



Exhibit 11: SAR Test Report: IHDT56BJ1 Amendment

Date of test: December 7 & 8, 2001

Laboratory: Motorola Personal Communications Sector Product Safety Laboratory
2001 N. Division
Room: AS228
Harvard, Illinois 60033

Test Responsible: Steven Hauswirth
Senior Staff Engineer

Accreditation: This laboratory is accredited to ISO/IEC 17025-1999 to perform the following electromagnetic exposure tests:



System Validation & Interlaboratory Comparison
Simulated Tissue Specifications and Procedure
EME Cellular Phone Testing Procedure

On the following types of products:

Wireless Communications Devices (Examples): Two Way Radios; Portable Phones (including Cellular, Licensed Non-Broadcast and PCS); Low Frequency Readers; and Pagers

A2LA certificate #1651-01

Statement of Compliance:

Motorola declares under its sole responsibility that portable cellular telephone FCC ID IHDT56BJ1 to which this declaration relates, is in conformity with the appropriate RF exposure standards, recommendations and guidelines. It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(none)

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This test report shall not be reproduced in full, without written approval of the laboratory.

The results and statements contained herein relate only to the items tested. The names of individuals involved may be mentioned only in connection with the statements or results from this report.

Motorola encourages all feedback, both positive and negative, on this test report.

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1. Introduction

The Motorola Personal Communications Sector Product Safety Laboratory has performed measurements of the maximum potential exposure to the user of portable cellular phone FCC ID IHDT56BJ1. The Specific Absorption Rate (SAR) of this product was measured. The portable cellular phone was tested in accordance with the latest available test guidelines. The SAR values found for the portable cellular phone (FCC ID IHDT56BJ1) are below the maximum recommended levels of 1.6 W/kg. Detailed procedures of the test are described in the *Motorola Exhibit 11 Reference SAR Test Report*.

2. Description of the Device Under Test

Antenna description

Type	Extendable Whip	
Location	Right Side	
Dimensions	Length	58 mm
	Width	8 mm
Configuration	Helix	

Device description

FCC ID Number	IHDT56BJ1		
Serial number	A88BE514		
Mode(s) of Operation	AMPS800	CDMA800	CDMA1900
Modulation Mode(s)	AMPS	CDMA	CDMA
Maximum Output Power Setting	26.90dBm	25.00dBm	25.00dBm
Duty Cycle	1:1	1:1	1:1
Transmitting Frequency Rang(s)	824-849MHz	824-849MHz	1851-1909MHz

3. Test Results

The SAR results shown in tables 1 and 2 are maximum SAR values averaged over 1 gram of phantom tissue. Also shown are the measured conducted output powers and the temperature of the test facility during the test.

The test sample was operated over the air using a CDMA mobile call box. The phone was then placed in the SAR measurement system with a fully charged battery.

A full data set output of two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix 2 and 3. The test conditions included are indicated as bold numbers in the following table. All other test conditions measured lower SAR values than those included.

<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Cheek/Touch Position SAR, 1g					
			Left Head					
			Ant Ext			Ant Ret		
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)
Digital 1900MHz	Channel 25	25.29	0.439	-0.15	0.454	0.981	-0.99	1.232
	Channel 600	25.48	0.615	0.26	0.615	1.100	-0.42	1.212
	Channel 1175	24.90	0.43	-0.22	0.452	0.862	-0.68	1.008

Table1: SAR measurement results for the portable cellular telephone FCC ID IHDT56BJ1 at highest possible output power. Measured against the head.

			Cheek/Touch Position SAR, 1g					
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	<i>Right Head</i>					
			<i>Ant Ext</i>			<i>Ant Ret</i>		
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)
Digital 1900MHz	Channel 25	25.29	0.333	-0.43	0.368	0.511	-0.51	0.575
	Channel 600	25.48	0.497	-0.41	0.546	0.932	-0.87	1.139
	Channel 1175	24.90	0.324	-0.79	0.389	0.697	-0.70	0.819

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT56BJ1 at highest possible output power. Measured against the body.

			Body-Worn SAR, 1g					
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Carry Case with Belt-Clip					
			<i>Ant Ext</i>			<i>Ant Ret</i>		
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)
Digital 1900MHz	Channel 25	25.29	0.629	-0.38	0.687	0.239	-0.26	0.254
	Channel 600	25.48	0.577	-0.57	0.658	0.206	-0.14	0.213
	Channel 1175	24.90	0.544	-0.80	0.654	0.191	-0.73	0.226

Table 3: SAR measurement results for the portable cellular telephone FCC ID IHDT56BJ1 at highest possible output power. Measured against the body.

4. Test Equipment Used

4.1 Dosimetric System

The Motorola Personal Communications Sector Product Safety Laboratory utilizes a Dosimetric Assessment System (Dasy3™) SAR measurement system manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The overall RSS uncertainty of the measurement system is ±12.0% (K=1).

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN385	26-Feb-02
E-Field Probe ETDV6	SN1103	15-Jan-02
Dipole Validation Kit, DV1800V2	SN284	03-Jan-03

4.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04844	19-Jan-03
Power Meter E4419B	GB39511084	18-Jan-02
Power Sensor 8481A	2702A59572	16-Oct-02

5. Electrical parameters of the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity, ϵ_r , and the conductivity, σ , of the tissue simulating liquids were measured with HP85070 Dielectric Probe Kit. These values are shown in the table below. The mass density, ρ , used by the dosimetric system is also given. Recommended limits for maximum permittivity, minimum conductivity and maximum mass density are also shown. It is seen that the measured parameters are satisfactory for compliance testing.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ϵ_r	σ (S/m)	ρ (g/cm ³)
1880	Head	Measured, 07-Dec-01	39.65	1.39	1.00
		Recommended Limits	40.00	1.40	1.03
	Body	Measured, 08-Dec-01	48.83	1.65	1.00
		Recommended Limits	53.30	1.52	1.04

6. System Accuracy Verification

A system accuracy verification of the DASY3 was performed using the measurement equipment listed in Section 4. The test was conducted on the same day as the measurement of the DUT. The obtained results are displayed in the table below. The distributions of SAR compare well with those of the reference measurements (see Appendix 1).

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Temp (°C)
			ϵ_r	σ (S/m)	
1900	Measured, 07-Dec-01	44.18	41.06	1.67	22.5
	Recommended Limits	44.40	40.00	1.71	NA
1900	Measured, 08-Dec-01	45.42	39.14	1.70	23.3
	Recommended Limits	44.40	40.00	1.71	NA

Appendix 1

SAR distribution comparison for the system accuracy verification

Dipole 1800 MHz

1800MHz Dipole Validation / Dipole Sn# 284 / Forward Power = 249mW / Temp at time of measurement 22.5 C.

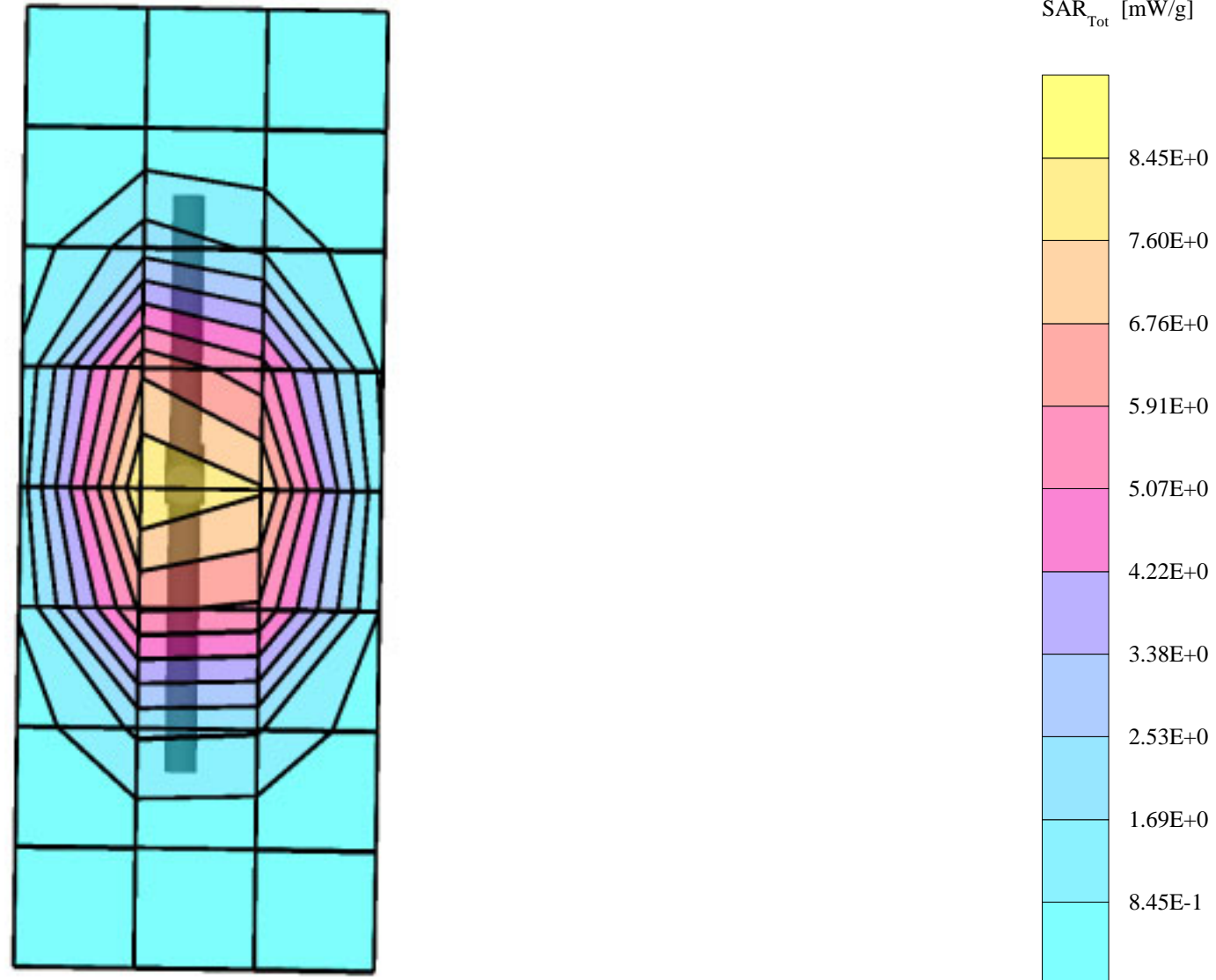
Amy Twin Phantom 2.3; Section2

Probe: ET3DV6 - SN1103 Validation; ConvF(5.71,5.71,5.71); Crest factor: 1.0; Validation 1800 MHz: $\sigma = 1.67$ mho/m $\epsilon_r = 41.1$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 21.2 mW/g ± 0.06 dB, SAR (1g): 11.0 mW/g ± 0.06 dB, SAR (10g): 5.47 mW/g ± 0.06 dB, (Worst-case extrapolation)

Penetration depth: 7.2 (7.0, 7.6) [mm]

Powerdrift: -0.09 dB



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 280 / Forward Power = 251 / Simulant Temp at time of measurement = 23.3C

Amy Twin Phantom 2.3; Section2

Probe: ET3DV6 - SN1103 Validation; ConvF(5.71,5.71,5.71); Crest factor: 1.0; Validation 1800 MHz: $\sigma = 1.70$ mho/m $\epsilon_r = 39.1$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 21.7 mW/g ± 0.10 dB, SAR (1g): 11.4 mW/g ± 0.08 dB, SAR (10g): 5.73 mW/g ± 0.06 dB, (Worst-case extrapolation)

Penetration depth: 7.4 (7.2, 7.9) [mm]

Powerdrift: -0.03 dB



Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

s/n: A88BE514

Ch# 25 / Pwr Step: Always Up / Antenna Position: Retracted / Type of Modulation: 1900CDMA

Robot 7 Left Head (George) Glycol Phantom; Left Head Section; Position: (90°,180°); Frequency: 1851 MHz

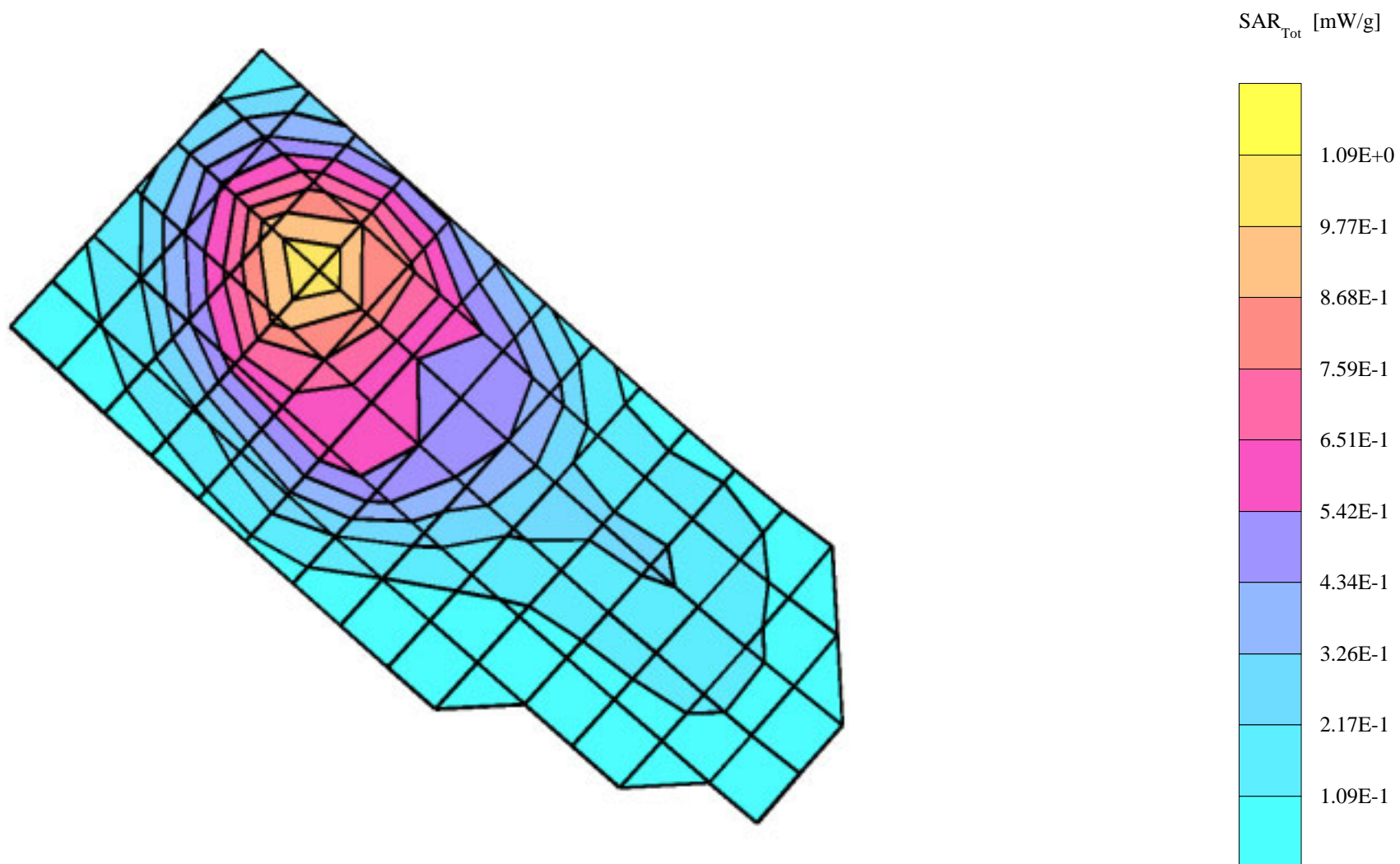
Probe: ET3DV6 - SN1103 Brain (Glycol); ConvF(5.40,5.40,5.40); Crest factor: 1.0; Head Glycol 1900 MHz: $\sigma = 1.39$ mho/m $\epsilon_r = 39.6$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.981 mW/g, SAR (10g): 0.573 mW/g, (Worst-case extrapolation)

Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0

Penetration depth: 10.2 (9.8, 10.8) [mm]

Powerdrift: -0.99 dB



s/n: A88BE514

Ch# 600 / Pwr Step: Always Up / Antenna Position: Extended / Type of Modulation: 1900CMDA

Robot 7 Left Head (George) Glycol Phantom; Left Head Section; Position: (90°,180°); Frequency: 1880 MHz

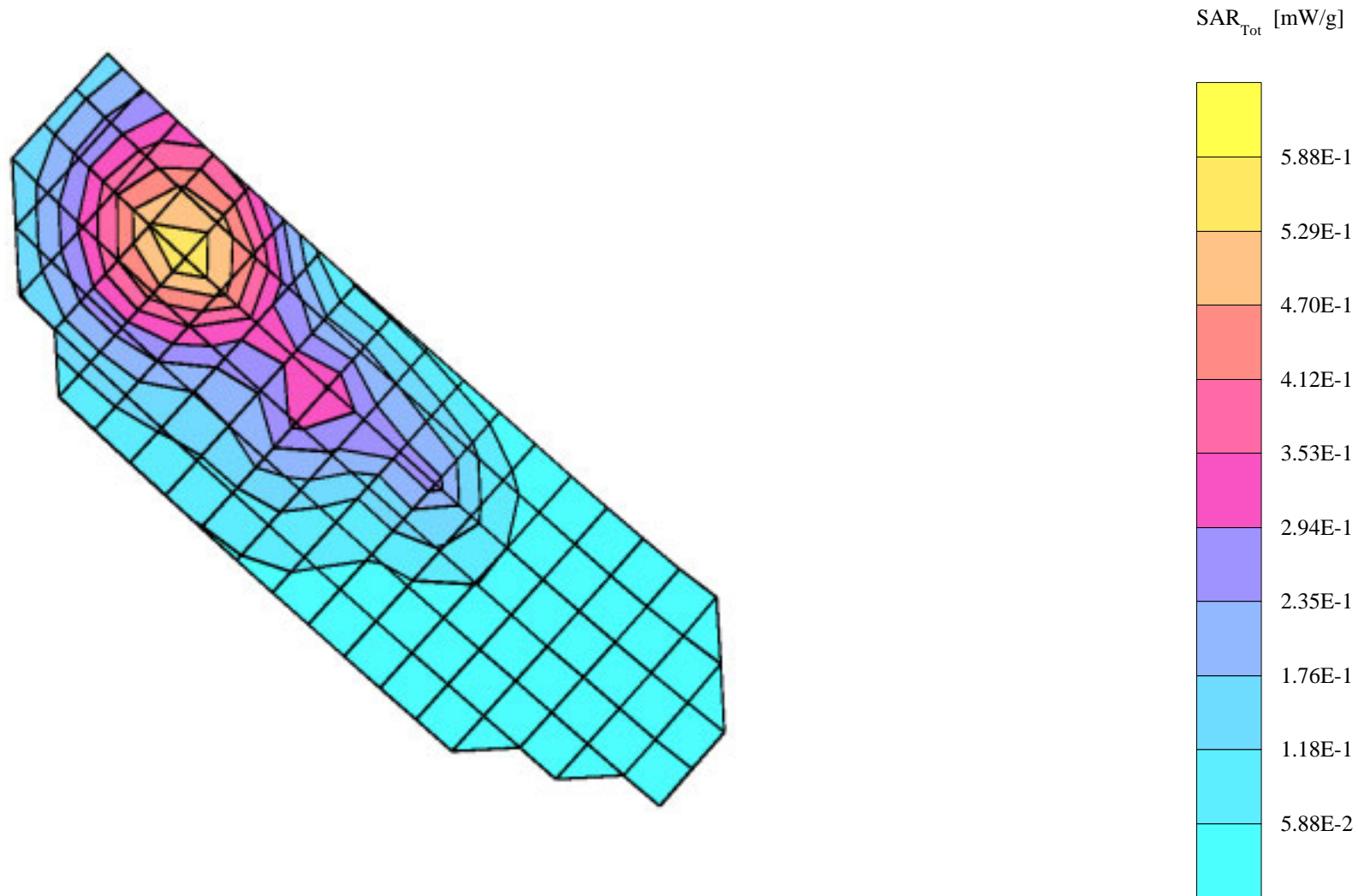
Probe: ET3DV6 - SN1103 Brain (Glycol); ConvF(5.40,5.40,5.40); Crest factor: 1.0; Head Glycol 1900 MHz: $\sigma = 1.39$ mho/m $\epsilon_r = 39.6$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.615 mW/g, SAR (10g): 0.376 mW/g, (Worst-case extrapolation)

Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0

Penetration depth: 11.4 (10.3, 12.9) [mm]

Powerdrift: 0.26 dB



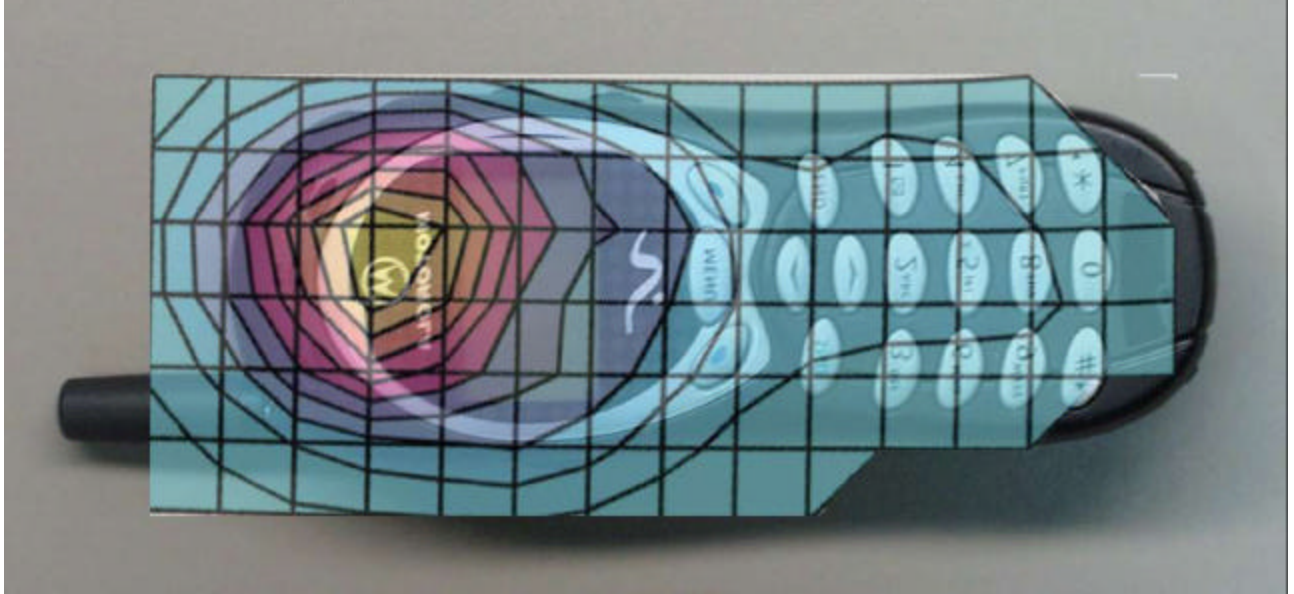


Figure 1. Typical 1900MHz Head Adjacent Contour Overlaid on Phone with Antenna Retracted

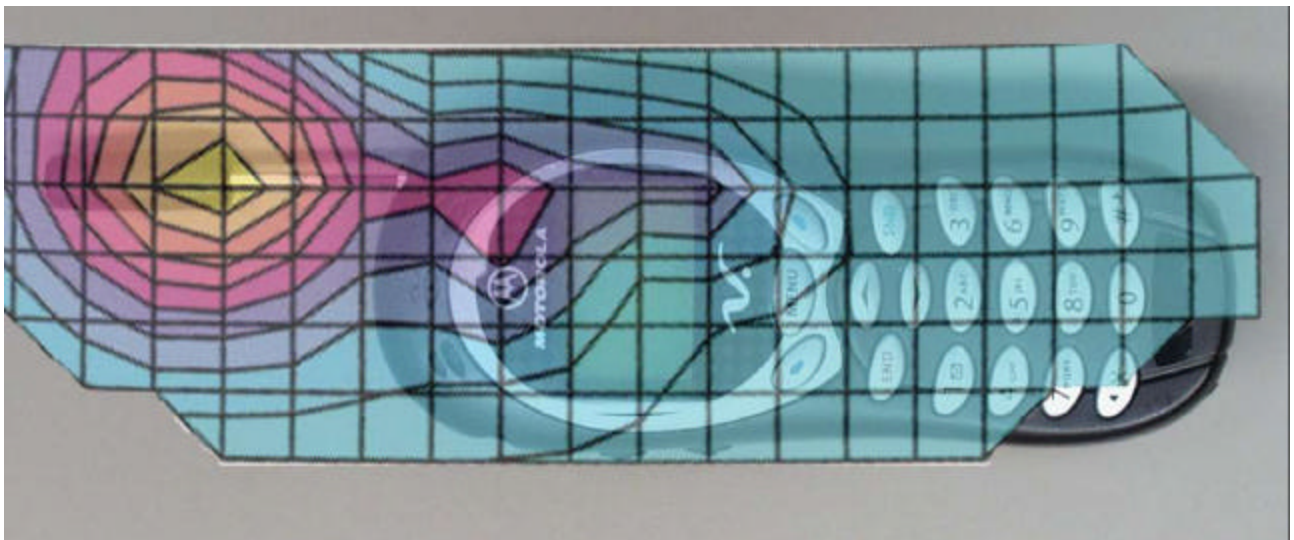


Figure 2. Typical 1900MHz Head Adjacent Contour Overlaid on Phone with Antenna Extended

Appendix 3

SAR distribution plots for Body Worn Configuration

s/n: A88BE514

Ch# 25 / Pwr Step: Always Up / Antenna Position: Ret / Type of Modulation: 1900 CDMA

Body-Worn configuration

Amy Twin Phantom 2.3 Phantom; Section2 Section; Position: (0°,0°); Frequency: 1851 MHz

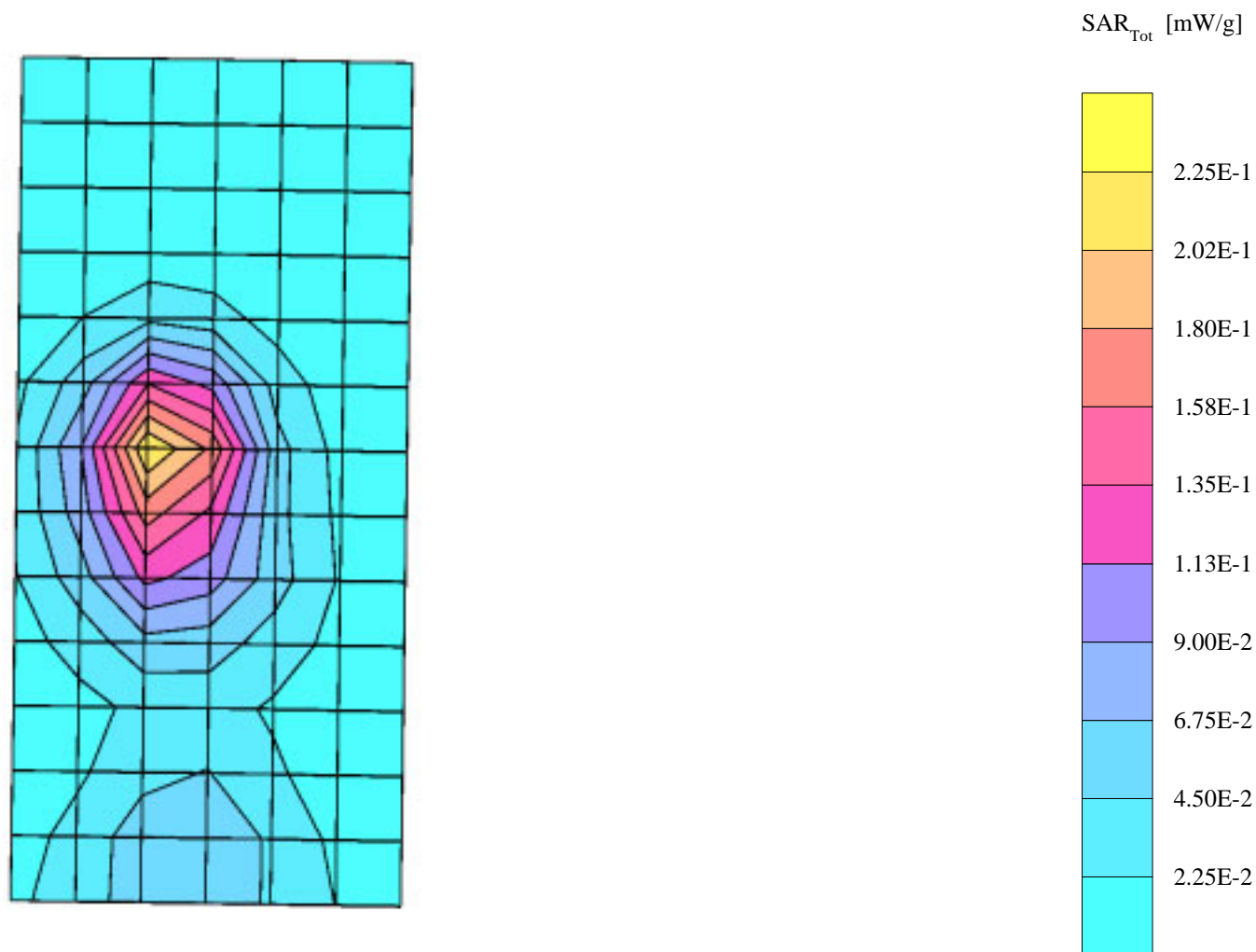
Probe: ET3DV6 - SN1103 Muscle (Glycol); ConvF(5.20,5.20,5.20); Crest factor: 1.0; Muscle Glycol 1900 MHz: $\sigma = 1.65$ mho/m $\epsilon_r = 48.8$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.239 mW/g, SAR (10g): 0.131 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 8.5 (8.0, 9.5) [mm]

Powerdrift: -0.26 dB



s/n: A88BE514

Ch# 25 / Pwr Step: Always Up / Antenna Position: Ext / Type of Modulation: 1900 CDMA

Body-Worm Configuration

Amy Twin Phantom 2.3 Phantom; Section2 Section; Position: (0°,0°); Frequency: 1851 MHz

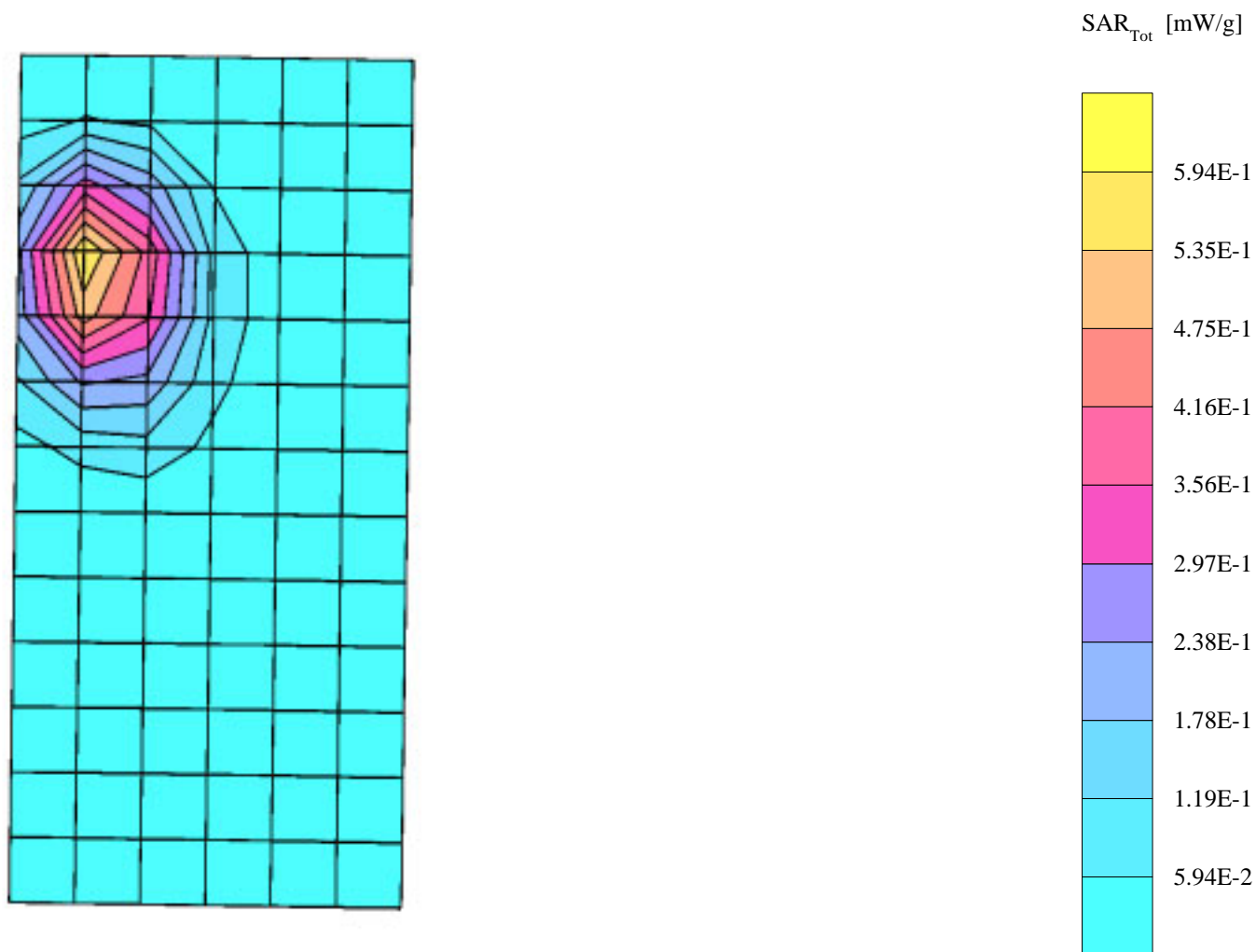
Probe: ET3DV6 - SN1103 Muscle (Glycol); ConvF(5.20,5.20,5.20); Crest factor: 1.0; Muscle Glycol 1900 MHz: $\sigma = 1.65$ mho/m $\epsilon_r = 48.8$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.629 mW/g, SAR (10g): 0.348 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 9.0 (8.4, 10.1) [mm]

Powerdrift: -0.38 dB



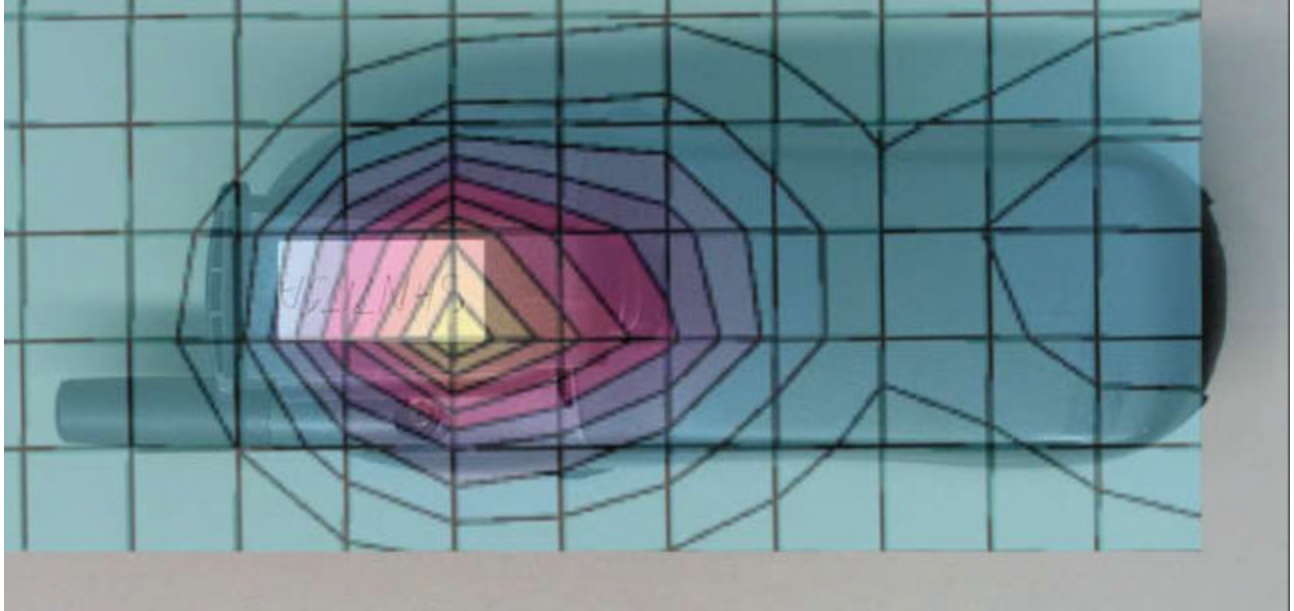


Figure 3. Typical 1900 MHz Body-Worn Contour Overlaid on Phone with Antenna Retracted

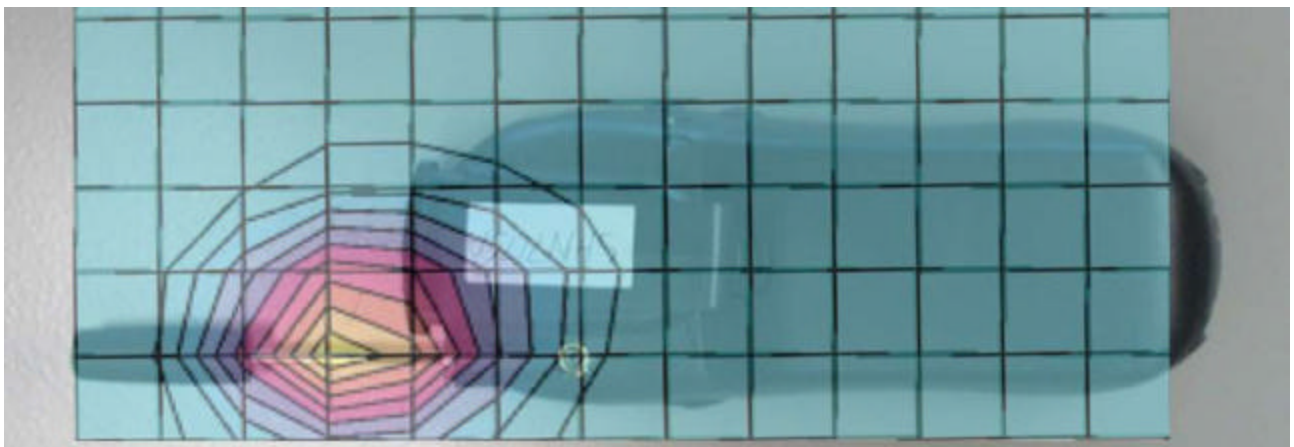


Figure 4. Typical 1900 MHz Body-Worn Contour Overlaid on Phone with Antenna Extended