Portable Cellular Phone Supplemental SAR Test Report

Tests Requested By:	Motorola Mobility, Inc. 600 N. US Highway 45 Libertyville, IL 60048
Test Report #:	25038-1F Supplemental
Date of Report:	Aug-10-2012
Date of Test:	Apr-17-2012 to Jul-27-2012
FCC ID #:	IHDT56NG9
Generic Name:	M0D46
Test Laboratory:	Motorola Mobility, Inc. - ADR Test Services Laboratory 600 N. US Highway 45 Libertyville, IL 60048
Report Author:	Thomas Knipple Senior Staff Test Engineer

Accreditation:

2404

This laboratory is accredited to ISO/IEC 17025-2005 to perform the following tests:

Tests:	Procedures:
Electromagnetic Specific Absorption Rate	IEC 62209-1 RSS-102 IEEE 1528 - 2003 FCC OET Bulletin 65 (*including Supplement C*) Australian Communications Authority Radio Communications (Electromagnetic Radiation – Human Exposure) Standard 2003 CENELEC EN 50360 ARIB Std. T-56 (2002)

On the following products or types of products:
Wireless Communications Devices (Examples): Two Way Radios; Portable Phones (including Cellular, Licensed Non-Broadcast and PCS); Low Frequency Readers; and Pagers

Statement of Compliance:

Motorola declares under its sole responsibility that the portable cellular telephone model to which this declaration relates, is in conformity with the appropriate General Population/Uncontrolled RF exposure standards, recommendations and guidelines (FCC 47 CFR §2.1093) as well as with CENELEC en50360:2001 and ANSI / IEEE C95.1. It also declares that the product was tested in accordance with IEEE 1528 / CENELEC EN62209-1 (2006), as well as other appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(none)

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Revision History

Revision Version	Date	Notes
Rev. 0	Aug-10-2012	Initial report release

1. Introduction

The Motorola Mobility ADR Test Services Laboratory has performed measurements of the maximum potential exposure to the user of the portable cellular phone covered by this test report. The Specific Absorption Rate (SAR) of this product was measured. The portable cellular phone was tested in accordance with [1], [4] and [5]. The SAR values measured for the portable cellular phone are below the maximum recommended levels of 1.6 W/kg in a 1 g average set in [3] and 2.0 W/kg in a 10 g average set in [2].

Per direction of the FCC, the following SAR test data is being provided to demonstrate the device's effective utilization of power reduction conditions specified in Exhibit 12 - Operational Description. The values in the tables in Section 6.0 are provided solely for the purpose of confirming compliant power reduction operation and do not represent maximum SAR values of the product. For maximum reported SAR compliance values, refer to the Exhibit 11 SAR test report.

2. Description of the Device Under Test

2.1 Device Signaling

Serial Number(s) (Functional Use)	LVML2A0064	(GSM/WCDMA conducted power measurements, GSM/WCDMA SAR testing)
	LVUEB20013	(LTE conducted power measurements, LTE SAR testing)
	LVULC30006	(Wi-Fi 2.4 GHz SAR testing)
	LVULC30009	(Wi-Fi 5 GHz SAR testing)
	LVUEB20032	(Wi-Fi 802.11b/g/n 2.4 GHz conducted power measurements)
	LVUEB20029	(Wi-Fi 802.11a/n 5 GHz conducted power measurements)
	LVUCB10031	(Bluetooth conducted power measurements)
Production Unit or Identical Prototype (47 CFR §2..908)	Identical Prototype	
Device Category	Portable	
RF Exposure Limits	General Population / Uncontrolled	

Mode(s) of Operation	Modulation Mode(s)	Maximum Output Power Setting	Duty Cycle	Transmitting Frequency Range(s)
GSM 850	GMSK	33.5 dBm	1:8	824.2 - 848.8 MHz
GSM 1900	GMSK	30.5 dBm	1:8	1850.2 - 1909.8 MHz
WCDMA 850	QPSK	24.0 dBm	1:1	826.4 - 846.6 MHz
WCDMA 1900	QPSK	24.0 dBm	1:1	1852.4 - 1907.6 MHz
LTE Band 4	QPSK, 16QAM	24.5 dBm	1:1	1710 - 1755 MHz
LTE Band 17	QPSK, 16QAM	25.0 dBm	1:1	704 - 716 MHz
Wi-Fi 802.11b/g/n	BPSK	18.01 dBm	1:1	2412.0 - 2462.0 MHz
Wi-Fi 802.11a/n	BPSK	16.05 dBm	1:1	5180.0 - 5240.0 MHz, 5745.0 - 5825.0 MHz
Bluetooth	GFSK	8.185 dBm	1:1	2402.0 – 2480.0 MHz

GSM Data Functionality	GPRS/EDGE Class 12 (4 uplink timeslots; 4 downlink timeslots; 5 total timeslots per frame)
	Class B (DTM not supported)

Mode(s) of Operation	GPRS/EDGE 850				GPRS/EDGE 1900			
Modulation	GMSK				GMSK			
Maximum Output Power Setting (dBm)	33.50	**31.50**	29.50	27.50	30.50	30.00	**28.50**	26.50
Time Average Output Power Setting (dBm)	24.50	**25.50**	25.24	24.50	21.50	24.00	**24.24**	23.50
Duty Cycle	1:8	**2:8**	3:8	4:8	1:8	2:8	**3:8**	4:8
Transmitting Frequency Range(s)	824.2 - 848.8 MHz				1850.2 - 1909.8 MHz			

Mode(s) of Operation	EDGE 850				EDGE 1900			
Modulation	8PSK				8PSK			
Maximum Output Power Setting (dBm)	27.50	**26.00**	24.00	22.00	26.50	**26.00**	24.00	22.00
Time Average Output Power Setting (dBm)	18.50	**20.00**	19.74	19.00	17.50	**20.00**	19.74	19.00
Duty Cycle	1:8	**2:8**	3:8	4:8	1:8	**2:8**	3:8	4:8
Transmitting Frequency Range(s)	824.2 - 848.8 MHz				1850.2 - 1909.8 MHz			

2.1.1 Transmitter power reduction conditions and modes

The DUT utilizes reduced limits for the maximum transmit power for its transmitters when operating under the following noted conditions to ensure SAR exposure compliance is maintained. Tables of the reduced limits used for testing are given below. A complete description of this functionality is provided in the "Operational Description" contained within Exhibit 12. The implementation to trigger the reduction in power requires the device to be radiating, which prevents conducted power measurements of this functionality without modification to the unit.

While operating in body-adjacent exposure configurations during a mobile hotspot session, reduced power limits are enforced on the LTE transmitter in Band 4. A table of the reduced limits used for testing is given below.

Mode(s) of Operation	LTE Band 4							
Test Channel	Applicable to all channels/channel bandwidths							
Modulation	QPSK				16QAM			
RB Allocation	1 RB @LOW EDGE	1 RB @HIGH EDGE	50%	100%	1 RB @LOW EDGE	1 RB @HIGH EDGE	50%	100%
Maximum Output Power Setting (dBm)	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
Output Power Setting with MPR (dBm)	24.5	24.5	23.5	23.5	23.5	23.5	22.5	22.5
Reduced Maximum Output Power Setting (dBm)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5

While operating in body-adjacent exposure configurations during a mobile hotspot session, a reduced maximum power limit is enforced on the GSM 1900 or WCDMA 1900 transmitters. Tables of the reduced limits used for testing are given below.

Mode(s) of Operation	WCDMA 1900
Channel Ranges	9262-9538
Maximum Output Power Setting (dBm)	24
Reduced Maximum Output Power Setting (dBm)	17

Mode(s) of Operation	GPRS 1900				EDGE 1900			
Channel Range	975-124				975-124			
Modulation	GMSK				8PSK			
Duty Cycle	1:8	2:8	3:8	4:8	1:8	2:8	3:8	4:8
Maximum Output Power Setting (dBm)	30.50	**28.50**	26.50	24.50	26.50	**24.50**	22.50	20.50
Time Average Output Power Setting (dBm)	21.50	**22.50**	22.24	21.50	17.50	**18.50**	18.24	17.50
Reduced Maximum Output Power Setting (dBm)	26.50	**24.50**	22.50	20.50	22.50	**20.50**	18.50	16.50
Reduced Time Average Output Power Setting (dBm)	17.50	**18.50**	18.24	17.50	13.50	**14.50**	14.24	13.50

3. Test Equipment Used

3.1 Dosimetric System

The Motorola Mobility ADR Test Services Laboratory utilizes a Dosimetric Assessment System (DASY4™ v4.7 or DASY52™) manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. All the SAR measurements are taken within a shielded enclosure. The overall 10 g RSS uncertainty of the measurement system is ±10.8% (K=1) with an expanded uncertainty of ±21.6% (K=2). The overall 1 g RSS uncertainty of the measurement system is ±11.1% (K=1) with an expanded uncertainty of ±22.2% (K=2). The measurement uncertainty budget is given in Appendix 6. Per IEEE 1528, this uncertainty budget is applicable to the SAR range of 0.4 W/kg to 10 W/kg.

The list of calibrated equipment used for measurements is shown in the following tables. All equipment was brought into service and used only during its noted calibration period, except where indicated. Equipment without a calibration period was in service for the entirety of the test period.

Description	Serial Number	Cal Date	Cal Due Date	Service Notes
DASY4™ DAE V1	699	Sep-22-2011	Sep-22-2012	
E-Field Probe ES3DV3	3115	Jan-11-2012	Jan-11-2013	
DASY4™ DAE V1	376	Aug-31-2011	Aug-31-2012	
E-Field Probe ES3DV3	3124	Aug-23-2011	Aug-23-2012	
DASY4™ DAE V1	1310	Jan-11-2012	Jan-11-2013	
E-Field Probe ES3DV3	3284	Jan-10-2012	Jan-10-2013	
Dipole Validation Kit, DV1800V2	2D190	Jan-05-2012	Jan-05-2013	
Dipole Validation Kit, DV1800V2	2D191	Jan-05-2012	Jan-05-2013	
Dipole Validation Kit, DV1800V2	259TR	Oct-20-2011	Oct-20-2012	

3.2 Additional Equipment

Description	Serial Number	Cal Date	Cal Due Date	Service Notes
Signal Generator HP8648C	3847A04810	Sep-26-2011	Sep-26-2013	
Power Meter E4419B	GB39511090	Aug-12-2011	Aug-12-2013	
Power Sensor #1 - E9301A	US39210917	Nov-16-2011	Nov-16-2012	
Power Sensor #2 - E9301A	US39210918	Nov-16-2011	Nov-16-2012	
Signal Generator HP8648C	3847M01245	Aug-23-2011	Aug-23-2013	
Power Meter E4419B	GB39511084	Mar-28-2011	Mar-28-2013	
Power Sensor #1 - E9301A	US39210931	Jan-19-2012	Jan-19-2013	
Power Sensor #2 - E9301A	US39210932	Jan-19-2012	Jan-19-2013	
Signal Generator HP8648C	3847A04632	Aug-13-2011	Aug-13-2013	
Power Meter E4419B	GB39511086	Nov-04-2011	Nov-04-2013	
Power Sensor #1 - E9301A	US39210915	Sep-09-2011	Sep-09-2012	
Power Sensor #2 - E9301A	US39210916	Sep-09-2011	Sep-09-2012	
Signal Generator N5181A	MY50143026	Oct-27-2011	Oct-27-2014	
Power Meter E4419A	GB41293246	Nov-05-2011	Nov-05-2013	
Power Sensor #1 - E9301A	US39211009	Aug-16-2011	Aug-16-2012	
Power Sensor #2 - E9301A	US39211013	Aug-16-2011	Aug-16-2012	
Network Analyzer HP8753ES	US39171846	May-19-2011	May-19-2012	Removed from service May-15-2012
Network Analyzer E5071C	MY46212851	May-10-2012	May-10-2013	Placed into service May-15-2012
Dielectric Probe Kit DAK-3.5	1030			Removed from service Jul-02-2012
Dielectric Probe Kit DAK-3.5	1072			Placed into service Jul-02-2012

4. 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 a HP85070 Dielectric Probe Kit These values, along with the temperature of the simulated tissue are shown in the table below. The recommended limits for permittivity and conductivity are also shown. A mass density of $\rho = 1\ ^{g}/_{cm^3}$ was entered into the system in all the cases. It can be seen that the measured parameters are within tolerance of the recommended limits specified in [1] and [5].

E-field probes calibrated at 1810 MHz were used for "1900 MHz" band (1850 MHz - 1910 MHz) SAR measurements. FCC KDB 450824 provides additional requirements on page 3 of 6 for SAR testing that is performed with probe calibration points that are more than 50 MHz removed from the measured bands. The KDB requires; "(2) When nominal tissue dielectric parameters are specified in the probe calibration data, the tissue dielectric parameters measured for routine measurements should be less than the target Er and higher than the target Sigma values to minimize SAR underestimations". The 1900 MHz simulated tissues listed below meet this criteria.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ε_r	σ (S/m)	Temp (°C)
1731.8	**Body**	**Measured,** 7-19-2012	52.2	1.51	19.9
		Measured, 7-27-2012	52.3	1.52	19.8
		Recommended Limits	53.5 ±5%	1.48 ±5%	18-25
1880	**Body**	**Measured,** 4-21-2012	51.9	1.56	19.8
		Measured, 5-4-2012	52.4	1.56	19.0
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25
1908.9	**Body**	**Measured,** 4-21-2012	51.1	1.59	20.0
		Measured, 5-3-2012	51.6	1.59	20.1
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25

The list of ingredients and the percent composition used for the simulated tissues are indicated in the table below.

Ingredient	1700 MHz / 1800 MHz / 1900 MHz Body
Sugar	--
DGBE	30.8
Diacetin	--
Water	68.8
Salt	0.4
HEC	--
Bact.	--
Triton X-100	--
Di(ethylene glycol) Hexyl Ether	--

5. System Accuracy Verification

A system accuracy verification of the DASY4™ was performed using the measurement equipment listed in Section 3.1. The daily system accuracy verification occurs within the flat section of the SAM phantom.

A SAR measurement was performed to verify the measured SAR was within ±10% from the target SAR indicated in Appendix 7. These frequencies are within ±10% of the compliance test mid-band frequency as required in [1] and [5]. The test was conducted on the same days as the measurement of the DUT. Recommended limits for permittivity and conductivity, specified in [5], are shown in the table below. The obtained results from the system accuracy verification are also displayed in the table below. SAR values are normalized to 1 W forward power delivered to the dipole. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values. The distributions of SAR compare well with those of the reference measurements (see Appendix 1). For frequencies below 3 GHz, the simulated tissue depth was verified to be 15.0 cm ± 0.5 cm. For frequencies above 3 GHz, the simulated tissue depth was verified to be 10 cm ± 0.5 cm. Z-axis scans showing the SAR penetration are also included in Appendix 1.

System Accuracy Verification Measurements for Body SAR Measurements								
f (MHz)	Description	Dipole	Measured SAR (W/kg), 1 gram	Normalized SAR (W/kg), 1 gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
					ε_r	σ (S/m)		
1800	**Measured,** Apr-20-2012	259TR	7.57	37.85	52.2	1.46	20.3	19.6
	Recommended Limits	259TR		39.1	53.3 ±5%	1.52 ±5%	18-25	18-25
	Measured, May-03-2012	2D191	7.20	36.00	52.0	1.48	20.6	20.2
	Measured, May-04-2012	2D191	6.96	34.80	52.7	1.47	20.1	19.0
	Measured, Jul-27-2012	2D191	7.09	35.45	52.9	1.48	21.1	19.7
	Recommended Limits	2D191		37.80	53.3 ±5%	1.52 ±5%	18-25	18-25
	Measured, Jul-19-2012	2D190	7.76	38.80	52.6	1.48	21.5	19.6
	Recommended Limits	2D190		37.8	53.3 ±5%	1.52 ±5%	18-25	18-25

The following probe conversion factors were used on the E-Field probe(s) used with the system accuracy verification measurements for body SAR measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ES3DV3	3115	1810	4.72	6 of 11
E-Field Probe ES3DV3	3124	1810	4.69	6 of 11
E-Field Probe ES3DV3	3284	1810	5.28	6 of 11

6. Test Results

For GSM, WCDMA, and LTE modes the test sample was operated using an actual transmission through a base station simulator. Wi-Fi testing was conducted using manufacturer test mode software, per guidance given in FCC KDB 248227. The base station simulator or test software was set up for the proper channels, transmitter power levels and transmit modes of operation.

The phone was tested in configurations specified by the FCC for this device in order to demonstrate the effective utilization of power reduction conditions specified in Exhibit 12. The phone was positioned into these configurations using the device holder supplied with the DASY4™ SAR measurement system. The default settings for the "coarse" and "cube" scans were chosen and used for measurements. The grid spacing of the coarse scan was set to 15 mm or less as shown in the SAR plots included in Appendix 2. Please refer to the DASY4™ manual for additional information on SAR scanning procedures and algorithms used.

The SAR results shown in the tables below are maximum SAR values averaged over 1 gram of phantom tissue. Also shown is the extrapolated SAR to account for drift. The exact method of extrapolation is:

$$Extrapolated\ SAR = (Measured\ SAR) * 10^{(-drift/10)}$$

The SAR reported at the end of the measurement process by the DASY4™ measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process. This is the most conservative SAR because it corresponds to the average output power at the beginning of the SAR test. This extrapolation has been done because when the DUT is operating properly it may exhibit a slump in radiated power and SAR over time. This is verified by measuring the SAR drift after the test.

The Cellular Phone model covered by this report has the following battery options:

Model SNN5915A - 2530 mAH battery

The Model SNN5915A battery is an internally-sealed battery contained within the DUT, and may not be removed by the end-user. This battery was used to do all of the SAR testing. The phone was placed in the SAR measurement system with a fully charged battery.

A SPEAG™ MFP V5.1 C Triple Modular Phantom was used for the body-adjacent (body-worn accessory or mobile hotspot) tests. The triple modular phantom consists of three identical modules that can be installed and removed separately without emptying the liquid. Each module of the triple phantom is constructed of glass-fiber reinforced vinylester (VG-GF) with a thickness at the bottom of 2.0 mm. It measures 29.2 cm(long) by 17.8 cm(wide) by 17.8 cm(tall). The simulated tissue depth was verified to be 15.0 cm ± 0.5 cm. The same device holder described above was used for positioning the phone.

The simulated tissue depth was verified to be 15.0 cm ± 0.5 cm for frequencies below 3 GHz, or 10.0 cm ± 0.5 cm for frequencies greater than 3 GHz.

The following probe conversion factors were used on the E-Field probe(s) used for the following measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ES3DV3	3115	1810	4.72	6 of 11
E-Field Probe ES3DV3	3124	1810	4.69	6 of 11
E-Field Probe ES3DV3	3284	1810	5.28	6 of 11

Per direction of the FCC, the following SAR test data is being provided to demonstrate the device's effective utilization of power reduction conditions specified in Exhibit 12 - Operational Description. The values in the table are provided solely for purposes of confirming compliant power reduction operation and do not represent maximum SAR values of the product. For maximum reported SAR compliance values, refer to the Exhibit 11 SAR test report.

LTE Maximum Power Reduction

LTE Band 4 during a mobile hotspot session in body-adjacent configurations									
***f* (MHz)**	**Configuration**	**Channel**	***1 g SAR value without Power Reduction***			***1 g SAR value with Power Reduction***			**Measured SAR Reduction (dB)**
			Maximum Power Limit (dBm)	**Measured (W/kg)**	**Extrapolated (W/kg)**	**Reduced Power Limit (dBm)**	**Measured (W/kg)**	**Extrapolated (W/kg)**	
Front of Phone 10 mm from Phantom									
1732	**QPSK (50% RB)**	20175	23.5	0.874	0.89	20.5	0.960	0.99	-0.46
	QPSK (1 RB @ LOW)	20175	24.5	0.900	0.95	20.5	0.846	0.86	0.43
	QPSK (1 RB @ HIGH)	20175	24.5	1.03	1.03	20.5	0.929	0.95	0.35
Back of Phone 10 mm from Phantom									
1732	**QPSK (50% RB)**	20025	23.5	0.718	0.72	20.5	0.776	0.78	-0.35
	QPSK (50% RB)	20175	23.5	2.01	2.03	20.5	0.801	0.81	3.99
	QPSK (50% RB)	20325	23.5	0.887	0.90	20.5	0.845	0.86	-0.20
	QPSK (1 RB @ LOW)	20175	24.5	1.96	2.02	20.5	0.862	0.86	3.71
	QPSK (1 RB @ HIGH)	20175	24.5	2.35	2.36	20.5	0.954	0.98	3.82
Left Edge of Phone 10 mm from Phantom									
1732	**QPSK (50% RB)**	20175	23.5	0.125	0.13	20.5	0.070	0.07	3.01
	QPSK (1 RB @ LOW)	20175	24.5	0.148	0.15	20.5	0.068	0.07	4.31
	QPSK (1 RB @ HIGH)	20175	24.5	0.132	0.13	20.5	0.064	0.06	3.68
Right Edge of Phone 10 mm from Phantom									
1732	**QPSK (50% RB)**	20175	23.5	0.235	0.24	20.5	0.120	0.12	3.01
	QPSK (1 RB @ LOW)	20175	24.5	0.254	0.27	20.5	0.104	0.10	4.31
	QPSK (1 RB @ HIGH)	20175	24.5	0.280	0.28	20.5	0.119	0.12	3.68
Bottom Edge of Phone 10 mm from Phantom									
1732	**QPSK (50% RB)**	20025	23.5	2.15	2.17	20.5	1.22	1.25	2.40
	QPSK (50% RB)	20175	23.5	2.95	2.95	**20.5**	**1.51**	**1.52**	2.88
	QPSK (50% RB)	20325	23.5	2.56	2.57	20.5	1.37	1.40	2.64
	QPSK (1 RB @ LOW)	20175	24.5	2.81	2.81	20.5	1.09	1.10	4.07
	QPSK (1 RB @ HIGH)	20175	**24.5**	**3.16**	**3.16**	20.5	1.21	1.21	4.17

WCDMA 1900 Maximum Power Reduction during a mobile hotspot session, in body-adjacent exposure configurations

WCDMA 1900 during a mobile hotspot session in body-adjacent configurations									
f (MHz)	Configuration	Channel	*1 g SAR value without Power Reduction*			*1 g SAR value with Power Reduction*			Measured SAR Reduction (dB)
			Maximum Power Limit (dBm)	Measured (W/kg)	Extrapolated (W/kg)	Reduced Power Limit (dBm)	Measured (W/kg)	Extrapolated (W/kg)	
1880	Front of Phone 10 mm from Phantom	9400	24.0	2.55	2.57	17.0	0.495	0.50	7.11
	Back of Phone 10 mm from Phantom	9400	24.0	2.26	2.27	17.0	0.337	0.35	8.12
	Left Edge of Phone 10 mm from Phantom	9400	24.0	0.423	0.42	17.0	0.019	0.02	13.22
	Right Edge of Phone 10 mm from Phantom	9400	24.0	0.154	0.15	17.0	0.062	0.06	3.98
	Bottom Edge of Phone 10 mm from Phantom	9400	**24.0**	**4.91**	**4.91**	**17.0**	**0.696**	**0.70**	8.46

GSM 1900 Maximum Power Reduction during a mobile hotspot session, in body-adjacent exposure configurations

GSM 1900 during a mobile hotspot session in body-adjacent configurations (GPRS PS Data, 3 Upslots)									
f (MHz)	Configuration	Channel	*1 g SAR value without Power Reduction*			*1 g SAR value with Power Reduction*			Measured SAR Reduction (dB)
			Maximum Power Limit (dBm)	Measured (W/kg)	Extrapolated (W/kg)	Reduced Power Limit (dBm)	Measured (W/kg)	Extrapolated (W/kg)	
1880	Front of Phone 10 mm from Phantom	661	28.5	2.86	2.95	24.5	0.526	0.54	7.37
	Back of Phone 10 mm from Phantom	661	28.5	2.95	3.05	24.5	0.474	0.51	7.77
	Left Edge of Phone 10 mm from Phantom	661	28.5	0.093	0.09	24.5	0.023	0.02	6.53
	Right Edge of Phone 10 mm from Phantom	661	28.5	0.33	0.34	24.5	0.072	0.07	6.86
	Bottom Edge of Phone 10 mm from Phantom	512	**28.5**	**4.87**	**4.87**	24.5	0.843	0.85	7.58
		661	28.5	4.65	4.65	24.5	0.796	0.80	7.64
		810	28.5	4.67	4.78	**24.5**	**0.855**	**0.86**	7.45

References

[1] CENELEC, en62209-1:2006 “Human Exposure to Radio Frequency Fields From Hand - Held and Body - Mounted Wireless Communication Devices – Human Models, Instrumentation, and Procedures”

[2] CENELEC, en50360:2001 “Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz – 3 GHz)”.

[3] ANSI / IEEE, C95.1 1992 Edition “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”

[4] FCC OET Bulletin 65 Supplement C 01-01

[5] IEEE 1528 2003 Edition “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”

[6] ICNIRP Guidelines “Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz)”

Appendix 1

SAR distribution comparison for the system accuracy verification

Date/Time: 4/20/2012 5:23:40 PM

Test Laboratory: Motorola Mobility - Apr-20-2012 1800 MHz Body

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:259TR; FCC ID: IHDT56NG9
Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW
Sim.Temp@meas =18.8*C; Sim.Temp@SPC = 19.6*C; Room Temp @ SPC = 20.3*C
Communication System: _CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Validation *BODY Tissue*
Medium parameters used: f = 1800 MHz; σ = 1.46 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3

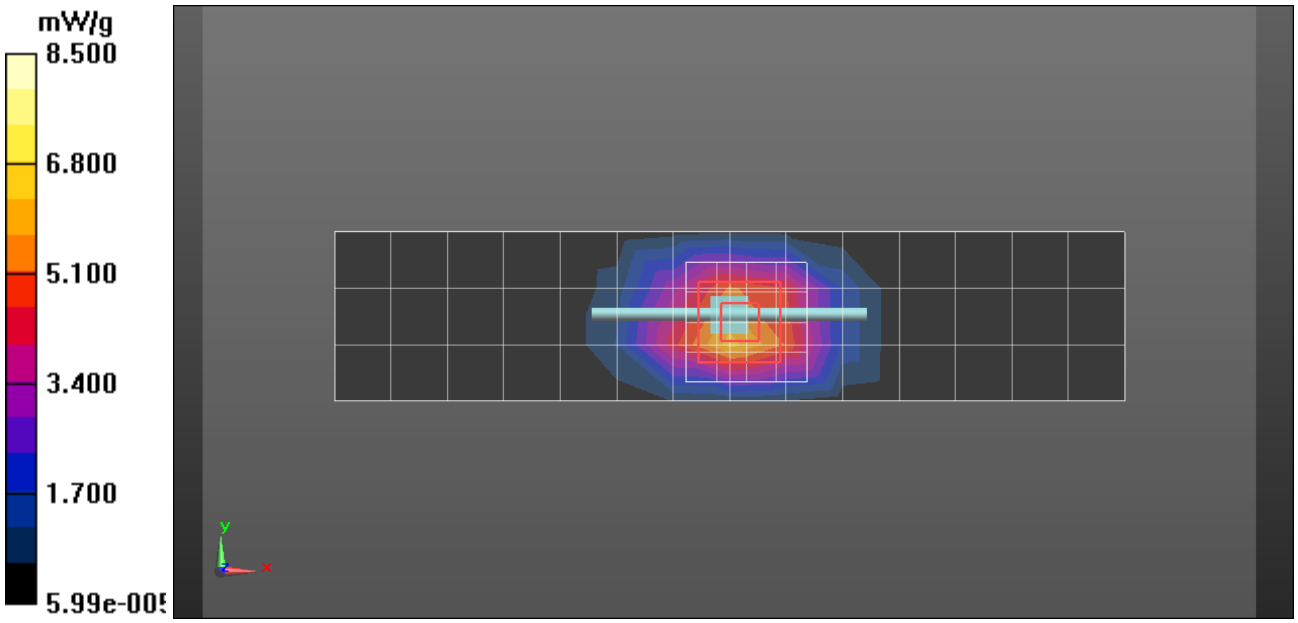
DASY4 Configuration:

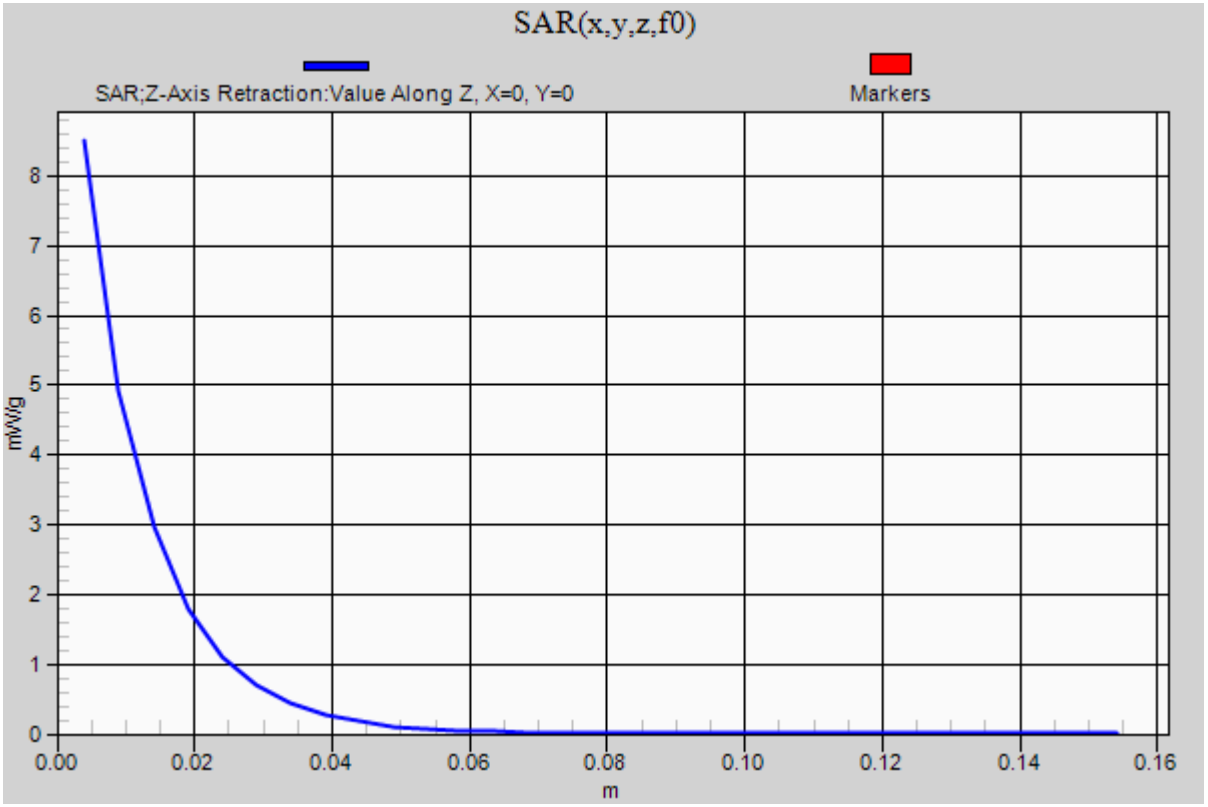
- Probe: ES3DV3 - SN3124; ConvF(4.69, 4.69, 4.69); Calibrated: 8/23/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn376; Calibrated: 8/31/2011
- Phantom: R#-1, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a; Phantom section: Left Section
- SEMCAD X Version 14.6.5 (6469)

DASY5, Triple Flat System Performance Check Template - Dipole Area Scan (4x15x1):
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.52 mW/g

DASY5, Triple Flat System Performance Check Template - 0-Degree 5x5x7 Cube (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 76.269 V/m; Power Drift = -0.01 dB; Peak SAR (extrapolated) = 13.421 mW/g
SAR(1 g) = 7.57 mW/g; SAR(10 g) = 4.04 mW/g; Maximum value of SAR (measured) = 8.50 mW/g

DASY5, Triple Flat System Performance Check Template - Z-Axis Retraction (1x1x31):
Measurement grid: dx=20mm, dy=20mm, dz=5mm


mW/g
8.500
6.800
5.100
3.400
1.700
5.99e-005


SAR(x,y,z,f0)
SAR;Z-Axis Retraction:Value Along Z, X=0, Y=0
Markers
mW/g
8
7
6
5
4
3
2
1
0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date/Time: 5/3/2012 7:21:08 AM

Test Laboratory: Motorola Mobility - May-03-2012 1800 MHz Body

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2D191; FCC ID: IHDT56NG9
Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 2D191; Input Power = 200 mW
Sim.Temp@meas = 19.0ºC; Sim.Temp@SPC = 20.2ºC; Room Temp @ SPC = 20.6ºC
Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Validation *BODY Tissue*
Medium parameters used: f = 1800 MHz; σ = 1.48 mho/m; ε_r = 52; ρ = 1000 kg/m^3

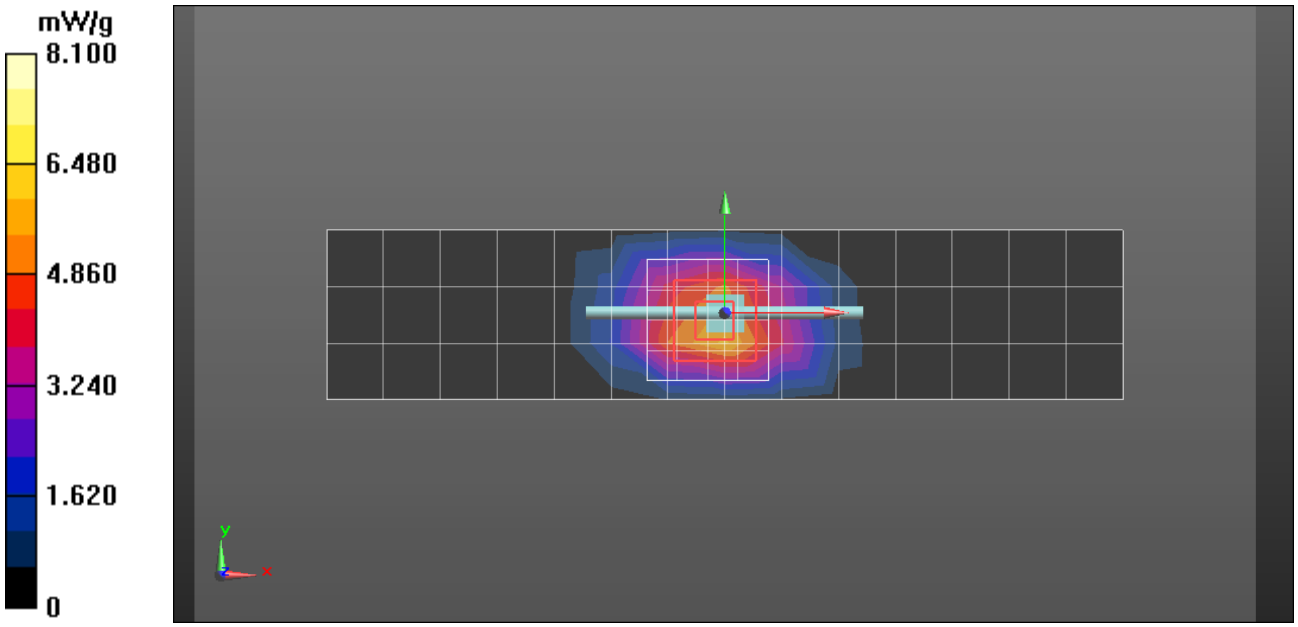
DASY4 Configuration:

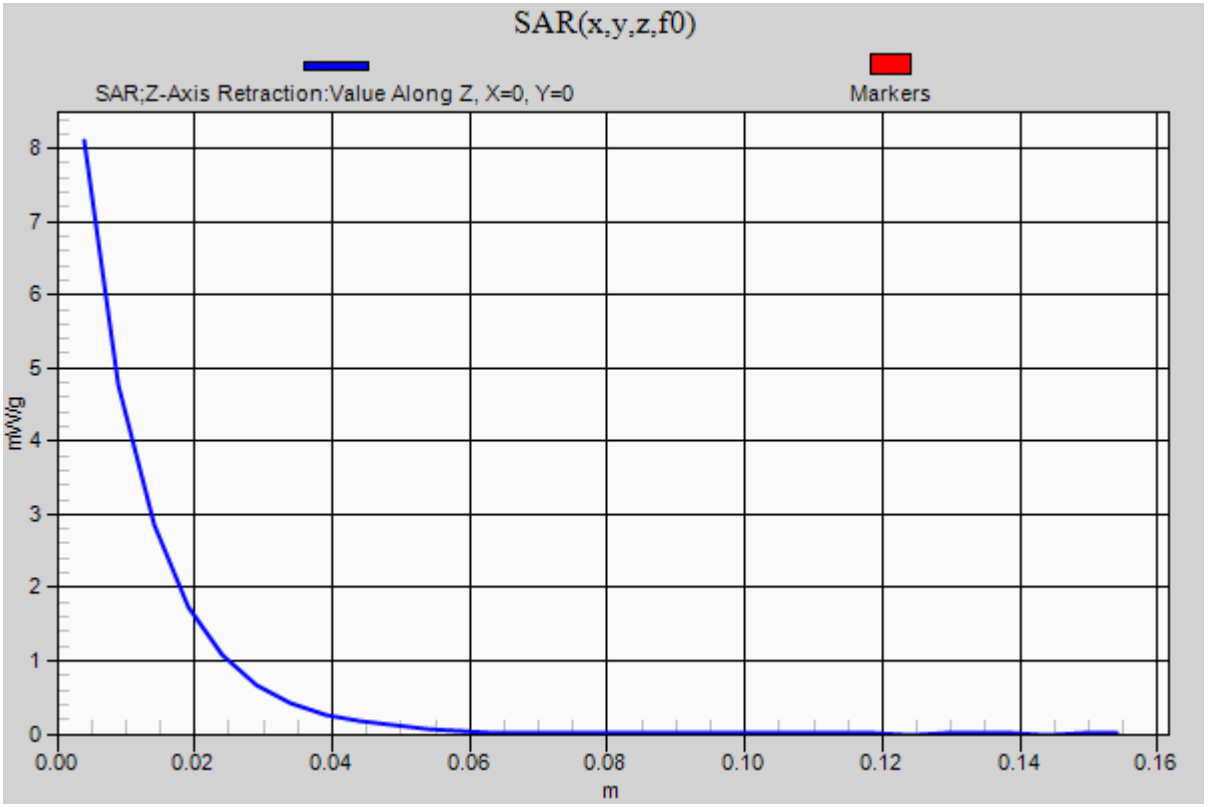
- Probe: ES3DV3 - SN3284; ConvF(5.28, 5.28, 5.28); Calibrated: 1/10/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1310; Calibrated: 1/11/2012
- Phantom: R#4, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a; Phantom section: Center Section
- SEMCAD X Version 14.6.5 (6469)

DASY5, Triple Flat System Performance Check Template - Dipole Area Scan (4x15x1):
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.09 mW/g

DASY5, Triple Flat System Performance Check Template - 0-Degree 5x5x7 Cube (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 74.566 V/m; Power Drift = 0.03 dB; Peak SAR (extrapolated) = 12.511 mW/g
SAR(1 g) = 7.2 mW/g; SAR(10 g) = 3.85 mW/g; Maximum value of SAR (measured) = 8.07 mW/g

DASY5, Triple Flat System Performance Check Template - Z-Axis Retraction (1x1x31):
Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 8.10 mW/g


mW/g
8.100
6.480
4.860
3.240
1.620
0


SAR(x,y,z,f0)
SAR;Z-Axis Retraction:Value Along Z, X=0, Y=0
Markers
mW/g
m
0
1
2
3
4
5
6
7
8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

Date/Time: 5/4/2012 9:49:59 AM

Test Laboratory: Motorola Mobility - May-04-2012 1800 MHz Body

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 2D191; FCC ID: IHDT56NG9
Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 2D191; Input Power = 200 mW
Sim.Temp@meas = 18.9ºC; Sim.Temp@SPC = 19.0ºC; Room Temp @ SPC = 20.1ºC
Communication System: _CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Validation *BODY Tissue*
Medium parameters used: f = 1800 MHz; σ = 1.47 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3

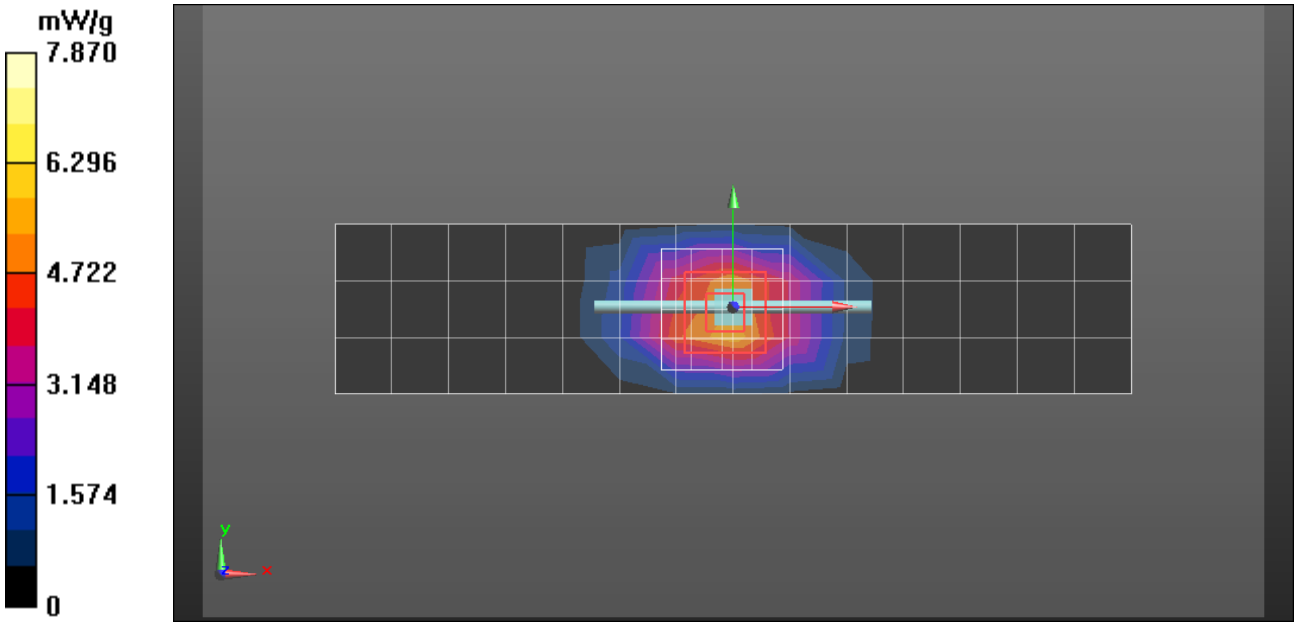
DASY4 Configuration:

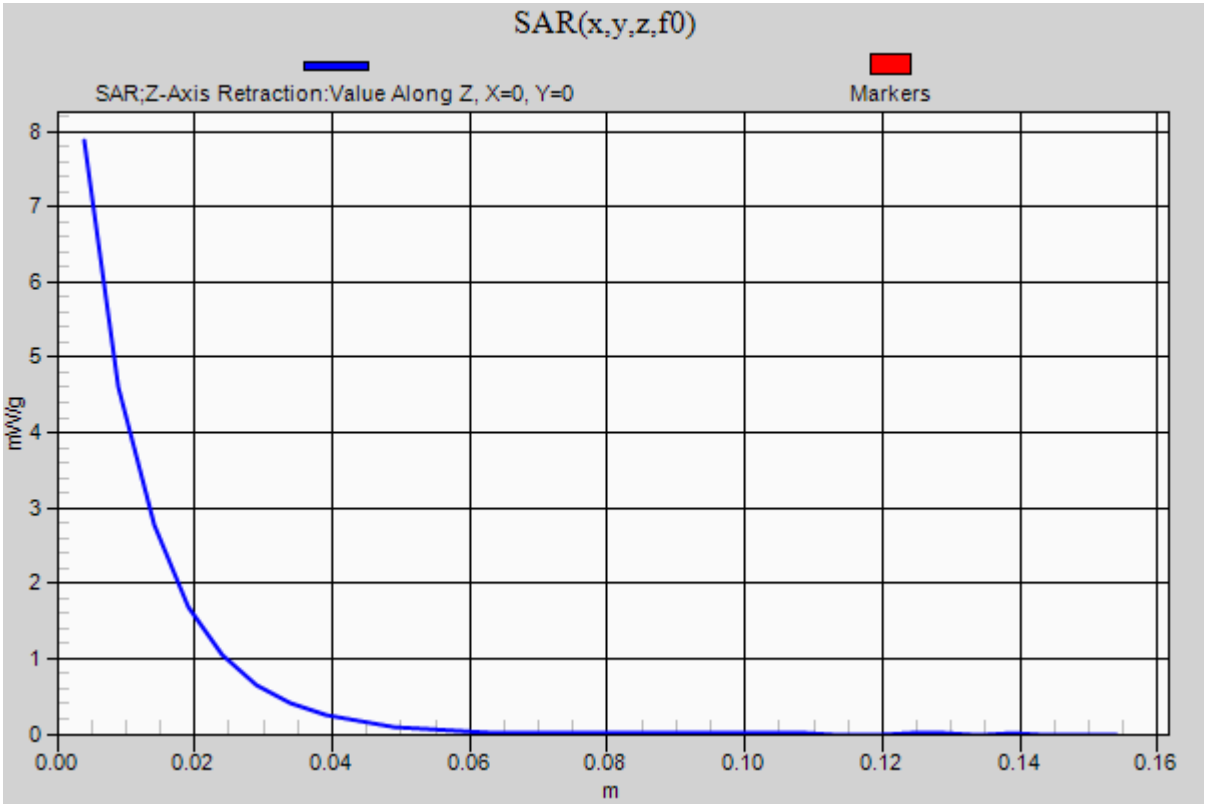
- Probe: ES3DV3 - SN3284; ConvF(5.28, 5.28, 5.28); Calibrated: 1/10/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1310; Calibrated: 1/11/2012
- Phantom: R#4, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a; Phantom section: Center Section
- SEMCAD X Version 14.6.5 (6469)

DASY5, Triple Flat System Performance Check Template - Dipole Area Scan (4x15x1):
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 5.70 mW/g

DASY5, Triple Flat System Performance Check Template - 0-Degree 5x5x7 Cube (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 74.612 V/m; Power Drift = -0.00 dB; Peak SAR (extrapolated) = 12.057 mW/g
SAR(1 g) = 6.96 mW/g; SAR(10 g) = 3.72 mW/g; Maximum value of SAR (measured) = 7.83 mW/g

DASY5, Triple Flat System Performance Check Template - Z-Axis Retraction (1x1x31):
Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 7.87 mW/g


mW/g
7.870
6.296
4.722
3.148
1.574
0


SAR(x,y,z,f0)
SAR;Z-Axis Retraction:Value Along Z, X=0, Y=0
Markers
mW/g
8
7
6
5
4
3
2
1
0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date/Time: 7/27/2012 7:20:32 AM

Test Laboratory: Motorola Mobility - Jul-27-2012 1800 MHz Body

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 2D191; FCC ID: IHDT56NG9
Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 2D191; Input Power = 200 mW
Sim.Temp@meas = 19.7ºC; Sim.Temp@SPC = 19.7ºC; Room Temp @ SPC = 21.1ºC
Communication System: _CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Validation *BODY Tissue*
Medium parameters used: f = 1800 MHz; σ = 1.48 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3

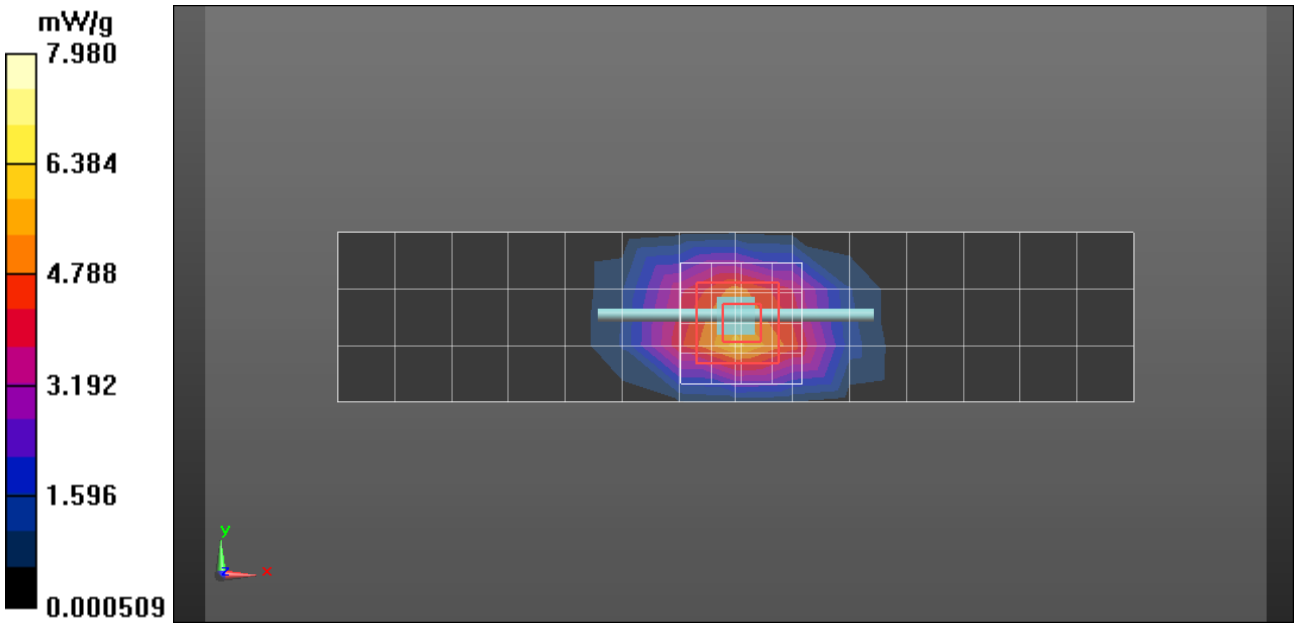
DASY4 Configuration:

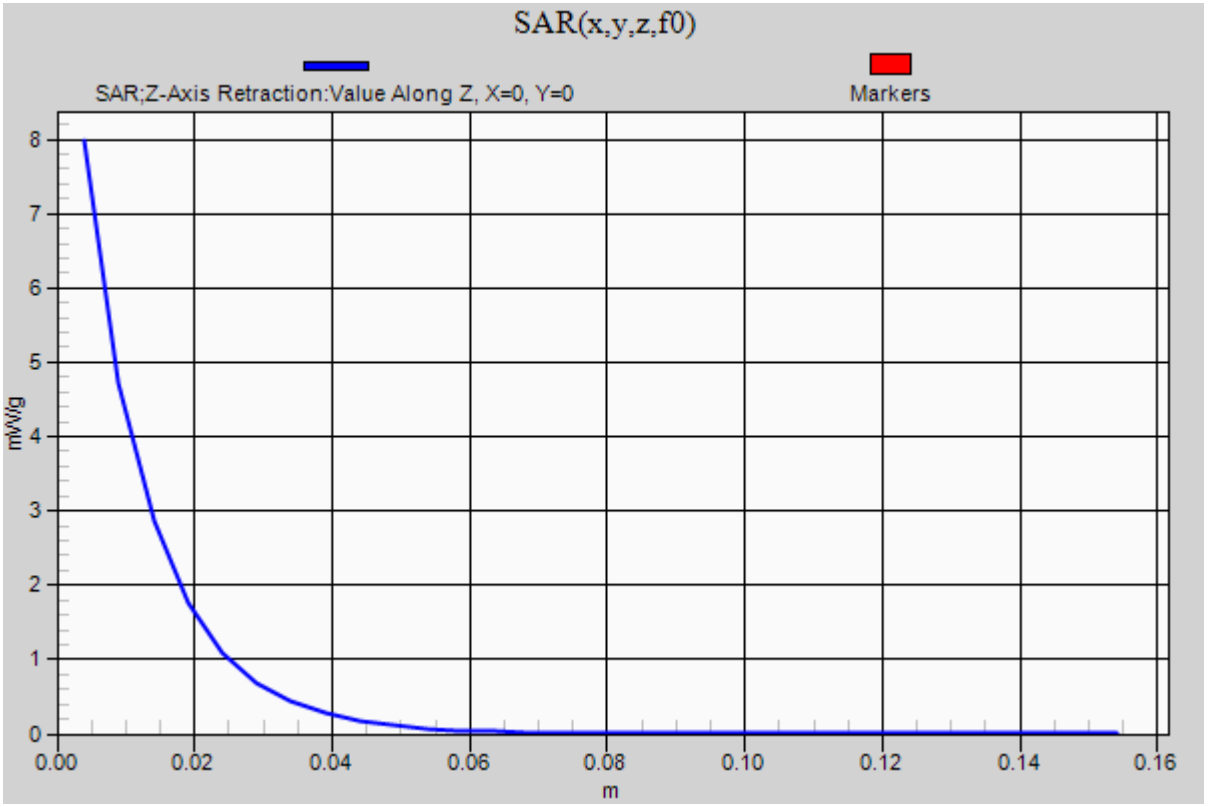
- Probe: ES3DV3 - SN3284; ConvF(5.28, 5.28, 5.28); Calibrated: 1/10/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1310; Calibrated: 1/11/2012
- Phantom: R#4, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a; Phantom section: Left Section
- SEMCAD X Version 14.6.5 (6469)

DASY5, Triple Flat System Performance Check Template - Dipole Area Scan (4x15x1):
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.09 mW/g

DASY5, Triple Flat System Performance Check Template - 0-Degree 5x5x7 Cube (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 74.786 V/m; Power Drift = -0.06 dB; Peak SAR (extrapolated) = 12.215 mW/g
SAR(1 g) = 7.09 mW/g; SAR(10 g) = 3.81 mW/g; Maximum value of SAR (measured) = 8.00 mW/g

DASY5, Triple Flat System Performance Check Template - Z-Axis Retraction (1x1x31):
Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 7.98 mW/g


mW/g
7.980
6.384
4.788
3.192
1.596
0.000509


SAR(x,y,z,f0)
SAR;Z-Axis Retraction:Value Along Z, X=0, Y=0
Markers
mW/g
m
0
1
2
3
4
5
6
7
8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

Date/Time: 7/19/2012 7:47:01 AM

Test Laboratory: Motorola Mobility - Jul-19-2012 1800 MHz Body

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 2D190; FCC ID: IHDT56NG9
Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 2D190; Input Power = 200 mW
Sim.Temp@meas = 19.6*C; Sim.Temp@SPC = 19.6*C; Room Temp @ SPC = 21.5*C
Communication System: _CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: Validation *BODY Tissue*
Medium parameters used: f = 1800 MHz; σ = 1.48 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3

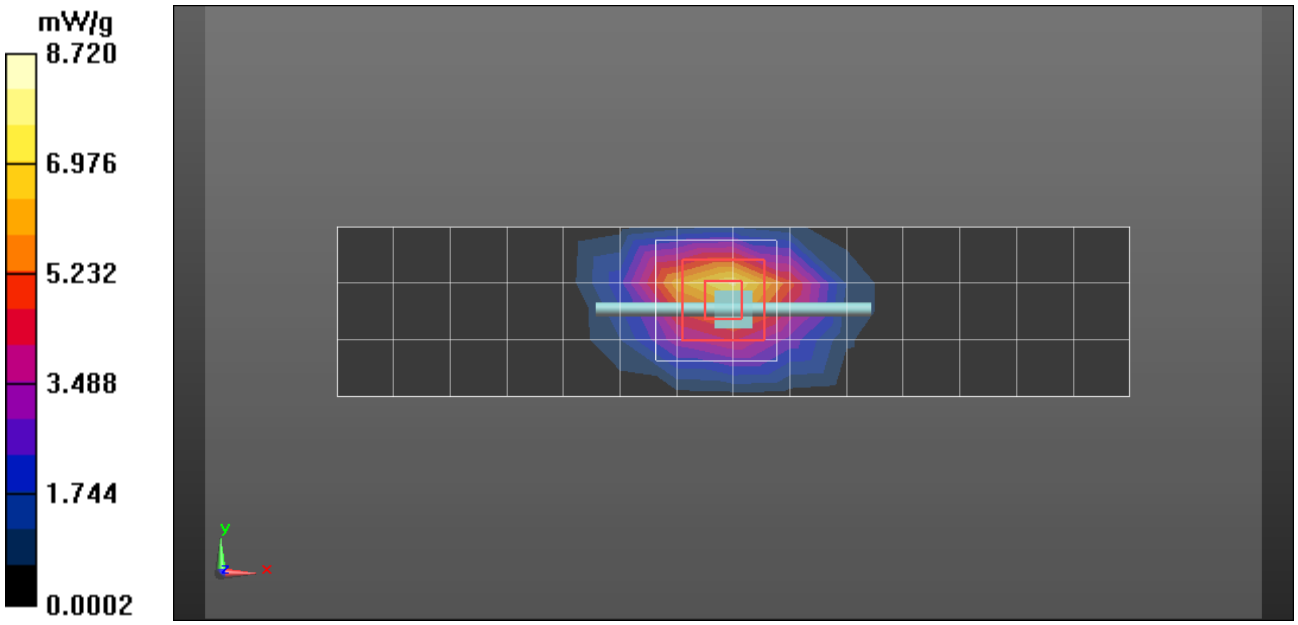
DASY4 Configuration:

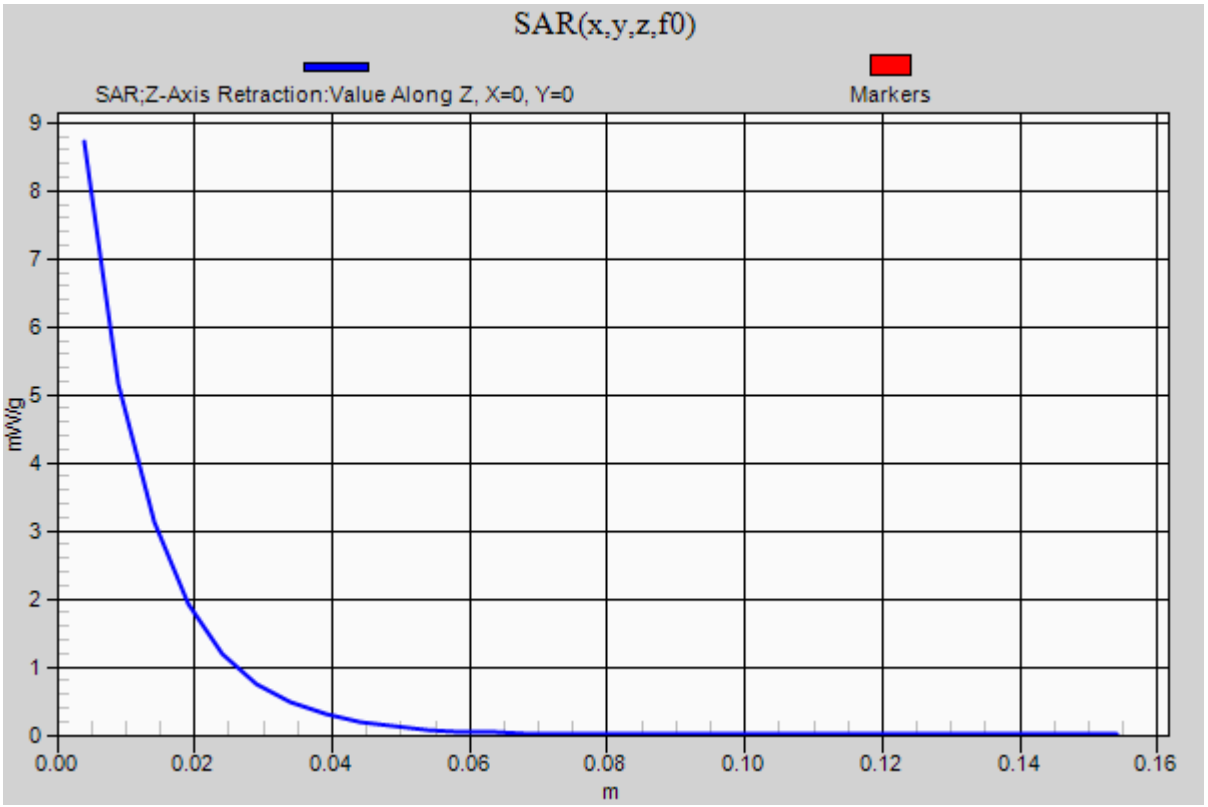
- Probe: ES3DV3 - SN3115; ConvF(4.72, 4.72, 4.72); Calibrated: 1/11/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn699; Calibrated: 9/22/2011
- Phantom: R#2 Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a; Phantom section: Right Section
- SEMCAD X Version 14.6.5 (6469)

DASY5, Triple Flat System Performance Check Template - Dipole Area Scan (4x15x1):
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 7.73 mW/g

DASY5, Triple Flat System Performance Check Template - 0-Degree 5x5x7 Cube (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 75.934 V/m; Power Drift = -0.01 dB; Peak SAR (extrapolated) = 13.506 mW/g
SAR(1 g) = 7.76 mW/g; SAR(10 g) = 4.17 mW/g; Maximum value of SAR (measured) = 8.69 mW/g

DASY5, Triple Flat System Performance Check Template - Z-Axis Retraction (1x1x31):
Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 8.72 mW/g


mW/g
8.720
6.976
5.232
3.488
1.744
0.0002


SAR(x,y,z,f0)
SAR;Z-Axis Retraction:Value Along Z, X=0, Y=0
Markers
mW/g
m
0
1
2
3
4
5
6
7
8
9
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16

Appendix 2

SAR distribution plots

Test Laboratory: Motorola Mobility LTE Band 4 Mobile HotSpot w/full power

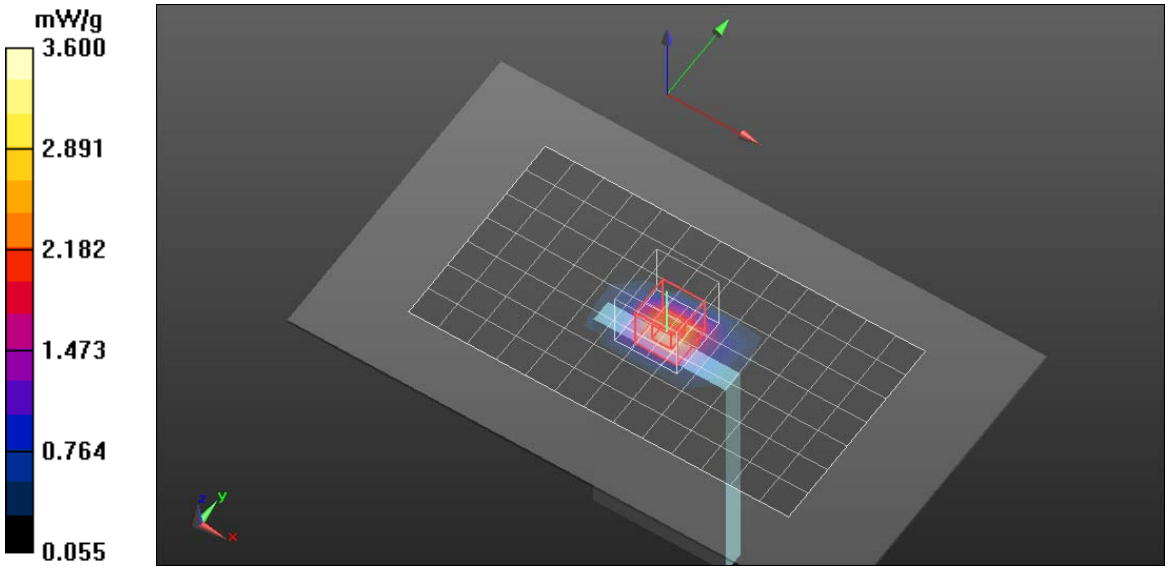
DUT: Type: Phone; Serial: LVUEB20013, FCC ID: IHDT56NG9
Procedure Notes: Mode: QPSK, 1 RB High; Battery Model #: INTERNAL
Test Config: Bottom Edge of Phone 10mm Separation,
Communication System: _LTE Band 04; Frequency: 1731.8 MHz;Duty Cycle: 1:1
Medium: 1730 Glycol Body; Medium parameters used: f = 1731.8 MHz; σ = 1.51 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3

DASY4 Configuration:

- Probe: ES3DV3 - SN3115; ConvF(4.72, 4.72, 4.72); Calibrated: 1/11/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn699; Calibrated: 9/22/2011
- Phantom: R#2 Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a;
- SEMCAD X Version 14.6.4 (4989)

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/Area Scan - Normal Body (15mm) (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.255 mW/g

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 39.733 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 5.5330
SAR(1 g) = 3.16 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 3.600 mW/g



Test Laboratory: Motorola Mobility LTE Band 4 Mobile Hotspot w/ Power Reduction

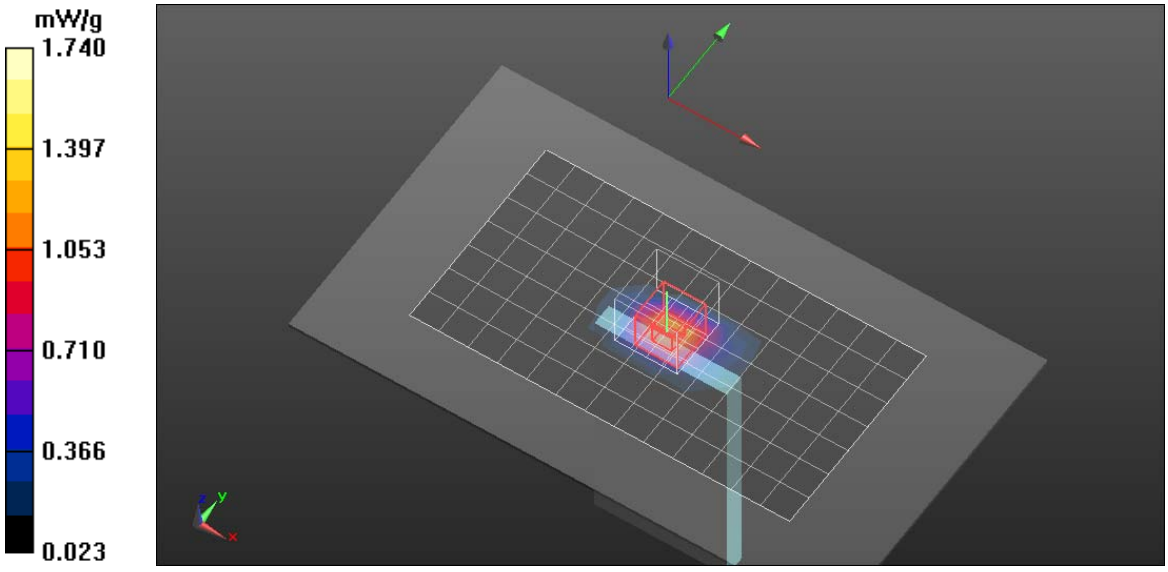
DUT: Type: Phone; Serial: LVUEB20013, FCC ID: IHDT56NG9
Procedure Notes: Mode: QPSK, 50% RB; Battery Model #: Internal
Test Config: Bottom Edge of Phone 10mm separation
Communication System: _LTE Band 04; Frequency: 1731.8 MHz;Duty Cycle: 1:1
Medium: 1730 Glycol Body; Medium parameters used: f = 1731.8 MHz; σ = 1.52 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3

DASY4 Configuration:

- Probe: ES3DV3 - SN3284; ConvF(5.28, 5.28, 5.28); Calibrated: 1/10/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1310; Calibrated: 1/11/2012
- Phantom: R#4, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a;
- SEMCAD X Version 14.6.4 (4989)

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/Area Scan - Normal Body (15mm) (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.128 mW/g

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.947 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 2.7420
SAR(1 g) = 1.51 mW/g; SAR(10 g) = 0.756 mW/g
Maximum value of SAR (measured) = 1.740 mW/g



Test Laboratory: Motorola Mobility WCDMA 1900MHz Mobile Hotspot

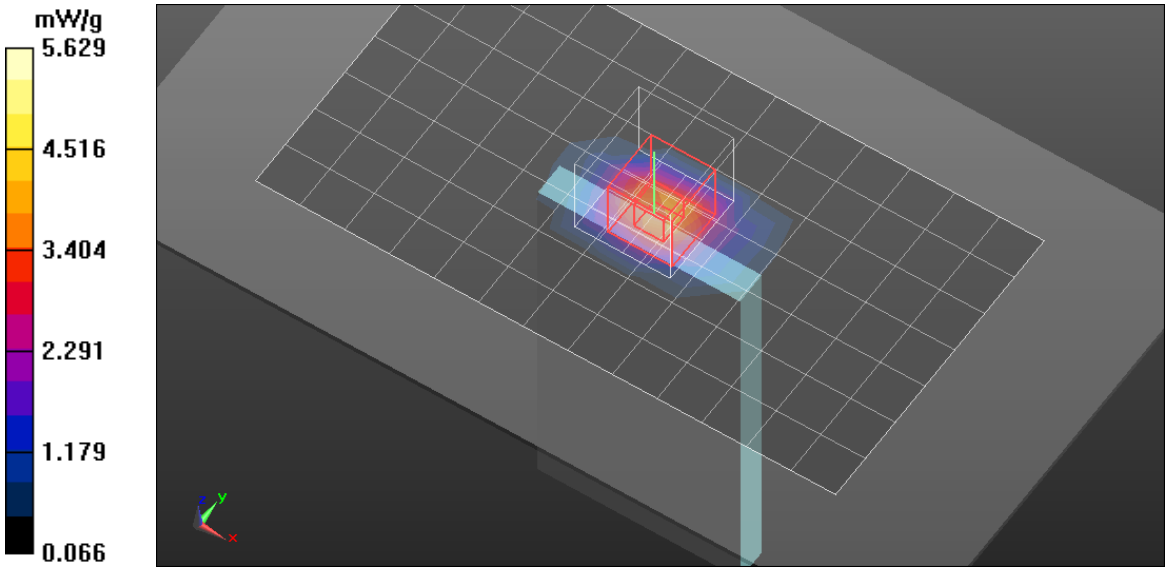
DUT: Type: PHONE; Serial: LVML2A0064, FCC ID: IHDT56NG9
Procedure Notes: Pwr Step: ALL BITS UP Battery Model #:INTERNAL Test Config: Bottom Edge OF Phone 10MM separation
Communication System: _WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Regular Glycol Body 1750/1880; Medium parameters used: f = 1880 MHz; σ = 1.56 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.69, 4.69, 4.69); Calibrated: 8/23/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn376; Calibrated: 8/31/2011
- Phantom: R#-1, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a;
- SEMCAD X Version 14.6.4 (4989)

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/Area Scan - Normal Body (15mm) (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.761 mW/g

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.594 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 9.0250
SAR(1 g) = 4.91 mW/g; SAR(10 g) = 2.43 mW/g
Maximum value of SAR (measured) = 5.629 mW/g



Test Laboratory: Motorola Mobility WCDMA 1900MHz Mobile Hotspot w/ Power Reduction

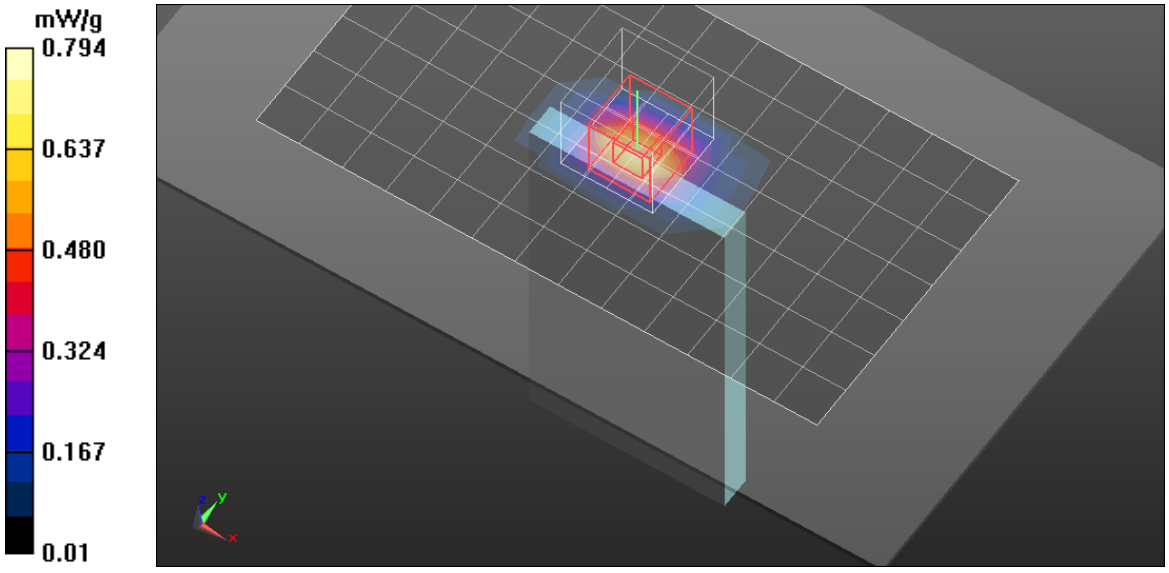
DUT: Type: Phone Serial: LVML2A0064, FCC ID: IHDT56NG9
Procedure Notes: Pwr Step: ALL UP BITS Battery Model #: INTERNAL Test Config = bottom of Phone 10mm separation
Communication System: _WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Regular Glycol Body 1750/1880; Medium parameters used: f = 1880 MHz; σ = 1.56 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3

DASY4 Configuration:

- Probe: ES3DV3 - SN3284; ConvF(5.28, 5.28, 5.28); Calibrated: 1/10/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1310; Calibrated: 1/11/2012
- Phantom: R#4, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a;
- SEMCAD X Version 14.6.4 (4989)

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/Area Scan - Normal Body (15mm) (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.490 mW/g

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.409 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.2440
SAR(1 g) = 0.696 mW/g; SAR(10 g) = 0.350 mW/g
Maximum value of SAR (measured) = 0.794 mW/g



Test Laboratory: Motorola Mobility GSM 1900 Mobile Hotspot w/o Power Reduction

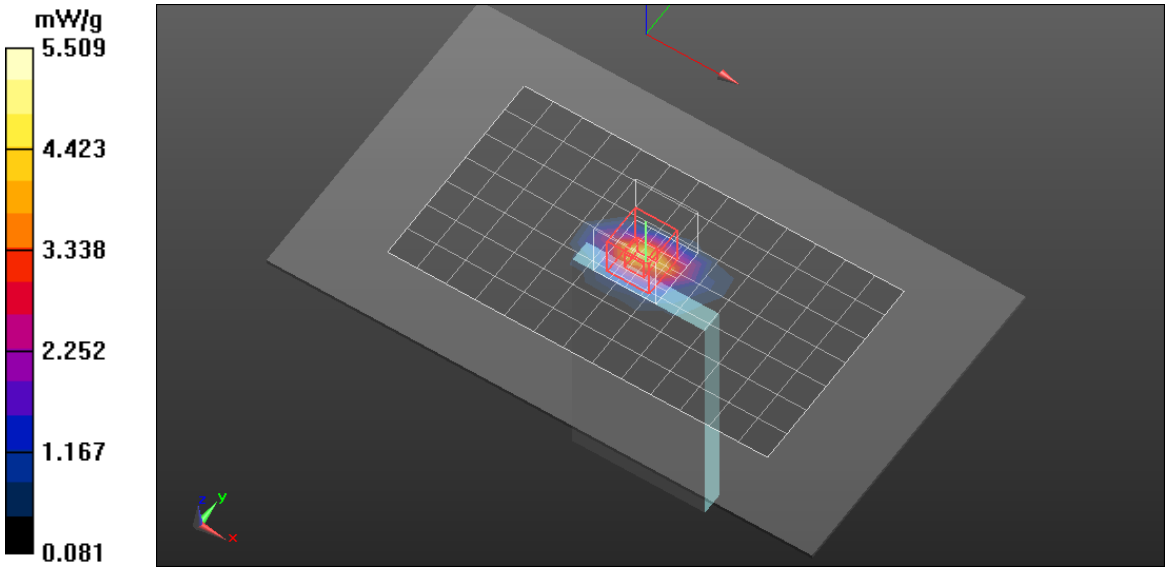
DUT: Type: PHONE; Serial: LVML2A0064, FCC ID: IHDT56NG9
Procedure Notes: Pwr Step: 00 Battery Model #:INTERNAL Test configuration: BOTTOM EDGE OF PHONE 10MM separation
Communication System: _GPRS Class 11; Frequency: 1850.2 MHz;Duty Cycle: 1:2.75994
Medium: Regular Glycol Body 1750/1880; Medium parameters used: f = 1850.2 MHz; σ = 1.55 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.69, 4.69, 4.69); Calibrated: 8/23/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn376; Calibrated: 8/31/2011
- Phantom: R#-1, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a;
- SEMCAD X Version 14.6.4 (4989)

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/Area Scan - Normal Body (15mm) (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.058 mW/g

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.829 V/m; Power Drift = 0.0026 dB
Peak SAR (extrapolated) = 9.1670
SAR(1 g) = 4.87 mW/g; SAR(10 g) = 2.39 mW/g
Maximum value of SAR (measured) = 5.509 mW/g



Test Laboratory: Motorola Mobility GSM 1900 Mobile Hotspot w Power Reduction

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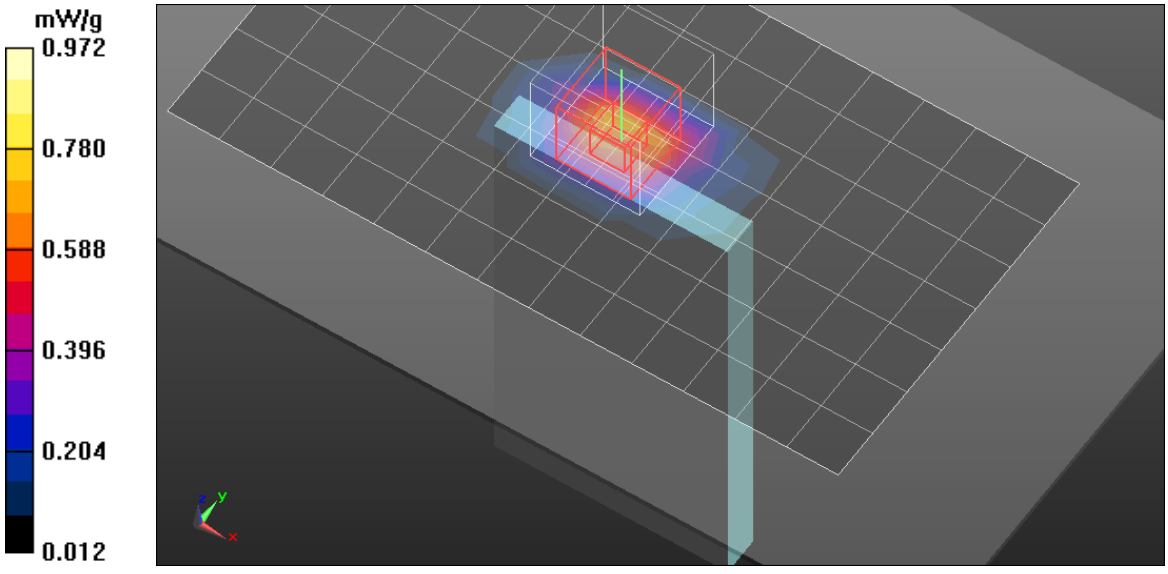
DUT: Type: Tablet; Serial: LVML2A0064, FCC ID: IHDT56NG9
Procedure Notes: Pwr Step: 0,0,0 Battery Model #: INTERNAL Test Config: bottom edge 10mm separation
Communication System: _GPRS Class 11; Frequency: 1909.8 MHz;Duty Cycle: 1:2.75994
Medium: Regular Glycol Body 1750/1880; Medium parameters used: f = 1908.9 MHz; σ = 1.59 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3

DASY4 Configuration:

- Probe: ES3DV3 - SN3284; ConvF(5.28, 5.28, 5.28); Calibrated: 1/10/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1310; Calibrated: 1/11/2012
- Phantom: R#4, Triple Flat Phantom 5.1C (Rev.4); Type: QD 000 P51 CA; Serial: n/a;
- SEMCAD X Version 14.6.4 (4989)

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/Area Scan - Normal Body (15mm) (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.726 mW/g

DASY5, Triple Flat Phone Template - Rev.5 (6-April-12)/Triple Flat Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.094 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.5400
SAR(1 g) = 0.855 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.972 mW/g



Appendix 3

Measurement Uncertainty Budget

Uncertainty Budget for Device Under Test, for 735 MHz to 2 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	Description IEEE1528(2003) / IEC62209-1(2005)	**Tol. (± %)**	**Prob Dist**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	v_i
Measurement System									
Probe Calibration [ES3DV3]	E.2.1 / 7.2.1	5.5	N	1.00	1	1	5.5	5.5	∞
Axial Isotropy	E.2.2 / 7.2.1.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2 / 7.2.1.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3 / 7.2.1.5	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4 / 7.2.1.3	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5 / 7.2.1.4	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6 / 7.2.1.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7 / 7.2.1.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8 / 7.2.1.8	1.1	R	1.73	1	1	0.6	0.6	∞
RF Ambient Conditions - Noise	E.6.1 / 7.2.3.6	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1 / 7.2.3.6	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mech. Tolerance	E.6.2 / 7.2.2.1	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t Phantom	E.6.3 / 7.2.2.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5 / 7.2.4	3.4	R	1.73	1	1	2.0	2.0	∞
Test sample Related									
Test Sample Positioning	E.4.2 / 7.2.2.4	3.4	N	1.00	1	1	3.4	3.4	79
Device Holder Uncertainty	E.4.1 / 7.2.2.4.2	4.5	N	1.00	1	1	4.5	4.5	11
SAR drift	6.6.2 / 7.2.3.5	0.0	R	1.73	1	1	0.0	0.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1 / 7.2.2.2	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2 / 7.2.3.3	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3 / 7.2.3.3	2.5	N	1.00	0.64	0.43	1.6	1.1	6
Liquid Permittivity (target)	E.3.2 / 7.2.3.4	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.2 / 7.2.3.4	2.3	N	1.00	0.6	0.49	1.4	1.1	6
Combined Standard Uncertainty			RSS				11	11	338
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				22	21	

Uncertainty Budget for Device Under Test for 3 to 6 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	Description IEC62209-2(2010)	**Tol. (± %)**	**Prob Dist**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration [EX3DV4]	7.2.2.1	6.6	N	1.00	1	1	6.6	6.6	∞
Axial Isotropy	7.2.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	7.2.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	7.2.2.6	2.0	R	1.73	1	1	1.2	1.2	∞
Linearity	7.2.2.5	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	7.2.2	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	7.2.2.7	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	7.2.2.8	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	7.2.2.9	1.1	R	1.73	1	1	0.6	0.6	∞
RF Ambient Conditions - Noise	7.2.4.5	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	7.2.4.5	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mech. Tolerance	7.2.3.1	1.0	R	1.73	1	1	0.6	0.6	∞
Probe Positioning w.r.t Phantom	7.2.3.3	4.0	R	1.73	1	1	2.3	2.3	∞
Max. SAR Evaluation (ext., int., avg.)	7.2.5.3	4.0	R	1.73	1	1	2.3	2.3	∞
Test sample Related									
Test Sample Positioning	7.2.3.4	3.4	N	1.00	1	1	3.4	3.4	79
Device Holder Uncertainty	7.2.3.4	4.5	N	1.00	1	1	4.5	4.5	11
SAR drift	7.2.2.10	0.0	R	1.73	1	1	0.0	0.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	7.2.3.2	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)		5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	7.2.4.3	3.4	N	1.00	0.64	0.43	2.2	1.5	6
Liquid Permittivity (target)		10.0	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity (measurement)	7.2.4.3	2.6	N	1.00	0.6	0.49	1.6	1.3	6
Combined Standard Uncertainty			RSS				12	12	508
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				24	24	