



June 24, 2004

Supplement to SAR Test Report for Motorola portable cellular phone (FCC ID IHDT56EH1)

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Summary of FCC request for additional information

There was a request for additional information regarding Motorola’s SAR Test Report for Motorola portable cellular phone (FCC ID IHDT56EH1). The requested information is addressed below in the same numbering sequence received.

1. Please submit the following missing SAR plots:
 - cellular right touch
 - PCS right touch
 - PCS left tilt
 - cellular right tilt

Response: The missing plots are attached below in the original report Appendix 2 supplement. Two of the plots were taken on days for which the system accuracy verification and/or the tissue simulating liquid measurements had not been previously reported. The updated tables are attached here and the system accuracy verification scans are attached below in the original report Appendix 1 supplement.

Electrical parameters of the tissue simulating liquid for original report

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			e _r	s (S/m)	Temp (°C)
835	Head	Measured, 12-May-04	41.4	0.91	20.0
		Measured, 13-May-04	41.3	0.90	20.0
		Recommended Limits	41.5 ±5%	0.90 ±5%	18-25
	Body	Measured, 13-May-04	53.5	0.97	20.0
		Recommended Limits	55.2 ±5%	0.97 ±5%	18-25
1880	Head	Measured, 12-May-04	39.1	1.44	19.3
		Measured, 14-May-04	38.3	1.45	19.6
		Measured, 15-May-04	38.1	1.44	19.2
		Recommended Limits	40.0 ±5%	1.40 ±5%	18-25
	Body	Measured, 21-May-04	50.9	1.58	18.9
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25

System Accuracy Verification for original report

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			e _r	s (S/m)		
900	Measured, 12-May-04	11.3	40.6	0.97	21	19.7
	Measured, 13-May-04	10.8	40.5	0.96	20	19.9
	Recommended Limits	11.4	41.5 ±5%	0.97 ±5%	18-25	18-25
1800	Measured, 12-May-04	41.2	39.4	1.36	20.0	19.5
	Measured, 14-May-04	40.6	38.7	1.36	20	20.0
	Measured, 15-May-04	39.3	38.7	1.36	20	19.5
	Measured, 21-May-04	40.7	38.5	1.36	20	19.1
	Recommended Limits	40.7	40.0 ±5%	1.4 ±5%	18-25	18-25

2. In the Supplemental SAR Report, p.4, the tissue parameter values for 835 MHz measured on June 15 and those measured on June 16 appear to be reversed, based on the values listed on the SAR plots. Please address.

Response: Data was incorrectly entered into the table. The corrected table is attached.

Electrical parameters of the tissue simulating liquid for amended report

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ϵ_r	s (S/m)	Temp (°C)
835	Body	Measured, 15-Jun-04	54.7	0.98	19.8
		Measured, 16-Jun-04	54.7	0.99	19.8
		Recommended Limits	55.2 ±5%	0.97 ±5%	18-25
1880	Body	Measured, 14-Jun-04	51.3	1.59	19.1
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25

3. In the Supplemental SAR Report, the GPRS 1900 SAR plot indicates that a crest factor of 8 was used. For GPRS Class 10, a crest factor of 4 should be used, as was done for the GPRS 850 SAR test. Please retest, using a crest factor = 4, and submit new data.

Response: The original scan did use a crest factor of 8 rather than 4 as is required. The scan was reevaluated, using 4 as the crest factor. The resulting SAR value was lower. An updated data table is attached here and the corrected scan is attached below in the amended report Appendix 2 supplement.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn							
			Voice Mode - Back of phone 15mm away from phantom				GPRS Class 10 Mode - Back of phone 25mm away from phantom			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.46								
	Channel 190	32.44	0.340	-0.02	0.34	19.8	0.718	-0.14	0.74	19.8
	Channel 251	32.45								
Digital 1900MHz	Channel 512	29.95								
	Channel 661	29.97	0.389	0.00	0.39	19.1	0.294	0.00	0.29	19.0
	Channel 810	29.95								

Amended Report Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH1 at highest possible output power. Measured against the body.

Supplement to Appendix 1 of the Original Report

SAR distribution comparison for the system accuracy verification

Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 272TR

PM1 Power = 200mW

Sim.Temp@meas=19.6 Sim.Temp@SPC = 19.5C Room Temp @ SPC = 20C

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (90°,90°); Frequency: 1800 MHz

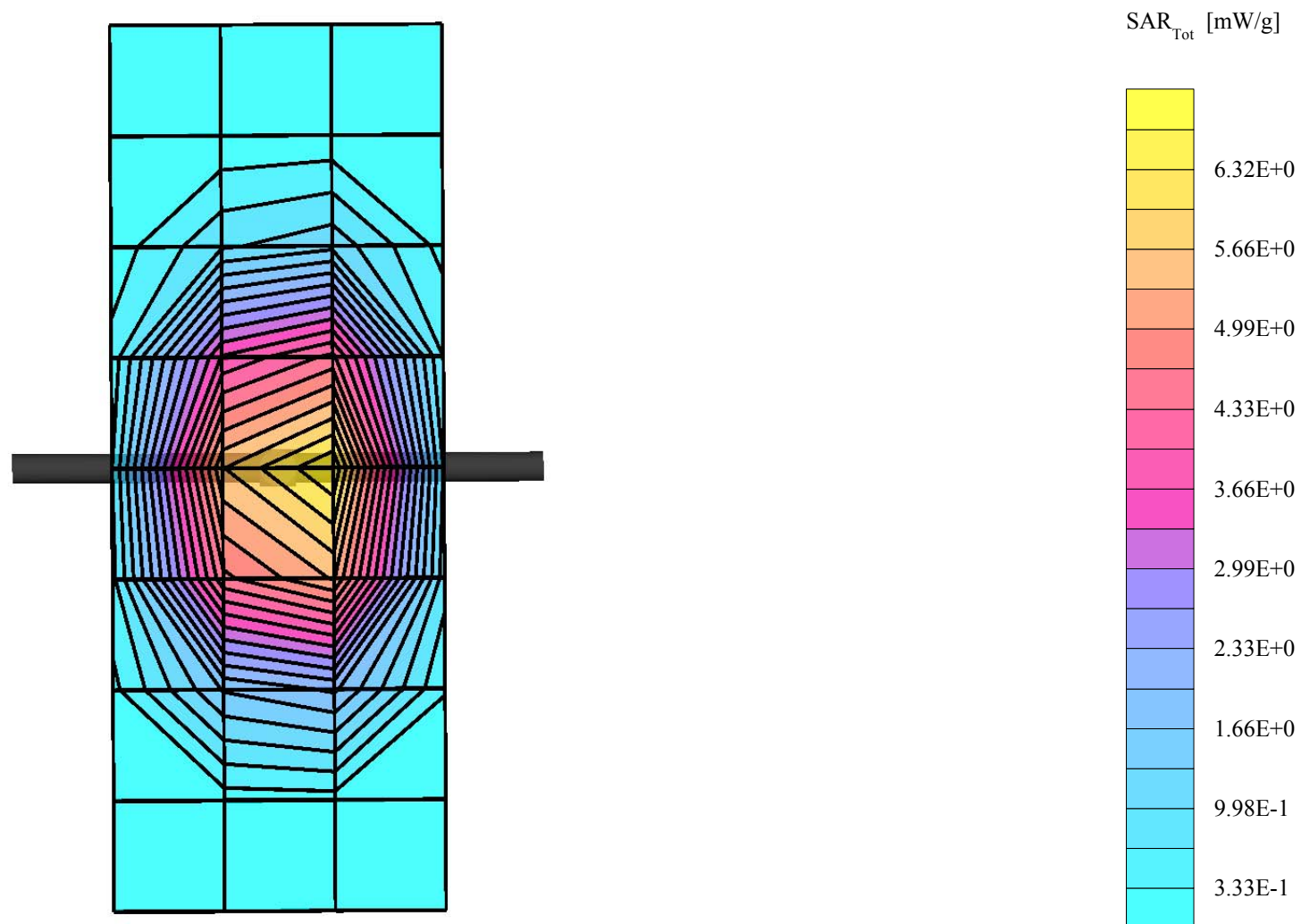
Probe: ET3DV6 - SN1514 - Validation4; ConvF(5.10,5.10,5.10); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.36$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 8.24 mW/g \pm 0.03 dB, SAR (10g): 4.32 mW/g \pm 0.02 dB, (Worst-case extrapolation)

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

Penetration depth: 8.5 (8.0, 9.4) [mm]

Powerdrift: -0.08 dB



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 272TR

PM1 Power = 200mW

Sim.Temp@meas=19.6 Sim.Temp@SPC = 19.5C Room Temp @ SPC = 20C

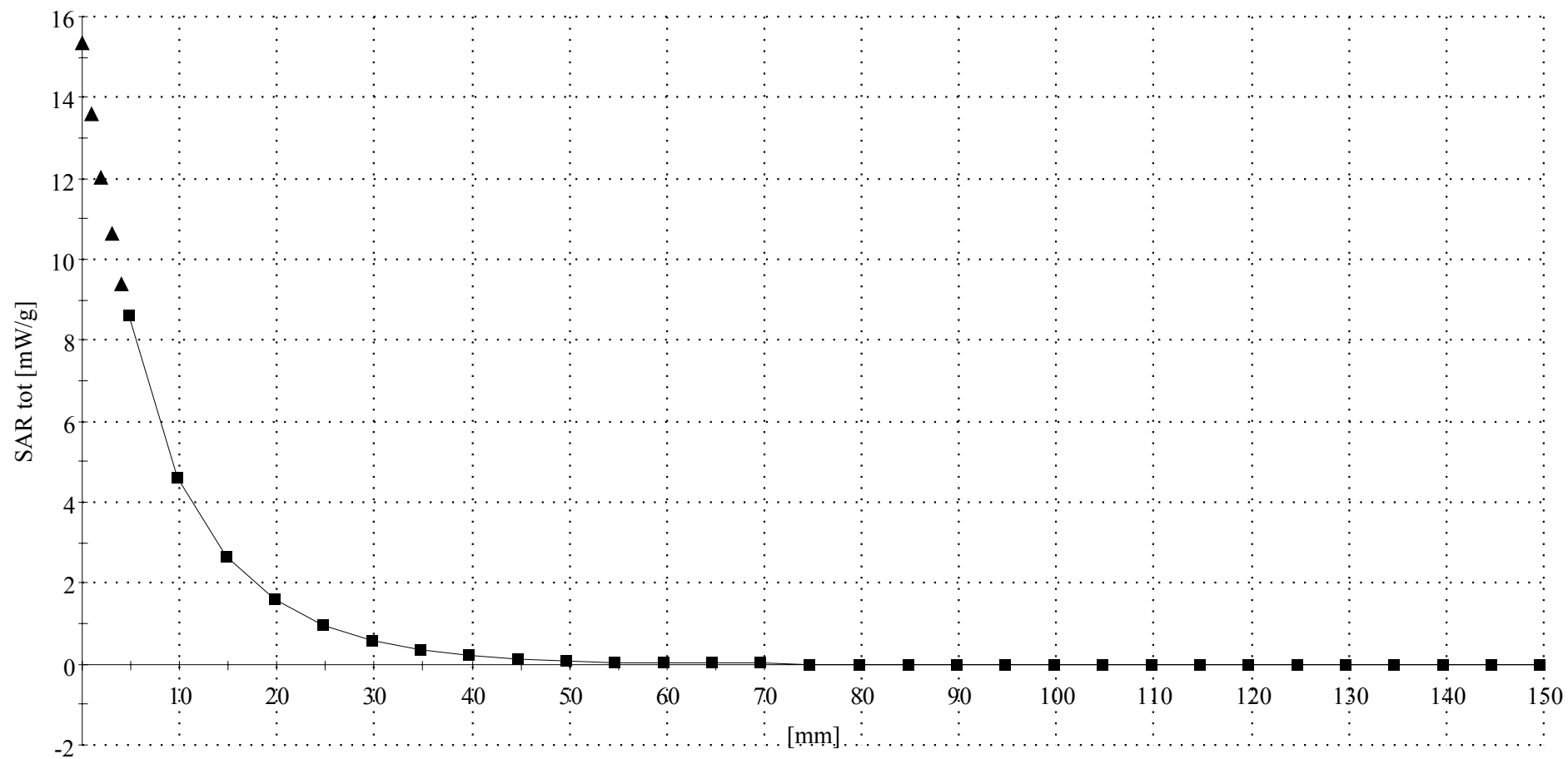
R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position: ; Frequency: 1800 MHz

Probe: ET3DV6 - SN1514 - Validation4; ConvF(5.10,5.10,5.10); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.36$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 8.4 (8.0, 9.3) [mm]



Supplement to Appendix 2 of the Original Report
SAR distribution plots for Phantom Head Adjacent Use

G00U216NUK

Ch# 661 / Pwr Step: 0

Type of Modulation: GSM 1900

DEVICE POSITION (cheek or rotated): Rotated

Accessory Model #: N/A

Simulate Temp when Measured: 19.6C

Antenna Position: Fixed

Battery Model #: AANN4285A

Simulate Temp after Test: 19.3C

R4 TP-1250 GLYCOL sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz

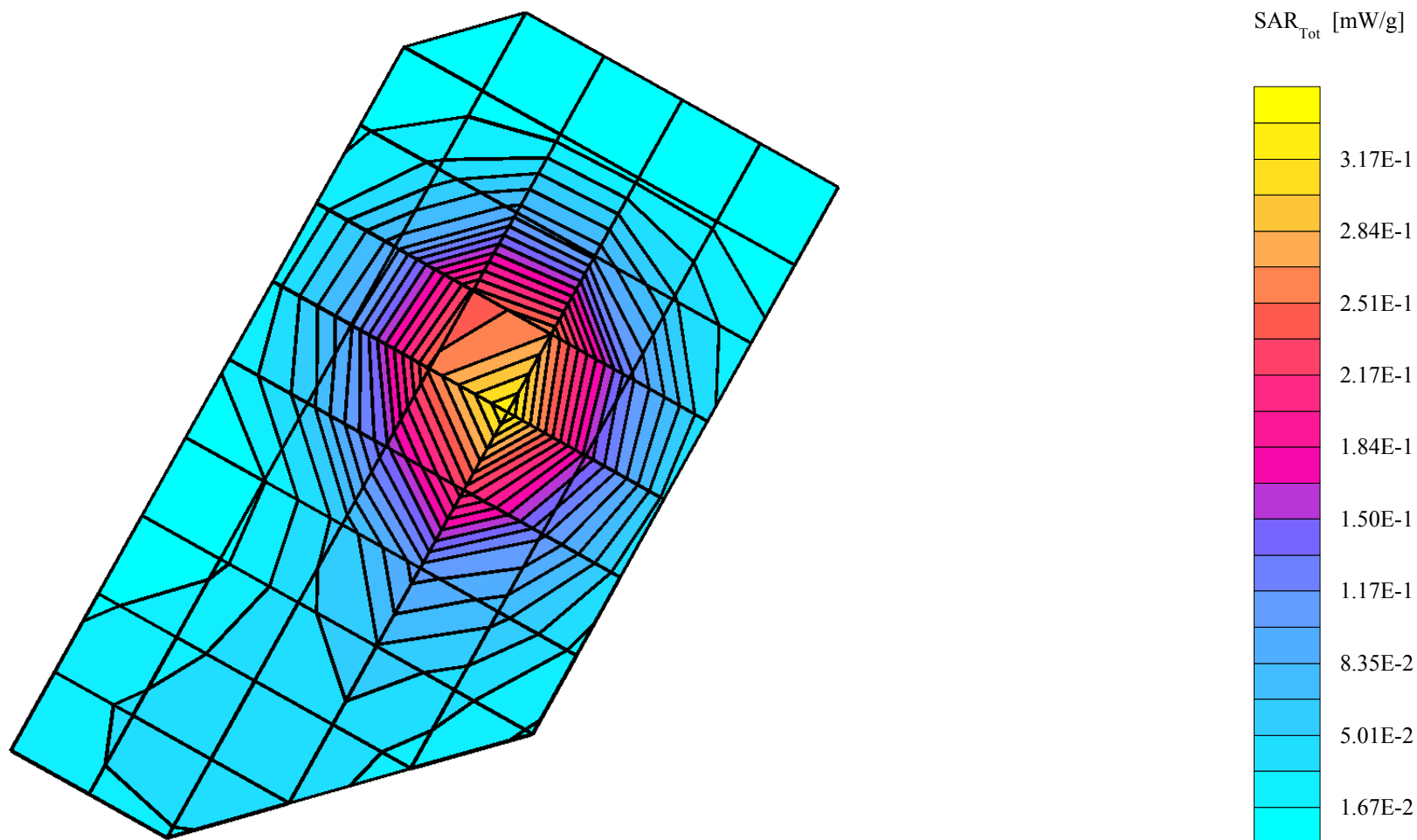
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(5.10,5.10,5.10); Crest factor: 8.0; 1880 MHz Head & Body: $\sigma = 1.44$ mho/m $\epsilon_r = 39.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.339 mW/g, SAR (10g): 0.200 mW/g, (Worst-case extrapolation)

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

Penetration depth: 10.6 (9.9, 11.5) [mm]

Powerdrift: -0.02 dB



s/n: G00U216NUK

Ch# 810 / Pwr Step: 0

Type of Modulation: GSM 1900

DEVICE POSITION (cheek or rotated): Cheek

Accessory Model #: N/A

Simulate Temp when Measured: 19.5C

Simulate Temp after Test: 19.6C

R4 TP-1250 GLYCOL sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 1910 MHz

Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(5.10,5.10,5.10); Crest factor: 8.0; 1880 MHz Head & Body: $\sigma = 1.45$ mho/m $\epsilon_r = 38.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.12 mW/g, SAR (10g): 0.531 mW/g, (Worst-case extrapolation)

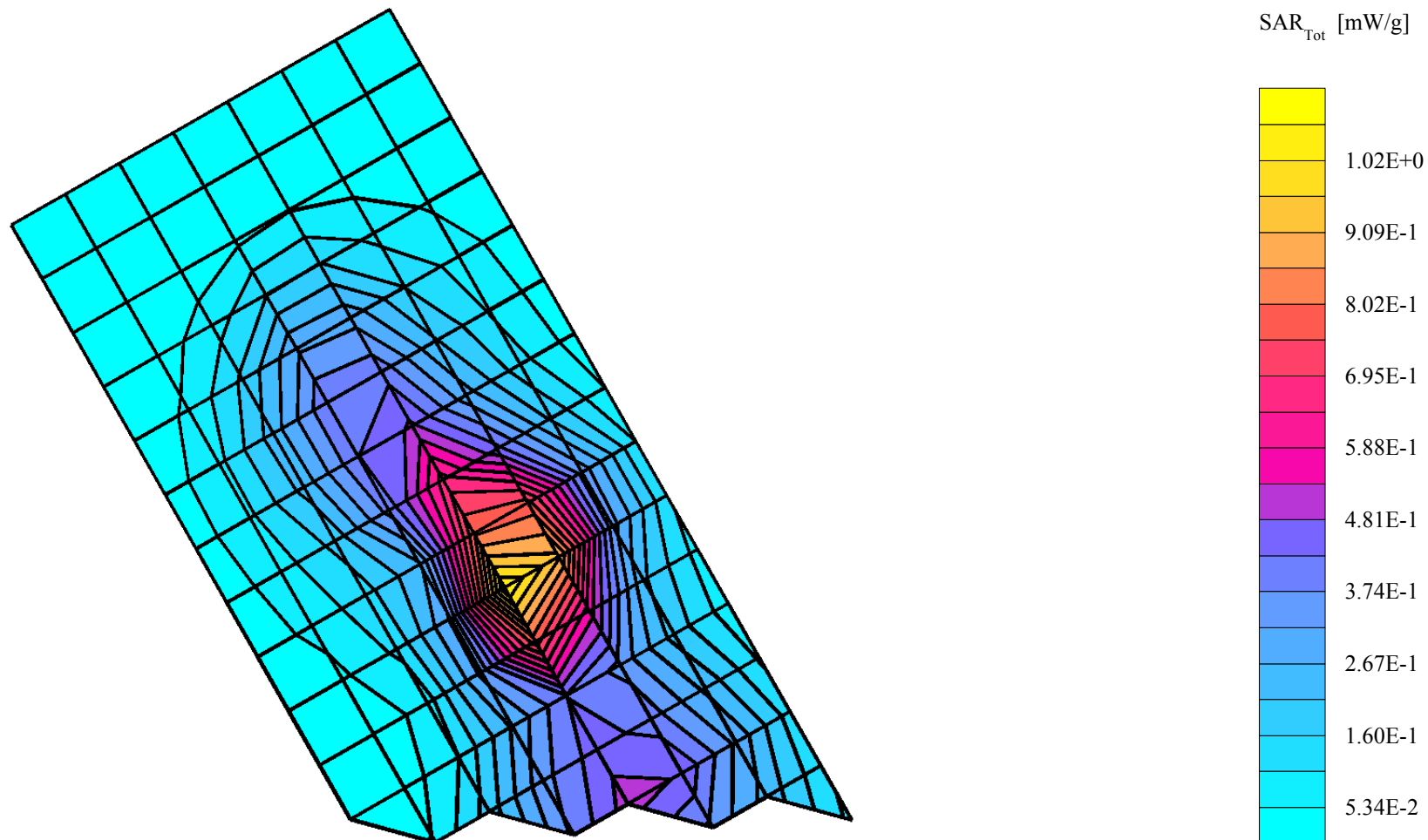
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0

Penetration depth: 8.1 (8.0, 8.6) [mm]

Powerdrift: -0.19 dB

Antenna Position: Fixed

Battery Model #: AANN4285A



s/n: G00U216NUK

Ch# 128 Pwr Step: 5 ota

Type of Modulation: 850 gsm

DEVICE POSITION: CHEEK

Accessory Model #: none

R4 TP-1131 SUGAR SAM Expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 824 MHz

Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 8.0; 835 MHz Head & Body: $\sigma = 0.91$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.26 mW/g, SAR (10g): 0.814 mW/g, (Worst-case extrapolation)

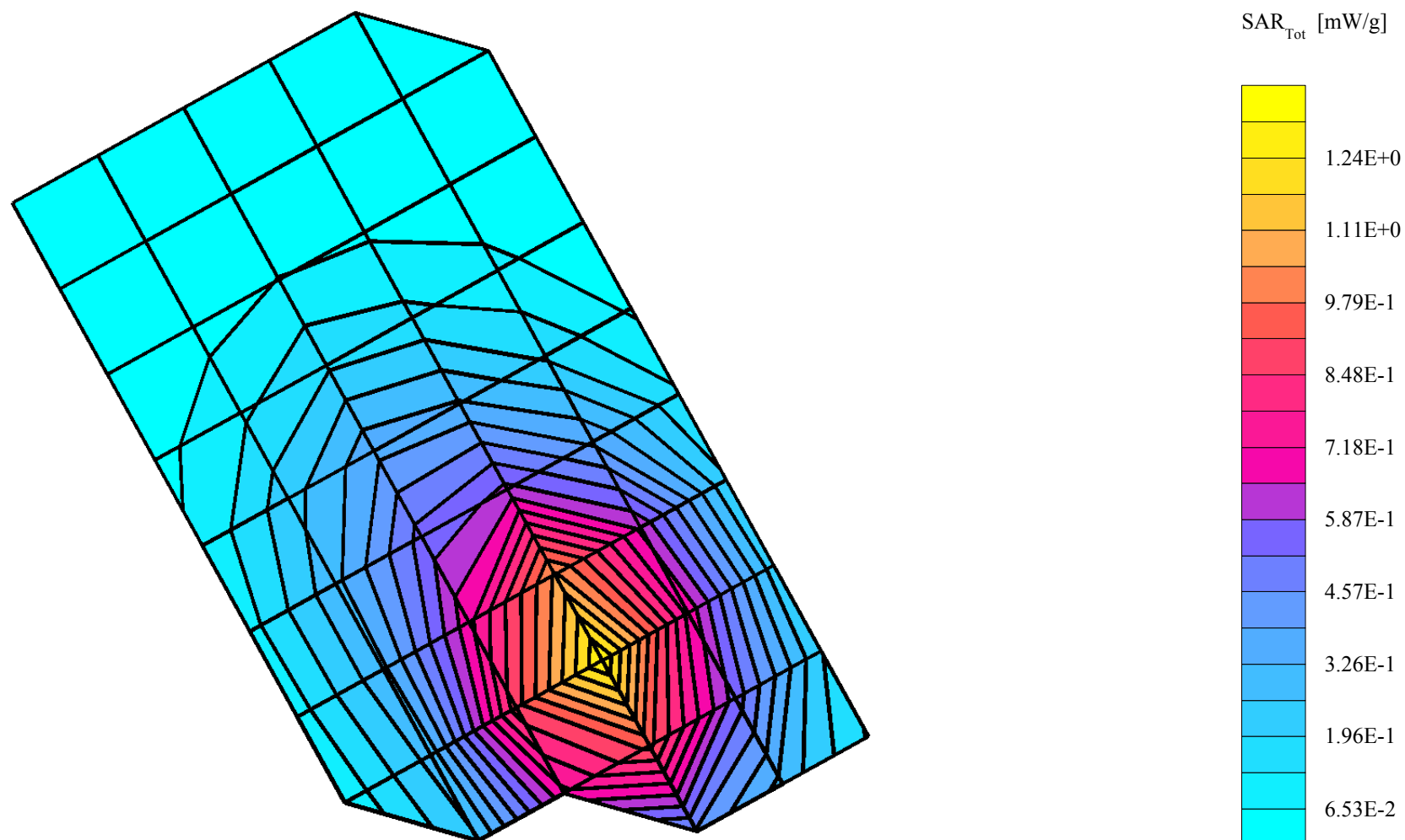
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 13.6 (12.3, 15.2) [mm]

Powerdrift: -0.05 dB

Antenna Position: FIXED

Battery Model #: AANN4285A



s/n: G00U216NUK

Ch# 190 Pwr Step: 5 ota

Type of Modulation: 850 gsm

DEVICE POSITION: ROTATED

Accessory Model #: none

R4 TP-1131 SUGAR SAM Expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 837 MHz

Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 8.0; 835 MHz Head & Body: $\sigma = 0.90$ mho/m $\epsilon_r = 41.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.292 mW/g, SAR (10g): 0.215 mW/g, (Worst-case extrapolation)

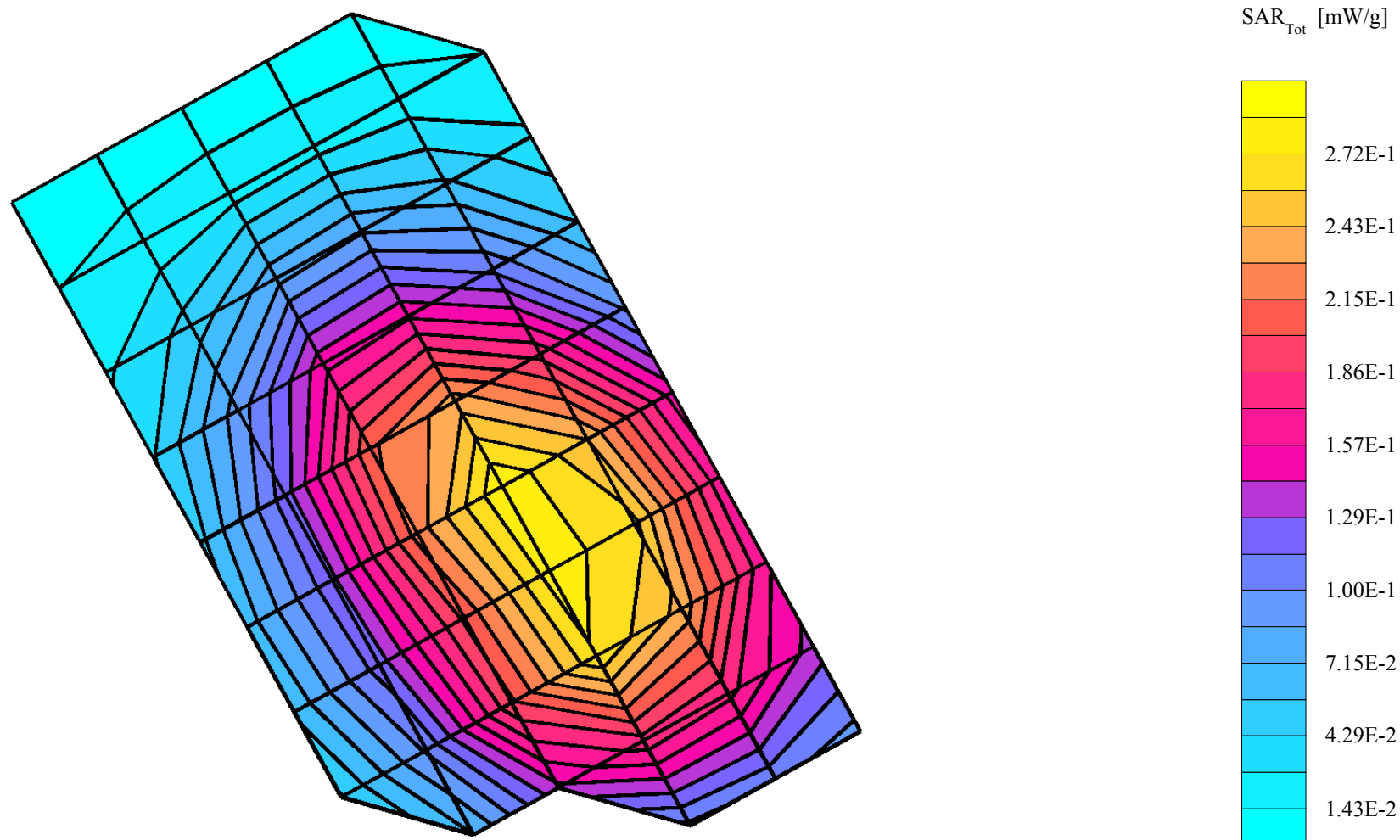
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 18.8 (17.7, 20.0) [mm]

Powerdrift: -0.06 dB

Antenna Position: FIXED

Battery Model #: AANN4285A



Supplement to Appendix 2 of the Amended Report
SAR distribution plots for Body Worn Configuration

s/n: 4400005723356

Ch# 661 / Pwr Step: 0

Type of Modulation:GPRS1900

Antenna Position: FXD

Battery Model #: 4285

Accessory Model #: 25mm Distance beteen Back of Phone and Phantom

R3: Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 1880 MHz

Probe: ET3DV6 - SN1398 - FCC Body2; ConvF(4.50,4.50,4.50); Crest factor: 4.0; 1880 MHz Head & Body: $\sigma = 1.59$ mho/m $\epsilon_r = 51.3$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.294 mW/g, SAR (10g): 0.171 mW/g, (Worst-case extrapolation)

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

Penetration depth: 9.9 (9.0, 11.1) [mm]

Powerdrift: -0.00 dB

