



SUPPLEMENTARY TEST REPORT FROM RADIO FREQUENCY INVESTIGATION LTD.

Test of: Danger Inc.
Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

Supplementary Test Report Serial No:
RFI/SARB1/SUP44198JD02A

This Supplementary Test Report Is Issued Under The Authority Of Richard Jacklin, Operations Director: 	Checked By: 
Tested By: 	Release Version No: PDF01
Issue Date: 30 April 2003	Test Dates: 29 April 2003

It should be noted that the standard, OET Bulletin 65 Supplement C: (2001-01) is not listed on RFI's current UKAS schedule and is therefore "not UKAS accredited".

This supplementary report, supplements RFI Test Report Serial No: RFI/SARB1/RP44198JD02A.

This supplementary report has been issued to cover additional SAR measurements.

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This supplementary report may be copied in full.

The results in this supplementary report apply only to the sample(s) tested.

RADIO FREQUENCY INVESTIGATION LTD.

Operations Department

Test Of: Danger Inc.

To: Hiptop Mobile Telephone Handset with Colour Display
OET Bulletin 65 Supplement C: (2001-01)

TEST REPORT

S.No. RFI/SARB1/SUP44198JD02A

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1. Test Results

1.1. Test Results For Specific Absorption Rate - 1900 MHz

1.1.1. Specific Absorption Rate - 1900 MHz Band

Environmental Conditions

Temperature Variation in Lab (°C):	22.0 to 21.5
Temperature Variation in Liquid (°C):	19.8 to 18.5

Conducted Power before Test:	Not applicable (Refer to section 4)
Conducted Power after Test:	Not applicable (Refer to section 4)

Position	Side of Head	Frequency Channel No	Distance from antenna to phantom (mm)	SAR Level (W/kg) 1g	SAR Limit (W/kg) 1g	Margin (W/kg) 1g	Result
Cheek	Left	512	26	0.138	1.6	1.462	Complied
Cheek	Left	660	26	0.098	1.6	1.502	Complied
Cheek	Left	810	26	0.099	1.6	1.501	Complied
Tilted	Left	660	17	0.176	1.6	1.424	Complied
Cheek	Right	512	26	0.139	1.6	1.461	Complied
Cheek	Right	660	26	0.092	1.6	1.508	Complied
Cheek	Right	810	26	0.069	1.6	1.531	Complied
Tilted	Right	660	17	0.168	1.6	1.432	Complied

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1.2. Test Results For Specific Absorption Rate - 1900 MHz**1.2.1. Specific Absorption Rate - 1900 MHz Band – Body Worn Position****Environmental Conditions**

Temperature Variation in Lab (°C):	20.5 to 21.5
Temperature Variation in Liquid (°C):	18.4 to 18.5

Conducted Power before Test:	Not applicable (Refer to section 4)
Conducted Power after Test:	Not applicable (Refer to section 4)

Position	Side of Head	Frequency Channel No	Distance from antenna to phantom (mm)	SAR Level (W/kg) 1g	SAR Limit (W/kg) 1g	Margin (W/kg) 1g	Result
Hiptop in case in body worn position	Flat	660	15	1.200	1.6	0.400	Complied
Hiptop in case with personal hands free kit	Flat	660	15	0.650	1.6	0.950	Complied
Hiptop in case in body worn position	Flat	512	15	1.190	1.6	0.410	Complied
Hiptop in case in body worn position	Flat	810	15	0.707	1.6	0.893	Complied

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2. SAR Measurement System

2.1. Radio Frequency Investigation SAR measurement facility utilises 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 muscle 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 utilises 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.

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3. SAR Safety Limits

Exposure Limits (General populations/Uncontrolled Exposure Environment)	SAR (W/Kg)
Spatial Peak (averaged over any 1 g of tissue)	1.60

Notes:

1. The FCC SAR safety limits specified in the table above apply to devices operated in the General Population / Uncontrolled Exposure Environment.
2. Uncontrolled environments are defined as locations where there is exposure of individuals who have no knowledge or control of their exposure.

4. Details of SAR Evaluation

4.1. The equipment under test was found to be compliant for localised specific absorption rate (SAR) based on the following provisions and conditions:

- a) The handset was placed in a normal operating position with the centre of the ear-piece aligned with the ear canal on the phantom.
- b) With the ear-piece touching the phantom the centre line of the handset was aligned with an imaginary plane (X and Y axis) consisting of three lines connecting both ears and the mouth.
- c) For the cheek position the handset was gradually moved towards the cheek until any point of the mouth-piece or keypad touched the cheek.
- d) For the tilted position the EUT was positioned as for the cheek position, then the horizontal angle was increased by fifteen degrees (the phone keypad was moved away from the cheek by fifteen degrees).
- e) The EUT was tested in a body-worn configuration with the handset placed in the belt holster which was placed on the device holder with the back of the phone facing parallel to, and the belt-clip touching, the outer surface of the phantom flat section. The belt holster provided a spacing between the back of the phone and the outer surface of the phantom flat section.
- f) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.
- g) The device was keyed to operate continuously in the transmit mode for the duration of the test.
- h) The location of the maximum spatial SAR distribution (Hot Spot) was determined relative to the handset and its antenna.
- i) The EUT was tested with a fully charged battery.

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5. Evaluation Procedures

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

- a) (i) The evaluation was performed in an applicable area of the phantom depending on the type of device being tested. For devices worn about the ear during normal operation, both the left and right ear positions were evaluated at the centre frequency of the band at maximum power. The side, which produced the greatest SAR, determined which side of the phantom would be used for the entire evaluation. The positioning of the head worn device relative to the phantom was dictated by FCC OET bulletin 65 Supplement C.

(ii) For body worn devices or devices which can be operated within 20 cm of the body, the flat section of the phantom was used. The type of device being evaluated dictated the distance of the EUT to the outer surface of the phantom flat section.
- b) The SAR was determined by a pre-defined procedure within the DASY3 software. The exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm.
- c) A 7x7x7 matrix was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. 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.

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6. System Validation

6.1. Prior to the assessment, the system was verified in the flat region of the phantom. A 1900 MHz dipole was used. A forward power of 250 mW was applied to the dipole and system was verified to a tolerance of ± 5 for the 1900 MHz dipole. The applicable verification (normalised to 1 Watt) is as follows:

Dipole Validation Kit	Target SAR 1g (w/kg)	Measured SAR 1g (w/kg)
D1900V2	42.4	44.0

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7. Simulated Tissues

7.1. The brain and muscle mixtures consist of water and glycol. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

Ingredient	Frequency	
	1900 MHz Brain	1900 MHz Muscle
Water	10.96 Litres	14.01 Litres
D.G.B.E. (Glycol)	8.97 Litres	6.0 Litres
Salt	0.064 grams	42 grams

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8. Tissue Parameters

8.1. The dielectric parameters of the fluids were verified prior to the SAR evaluation using an 58070C Dielectric Probe Kit and an 8753E Network Analyser. The dielectric parameters of the fluid are as follows:

Frequency (MHz)	Equivalent Tissue	Dielectric Constant ϵ_r	Conductivity σ (mho/m)
1850-1910	Brain	39.53	1.45
1850-1910	Muscle	50.67	1.54

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9. DASY3 Systems Specifications

Robot System

Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of axis:	6
Serial Number:	F00/SD89A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+

Data Acquisition Electronic (DAE) System

Cell Controller

PC:	Dell Optiplex GX110
Operating System:	Windows NT
Data Card:	DASY3 PC-Board
Serial Number:	220

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.
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E-Field Probe

Model:	ET3DV6
Serial No:	1529
Construction:	Triangular core fibre optic detection system
Frequency:	10 MHz to 3 GHz
Linearity:	±0.2 dB (30 MHz to 3 GHz)
Probe Length (mm):	337
Probe Diameter (mm):	12
Tip Length (mm):	10
Tip Diameter (mm):	6.8
Sensor X Offset (mm):	2.7
Sensor Y Offset (mm):	2.7
Sensor Z Offset (mm):	2.7

Phantom

Phantom:	SAM Phantom
Shell Material:	Fibreglass
Thickness:	2.0 ±0.1 mm

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10. Validation results – 1900 MHz

10.1. System Validation

10.1.1. Validation of the system test configuration was carried out prior to testing.

Validation Dipole Type and Serial No.	Calibrated Value of SAR in 1g volume (W/kg) at 1900 MHz	Measured Value of SAR in 1g volume (W/kg) at 1900 MHz	Percentage Difference ($\leq 5\%$)
D1900V2 / 540	42.4	42.0	Yes

10.2. Liquid Properties - Brain

10.2.1. Properties of the tissue simulating liquid were measured prior to testing.

Property	Target Value (1900 MHz)	Measured/Calculated Value (1900 MHz)	Percentage Difference ($\leq 5\%$)
Relative Permittivity	40.0	38.71	Yes
Conductivity	1.4	1.47	Yes

10.3. Liquid Properties - Body

10.3.1. Properties of the tissue simulating liquid were measured prior to testing.

Property	Target Value (1900 MHz)	Measured/Calculated Value (1900 MHz)	Percentage Difference ($\leq 5\%$)
Relative Permittivity	53.3	50.67	Yes
Conductivity	1.52	1.54	Yes

10.4. Temperature Variation

10.4.1. The temperature of the laboratory and within the tissue simulating liquid for this test shall not exceed the range +15°C to +25°C.

10.4.2. The actual temperature measured at the beginning and end of each test was recorded and the maximum range is shown below:

Measurement	Maximum Temperature	Minimum Temperature
Laboratory	22.0	20.5
Tissue Simulating Liquid	19.8	18.4

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Appendix 1. Measurement Methods

FCC Part 24.232: Effective Isotropic Radiated Power (EIRP)

EIRP measurements were performed in accordance with the standard, against appropriate limits.

The EIRP was measured with the EUT arranged on a non-conducting table on an open area test site using an antenna height of 1.5 m and a measurement distance of 3 m

The level of the EIRP was maximised by rotating the non-conducting table.

Once the final amplitude (maximised) had been ascertained, the EIRP was measured using a substitution method whereby the EUT was replaced by a broadband horn antenna and a signal generator. The level of the signal generator is increased or decreased until the amplitude indicated on the measurement receiver matches that from the EUT. Once this has been achieved the final EIRP is calculated as being the signal generator output level minus the interconnecting cable loss plus the substitution antenna gain.

This procedure is repeated for all three channels of the EUT.

The test equipment settings for EIRP measurements were as follows:

Receiver Function	Final Measurements
Detector Type:	Peak
Mode:	Not applicable
Bandwidth:	1 MHz
Amplitude Range:	20 dB
Measurement Time:	> 1 s
Observation Time:	> 15 s
Sweep Time:	Coupled

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Carrier Output Power: Call Mode: (EIRP): Section 24.232

Tests were performed to identify the maximum transmit power in accordance with FCC Part 24.232 for EIRP.

Results are shown for the EUT set to Bottom, Middle and Top channels using a fully charged battery. The battery nominally charged voltage is declared at 4.2 Volts:

Results

Channel	Antenna Polarity (H/V)	Maximum Transmitter EIRP (dBm)
Bottom (512)	Horiz	30.5
Middle (660)	Horiz	30.2
Top (810)	Horiz	30.4

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Appendix 2. SAR Distribution Scans

This appendix contains SAR Distribution Scans.

Dipole 1900 MHz

Validation

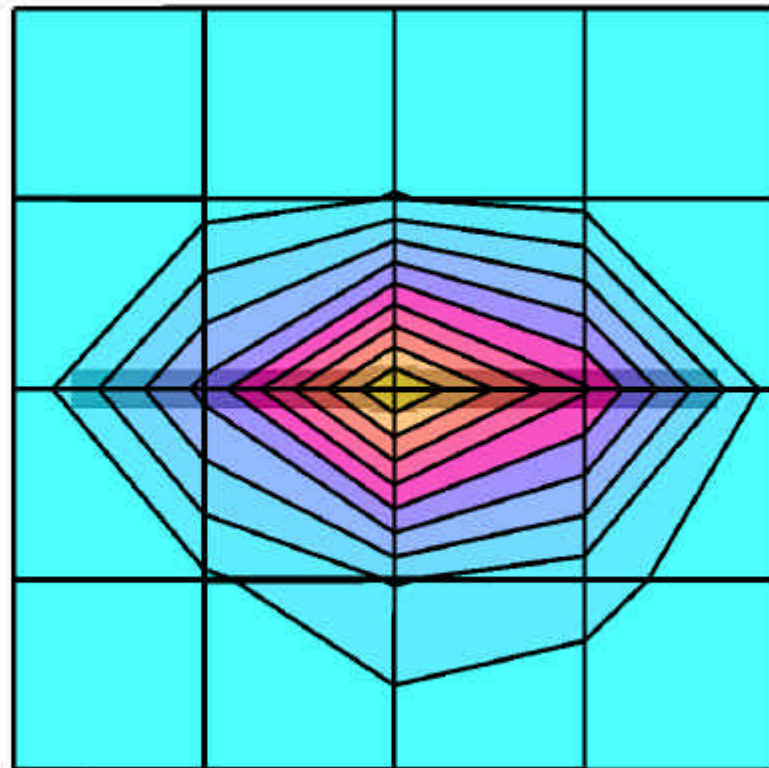
SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

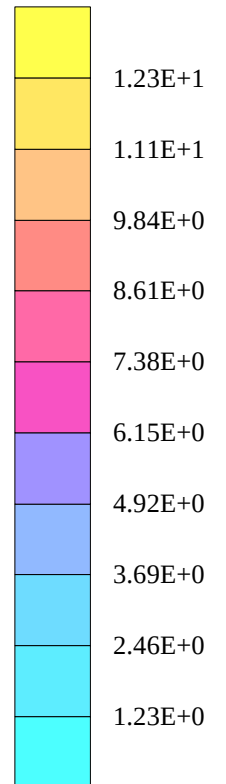
Crest factor: 1.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

04/28/03



SAR_{Tot} [mW/g]



Dipole 1900 MHz

Validation

SAM Phantom; Flat

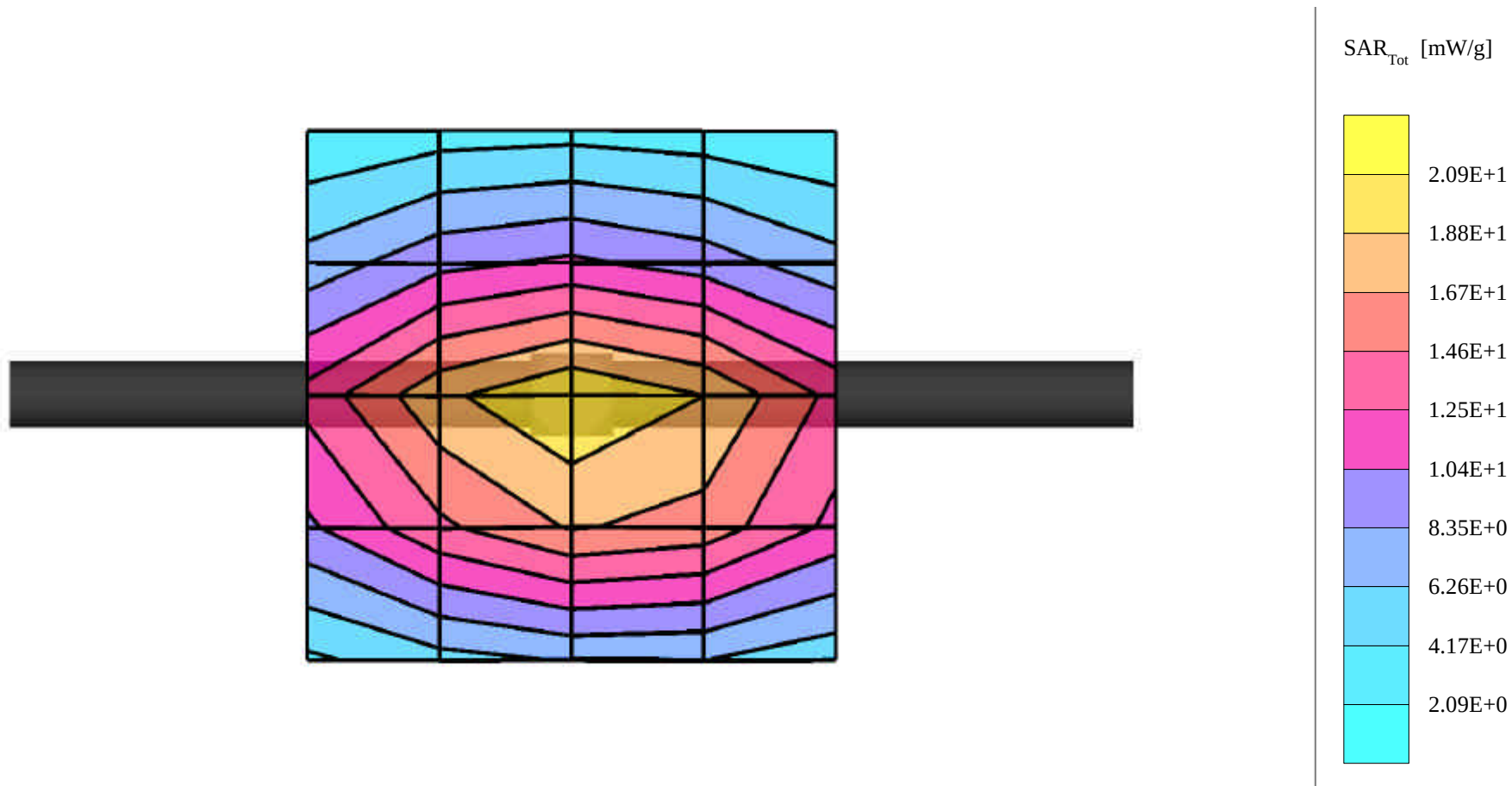
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 1.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 21.1 mW/g ± 0.03 dB, SAR (1g): 10.5 mW/g ± 0.02 dB

Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

04/28/03



Danger Hiptop with Colour Display

Cheek Left Centre Channel (660)

SAM Phantom; Left Hand

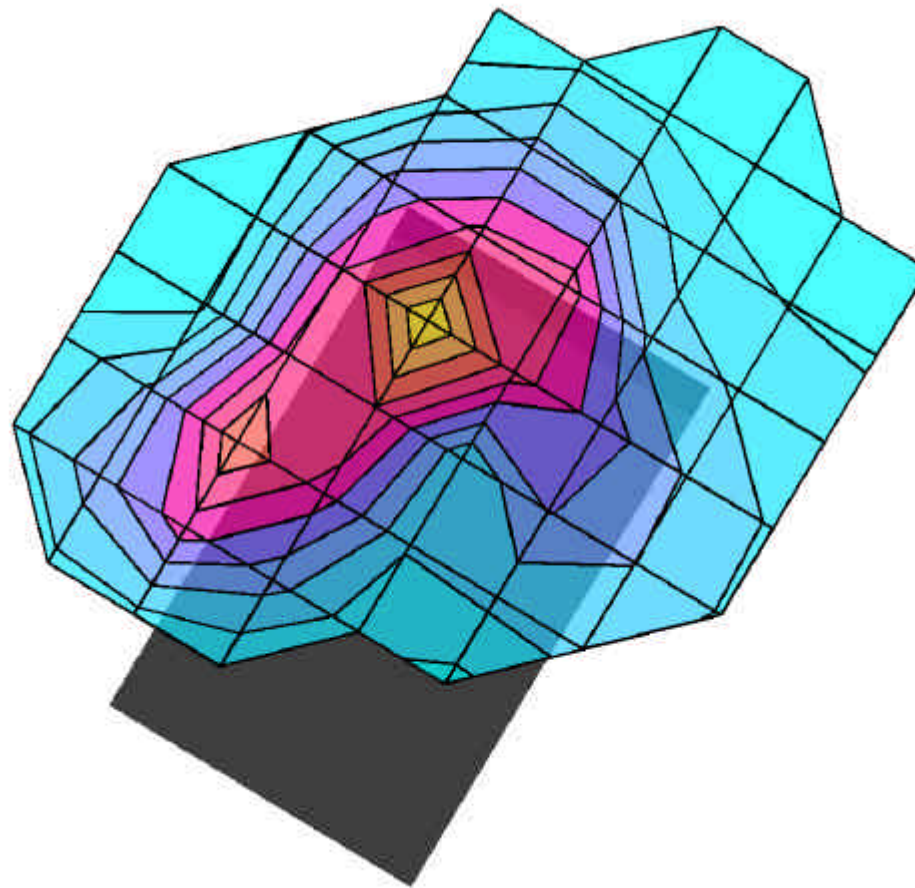
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20)

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

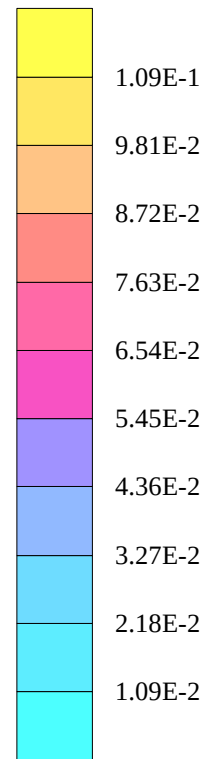
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 2.9%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Centre Channel (660)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

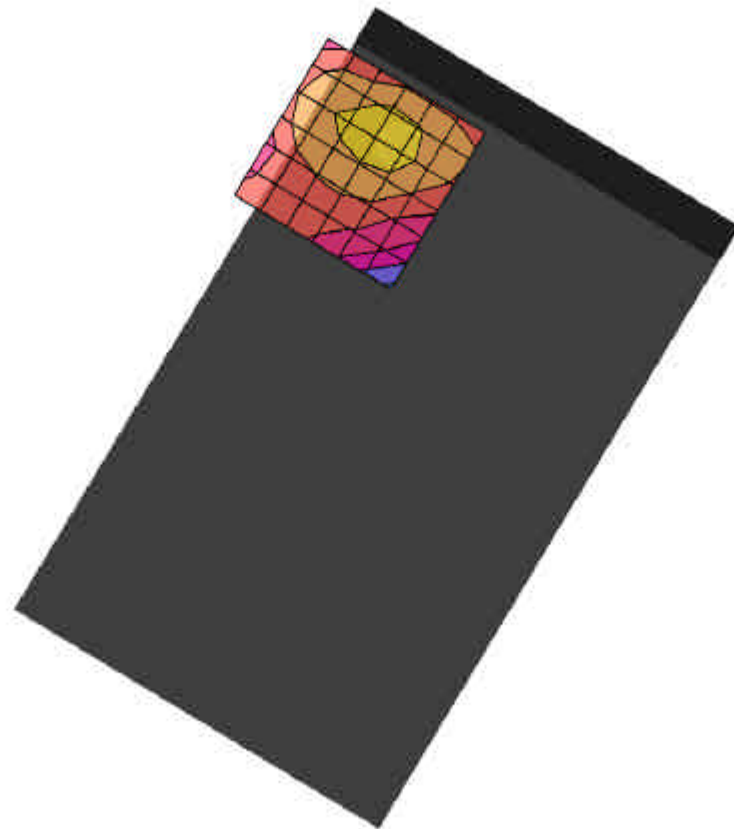
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.163 mW/g, SAR (1g): 0.0976 mW/g

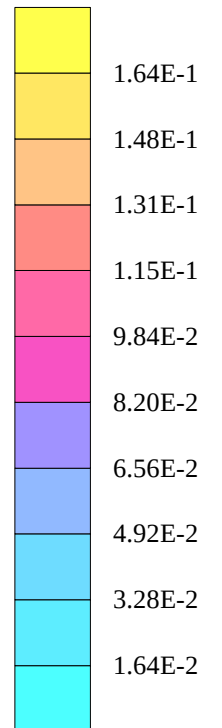
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 2.90%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Centre Channel (660)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20)

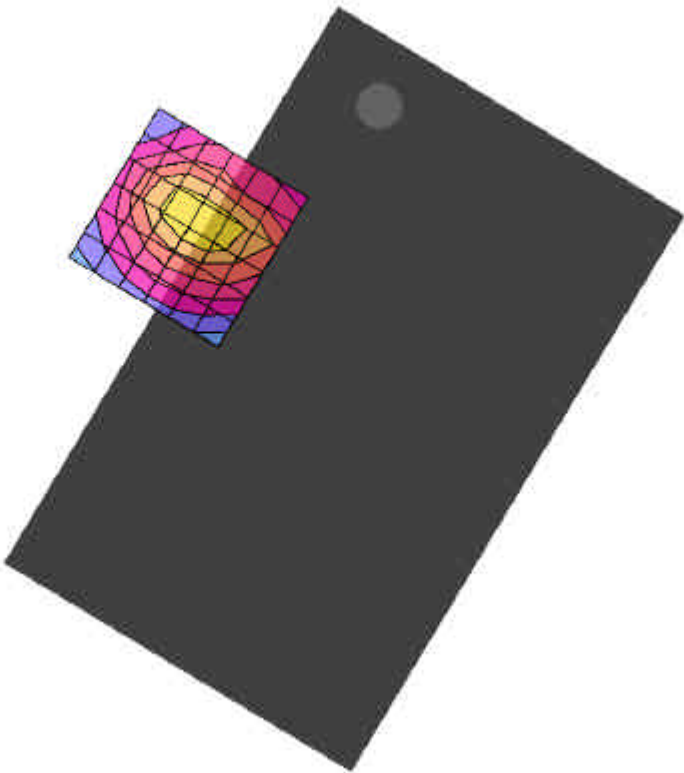
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47 \text{ mho/m}$ $\epsilon_r = 38.7$ $\rho = 1.00 \text{ g/cm}^3$

Peak: 0.158 mW/g, SAR (1g): 0.0866 mW/g, SAR (10g): 0.0486 mW/g * Max outside

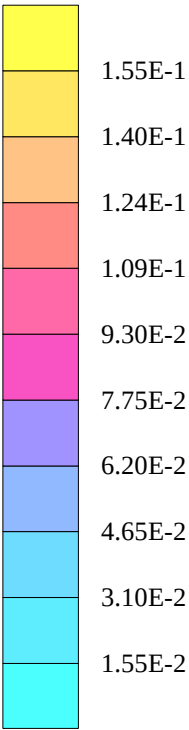
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 2.90%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Tilted Left Centre Channel (660)

SAM Phantom; Left Hand

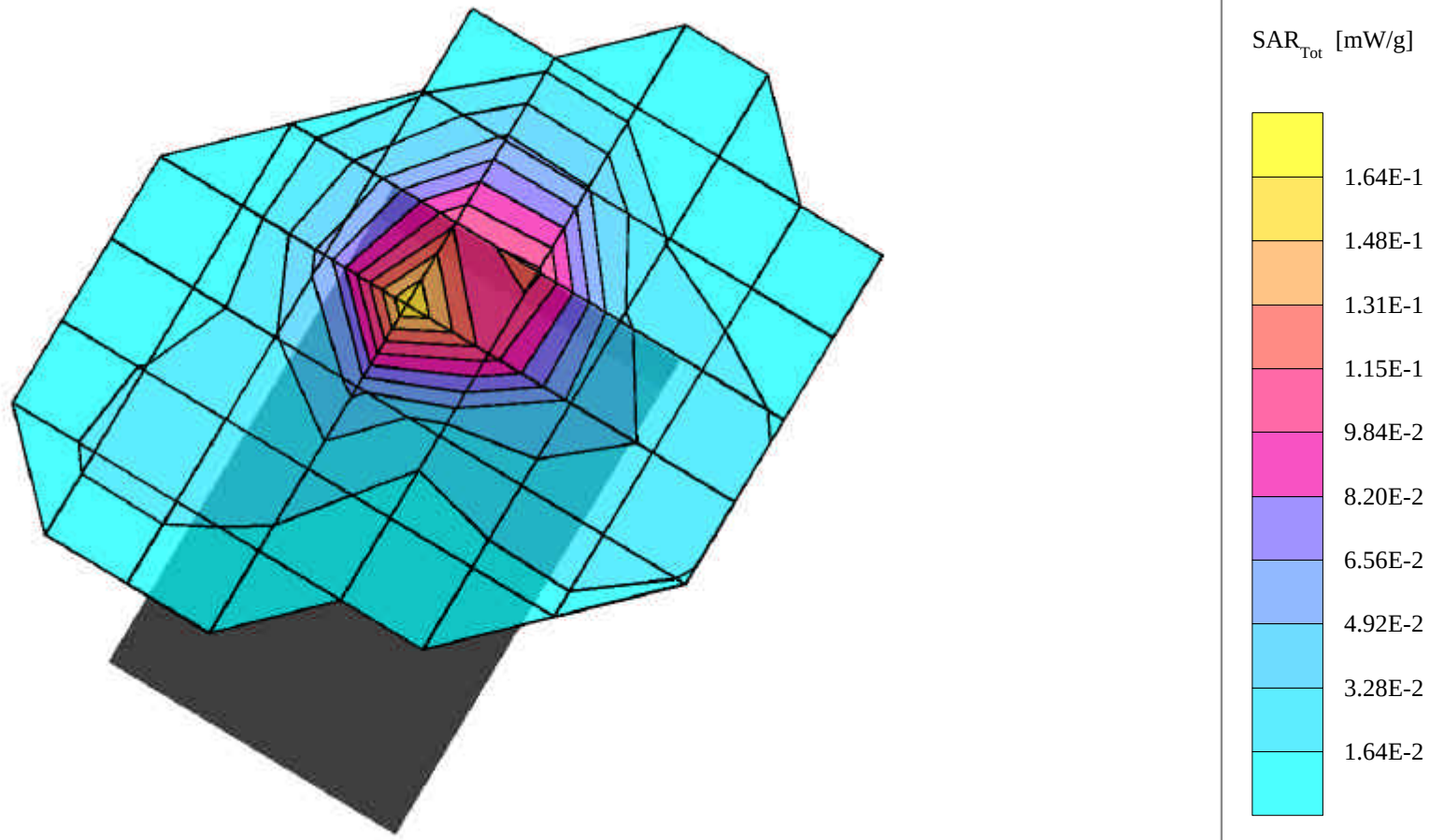
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 3.90%

04/28/03



Danger Hiptop with Colour Display

Tilted Left Centre Channel (660)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

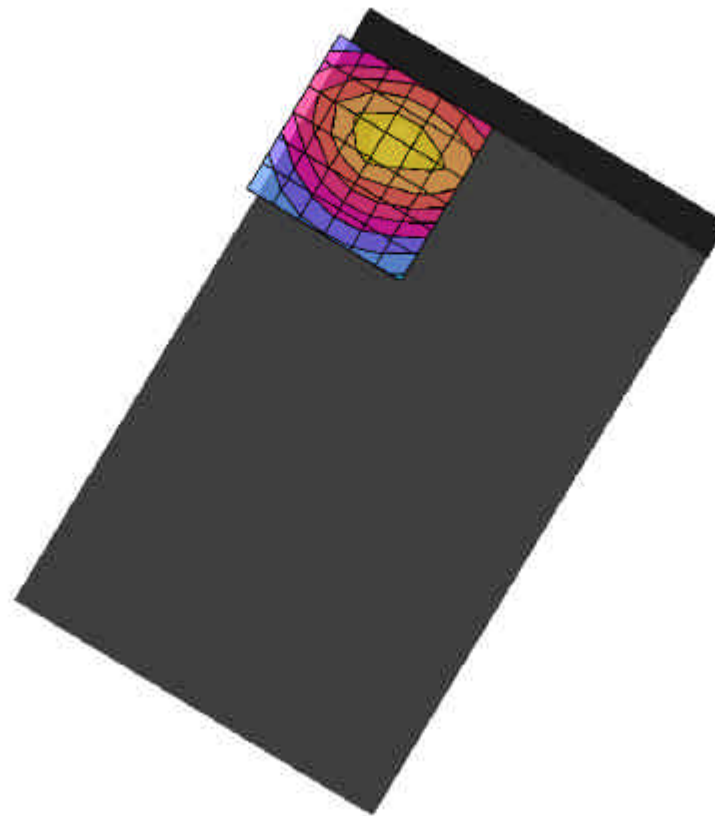
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.298 mW/g, SAR (1g): 0.176 mW/g

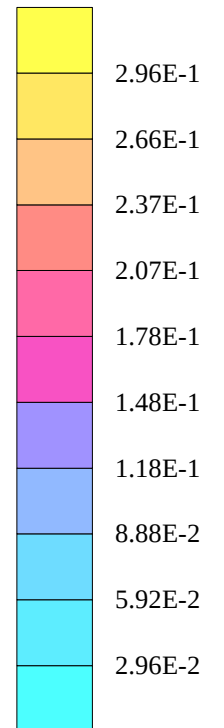
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 3.90%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Right Centre Channel (660)

SAM Phantom; Righ Hand

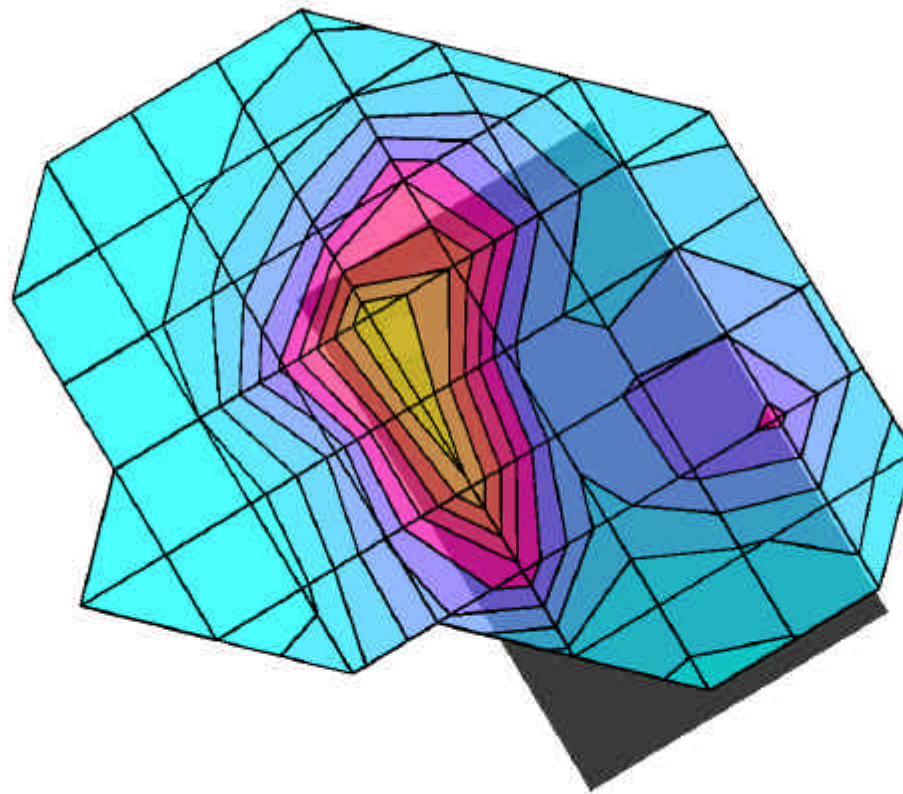
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

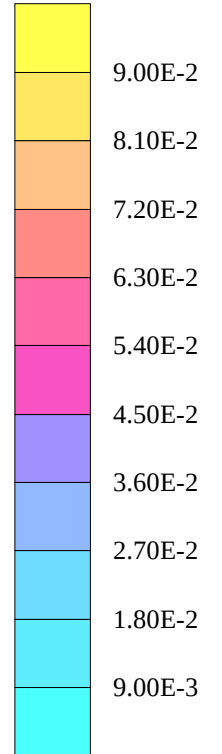
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 4.70%

04/28/03

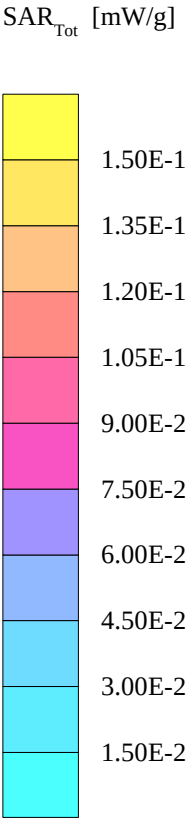
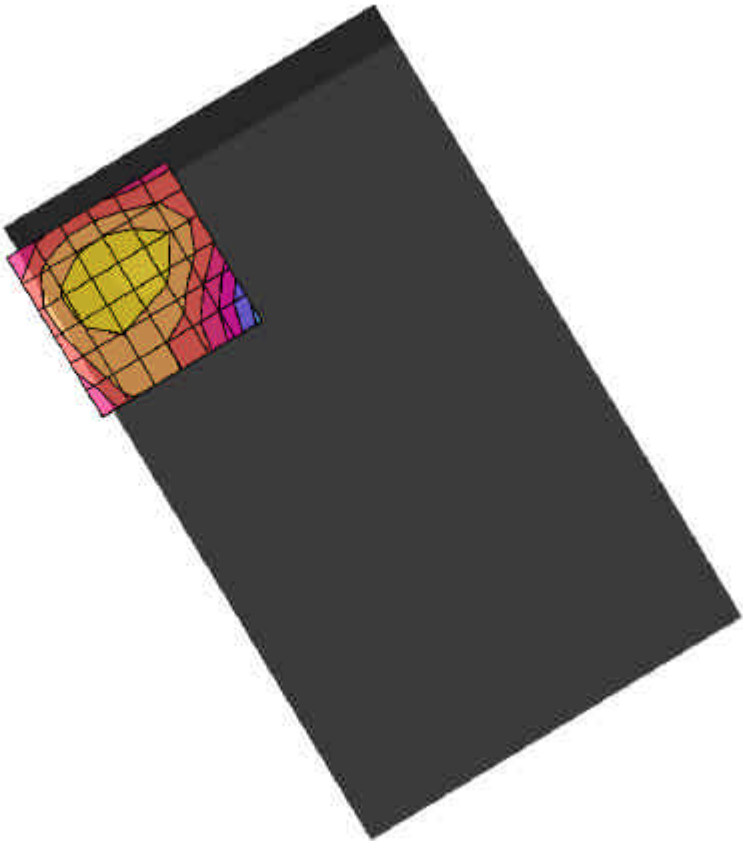


SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Right Centre Channel (660)
SAM Phantom; Righ Hand
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20)
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47 \text{ mho/m}$ $\epsilon_r = 38.7$ $\rho = 1.00 \text{ g/cm}^3$
Peak: 0.151 mW/g, SAR (1g): 0.0916 mW/g, SAR (10g): 0.0549 mW/g
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C
SAR Drift 4.70%
04/28/03



Danger Hiptop with Colour Display

Tilted Right Centre Channel (660)

SAM Phantom; Righ Hand

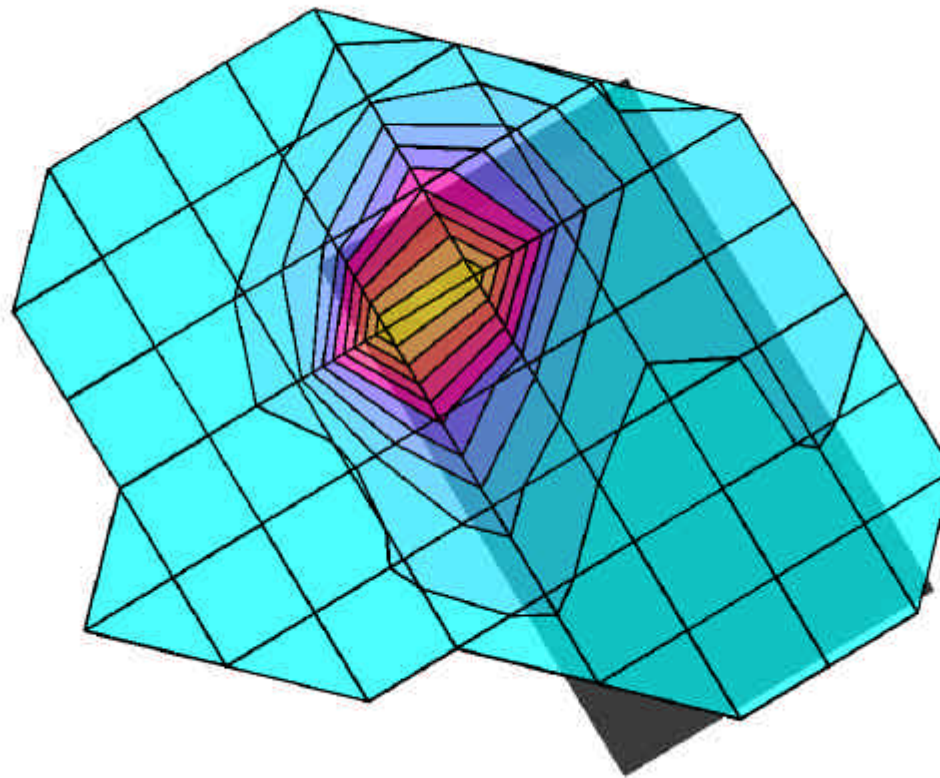
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

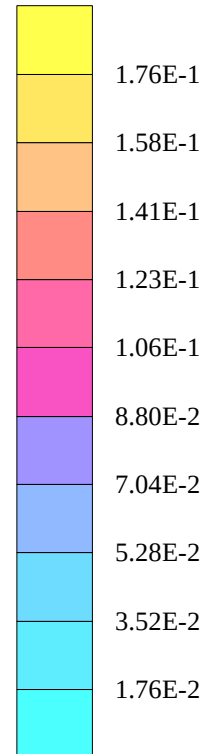
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 1.85%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Tilted Right Centre Channel (660)

SAM Phantom; Righ Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20)

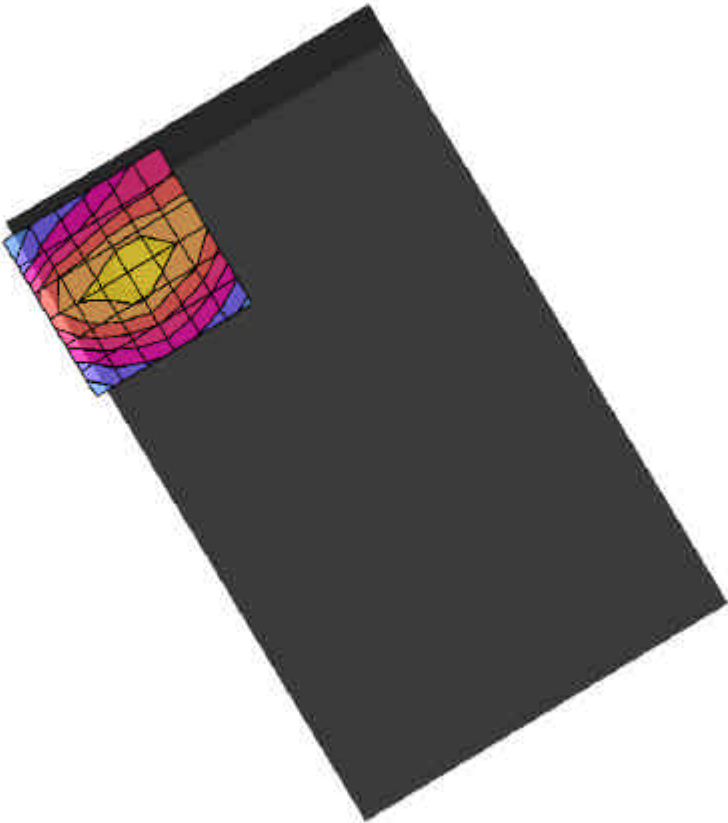
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47 \text{ mho/m}$ $\epsilon_r = 38.7$ $\rho = 1.00 \text{ g/cm}^3$

Peak: 0.292 mW/g, SAR (1g): 0.168 mW/g, SAR (10g): 0.0939 mW/g

Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 1.85%

04/28/03



SAR_{Tot} [mW/g]



2.91E-1

2.62E-1

2.33E-1

2.04E-1

1.75E-1

1.45E-1

1.16E-1

8.73E-2

5.82E-2

2.91E-2

Danger Hiptop with Colour Display

Cheek Right Bottom Channel (512)

SAM Phantom; Righ Hand

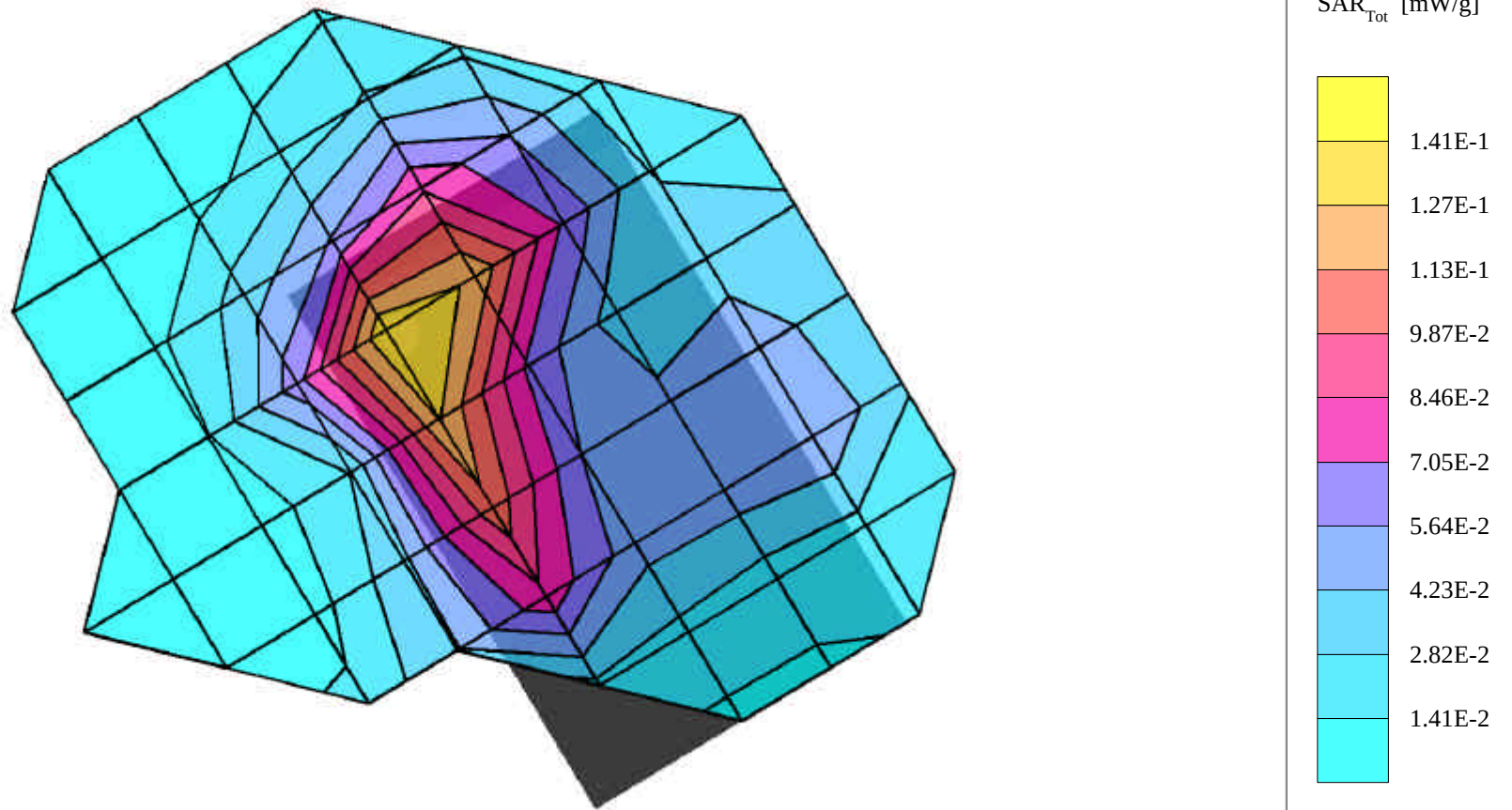
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

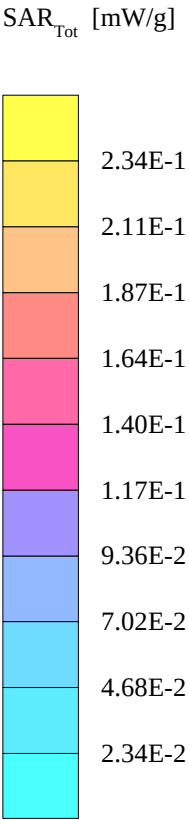
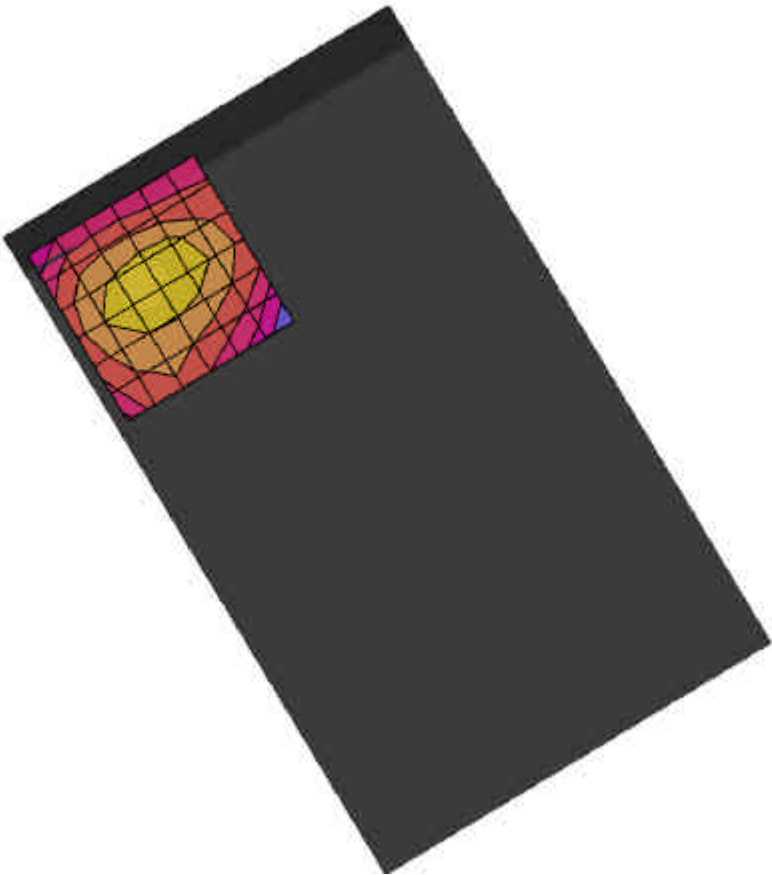
SAR Drift 6.90%

04/28/03



Danger Hiptop with Colour Display

Cheek Right Bottom Channel (512)
SAM Phantom; Righ Hand
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20)
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47 \text{ mho/m}$ $\epsilon_r = 38.7$ $\rho = 1.00 \text{ g/cm}^3$
Peak: 0.235 mW/g, SAR (1g): 0.139 mW/g, SAR (10g): 0.0835 mW/g
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C
SAR Drift 6.90%
04/28/03



Danger Hiptop with Colour Display

Cheek Right Top Channel (810)

SAM Phantom; Righ Hand

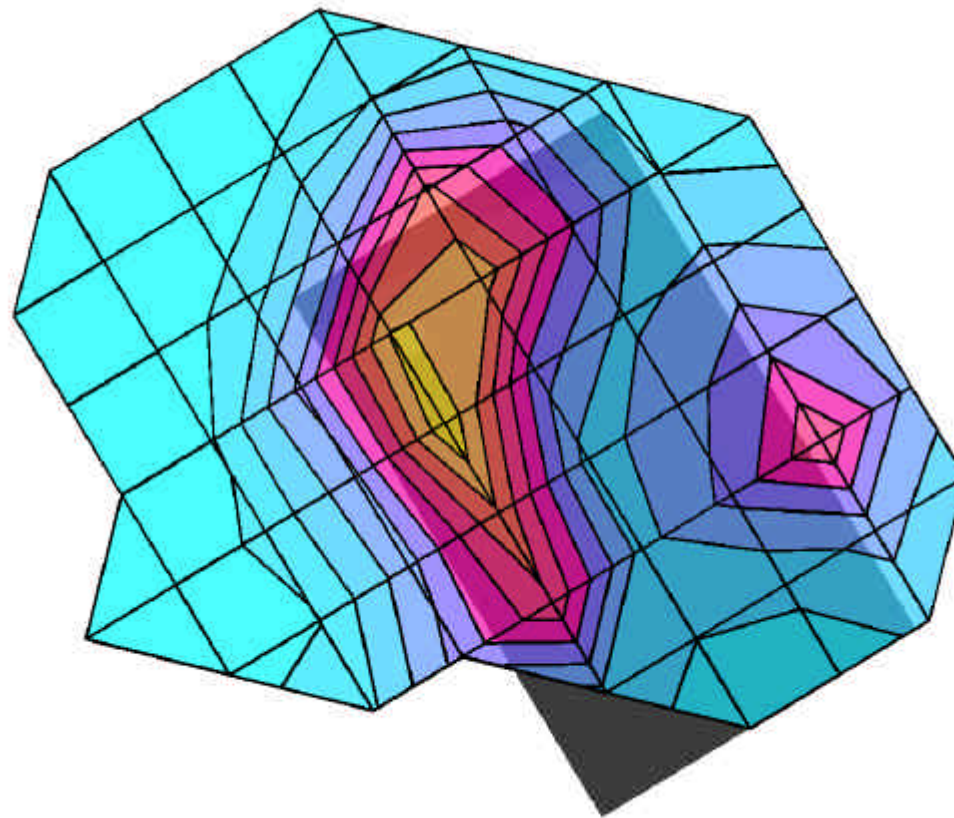
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

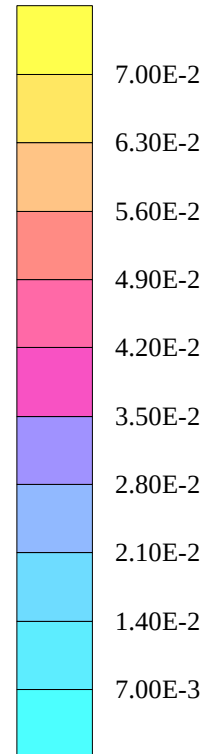
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 2.70%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Right Top Channel (810)

SAM Phantom; Righ Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

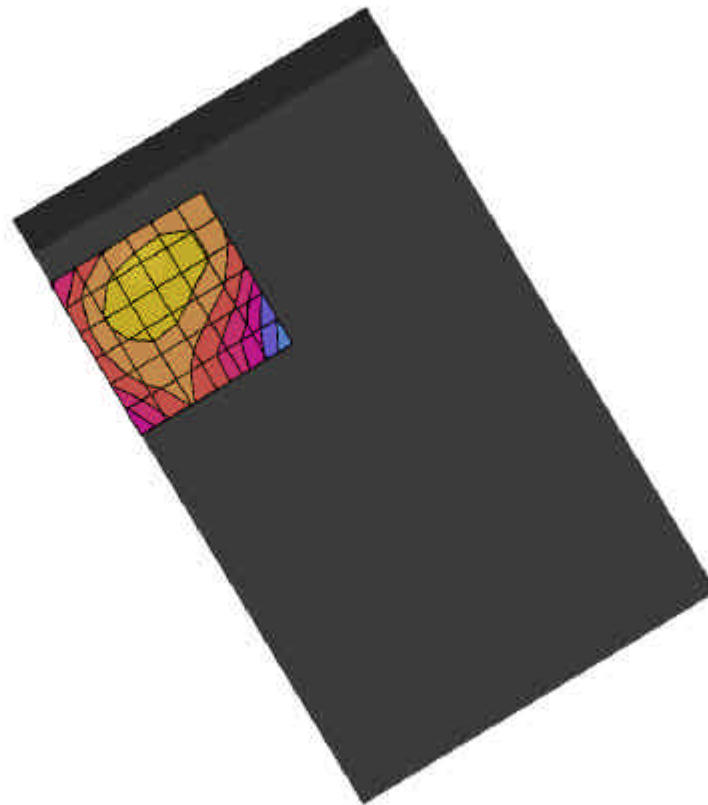
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.114 mW/g,SAR (1g): 0.0692 mW/g

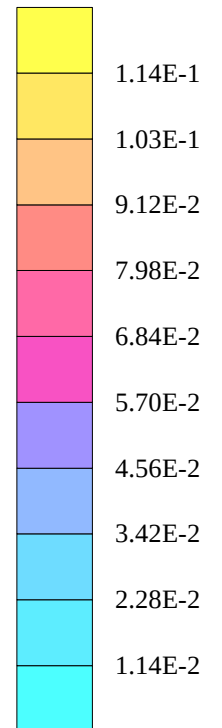
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 2.70%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Right Top Channel (810)

SAM Phantom; Righ Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

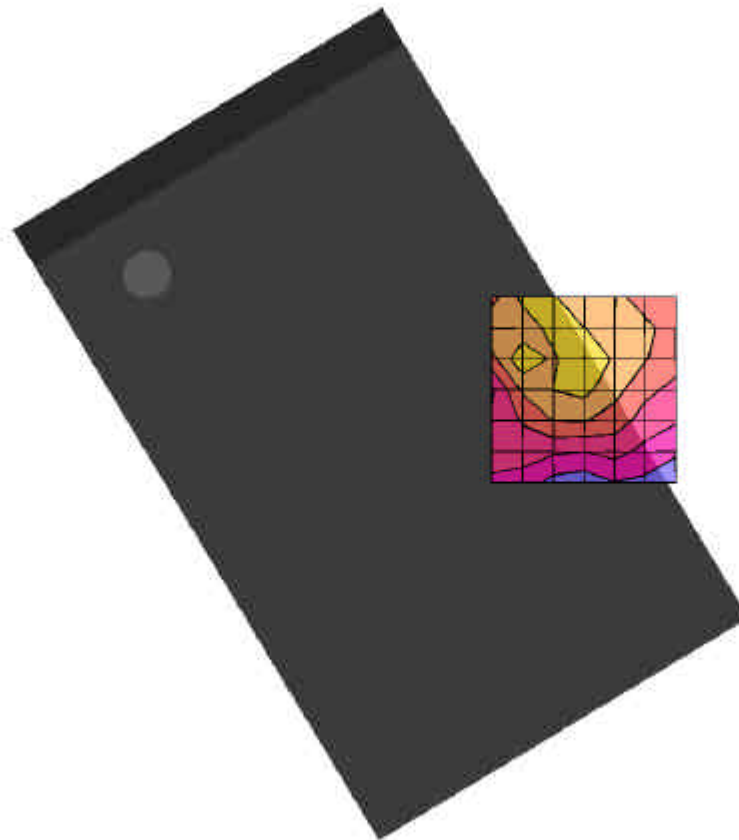
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.0603 mW/g, SAR (1g): 0.0376 mW/g

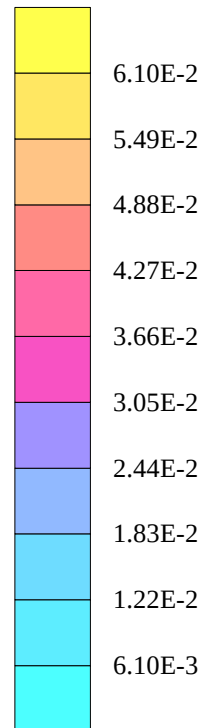
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 2.70%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Bottom Channel (512)

SAM Phantom; Left Hand

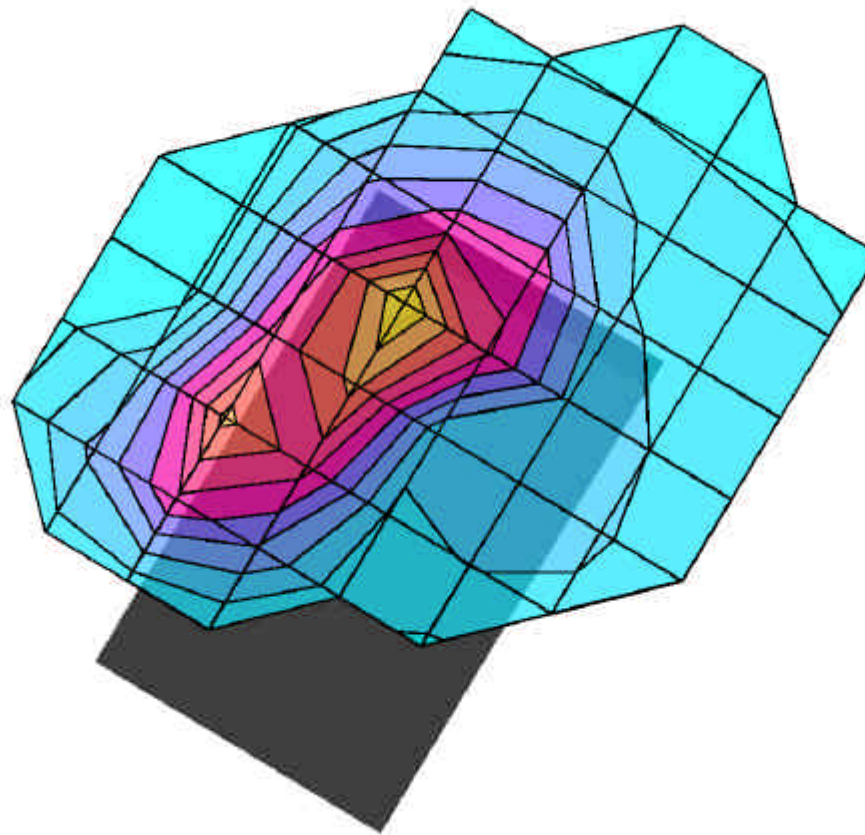
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

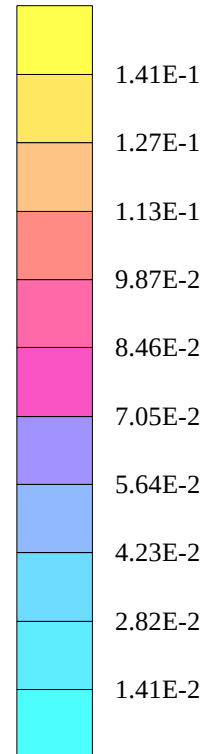
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 1.90%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Bottom Channel (512)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

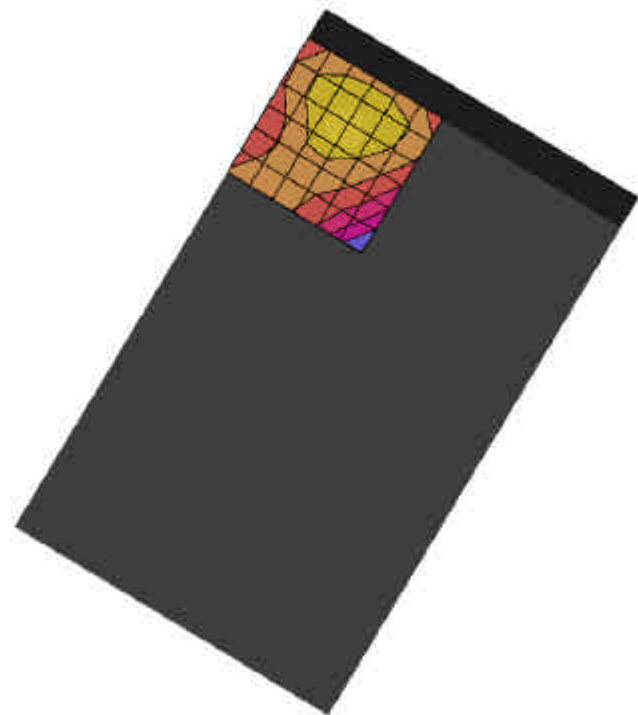
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.200 mW/g, SAR (1g): 0.125 mW/g

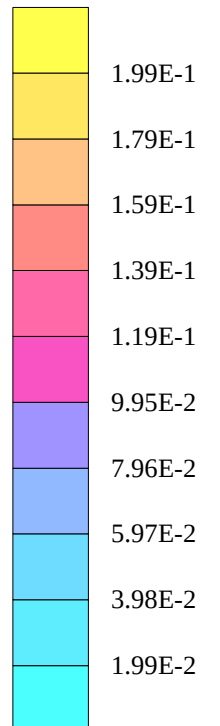
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 1.90%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Bottom Channel (512)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

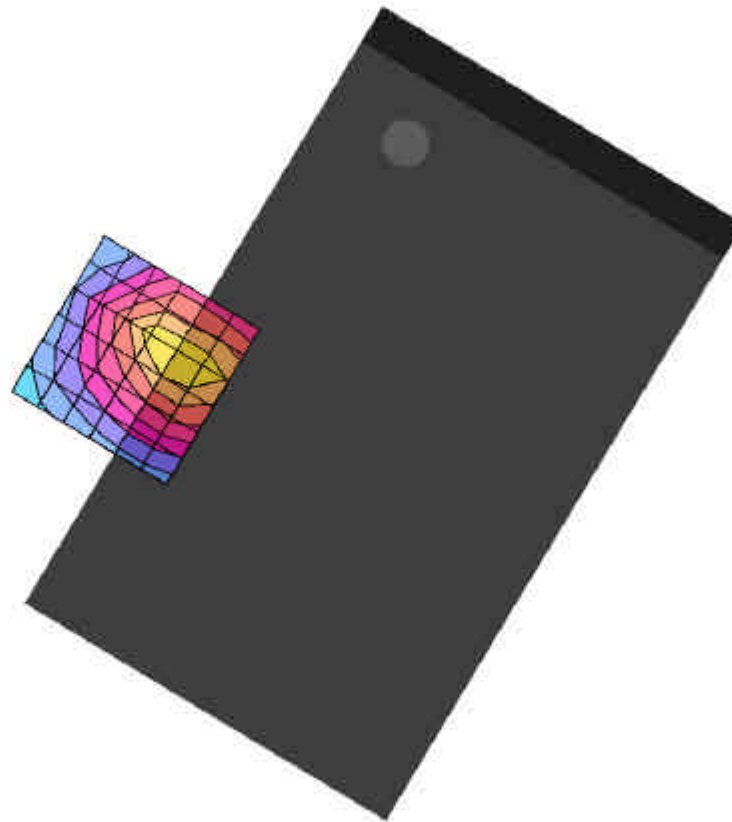
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.251 mW/g, SAR (1g): 0.138 mW/g

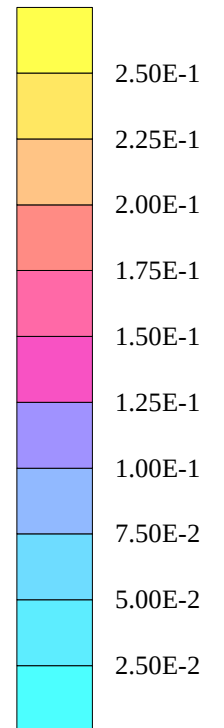
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 1.90%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Top Channel (810)

SAM Phantom; Left Hand

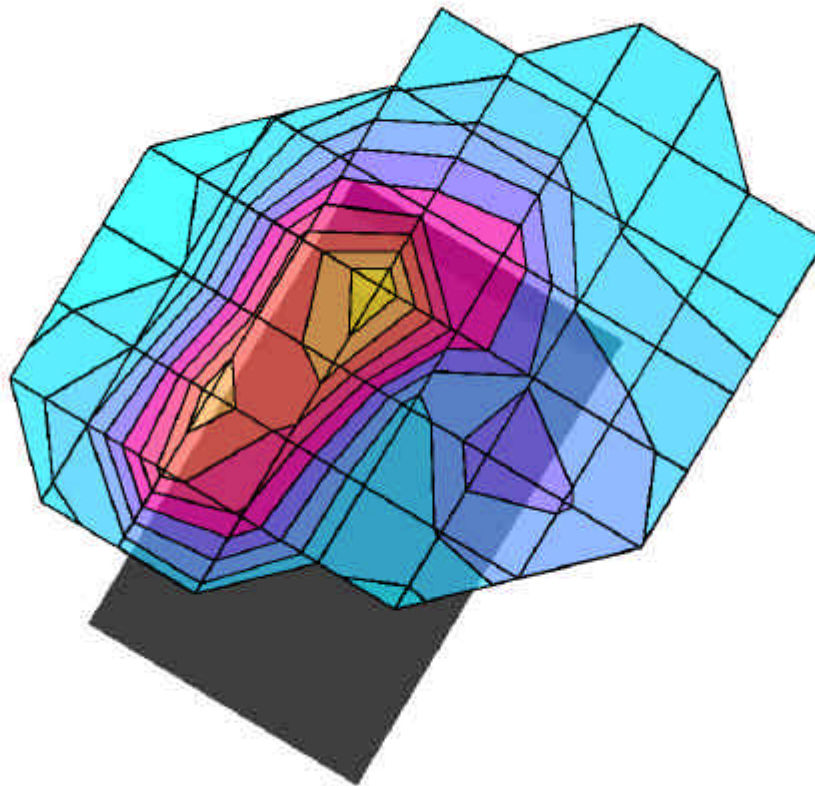
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

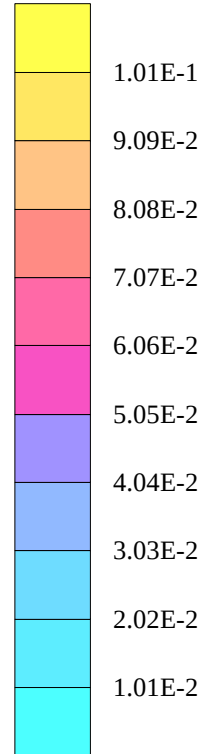
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 3.30%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Top Channel (810)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

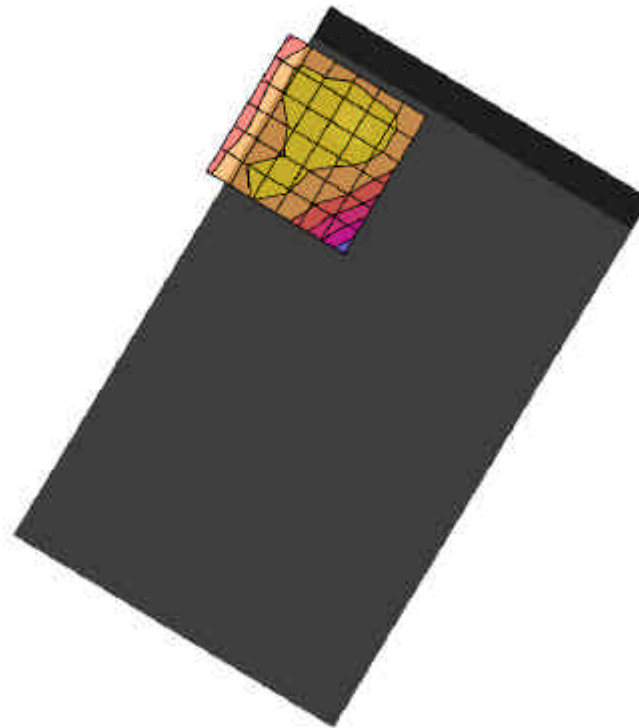
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.135 mW/g, SAR (1g): 0.0844 mW/g

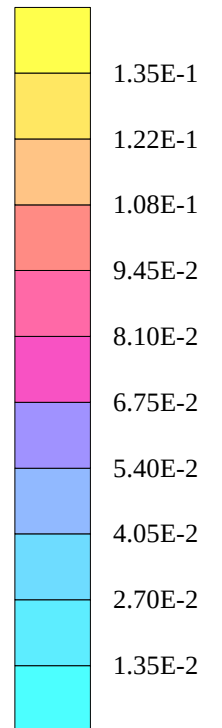
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 3.30%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Cheek Left Top Channel (810)

SAM Phantom; Left Hand

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

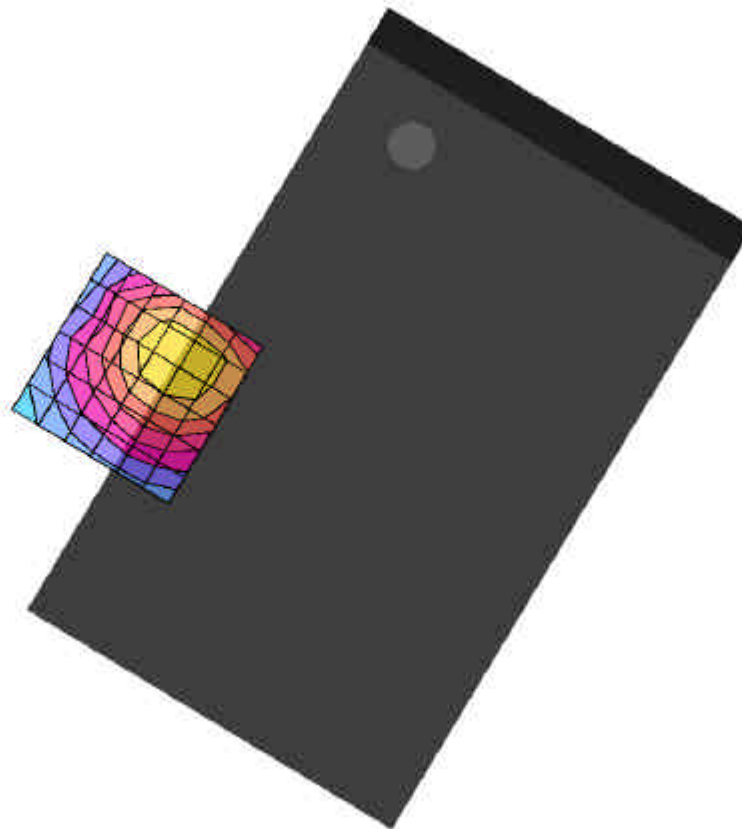
Crest factor: 8.0; Brain 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.7$ $\rho = 1.00$ g/cm³

Peak: 0.169 mW/g, SAR (1g): 0.0986 mW/g

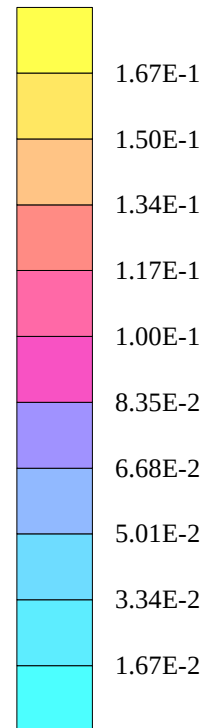
Lab Temperature 22.0 deg C, Fluid Temperature 19.8 deg C

SAR Drift 3.30%

04/28/03



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Centre Channel (660)

SAM Phantom; Flat

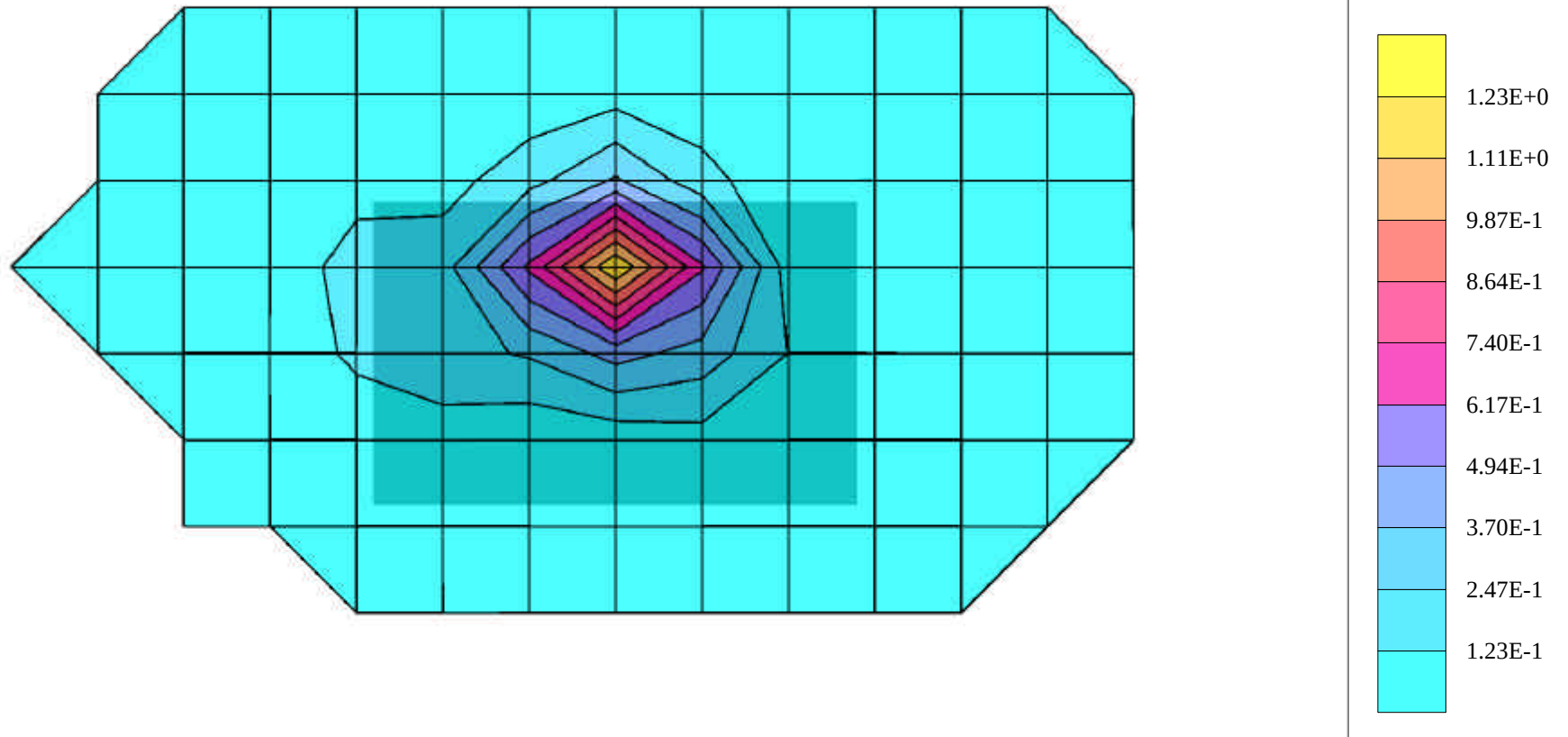
Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 0.90%

12/11/02



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Centre Channel (660)

SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

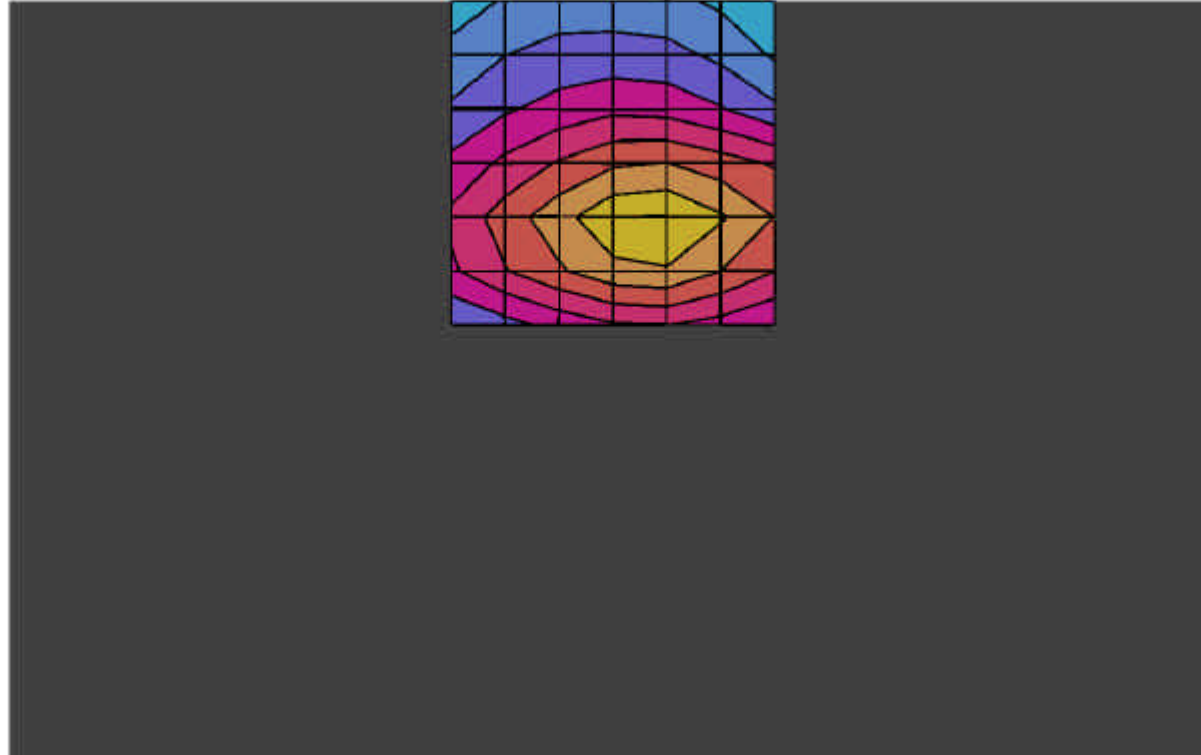
Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Peak: 2.31 mW/g, SAR (1g): 1.19 mW/g

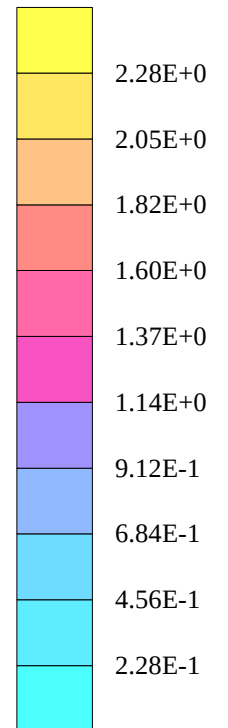
Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 0.90%

12/11/02



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Centre Channel (660)

SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

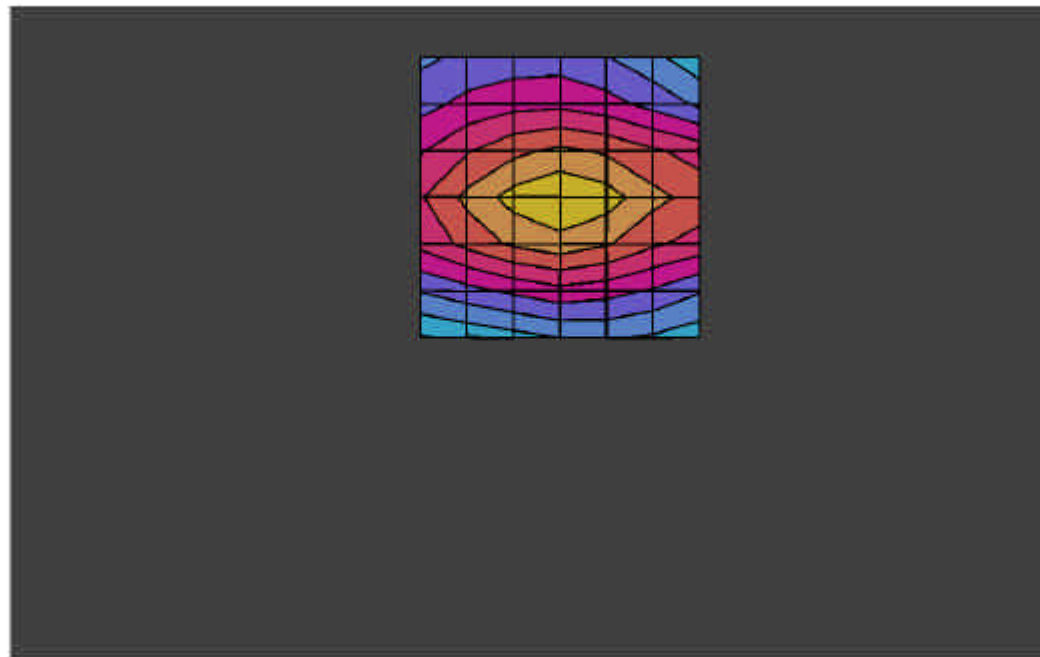
Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Peak: 2.32 mW/g, SAR (1g): 1.20 mW/g

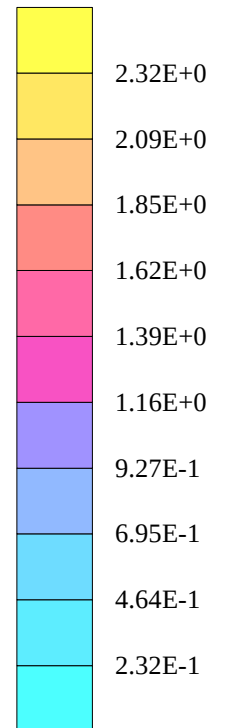
Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 0.90%

12/11/02



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Bottom Channel (512)

SAM Phantom; Flat

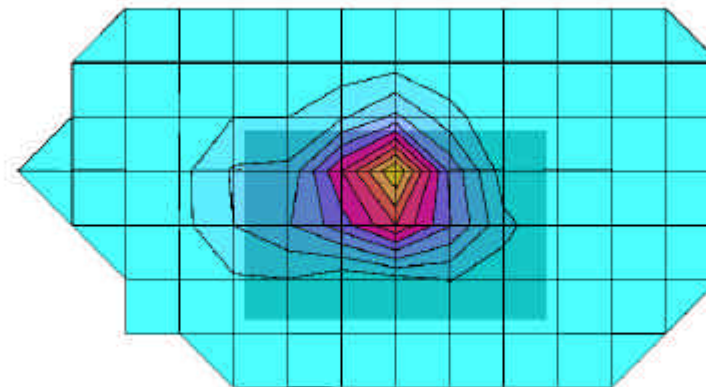
Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

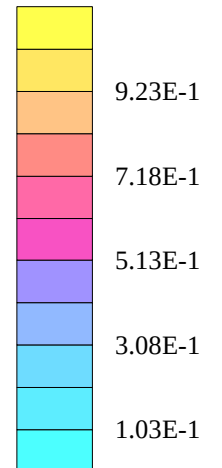
Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 2.10%

12/11/02



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Bottom Channel (512)

SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

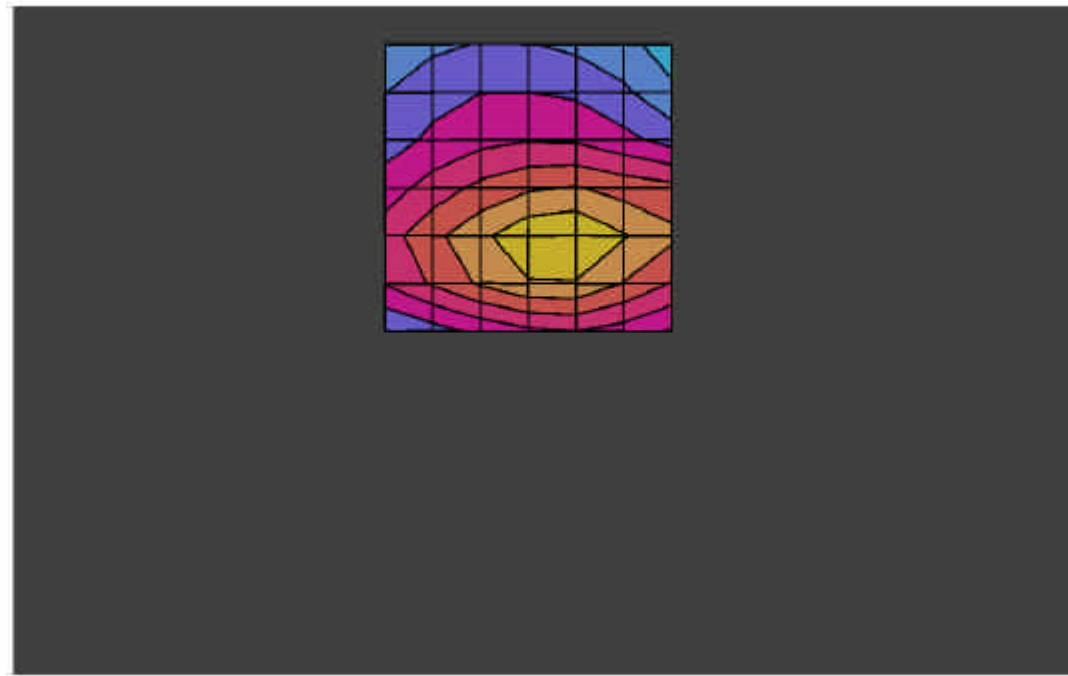
Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Peak: 2.27 mW/g, SAR (1g): 1.19 mW/g

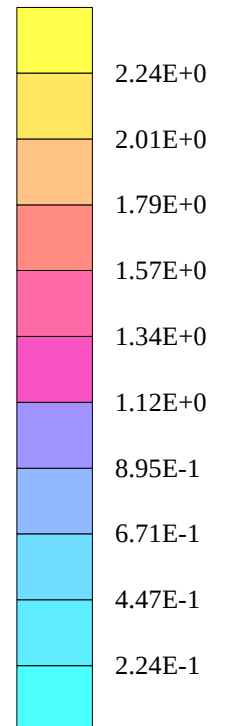
Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 2.10%

12/11/02



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Bottom Channel (512)

SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

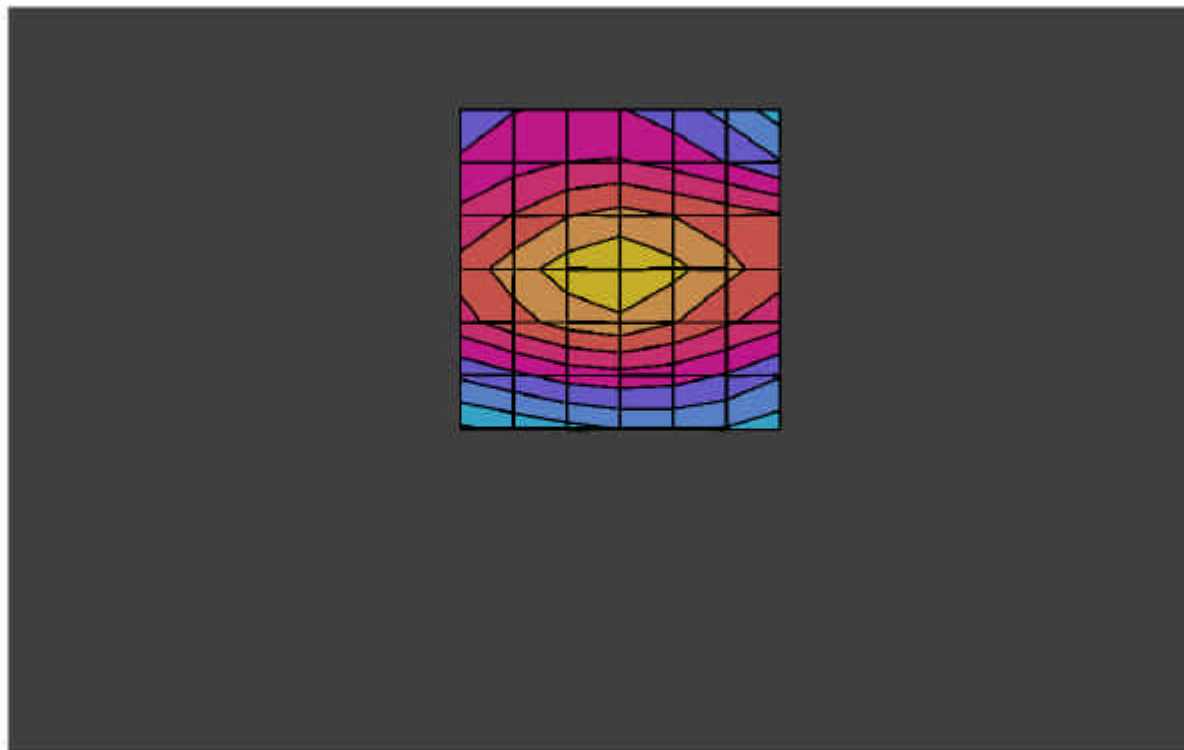
Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Peak: 2.25 mW/g, SAR (1g): 1.19 mW/g

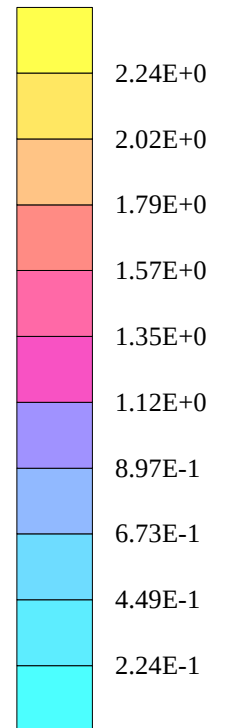
Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 2.10%

12/11/02



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Top Channel (810)

SAM Phantom; Flat

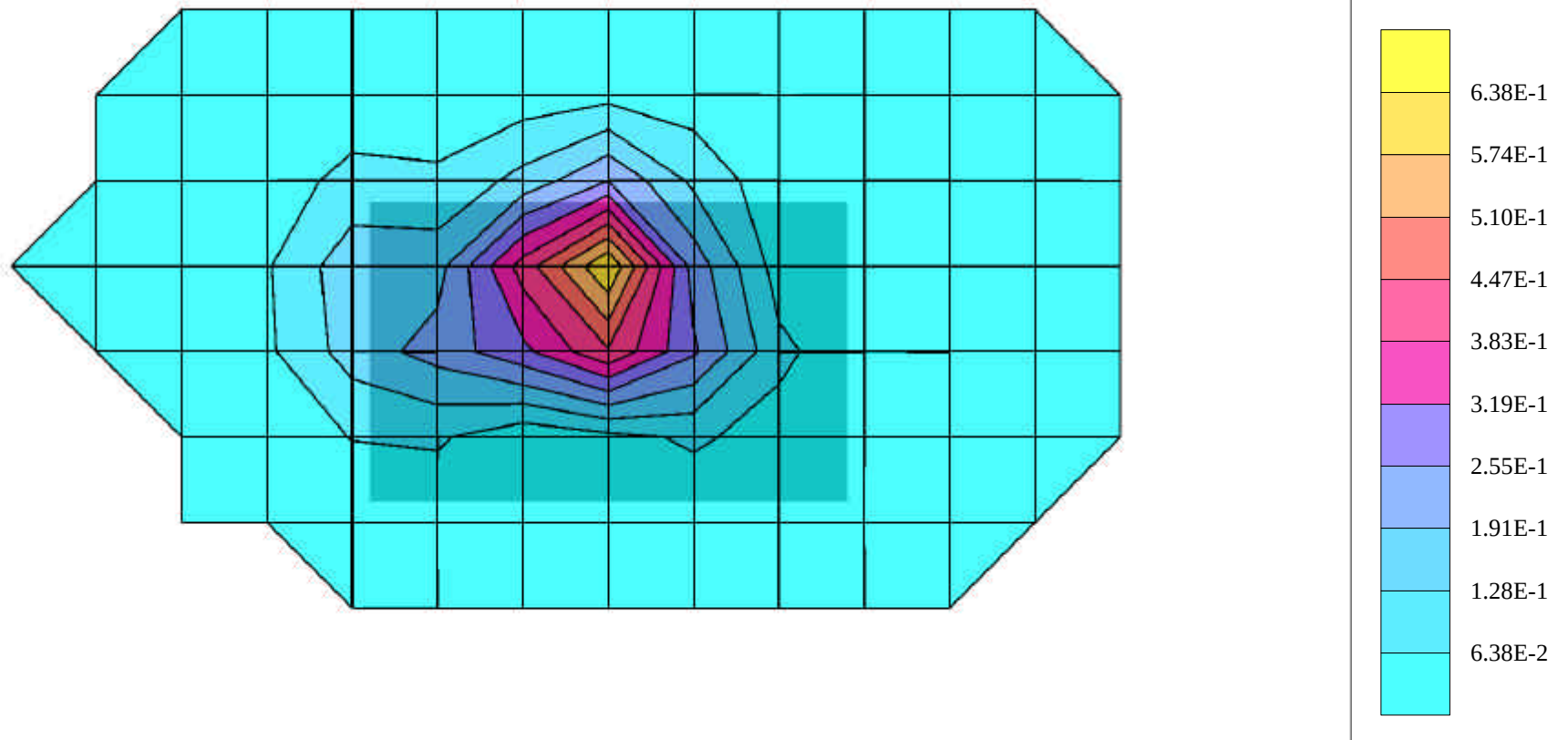
Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 0.90%

12/11/02



Danger Hiptop with Colour Display

Hiptop in Case in Body Worn Position Flat Top Channel (810)

SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

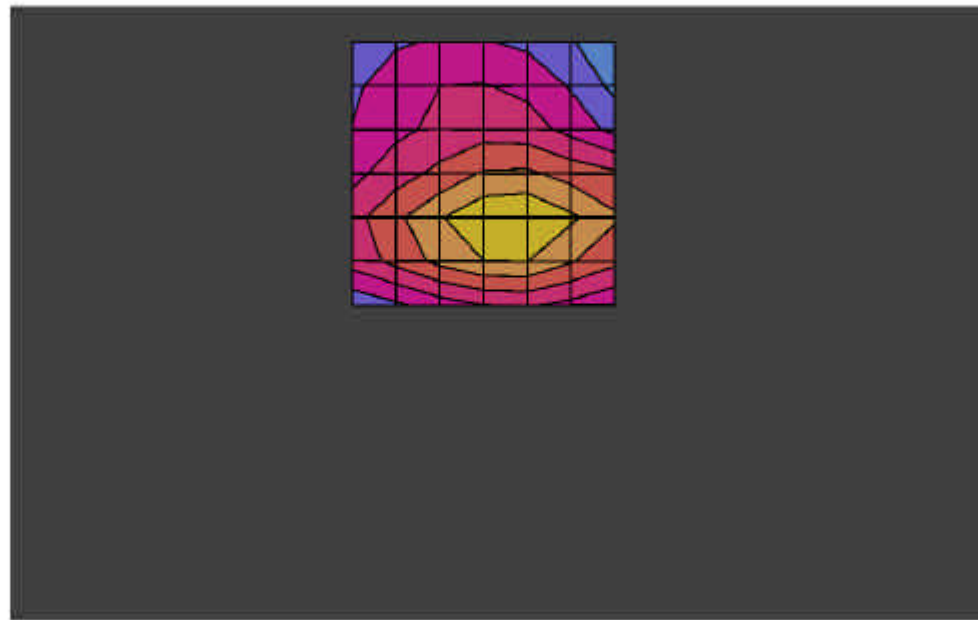
Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Peak: 1.36 mW/g, SAR (1g): 0.707 mW/g

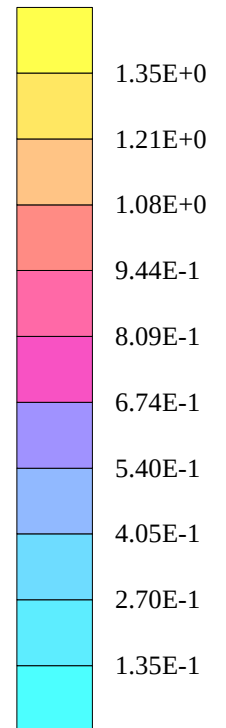
Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 0.90%

12/11/02



SAR_{Tot} [mW/g]



Danger Hiptop with Colour Display

Hiptop in Case with Personal Handsfree Kit Flat Centre Channel (660)

SAM Phantom; Flat

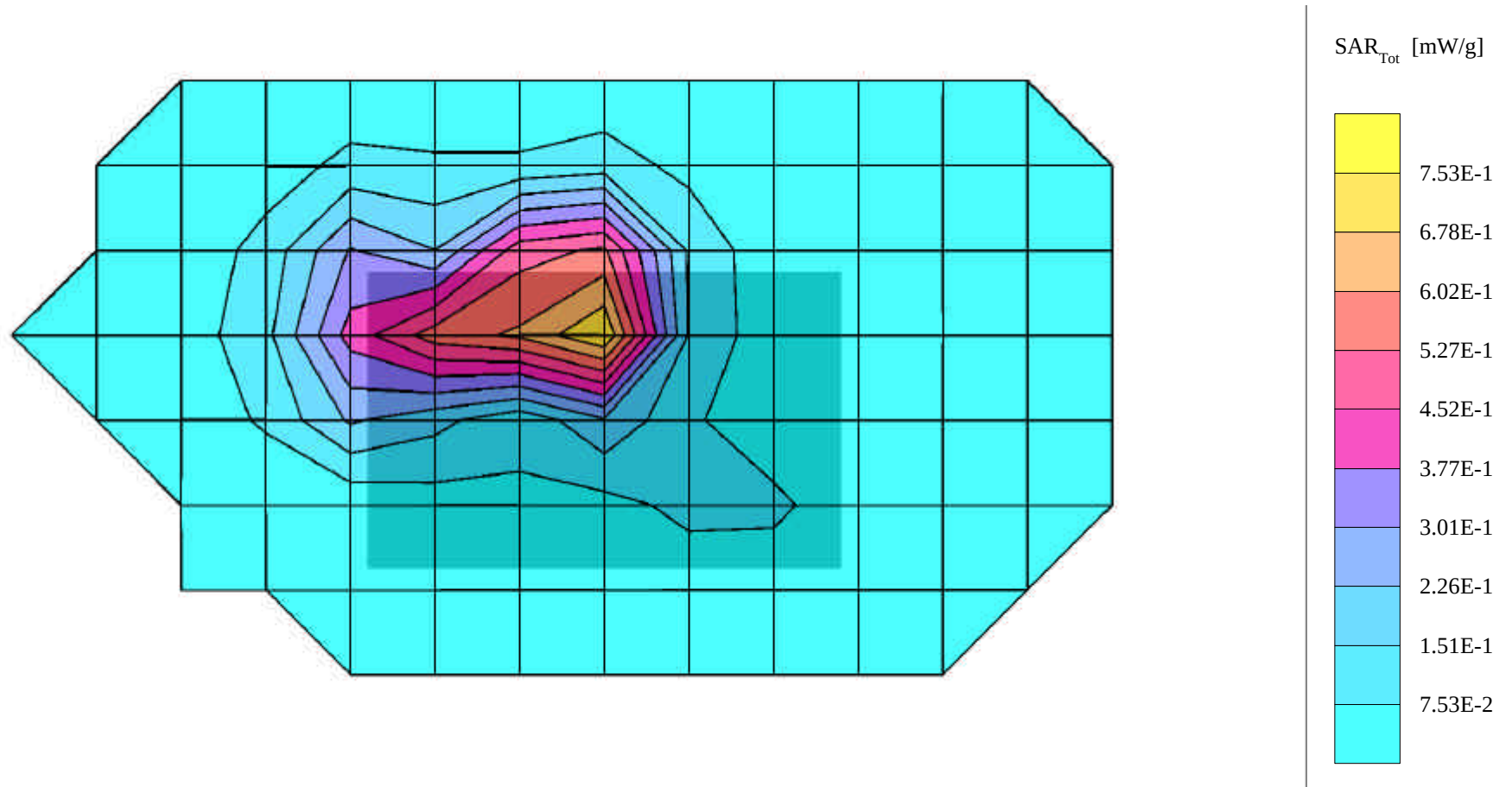
Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 4.50%

12/12/02



Danger Hiptop with Colour Display

Hiptop in Case with Personal Handsfree Kit Flat Centre Channel (660)

SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(4.70,4.70,4.70);

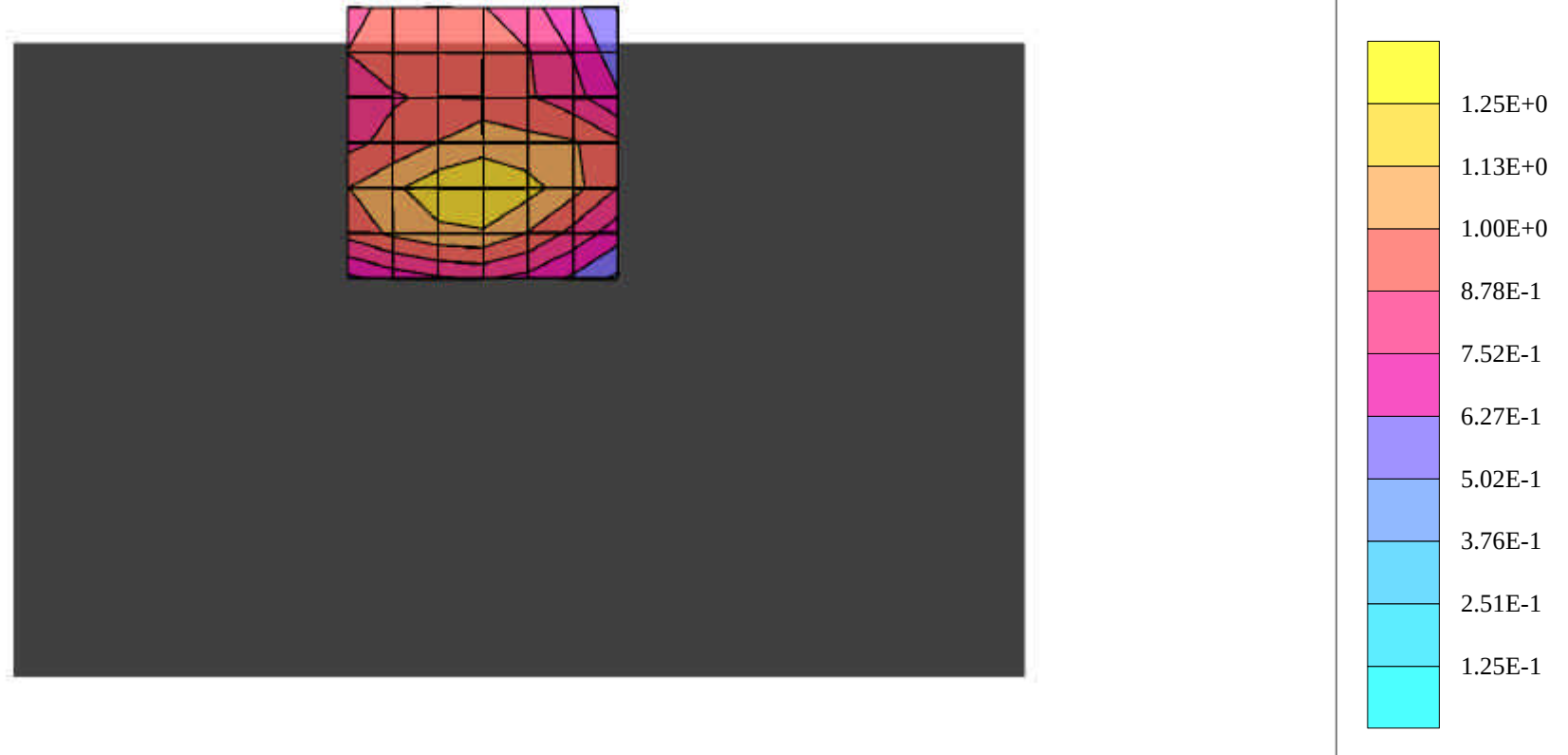
Crest factor: 8.0; Body 1900MHz FCC: $\sigma = 1.54$ mho/m $\epsilon_r = 50.7$ $\rho = 1.00$ g/cm³

Peak: 1.26 mW/g, SAR (1g): 0.650 mW/g

Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

SAR Drift 4.50%

12/12/02



Dipole 1900 MHz

Validation

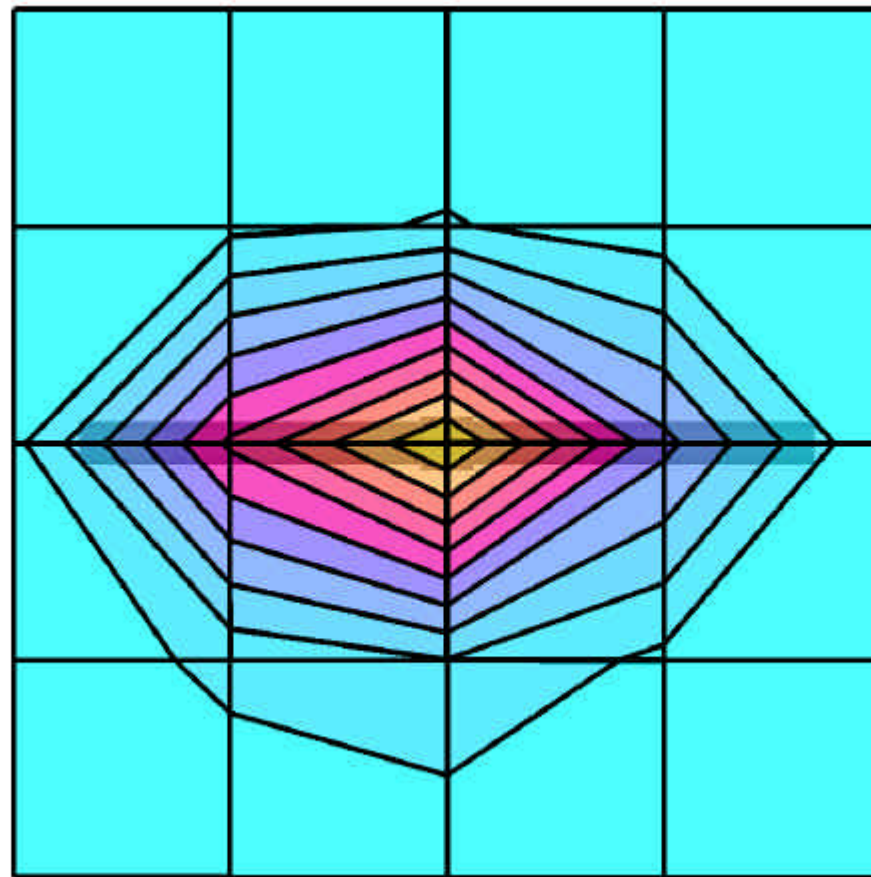
SAM Phantom; Flat

Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

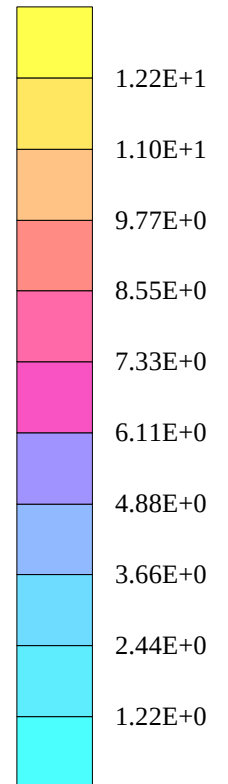
Crest factor: 1.0; Brain 1900MHz: $\sigma = 1.49$ mho/m $\epsilon_r = 37.5$ $\rho = 1.00$ g/cm³

Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

12/11/02



SAR_{Tot} [mW/g]



Dipole 1900 MHz

Validation

SAM Phantom; Flat

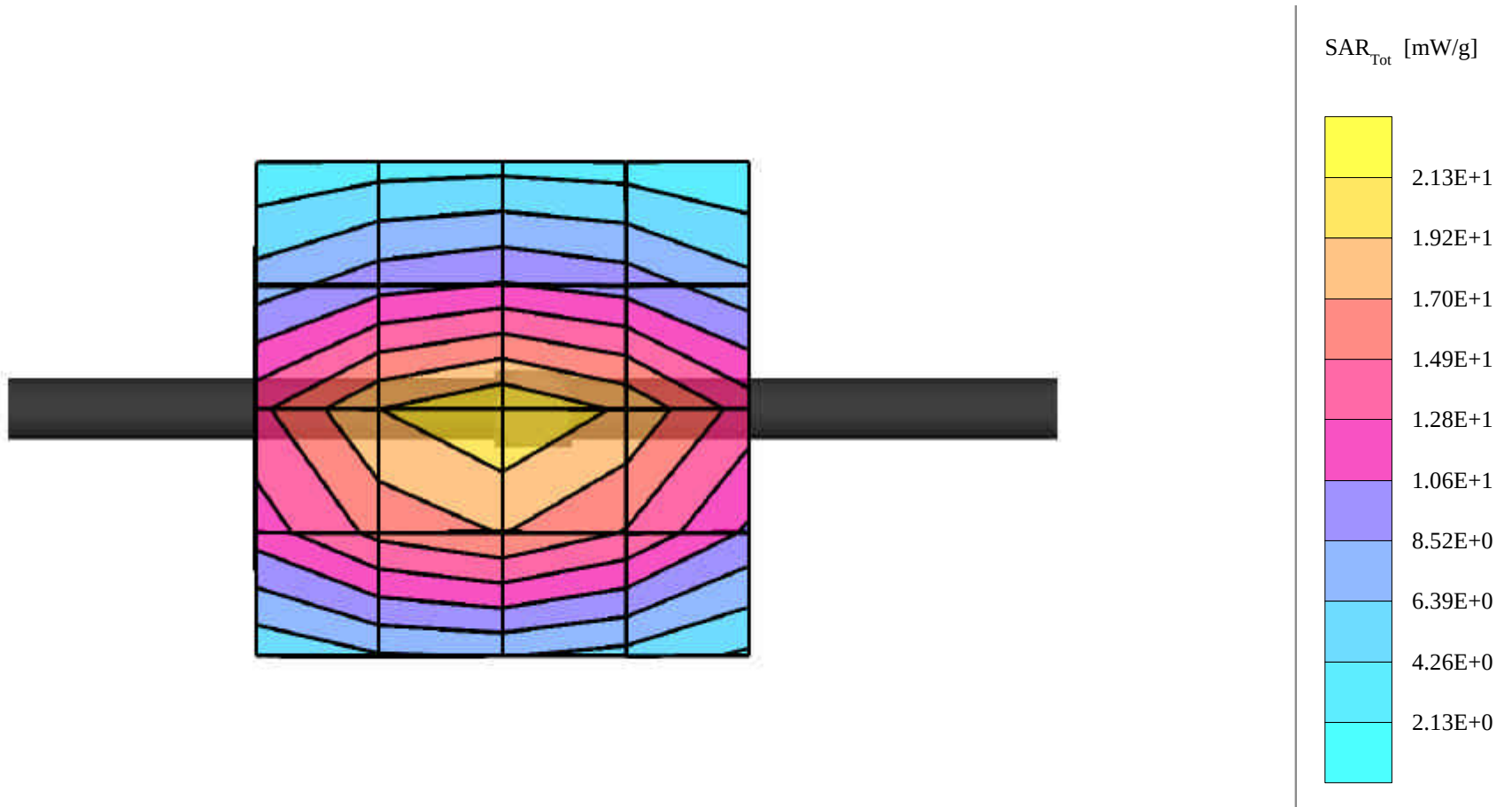
Probe: ET3DV6 - SN1529; ConvF(5.20,5.20,5.20);

Crest factor: 1.0; Brain 1900MHz: $\sigma = 1.49$ mho/m $\epsilon_r = 37.5$ $\rho = 1.00$ g/cm³

Peak: 21.9 mW/g ± 0.03 dB, SAR (1g): 10.6 mW/g ± 0.00 dB

Lab Temperature 21.5 deg C, Fluid Temperature 18.5 deg C

12/11/02



Test Of: Danger Inc.

Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

Appendix 3. Photographs of EUT

This appendix contains the following photographs:

Photo Reference Number	Title
PHT\44198JD02\001	Front View of EUT
PHT\44198JD02\002	Rear View of EUT
PHT\44198JD02\003	15 mm Fluid Level
PHT\44198JD02\004	View of Cheek Position Left
PHT\44198JD02\005	View of Cheek Position Right
PHT\44198JD02\006	View of Tilted Position Left
PHT\44198JD02\007	View of Tilted Position Right
PHT\44198JD02\008	View of Hiptop in Case with PHF
PHT\44198JD02\009	View of Hiptop in Case with PHF
PHT\44198JD02\010	View of Hiptop in Case with PHF
PHT\44198JD02\011	View of Hiptop in Case

These pages are not included in the total number of pages for this report.

RADIO FREQUENCY INVESTIGATION LTD.

TEST REPORT

Operations Department

Photograph Section

S.No. RFI/SARB1/SUP44198JD02A

Test Of: Danger Inc.

Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

PHT\44198JD02\001 Front View of EUT



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Operations Department

TEST REPORT

Photograph Section

S.No. RFI/SARB1/SUP44198JD02A

Test Of: Danger Inc.

To: Hiptop Mobile Telephone Handset with Colour Display

OET Bulletin 65 Supplement C: (2001-01)

PHT\44198JD02\002 Rear View of EUT



RADIO FREQUENCY INVESTIGATION LTD.

Operations Department

TEST REPORT

Photograph Section

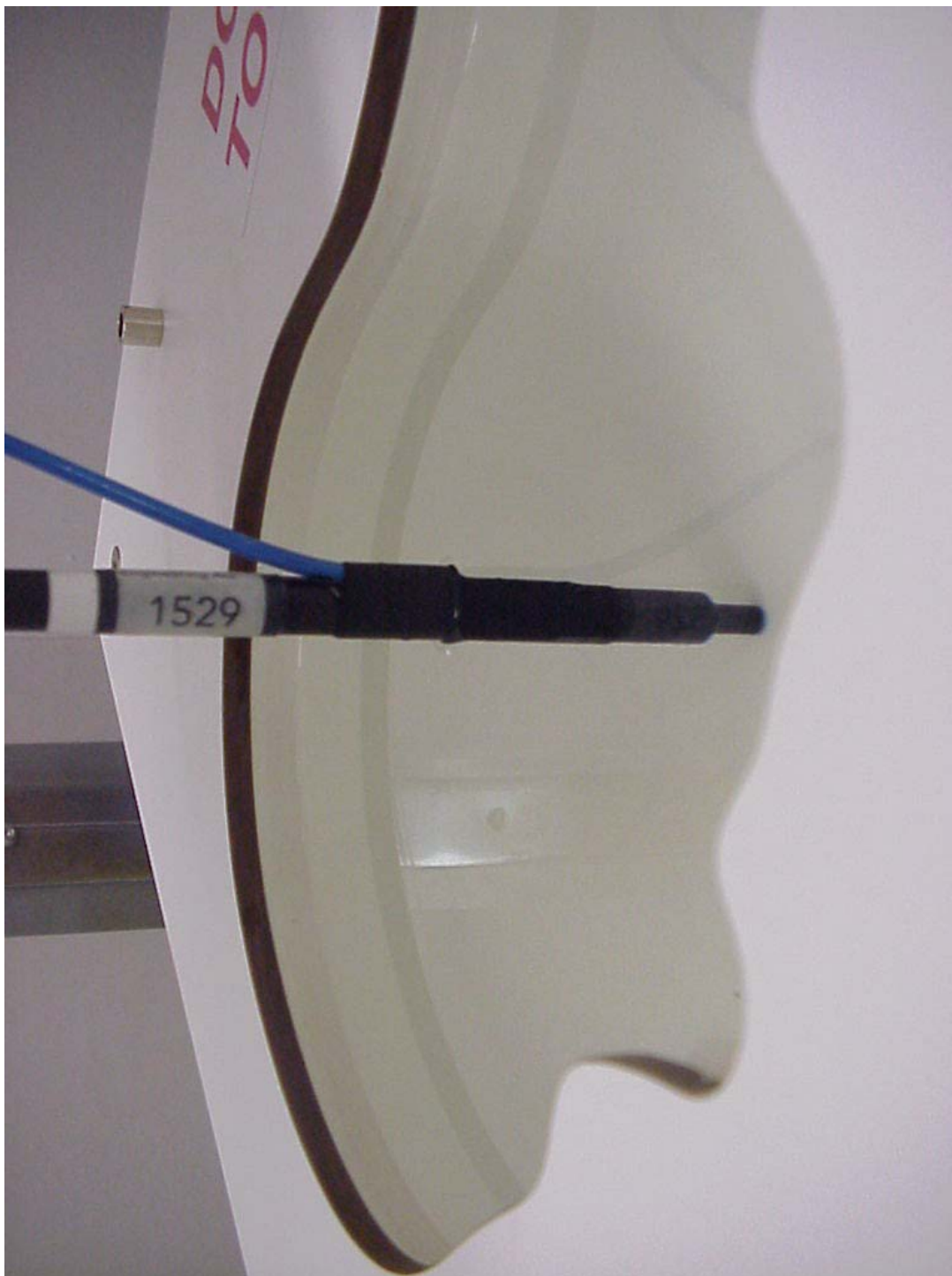
S.No. RFI/SARB1/SUP44198JD02A

Test Of: Danger Inc.

Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

PHT\44198JD02\003 15 mm Fluid Level



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TEST REPORT

Photograph Section

S.No. RFI/SARB1/SUP44198JD02A

Test Of: Danger Inc.

Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

PHT\44198JD02\004 View of Cheek Position Left



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TEST REPORT

Photograph Section

S.No. RFI/SARB1/SUP44198JD02A

Test Of: Danger Inc.

Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

PHT\44198JD02\005 View of Cheek Position Right



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Operations Department

TEST REPORT

Photograph Section

S.No. RFI/SARB1/SUP44198JD02A

Test Of: Danger Inc.

Hiptop Mobile Telephone Handset with Colour Display

To: OET Bulletin 65 Supplement C: (2001-01)

PHT\44198JD02\006 View of Tilted Position Left



RADIO FREQUENCY INVESTIGATION LTD.

Operations Department

TEST REPORT

Photograph Section

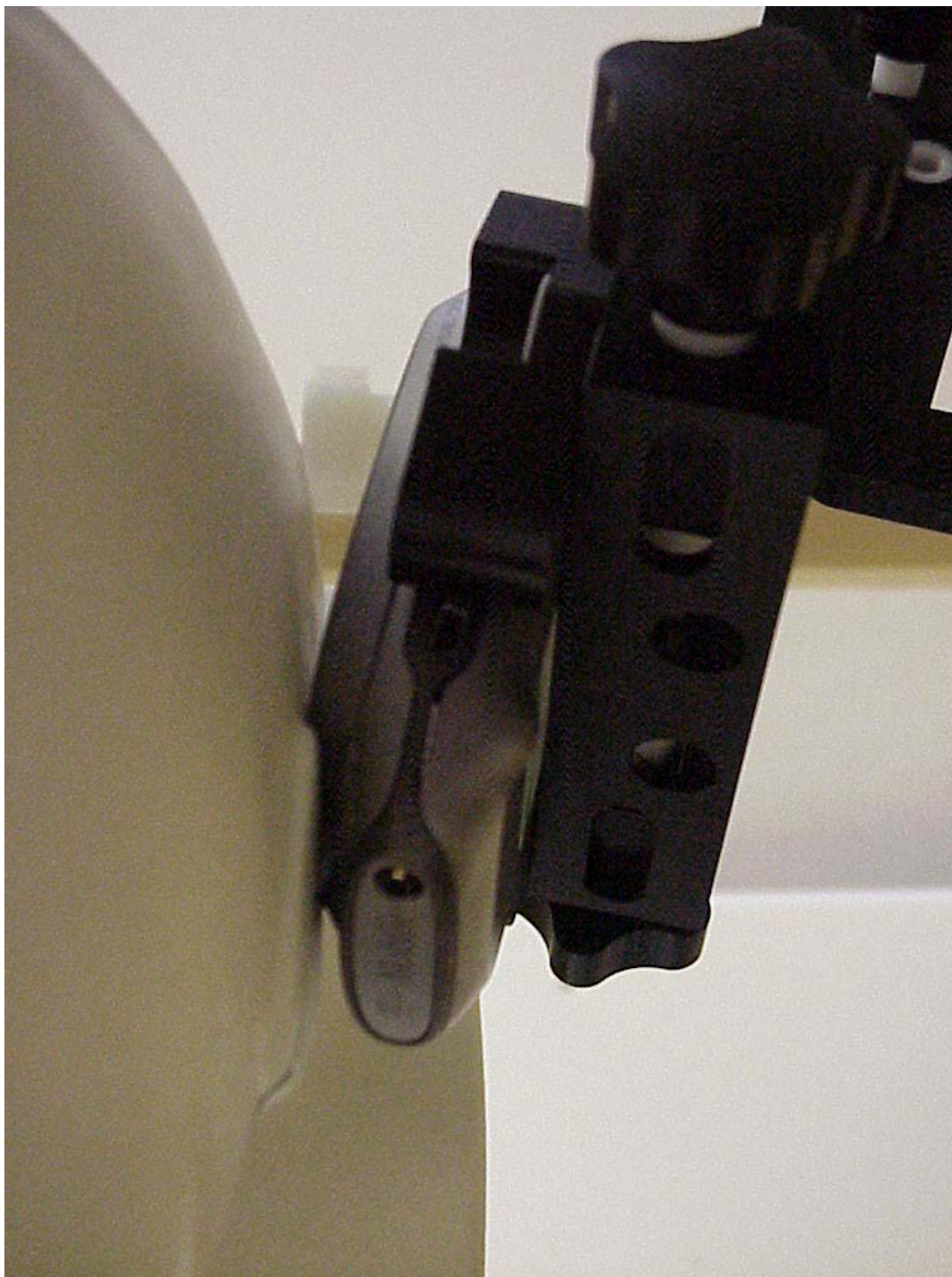
S.No. RFI/SARB1/SUP44198JD02A

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PHT\44198JD02\007 View of Tilted Position Right



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TEST REPORT

Photograph Section

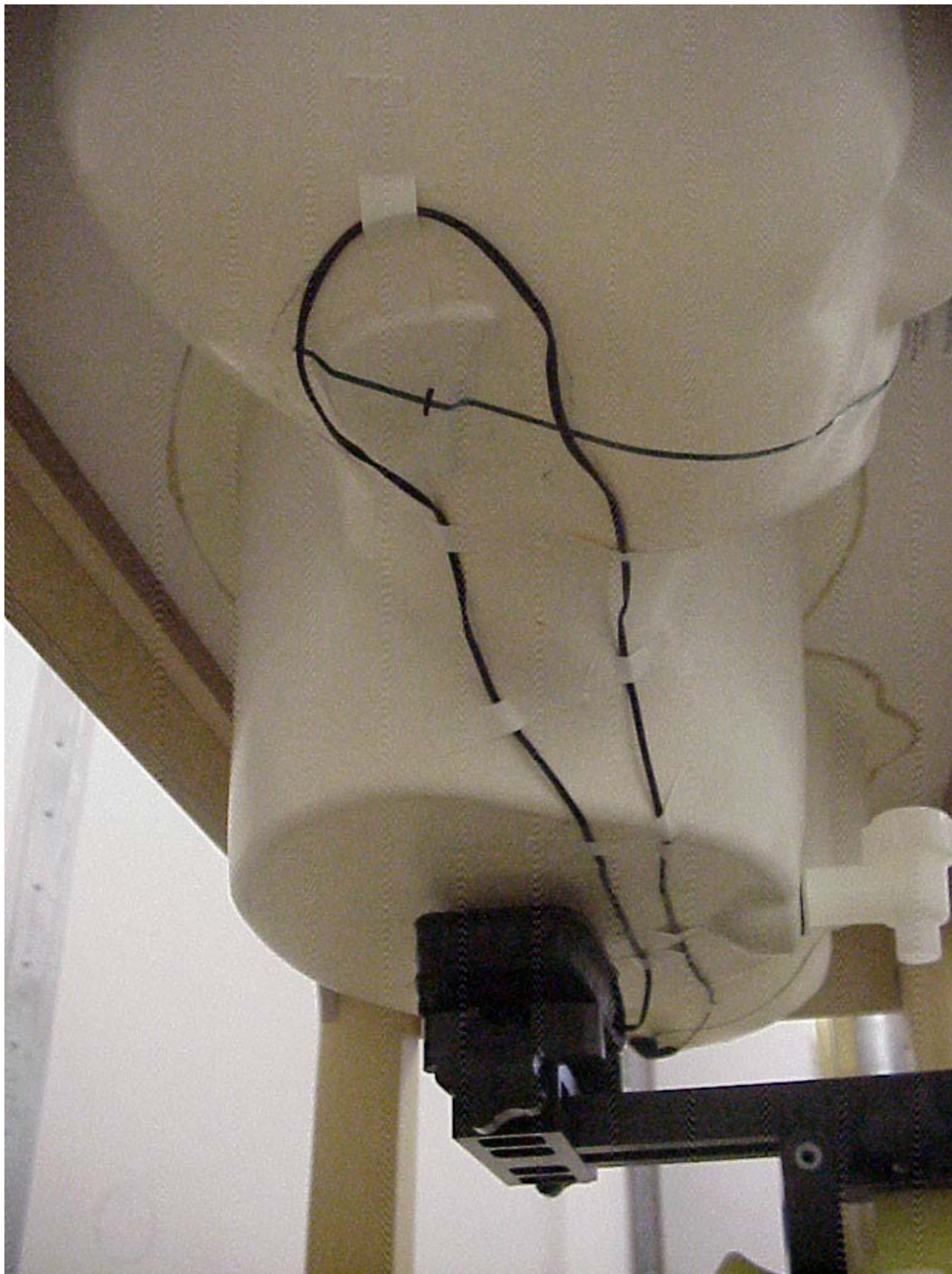
S.No. RFI/SARB1/SUP44198JD02A

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Hiptop Mobile Telephone Handset with Colour Display

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PHT\44198JD02\008 View of Hiptop in Case with PHF



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PHT\44198JD02\009 View of Hiptop in Case with PHF



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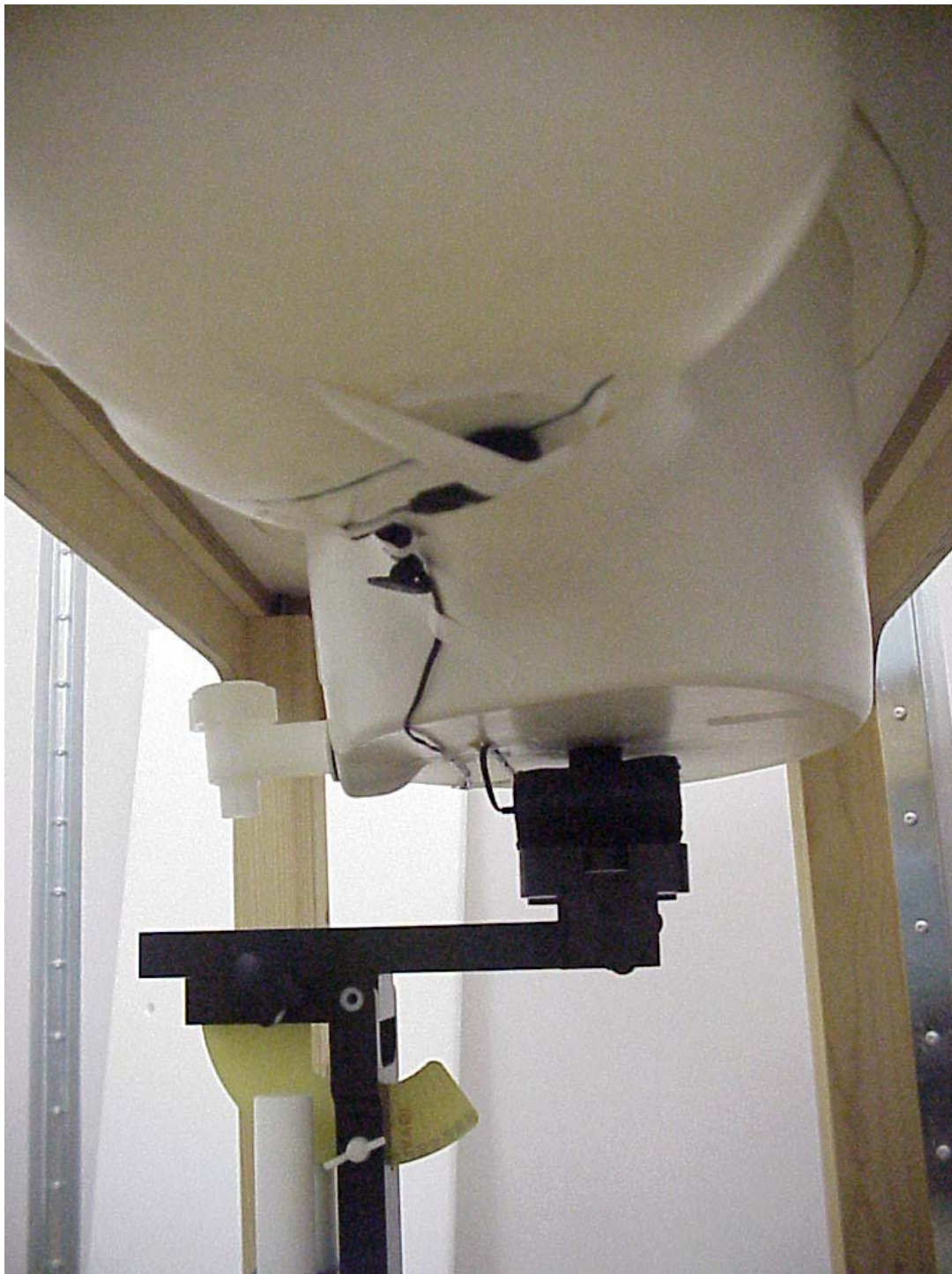
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PHT\44198JD02\011 View of Hiptop in Case

