



December 13, 2005

Supplement to SAR Test Report for Motorola portable cellular phone (FCC ID IHDT56FQ1)

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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 IHDT56FQ1). The requested information is addressed below in the same numbering sequence received.

3a . What is the CDMA MS Protocol Revision number.

RESPONSE: Protocol revision 6 (complaint to IS-2000 Rev 0).

3b . Please address the applicability of test codes to simulate the required test conditions, as defined in 3GPP2, TIA, and other standards.

RESPONSE: All phones are tested using a base station simulator, not in test mode as stated in section 6 Test Results in the SAR report. Future reports will have this section edited to properly reflect the configuration of the phone during testing.

3c. Please identify the CDMA Radio Configurations, Service Options, multiplex options voice/data, code channel combinations and options available to the EUT.

RESPONSE: To test voice calls on the DUT, the test equipment was configured to use "all up bits" for RC1 / SO2 on J-STD-008 for CDMA 1900MHz and TSB-74 for CDMA 800MHz on the Agilent E8285A CDMA Mobile Station test set.

3d. Please identify the CDMA Radio Configurations, Service Options, multiplex options, voice/data, code channel combinations and options used for the SAR tests.

RESPONSE: Please see answer to inquiry #3e below.

3e. Because of the different RC's, SO's, data rates, channel combinations and modulations, the filing should include justification for the selection of applicable configurations used to establish and maintain maximum output in order to demonstrate SAR compliance for other configurations that were not tested. Please provide the justification for the specific combination(s) used during the SAR tests.

RESPONSE: Motorola IS2000 CDMA cellular phones does not use different data rates or concurrent channels (supplemental channels) while in the voice mode, thus testing voice modes using RC1 is applicable. Motorola IS2000 CDMA products do use supplemental channels and different data rates for data mode. The output power of the DUT is controlled by a power control loop within the DUT. This power control loop measures the total RF power supplied into the antenna match network for emission. This output power measurement will include the power from different data rates and concurrent channels. The measured power level is controlled and limited to the maximum output power setting for the phone. Motorola performs SAR tests of IS2000 CDMA phones at this maximum power level using RC1 / SO2, thus the output power under this test setup is equivalent to the maximum output power for any data rate and/or concurrent channel capability of the DUT. The Motorola IS2000 CDMA cellular phones were measured in voice calls only.

Summary of FCC request for additional information.

4. Does the EUT employ EV-DO? If so,

Body-worn SAR should be repeated in EV-DO (Rev. 0 only) using the CDMA 2000 body-worn channel configuration that resulted in the highest SAR among the various Radio Configurations in this frequency band (that is, just a single SAR test for EV-DO, as a sanity check). If this EV-DO SAR is greater than the highest body-worn SAR in CDMA 2000, perform body-worn SAR for the other 2 channels (among the required H, M, L channels).

Response: See below.

EV-DO Data for Body Worn SAR Table

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn			
			Back of phone 25 mm away from phantom (EDGE Class 6)			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 800MHz	Channel 1013	26.13				
	Channel 384	26.11	1.39	-0.03	1.4	20.9
	Channel 777	25.84				
Digital 1900MHz	Channel 25	25.10	0.75	-0.06	0.76	20.0
	Channel 600	25.09	0.86	-0.19	0.9	20.6
	Channel 1175	25.12	1.06	-0.24	1.12	20.0

Changes to Dosimetric System Table from Section 3.1 of Original Report

Description	Serial Number	Cal Due Date
DASY4 DAE3	437	3/24/2006
DASY4 DAE4	661	8/26/2006
DASY4 DAE3	440	2/21/2006
E-Field Probe ET3DV6R	1397	4/22/2006
E-Field Probe ET3DV6R	1506	5/26/2006
Dipole Validation Kit, D900V2	80	
S.A.M. Phantom used for 800MHz	TP-1153	
Dipole Validation Kit, D900V2	91	
S.A.M. Phantom used for 800MHz	TP-1005	
Dipole Validation Kit, D1800V2	251TR	
S.A.M. Phantom used for 1900MHz	TP-1159	
Dipole Validation Kit, D1800V2	259TR	

Changes to Electrical Parameters Table from Section 4 of Original Report

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ϵ_r	σ (S/m)	Temp (°C)
835	Head	Measured, 11/1/2005	42.4	0.92	20.2
		Recommended Limits	41.5 ±5%	0.90 ±5%	18-25
	Body	Measured, 11/4/2005	53.9	0.98	19.6
		Measured, 12/9/2005	54.3	0.98	20.9
1880	Head	Measured, 11/3/2005	39.2	1.45	19.5
		Recommended Limits	40.0 ±5%	1.40 ±5%	18-25
	Body	Measured, 11/7/2005	51.1	1.59	20.5
		Measured, 12/12/2005	50.9	1.59	20.0
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25

Changes to System Accuracy Verification Table From Section 5 of Original Report

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			ϵ_r	σ (S/m)		
900	Measured, 11/01/2005	11.2	41.6	0.98	22.0	20.7
	Measured, 11/04/2005	11.0	40.7	0.97	22.0	20.0
	Measured, 12/09/2005	11.0	41.3	0.97	23.0	21.0
	Recommended Limits	11.3	41.5 ±5%	0.97 ±5%	18-25	18-25
1800	Measured, 11/03/2005	37.8	39.6	1.37	23.0	19.7
	Measured, 11/07/2005	38.2	39.0	1.37	21.0	19.8
	Measured, 12/12/2005	36.4	40.2	1.34	22.0	20.2
	Recommended Limits	38.1	40.0 ±5%	1.4 ±5%	18-25	18-25

Appendix 1 Supplement

SAR distribution comparison for the system accuracy verification

Date/Time: 12/9/2005 8:56:09 AM

Test Laboratory: Motorola

120905 900Mhz GOOD-2.7%

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:080

Procedure Notes: 900 MHz System Performance Check / Dipole Sn# 80

PM1 Power = 200 mW Sim.Temp@meas = 21.0°C Sim.Temp@SPC = 21.0°C Room Temp @ SPC = 23°C

Communication System: CW - Dipole; Frequency: 900 MHz; Channel Number: 4; Duty Cycle: 1:1

Medium: VALIDATION Only; Medium parameters used: $\sigma = 0.97$ mho/m, $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ET3DV6R - SN1397; ConvF(6.38, 6.38, 6.38); Calibrated: 4/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn440; Calibrated: 2/21/2005
- Phantom: R3: Sugar Water SAM; Type: SAM; Serial: TP-1153;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 147

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.20 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 51.8 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.37 W/kg

SAR(1 g) = 2.26 mW/g; SAR(10 g) = 1.45 mW/g

Maximum value of SAR (measured) = 2.46 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 51.8 V/m; Power Drift = 0.00 dB

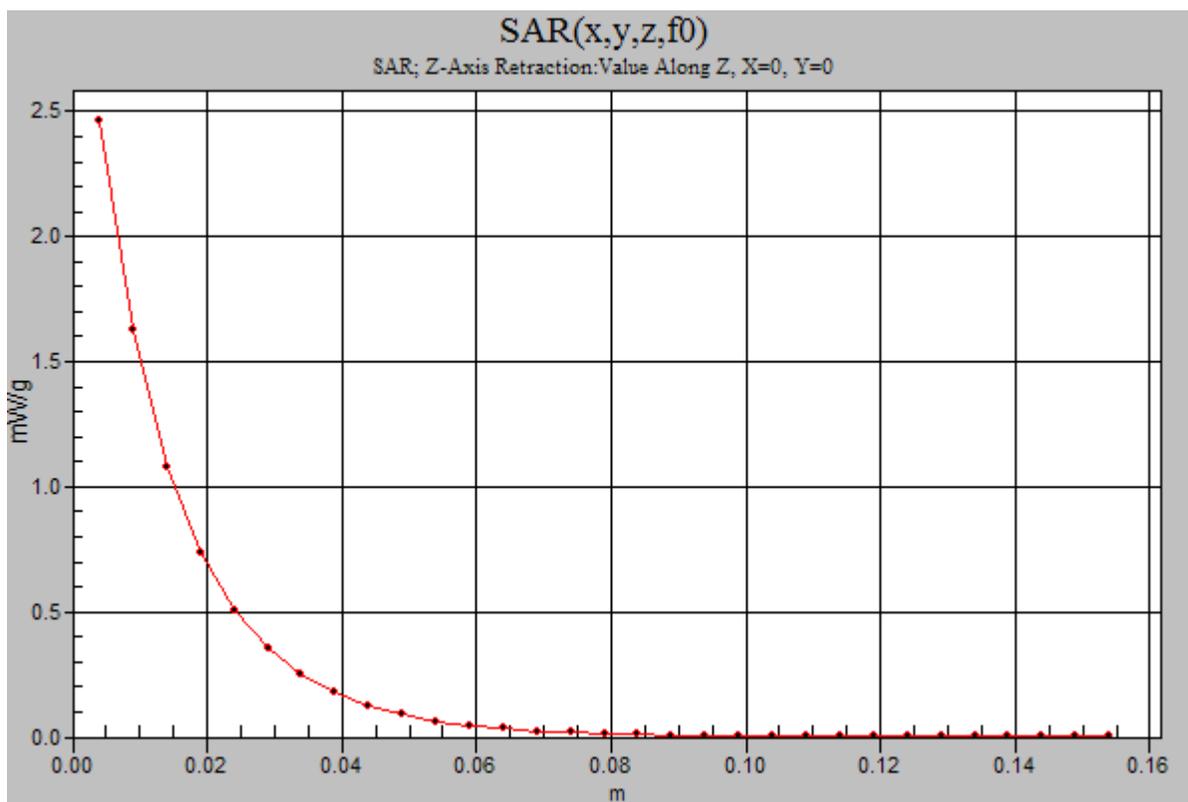
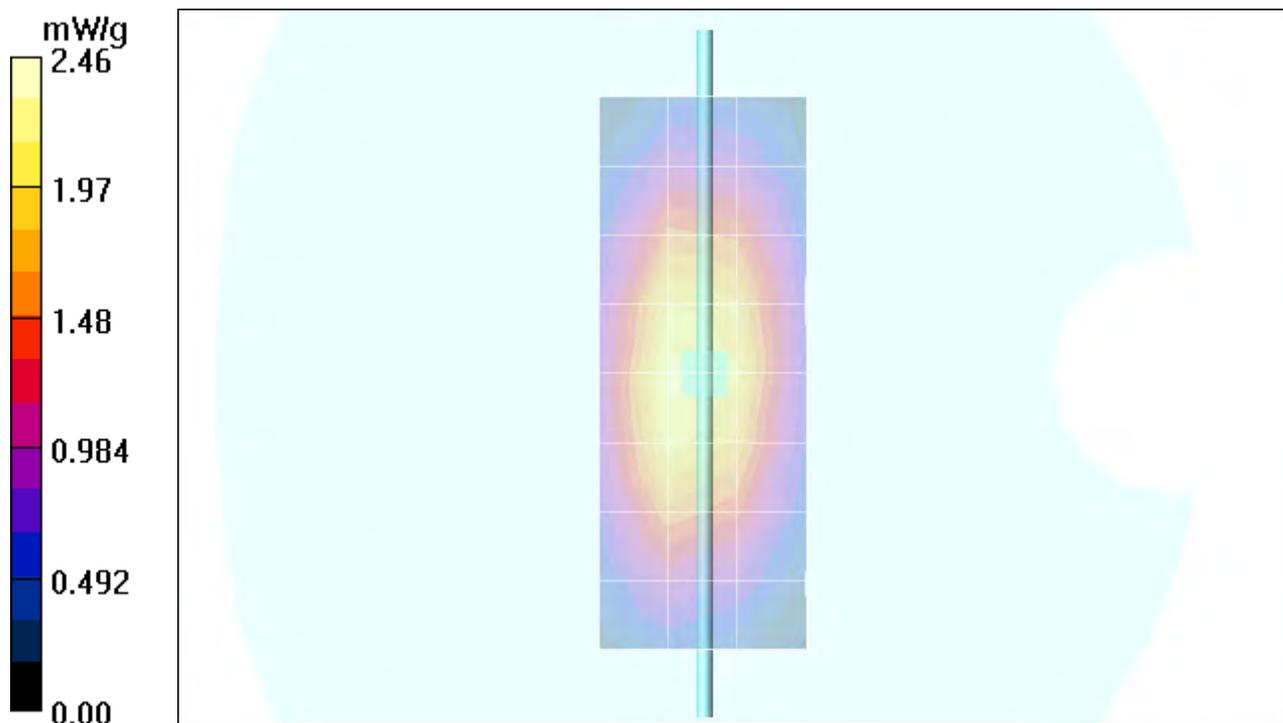
Peak SAR (extrapolated) = 3.18 W/kg

SAR(1 g) = 2.14 mW/g; SAR(10 g) = 1.38 mW/g

Maximum value of SAR (measured) = 2.28 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm



Date/Time: 12/12/2005 6:45:35 AM

Test Laboratory: Motorola

121205 1800Mhz GOOD-4.4%

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:251tr

Procedure Notes: 1800 MHz System Performance Check / Dipole Sn# 251tr

PM1 Power = 200 mW Sim.Temp@meas = 20.2°C Sim.Temp@SPC = 20.2°C Room Temp @ SPC = 22.5°C

Communication System: CW - Dipole; Frequency: 1800 MHz; Channel Number: 8; Duty Cycle: 1:1

Medium: VALIDATION Only; Medium parameters used: $\sigma = 1.34$ mho/m, $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ET3DV6R - SN1397; ConvF(5.17, 5.17, 5.17); Calibrated: 4/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn440; Calibrated: 2/21/2005
- Phantom: R3: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 147

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 6.85 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 80.6 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 12.5 W/kg

SAR(1 g) = 7.45 mW/g; SAR(10 g) = 4.02 mW/g

Maximum value of SAR (measured) = 8.37 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 80.6 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 12.2 W/kg

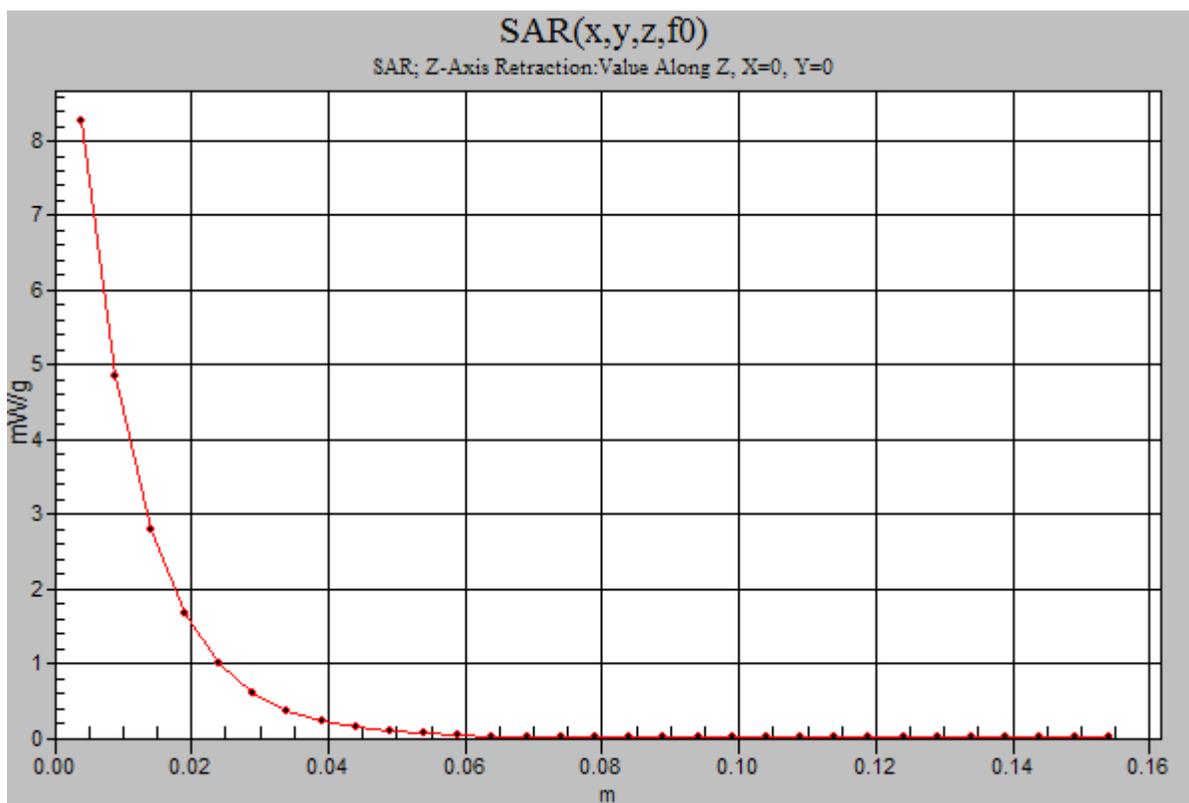
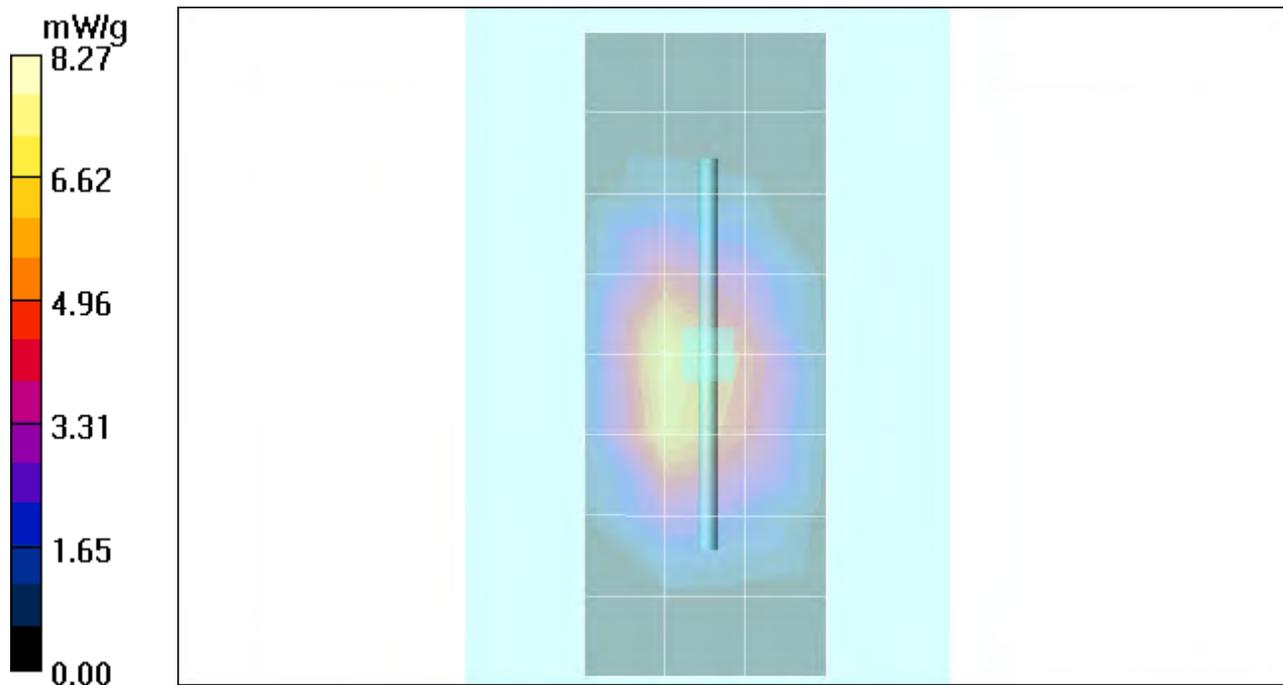
SAR(1 g) = 7.12 mW/g; SAR(10 g) = 3.83 mW/g

Maximum value of SAR (measured) = 7.94 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 8.27 mW/g



Appendix 2 Supplement

SAR distribution plots for Body Worn Configuration

Date/Time: 12/9/2005 3:52:00 PM

Test Laboratory: Motorola**835 EVDO Back 15mm ch384****Serial: 5281C085**

Procedure Notes: Pwr Step: Always Up Antenna Position: Internal Battery Model #: SNN5783A

Accessory Model # = Back of Phone 15mm from Phantom Note: EVDO mode

Communication System: CDMA 835; Frequency: 836.52 MHz; Channel Number: 384; Duty Cycle: 1:1

Medium: Low Freq Body; Medium parameters used: $\sigma = 0.98$ mho/m, $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ET3DV6R - SN1397; ConvF(6.22, 6.22, 6.22); Calibrated: 4/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn440; Calibrated: 2/21/2005
- Phantom: R3: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 147

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (13x7x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.49 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

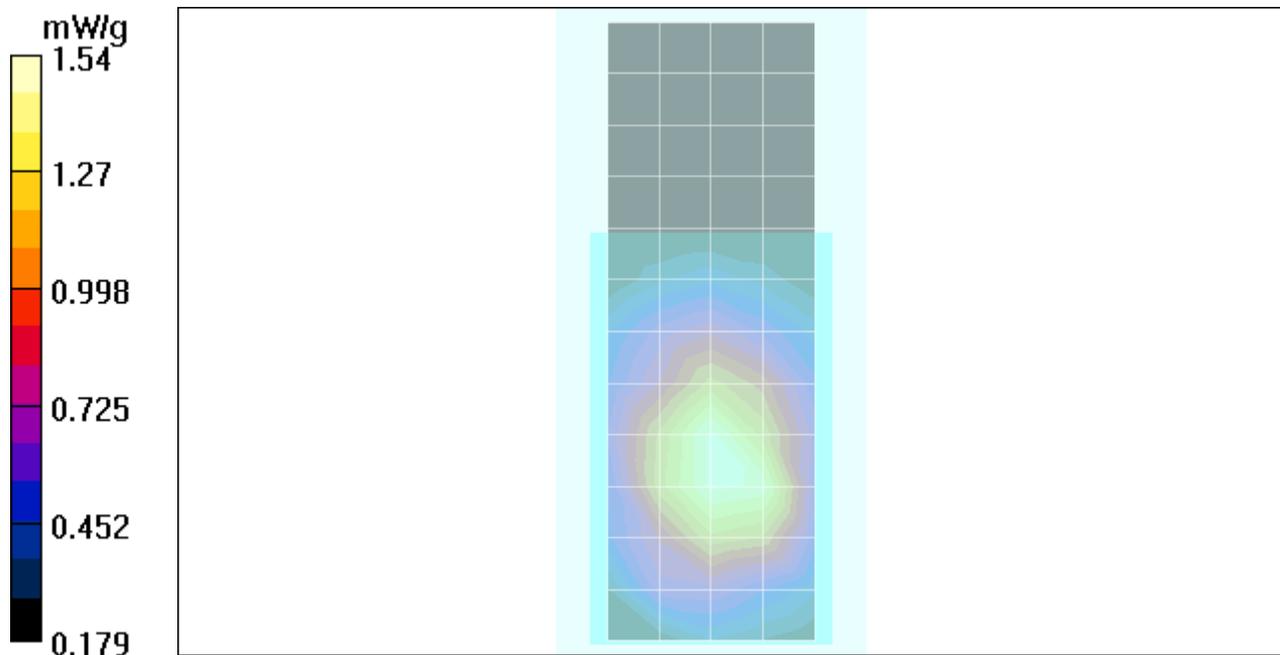
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 39.0 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 1.39 mW/g; SAR(10 g) = 1.04 mW/g

Maximum value of SAR (measured) = 1.54 mW/g



Date/Time: 12/12/2005 2:03:05 PM

Test Laboratory: Motorola

1900 EVDO Back 15mm ch1175

Serial: 5281C085

Procedure Notes: Pwr Step: Always Up Antenna Position: Internal Battery Model #: SNN5783A

Accessory Model # = Back of Phone 15mm from Phantom Note: EVDO mode

Communication System: CDMA 1900; Frequency: 1908.75 MHz; Channel Number: 1175; Duty Cycle: 1:1

Medium: Regular Glycol Body; Medium parameters used: $\sigma = 1.59$ mho/m, $\epsilon_r = 50.9$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ET3DV6R - SN1397; ConvF(4.77, 4.77, 4.77); Calibrated: 4/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn440; Calibrated: 2/21/2005
- Phantom: R3: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 147

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (13x7x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.14 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 28.0 V/m; Power Drift = -0.243 dB

Peak SAR (extrapolated) = 2.14 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.646 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

