SAR TEST REPORT (FCC/IC)

RF EXPOSURE EVALUATION | SPECIFIC ABSORPTION RATE

APPLICANT	DIGITAL ALLY, INC.	
DEVICE UNDER TEST (DUT)	BODY-WORN WIRELESS MICROPHONE TRANSMITTER	
DEVICE FREQUENCY RANGE	903 - 927 MHz	
DEVICE MODEL(S)	DWM1000RMT	
DEVICE IDENTIFIER(S)	FCC ID:	WPZ-DWMRMT1
	IC:	7945A-DWMRMT1
APPLICATION TYPE	Certification	
STANDARD(S) APPLIED	FCC 47 CFR §2.1093	
	Health Canada Safety Code 6	
PROCEDURE(S) APPLIED	FCC OET Bulletin 65, Supplement C (01-01)	
	Industry Canada RSS-102 Issue 2	
	IEEE 1528-2003	
	IEC 62209-1:2005	
RF EXPOSURE CATEGORY	General Population / Uncontrolled	
RF EXPOSURE EVALUATION(S)	Body-worn	
DATE(S) OF EVALUATION(S)	September 12 & 26, 2008	
TEST REPORT SERIAL NO.	091108WPZ-T934-S15S	
TEST REPORT REVISION NO.	Revision 1.0	Initial Release / October 10, 2008
TEST REPORT SIGNATORIES	Testing Performed By	Test Report Prepared By
	Sean Johnston Celltech Labs Inc.	Jonathan Hughes Celltech Labs Inc.
TEST LAB AND LOCATION	Celltech Compliance Testing and Engineering Lab	
	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada	
TEST LAB CONTACT INFO.	Tel.: 250-765-7650	Fax: 250-765-7645
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TEST LAB ACCREDITATION(S)	ilac-MRA ACCREDITED Test Lab Certificate No. 2470.01	

DECLARATION OF COMPLIANCE
SAR RF EXPOSURE EVALUATION

Test Lab Information	**Name**	**CELLTECH LABS INC.**
	Address	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada
Applicant Information	**Name**	**DIGITAL ALLY, INC.**
	Address	7311 West 130th Street, Suite 170, Overland Park, Kansas 66213 USA
Standard(s) Applied	**FCC**	47 CFR §2.1093
	IC	Health Canada Safety Code 6
Procedure(s) Applied	**FCC**	OET Bulletin 65, Supplement C (Edition 01-01)
	IC	RSS-102 Issue 2
	IEEE	1528-2003
	IEC	62209-1:2005
Device RF Exposure Category	**FCC/IC**	General Population / Uncontrolled
Device Identifier(s)	**FCC ID:**	WPZ-DWMRMT1
	IC	7945A-DWMRMT1

Device Description	Body-worn Wireless Microphone Transmitter							
Device Model(s)	DWM1000RMT							
Test Sample Serial No.	0489-0002 (Pre-production)							
Mode(s) of Operation	Frequency Hopping Spread Spectrum (FHSS)							
Transmit Frequency Range(s)	903 - 927 MHz (ISM Band)							
Reference RF Output Power	**Frequency**	**Channel**		**Conducted Power (Peak)**				
	MHz			**DAC Setting**	**dBm**	**SBTA**	**Watts**	**SBTA**
	902.999	Low	F0	644	30.0	24.77	1	0.3
	915.009	Middle	F1	647	30.0	24.77	1	0.3
	926.925	High	F2	617	30.0	24.77	1	0.3
Max. Duty Cycle Tested	30% (Source-Based Time-Averaged)							
Antenna Type(s) Tested	Internal							
Battery Type(s) Tested	Lithium-ion	3.7 V		1100 mAh		Part No.: 135-0036		
Body-worn Accessory Tested	Swivel Belt-Clip	Part No.: 004-0504		Contains metallic components				
Audio Accessory Tested	Lapel Microphone	Part No.: 004-0505						
Max. SAR Level(s) Measured	**Body-worn**	**0.249 W/kg**		**1g average**	Back of DUT with Swivel Belt-Clip 90° Position			
FCC/IC Spatial Peak SAR Limit	**Body**	**1.6 W/kg**		**1g average**	**General Population / Uncontrolled Exposure**			

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device was compliant with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6 for the General Population / Uncontrolled Exposure environment. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), Industry Canada RSS-102 Issue 2, IEEE 1528-2003 and IEC 62209-1:2005. All measurements were performed in accordance with the SAR system manufacturer recommendations.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

The results and statements contained in this report pertain only to the device(s) evaluated.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc.

Test Report Approved By		**Sean Johnston**	**Celltech Labs Inc.**

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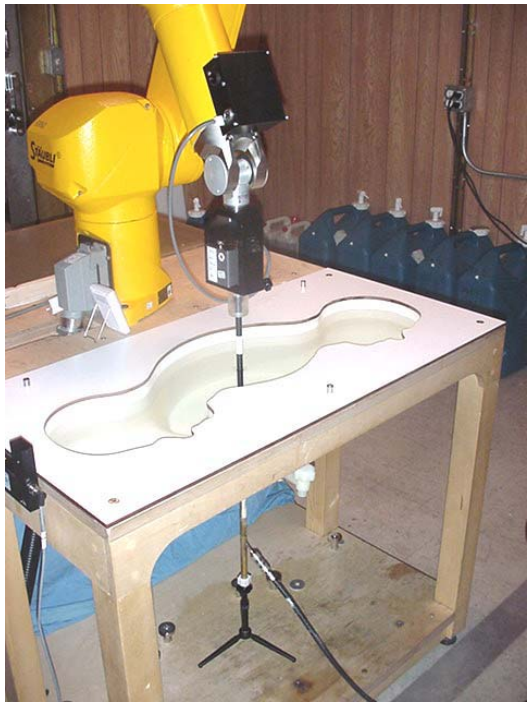
1.0 INTRODUCTION

This measurement report demonstrates that the Digital Ally, Inc. Model: DWM1000RMT Portable Body-worn Wireless Microphone Transmitter (FHSS) complies with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the General Population / Uncontrolled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]), IC RSS-102 Issue 2 (see reference [4]), IEEE 1528-2003 (see reference [5]) and IEC 62209-1:2005 (see reference [6]) were employed. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for brain and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The DAE4 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the DASY4 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.



DASY4 System with SAM Twin Phantom V4.0C

DASY4 Measurement Server

3.0 MEASUREMENT SUMMARY

BODY-WORN SAR EVALUATION RESULTS

Test Date	Freq.	Ch.	Test Mode	Duty Cycle	Crest Factor	Audio Accessory	Body-worn Accessory	DUT Spacing To Planar Phantom Section	DUT Position To Planar Phantom Section	Cond. Power Before Test	SAR Drift During Test	Measured SAR Level	
	MHz									dBm	dB	W/kg	
Sept 12	915.009	Mid (F1)	Modulated Fixed Freq.	30%	1:3.33	Lapel Microphone	Swivel Belt-Clip	11.76 mm	Back Side Belt-Clip 0°	30.0	0.012	0.150	1g
Sept 12	915.009	Mid (F1)	Modulated Fixed Freq.	30%	1:3.33	None (Internal Mic)	Swivel Belt-Clip	11.76 mm	Back Side Belt-Clip 0°	30.0	-0.122	0.220	1g
Sept 12	902.999	Low (F0)	Modulated Fixed Freq.	30%	1:3.33	None (Internal Mic)	Swivel Belt-Clip	11.76 mm	Back Side Belt-Clip 0°	30.0	-0.165	0.170	1g
Sept 12	926.925	High (F2)	Modulated Fixed Freq.	30%	1:3.33	None (Internal Mic)	Swivel Belt-Clip	11.76 mm	Back Side Belt-Clip 0°	30.0	-0.186	0.143	1g
Sept 26	915.009	Mid (F1)	Modulated Fixed Freq.	30%	1:3.33	None (Internal Mic)	Swivel Belt-Clip	12.00 mm	Back Side Belt-Clip 90°	30.0	-0.124	**0.249**	**1g**
Sept 26	915.009	Mid (F1)	Modulated Fixed Freq.	30%	1:3.33	None (Internal Mic)	Swivel Belt-Clip	23.00 mm	Back Side Belt-Clip 180°	30.0	-0.140	0.097	1g
Sept 26	915.009	Mid (F1)	Modulated Fixed Freq.	30%	1:3.33	None (Internal Mic)	Swivel Belt-Clip	12.00 mm	Back Side Belt-Clip 270°	30.0	0.058	0.244	1g

SAR LIMIT(S)		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	1.6 W/kg	averaged over 1 gram	General Population / Uncontrolled

Test Date(s)	September 12 & 26, 2008					Test Date	Sept. 12	Sept. 26	Unit
Measured Fluid	900 MHz Body					Relative Humidity	35	32	%
	IEEE Target		Date	Measured	Deviation	Atmospheric Pressure	101.0	101.2	kPa
Dielectric Constant ε	55.0	±5%	Sept. 12	55.2	+0.4%	Ambient Temperature	23.1	23.4	°C
			Sept. 26	55.1	+0.2%	Fluid Temperature	22.5	22.8	°C
Conductivity σ (mho/m)	1.05	±5%	Sept. 12	1.03	-1.9%	Fluid Depth	≥ 15	≥ 15	cm
			Sept. 26	1.02	-2.9%	ρ (Kg/m^3)	1000		

Notes

1. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A. The SAR test setup photographs are shown in Appendix D.
2. The SAR evaluations were firstly performed at the mid channel of the frequency band with the swivel belt-clip in the 0-degree position and the DUT with and without the external lapel microphone audio accessory connected. The maximum SAR level configuration was then evaluated at the low and high channels of the frequency band. The maximum SAR level configuration and channel were then evaluated with the swivel belt-clip in the 90-degree, 180-degree and 270-degree positions. Please refer to Appendix A - SAR Test Setup & DUT Photographs for photographs of the belt-clip swivel positions.
3. The power drift of the DUT during the SAR evaluations was measured by the DASY4 system.
4. The DUT battery (Lithium-ion) was fully charged prior to each SAR evaluation.
5. The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements.
6. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).

4.0 DETAILS OF SAR EVALUATION

The Digital Ally, Inc. Model: DWM1000RMT Portable Body-worn Wireless Microphone Transmitter (FHSS) was compliant for localized Specific Absorption Rate (Uncontrolled Exposure) based on the test provisions and conditions described below. The SAR test setup photographs are shown in Appendix D.

Test Configuration(s)

1. The DUT was evaluated for body-worn SAR with the back side placed parallel to (belt-clip touch) the outer surface of the SAM phantom (planar section). The attached swivel belt-clip accessory was positioned at 0° and provided a spacing of 11.76 mm from the back of the DUT (antenna end) to the outer surface of the SAM phantom (planar section). The DUT was evaluated consecutively with and without the external lapel microphone audio accessory connected.
2. The DUT was evaluated for body-worn SAR with the back side placed parallel to (belt-clip touch) the outer surface of the SAM phantom (planar section). The attached swivel belt-clip accessory was positioned at 90° and provided a spacing of 12.00 mm from the back of the DUT to the outer surface of the SAM phantom (planar section).
3. The DUT was evaluated for body-worn SAR with the back side placed parallel to (belt-clip touch) the outer surface of the SAM phantom (planar section). The attached swivel belt-clip accessory was positioned at 180° and provided a spacing of 23.00 mm from the back of the DUT (LED end) to the outer surface of the SAM phantom (planar section).
4. The DUT was evaluated for body-worn SAR with the back side placed parallel to (belt-clip touch) the outer surface of the SAM phantom (planar section). The attached swivel belt-clip accessory was positioned at 270° and provided a spacing of 12.00 mm from the back of the DUT to the outer surface of the SAM phantom (planar section).
5. The SAR evaluations for #2-4 above were performed without the external microphone audio accessory connected (internal microphone audio configuration) based on the maximum SAR level configuration evaluated for #1 above.

Test Mode & Output Power

6. The DUT was placed into test mode using HyperTerminal test software provided by the customer and controlled via RS-232 interface box connected to a PC with programming cable connected to the DUT. Using the HyperTerminal test program the DUT was placed in test mode at maximum RF output power (DAC setting) prescribed by the customer with a modulated signal on a fixed frequency (frequency hopping disabled) at 30% source-based time-averaged duty cycle (duty cycle verified at Celltech Labs Inc. prior to SAR evaluations using a spectrum analyzer). The programming cable and RS-232 interface box were disconnected from the DUT prior to each SAR evaluation.
7. The conducted output power levels of the DUT could not be measured by Celltech Labs Inc. due to internal antenna type. The peak conducted output power levels of the test sample referenced in this report were measured by Digital Ally, Inc.

5.0 EVALUATION PROCEDURES

a. (i) The evaluation was performed in the applicable area of the phantom depending on the type of device being tested. For devices held to the ear during normal operation, both the left and right ear positions were evaluated using the SAM phantom.
(ii) For body-worn and face-held devices a planar phantom was used.

b. The SAR was determined by a pre-defined procedure within the DASY4 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 15mm x 15mm.
An area scan was determined as follows:

c. Based on the defined area scan grid, a more detailed grid is created to increase the points by a factor of 10. The interpolation function then evaluates all field values between corresponding measurement points.

d. A linear search is applied to find all the candidate maxima. Subsequently, all maxima are removed that are >2 dB from the global maximum. The remaining maxima are then used to position the cube scans.
A 1g and 10g spatial peak SAR was determined as follows:

e. Extrapolation is used to find the points between the dipole center of the probe and the surface of the phantom. This data cannot be measured, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.4 mm (see probe calibration document in Appendix F). The extrapolation was based on trivariate quadratics computed from the previously calculated 3D interpolated points nearest the phantom surface.

f. Interpolated data is used to calculate the average SAR over 1g and 10g cubes by spatially discretizing the entire measured cube. The volume used to determine the averaged SAR is a 1mm grid (42875 interpolated points).

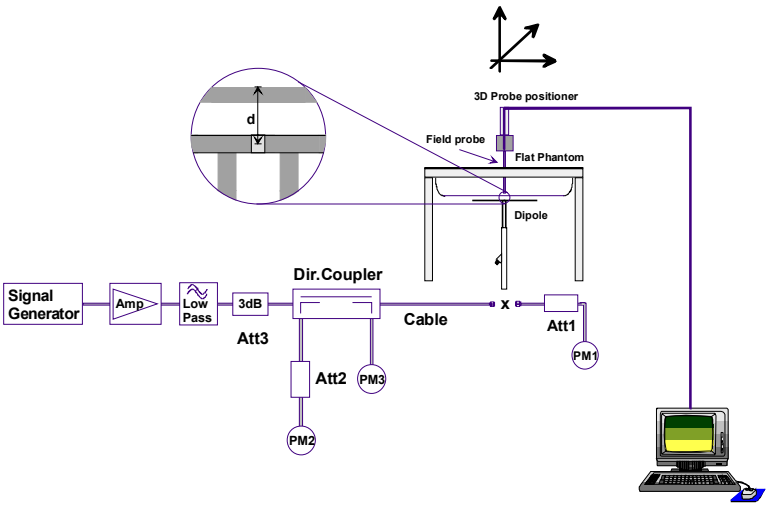
g. A zoom scan volume of 32 mm x 32 mm x 30 mm (5 x 5 x 7 points) centered at the peak SAR location determined from the area scan is used for all zoom scans for devices with a transmit frequency < 800 MHz. Zoom scans for frequencies ≥ 800 MHz are determined with a scan volume of 30 mm x 30 mm x 30 mm (7 x 7 x 7) to ensure complete capture of the peak spatial-average SAR.

6.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, daily system checks were performed at the planar section of the SAM phantom using a 900 MHz validation dipole (see Appendix B for system performance check test plots). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C). A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±10% from the system validation target SAR value (see Appendix E for system validation procedures).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Equiv. Tissue	SAR 1g (W/kg)			Dielectric Constant ε_r			Conductivity σ (mho/m)			ρ (Kg/m^3)	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
	Freq. (MHz)	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.						
Sept 12	Body 900	2.57 (±10%)	2.55	-0.8%	53.5 (±5%)	55.2	+3.2%	1.02 (±5%)	1.03	+1.0%	1000	23.1	22.5	≥ 15	35	101.0
Sept 26	Body 900	2.57 (±10%)	2.55	-0.8%	53.5 (±5%)	55.1	+3.0%	1.02 (±5%)	1.02	0.0%	1000	23.4	22.8	≥ 15	32	101.2
Note(s)	1. The target SAR values are referenced from the System Validation procedures performed by Celltech Labs Inc. (see Appendix E).															
	2. The target dielectric parameters are referenced from the System Validation procedures performed by Celltech Labs Inc. (see Appendix E).															
	3. The fluid temperature was measured prior to and after the system performance check. The fluid temperature remained within +/-2°C of the fluid temperature from the dielectric parameter measurements.															



System Performance Check Measurement Setup Diagram

900 MHz Validation Dipole Setup

7.0 SIMULATED EQUIVALENT TISSUES

The 900MHz simulated equivalent tissue mixture consisted of a viscous gel using saline solution. Preservation with a bactericide was added and visual inspection was made to ensure air bubbles were not trapped during the mixing process. The fluids were prepared according to standardized procedures and measured for dielectric parameters (permittivity and conductivity).

SIMULATED TISSUE MIXTURE		
INGREDIENT	900 MHz Body	900 MHz Body
	System Performance Check	DUT Evaluation
Water	53.79 %	53.79 %
Sugar	45.13 %	45.13 %
Salt	0.98 %	0.98 %
Bactericide	0.10 %	0.10 %

8.0 SAR LIMITS

SAR RF EXPOSURE LIMITS			
FCC 47 CFR 2.1093	Health Canada Safety Code 6	(General Population / Uncontrolled Exposure)	(Occupational / Controlled Exposure)
Spatial Average (averaged over the whole body)		0.08 W/kg	0.4 W/kg
Spatial Peak (averaged over any 1 g of tissue)		**1.6 W/kg**	8.0 W/kg
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)		4.0 W/kg	20.0 W/kg
The Spatial Average value of the SAR averaged over the whole body.			
The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.			
Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.			

9.0 ROBOT SYSTEM SPECIFICATIONS

Specifications	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
Data Acquisition Electronic (DAE) System	
Cell Controller	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
Data Converter	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 44
	Postprocessing Software: SEMCAD, V1.8 Build 171
Connecting Lines	Optical downlink for data and status info.; Optical uplink for commands and clock
DASY4 Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	ET3DV6
Serial No.	1590
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom(s)	
Type	SAM V4.0C
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 25 liters

10.0 PROBE SPECIFICATION (ET3DV6)

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, glycol)
Calibration:	In air from 10 MHz to 2.5 GHz In brain simulating tissue at frequencies of 900 MHz and 1.8 GHz (accuracy ± 8%)
Frequency:	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity:	± 0.2 dB in brain tissue (rotation around probe axis) ± 0.4 dB in brain tissue (rotation normal to probe axis)
Dynamic Range:	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Surface Detect:	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions:	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application:	General dosimetry up to 3 GHz Compliance tests of mobile phone

ET3DV6 E-Field Probe

11.0 SAM PHANTOM V4.0C

The SAM phantom V4.0C is a fiberglass shell phantom with a 2.0 mm (+/-0.2 mm) shell thickness for left and right head and flat planar area integrated in a wooden table. The shape of the fiberglass shell corresponds to the phantom defined by SCC34-SC2. The device holder positions are adjusted to the standard measurement positions in the three sections (see Appendix G for specifications of the SAM phantom V4.0C).

SAM Twin Phantom V4.0C

12.0 DEVICE HOLDER

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.

Device Holder

13.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED	CALIBRATION DUE DATE
USED	DESCRIPTION				
x	Schmid & Partner DASY4 System	-	-	-	-
x	-DASY4 Measurement Server	00158	1078	CNR	CNR
x	-Robot	00046	599396-01	CNR	CNR
x	-DAE4	00019	353	22Apr08	22Apr09
x	-ET3DV6 E-Field Probe	00017	1590	21Jul08	21Jul09
x	-900 MHz Validation Dipole	00020	054	11Aug08	11Aug09
x	-SAM Phantom V4.0C	00154	1033	CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	US39240170	CNR	CNR
x	Gigatronics 8652A Power Meter	00007	1835272	23Apr08	23Apr09
x	Gigatronics 80701A Power Sensor	00014	1833699	23Apr08	23Apr09
x	HP 8753ET Network Analyzer	00134	US39170292	28Apr08	28Apr09
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	23Apr08	23Apr09
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required				

14.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION						
Error Description	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**Uncertainty Value ±% (1g)**	**V_i or V_{eff}**
Measurement System						
Probe calibration	5.5	Normal	1	1	5.5	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	0.7	1.9	∞
Spherical isotropy of the probe	9.6	Rectangular	1.732050808	0.7	3.9	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	0.8	Rectangular	1.732050808	1	0.5	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0.8	Rectangular	1.732050808	1	0.5	∞
Integration time	2.6	Rectangular	1.732050808	1	1.5	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
Test Sample Related						
Device positioning	2.9	Normal	1	1	2.9	12
Device holder uncertainty	3.6	Normal	1	1	3.6	8
Power drift	5	Rectangular	1.732050808	1	2.9	∞
Phantom and Setup						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	2.9	Normal	1	0.64	1.9	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	0.4	Normal	1	0.6	0.2	∞
Combined Standard Uncertainty					**10.51**	
Expanded Uncertainty (k=2)					**21.03**	
Measurement Uncertainty Table in accordance with IEEE 1528-2003 and IEC 62209-1:2005						

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR SYSTEM VALIDATION

Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	Uncertainty Value ±% (1g)	V_i or V_{eff}
Measurement System						
Probe calibration	5.5	Normal	1	1	5.5	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	0	Rectangular	1.732050808	1	0.0	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	0.8	Rectangular	1.732050808	1	0.5	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0	Rectangular	1.732050808	1	0.0	∞
Integration time	0	Rectangular	1.732050808	1	0.0	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
Dipole						
Dipole Positioning	2	Normal	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Normal	1.732050808	1	2.7	∞
Phantom and Setup						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	1	Normal	1	0.64	0.6	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	3.2	Normal	1	0.6	1.9	∞
Combined Standard Uncertainty					**8.74**	
Expanded Uncertainty (k=2)					**17.47**	

Measurement Uncertainty Table in accordance with IEEE 1528-2003 and IEC 62209-1:2005

15.0 REFERENCES

[1] Federal Communications Commission - “Radiofrequency radiation exposure evaluation: portable devices”, Rule Part 47 CFR §2.1093.

[2] Health Canada - “Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz”, Safety Code 6: 1999.

[3] Federal Communications Commission - “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.

[4] Industry Canada - “Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)”, Radio Standards Specification RSS-102 Issue 2: November 2005.

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

[6] IEC International Standard 62209-1:2005 - “Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)”.

APPENDIX A - SAR MEASUREMENT DATA

Date Tested: 09/12/2008

Body-worn SAR - Swivel Belt-Clip 0° Position - With External Mic - 915.009 MHz - Mid Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

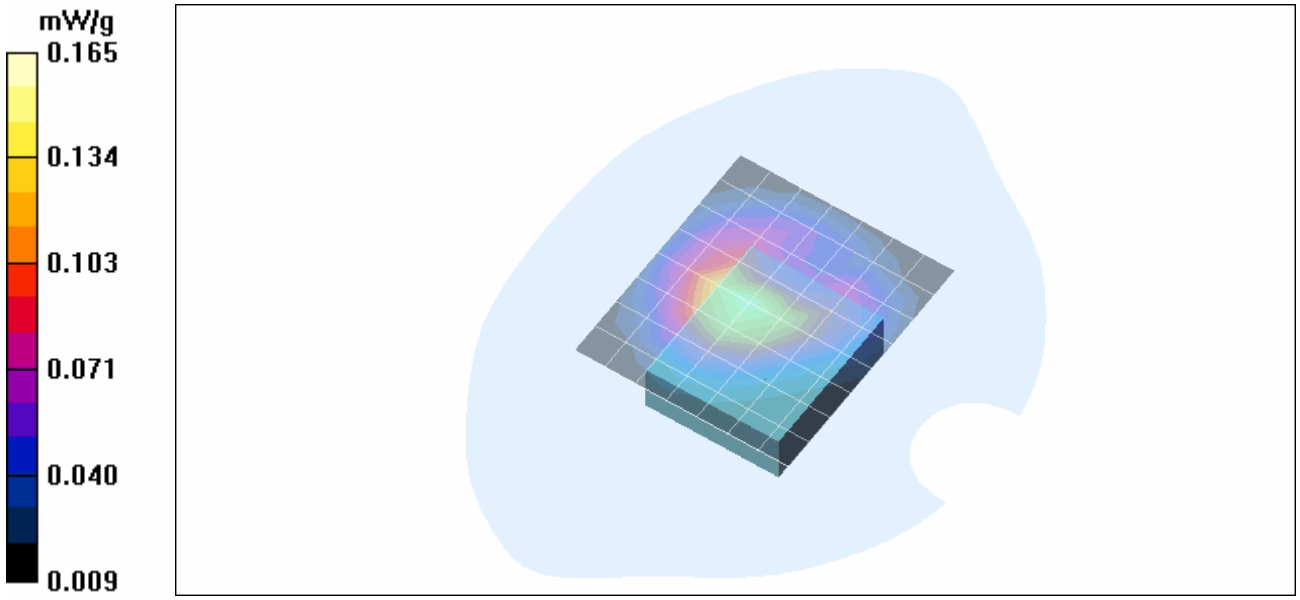
Ambient Temp: 23.1ºC; Fluid Temp: 22.5ºC; Barometric Pressure: 101.0 kPa; Humidity: 35%

Communication System: FHSS - 900
Frequency: 915.009 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.03 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Area Scan (8x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.154 mW/g

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.165 mW/g



Date Tested: 09/12/2008

Body-worn SAR - Swivel Belt-Clip 0° Position - w/out External Mic - 915.009 MHz - Mid Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

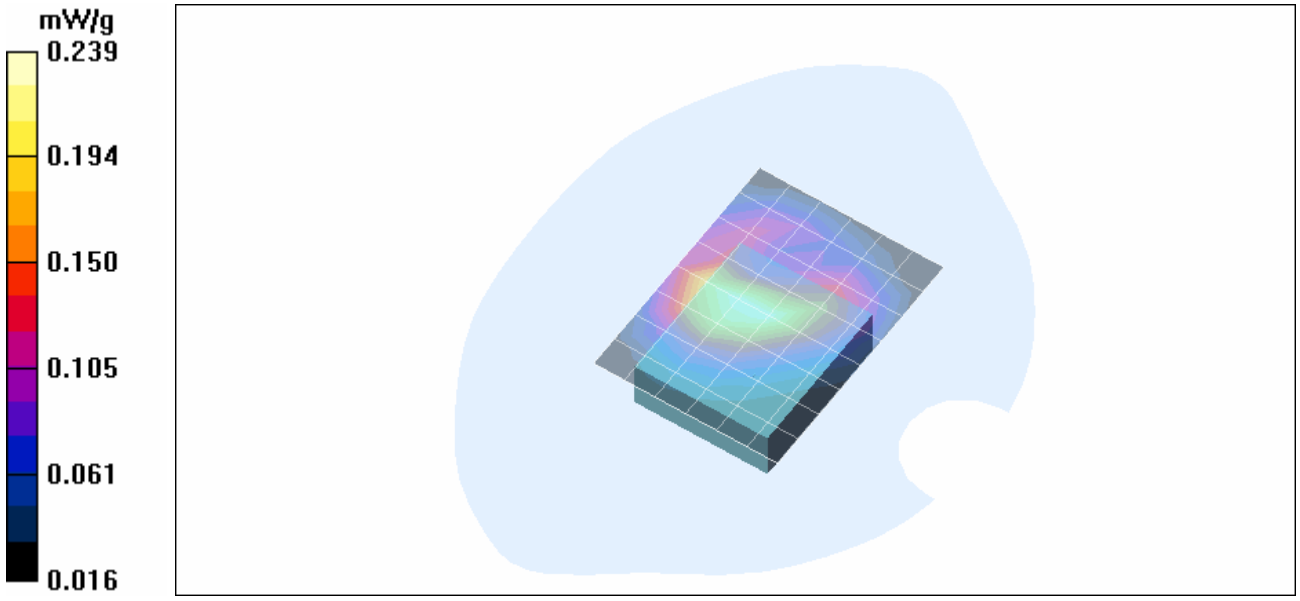
Ambient Temp: 23.1ºC; Fluid Temp: 22.5ºC; Barometric Pressure: 101.0 kPa; Humidity: 35%

Communication System: Modulated
Frequency: 915.009 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.03 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3

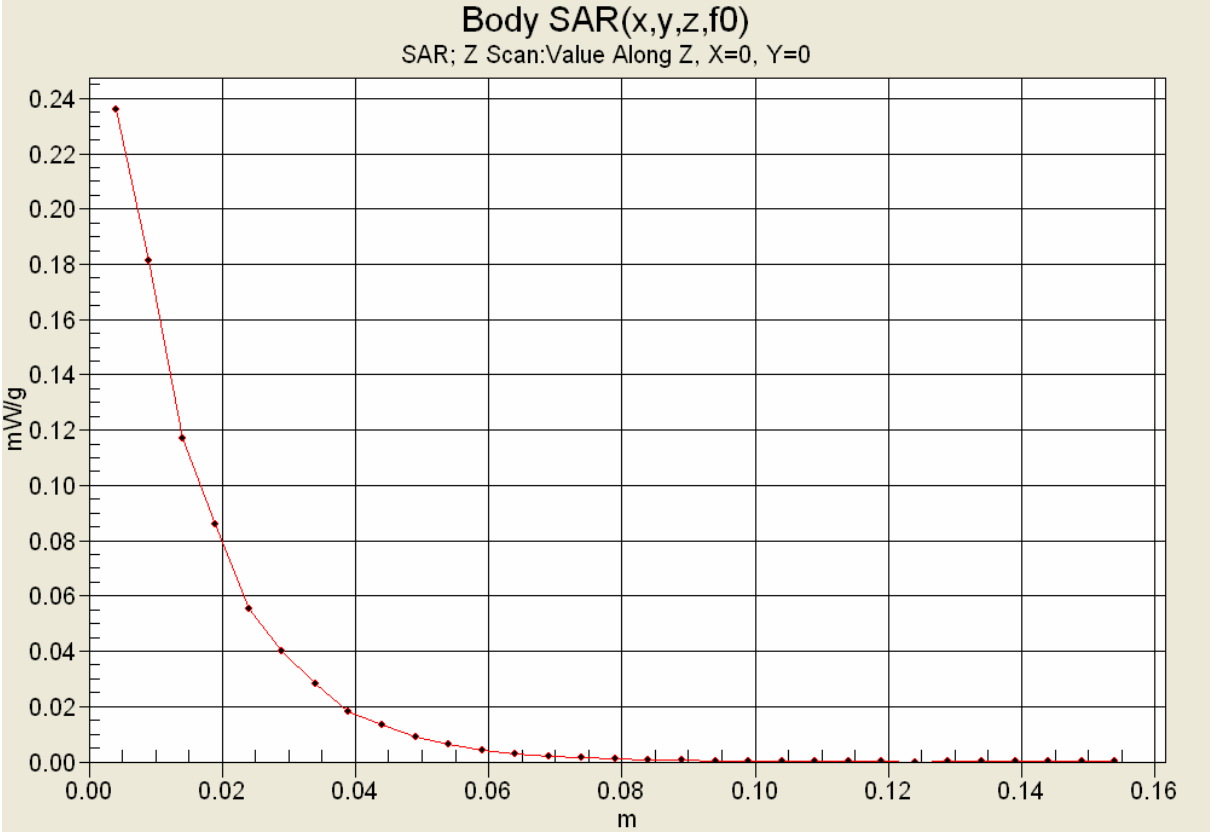
- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.237 mW/g

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = -0.122 dB
Peak SAR (extrapolated) = 0.283 W/kg
SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.154 mW/g
Maximum value of SAR (measured) = 0.239 mW/g



Z-Axis Scan



Date Tested: 09/12/2008

Body-worn SAR - Swivel Belt-Clip 0° Position - w/out External Mic - 902.999 MHz - Low Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

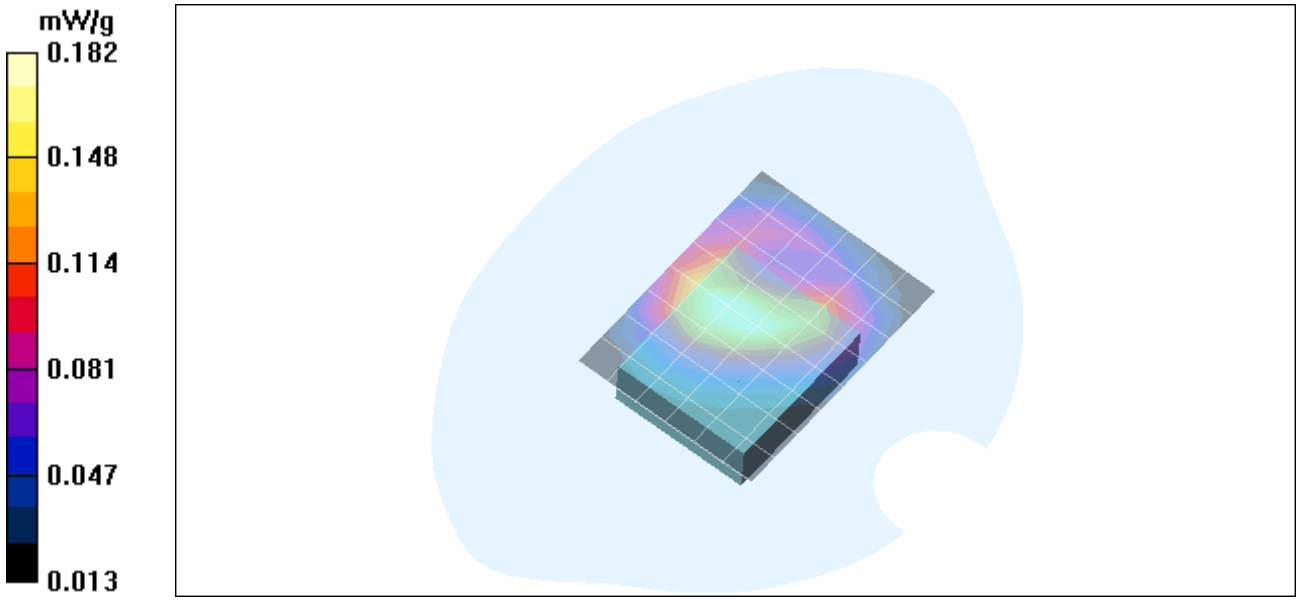
Ambient Temp: 23.1ºC; Fluid Temp: 22.5ºC; Barometric Pressure: 101.0 kPa; Humidity: 35%

Communication System: Modulated
Frequency: 902.999 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.03 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.195 mW/g

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.165 dB
Peak SAR (extrapolated) = 0.212 W/kg
SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.182 mW/g



Date Tested: 09/12/2008

Body-worn SAR - Swivel Belt-Clip 0° Position - w/out External Mic - 926.925 MHz - High Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

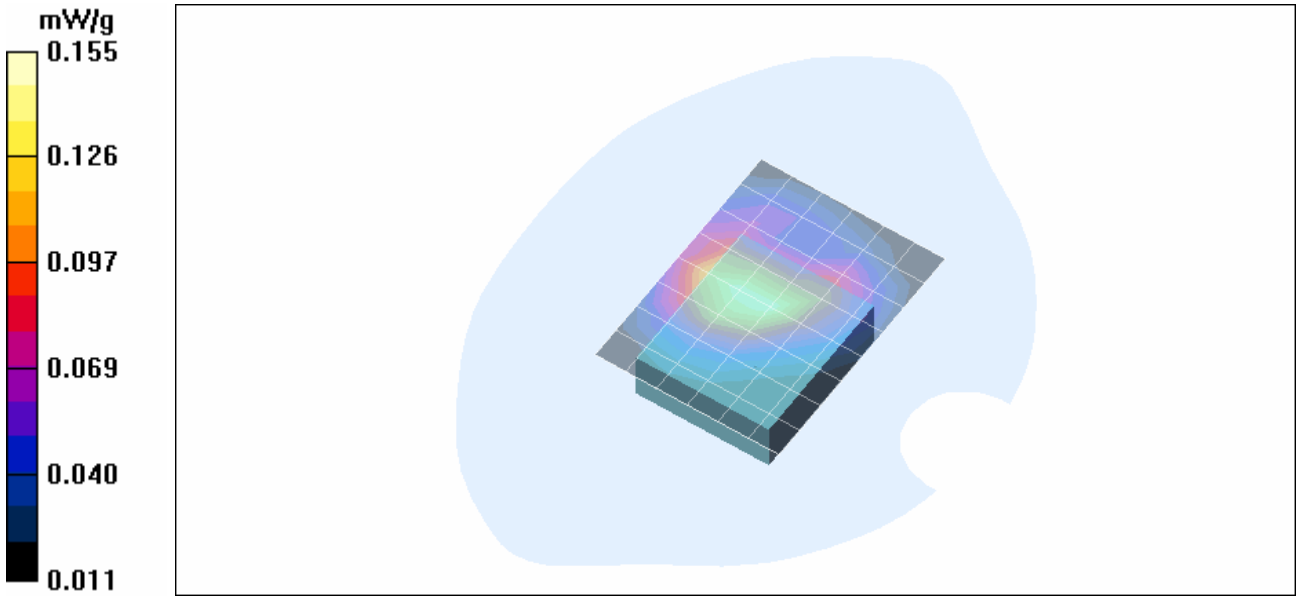
Ambient Temp: 23.1ºC; Fluid Temp: 22.5ºC; Barometric Pressure: 101.0 kPa; Humidity: 35%

Communication System: Modulated
Frequency: 926.925 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.03 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.146 mW/g

Body-worn SAR - 11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = -0.186 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.098 mW/g
Maximum value of SAR (measured) = 0.155 mW/g



Date Tested: 09/26/2008

Body-worn SAR - Swivel Belt-Clip 90° Position - w/out External Mic - 915.009 MHz - Mid Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

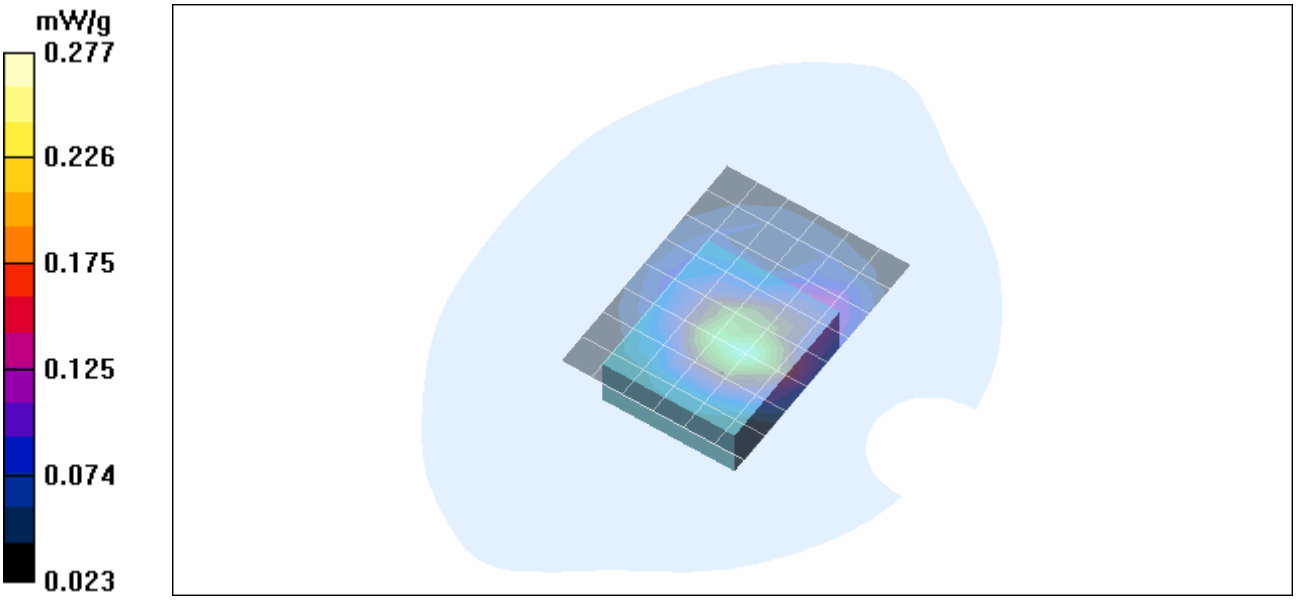
Ambient Temp: 23.4ºC; Fluid Temp: 22.8ºC; Barometric Pressure: 101.2 kPa; Humidity: 32%

Communication System: Modulated
Frequency: 915.009 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3

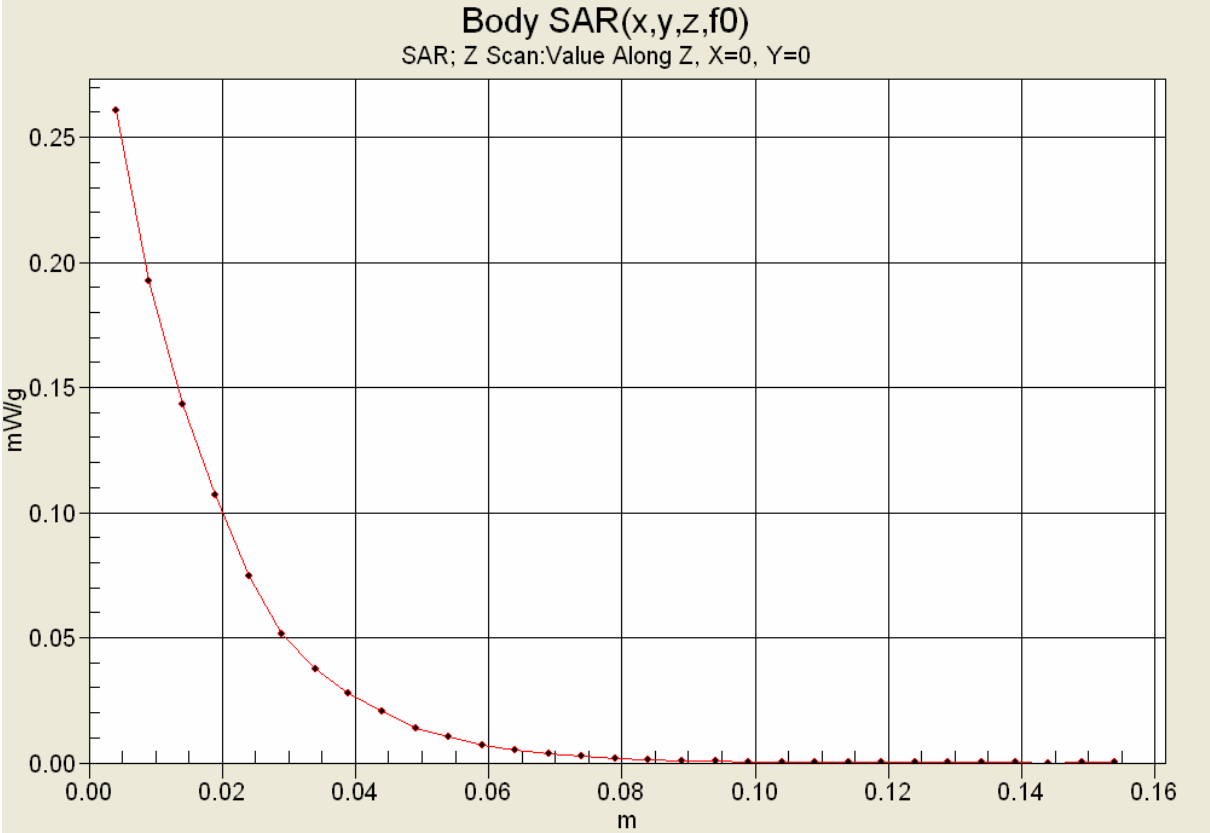
- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 12.00 mm Belt-Clip Spacing from Back Side of DUT to SAM Phantom (planar section)
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.281 mW/g

Body-worn SAR - 12.00 mm Belt-Clip Spacing from Back Side of DUT to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.1 V/m; Power Drift = -0.124 dB
Peak SAR (extrapolated) = 0.335 W/kg
SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.173 mW/g
Maximum value of SAR (measured) = 0.277 mW/g



Z-Scan Axis



Date Tested: 09/26/2008

Body-worn SAR - Swivel Belt-Clip 180° Position - w/out External Mic - 915.009 MHz - Mid Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

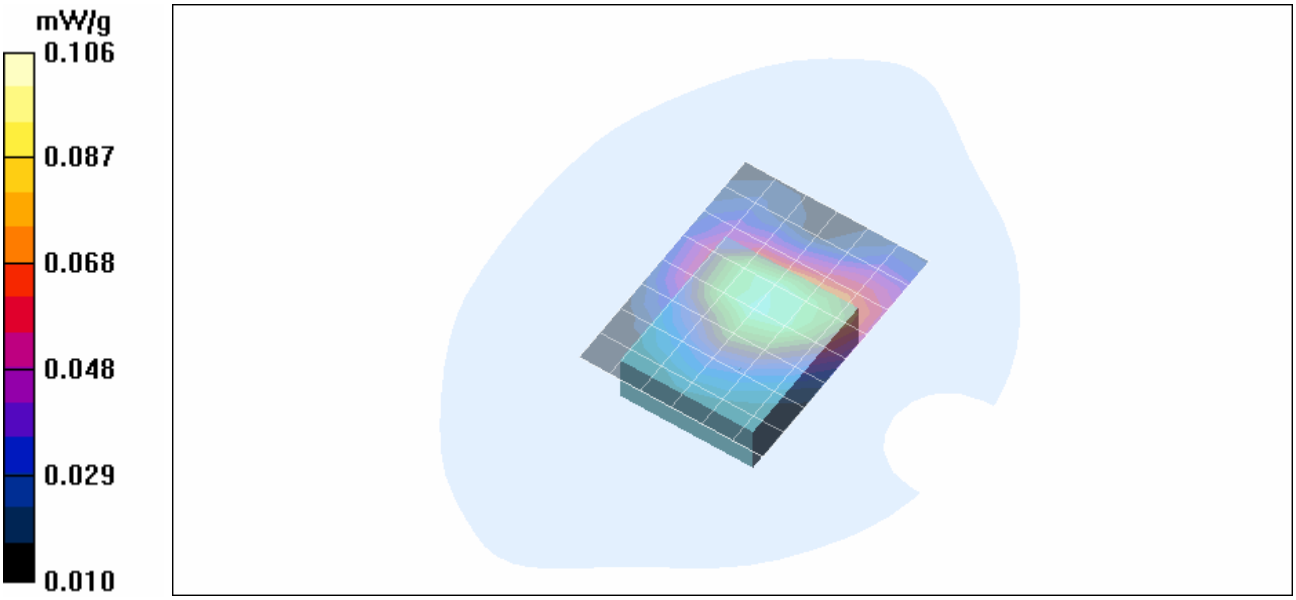
Ambient Temp: 23.4ºC; Fluid Temp: 22.8ºC; Barometric Pressure: 101.2 kPa; Humidity: 32%

Communication System: Modulated
Frequency: 915.009 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 23.00 mm Belt-Clip Spacing from Back Side of DUT (LED end) to SAM Phantom (planar section)
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.103 mW/g

Body-worn SAR - 23.00 mm Belt-Clip Spacing from Back Side of DUT (LED end) to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.58 V/m; Power Drift = -0.140 dB
Peak SAR (extrapolated) = 0.124 W/kg
SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.106 mW/g



Date Tested: 09/26/2008

Body-worn SAR - Swivel Belt-Clip 270° Position - w/out External Mic - 915.009 MHz - Mid Channel

DUT: Digital Ally, Inc.; Model: DWM1000RMT; Type: Body-worn Wireless Microphone Transmitter; Serial: 0489-0002

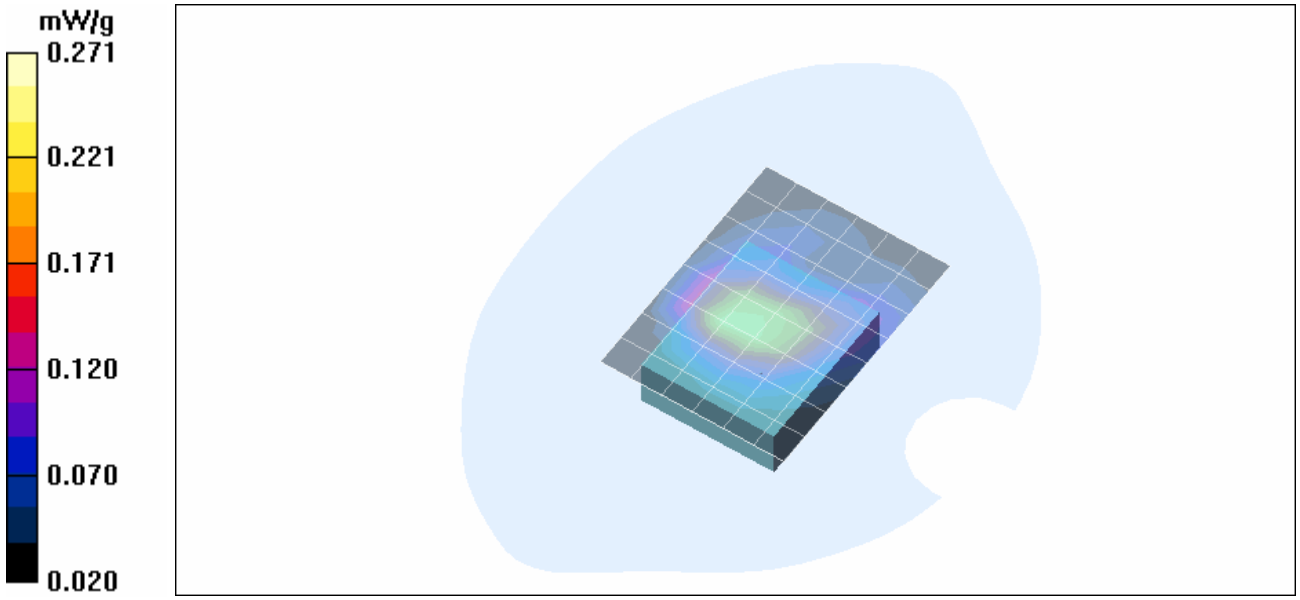
Ambient Temp: 23.4ºC; Fluid Temp: 22.8ºC; Barometric Pressure: 101.2 kPa; Humidity: 32%

Communication System: Modulated
Frequency: 915.009 MHz; Duty Cycle: 1:3.33
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body-worn SAR - 12.00 mm Belt-Clip Spacing from Back Side of DUT to SAM Phantom (planar section)
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.236 mW/g

Body-worn SAR - 12.00 mm Belt-Clip Spacing from Back Side of DUT to SAM Phantom (planar section)
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.320 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.167 mW/g
Maximum value of SAR (measured) = 0.271 mW/g



APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

Date Tested: 09/12/2008

System Performance Check - 900 MHz Dipole - MSL

DUT: Dipole 900 MHz; Asset: 00020; Serial: 054; Validation: 08/11/2008

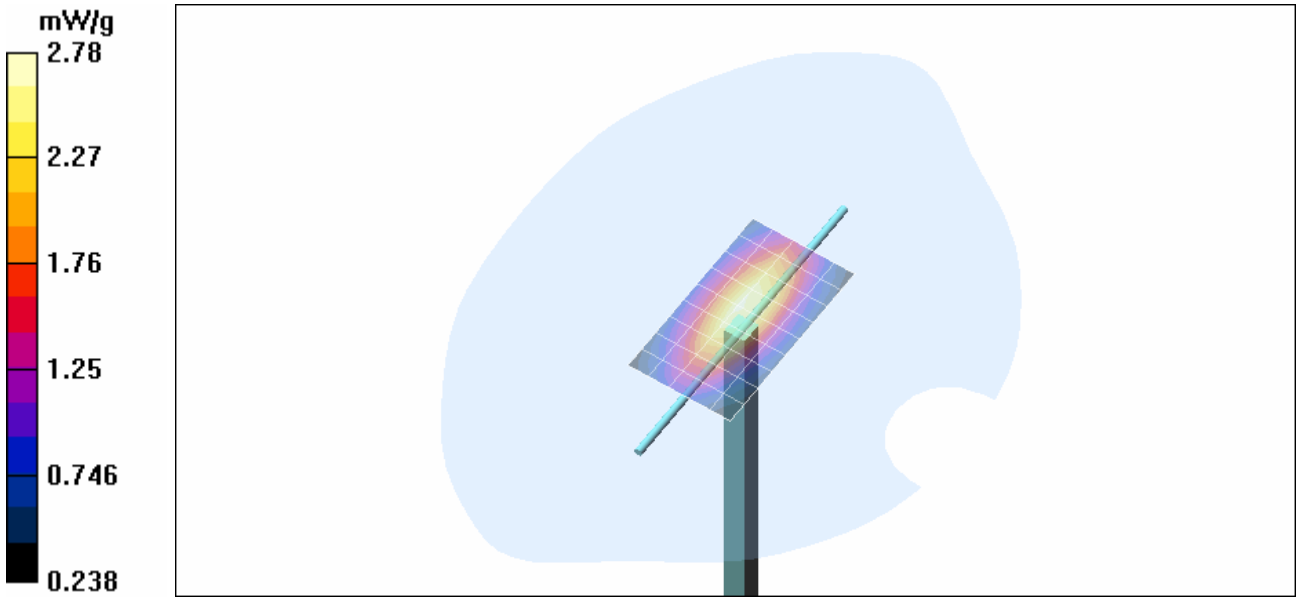
Ambient Temp: 23.1ºC; Fluid Temp: 22.5ºC; Barometric Pressure: 101.0 kPa; Humidity: 35%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 900 MHz; Duty Cycle: 1:1
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.03 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3

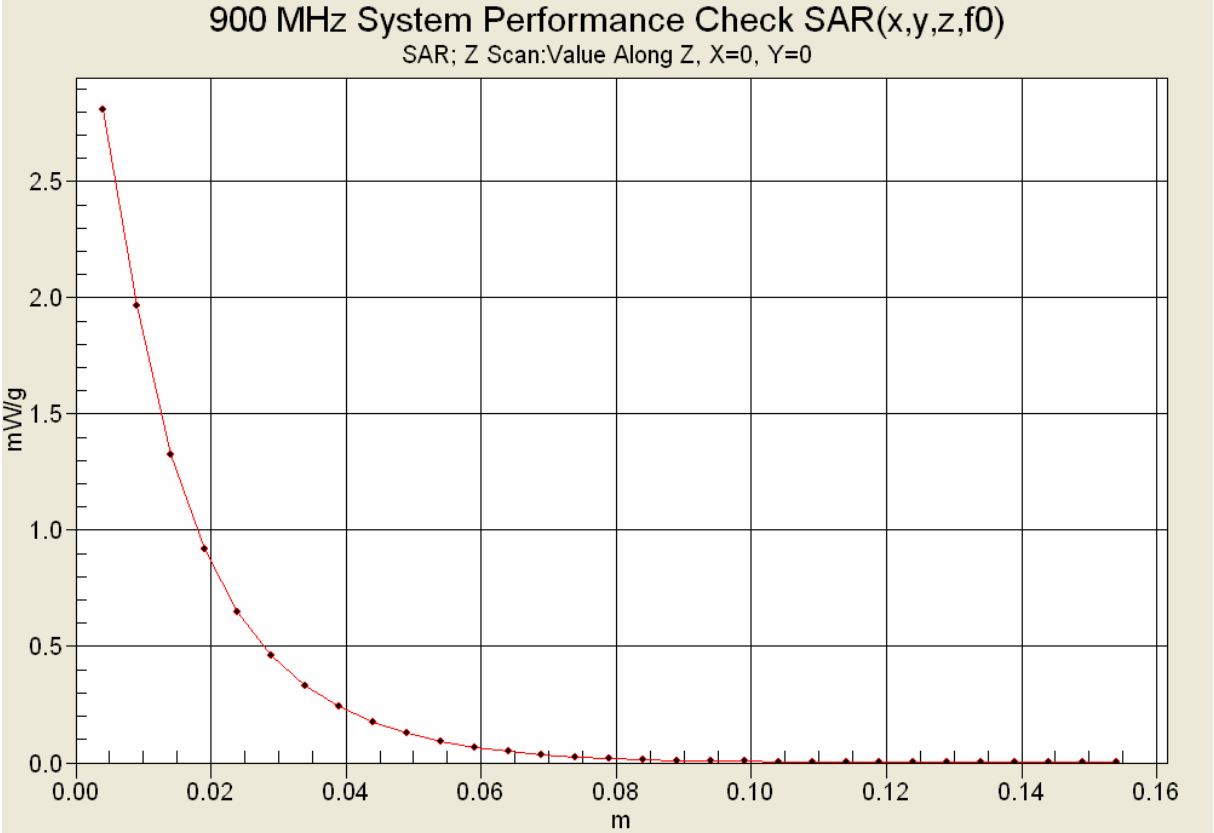
- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

System Performance Check - 900 MHz Dipole
Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.68 mW/g

System Performance Check - 900 MHz Dipole
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.0 V/m; Power Drift = 0.145 dB
Peak SAR (extrapolated) = 3.48 W/kg
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.67 mW/g
Maximum value of SAR (measured) = 2.78 mW/g



Z-Axis Scan



Date Tested: 09/26/2008

System Performance Check - 900 MHz Dipole - MSL

DUT: Dipole 900 MHz; Asset: 00020; Serial: 054; Validation: 08/11/2008

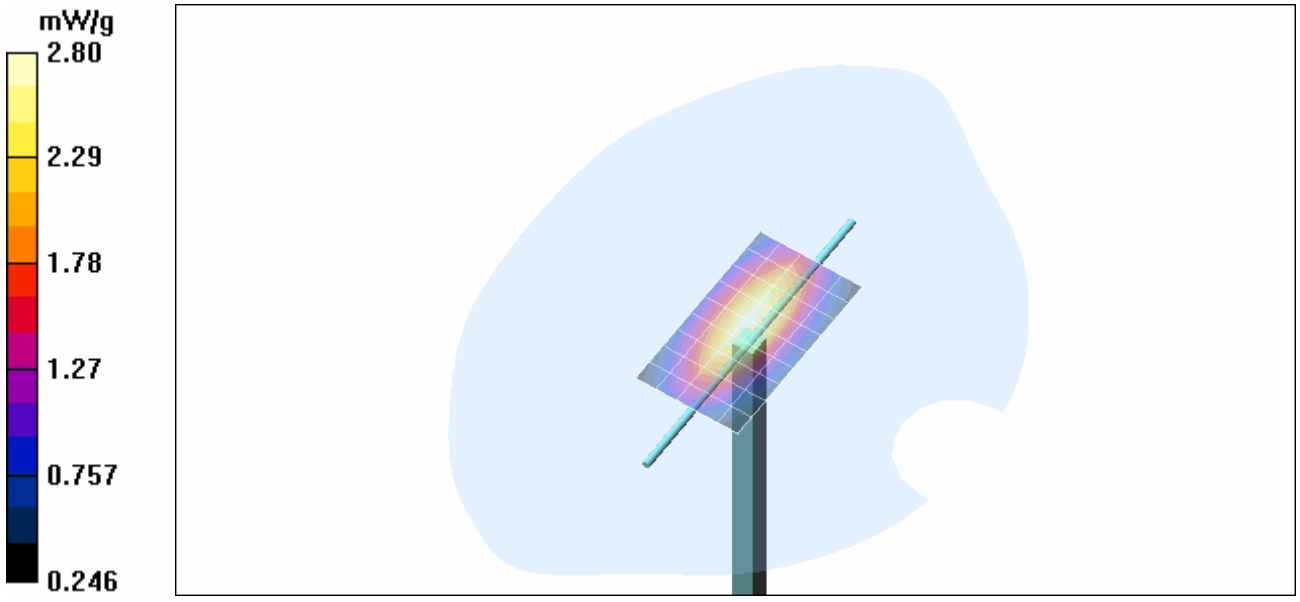
Ambient Temp: 23.4ºC; Fluid Temp: 22.8ºC; Barometric Pressure: 101.2 kPa; Humidity: 32%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 900 MHz; Duty Cycle: 1:1
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3

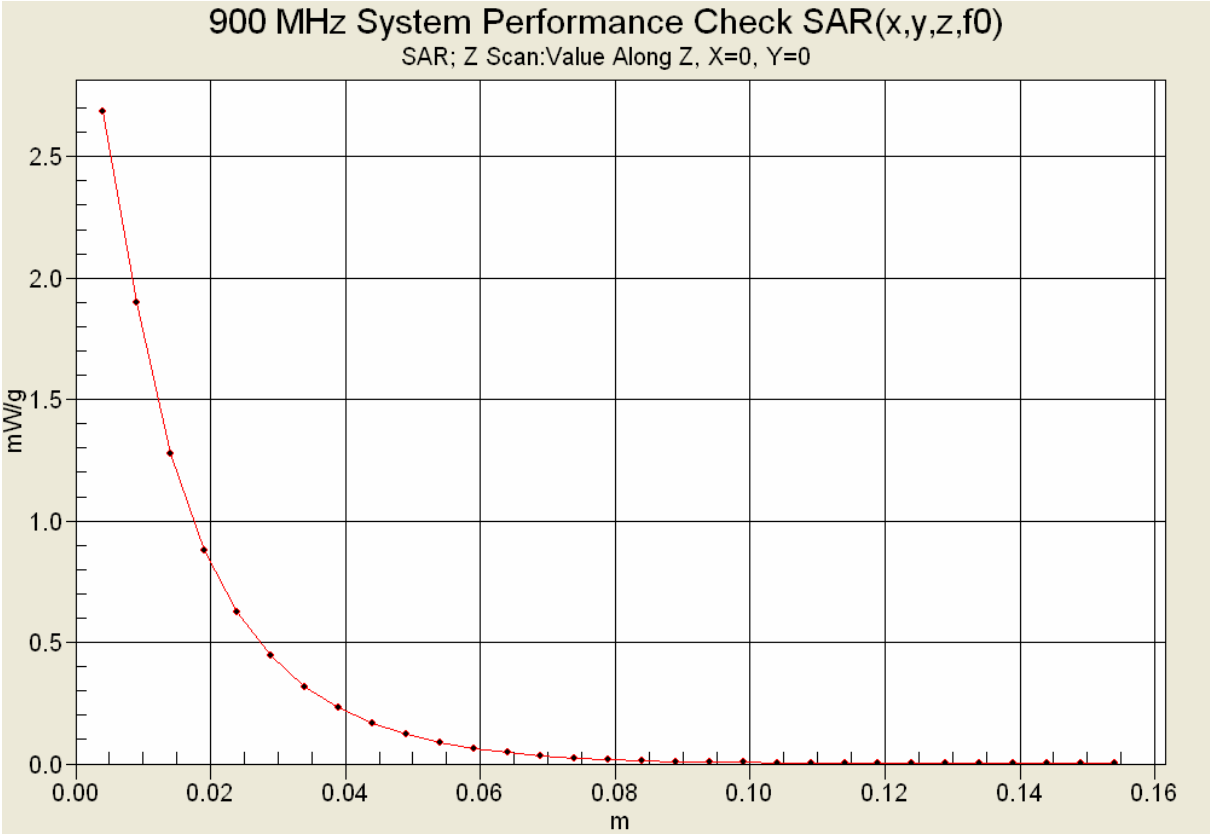
- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

System Performance Check - 900 MHz Dipole
Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.79 mW/g

System Performance Check - 900 MHz Dipole
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.5 V/m; Power Drift = -0.161 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.66 mW/g
Maximum value of SAR (measured) = 2.80 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

900 MHz System Performance Check & DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
12/Sep/2008
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.8000	55.34	0.97	56.12	0.92
0.8100	55.30	0.97	55.66	0.93
0.8200	55.26	0.97	56.04	0.93
0.8300	55.22	0.97	55.62	0.95
0.8400	55.18	0.98	55.22	0.97
0.8500	55.15	0.99	55.59	0.98
0.8600	55.12	1.00	55.25	0.99
0.8700	55.09	1.01	55.15	1.00
0.8800	55.06	1.03	55.26	1.00
0.8900	55.03	1.04	55.27	1.02
0.9000	55.00	1.05	55.16	1.03
0.9100	55.00	1.06	55.08	1.03
0.9200	54.99	1.06	54.78	1.03
0.9300	54.97	1.07	54.89	1.05
0.9400	54.95	1.07	54.67	1.06
0.9500	54.93	1.08	54.80	1.08
0.9600	54.92	1.08	54.44	1.09
0.9700	54.90	1.08	54.57	1.09
0.9800	54.88	1.09	54.50	1.11
0.9900	54.86	1.09	54.35	1.12
1.0000	54.84	1.10	54.39	1.13

900 MHz System Performance Check & DUT Evaluation (Body)

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Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
26/Sep/2008
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

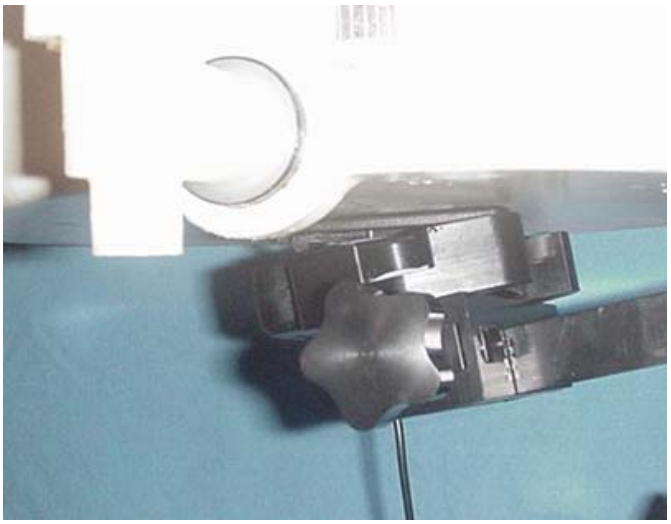
****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.8000	55.34	0.97	56.31	0.92
0.8100	55.30	0.97	55.59	0.94
0.8200	55.26	0.97	55.87	0.94
0.8300	55.22	0.97	55.62	0.94
0.8400	55.18	0.98	55.52	0.96
0.8500	55.15	0.99	55.58	0.97
0.8600	55.12	1.00	55.51	0.99
0.8700	55.09	1.01	55.39	0.99
0.8800	55.06	1.03	54.96	1.01
0.8900	55.03	1.04	55.18	1.02
0.9000	55.00	1.05	55.11	1.02
0.9100	55.00	1.06	55.04	1.03
0.9200	54.99	1.06	54.83	1.04
0.9300	54.97	1.07	54.82	1.05
0.9400	54.95	1.07	54.94	1.07
0.9500	54.93	1.08	54.65	1.07
0.9600	54.92	1.08	54.55	1.09
0.9700	54.90	1.08	54.71	1.10
0.9800	54.88	1.09	54.82	1.11
0.9900	54.86	1.09	54.30	1.12
1.0000	54.84	1.10	54.38	1.12

APPENDIX D - SAR TEST SETUP & DUT PHOTOGRAPHS

BODY-WORN SAR TEST SETUP PHOTOGRAPHS

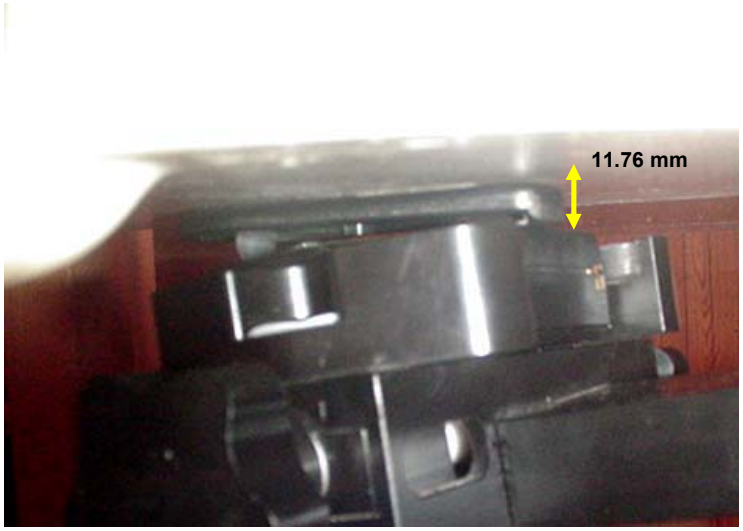
11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Swivel Belt-Clip 0° Position - With External Lapel Microphone Audio Accessory



Antenna Distance to Phantom Surface = 22.22 mm

BODY-WORN SAR TEST SETUP PHOTOGRAPHS

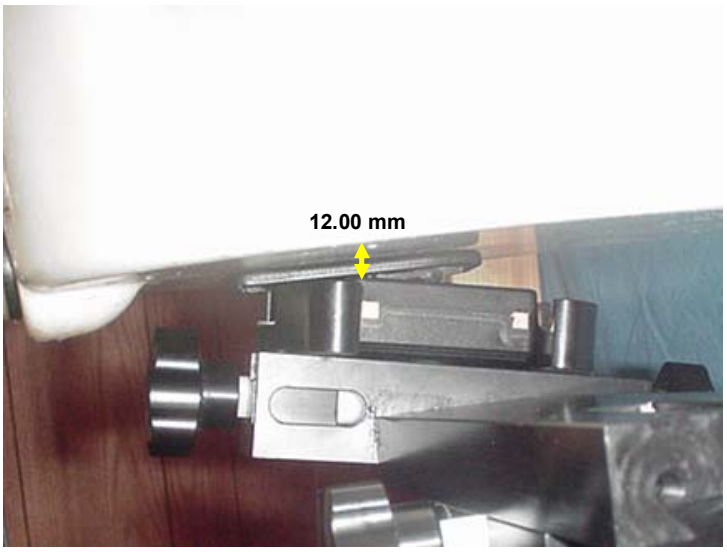
11.76 mm Belt-Clip Spacing from Back Side of DUT (antenna end) to SAM Phantom (planar section)
Swivel Belt-Clip 0° Position - Without External Lapel Microphone Audio Accessory



Antenna Distance to Phantom Surface = 22.22 mm

BODY-WORN SAR TEST SETUP PHOTOGRAPHS

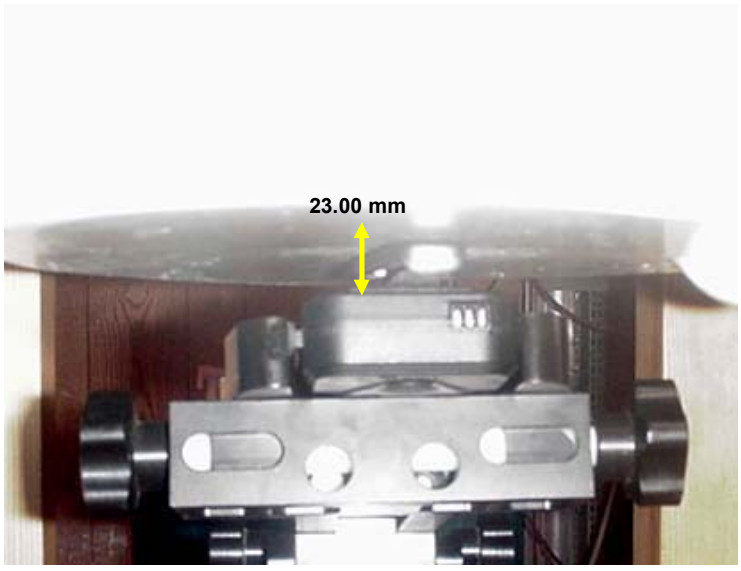
12.00 mm Belt-Clip Spacing from Back Side of DUT to SAM Phantom (planar section)
Swivel Belt-Clip 90° Position - Without External Lapel Microphone Audio Accessory



Antenna Distance to Phantom Surface = 26.30 mm

BODY-WORN SAR TEST SETUP PHOTOGRAPHS

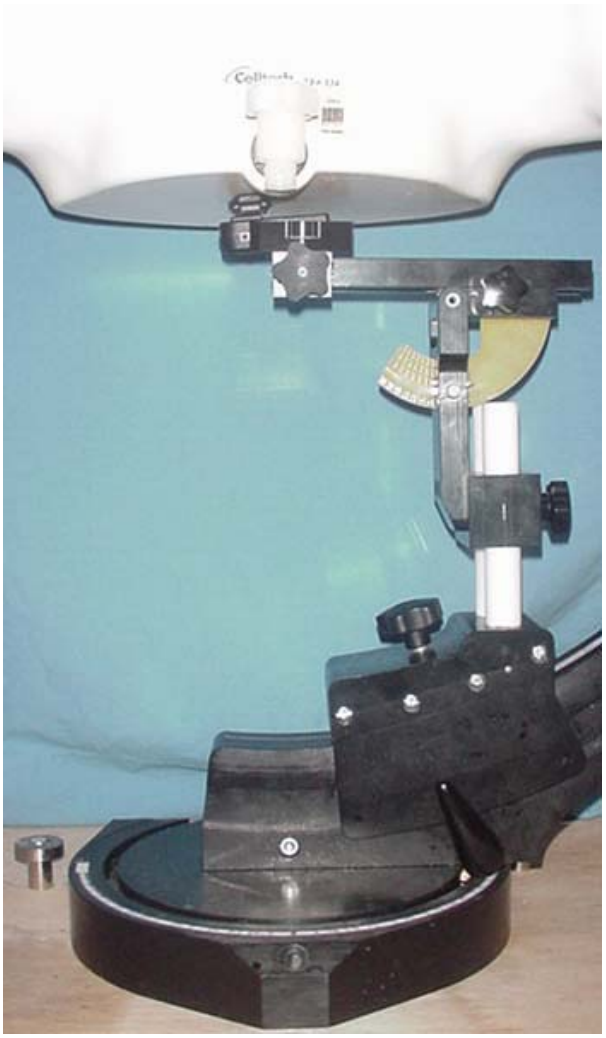
23.00 mm Belt-Clip Spacing from Back Side of DUT (LED end) to SAM Phantom (planar section)
Swivel Belt-Clip 180° Position - Without External Lapel Microphone Audio Accessory



Antenna Distance to Phantom Surface = 33.30 mm

BODY-WORN SAR TEST SETUP PHOTOGRAPHS

12.00 mm Belt-Clip Spacing from Back Side of DUT to SAM Phantom (planar section)
Swivel Belt-Clip 270° Position - Without External Lapel Microphone Audio Accessory



Antenna Distance to Phantom Surface = 28.10 mm

DUT PHOTOGRAPHS

Front Side of DUT

Front Side of DUT with External Lapel Microphone (P/N: 004-0505)

Bottom End of DUT (Antenna End)

Top End of DUT (LED End)

DUT PHOTOGRAPHS

Back Side of DUT with Swivel Belt-Clip (P/N: 004-0504)

Back Side of DUT with Swivel Belt-Clip (P/N: 004-0504)

Back Side of DUT with Swivel Belt-Clip (P/N: 004-0504)

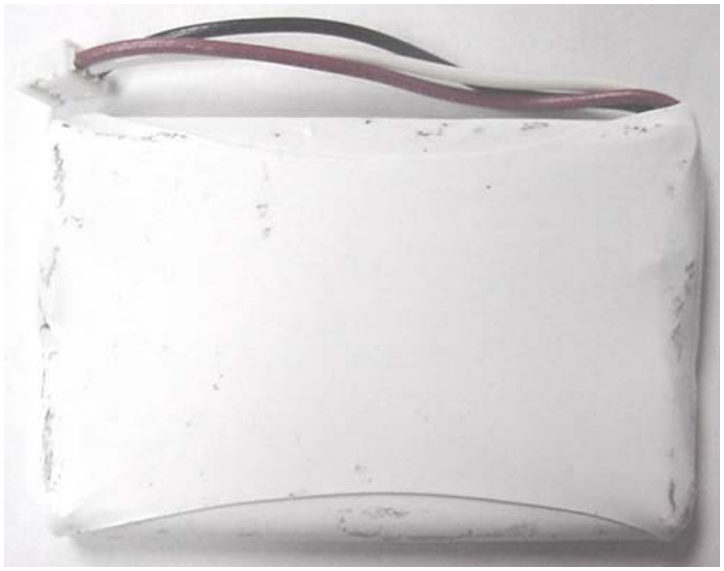
Back Side of DUT with Swivel Belt-Clip (P/N: 004-0504)

DUT PHOTOGRAPHS

Left Side of DUT with Swivel Belt-Clip (P/N: 004-0504)

Right Side of DUT with Swivel Belt-Clip (P/N: 004-0504)

Front Side of Lithium-ion Battery (P/N: 135-0036)



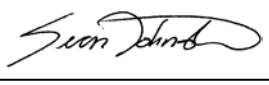
Back Side of Lithium-ion Battery (P/N: 135-0036)

APPENDIX E - SYSTEM VALIDATION

900 MHz SYSTEM VALIDATION

Type:	**900 MHz Validation Dipole**
Asset Number:	**00020**
Serial Number:	**054**
Place of Validation:	**Celltech Labs Inc.**
Date of Validation:	**August 11, 2008**

Celltech Labs Inc. hereby certifies that the 900 MHz System Validation was performed on the date indicated above.

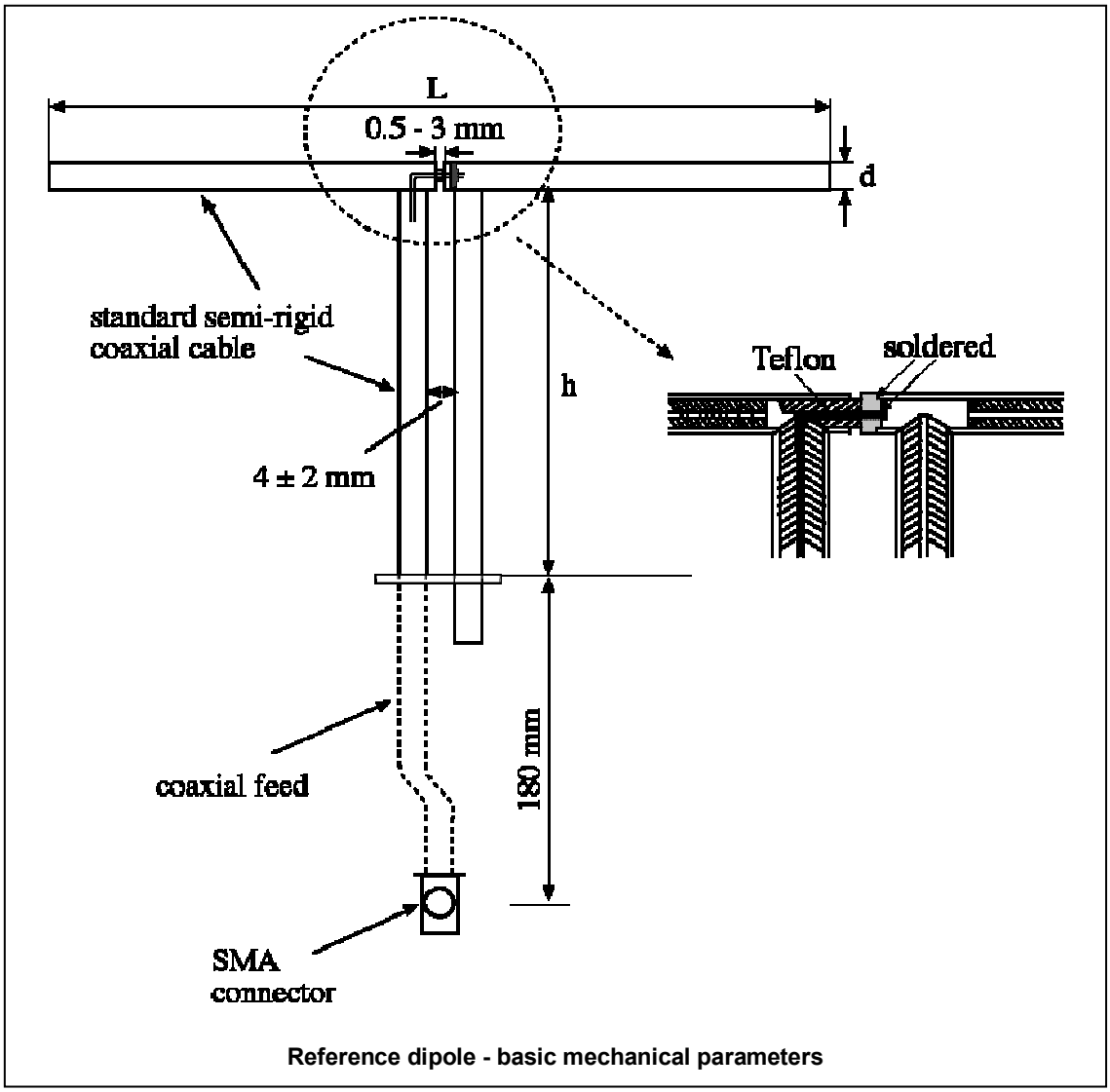
Performed by:	**Sean Johnston**
Signature:	

Celltech Labs Inc. 21-364 Lougheed Rd., Kelowna, B.C. V1X 7R8 Canada
Tel. 250-765-7650 • Fax. 250-765-7645 • e-mail: info@celltechlabs.com
www.celltechlabs.com

1. Dipole Construction & Electrical Characteristics

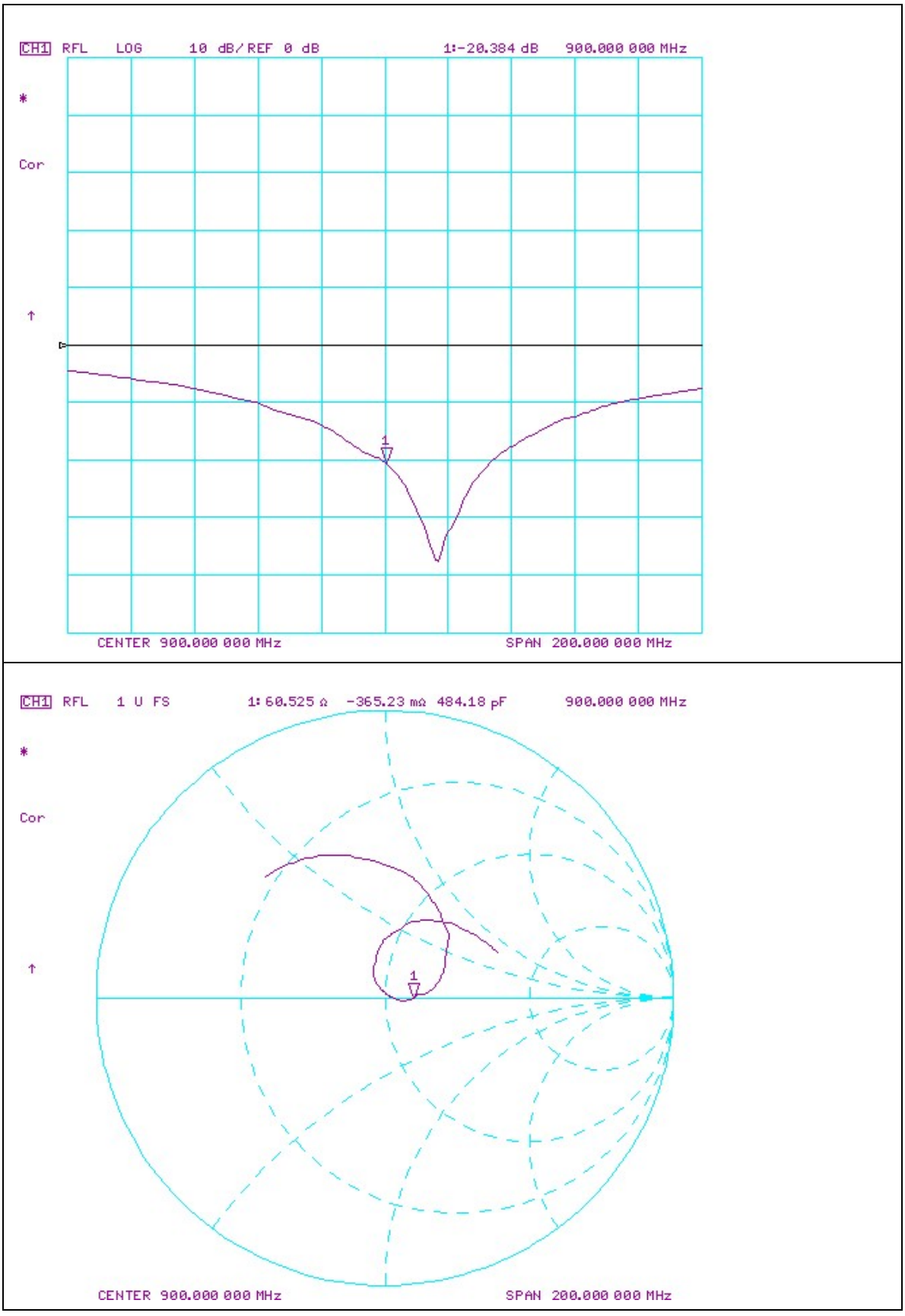
The validation dipole was constructed in accordance with the requirements specified in IEEE Standard 1528-2003 and International Standard IEC 62209-1:2005. The electrical properties were measured using an HP 8753ET Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 15.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

Feed point impedance at 900 MHz	Re{Z} = 60.525Ω
	Im{Z} = -365.23mΩ
Return Loss at 900 MHz	-20.384dB



Reference dipole - basic mechanical parameters

2. Validation Dipole VSWR Data



3. Validation Dipole Dimensions

Frequency (MHz)	L (mm)	h (mm)	d (mm)
300	396.0	250.0	6.0
450	270.0	167.0	6.0
835	161.0	89.8	3.6
900	**149.0**	**83.3**	**3.6**
1450	89.1	51.7	3.6
1800	72.0	41.7	3.6
1900	68.0	39.5	3.6
2000	64.5	37.5	3.6
2450	51.5	30.4	3.6
3000	41.5	25.0	3.6

4. Validation Phantom

The validation phantom is the SAM (Specific Anthropomorphic Mannequin) phantom manufactured by Schmid & Partner Engineering AG. The SAM phantom is a Fiberglass shell integrated in a wooden table. The shape of the shell corresponds to the phantom defined by SCC34-SC2. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness: 2.0 ± 0.1 mm
Filling Volume: Approx. 25 liters
Dimensions: 50 cm (W) x 100 cm (L)

5. Test Equipment List

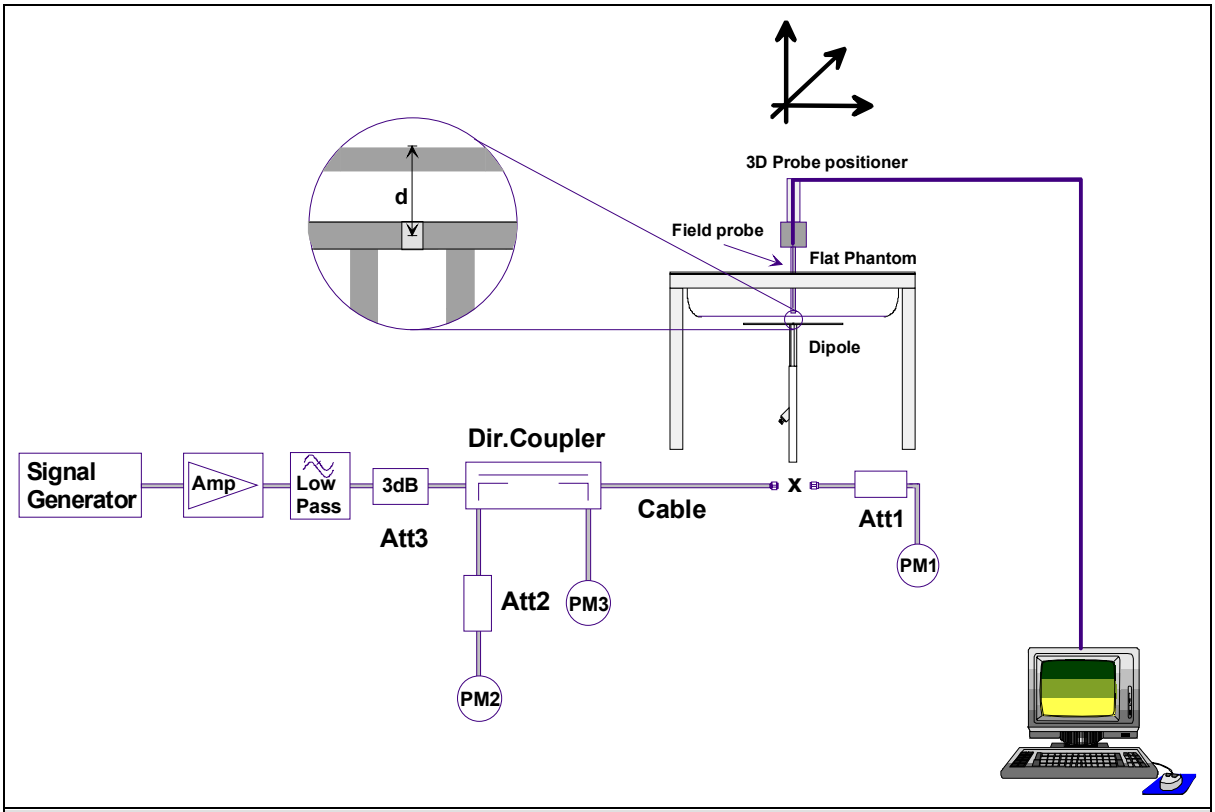
TEST EQUIPMENT	ASSET NO.	SERIAL NO.	DATE OF CAL.	CAL. DUE DATE
SPEAG DASY4 Measurement Server	00158	1078	N/A	N/A
SPEAG Robot	00046	599396-01	N/A	N/A
SPEAG DAE4	00019	353	22Apr08	22Apr09
SPEAG ET3DV6 E-Field Probe	00017	1590	21Jul08	21Jul09
900 MHz Validation Dipole	00020	054	11Aug08	11Aug09
SPEAG SAM Twin Phantom V4.0C	00154	1033	N/A	N/A
HP 85070C Dielectric Probe Kit	00033	US39240170	N/A	N/A
Gigatronics 8652A Power Meter	00007	1835272	23Apr08	23Apr09
Gigatronics 80701A Power Sensor	00014	1833699	23Apr08	23Apr09
HP 8753ET Network Analyzer	00134	US39170292	28Apr08	28Apr09
HP 8648D Signal Generator	00005	3847A00611	NCR	NCR
Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR

6. 900 MHz Validation Dipole & Planar Phantom

7. SAR Measurement

Measurements were made using a dosimetric E-field probe ET3DV6 (S/N: 1590, Conversion Factor 6.39). The SAR measurement was performed with the E-field probe in mechanical and optical surface detection mode. The setup and determination of the forward power into the dipole was performed using the following procedures.

First the power meter PM1 (including attenuator Att1) is connected to the cable to measure the forward power at the location of the dipole connector (X). The signal generator is adjusted for the desired forward power at the dipole connector (taking into account the attenuation of Att1) as read by power meter PM2. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2. If the signal generator does not allow adjustment in 0.01dB steps, the remaining difference at PM2 must be taken into consideration. PM3 records the reflected power from the dipole to ensure that the value is not changed from the previous value. The reflected power should be 20dB below the forward power.



System Validation Measurement Setup Diagram

8. Measurement Conditions

The planar phantom was filled with 900 MHz Body tissue simulant.

Relative Permittivity: 53.5 (-2.8% deviation from target)
Conductivity: 1.02 mho/m (-2.9% deviation from target)
Fluid Temperature: 23.5 °C (Start of Test) / 23.5 °C (End of Test)
Fluid Depth: ≥ 15.0 cm

Environmental Conditions:
Ambient Temperature: 21.0°C
Barometric Pressure: 101.1 kPa
Humidity: 35%

The 900 MHz Body tissue simulant consisted of the following ingredients:

Ingredient	Percentage by weight	
Water	53.79%	
Sugar	45.13%	
Salt	0.98%	
Dowicil 75	0.10%	
IEEE/IEC Target Dielectric Parameters (900 MHz):	**ε_r = 55.0 (+/- 5%)**	**σ = 1.05 S/m (+/- 5%)**

9. System Validation SAR Results

SAR @ 0.25W Input averaged over 1g (W/kg)				SAR @ 1W Input averaged over 1g (W/kg)			
SPEAG Target		Measured	Deviation	SPEAG Target		Measured	Deviation
2.78	+/- 10%	2.57	-7.4%	11.1	+/- 10%	10.28	-7.4%
SAR @ 0.25W Input averaged over 10g (W/kg)				**SAR @ 1W Input averaged over 10g (W/kg)**			
SPEAG Target		Measured	Deviation	SPEAG Target		Measured	Deviation
1.79	+/- 10%	1.69	-5.7%	7.17	+/- 10%	6.76	-5.7%

Dipole Type	Distance [mm]	Frequency [MHz]	SAR (1g) [W/kg]	SAR (10g) [W/kg]	SAR (peak) [W/kg]
D300V2	15	300	3.02	2.06	4.36
D450V2	15	450	5.01	3.36	7.22
D835V2	15	835	9.71	6.38	14.1
D900V2	15	900	11.1	7.17	16.3
D1450V2	10	1450	29.6	16.6	49.8
D1500V2	10	1500	30.8	17.1	52.1
D1640V2	10	1640	34.4	18.7	59.4
D1800V2	10	1800	38.5	20.3	67.5
D1900V2	10	1900	39.8	20.8	69.6
D2000V2	10	2000	40.9	21.2	71.5
D2450V2	10	2450	51.2	23.7	97.6
D3000V2	10	3000	61.9	24.8	136.7

Table 32.1: Numerical reference SAR values for SPEAG dipoles and flat phantom filled with body-tissue simulating liquid. Note: All SAR values normalized to 1 W forward power.

Date Tested: 08/11/2008

System Validation - 900 MHz Dipole - MSL

DUT: Dipole 900 MHz; Asset: 00020; Serial: 054; Validation: 08/11/2008

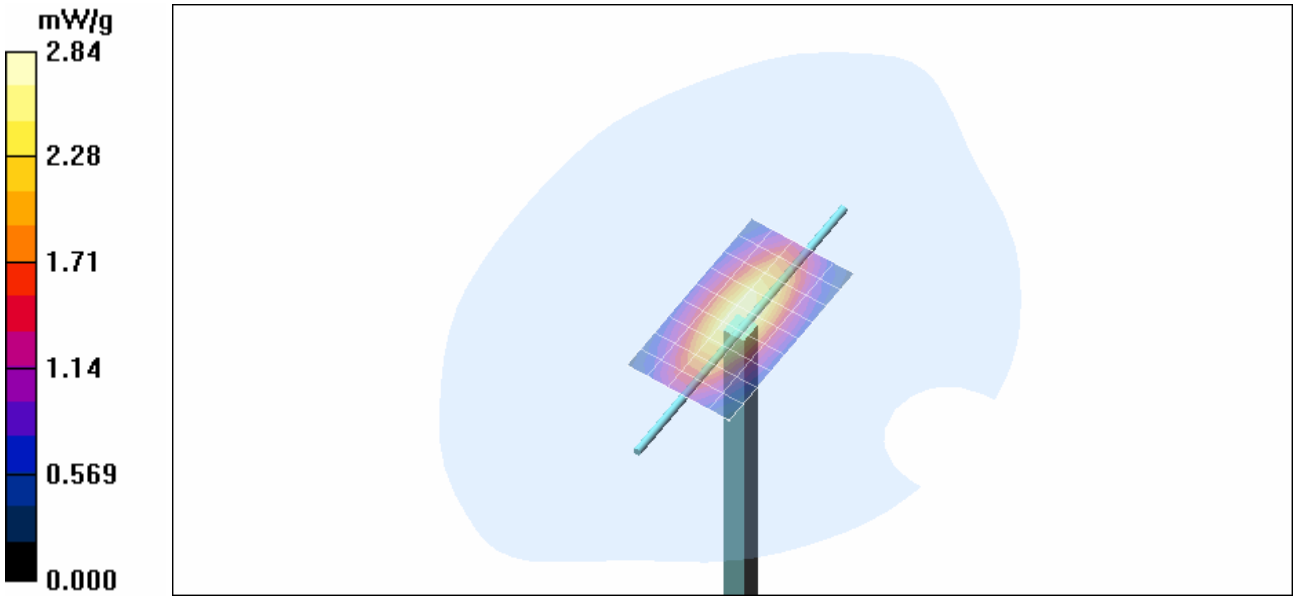
Ambient Temp: 21°C; Fluid Temp: 23.5°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 900 MHz; Duty Cycle: 1:1
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3

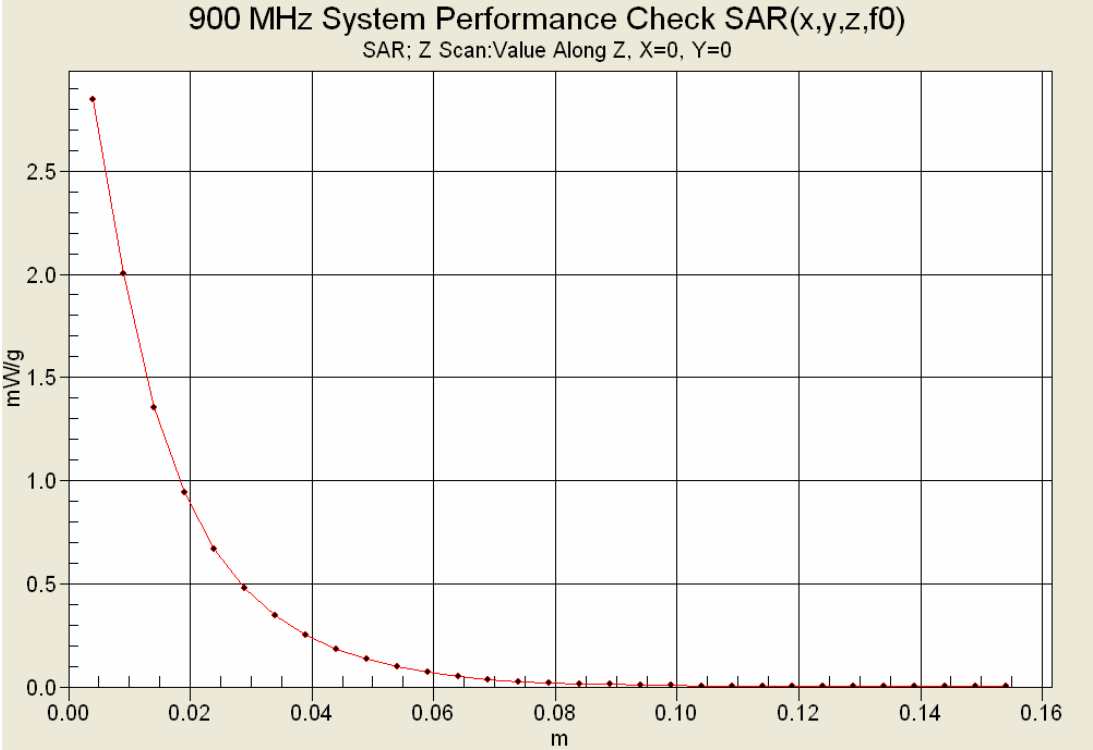
- Probe: ET3DV6 - SN1590; ConvF(6.39, 6.39, 6.39); Calibrated: 21/07/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 22/04/2008
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

System Validation - 900 MHz Dipole
Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.62 mW/g

System Validation - 900 MHz Dipole
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.3 V/m; Power Drift = 0.100 dB
Peak SAR (extrapolated) = 3.50 W/kg
SAR(1 g) = 2.57 mW/g; SAR(10 g) = 1.69 mW/g
Maximum value of SAR (measured) = 2.84 mW/g



Z-Axis Scan



10. Measured Fluid Dielectric Parameters

System Validation - 900 MHz (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
11/Aug/2008
Frequency (GHz)
IEEE 1528-2003 Limits for Body Epsilon
IEEE 1528-2003 Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	IEEE_eB	IEEE_sB	Test_e	Test_s
0.8000	55.34	0.97	54.62	0.93
0.8100	55.30	0.97	54.35	0.93
0.8200	55.26	0.97	54.42	0.94
0.8300	55.22	0.97	54.31	0.96
0.8400	55.18	0.98	54.15	0.97
0.8500	55.15	0.99	53.95	0.98
0.8600	55.12	1.00	53.83	0.99
0.8700	55.09	1.01	53.84	1.00
0.8800	55.06	1.03	53.70	1.00
0.8900	55.03	1.04	53.64	1.01
0.9000	55.00	1.05	53.54	1.02
0.9100	55.00	1.06	53.46	1.03
0.9200	54.99	1.06	53.41	1.04
0.9300	54.97	1.07	53.41	1.05
0.9400	54.95	1.07	53.30	1.06
0.9500	54.93	1.08	53.30	1.07
0.9600	54.92	1.08	53.02	1.08
0.9700	54.90	1.08	53.02	1.10
0.9800	54.88	1.09	52.89	1.11
0.9900	54.86	1.09	52.81	1.12
1.0000	54.84	1.10	52.65	1.12

11. Measurement Uncertainties

UNCERTAINTY BUDGET FOR SYSTEM VALIDATION						
Error Description	**Uncertainty Value ±%**	**Probability Distribution**	**Divisor**	**ci 1g**	**Uncertainty Value ±% (1g)**	**V_i or V_{eff}**
Measurement System						
Probe calibration (835 MHz)	5.5	Normal	1	1	5.5	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	0	Rectangular	1.732050808	1	0.0	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	0.8	Rectangular	1.732050808	1	0.5	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0	Rectangular	1.732050808	1	0.0	∞
Integration time	0	Rectangular	1.732050808	1	0.0	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
Dipole						
Dipole Positioning	2	Normal	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Normal	1.732050808	1	2.7	∞
Phantom and Setup						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	2.9	Normal	1	0.64	1.9	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	2.8	Normal	1	0.6	1.7	∞
Combined Standard Uncertainty					**8.86**	
Expanded Uncertainty (k=2)					**17.72**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 and IEC Standard 62209-1:2005						

APPENDIX F - PROBE CALIBRATION

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client Celltech

Certificate No: ET3-1590_Jul08

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1590
Calibration procedure(s)	QA CAL-01.v6, QA CAL-12.v5 and QA CAL-23.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	July 21, 2008
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	3-Sep-07 (No. DAE4-660_Sep07)	Sep-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 21, 2008

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ET3DV6

SN:1590

Manufactured:	March 19, 2001
Last calibrated:	May 20, 2005
Recalibrated:	July 21, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6 SN:1590

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**1.81** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**87** mV
NormY	**2.00** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**92** mV
NormZ	**1.72** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**85** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **835 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	10.7	7.2
SAR_{be} [%]	With Correction Algorithm	0.8	0.5

Sensor Offset

Probe Tip to Sensor Center	**2.7** mm

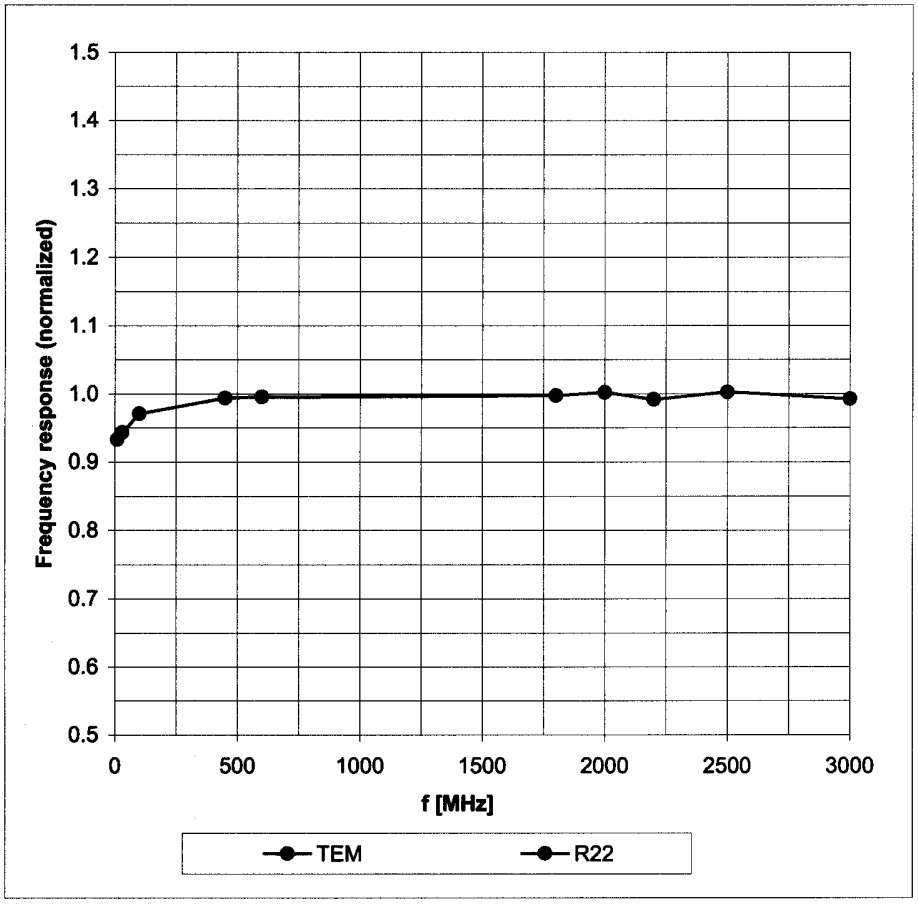
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

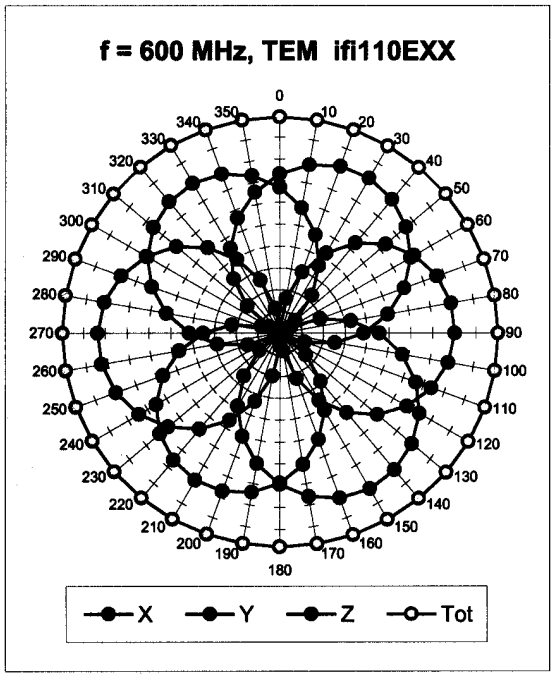
Frequency Response of E-Field

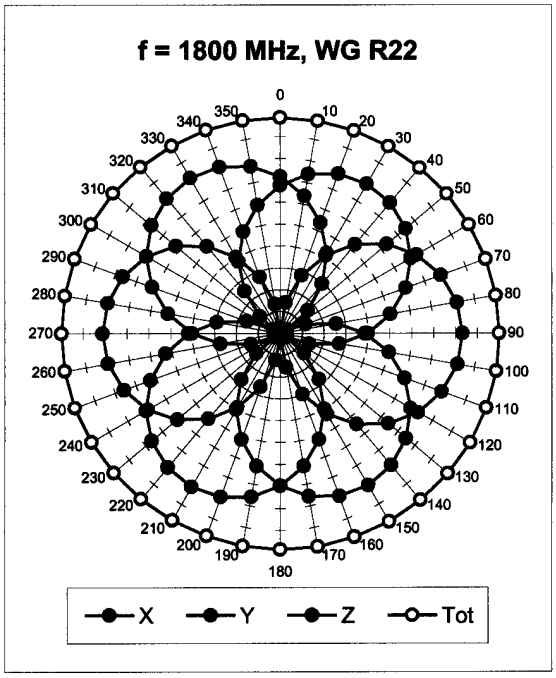
(TEM-Cell:ifi110 EXX, Waveguide: R22)

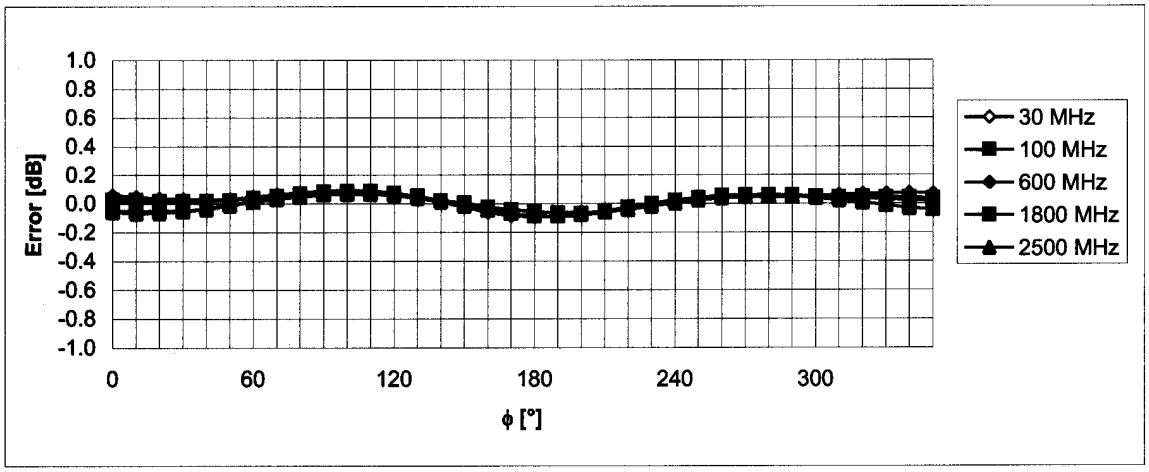


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



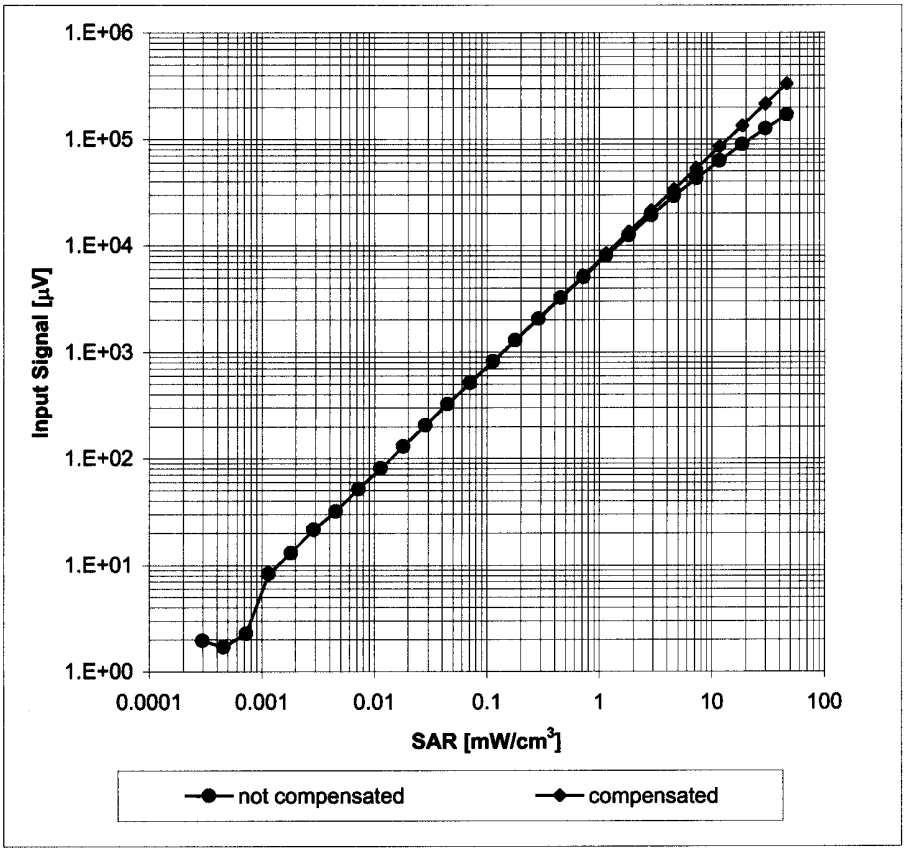


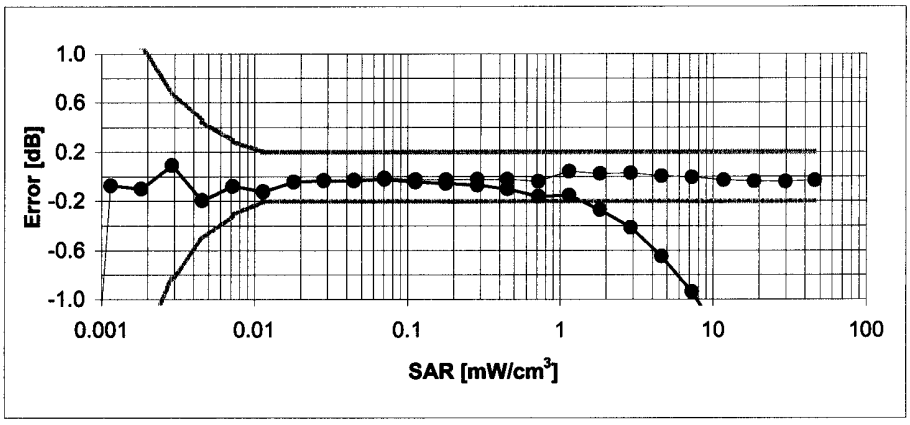


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

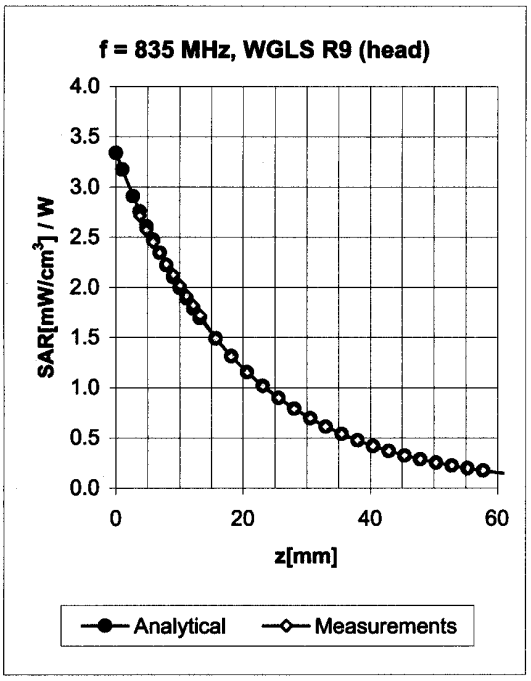
(Waveguide R22, f = 1800 MHz)

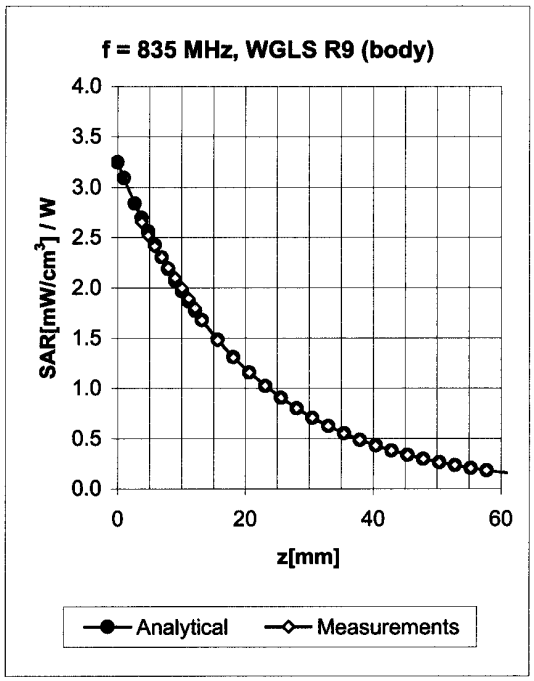




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



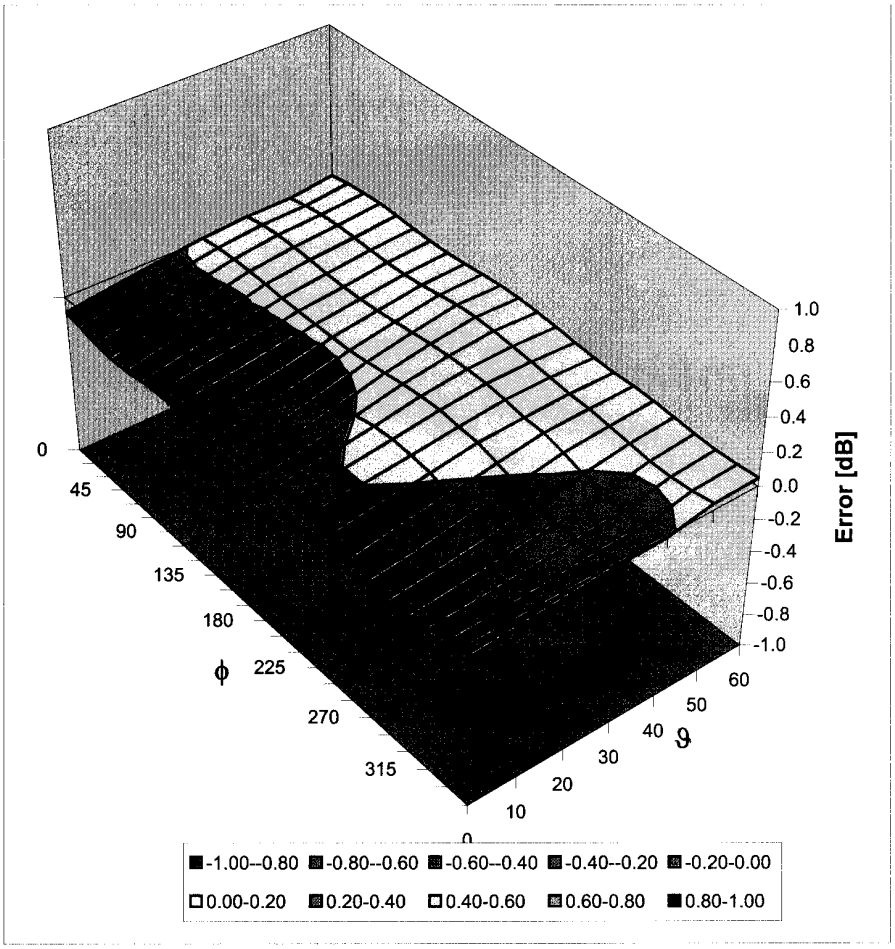


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty	
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.34	1.75	7.66	± 13.3% (k=2)
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.32	3.52	6.54	± 11.0% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.28	1.77	8.27	± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.36	3.31	6.39	± 11.0% (k=2)

[C] **The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

APPENDIX G - SAM PHANTOM CERTIFICATE OF CONFORMITY

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 BA
Series No	TP-1002 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

[1] CENELEC EN 50361
[2] IEEE P1528-200x draft 6.5
[3] IEC PT 62209 draft 0.9
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 18.11.2001

Signature / Stamp Schmid & Partner Engineering AG
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