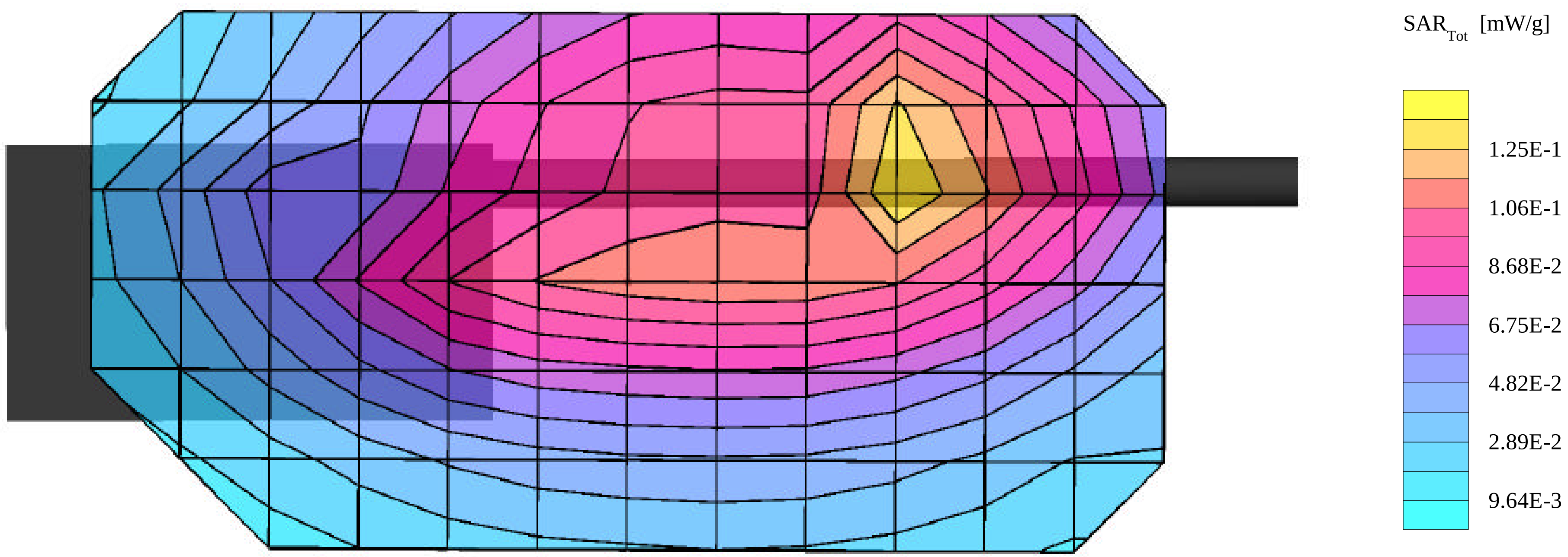
Face SAR at 2.5 cm Separation Distance
Radio Transceiver Model: VXA-150
Continuous Wave Mode
Mid Channel [127.500 MHz]
Conducted Power: 1.53 Watts
Date Tested: September 19, 2001



Vertex Standard Co., Ltd. FCC ID: K66VXA-150

SAM Phantom; Flat Section; Position: (90°,35°)
Probe: ET3DV6 - SN1590; ConvF(7.71,7.71,7.71); Crest factor: 1.0
150MHz Brain : σ = 0.76 mho/m ε_r = 52.3 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 4x4x7;
SAR (1g): 0.134 mW/g, SAR (10g): 0.0987 mW/g

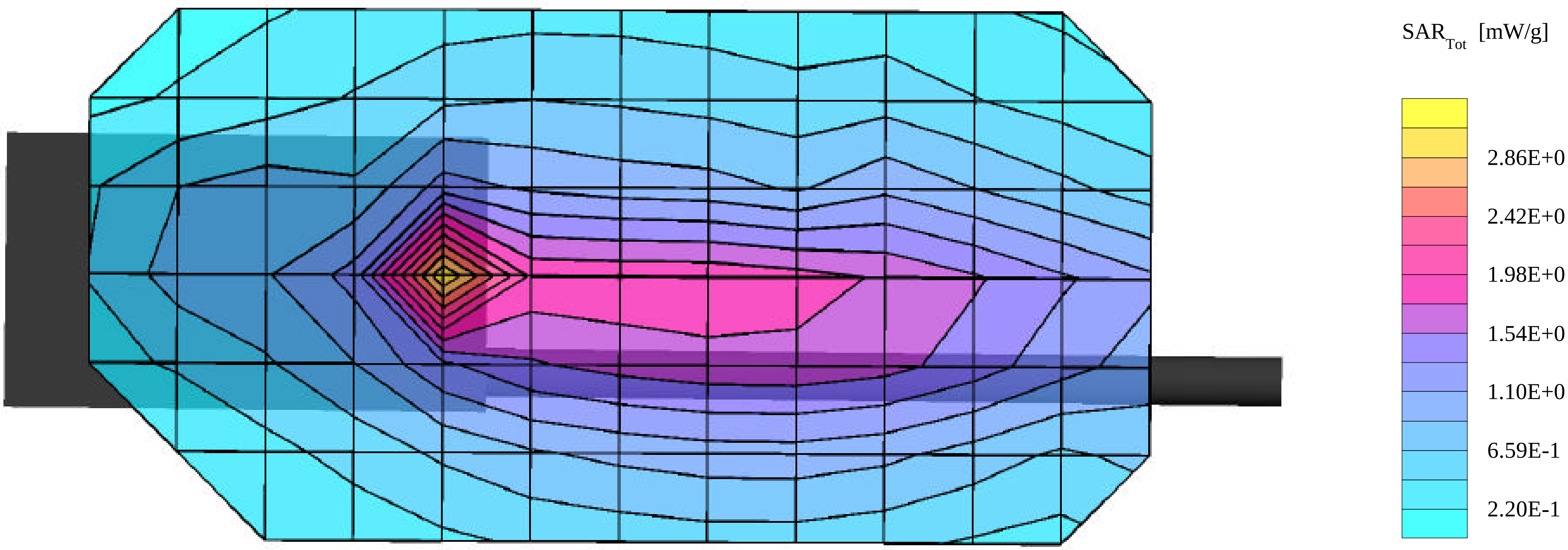
Face SAR at 2.5 cm Separation Distance
Radio Transceiver Model: VXA-150
Continuous Wave Mode
High Channel [136.975 MHz]
Conducted Power: 1.43 Watts
Date Tested: September 19, 2001



Vertex Standard Co., Ltd. FCC ID: K66VXA-150

SAM Phantom; Flat Section; Position: (270°,214°)
Probe: ET3DV6 - SN1590; ConvF(7.71,7.71,7.71); Crest factor: 1.0
150MHz Muscle: σ = 0.80 mho/m ε_r = 61.9 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 4x4x7;
SAR (1g): 3.24 mW/g, SAR (10g): 1.69 mW/g

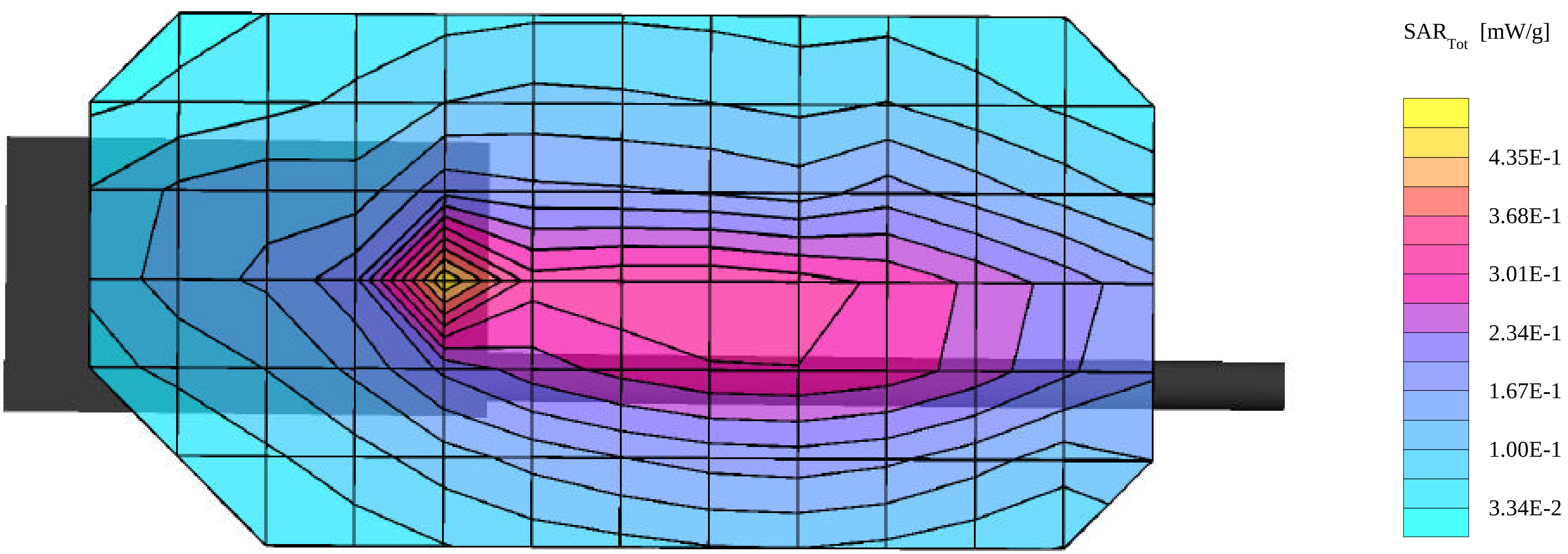
Body-Worn SAR with 1.4 cm Belt-clip
Raio Transceiver Model: VXA-150
Continuous Wave Mode
Low Channel [118.000 MHz]
Conducted Power: 1.55 Watts
Date Tested: September 19, 2001



Vertex Standard Co., Ltd. FCC ID: K66VXA-150

SAM Phantom; Flat Section; Position: (270°,214°)
Probe: ET3DV6 - SN1590; ConvF(7.71,7.71,7.71); Crest factor: 1.0
150MHz Muscle: σ = 0.80 mho/m ε_r = 61.9 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 4x4x7;
SAR (1g): 0.487 mW/g, SAR (10g): 0.268 mW/g

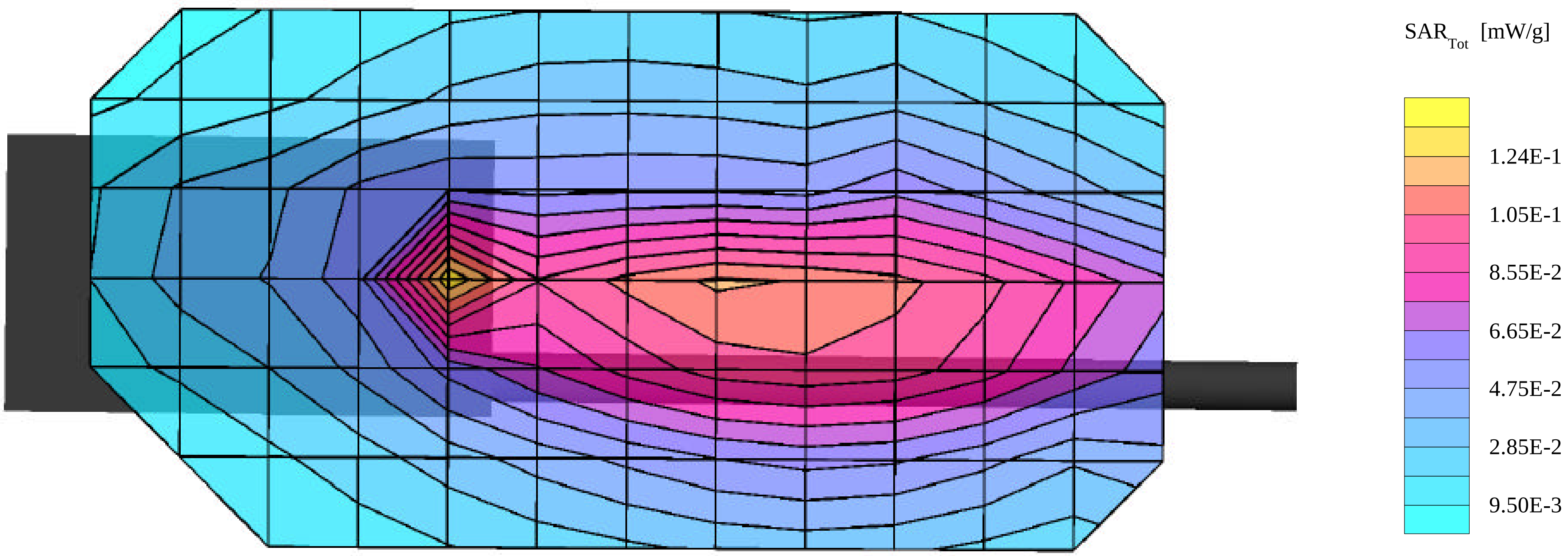
Body-Worn SAR with 1.4 cm Belt-clip
Radio Transceiver Model: VXA-150
Continuous Wave Mode
Mid Channel [127.500 MHz]
Conducted Power: 1.53 Watts
Date Tested: September 19, 2001



Vertex Standard Co., Ltd. FCC ID: K66VXA-150

SAM Phantom; Flat Section; Position: (270°,214°)
Probe: ET3DV6 - SN1590; ConvF(7.71,7.71,7.71); Crest factor: 1.0
150MHz Muscle: σ = 0.80 mho/m ε_r = 61.9 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 4x4x7;
SAR (1g): 0.144 mW/g, SAR (10g): 0.0806 mW/g

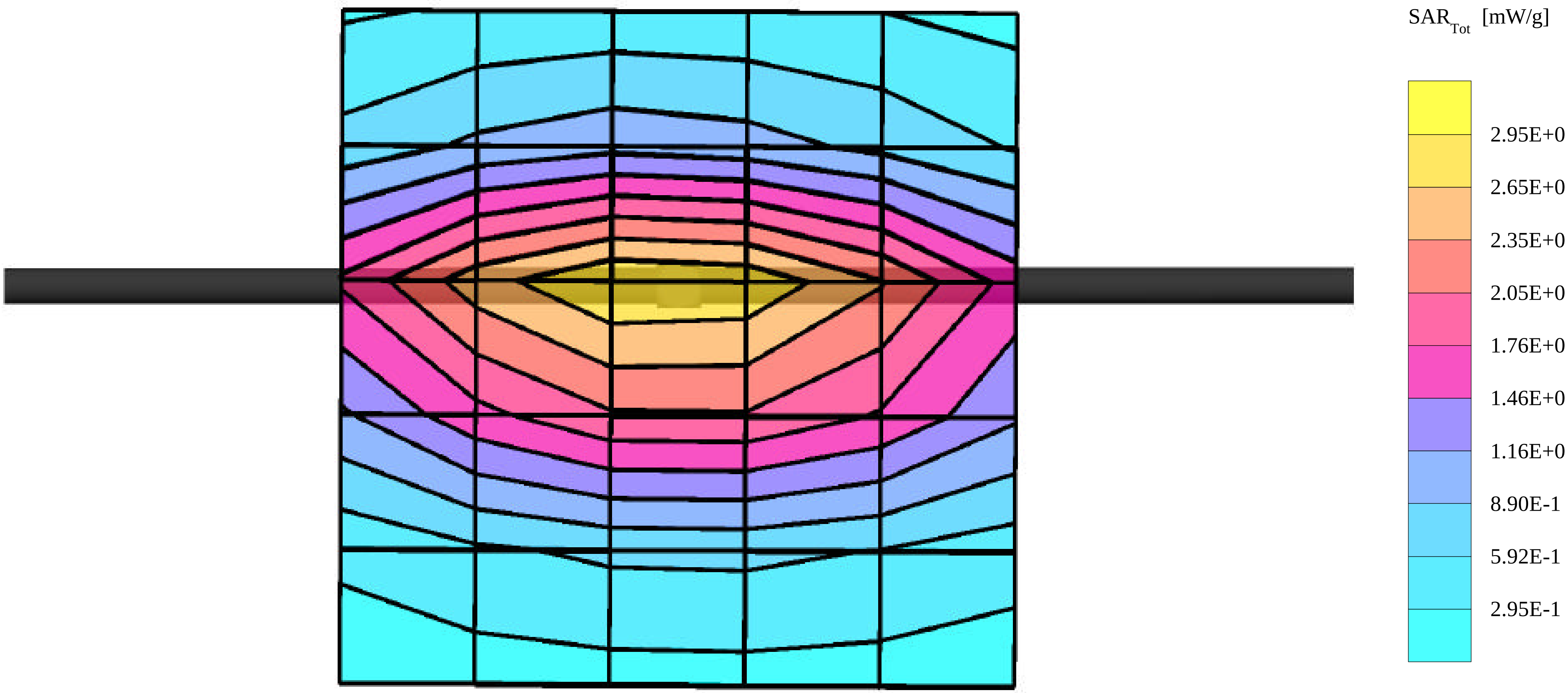
Body-Worn SAR with 1.4 cm Belt-clip
Radio Transceiver Model: VXA-150
Continuous Wave Mode
High Channel [136.975 MHz]
Conducted Power: 1.43 Watts
Date Tested: September 19, 2001



APPENDIX B - DIPOLE VALIDATION

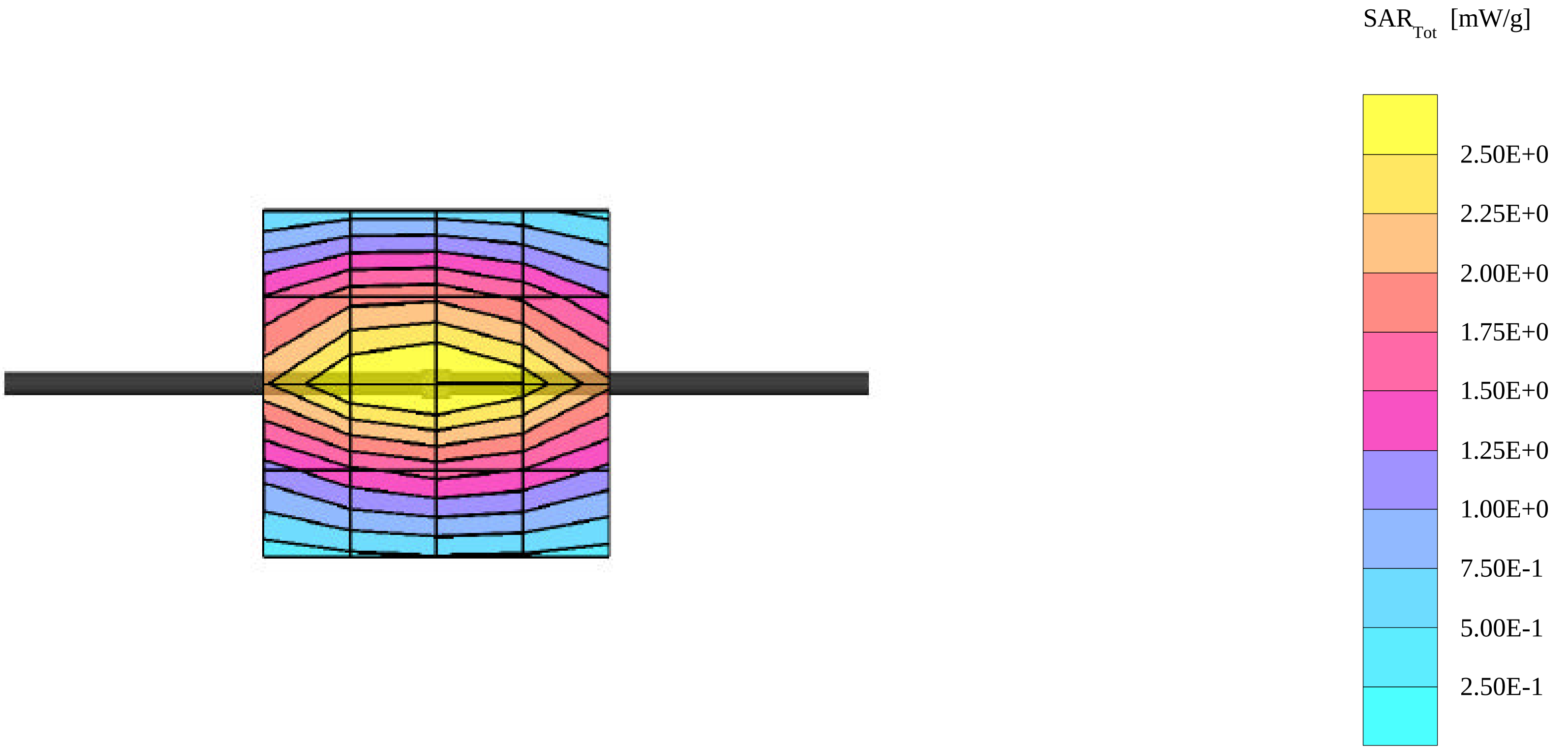
Dipole 900 MHz

SAM Phantom; Flat Section; - Validation Date: September 19, 2001
Probe: ET3DV6 - SN1590; ConvF(6.83,6.83,6.83); Crest factor: 1.0; Brain 900 MHz: σ = 0.97 mho/m ε_r = 42.4 ρ = 1.00 g/cm³
Cubes (2): Peak: 4.47 mW/g ± 0.00 dB, SAR (1g): 2.75 mW/g ± 0.00 dB, SAR (10g): 1.74 mW/g ± 0.00 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.4, 12.9) [mm]
Powerdrift: -0.02 dB



Validation Dipole D900V2 SN:054, d = 15 mm

Frequency: 900 MHz; Antenna Input Power: 250 [mW]
Generic Twin Phantom; Flat Section; Grid Spacing:Dx = 15.0, Dy = 15.0, Dz = 10.0
Probe: ET3DV6 - SN1507; ConvF(6.27,6.27,6.27); Crest factor: 1.0; IEEE1528 900 MHz: σ = 0.97 mho/m ε_r = 42.4 ρ = 1.00 g/cm³
Cubes (2): Peak: 4.47 mW/g ± 0.05 dB, SAR (1g): 2.78 mW/g ± 0.04 dB, SAR (10g): 1.76 mW/g ± 0.02 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.3, 13.2) [mm]
Powerdrift: -0.00 dB



APPENDIX C - PROBE CALIBRATION

Probe ET3DV6

SN:1590

Manufactured:	March 19, 2001
Calibrated:	March 26, 2001

Calibrated for System DASY3

DASY3 - Parameters of Probe: ET3DV6 SN:1590

Sensitivity in Free Space

NormX	**1.77**	$\mu V/(V/m)^2$
NormY	**1.91**	$\mu V/(V/m)^2$
NormZ	**1.67**	$\mu V/(V/m)^2$

Diode Compression

DCP X	**100**	mV
DCP Y	**100**	mV
DCP Z	**100**	mV

Sensitivity in Tissue Simulating Liquid

Head **450 MHz** e_r **= 43.5 ± 5%** s **= 0.87 ± 10% mho/m**

ConvF X	**7.36**	extrapolated	Boundary effect:	
ConvF Y	**7.36**	extrapolated	Alpha	**0.29**
ConvF Z	**7.36**	extrapolated	Depth	**2.72**

Head **900 MHz** e_r **= 42 ± 5%** s **= 0.97 ± 10% mho/m**

ConvF X	**6.83**	± 7% (k=2)	Boundary effect:	
ConvF Y	**6.83**	± 7% (k=2)	Alpha	**0.37**
ConvF Z	**6.83**	± 7% (k=2)	Depth	**2.48**

Head **1500 MHz** e_r **= 40.4 ± 5%** s **= 1.23 ± 10% mho/m**

ConvF X	**6.13**	interpolated	Boundary effect:	
ConvF Y	**6.13**	interpolated	Alpha	**0.47**
ConvF Z	**6.13**	interpolated	Depth	**2.17**

Head **1800 MHz** e_r **= 40 ± 5%** s **= 1.40 ± 10% mho/m**

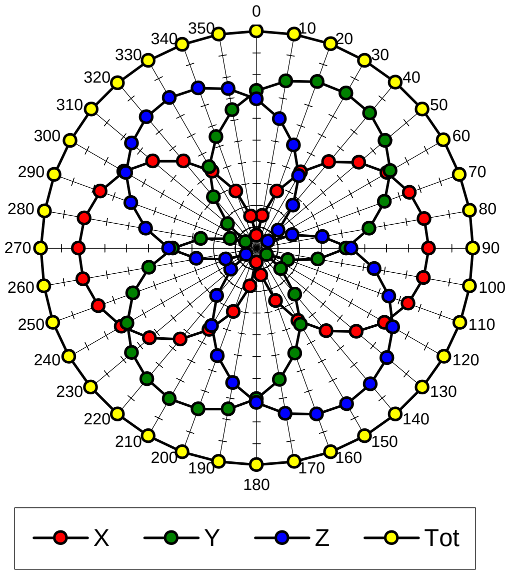
ConvF X	**5.78**	± 7% (k=2)	Boundary effect:	
ConvF Y	**5.78**	± 7% (k=2)	Alpha	**0.53**
ConvF Z	**5.78**	± 7% (k=2)	Depth	**2.01**

Sensor Offset

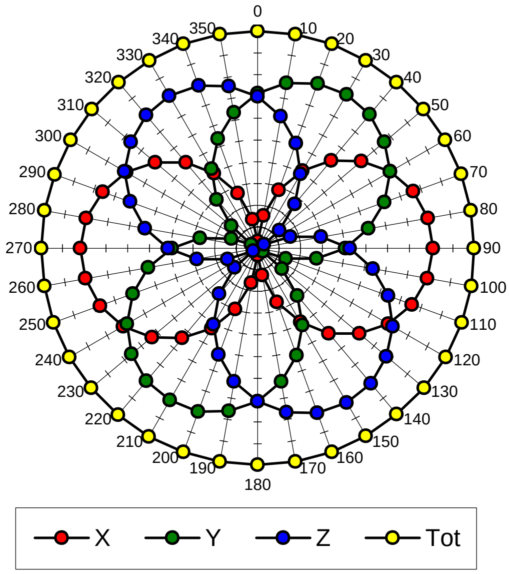
Probe Tip to Sensor Center	**2.7**	mm
Optical Surface Detection	**1.2 ± 0.2**	mm

Receiving Pattern (f) , q = 0°

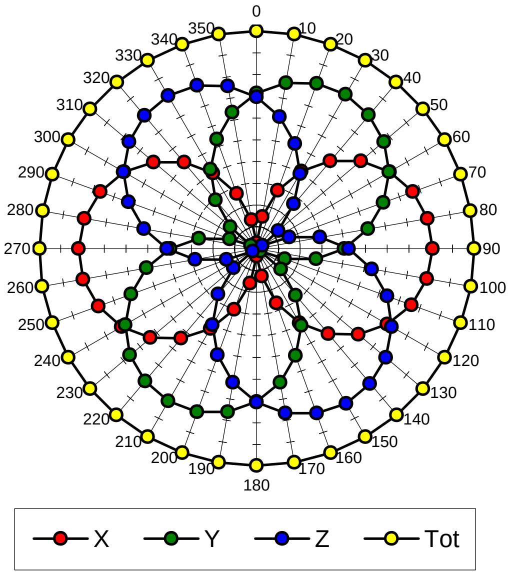
f = 30 MHz, TEM cell ifi110



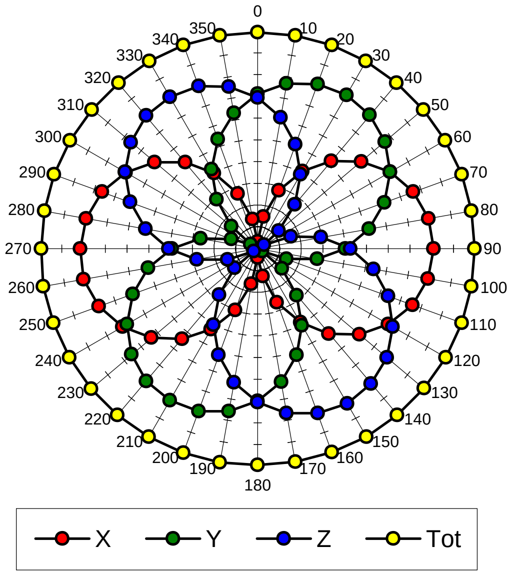
f = 100 MHz, TEM cell ifi110

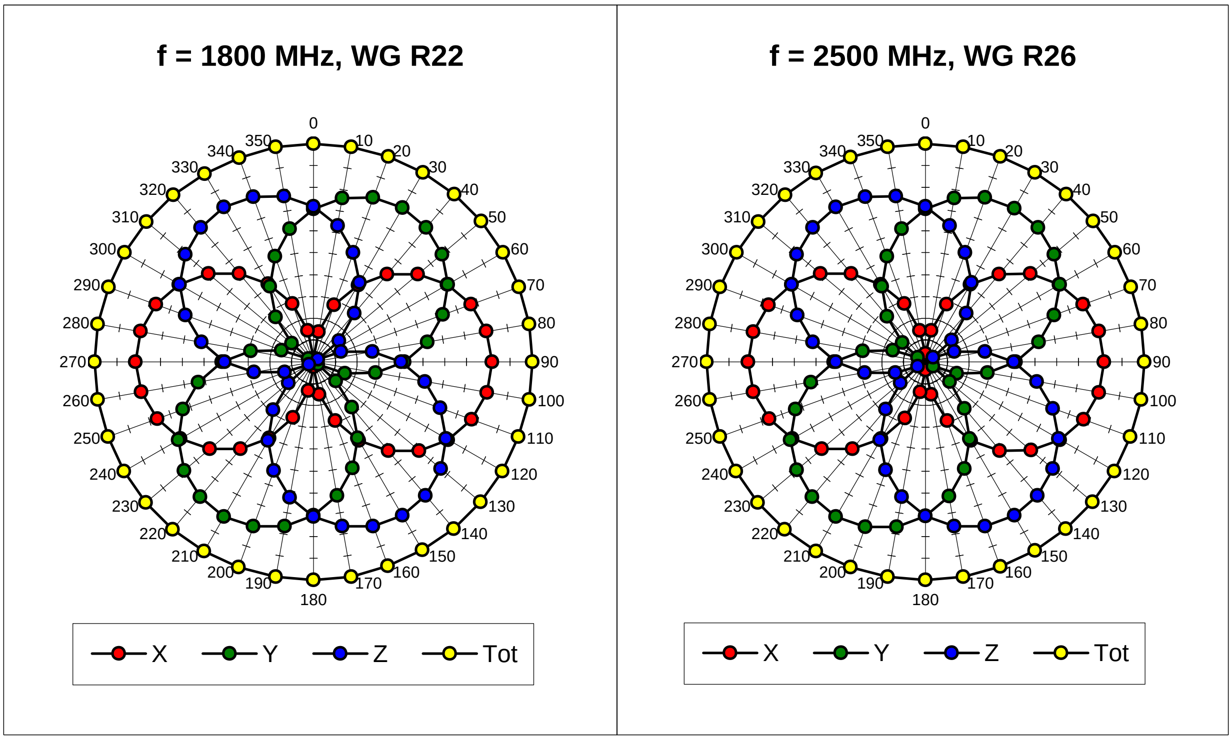


f = 300 MHz, TEM cell ifi110

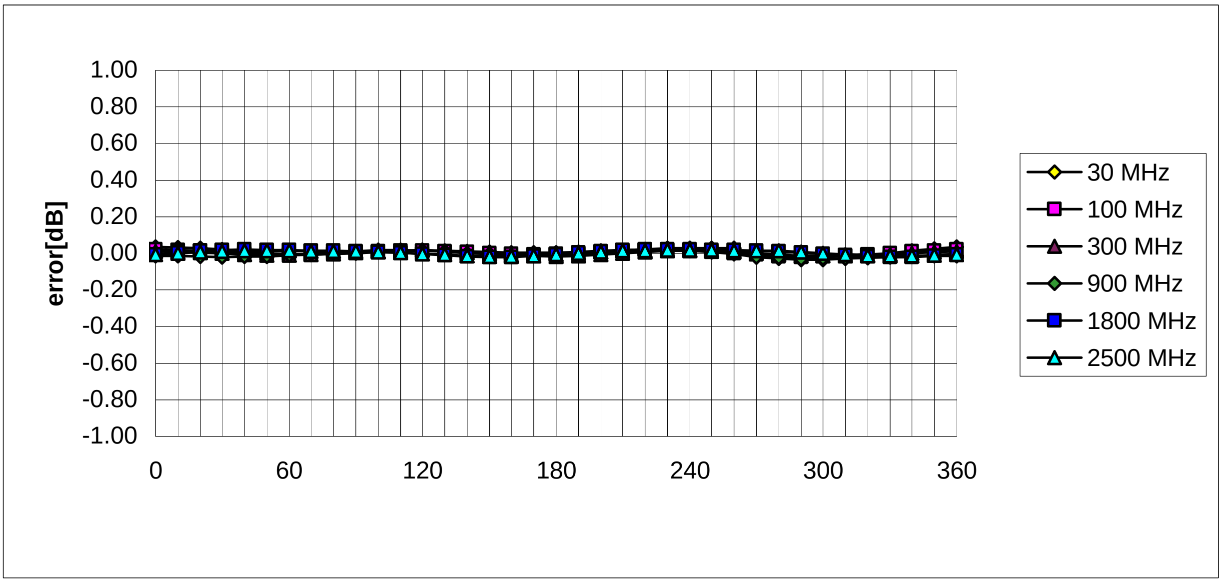


f = 900 MHz, TEM cell ifi110



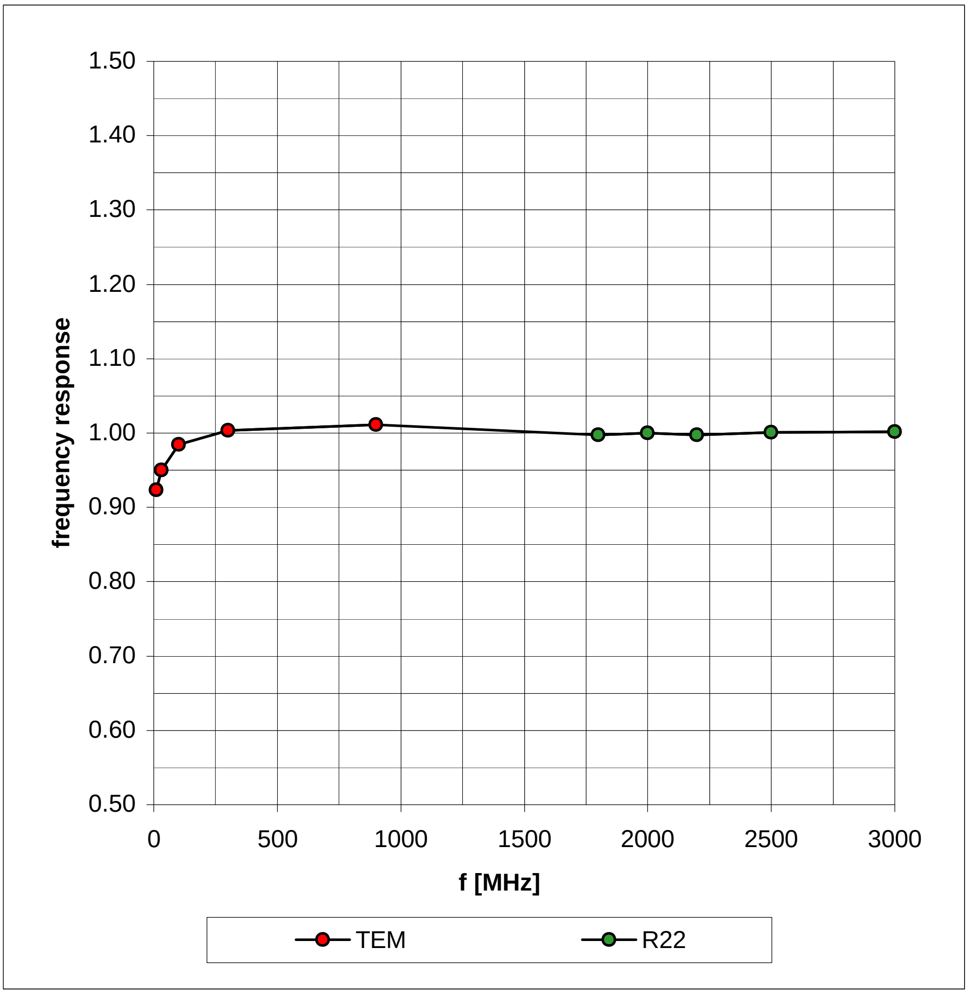


Isotropy Error (f), q = 0°



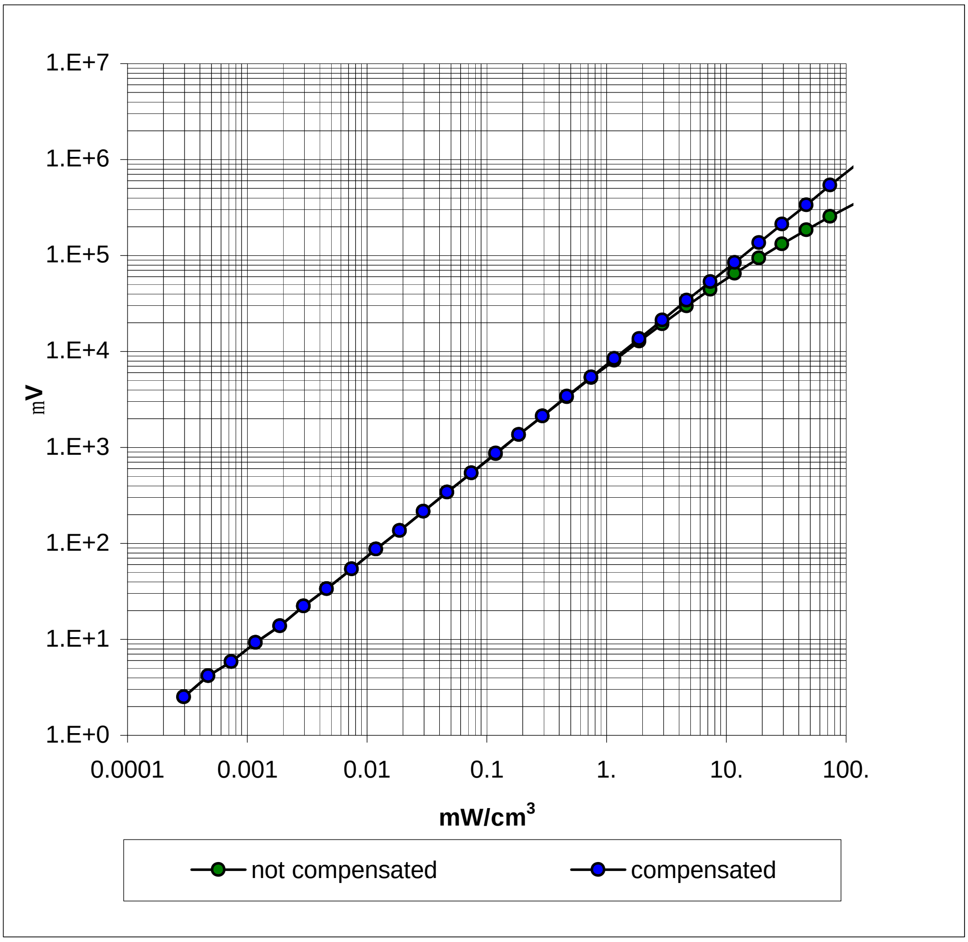
Frequency Response of E-Field

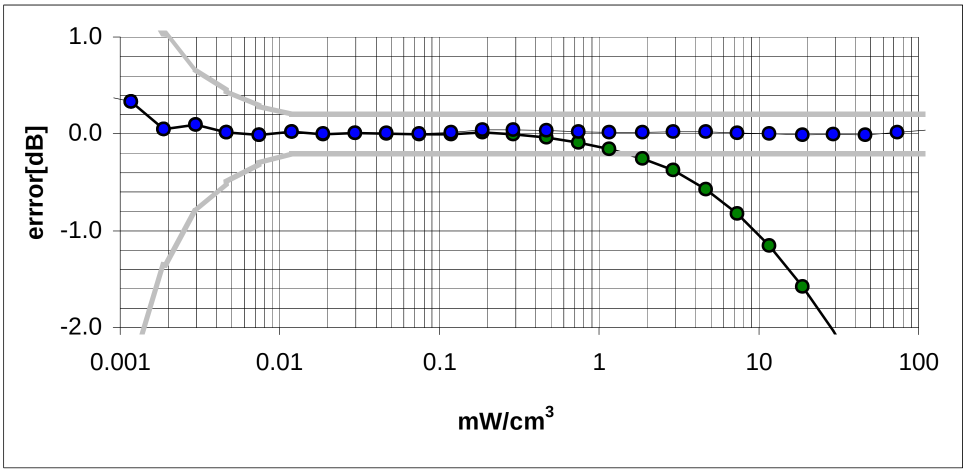
(TEM-Cell:ifi110, Waveguide R22)



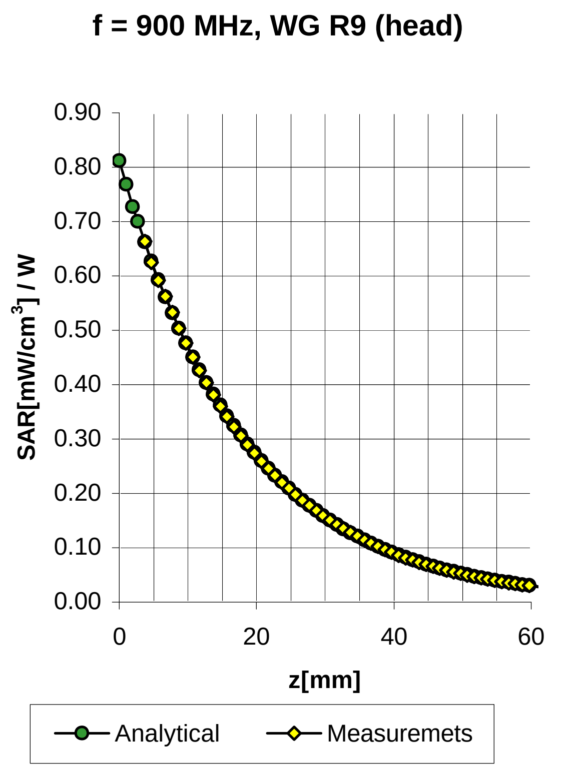
Dynamic Range f(SAR_{brain})

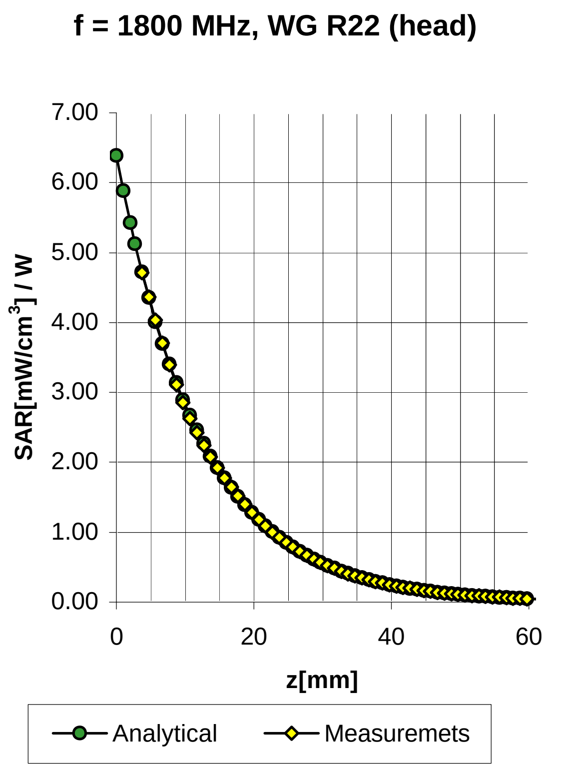
(TEM-Cell:ifi110)





Conversion Factor Assessment





Head	**900 MHz**	e_r **= 42 ± 5%**	s **= 0.97 ± 10% mho/m**

ConvF X	**6.83**	± 7% (k=2)	Boundary effect:	
ConvF Y	**6.83**	± 7% (k=2)	Alpha	**0.37**
ConvF Z	**6.83**	± 7% (k=2)	Depth	**2.48**

Head	**1800 MHz**	e_r **= 40 ± 5%**	s **= 1.40 ± 10% mho/m**

ConvF X	**5.78**	± 7% (k=2)	Boundary effect:	
ConvF Y	**5.78**	± 7% (k=2)	Alpha	**0.53**
ConvF Z	**5.78**	± 7% (k=2)	Depth	**2.01**

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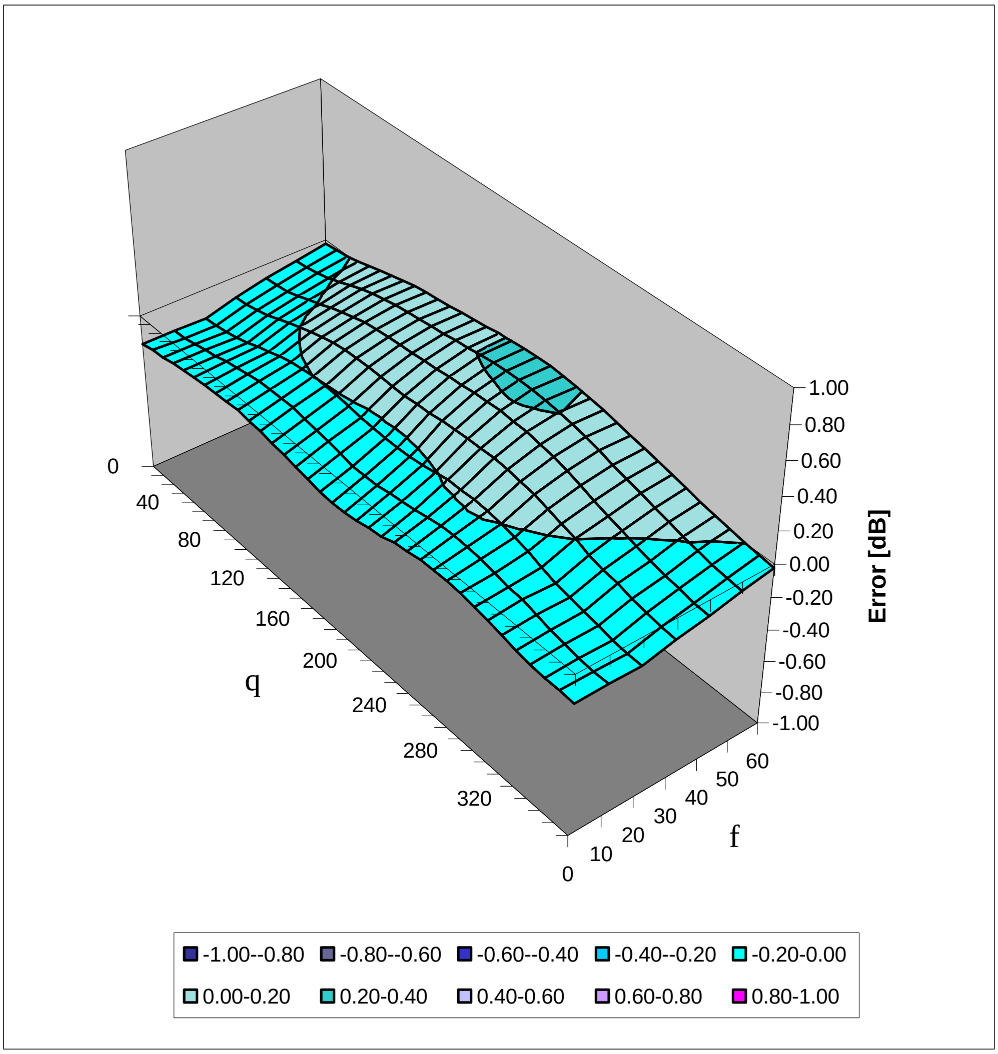
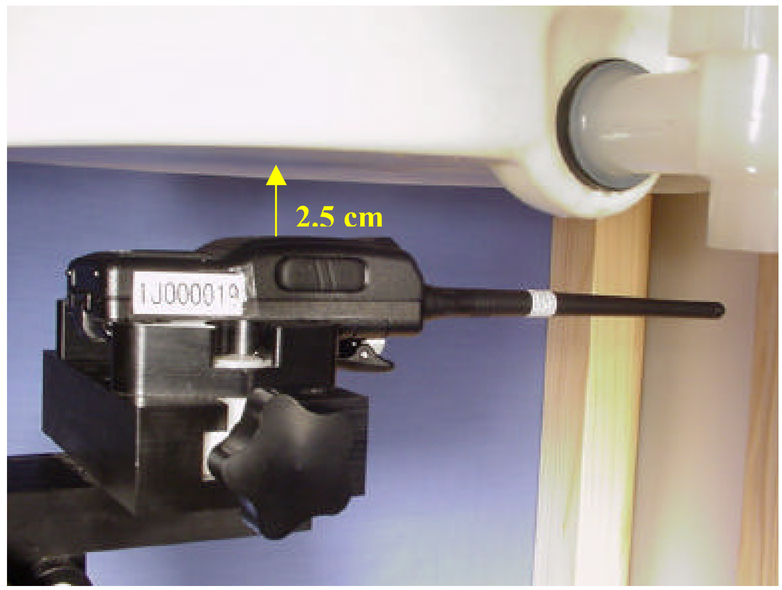
Deviation from Isotropy in HSL

Error (q,f), f = 900 MHz



APPENDIX D - SAR TEST SETUP PHOTOGRAPHS

FACE-HELD SAR TEST SETUP PHOTOGRAPHS
2.5cm Separation Distance



BODY-WORN SAR TEST SETUP PHOTOGRAPHS
with 1.4cm Belt-Clip