

 MOTOROLA	 Certificate Number: 1449-01
FCC ID: AZ489FT7016 DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 4 of 4	
Government & Enterprise Mobility Solutions EME Test Laboratory 8000 West Sunrise Blvd Fort Lauderdale, FL. 33322	Date of Report: 3/20/06 Report Revision: A Report ID: WDE1000_Rev A_060320_SR3388
Responsible Engineer: Kim Uong (EME lead Eng.) Date/s Tested: 2/13/06 – 3/10/06 Manufacturer/Location: Motorola South Israel Sector/Group/Div.: MCIL Israel Date submitted for test: 1/26/06 DUT Description: WDE1000 (Wireless Device Enabler) with 2 transmitters: 802.11a@4.9GHz and 802.11b/g @ 2.4GHz Test TX mode(s): CW Max. Power output: 0.126W for 4.94-4.99GHz; 0.079W for 2400-2483.5MHz Nominal Power: 0.1Watt for 4.94-4.99GHz; 0.063W for 2400-2483.5MHz Tx Frequency Bands: 4942.5-4987.5MHz (5MHz step size) ; 2412-2462MHz (5MHz step size) Signaling type: OFDM @4.9GHz; DSSS and OFDM @ 2.4GHz Model(s) Tested: F2889A Model(s) Certified: F2889A Serial Number(s): 537SGA0057, 537SGA0060 Classification: General Population/Uncontrolled Rule Part(s): 15 & 90 Approved Accessories: Antenna(s): 6487848V60 PIFA (on board ant) 2400-2483.5MHz 1/4Wave ; 2.5dBi gain 6487848V61 PIFA (on board ant) 4.94-4.99GHz 1/4Wave; 3.3dBi gain Max. Calc. 1-g/10-g Avg. SAR: 0.43/0.24 W/kg (Body) 	
Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 2.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory. This reporting format is consistent with the test report guidelines of the TIA TSB-150 December 2004 The results and statements contained in this report pertain only to the device(s) evaluated.	
<i>Signature on file- Ken Enger</i> Ken Enger GEMS EME Lab Senior Resource Manager, Laboratory Director, Approval Date: 3/20/06	Certification Date: 03/17/06 Certification No.: L1060363P

Appendix D

Test System Verification Scans

Note: Dipole validation scans at the head from SPEAG are provided in APPENDIX D. The GEMS EME lab validated the dipole to the applicable IEEE system performance targets. Within 24 hours system validation was performed using FCC body tissue parameters to generate the system performance target values for body at the applicable frequency. The results of the GEMS EME system performance validation are provided herein. To assess the isotropic characteristics of the measurement probe, two system performance zoom scans (0 and 90 degrees) were measured. The results were averaged together and adjusted to account for the power drift in order to obtain the final calculated 1 and 10 gram results.

Motorola GEMS EME Lab**SPEAG Dipole 2450 MHz;** Model #: D2450V2 S/N: 703; Test Date: 2/13/06

Run #: CM-SYSP-2450B-060213-02

Sim.Tissue Temp: 20.1 (C)

TX Freq: 2450 (MHz) Start power: 70 (mW)

Target: 51.98 mW/g for 1g SAR 24.13 mW/g for 10g SAR

56.50 mW/g calculated 1g-SAR; 8.70 % from target (including drift)

25.90 mW/g calculated 10g-SAR; 7.35 % from target (including drift)

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15),

Duty Cycle: 1:1, Medium: 2450 FCC Body, Medium parameters used: $f = 2450$ MHz; $\sigma = 2.03$ mho/m; $\alpha_r = 52.2$; $\tilde{n} = 1000$ kg/m³; Electronics: DAE3 Sn401, Calibrated: 8/18/2005**System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

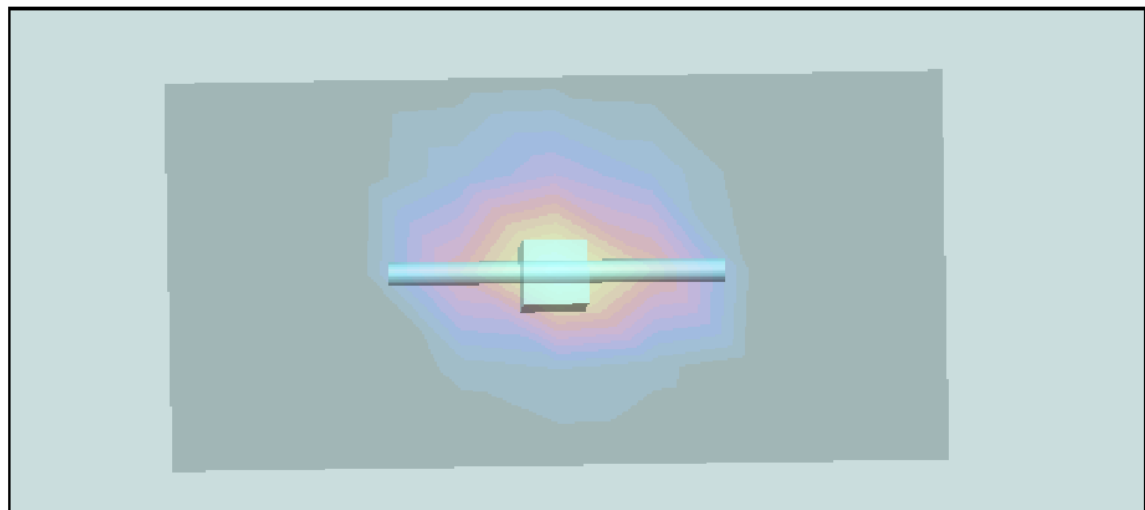
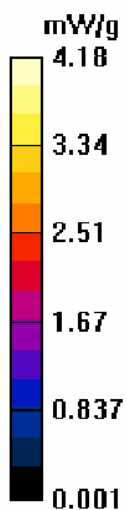
Reference Value = 47.5 V/m; Power Drift = 0.0163 dB

Peak SAR (extrapolated) = 9.23 W/kg

SAR(1 g) = 3.98 mW/g; SAR(10 g) = 1.82 mW/g**System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

Reference Value = 47.5 V/m; Power Drift = 0.0163 dB

Peak SAR (extrapolated) = 9.18 W/kg

SAR(1 g) = 3.96 mW/g; SAR(10 g) = 1.82 mW/g

Motorola GEMS EME Lab**SPEAG Dipole 2450 MHz;** Model #: D2450V2 S/N: 703; Test Date: 2/15/06

Run #: ErC-SYSP-2450B-060215-01

Sim.Tissue Temp: 21.3 (C)

TX Freq: 2450 (MHz) Start power: 50 (mW)

Target: 51.98 mW/g for 1g SAR 24.13 mW/g for 10g SAR

55.15 mW/g calculated 1g-SAR; 6.10 % from target (including drift)

25.43 mW/g calculated 10g-SAR; 5.39 % from target (including drift)

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15),

Duty Cycle: 1:1, Medium: 2450 FCC Body, Medium parameters used: $f = 2450$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 51$; $n = 1000$ kg/m³; Electronics: DAE3 Sn401, Calibrated: 8/18/2005**System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

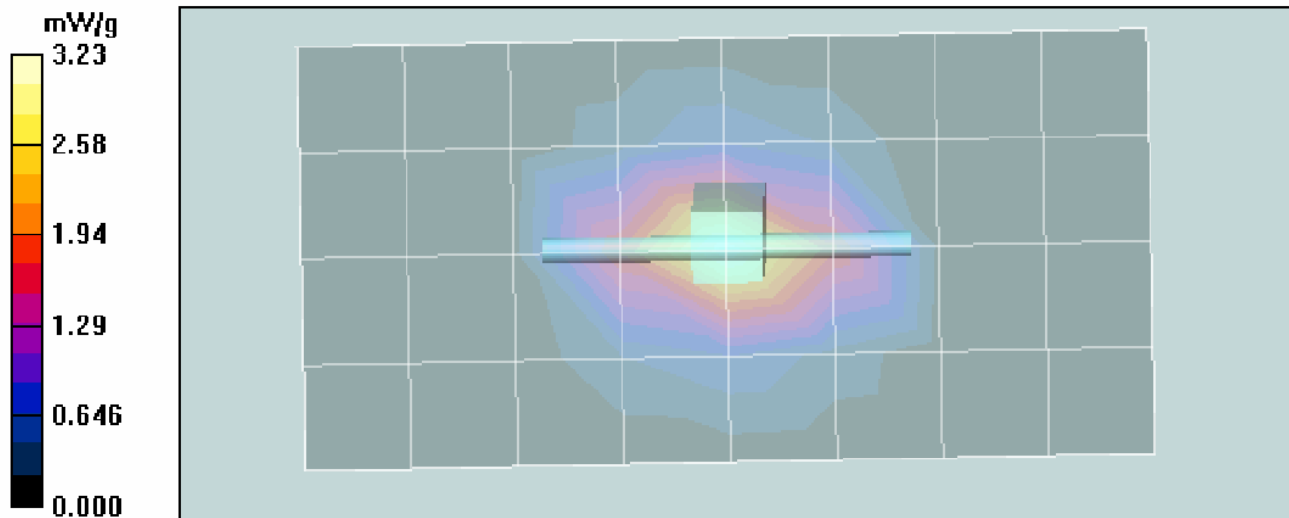
Reference Value = 42.2 V/m; Power Drift = 0.0119 dB

Peak SAR (extrapolated) = 6.39 W/kg

SAR(1 g) = 2.78 mW/g; SAR(10 g) = 1.28 mW/g**System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

Reference Value = 42.2 V/m; Power Drift = 0.0119 dB

Peak SAR (extrapolated) = 6.34 W/kg

SAR(1 g) = 2.75 mW/g; SAR(10 g) = 1.27 mW/g

Motorola GEMS EME Lab**SPEAG Dipole 2450 MHz;** Model #: D2450V2 S/N: 704; Test Date: 3/09/06

Run #: HvH-SYSP-2450B-060309-01

Sim.Tissue Temp: 20.7 (C)

TX Freq: 2450 (MHz) Start power: 50 (mW)

Target: 56.12 mW/g for 1g SAR 25.68 mW/g for 10g SAR

58.71 mW/g calculated 1g-SAR 4.62 % from target (including drift)

26.74 mW/g calculated 10g-SAR 4.14 % from target (including drift)

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15),

Duty Cycle: 1:1, Medium: 2450 FCC Body, Medium parameters used: $f = 2450$ MHz; $\sigma = 2.03$ mho/m; $\epsilon_r = 51.8$; $\epsilon'' = 1000$ kg/m³ ; Electronics: DAE3 Sn401, Calibrated: 8/18/2005**System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

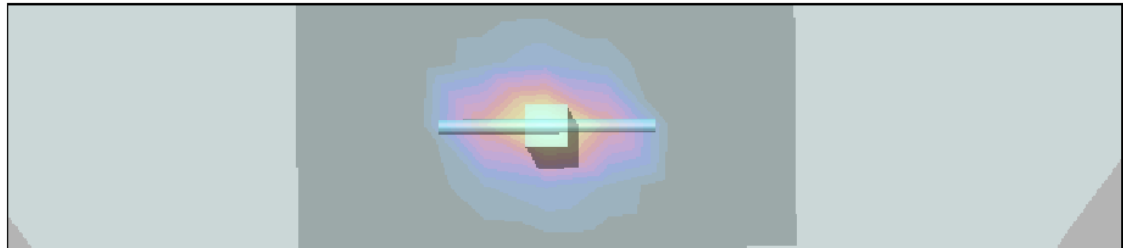
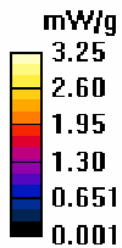
Reference Value = 41.8 V/m; Power Drift = -0.0232 dB

Peak SAR (extrapolated) = 6.92 W/kg

SAR(1 g) = 2.93 mW/g; SAR(10 g) = 1.33 mW/g**System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

Reference Value = 41.8 V/m; Power Drift = -0.0232 dB

Peak SAR (extrapolated) = 6.81 W/kg

SAR(1 g) = 2.91 mW/g; SAR(10 g) = 1.33 mW/g

Motorola GEMS EME Lab**SPEAG Dipole 5000 MHz;** Model #: D5GHzV2 S/N: 1017; Test Date: 2/20/06

Run #: ErC SYSP 5000B 060220-03

Sim.Tissue Temp: 21.6 (C)

TX Freq: 5000 (MHz) Start power: 50 (mW)

Validation Target: 67.78 mW/g for 1g SAR 19.42 mW/g for 10g SAR

67.78 mW/g calculated 1g-SAR; 0 % from target (including drift)

19.42 mW/g calculated 10g-SAR; 0 % from target (including drift)

Probe: EX3DV3 - SN3510, Calibrated: 2/24/2005, ConvF(4.42, 4.42, 4.42),

Duty Cycle: 1:1, Medium: FCC Body 5000 MHz, Medium parameters used: $f = 5000$ MHz; $\sigma = 5.26$ mho/m; $\epsilon_r = 48$; $n = 1000$ kg/m³; Electronics: DAE3 Sn401, Calibrated: 8/18/2005**HF-System Performance Check/0-Degree Cube (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

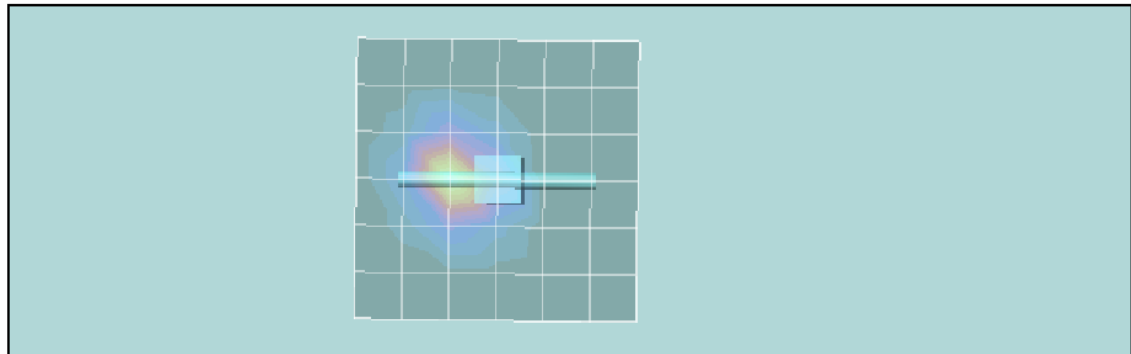
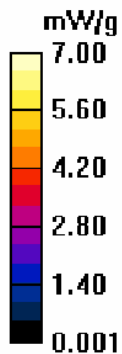
Reference Value = 26.0 V/m; Power Drift = -0.0505 dB

Peak SAR (extrapolated) = 12.4 W/kg

SAR(1 g) = 3.38 mW/g; SAR(10 g) = 0.965 mW/g**HF-System Performance Check/90-Degree Cube (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 26.0 V/m; Power Drift = -0.0505 dB

Peak SAR (extrapolated) = 11.9 W/kg

SAR(1 g) = 3.32 mW/g; SAR(10 g) = 0.955 mW/g

Motorola GEMS EME Lab**SPEAG Dipole 5000 MHz;** Model #: D5GHzV2 S/N: 1017; Test Date: 2/22/06

Run #: ErC SYSP 5000B 060222-02

Sim.Tissue Temp: 21.0 (C)

TX Freq: 5000 (MHz)

Start power: 50 (mW)

Validation Target: 67.78 mW/g for 1g SAR 19.42 mW/g for 10g SAR
68.24 mW/g calculated 1g-SAR; 0.68 % from target (including drift)
19.25 mW/g calculated 10g-SAR; -0.90 % from target (including drift)

Probe: EX3DV3 - SN3510, Calibrated: 2/24/2005, ConvF(4.42, 4.42, 4.42),

Duty Cycle: 1:1, Medium: FCC Body 5000 MHz, Medium parameters used: $f = 5000$ MHz; $\sigma = 5.19$ mho/m; $\epsilon_r = 48.1$; $\tilde{n} = 1000$ kg/m³ ;Electronics: DAE3 Sn401, Calibrated: 8/18/2005

HF-System Performance Check/0-Degree Cube (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

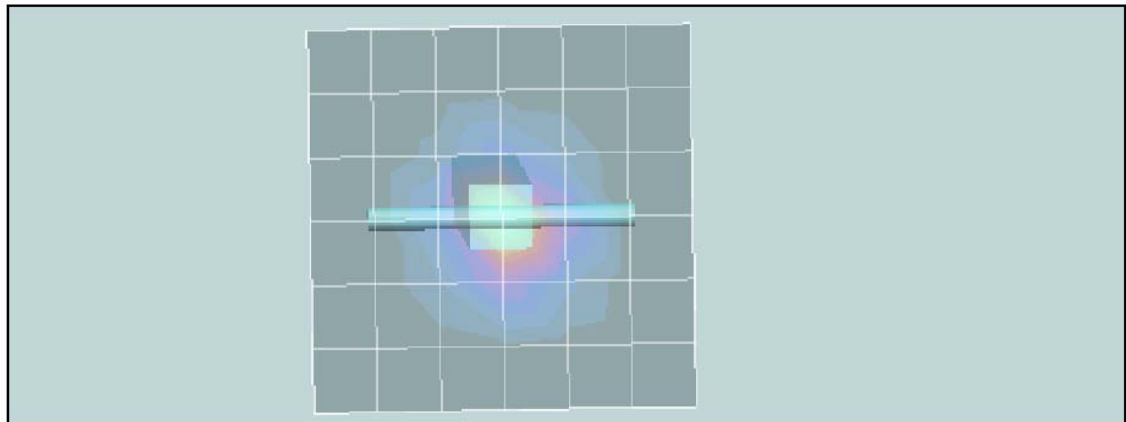
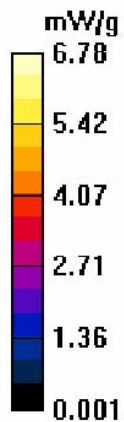
Reference Value = 38.2 V/m; Power Drift = -0.0925 dB

Peak SAR (extrapolated) = 12.0 W/kg

SAR(1 g) = 3.21 mW/g; SAR(10 g) = 0.904 mW/g**HF-System Performance Check/90-Degree Cube (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 38.2 V/m; Power Drift = -0.0925 dB

Peak SAR (extrapolated) = 12.9 W/kg

SAR(1 g) = 3.47 mW/g; SAR(10 g) = 0.979 mW/g

SYSTEM VALIDATION

Date:	<u>3/8/2006</u>	Frequency (MHz):	<u>2450</u>
Lab Location:	<u>GEMS EME</u>	Mixture Type:	<u>IEEE head</u>
Robot System:	<u>GEMS-2</u>	Ambient Temp.(°C):	<u>22.4</u>
Probe Serial #:	<u>1547</u>	Tissue Temp.(°C):	<u>20.3</u>
DAE Serial #:	<u>401</u>		

Tissue Characteristics

Permittivity:	<u>38.3</u>	Phantom Type/SN:	<u>40302002A-S11</u>
Conductivity:	<u>1.86</u>	Distance (mm):	<u>10</u>

Reference Source:	<u>Dipole</u>	(Dipole)
Reference SN:	<u>704</u>	

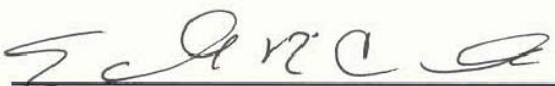
Power to Dipole:	<u>50</u>	mW
Power Output (radio):	<u>n/a</u>	mW

Target SAR Value:	<u>52.40</u>	mW/g,	<u>24.00</u>	mW/g (10g avg.)
(normalized to 1.0 W)				

Measured SAR Value:	<u>2.88</u>	mW/g,	<u>1.325</u>	mW/g (10g avg.)
Power Drift:	<u>0.0518</u>	dB		

Measured SAR Value:	<u>56.92</u>	mW/g,	<u>26.19</u>	mW/g (10g avg.)
(normalized to 1.0 W, including drift)				

Percent Difference From Target (MUST be within System Uncertainty):	<u>8.62%</u>	(1g ave)
	<u>9.11%</u>	(10g ave)

Test performed by:	<u></u>	Initial:	<u>EJNCA</u>
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DUT: Dipole 2450 MHz;

Run #: ErC VAL 2450 H 060308-01 Sim.Tissue Temp: 20.3 (C)
 Robot: GEMS-2 Phantom #: 40302002A-S11
 Model #: D2450V2 S/N: 704
 TX Freq: 2450(MHz) Start power: 50 (mW)

New Targets:

56.92 mW/g for 1g SAR 26.19 mW/g for 10g SAR
 56.92 mW/g calculated 1g-SAR; 0 % from target (including drift)
 26.19 mW/g calculated 10g-SAR; 0 % from target (including drift)

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.22, 4.22, 4.22),

Duty Cycle: 1:1, Medium: 2450 IEEE Head, Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³ ;

Electronics: DAE3 Sn401, Calibrated: 8/18/2005

System Performance/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 44.0 V/m; Power Drift = 0.0518 dB

Peak SAR (extrapolated) = 6.30 W/kg

SAR(1 g) = 2.88 mW/g; SAR(10 g) = 1.32 mW/g

Maximum value of SAR (measured) = 3.16 mW/g

System Performance/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 44.0 V/m; Power Drift = 0.0518 dB

Peak SAR (extrapolated) = 6.26 W/kg

SAR(1 g) = 2.88 mW/g; SAR(10 g) = 1.33 mW/g

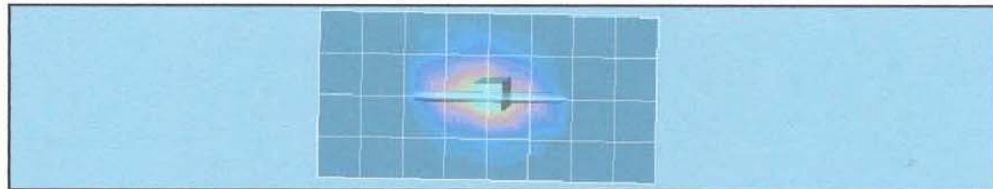
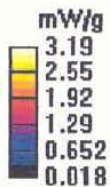
Maximum value of SAR (measured) = 3.19 mW/g

System Performance/Dipole Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 3.20 mW/g

System Performance/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 0.483 mW/g



SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	<u>03/08/06</u>	Frequency (MHz):	<u>2450</u>
Lab Location:	<u>GEMS EME</u>	Mixture Type:	<u>FCC Body</u>
Robot System:	<u>GEMS-2</u>	Ambient Temp.(°C):	<u>22.3</u>
Probe Serial #:	<u>1547</u>	Tissue Temp.(°C):	<u>20.9</u>
DAE Serial #:	<u>401</u>		

Tissue Characteristics

Permittivity:	<u>51.2</u>	Phantom Type/SN:	<u>40302002B-S12</u>
Conductivity:	<u>2.02</u>	Distance (mm):	<u>10</u>

Reference Source:	<u>Dipole</u>	(Dipole)
Reference SN:	<u>704</u>	

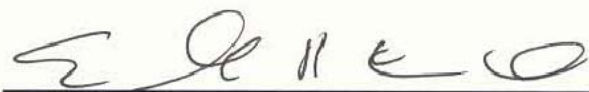
Power to Dipole: 250 mW

Measured SAR Value:	<u>14.05</u> mW/g,	<u>6.43</u> mW/g (10g avg.)
Power Drift:	<u>0.00611</u> dB	

New Target/Measured

SAR Value:	<u>56.12</u> mW/g,	<u>25.68</u> mW/g (10g avg.)
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(normalized to 1.0 W, including drift)

Test performed by:  Initial: E.C.

DUT: Dipole 2450 MHz;

Run #: ErC VAL 2450 B 060307-01 Sim.Tissue Temp: 20.9 (C)
 Robot: GEMS-2 Phantom #: 40302002B-S12
 Model #: D2450V2 S/N: 704
 TX Freq: 2450(MHz) Start power: 250 (mW)

New Targets:

56.12 mW/g for 1g SAR 25.68 mW/g for 10g SAR
 56.12 mW/g calculated 1g-SAR; 0 % from target (including drift)
 25.68 mW/g calculated 10g-SAR; 0 % from target (including drift)

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15),

Duty Cycle: 1:1, Medium: 2450 FCC Body, Medium parameters used: $f = 2450$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 51.2$; $\rho = 1000$ kg/m³;

Electronics: DAE3 Sn401, Calibrated: 8/18/2005

System Performance/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 91.0 V/m; Power Drift = 0.00611 dB

Peak SAR (extrapolated) = 32.9 W/kg

SAR(1 g) = 14.2 mW/g; SAR(10 g) = 6.48 mW/g

Maximum value of SAR (measured) = 15.3 mW/g

System Performance/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 91.0 V/m; Power Drift = 0.00611 dB

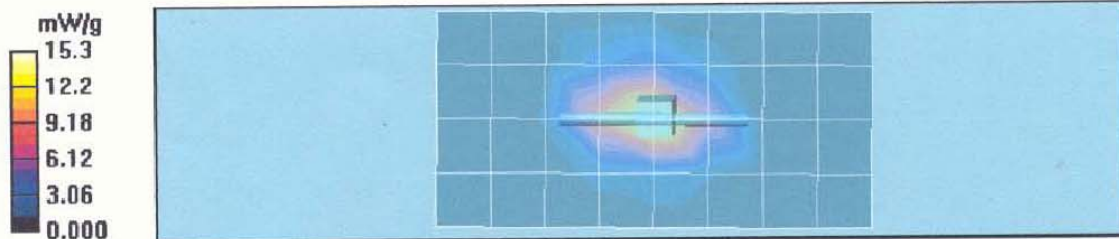
Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.38 mW/g

Maximum value of SAR (measured) = 15.1 mW/g

System Performance/Dipole Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 15.2 mW/g

System Performance/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

SYSTEM VALIDATION

Date:	<u>2/17/2005</u>	Frequency (MHz):	<u>2450</u>
Lab Location:	<u>CGISS</u>	Mixture Type:	<u>IEEE Head</u>
Robot System:	<u>CGISS-3</u>	Ambient Temp.(°C):	<u>22.1</u>
Probe Serial #:	<u>1545</u>	Tissue Temp.(°C):	<u>21.6</u>
DAE Serial #:	<u>401</u>		

Tissue Characteristics

Permittivity:	<u>37.9</u>	Phantom Type/SN:	<u>40302002B-S10</u>
Conductivity:	<u>1.89</u>	Distance (mm):	<u>10</u>

Reference Source:	<u>Diploe</u>	(Dipole/Handset)
Reference SN:	<u>703</u>	

Power to Dipole:	<u>250</u>	mW
Power Output (radio):	<u> </u>	mW

Target SAR Value:	<u>52.4</u>	mW/g,	<u>24</u>	mW/g (10g avg.)
(normalized to 1.0 W)				

Measured SAR Value:	<u>13.5</u>	mW/g,	<u>6.29</u>	mW/g (10g avg.)
Power Drift:	<u>0.0354</u>	dB		

Measured SAR Value:	<u>53.56</u>	mW/g,	<u>24.96</u>	mW/g (10g avg.)
(normalized to 1.0 W, including drift)				

Percent Difference From Target (MUST be within System Uncertainty):	<u>2.22</u>	% (1g ave)
	<u>3.98</u>	% (10g ave)

Test performed by:	<u>E. Church</u>	Initial:	<u>EC</u>
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DUT: Dipole 2450 MHz

Run #: 050217-04
 Robot: CGISS-3
 Model #: D2450V2
 TX Freq: 2450 MHz

Test operator: E. Church
 Phantom #: 40302002B-S10 Sim Tissue Temp: 21.6 (C)
 SN: 703
 Start power: 250 mW

Target

53.56 mW/g for 1g SAR **24.96 mW/g for 10g SAR**
 SAR calculated 1g is 13.5 mW/g; 0 % from target (including drift)
 SAR calculated 10g is 6.29 mW/g; 0 % from target (including drift)

Probe: ET3DV6 - SN1545, Calibrated: 9/1/2004, ConvF(4.12, 4.12, 4.12),

Duty Cycle: 1:1, Medium: 2450 Head, Medium parameters used: $\sigma = 1.89$; mho/m, $\epsilon_r = 37.9$; $\rho = 1000 \text{ kg/m}^3$;

Electronics: DAE3 Sn401, Calibrated: 8/25/2004

Sys Validation Head 2450 MHz/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 93.4 V/m; Power Drift = 0.0354 dB

Motorola Fast SAR: SAR(1 g) = 13.2 mW/g; SAR(10 g) = 5.95 mW/g

Maximum value of SAR (interpolated) = 16.3 mW/g

Sys Validation Head 2450 MHz/Z Scan (1x1x16): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 15 mW/g

Sys Validation Head 2450 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 93.4 V/m; Power Drift = 0.0354 dB

Peak SAR (extrapolated) = 27.3 W/kg

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.2 mW/g

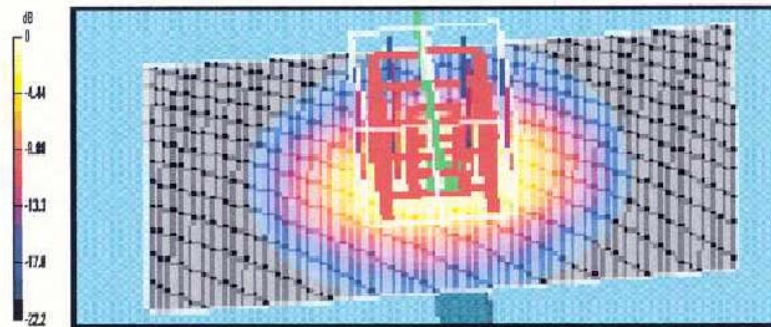
Sys Validation Head 2450 MHz/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 93.4 V/m; Power Drift = 0.0354 dB

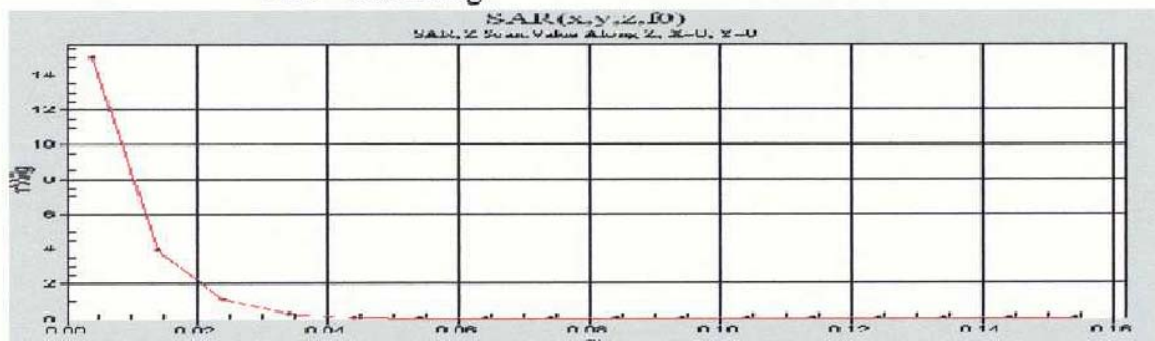
Peak SAR (extrapolated) = 28.4 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.38 mW/g

Maximum value of SAR (measured) = 15.3 mW/g



0 dB = 15.3mW/g



SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	2/17/2005	Frequency (MHz):	2450
Lab Location:	GEMS	Mixture Type:	FCC Body
Robot System:	GEMS-3	Ambient Temp.(°C):	22.1
Probe Serial #:	1545	Tissue Temp.(°C):	21.7
DAE Serial #:	401		

Tissue Characteristics

Permittivity:	51.1	Phantom Type/SN:	40302002A-S6
Conductivity:	2.01	Distance (mm):	10

Reference Source:	Dipole	(Dipole)
Reference SN:	703	

Power to Dipole: 250 mW

Measured SAR Value:	<u>13</u> mW/g,	<u>6.035</u> mW/g (10g avg.)
Power Drift:	<u>0.00203</u> dB	

New Target/Measured

SAR Value:	51.98 mW/g,	24.13 mW/g (10g avg.)
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(normalized to 1.0 W, including drift)

Test performed by: E. Church Initial: ERC

DUT: Dipole 2450 MHz

Run #: 050217-01

Robot: CGISS-3

Model #: D2450V2

TX Freq: 2450 MHz

Test operator: E. Church

Phantom #: 40302002A-S6 Sim Tissue Temp: 21.5 (C)

SN: 703

Start power: 250 mW

Target**51.98 mW/g for 1g SAR**

SAR calculated 1g is 13 mW/g;

SAR calculated 10g is 5.765 mW/g;

23.05 mW/g for 10g SAR

0 % from target (including drift)

0 % from target (including drift)

Probe: ET3DV6 - SN1545, Calibrated: 9/1/2004, ConvF(3.95, 3.95, 3.95),

Duty Cycle: 1:1, Medium: Body 2450, Medium parameters used: $\sigma = 2.01$; mho/m, $\epsilon_r = 51.1$; $\rho = 1000$ kg/m³;

Electronics: DAE3 Sn401, Calibrated: 8/25/2004

Sys Validation Body 2450 MHz/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 86.8 V/m; Power Drift = 0.00203 dB

Motorola Fast SAR: SAR(1 g) = 13 mW/g; SAR(10 g) = 5.58 mW/g

Maximum value of SAR (interpolated) = 17.3 mW/g

Sys Validation Body 2450 MHz/Z Scan (1x1x16): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 14.2 mW/g

Sys Validation Body 2450 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 86.8 V/m; Power Drift = 0.00203 dB

Peak SAR (extrapolated) = 28 W/kg

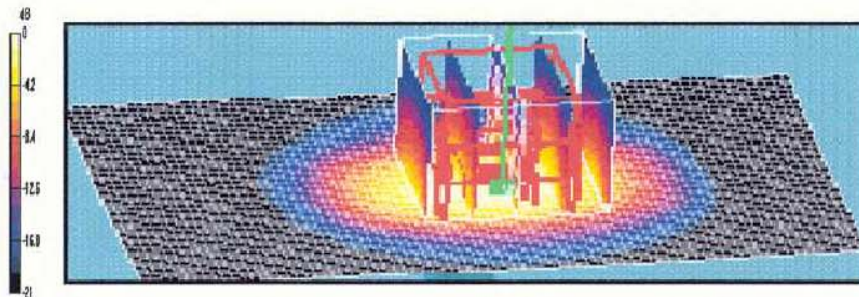
SAR(1 g) = 12.8 mW/g; SAR(10 g) = 5.95 mW/g**Sys Validation Body 2450 MHz/Zoom Scan 2 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 86.8 V/m; Power Drift = 0.00203 dB

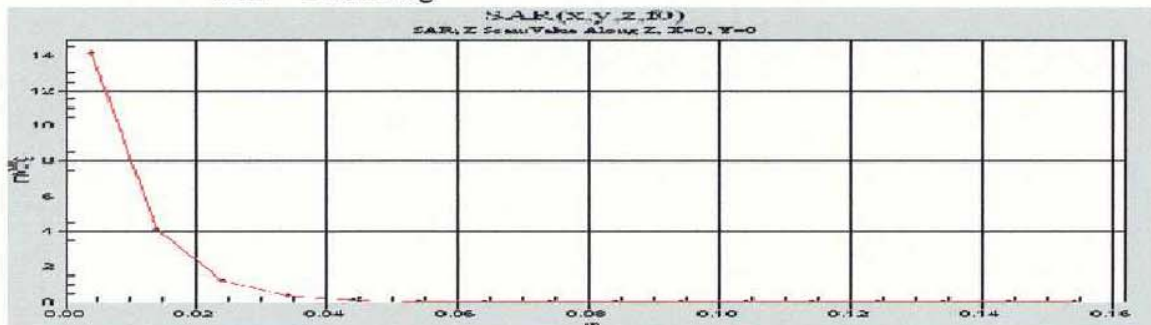
Peak SAR (extrapolated) = 28.8 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.12 mW/g

Maximum value of SAR (measured) = 14.6 mW/g



0 dB = 14.6mW/g



SYSTEM VALIDATION

Date:	<u>2/20/2006</u>	Frequency (MHz):	<u>5000</u>
Lab Location:	<u>GEMS EME</u>	Mixture Type:	<u>IEEE Head</u>
Robot System:	<u>GEMS-2</u>	Ambient Temp.(°C):	<u>22.3</u>
Probe Serial #:	<u>3510</u>	Tissue Temp.(°C):	<u>20.9</u>
DAE Serial #:	<u>401</u>		

Tissue Characteristics

Permittivity:	<u>38.4</u>	Phantom Type/SN:	<u>40302002A-S11</u>
Conductivity:	<u>4.82</u>	Distance (mm):	<u>10</u>

Reference Source:	<u>Dipole</u>	(Dipole)
Reference SN:	<u>1017</u>	

Power to Dipole:	<u>50</u>	mW	Targets from DASY 4 Manual pg 26-5 Uncertainty for over 3 GHz is 11%
Power Output (radio):	<u>n/a</u>	mW	

Target SAR Value:	<u>72.90</u>	mW/g,	<u>20.70</u>	mW/g (10g avg.)
(normalized to 1.0 W)				

Measured SAR Value:	<u>3.32</u>	mW/g,	<u>0.945</u>	mW/g (10g avg.)
Power Drift:	<u>-0.0746</u>	dB		

Measured SAR Value:	<u>67.55</u>	mW/g,	<u>19.23</u>	mW/g (10g avg.)
(normalized to 1.0 W, including drift)				

Percent Difference From Target (MUST be within System Uncertainty):	<u>-7.34%</u>	(1g ave)
	<u>-7.11%</u>	(10g ave)

Test performed by:	<u></u>	Initial:	<u>E, C</u>
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DUT: Dipole 5000 MHz;

Run #: ErC-Val 5000H 060220-02

Robot GEMS-2

Model #: D5GHzV2

TX Freq: 5000 (MHz)

New Target:

67.55 mW/g for 1g SAR

67.55 mW/g calculated 1g-SAR;

19.53 mW/g calculated 10g-SAR;

Sim.Tissue Temp: (C) 20.9

Phantom #: 40302002A-S11

S/N: 1017

Start power: 50 (mW)

19.23 mW/g for 10g SAR

0 % from target (including drift)

0 % from target (including drift)

Probe: EX3DV3 - SN3510, Calibrated: 2/24/2005, ConvF(5.11, 5.11, 5.11),

Duty Cycle: 1:1, Medium: IEEE Head 5000 MHz, Medium parameters used: $f = 5000$ MHz; $\sigma = 4.78$ mho/m; $\epsilon_r = 37.9$; $\rho = 1000$ kg/m³ ;

Electronics: DAE3 Sn401, Calibrated: 8/18/2005

HF-System Performance Check/0-Degree Cube (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 37.6 V/m; Power Drift = -0.0746 dB

Peak SAR (extrapolated) = 13.4 W/kg

SAR(1 g) = 3.3 mW/g; SAR(10 g) = 0.938 mW/g

Maximum value of SAR (measured) = 5.87 mW/g

HF-System Performance Check/90-Degree Cube (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 37.6 V/m; Power Drift = -0.0746 dB

Peak SAR (extrapolated) = 13.4 W/kg

SAR(1 g) = 3.34 mW/g; SAR(10 g) = 0.951 mW/g

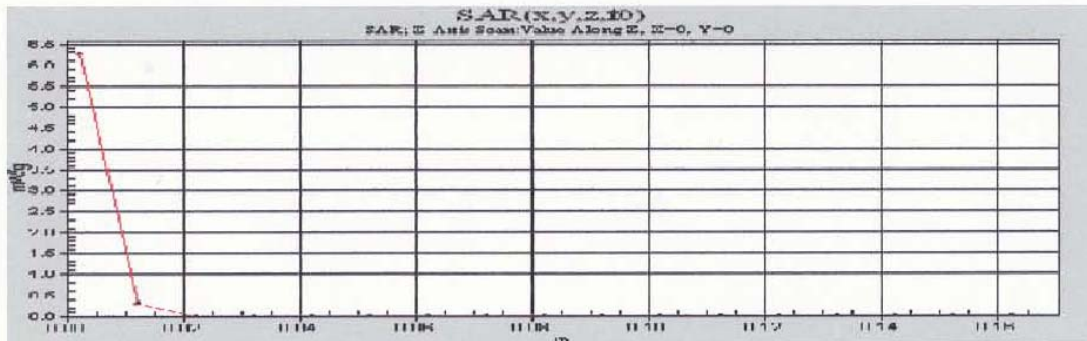
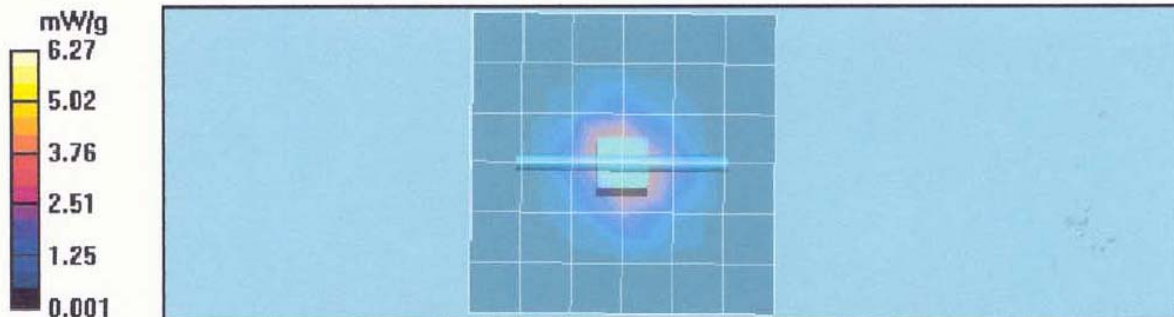
Maximum value of SAR (measured) = 5.99 mW/g

HF-System Performance Check/Dipole Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 6.32 mW/g

HF-System Performance Check/Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 6.27 mW/g



SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	<u>02/20/06</u>	Frequency (MHz):	<u>5000</u>
Lab Location:	<u>GEMS EME</u>	Mixture Type:	<u>FCC Body</u>
Robot System:	<u>GEMS-2</u>	Ambient Temp.(°C):	<u>22</u>
Probe Serial #:	<u>3510</u>	Tissue Temp.(°C):	<u>21.6</u>
DAE Serial #:	<u>401</u>		

Tissue Characteristics

Permittivity:	<u>48.5</u>	Phantom Type/SN:	<u>40302002B-S12</u>
Conductivity:	<u>5.37</u>	Distance (mm):	<u>10</u>

Reference Source: Dipole (Dipole)Reference SN: 1017

Targets from SPEAG 10 and 1 g cubes 76.1 & 21.8

Power to Dipole: 50 mW

Uncertainty for over 3 GHz is 11%

Measured SAR Value: 3.35 mW/g, 0.96 mW/g (10g avg.)Power Drift: -0.0505 dB**New Target/Measured**SAR Value: 67.78 mW/g, 19.42 mW/g (10g avg.)

(normalized to 1.0 W, including drift)

Test performed by:

SCJ NC

Initial:

SCJ

DUT: Dipole 5000 MHz;

Run #: ErC Val 5000B 060220-03

Robot GEMS-2

Model #: D5GHzV2

TX Freq: 5000 (MHz)

New Validation Target:

67.78 mW/g for 1g SAR	19.42 mW/g for 10g SAR
67.78 mW/g calculated 1g-SAR;	0 % from target (including drift)
19.42 mW/g calculated 10g-SAR;	0 % from target (including drift)

Sim.Tissue Temp: (C) 21.6

Phantom #: 40302002B-S12

S/N: 1017

Start power: 50 (mW)

Probe: EX3DV3 - SN3510, Calibrated: 2/24/2005, ConvF(4.42, 4.42, 4.42),

Duty Cycle: 1:1, Medium: FCC Body 5000 MHz, Medium parameters used: $f = 5000$ MHz; $\sigma = 5.26$ mho/m; $\epsilon_r = 48$; $\rho = 1000$ kg/m³ ;

Electronics: DAE3 Sn401, Calibrated: 8/18/2005

HF-System Performance Check/0-Degree Cube (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 26.0 V/m; Power Drift = -0.0505 dB

Peak SAR (extrapolated) = 12.4 W/kg

SAR(1 g) = 3.38 mW/g; SAR(10 g) = 0.965 mW/g

Maximum value of SAR (measured) = 6.43 mW/g

HF-System Performance Check/90-Degree Cube (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 26.0 V/m; Power Drift = -0.0505 dB

Peak SAR (extrapolated) = 11.9 W/kg

SAR(1 g) = 3.32 mW/g; SAR(10 g) = 0.955 mW/g

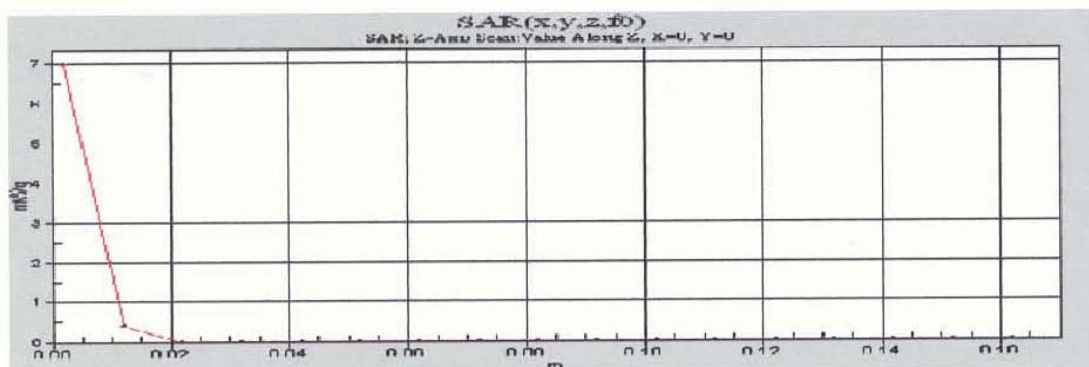
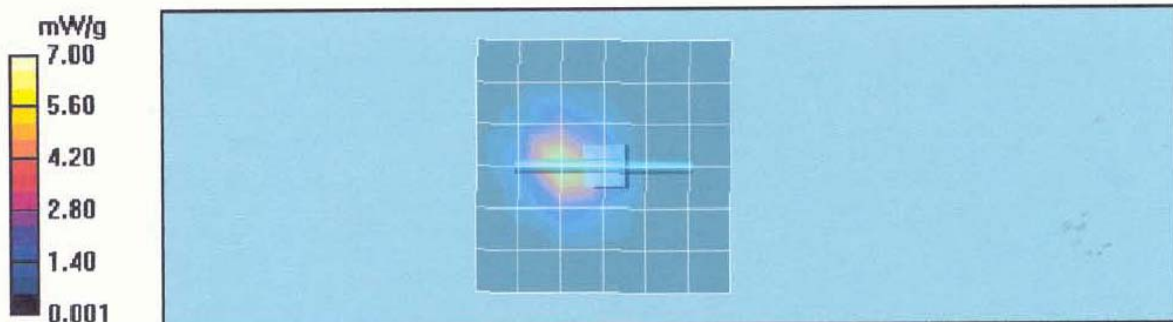
Maximum value of SAR (measured) = 6.39 mW/g

HF-System Performance Check/Dipole Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 6.86 mW/g

HF-System Performance Check/Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 7.00 mW/g



Appendix E
DUT Scans
(Shortened scan, Highest SAR configurations, and Rough Coarse scan)

Shorten scan**Motorola GEMS EME Laboratory****Model #: F2889A, SN: 537SGA0057; Test Date: 3/9/06**

Run #: CM-Ab-060309-04

Sim. Tissue Temp: 20.8 (C)

Antenna: Fixed

TX Freq: 2437.5 MHz

Battery: IBM Laptop's battery

Start power: 0.083 W

Carry acc.: None

Audio/Data acc.: None

Comments: Shorten scan

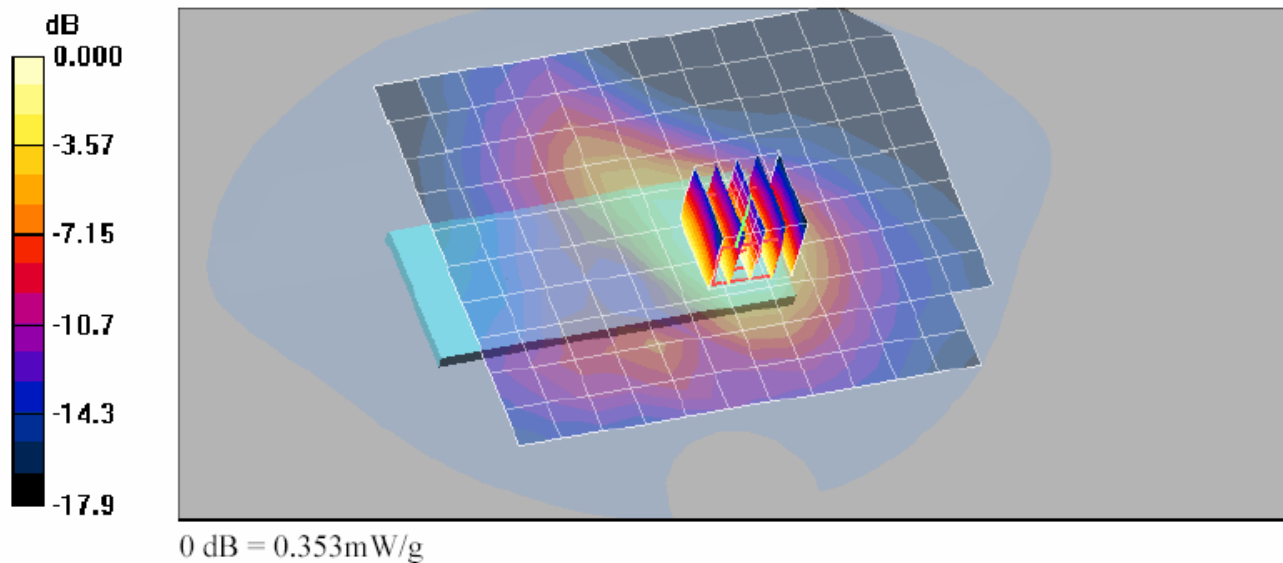
Shortened scan reflect highest S.A.R. producing configuration; Run time 7 minutes.**Representative "normal" scan run time was 29 minutes****"Shortened" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 0.36mW/g; 10-g Avg. = 0.20mW/g****"Normal" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 0.43mW/g; 10-g Avg. = 0.24mW/g****(see part 1 of 4 section 9.0 run # CM-Ab-060309-03)**

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15),

Duty Cycle: 1:1, Medium: 2437 FCC Body, Medium parameters used: $f = 2437$ MHz; $\sigma = 2.01$ mho/m; $\alpha_r = 51.8$; $\tilde{n} = 1000$ kg/m³; Electronics: DAE3 Sn401, Calibrated: 8/18/2005**Body template/5x5x7 Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.6 V/m; Power Drift = -0.00705 dB

Peak SAR (extrapolated) = 0.703 W/kg

SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.204 mW/g

Highest SAR Configurations Results

Motorola GEMS EME Laboratory

Model #: F2889A, SN: 537SGA0057; Test Date: 3/9/06

Run #: CM-Ab-060309-03

Sim. Tissue Temp: 20.9 (C)

Antenna: Fixed

TX Freq: 2437.5 MHz

Battery: IBM Laptop's battery

Start power: 0.079 W

Carry acc.: None

Audio/Data acc.: None

Comments: IBM laptop

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15),

Duty Cycle: 1:1, Medium: 2437 FCC Body, Medium parameters used: $f = 2437$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 51.8$; $\epsilon'' = 1000$ kg/m³ ; Electronics: DAE3 Sn401, Calibrated: 8/18/2005

Body template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.8 V/m; Power Drift = -0.587 dB

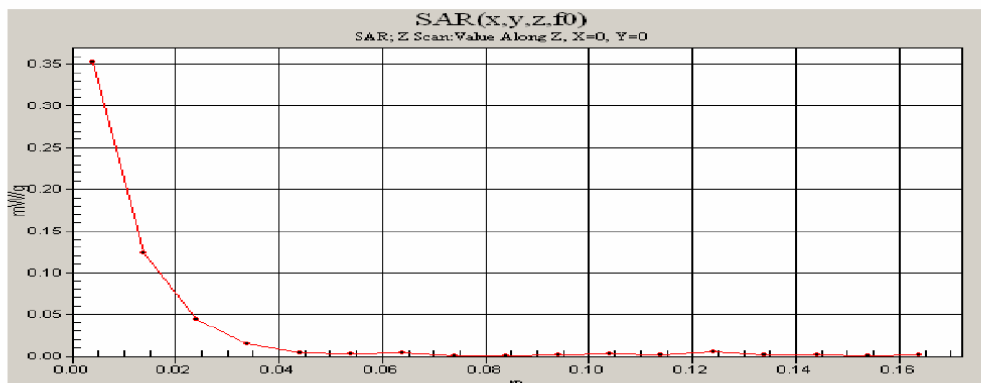
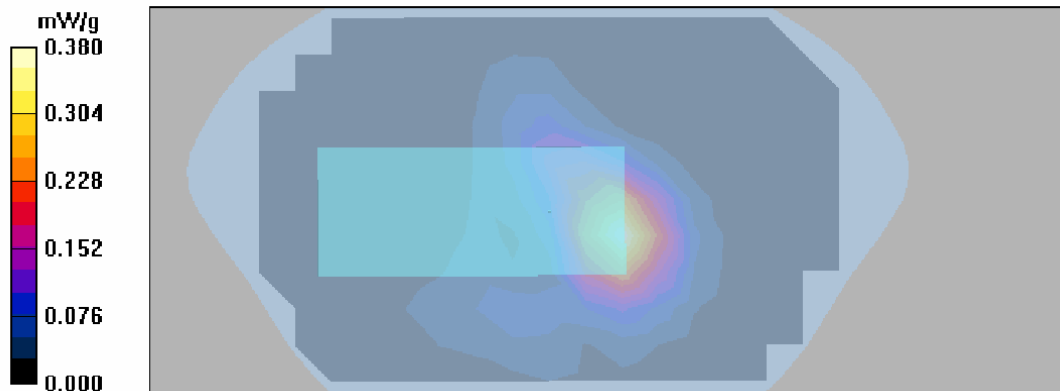
Peak SAR (extrapolated) = 0.745 W/kg

SAR(1 g) = 0.372 mW/g; SAR(10 g) = 0.211 mW/g

Body template/Area Scan (101x161x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.8 V/m; Power Drift = -0.587 dB

Body template/Z Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm



Motorola GEMS EME Laboratory**Model #: F2889A, SN: 537SGA0060; Test Date: 2/22/06**

Run #: CM-Ab-060222-04

Sim. Tissue Temp: 21.3 (C)

Antenna: Fixed

TX Freq: 4965.0 MHz

Battery: IBM Laptop's battery

Start power: 0.123 W

Carry acc.: None

Audio/Data acc.: None

Comments: IBM Laptop

Probe: EX3DV3 - SN3510, Calibrated: 2/24/2005, ConvF(4.42, 4.42, 4.42)

Duty Cycle: 1:1, Medium: FCC Body 4965 MHz, Medium parameters used: $f = 4965$ MHz; $\sigma = 5.15$ mho/m; $\epsilon_r = 48.1$; $\tilde{n} = 1000$ kg/m³; Electronics: DAE3 Sn401, Calibrated: 8/18/2005**HF-Body/Area Scan (201x211x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.323 mW/g

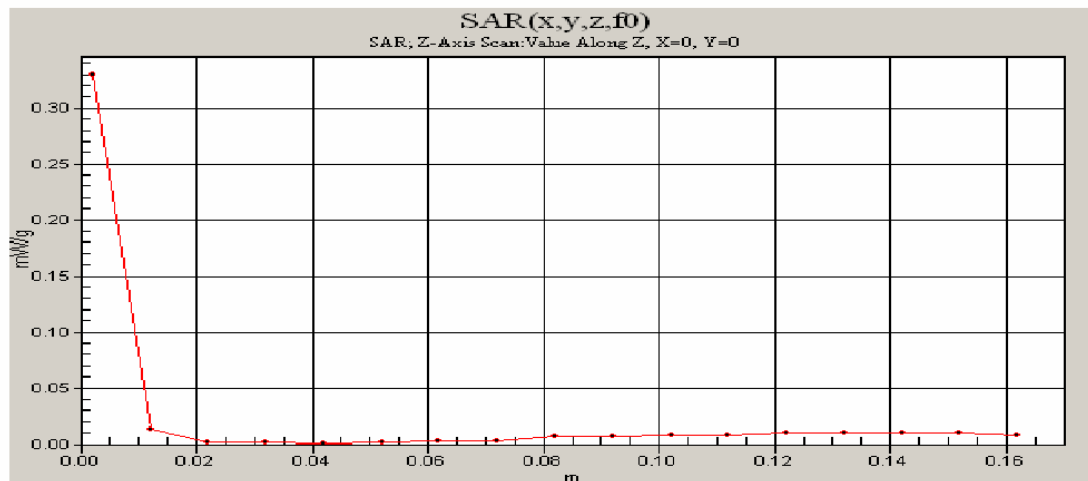
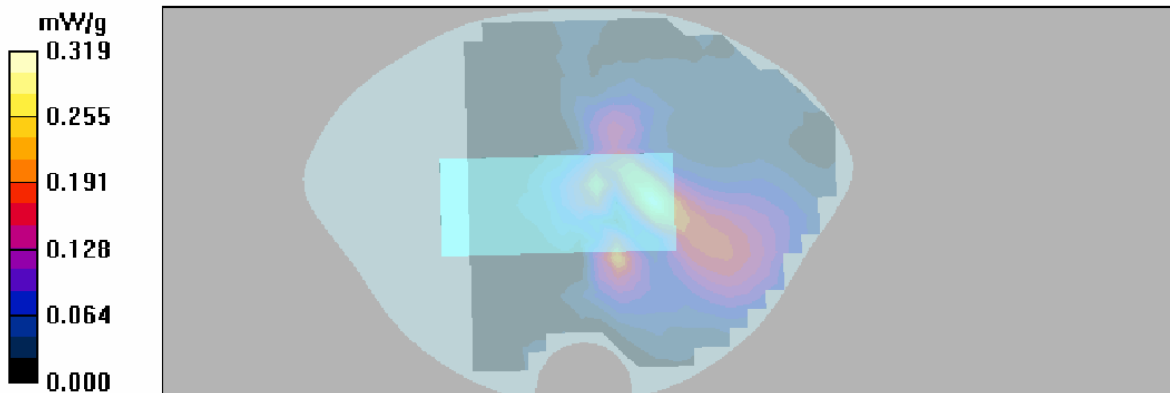
HF-Body/Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 0.330 mW/g

HF-Body/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 8.53 V/m; Power Drift = 0.0975 dB

Peak SAR (extrapolated) = 0.552 W/kg

SAR(1 g) = 0.180 mW/g; SAR(10 g) = 0.0717 mW/g

Rough Coarse scan**Motorola GEMS EME Laboratory****Model #: F2889A, SN: 537SGA0060; Test Date: 2/16/06**

Run #: CM-Ab-060216-04

Sim. Tissue Temp: 20.9 (C)

Antenna: Fixed TX

Freq: 2437.5 MHz

Battery: Dell Laptop's battery

Start power: 0.084 W

Carry acc.: None

Audio/Data acc.: None

Comments: Dell Laptop – Rough Coarse scan using flat phantom 80x60x20 to confirm the peak area

Probe: ET3DV6 - SN1547, Calibrated: 10/25/2005, ConvF(4.15, 4.15, 4.15), Duty Cycle: 1:1,

Medium: 2437 FCC Body, Medium parameters used: $f = 2437$ MHz; $\sigma = 2$ mho/m; $\epsilon_r = 54.8$; $\rho = 1000$ kg/m³;

Electronics: DAE3 Sn401, Calibrated: 8/18/2005

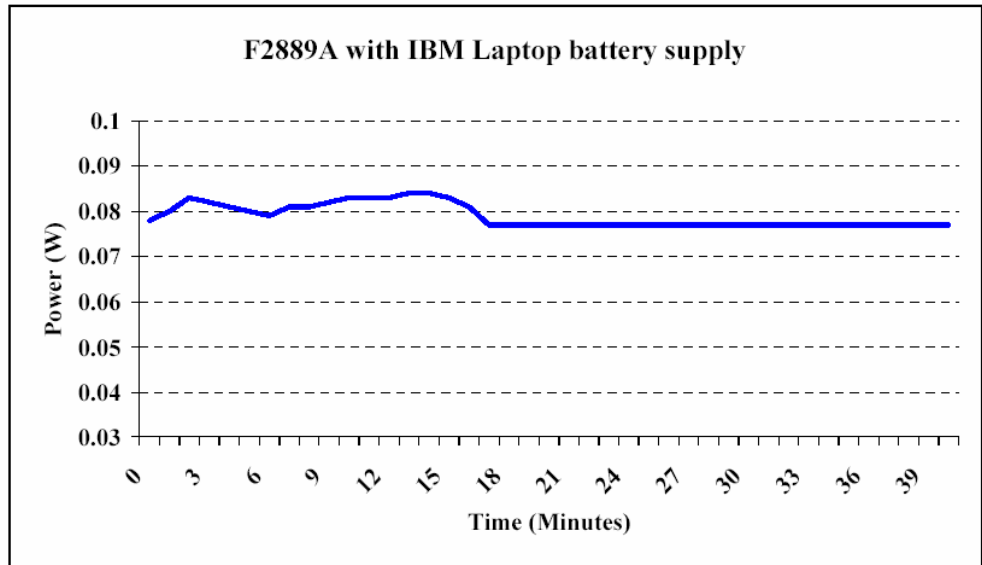
Body template/Area Scan (181x241x1): Measurement grid: dx=15mm, dy=15mm

APPENDIX F
DUT Supplementary Data (Power slump)

F2889A PCMCIA card in IBM laptop, power slump at 2437.5 MHz.

TIME (Min) POWER (Watts)

0	0.078
1	0.080
2	0.083
3	0.082
4	0.081
5	0.080
6	0.079
7	0.081
8	0.081
9	0.082
10	0.083
11	0.083
12	0.083
13	0.084
14	0.084
15	0.083
16	0.081
17	0.077
18	0.077
19	0.077
20	0.077
21	0.077
22	0.077
23	0.077
24	0.077
25	0.077
26	0.077
27	0.077
28	0.077
29	0.077
30	0.077
31	0.077
32	0.077
33	0.077
34	0.077
35	0.077
36	0.077
37	0.077
38	0.077
39	0.077
40	0.077



Appendix G

DUT Test Position Photos

Figure 1: Highest S.A.R. Test Position (Body)
DUT with IBM laptop host device

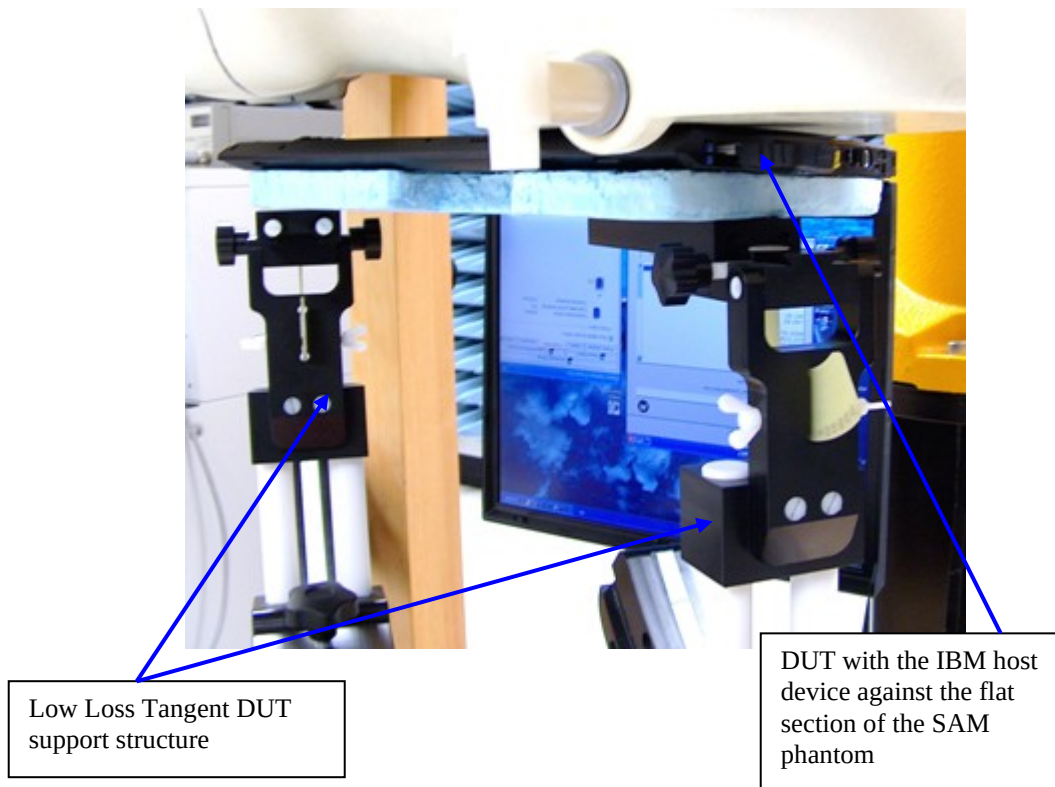


Figure 2: DUT with DELL laptop host device



Figure 3: DUT with ML900 laptop host device

