MOTOROLA

Exhibit 11: SAR Test Report

FCC ID: AZ489FT5818

Date of Report:	21-November – 07-December, 2001
Laboratory:	Motorola Personal Communications Sector Product Safety Laboratory 2001 N. Division Room: AS228 Harvard, Illinois 60033
Party Responsible:	Steven Hauswirth Staff Engineer 847-523-0545
Statement of Compliance:	Motorola declares under its sole responsibility that portable transceiver FCC ID AZ489FT5818 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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Reference Notes

1. Introduction

Motorola, Inc. has performed measurements of the maximum potential exposure to the user of Portable Radio FCC ID AZ489FT5818. The Specific Absorption Rate (SAR) of this product was measured. The portable radio was tested in accordance with the latest available test guidelines. The SAR values found for the portable radio (FCC ID AZ489FT5818) are below the maximum recommended levels of 1.6 W/kg.

2. Description of the Device Under Test

Antenna description

Type	Retractable	
Location	Right Side	
Dimensions	Length	96mm
	Width at Base	6mm
Configuration	Helix	

Device description

FCC ID Number	AZ489FT5818			
Serial number	ABU01PR			
Mode(s) of Operation	Two-way (Dispatch)	PSTN (Phone Mode)	Data-Mode	PSTN (Phone Mode)
Modulation Mode(s)	TDMA 16QAM	TDMA 16QAM	TDMA 64QAM	TDMA 16QAM
Maximum Output Power Setting	28.5dBm	28.5dBm	28.5dBm	28.5dBm
Duty Cycle	1/6	1/3	81/120	1/3
Transmitting Frequency Range(s)	806.0125-824.9875MHz	806.0125-824.9875MHz	806.0125-824.9875MHz	896.01875-900.98125MHz

3. Test Results

The Portable Radio FCC ID AZ489FT5818 has three modes of operation (Two-way, Phone and Data). The Two-way and Phone modes can both be used in a cheek/touch configuration. Since both modes have the same peak power and the phone mode has the higher of the two duty cycles (thus the higher time average power), only the phone mode will be tested for the cheek/touch configuration. The Two-way, Phone and Data modes can all be used in a body-worn configuration. Since all the modes have the same peak power and the data mode has the highest of all the duty cycles (thus the highest time average power), only the data mode will be tested for the body-worn configuration.

3.1 800MHz Phone Mode Test Results

The SAR results shown in tables 1 through 5 are maximum SAR values averaged over 1 gram of phantom tissue for 800MHz head adjacent SAR measurements. Also shown are the measured conducted output powers.

The test sample was operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. The radio was then placed in the SAR measurement system with a fully charged battery.

Per Supplement C 01-01, the SAR was measured at the middle channel for each test configuration (left, right, extended and retracted) and if it was at least 2.0 dB lower than the SAR limit (after accounting for SAR drift), testing at the high and low channels was not performed. The tissue stimulant depth was verified to be 15.0cm ±0.5cm at the center of the ear. The device holder used was the supplied SPEAG™ device holder. The measured dielectric constant of the material used is less than 3.3 and the loss tangent is less than 0.053 in the 800MHz band.

The Portable Radio FCC ID AZ489FT5818 has two battery options:
SNN5705B - A 750mAH battery
SNN5716A – A 1300mAH battery

The battery with the highest capacity is the SNN5716A. This battery was used to do most of the SAR testing. The channels that resulted in the highest SAR values for the antenna retracted and extended were repeated using the other batteries. The SAR results are shown in table 3.

The Portable Radio FCC ID AZ489FT5818 has interchangeable face plates that change the color of the front of the radio (see attached picture in appendix 7). The silver face plate has the highest metal content (3.7%) and was attached to the Portable Radio for all the measurements.

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

			Cheek/Touch Position SAR, 1g							
			Left Head				Right Head			
			Antenna Extended		Antenna Retracted		Antenna Extended		Antenna Retracted	
Description	f (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Phone Mode	806.0125MHz	28.22			1.23	0.00			1.11	-0.05
	813.5125MHz	28.25	**0.748**	**-0.02**	**1.40**	**0.01**	0.714	0.04	1.14	0.04
	824.9875MHz	28.44			1.28	-0.02			1.15	-0.02

Table 1: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured against the head in the Cheek/Touch Position.

			15° Tilted Position SAR, 1g							
			Left Head				Right Head			
			Antenna Extended		Antenna Retracted		Antenna Extended		Antenna Retracted	
Description	f (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Phone Mode	806.0125MHz	28.22								
	813.5125MHz	28.25	0.491	-0.05	0.800	0.01	0.499	-0.11	0.684	-0.02
	824.9875MHz	28.44								

Table 2: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured against the head in the 15° Tilted Position.

			Cheek/Touch Position SAR, 1g							
			Left Head				Right Head			
			Antenna Extended		Antenna Retracted		Antenna Extended		Antenna Retracted	
Description	f (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Phone Mode	806.0125MHz	28.29								
	813.5125MHz	28.32	0.658	0.16	0.964	0.45				
	824.9875MHz	28.31								

Table 3: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5705B attached, at highest possible output power. Measured against the head in the Cheek/Touch Position.

3.2 Push-to-Talk/Dispatch Mode Test Results

The SAR results shown in table 4 are maximum SAR values averaged over 1 gram of phantom tissue for the Push-to-Talk/Dispatch Mode SAR measurements. Also shown are the measured conducted output powers.

The test sample was operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. The radio was then placed in the SAR measurement system with a fully charged battery. The radio was placed with the front of the device positioned at 2.5 cm from a flat phantom, as per Supplement C 01-01.

A full data set output of two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix 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.

			Two-Way (Push-to-Talk)			
			Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Two-Way	**806.0125MHz**	28.24	**0.104**	**-0.30**	0.130	-0.13
	813.5125MHz	28.26	0.095	0.12	0.133	-0.21
	824.9875MHz	28.39	0.078	-0.24	**0.145**	**0.32**

Table 4: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Radio positioned 2.5cm below the flat phantom.

3.3 Data Mode Test Results

The SAR results shown in tables 5 through 7 are maximum SAR values averaged over 1 gram of phantom tissue for Body-worn SAR measurements. Also shown are the measured conducted output powers. The tissue stimulant depth was verified to be 15.0cm ±0.5cm. The flat phantom used is 41cm(long) x 23cm(wide) x 21.2cm(tall). The bottom of this flat phantom is 2mm thick. The body of this radio is 13.5cm(long) x 5cm(wide). The measured dielectric constant of the material used is less than 2.3 and the loss tangent is less than 0.0046 all the way up to 2.184GHz.

The Portable Radio FCC ID AZ489FT5818 has one body worn option:
NTN1824A – A Plastic Belt-Clip

The test sample was operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. The radio was then placed in the SAR measurement system with a fully charged battery. The portable radio was tested with a headset connected to the device for all body-worn SAR measurements.

The Portable Radio FCC ID AZ489FT5818 has two battery options:
SNN5705B - A 750mAH battery
SNN5716A – A 1300mAH battery

The battery with the highest capacity is the SNN5716A. This battery was used to do most of the SAR testing. The channels that resulted in the highest SAR values for the antenna retracted and extended were repeated using the other batteries. The SAR results are shown in table 6.

The portable radio has a data port located at the bottom of the unit. Various cables can be used to attach the portable radio to USB ports, a dash mount holder, Palm Pilot PDAs or a keyboard for character entries. All these cables utilize the same type of connector to attach to the data port. The SAR tests were performed with the headset (SYN8390) and not the data cable for all configurations because it can be seen in the tables below that this causes the maximum measured SAR. The use of the data cable actually lowers SAR. The data cable (NKN6544A) was utilized only for the peak SAR configurations in order to show how use of this accessory impacts measured SAR. Just the channels that resulted in the highest SAR values for the body-worn configuration with the antenna retracted and extended were measured. Table 7 shows the SAR results when a data cable is attached to the bottom of the device.

A full data set output of two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix 4. The test conditions included are indicated as bold numbers in the following table. All other test conditions measured lower SAR values than those included.

			Body Worn			
			Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Data Mode	**806.0125MHz**	28.32	0.540	-0.42	0.716	0.03
	813.5125MHz	28.35	0.520	-0.09	0.761	-0.23
	824.9875MHz	28.43	**0.565**	**-0.37**	**0.776**	**-0.14**

Table 5: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured inside the belt clip against the flat phantom.

			Body Worn			
			Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Data Mode	**806.0125MHz**	28.27				
	813.5125MHz	28.30				
	824.9875MHz	28.36	0.462	-0.05	0.585	0.13

Table 6: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5705B attached, at highest possible output power. Measured inside the belt clip against the flat phantom.

			Body Worn			
			Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Data Mode	**806.0125MHz**	28.32				
	813.5125MHz	28.35				
	824.9875MHz	28.43	0.465	0.22	0.329	0.31

Table 7: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A and a data cable attached, at highest possible output power. Measured inside the belt clip against the flat phantom.

3.4 900MHz Phone Mode Head Adjacent Test Results

The SAR results shown in tables 8 and 9 are maximum SAR values averaged over 1 gram of phantom tissue for 900MHz head adjacent SAR measurements. Also shown are the measured conducted output powers. The tissue stimulant depth was verified to be 15.0cm ±0.5cm at the center of the ear.

The test sample was operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. The radio was then placed in the SAR measurement system with a fully charged battery.

Per Supplement C 01-01, the SAR was measured at the middle channel for each test configuration (left, right, extended and retracted) and if it was at least 2.0 dB lower than the SAR limit (after accounting for SAR drift), testing at the high and low channels was not performed.

The Portable Radio FCC ID AZ489FT5818 has two battery options:
SNN5705B - A 750mAH battery
SNN5716A – A 1300mAH battery

The battery with the highest capacity is the SNN5716A. This battery was used to do most of the SAR testing. Since the SNN5705B showed to have lower SAR results than the SNN5716A in the 800MHz bands (see tables 1 through 3). And the highest measured SAR in the 900MHz band was lower than the 800MHz band, SNN5705B was not measured.

A full data set output of two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix 5. The test conditions included are indicated as bold numbers in the following table. All other test conditions measured lower SAR values than those included.

			Cheek/Touch Position SAR, 1g							
			Left Head				Right Head			
			Antenna Extended		Antenna Retracted		Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
900MHz Phone Mode	**896.01875MHz**	28.36			**1.23**	**0.07**			1.11	-0.07
	898.49375MHz	28.33	0.402	-0.33	1.21	-0.07	0.429	-0.11	1.07	0.04
	900.98125MHz	28.29			1.13	-0.02			1.07	-0.13

Table 8: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured against the head in the Cheek/Touch Position.

			15° Tilted Position SAR, 1g							
			Left Head				Right Head			
			Antenna Extended		Antenna Retracted		Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
900MHz Phone Mode	**896.01875MHz**	28.36								
	898.49375MHz	28.33	**0.595**	**-0.4**	0.617	-0.36	0.359	-0.17	0.534	0.08
	900.98125MHz	28.29								

Table 9: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured against the head in the 15° Tilted Position.

3.5 Phone Mode Body Worn Test Results

The SAR results shown in table 10 and 11 are maximum SAR values averaged over 1 gram of phantom tissue for Body-worn SAR measurements using the Phone Mode. Also shown are the measured conducted output powers. The tissue stimulant depth was verified to be 15.0cm ±0.5cm. The flat phantom used is 41cm(long) x 23cm(wide) x 21.2cm(tall). The bottom of this flat phantom is 2mm thick. The body of this radio is 13.5cm(long) x 5cm(wide).

The Portable Radio FCC ID AZ489FT5818 has one body worn options:
NTN1824A – A Plastic Belt-Clip

The test sample was operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. The radio was then placed in the SAR measurement system with a fully charged battery. The portable radio was tested with a headset connected to the device for all body-worn SAR measurements.

The Portable Radio FCC ID AZ489FT5818 has two battery options:
SNN5705B - A 750mAH battery
SNN5716A – A 1300mAH battery

The battery used for these SAR measurements is the SNN5716A. This battery was found to yield the highest SAR in the data mode body-worn testing. A full data set output of two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix 4. The test conditions included are indicated as bold numbers in the following table. All other test conditions measured lower SAR values than those included. The 800MHz phone mode body-worn data is supplied only to determine the highest body-worn SAR number when using the phone mode for the required CTIA SAR disclosure box. The highest 800MHz body-worn SAR occurs when using data mode as shown in table 5.

			Body Worn			
			Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
900MHz Phone Mode	**896.01875MHz**	28.36	0.229	-0.26	0.399	0.02
	898.49375MHz	28.33	**0.254**	**-0.24**	**0.389**	**-0.06**
	900.98125MHz	28.29	0.239	-0.09	0.334	0.04

Table 10: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured inside the belt-clip case against the flat phantom.

			Body Worn			
			Antenna Extended		Antenna Retracted	
Description	*f* (MHz)	Conducted Output Power (dBm)	SAR, 1g (W/kg)	Drift (dB)	SAR, 1g (W/kg)	Drift (dB)
800MHz Phone Mode	**806.0125MHz**	28.22	0.348	0.02	0.419	0.12
	813.5125MHz	28.25	0.283	0.08	0.353	0.02
	824.9875MHz	28.44	0.238	0.03	0.344	0.08

Table 11: SAR measurement results for the portable radio FCC ID AZ489FT5818 with Battery SNN5716A attached, at highest possible output power. Measured inside the belt-clip case against the flat phantom.

4. Test Equipment Used

4.1 Dosimetric System Equipment Used

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) with an expanded measurement uncertainty of ±24%

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN378	27-Jul-02
E-Field Probe ETDV6	SN1522	11-Nov-02
Dipole Validation Kit, DV900V2	SN68	1-Aug-02
Dipole Validation Kit, DV900V2	SN95	3-Jan-03

4.2 Additional Equipment Used for System Accuracy Verification

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04832	1/18/2003
Power Meter E4419B	GB39511088	1/19/2002
Power Sensor 8481A	US39210917	1/24/2002

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. Recommended limits for maximum permittivity and minimum conductivity are also shown. These come from the Federal Communication Commission, OET Bulletin 65 Supplement C 01-01. The recommended dielectric parameters of the tissue simulant for the exact center frequency of the transmitting band of this portable radio were calculated using linear interpolation from the data points given in Supplement C 01-01. It is seen that the measured parameters are satisfactory for compliance testing. The tissue stimulant depth was verified to be 15.0cm ±0.5cm at the center of the ear. The stimulant temperature was measured at the beginning and end of each day. The values measured at the start of each day are shown in the table below. The ambient temperature was also measured throughout the day. The ambient temperature measurements and the tissue stimulant temperature measurements always found the temperature ±2.0 °C from the temperature measured in the morning.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			e_r	s (S/m)	r (g/cm^3)
813.51	**Head**	**Measured, 21-Nov-01**	42.09	0.90	1.00
		Recommended Limits	41.4	0.90	1.00
813.51	**Head**	**Measured, 26-Nov-01**	41.41	0.89	1.00
		Recommended Limits	41.40	0.90	1.00
813.51	**Head**	**Measured, 07-Dec-01**	43.45	0.92	1.00
		Recommended Limits	41.40	0.90	1.00
813.51	**Body**	**Measured, 30-Nov-01**	53.74	0.97	1.00
		Recommended Limits	55.10	0.97	1.00
900	**Head**	**Measured, 27-Nov-01**	41.51	0.98	1.00
		Recommended Limits	41.50	0.97	1.00
900	**Head**	**Measured, 30-Nov-01**	40.28	0.94	1.00
		Recommended Limits	41.50	0.97	1.00
900	**Body**	**Measured, 30-Nov-01**	53.11	1.03	1.00
		Recommended Limits	55.00	1.05	1.00

6. System Accuracy Verification

A system accuracy verification of the DASY3 was performed using the measurement equipment listed in Section 3. The dipole was placed below a "flat" phantom. This "flat" phantom is made out of 1" thick natural High Density Polyethylene with a thickness at the bottom equal to 2.0mm. It measures 52.7cm(long) x 26.7cm(wide) x 21.2cm(tall). The measured dielectric constant of the material used is less than 2.3 and the loss tangent is less than 0.0046 all the way up to 2.184GHz.

A SAR measurement was performed to see if the measured SAR was within +/- 8% from the target SAR indicated on the dipole certification sheet. The test was conducted on the same days as the measurement of the DUT. Recommended limits for maximum permittivity, minimum conductivity are shown in the table below. The obtained results from the system accuracy verification are displayed in the table below. The distributions of SAR compare well with those of the reference measurements (see Appendix 1). The tissue stimulant depth was verified to be 15.0cm ±0.5cm. SAR values are normalized to 1W forward power delivered to the dipole.

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Temp (°C)
			e_r	s (S/m)	
900	**Measured, 21-Nov-01**	11.96	40.47	0.97	23.5
	Recommended Limits	11.88	41.50	0.97	N/A
900	**Measured, 26-Nov-01**	11.74	39.67	0.95	22.3
	Recommended Limits	11.88	41.50	0.97	N/A
900	**Measured, 27-Nov-01**	12.13	41.51	0.98	22.3
	Recommended Limits	11.88	41.50	0.97	N/A
900	**Measured, 30-Nov-01**	11.64	53.11	1.03	23.0
	Recommended Limits	11.40	40.30	0.95	N/A
900	**Measured, 07-Dec-/01**	11.85	40.89	0.97	21.4
	Recommended Limits	11.40	40.30	0.95	N/A

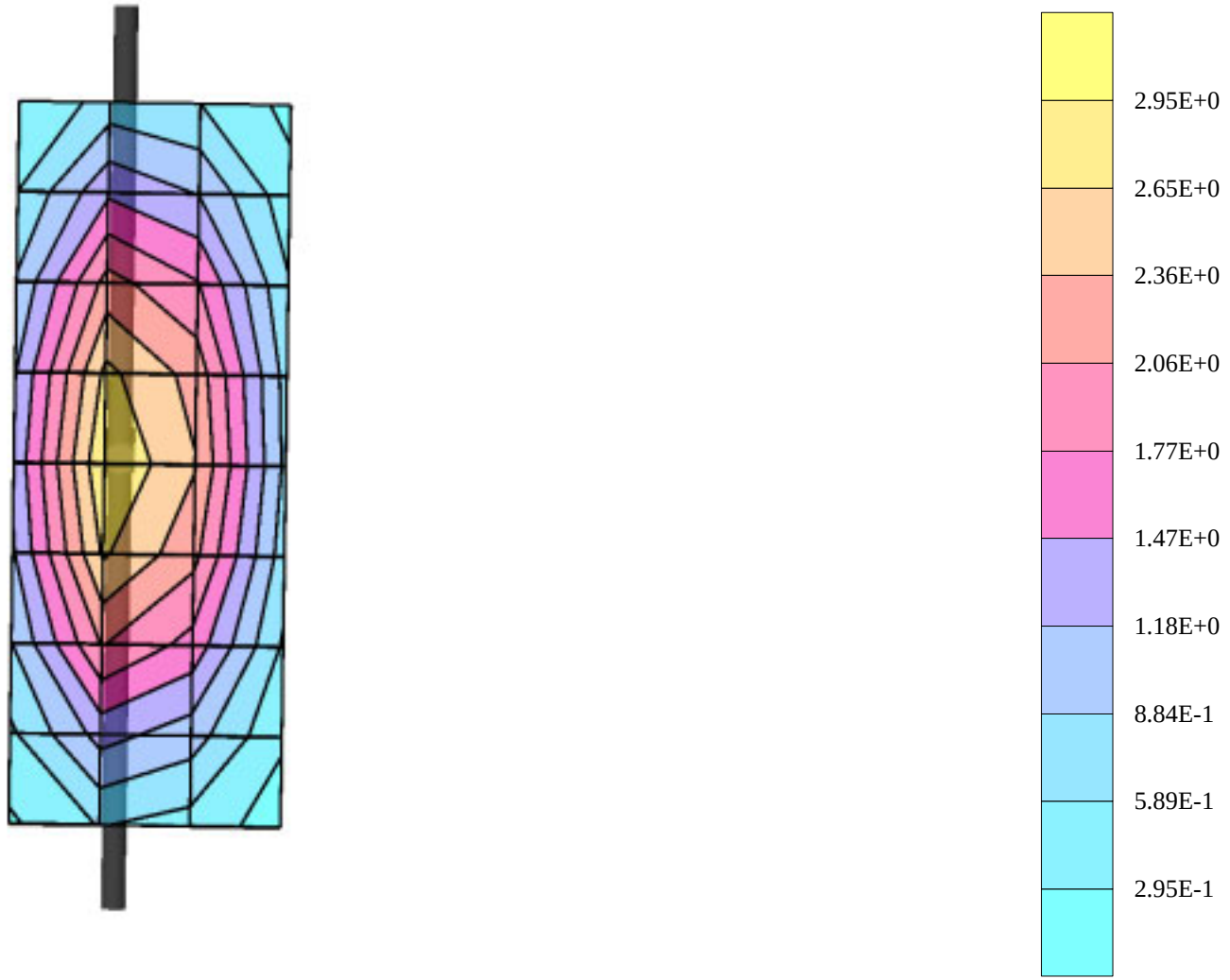
Appendix 1

SAR distribution comparison for the system accuracy verification

11/21/01

Dipole 900 MHz

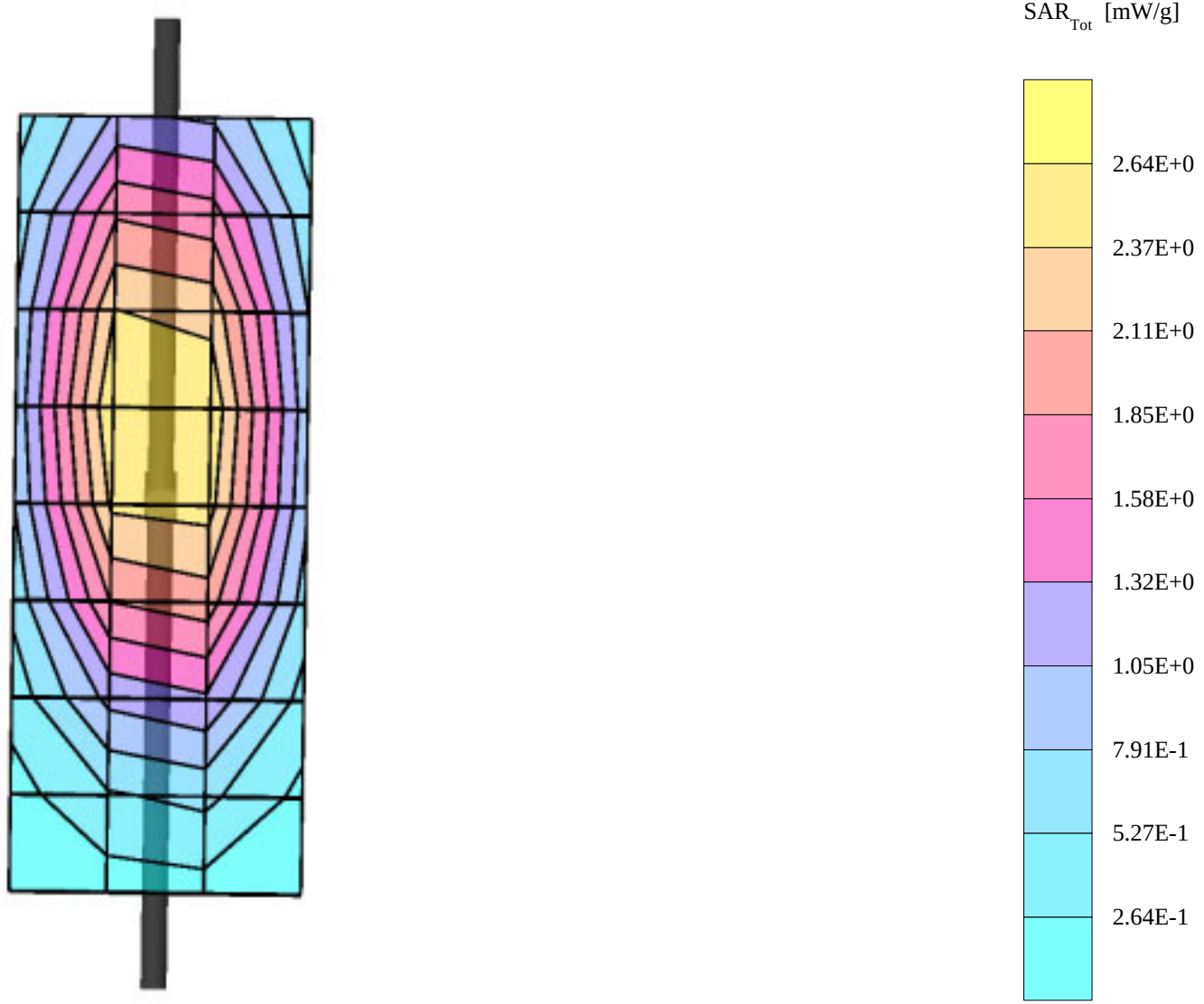
900MHz Dipole Validation / Dipole Sn# 68 / Forward Power = 250mW / Simulant Temp at time of measurement 23.5°C
R1 Amy Twin Phantom 2.3; Section 1
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.31,6.31,6.31); Crest factor: 1.0; Validation 900 MHz: σ = 0.97 mho/m ε_r = 40.5 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.89 mW/g ± 0.14 dB, SAR (1g): 2.99 mW/g ± 0.14 dB, SAR (10g): 1.86 mW/g ± 0.13 dB, (Worst-case extrapolation)
Penetration depth: 11.3 (10.1, 12.9) [mm]
Powerdrift: 0.02 dB



11/30/01

Dipole 900 MHz

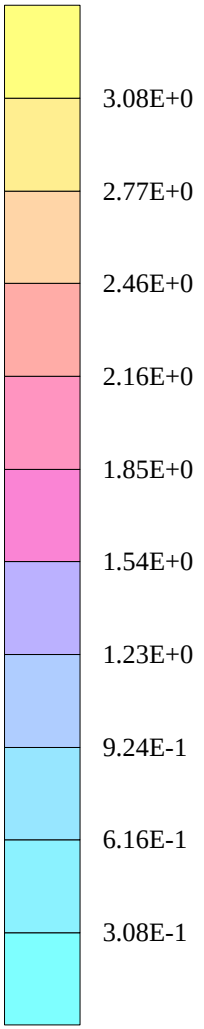
900MHz Dipole Validation / Dipole Sn# 95 / Forward Power = 250mW / Temp at time of measurement = 23
R1 Amy Twin Phantom 2.3; Section2
Probe: ET3DV6 - SN1522 BODY - iDEN (Sugarwater); ConvF(6.09,6.09,6.09); Crest factor: 1.0; Muscle 925 MHz: σ = 1.03 mho/m ε_r = 53.1 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.72 mW/g ± 0.11 dB, SAR (1g): 2.91 mW/g ± 0.09 dB, SAR (10g): 1.83 mW/g ± 0.08 dB, (Worst-case extrapolation)
Penetration depth: 11.7 (10.4, 13.5) [mm]
Powerdrift: 0.04 dB



11/27/01

Dipole 900 MHz

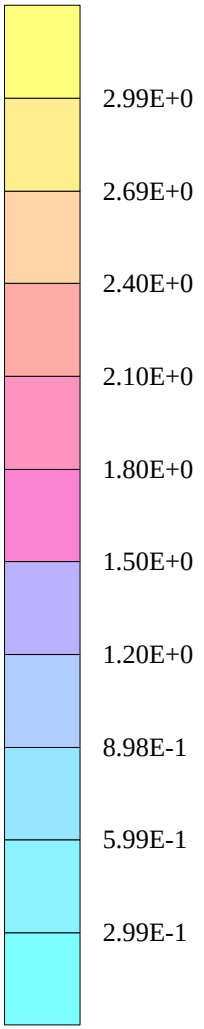
900MHz Dipole Validation / Dipole Sn# 68 / Forward Power = 253mW / Simulant Temp at time of measurement 22.3
R1 Amy Twin Phantom 2.3; Section 1
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.31,6.31,6.31); Crest factor: 1.0; Head 900 MHz: σ = 0.98 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Cubes (2): Peak: 5.06 mW/g ± 0.17 dB, SAR (1g): 3.07 mW/g ± 0.13 dB, SAR (10g): 1.91 mW/g ± 0.12 dB, (Worst-case extrapolation)
Penetration depth: 11.2 (10.0, 12.8) [mm]
Powerdrift: -0.01 dB



11/26/01

Dipole 900 MHz

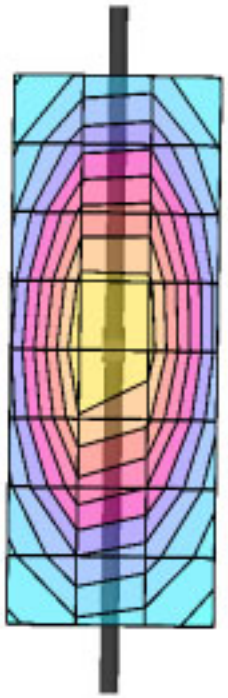
900MHz Dipole Validation / Dipole Sn# 68 / Forward Power = 252mW / Simulant Temp at time of measurement 22.3
R1 Amy Twin Phantom 2.3; Section 1
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.31,6.31,6.31); Crest factor: 1.0; Head 925 MHz: σ = 0.95 mho/m ε_r = 39.7 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.81 mW/g ± 0.12 dB, SAR (1g): 2.96 mW/g ± 0.11 dB, SAR (10g): 1.85 mW/g ± 0.10 dB, (Worst-case extrapolation)
Penetration depth: 11.3 (10.2, 12.8) [mm]
Powerdrift: -0.03 dB

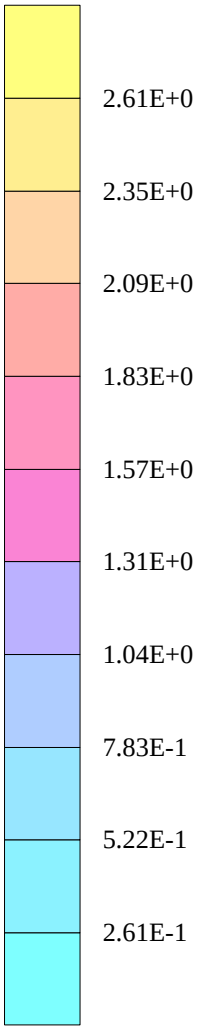


12/07/01

Dipole 900 MHz

900MHz Dipole Validation / Dipole Sn# 95 / Forward Power = 249mW / Simulant Temp at time of measurement 21.4
Amy Twin Phantom 2.3; Section 1
Probe: ET3DV6 - SN1513 - IEEE Head; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Head 900 MHz: σ = 0.97 mho/m ε_r = 40.9 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.71 mW/g ± 0.10 dB, SAR (1g): 2.95 mW/g ± 0.09 dB, SAR (10g): 1.85 mW/g ± 0.09 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.6, 12.7) [mm]
Powerdrift: -0.02 dB





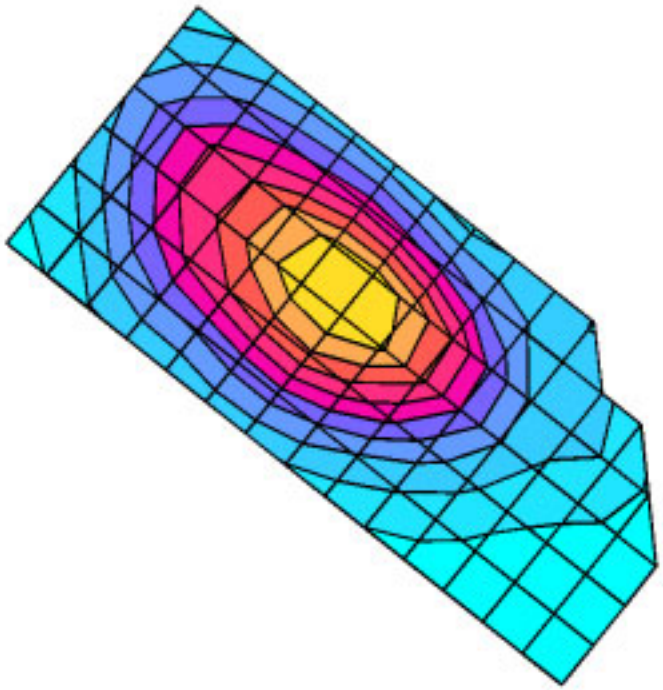
Appendix 2

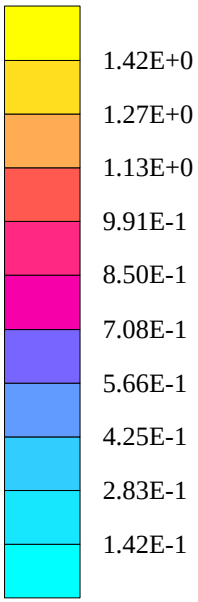
SAR distribution plots for 800MHz Phantom Head Adjacent Use

11/21/01

s/n: ABU01PR

Ch# F3 / Antenna Position:Retracted / Type of Modulation:800MHz Phone Mode / Battery Model #:SNN5716A
R1 Left Head (Barney) Phantom; Left Head Section; Position: (80°,180°); Frequency: 814 MHz
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.40,6.40,6.40); Crest factor: 3.0; Head 835 MHz: σ = 0.90 mho/m ε_r = 42.1 ρ = 1.00 g/cm^3
Cube 5x5x7: SAR (1g): 1.40 mW/g, SAR (10g): 0.968 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 16.9 (14.1, 19.7) [mm]
Powerdrift: 0.10 dB

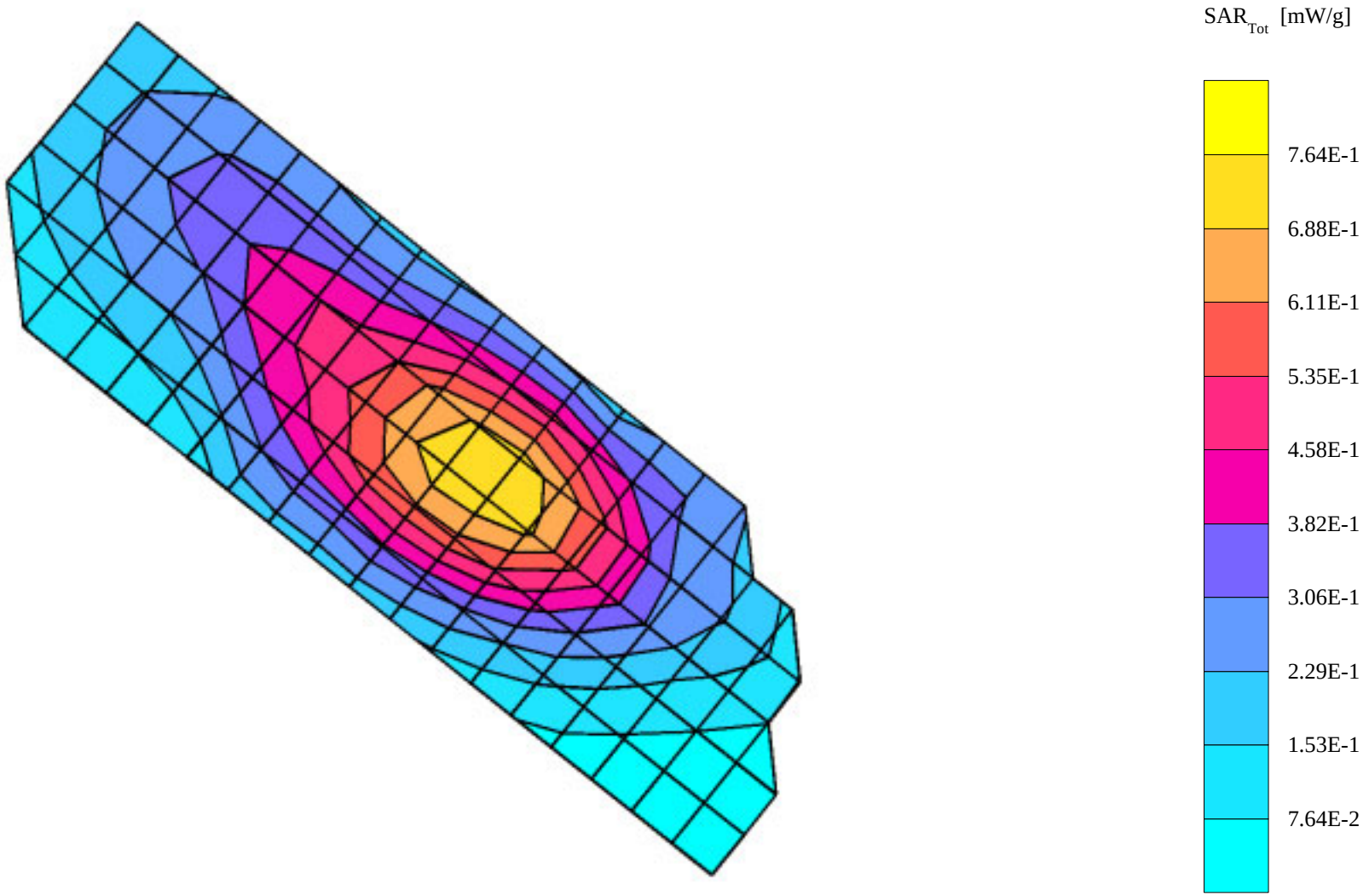




11/26/01

s/n: ABU01PR

Ch# F3 / Antenna Position: Extended / Type of Modulation:800MHz Phone Mode / Battery Model #:SNN5716A
R1 Left Head (Barney) Phantom; Left Head Section; Position: (80°,180°); Frequency: 814 MHz
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.40,6.40,6.40); Crest factor: 3.0; Head 835 MHz: σ = 0.89 mho/m ε_r = 41.4 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.748 mW/g, SAR (10g): 0.519 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 15.5 (13.6, 17.6) [mm]
Powerdrift: -0.02 dB



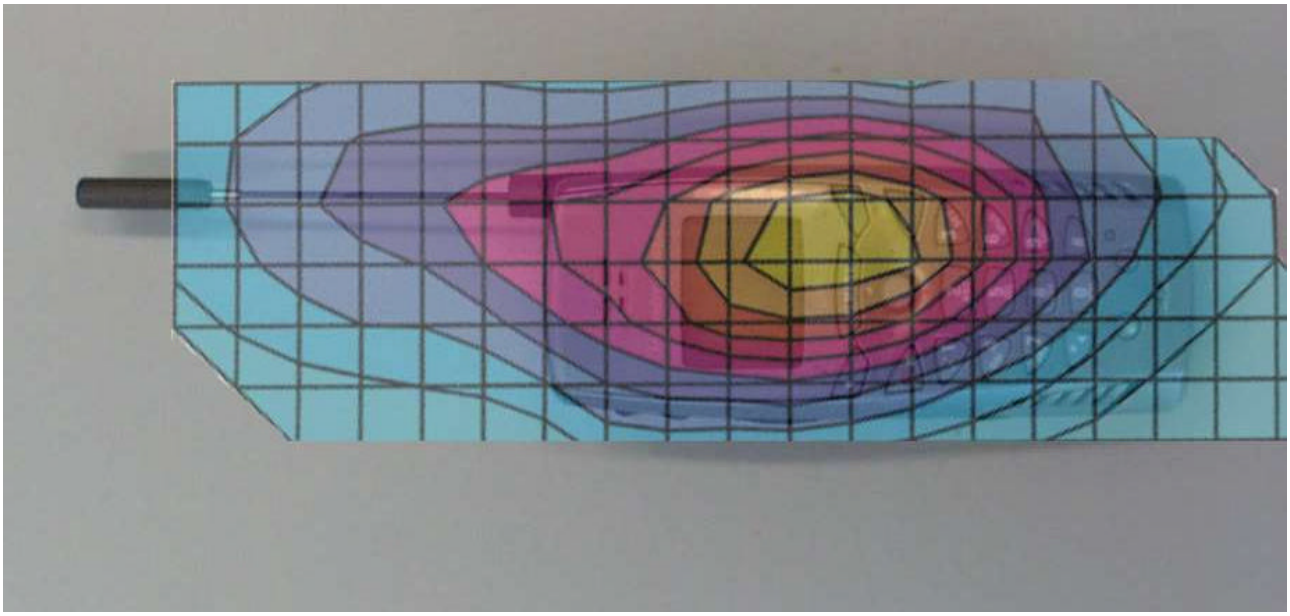


Figure 1. Typical 800MHz Phone Mode Antenna Extended Head Adjacent
Contour Plot Overlaid on Face of the Phone

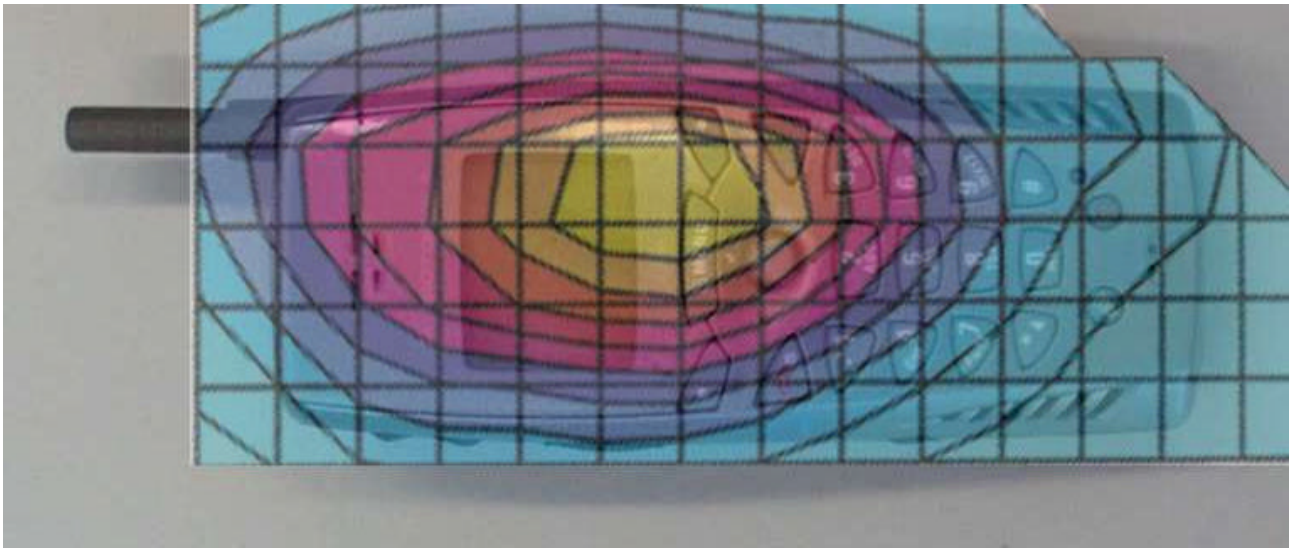


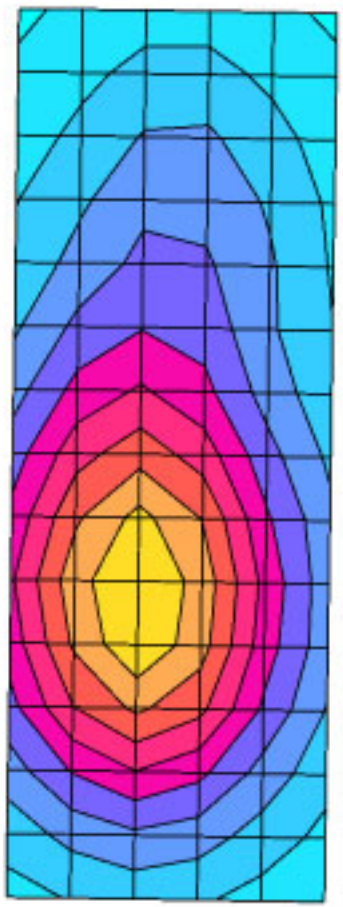
Figure 2. Typical 800MHz Phone Mode Antenna Retracted Head Adjacent
Contour Plot Overlaid on Face of the Phone

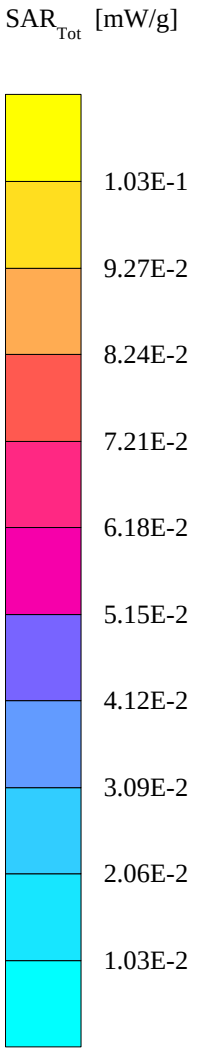
Appendix 3

SAR distribution plots for Two-Way (Push-to-Talk) Mode

s/n: ABU01PR

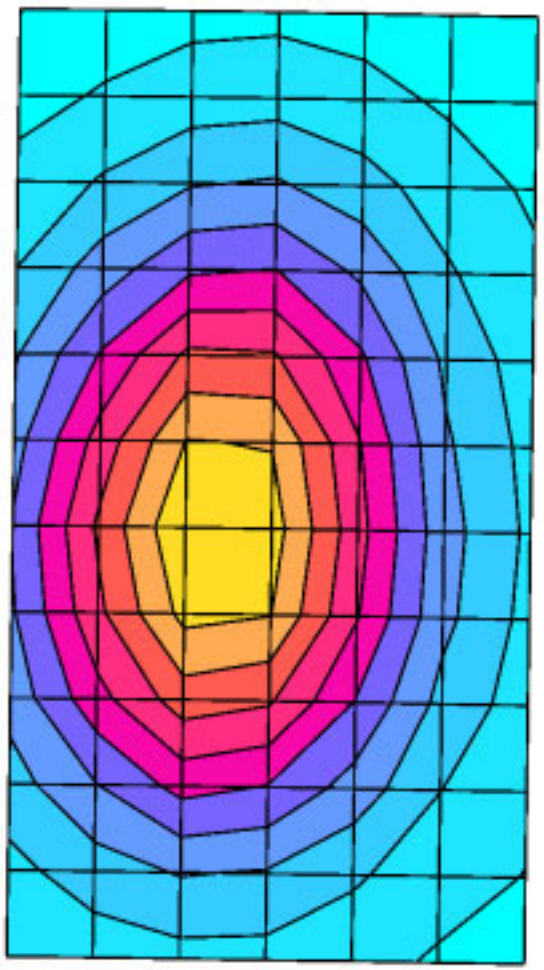
Ch# F1 / Antenna Position: Extended / Type of Modulation: 800MHz P-T-T mode
Amy Twin Phantom 2.3 Phantom; Section 1 Section; Position: (90°,0°); Frequency: 806 MHz
Probe: ET3DV6 - SN1513 - IEEE Head; ConvF(6.40,6.40,6.40); Crest factor: 6.0; Head 835 MHz: σ = 0.92 mho/m ε_r = 43.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.104 mW/g, SAR (10g): 0.0758 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 17.2 (15.7, 18.6) [mm]
Powerdrift: -0.30 dB

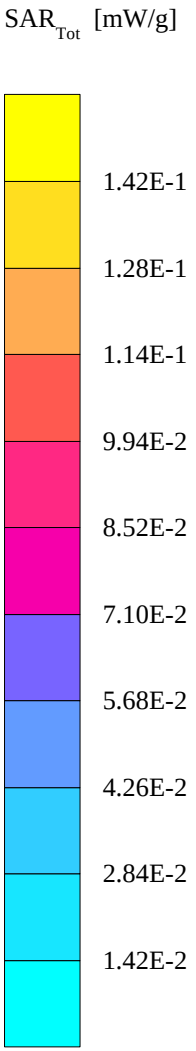




s/n: ABU01PR

Ch# F6 / Antenna Position: Retracted / Type of Modulation: 800MHz P-T-T Mode
Amy Twin Phantom 2.3 Phantom; Section 1 Section; Position: (90°,0°); Frequency: 825 MHz
Probe: ET3DV6 - SN1513 - IEEE Head; ConvF(6.40,6.40,6.40); Crest factor: 6.0; Head 835 MHz: σ = 0.92 mho/m ε_r = 43.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.145 mW/g, SAR (10g): 0.104 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 16.6 (15.7, 17.6) [mm]
Powerdrift: 0.32 dB





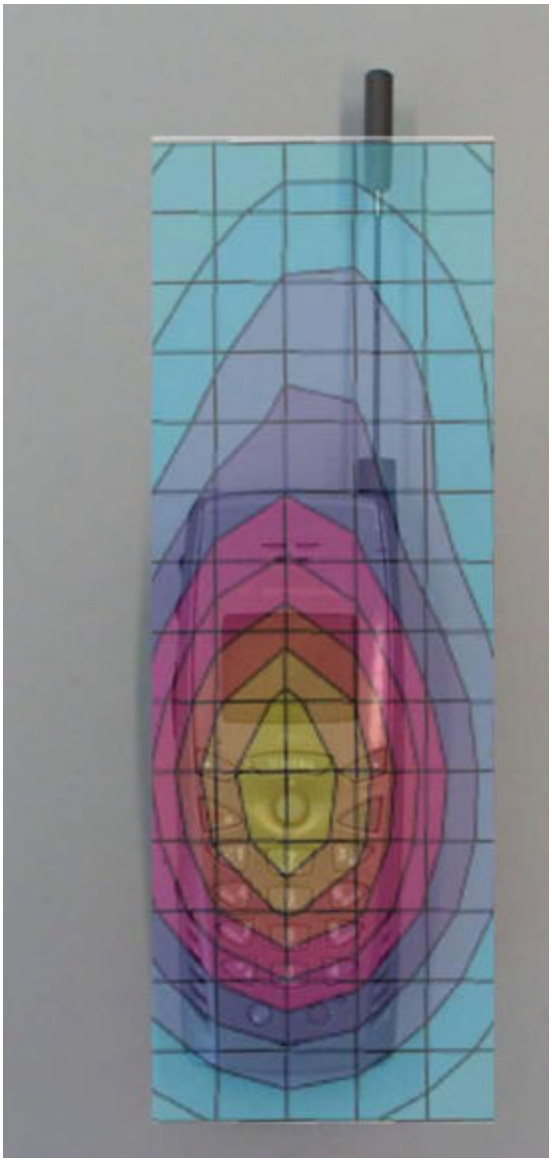


Figure 3. Typical Push-to-Talk Mode with the Antenna Extended Contour Plot Overlaid on Face of the Phone

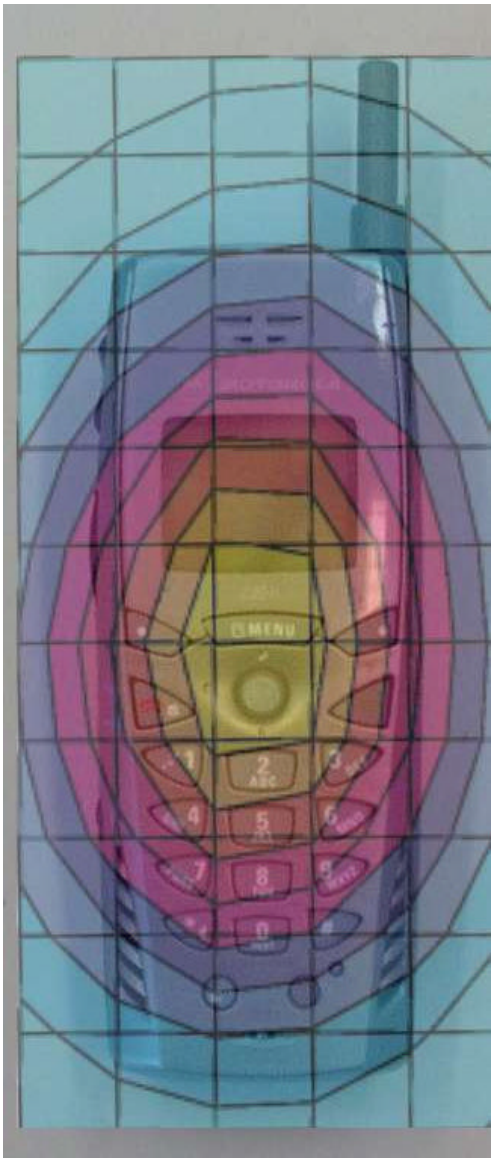


Figure 4. Typical Push-to-Talk Mode with the Antenna Retracted Plot Overlaid on Face of the Phone

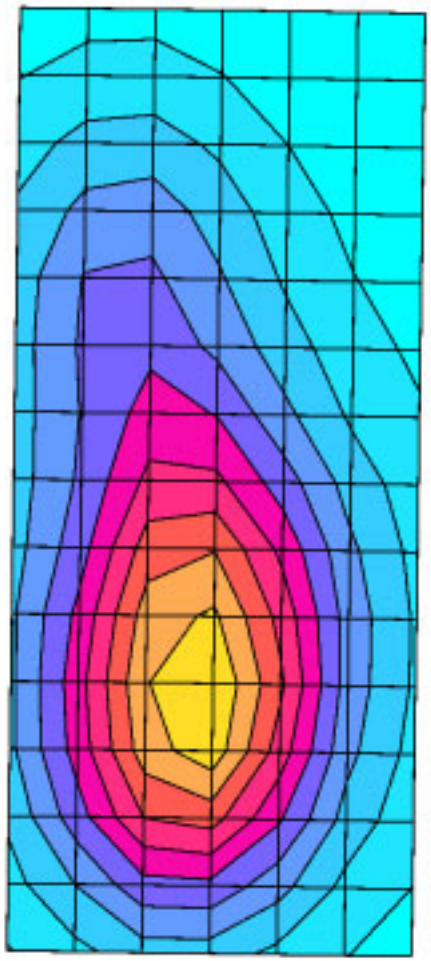
Appendix 4

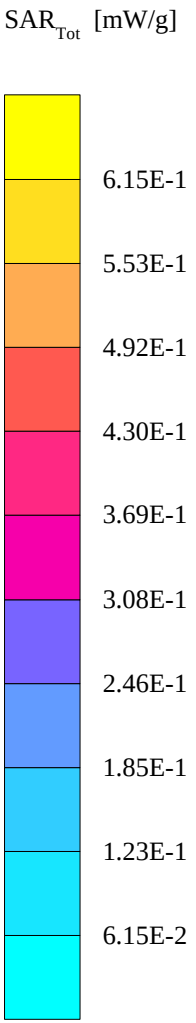
SAR distribution plots for 800MHz Body Worn Configuration

11/30/01

s/n: ABU01PR

Ch# F6 / Antenna Position: Extended / Type of Modulation:800MHz Data Mode / Battery Model #: SNN5716A
Accessory Model #:Belt Clip NTN1824A
R1 Amy Twin Phantom 2.3 Phantom; Section2 Section; Position: (90°,0°); Frequency: 825 MHz
Probe: ET3DV6 - SN1522 BODY - iDEN (Sugarwater); ConvF(6.20,6.20,6.20); Crest factor: 1.5; Muscle 835 MHz: σ = 0.97 mho/m ε_r = 53.7 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.565 mW/g, SAR (10g): 0.406 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 17.7 (13.2, 22.2) [mm]
Powerdrift: -0.37 dB

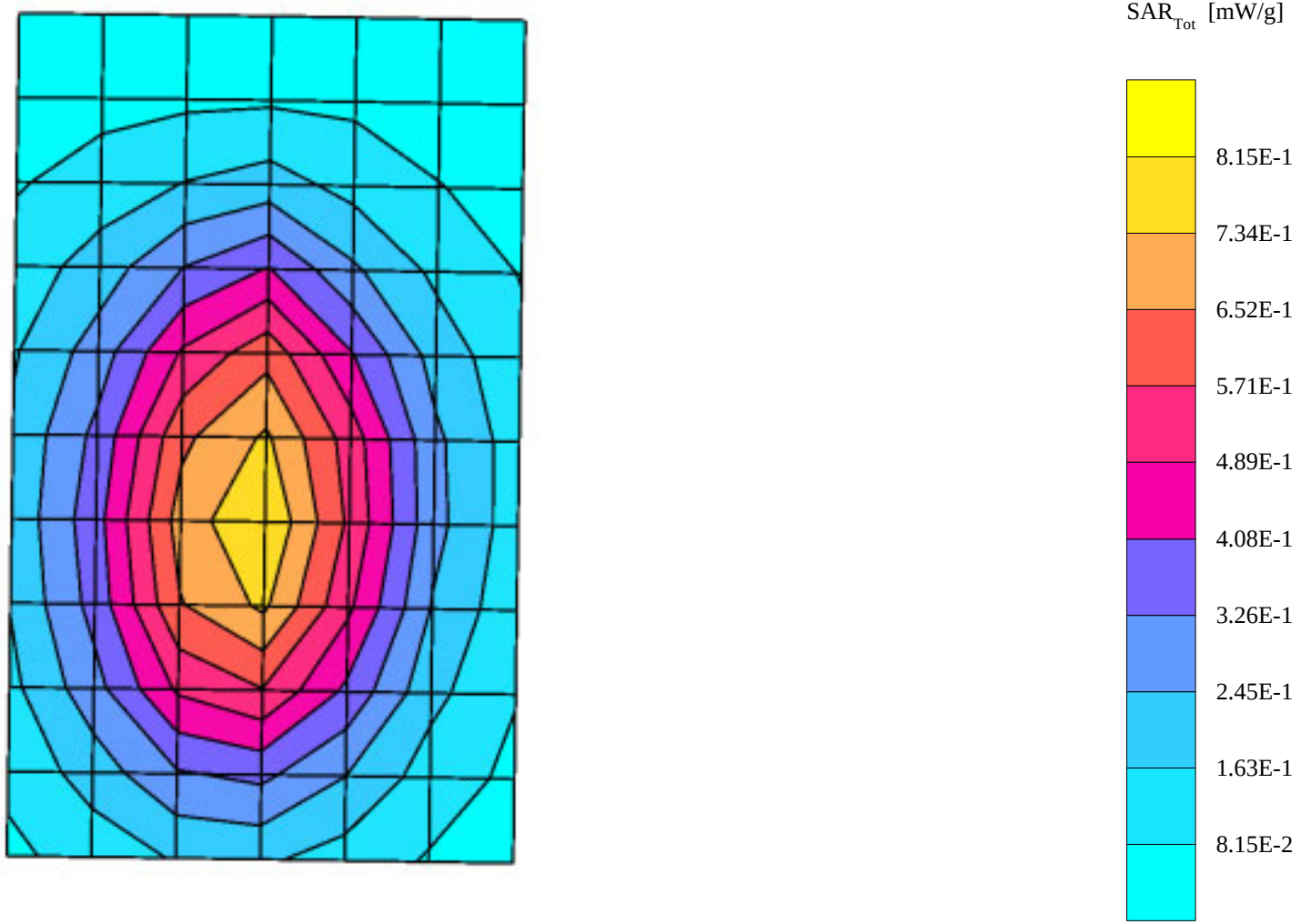




11/30/01

s/n: ABU01PR

Ch# F6 / Antenna Position: Retracted / Type of Modulation: 800MHz Data Mode / Battery Model #: SNN5716A
Accessory Model #:Belt Clip NTN1824A
R1 Amy Twin Phantom 2.3 Phantom; Section2 Section; Position: (90°,0°); Frequency: 825 MHz
Probe: ET3DV6 - SN1522 BODY - iDEN (Sugarwater); ConvF(6.20,6.20,6.20); Crest factor: 1.5; Muscle 835 MHz: σ = 0.97 mho/m ε_r = 53.7 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.776 mW/g, SAR (10g): 0.549 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 16.0 (14.2, 18.1) [mm]
Powerdrift: -0.14 dB



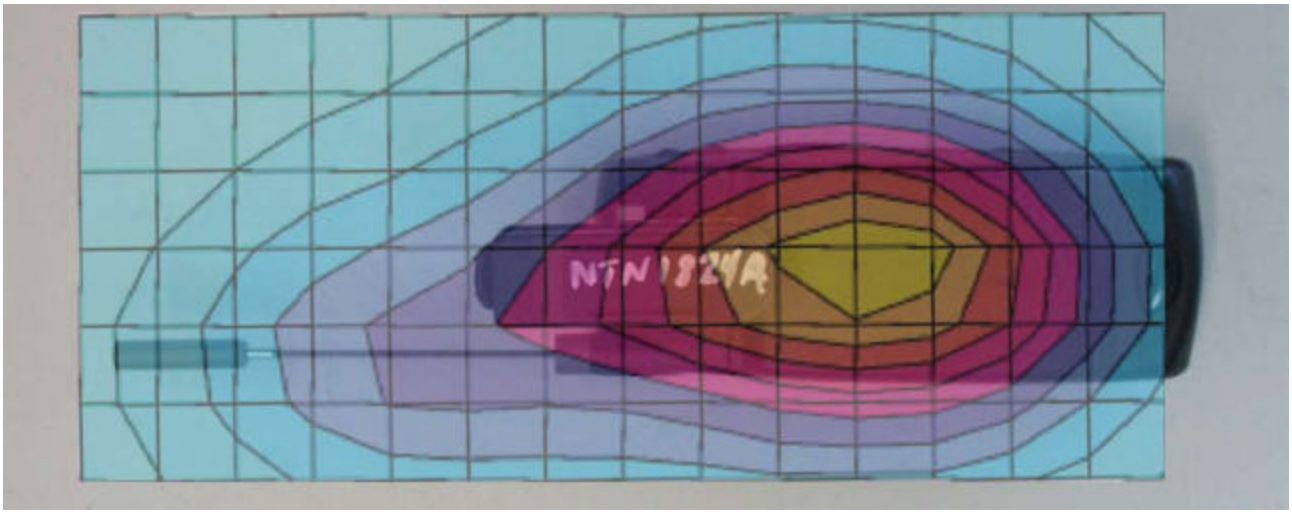


Figure 5. Typical Antenna Extended Body Worn Contour Overlaid on the Back of the Phone with the Belt-Clip

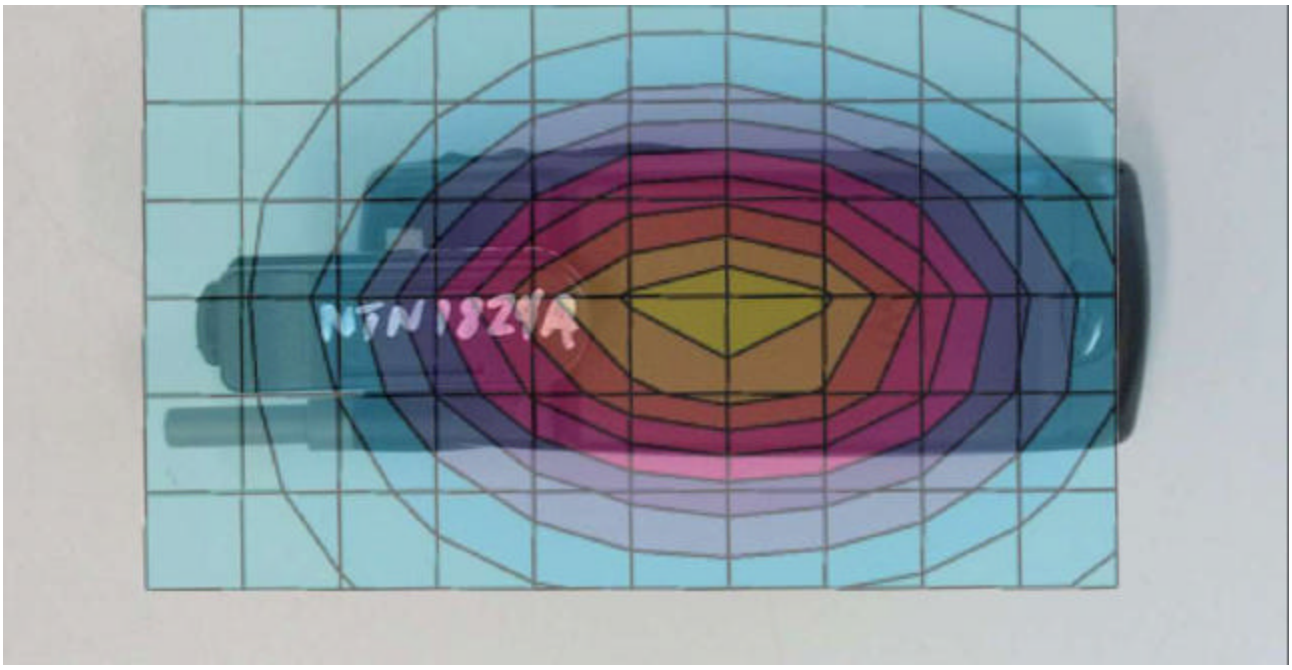


Figure 6. Typical Antenna Extended Body Worn Contour Overlaid on the Back of the Phone the Belt-Clip

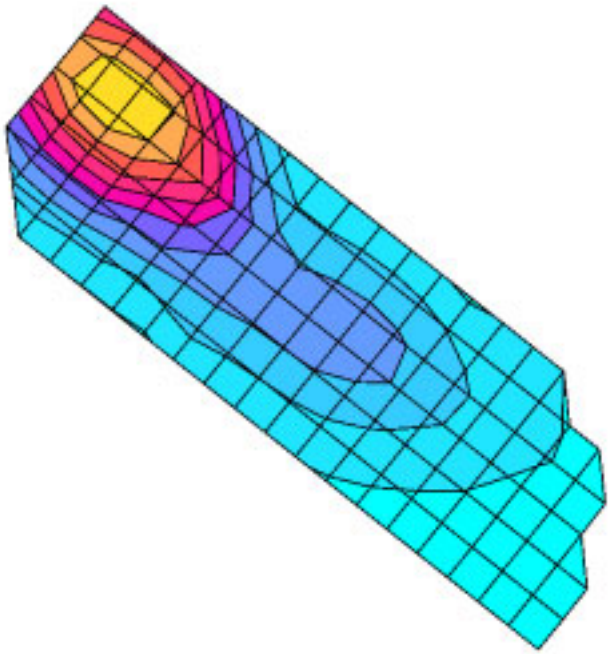
Appendix 5

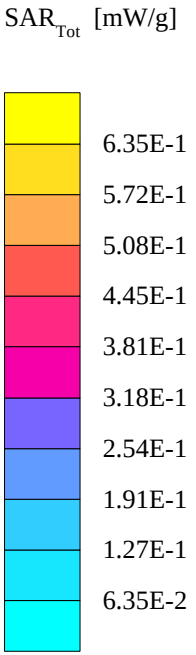
SAR distribution plots for 900MHz Phantom Head Adjacent Use

11/29/01

s/n: ABU01PR

Ch# F8 / Antenna Position: EXTENDED / Type of Modulation:900MHz Phone Mode / Battery Model #:SNN5716A
15 Degree Tilt Position
R1 Left Head (Barney) Phantom; Left Head Section; Position: (90°,180°); Frequency: 898 MHz
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.31,6.31,6.31); Crest factor: 3.0; Head 900 MHz: σ = 0.94 mho/m ε_r = 40.3 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.595 mW/g, SAR (10g): 0.424 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 17.0 (16.4, 17.9) [mm]
Powerdrift: -0.40 dB

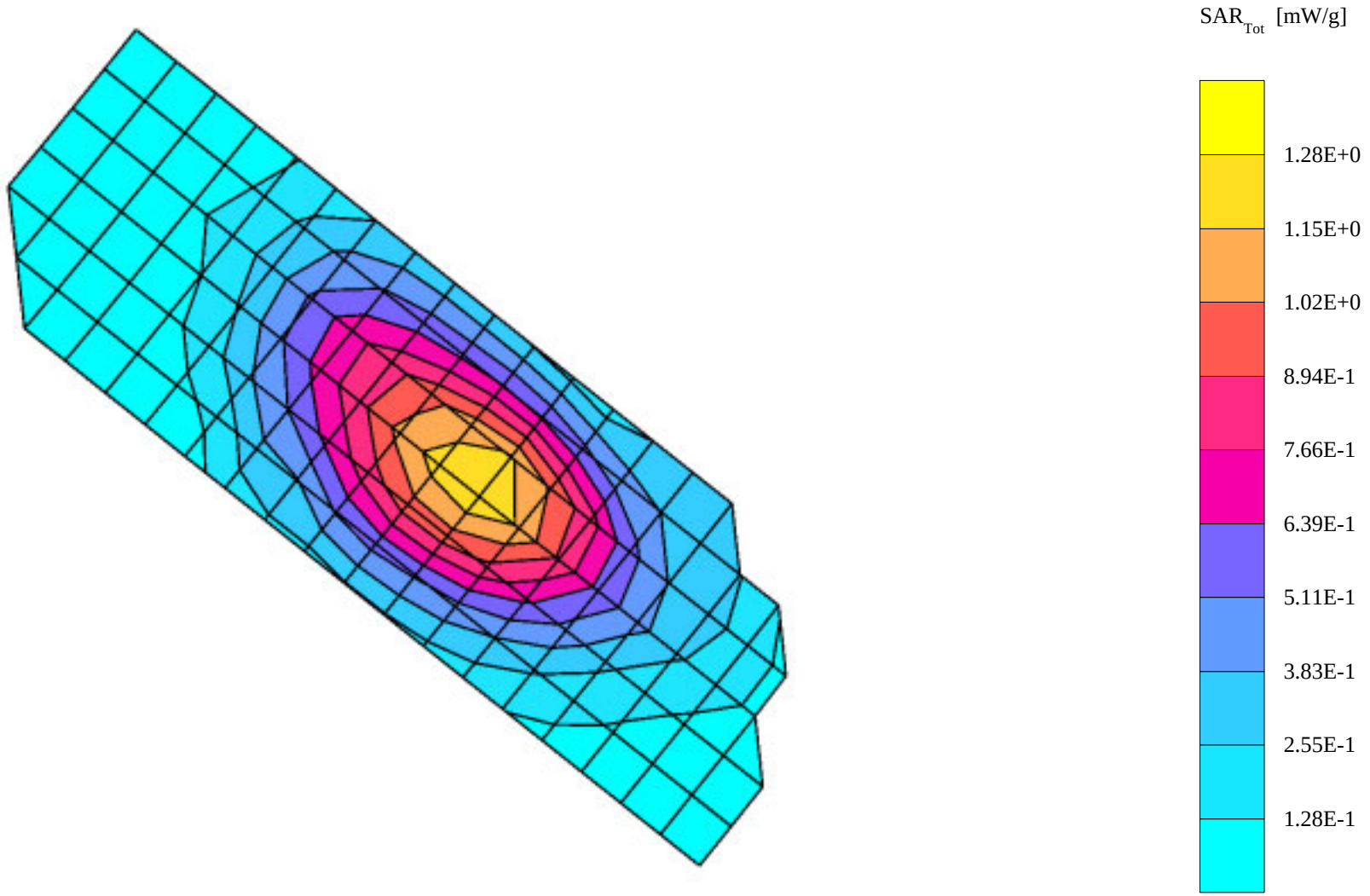




11/27/01

s/n: ABU01PR

Ch# F7 / Antenna Position:Retracted / Type of Modulation:900MHz Phone Mode / Battery Model #:SNN5716A
R1 Left Head (Barney) Phantom; Left Head Section; Position: (80°,180°); Frequency: 896 MHz
Probe: ET3DV6 - SN1522 HEAD - iDEN (Sugar water); ConvF(6.31,6.31,6.31); Crest factor: 3.0; Head 900 MHz: σ = 0.98 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 1.23 mW/g, SAR (10g): 0.828 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 14.8 (14.6, 15.1) [mm]
Powerdrift: 0.07 dB



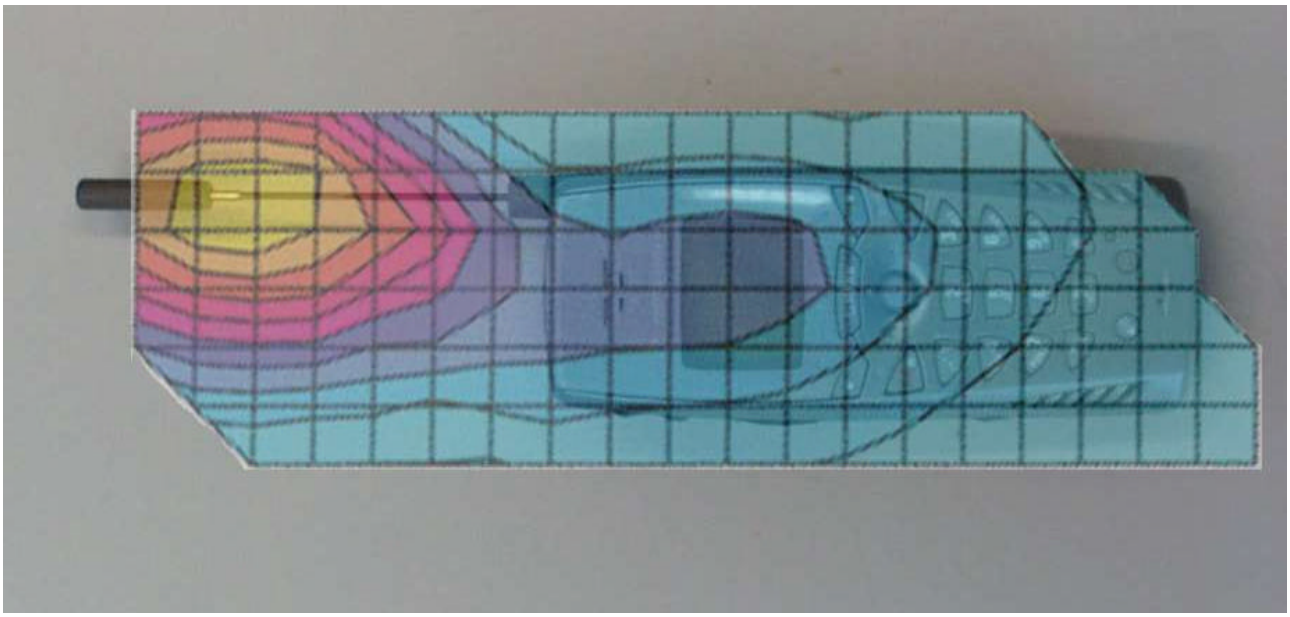


Figure 7. Typical 900MHz Phone Mode Antenna Extended Head Adjacent
Contour Plot Overlaid on Face of the Phone

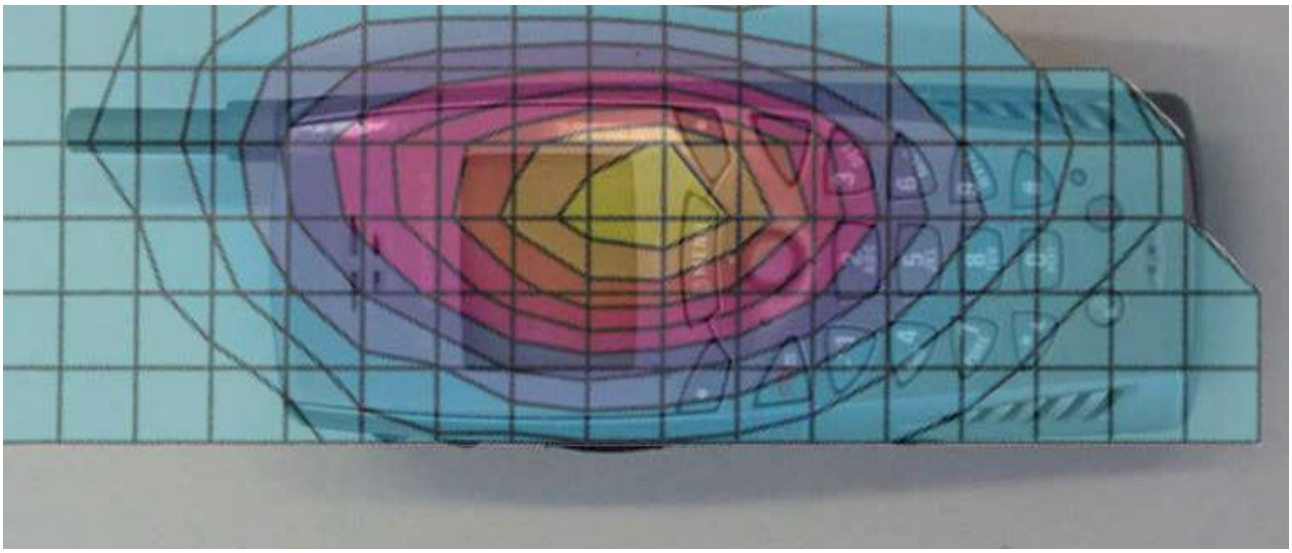


Figure 8. Typical 900MHz Phone Mode Antenna Retracted Head Adjacent
Contour Plot Overlaid on Face of the Phone

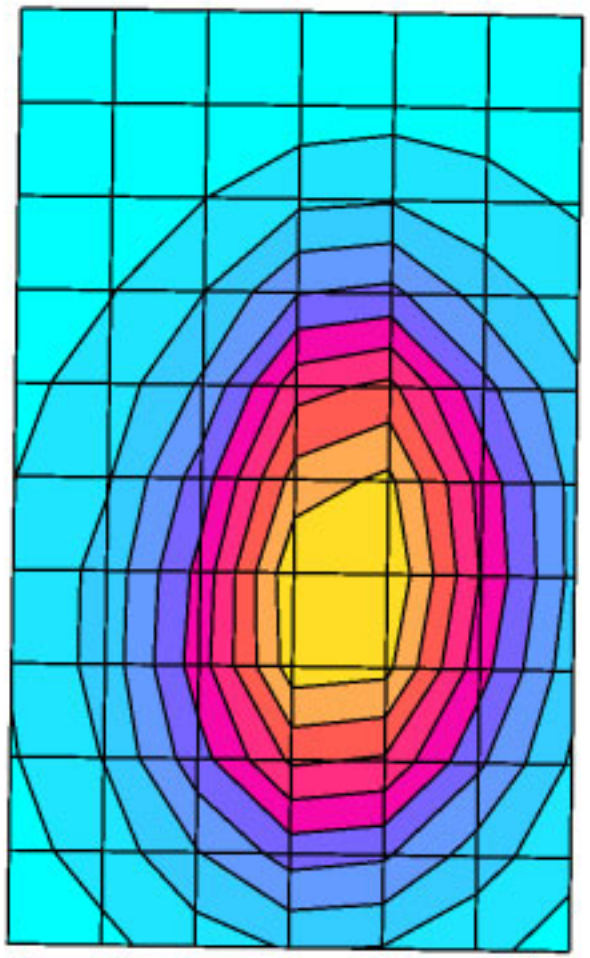
Appendix 6

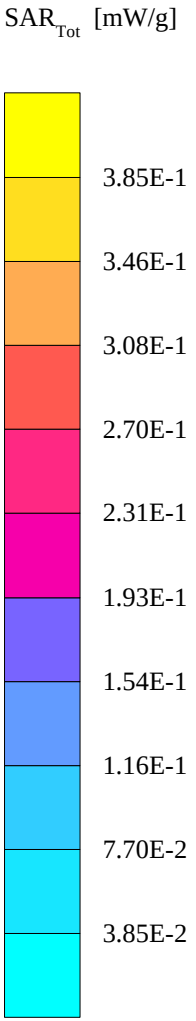
SAR distribution plots for 900MHz Body Worn Configuration

11/30/01

s/n: ABU01PR

Ch# F8 / Antenna Position: Retracted / Type of Modulation: 900MHz Phone Mode / Battery Model #: SNN5716A
Accessory Model #:Belt Clip NTN1824A
R1 Amy Twin Phantom 2.3 Phantom; Section2 Section; Position: (90°,0°); Frequency: 898 MHz
Probe: ET3DV6 - SN1522 BODY - iDEN (Sugarwater); ConvF(6.09,6.09,6.09); Crest factor: 3.0; Muscle 925 MHz: σ = 1.03 mho/m ε_r = 53.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.389 mW/g, SAR (10g): 0.269 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.1 (13.4, 17.0) [mm]
Powerdrift: -0.06 dB

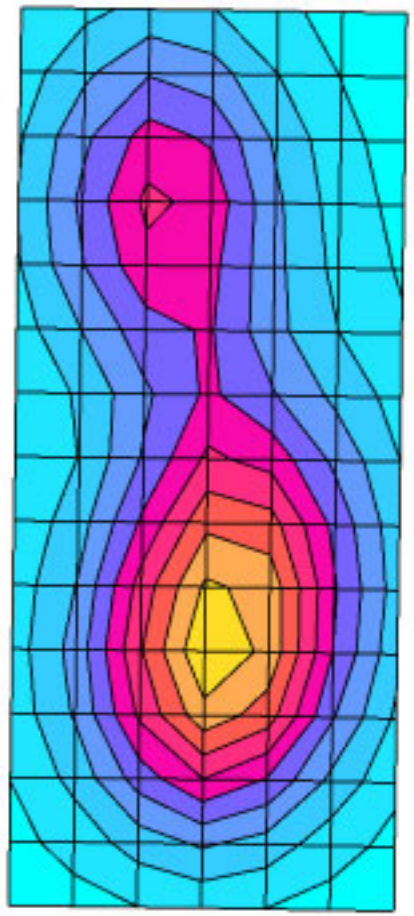


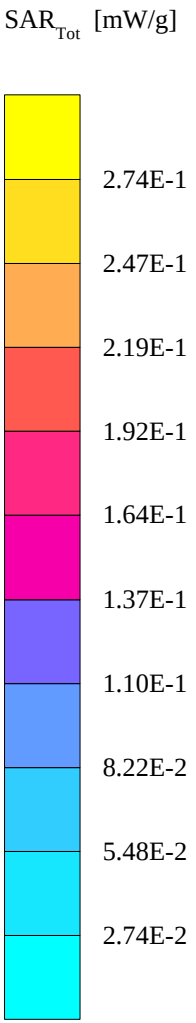


11/30/01

s/n: ABU01PR

Ch# F8 / Antenna Position: EXTENDED / Type of Modulation: 900MHz Phone Mode / Battery Model #: SNN5716A
Accessory Model #:Belt Clip NTN1824A
R1 Amy Twin Phantom 2.3 Phantom; Section2 Section; Position: (90°,0°); Frequency: 898 MHz
Probe: ET3DV6 - SN1522 BODY - iDEN (Sugarwater); ConvF(6.09,6.09,6.09); Crest factor: 3.0; Muscle 925 MHz: σ = 1.03 mho/m ε_r = 53.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.254 mW/g, SAR (10g): 0.178 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.3 (14.5, 16.3) [mm]
Powerdrift: -0.24 dB





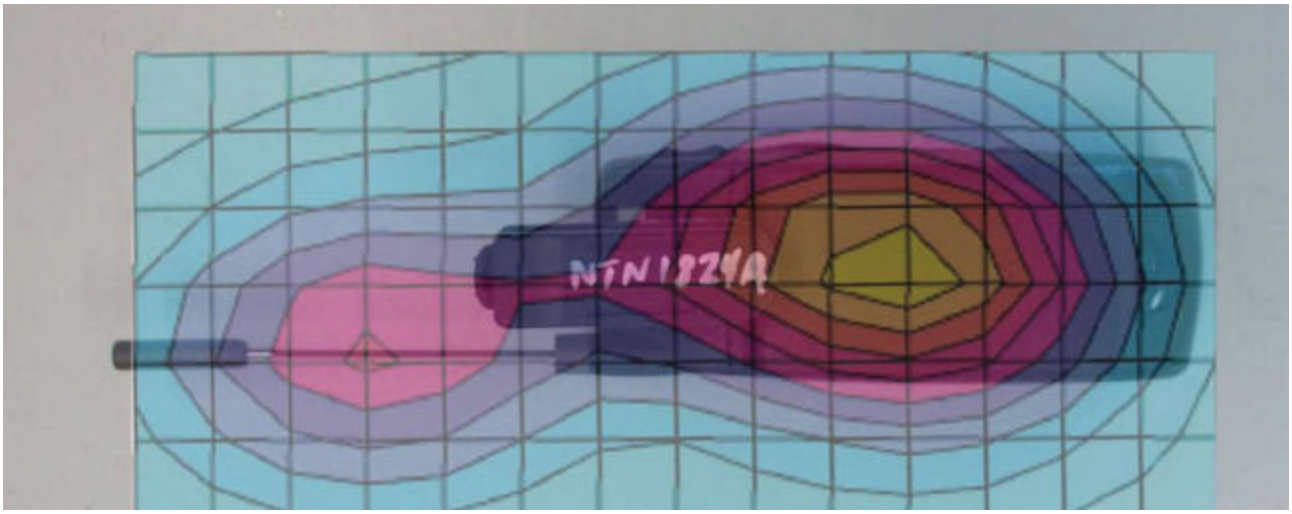


Figure 9. Typical Antenna Extended Body Worn Contour Overlaid on the Back of the Phone with Belt-clip

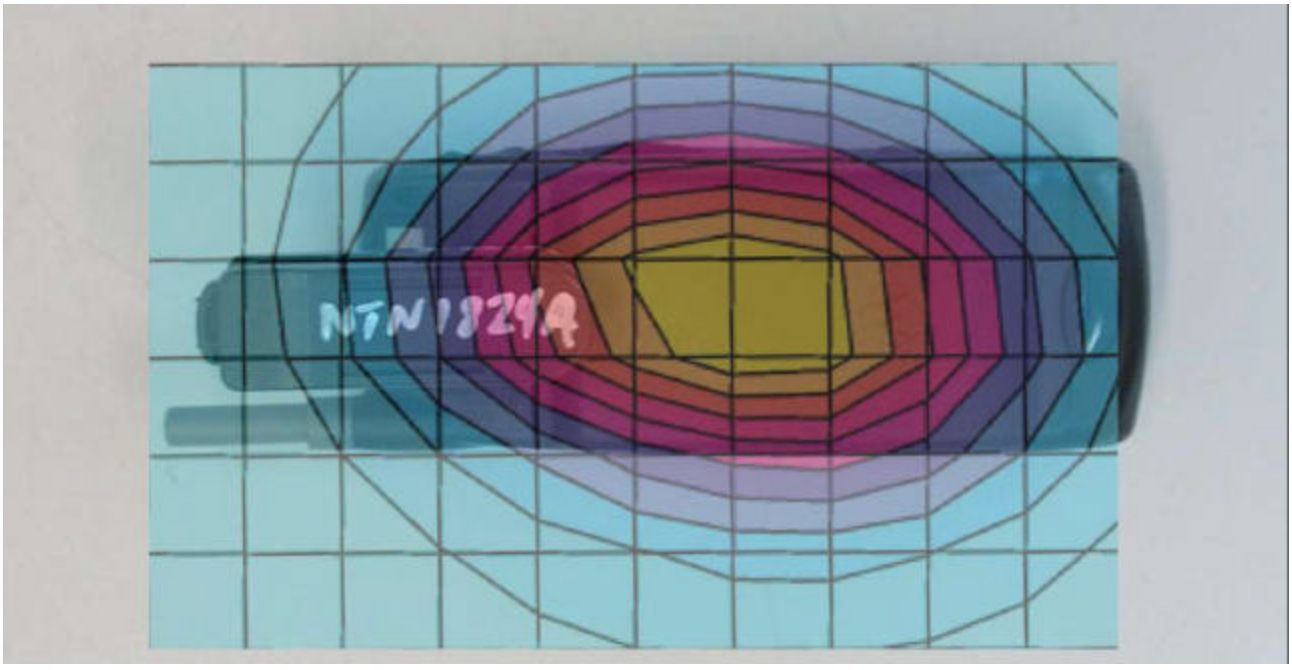


Figure 10. Typical Antenna Extended Body Worn Contour Overlaid on the Back of the Phone with Belt-clip

Appendix 7

Photographs of the device under test

Figure 11. Front of Phone
With Antenna Extended

Figure 12. Front of Phone
With Antenna Retracted

Figure 13. Side of Radio With Antenna Extended

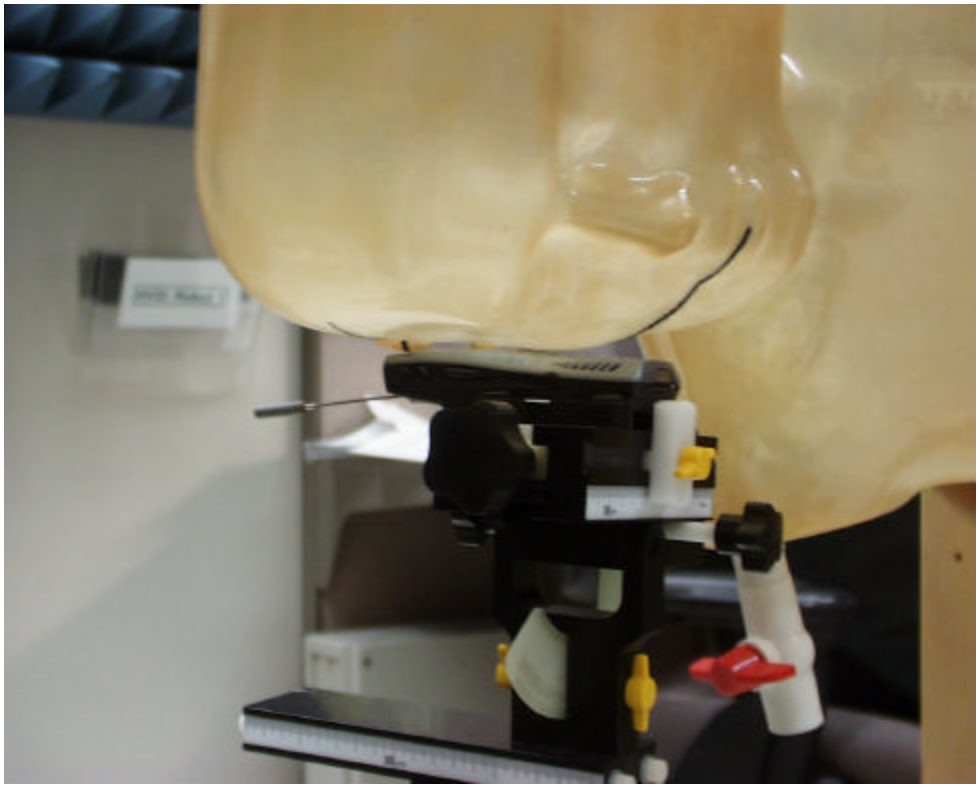


Figure 14. Head Adjacent Position with Antenna Extended

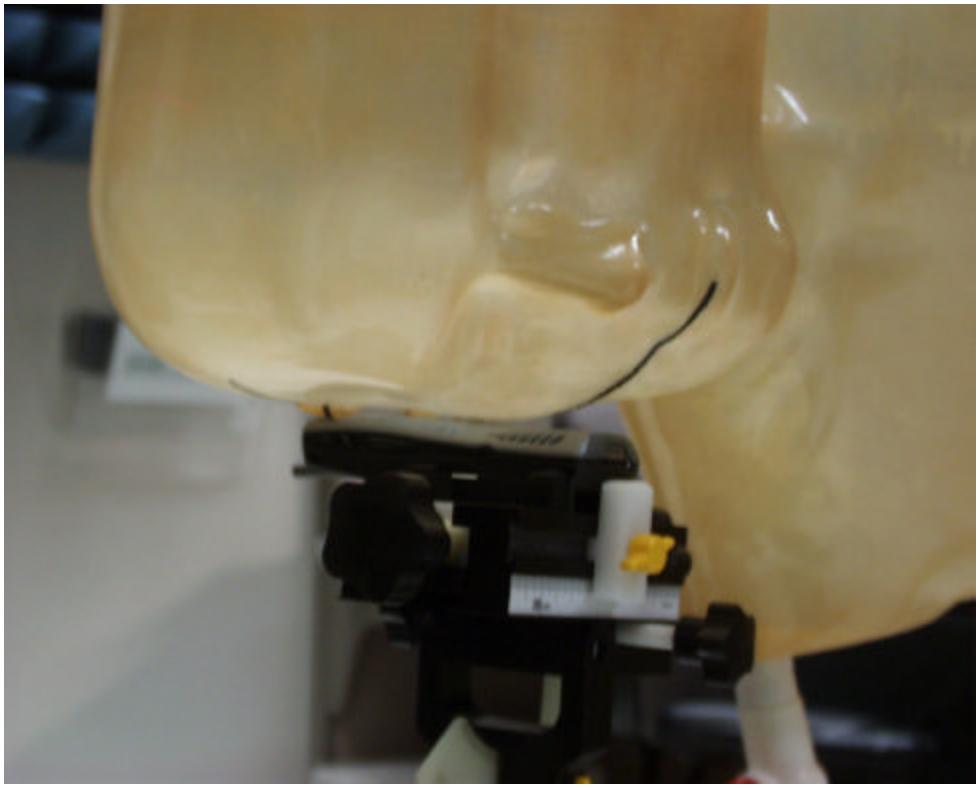


Figure 15. Head Adjacent Position with Antenna Extended

Figure 16. Body-Worn Position with Headset and Data Cable Attached (Seen from Side)

Figure 17. Body-Worn Position with Headset and Data Cable Attached (Seen from Side)

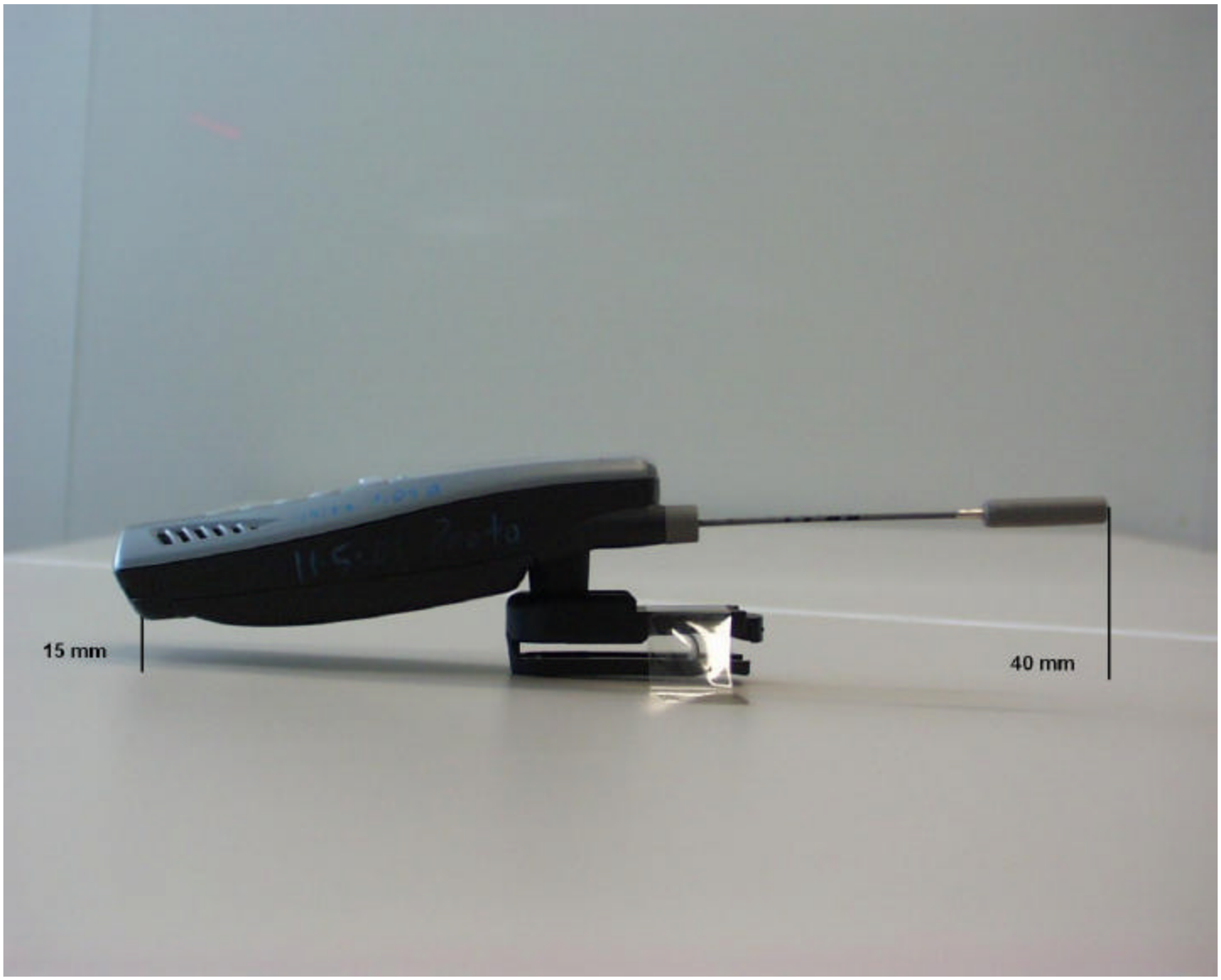


Figure 18. Spacing Dictated By the Belt-Clip with Antenna Extended

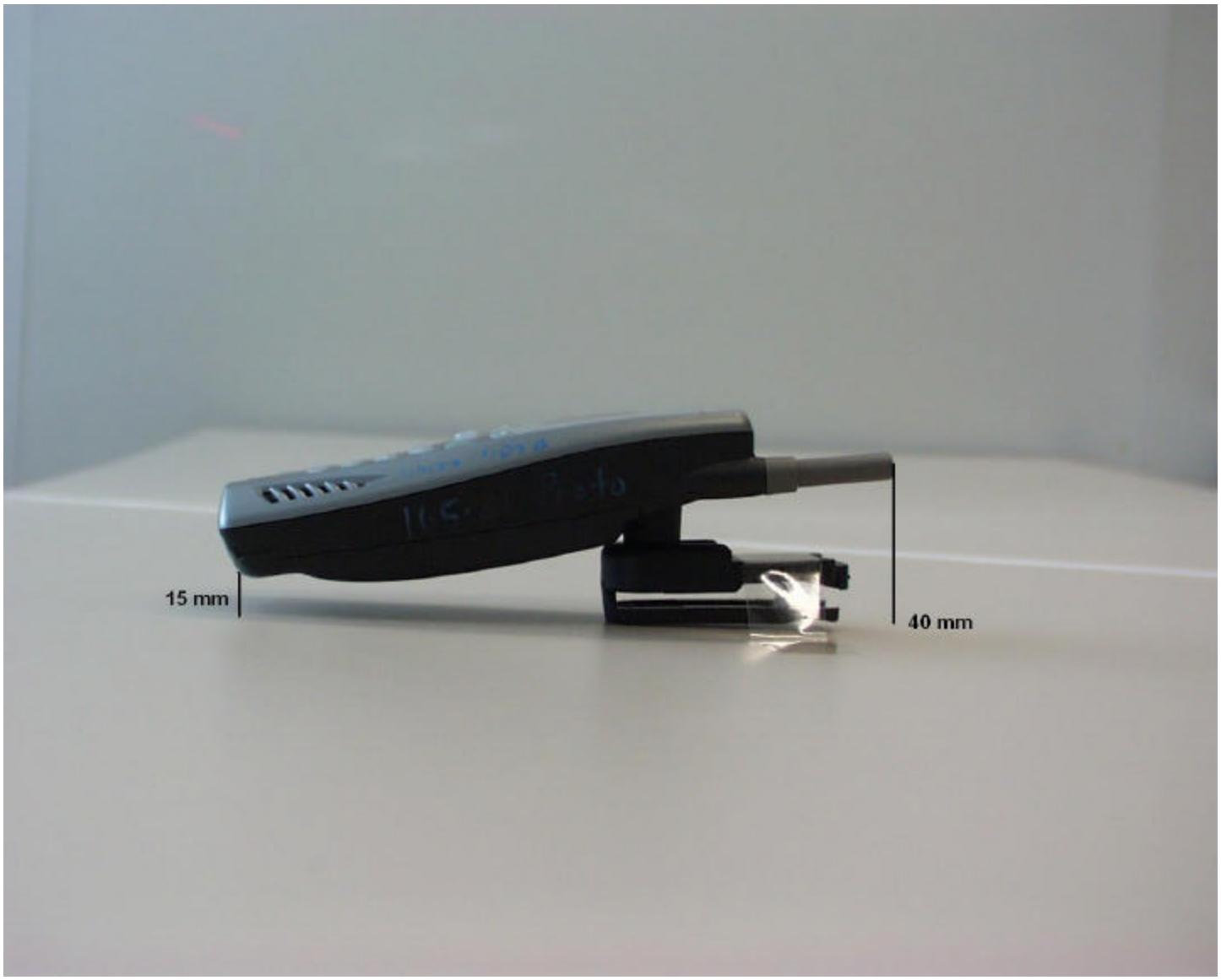


Figure 19. Spacing Dictated the Belt-Clip with Antenna Retracted