




	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

SAR TEST REPORT

RF EXPOSURE EVALUATION	SPECIFIC ABSORPTION RATE		
APPLICANT	SOCKET COMMUNICATIONS INC.		
PRODUCT	802.11B/G WLAN COMPACT FLASH CARD FOR PDAs		
MODEL	GO WI-FI! P500		
IDENTIFIER(S)	FCC ID:	LUB-P500CF-1	IC ID: 2529A-P500CF1
APPLICATION TYPE	New Certification		
STANDARD(S) APPLIED	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		
	FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters		
FCC DEVICE CLASSIFICATION	Digital Transmission System (DTS) - §15C		
IC DEVICE CLASSIFICATION	Low Power License-Exempt Radiocommunication Device (RSS-210)		
RF EXPOSURE CATEGORY	General Population / Uncontrolled Exposure		
TEST REPORT SERIAL NO.	072407LUB-T844-S15W		
TEST REPORT REVISION NO.	Revision 1.0 (Initial Release)		
TEST REPORT ISSUE DATE	August 17, 2007		
TEST REPORT SIGNATORIES	Testing Performed By	Report Prepared By	Report Reviewed By
	Sean Johnston Celltech Labs Inc.	Cheri Frangiadakis Celltech Labs Inc.	Jonathan Hughes Celltech Labs Inc.
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TEST LAB ACCREDITATION(S)	 Certificate No. 2470.01		

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs	2412 - 2462 MHz			
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DECLARATION OF COMPLIANCE SAR RF EXPOSURE EVALUATION

Test Lab Information:	Name	CELLTECH LABS INC.		Address	21-364 Lougheed Road, Kelowna B.C. V1X 7R8			
Applicant Information:	Name	SOCKET COMMUNICATIONS INC.		Address	39700 Eureka Drive, Newark, CA 94560 USA			
Standard(s) Applied:	FCC	47 CFR §2.1093; §15 Subpart C		IC	Health Canada Safety Code 6			
Procedure(s) Applied:	FCC	OET Bulletin 65, Supplement C (Edition 01-01) SAR Measurement Procedures for 802.11a/b/g Transmitters						
	IC	RSS-210 Issue 7; RSS-102 Issue 2						
Device Classification(s):	FCC	Digital Transmission System	IC	Low Power License-Exempt Radiocommunication Device				
Device Description:	802.11b/g WLAN Compact Flash Card for PDAs							
Device Model(s):	Model Name	GO Wi-Fi! P500	Model No.:	8510-00251	S/N:	0723000131	Pre-production	
Host PDA(s) Tested:	Manufacturer	Model Name		Model No.		Serial No.		
	DELL	AXIM X51/X51v		HC03U		TW-0JC412-72371-59M-00TJ		
	CF Card Slot Location	CF Card Distance to Back of PDA		CF Card Distance to Front of PDA				
	Top End of PDA	3 mm		9 mm				
Modulation Type(s):	802.11b	DBPSK (1 Mbps), DQPSK (2 Mbps), CCK (5.5, 11 Mbps)						
	802.11g	OFDM (6, 9, 12, 24, 36, 48, 54 Mbps)						
Transmit Frequency Range(s):	2412 - 2462 MHz			No. of Channels:	11			
Max. RF Output Power Tested:	Transmit Mode	Frequency	Channel	Data Rate	Conducted Power			
		MHz			Average		Peak	
	802.11b	2412	1	1	14.62 dBm	28.97 mW	15.18 dBm	32.96 mW
		2442	7	1	14.27 dBm	26.73 mW	14.93 dBm	31.12 mW
		2462	11	1	14.10 dBm	25.70 mW	14.65 dBm	29.17 mW
		2412	1	2	14.12 dBm	25.82 mW	15.08 dBm	32.21 mW
		2412	1	5.5	14.05 dBm	25.41 mW	15.11 dBm	32.43 mW
		2412	1	11	13.96 dBm	24.89 mW	15.38 dBm	34.51 mW
802.11g	2412	1	6	14.37 dBm	27.35 mW	17.16 dBm	52.00 mW	
Antenna Type(s) Tested:	Internal to CF Card							
Power Source(s) Tested:	Host PDA Battery	Lithium-ion	3.7V, 1100mAh		DELL Battery Module Type T6476			
Body-worn Accessories Tested:	None			Audio Accessories Tested:	None (not applicable)			
Max. SAR Level(s) Evaluated:	Body	1.26 W/kg	1g average	SAR Limit:	1.6 W/kg	1g average		
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), FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters and Industry Canada RSS-102 Issue 2. 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.								
This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc. The results and statements contained in this report pertain only to the device(s) evaluated.								
Test Report Approved By:					 			
	Sean Johnston		Celltech Labs Inc.					




Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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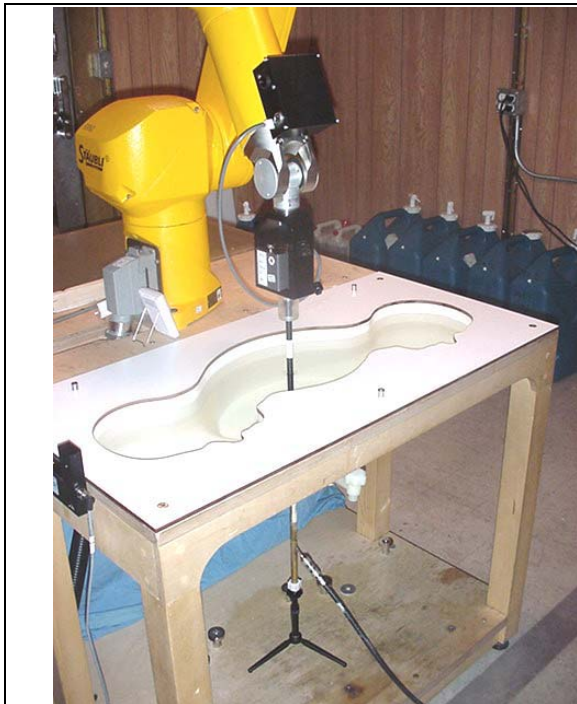
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1.0 INTRODUCTION

This measurement report demonstrates that the SOCKET COMMUNICATIONS INC. Model: Go Wi-Fi! P500 802.11b/g WLAN Compact Flash Card for PDAs 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]), FCC OET SAR Measurement Procedures for 802.11a/b/g Transmitters (see reference [6]) and IC RSS-102 Issue 2 (see reference [4]) 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 Measurement System with SAM Phantom and val. dipole




DASY4 Measurement System with SAM Phantom and device holder



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3.0 MEASUREMENT SUMMARY

BODY SAR EVALUATION RESULTS												
Transmit Mode	Test Mode	Freq.	Chan.	Data Rate	Power Source	Host PDA	Host PDA Position to Planar Phantom	Host PDA Separation Distance to Planar Phantom	CF Card Separation Distance to Planar Phantom	Cond. Power Before Test	SAR Drift During Test	Measured SAR 1g
		MHz		Mbps						dBm	dB	W/kg
802.11b	DSSS	2412	1	1	Host PDA Li-ion Battery	Dell Axim	Back Side	0.0 mm	3.0 mm	14.62	-0.005	1.26
802.11b	DSSS	2442	7	1	Host PDA Li-ion Battery	Dell Axim	Back Side	0.0 mm	3.0 mm	14.27	0.003	1.21
802.11b	DSSS	2462	11	1	Host PDA Li-ion Battery	Dell Axim	Back Side	0.0 mm	3.0 mm	14.10	0.095	1.16
802.11b	DSSS	2412	1	1	Host PDA Li-ion Battery	Dell Axim	Front Side	0.0 mm	9.0 mm	14.62	-0.042	0.373
ANSI / IEEE C95.1: 2005 - SAFETY LIMIT					BODY: 1.6 W/kg (averaged over 1 gram)			Spatial Peak: Uncontrolled Exposure / General Population				
Test Date(s)		August 13, 2007					Relative Humidity		33		%	
Measured Fluid Type		2450 MHz Body					Atmospheric Pressure		101.1		kPa	
Dielectric Constant ϵ		IEEE Target		Measured	Deviation	Ambient Temperature		24.5		°C		
		52.7	±5%	50.1	-4.9%	Fluid Temperature		23.8		°C		
Conductivity σ (mho/m)		IEEE Target		Measured	Deviation	Fluid Depth		≥ 15		cm		
		1.95	±5%	2.00	+2.6%	ρ (Kg/m³)		1000				
Note(s)	1.	The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.										
	2.	If the SAR levels measured at the maximum output channel were ≥ 3 dB below the SAR limit, SAR evaluation for the remaining selected channels was optional (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [6]).										
	3.	Higher data rates and 802.11g mode were not evaluated based on the average conducted output power levels were not 0.25 dB > the average conducted output power levels measured at the lowest data rate (per FCC OET "SAR Measurement Procedures for 802.11a/b/g Transmitters" - see reference [6]).										
	4.	The power drift of the DUT measured by the DASY4 system during the SAR evaluations was <5% from the start power.										
	5.	The host PDA battery was fully charged prior to the SAR evaluations.										
	6.	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.										
	7.	The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).										
	8.	The SAR evaluations were performed within 24 hours of the system performance check.										

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4.0 DETAILS OF SAR EVALUATION

The SOCKET COMMUNICATIONS INC. Model: Go Wi-Fi! P500 802.11b/g WLAN Compact Flash Card for PDAs 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 tested for body-worn SAR with the front side (LCD side) of the host PDA placed parallel to, and touching, the outer surface of the SAM phantom (planar section). The SAR evaluation was performed with the DUT inserted in the Compact Flash card slot of the host PDA and powered from the PDA battery. The separation distance from the front side of the DUT to the outer surface of the SAM phantom (planar section) was 9 mm.
2. The DUT was tested for body-worn SAR with the back side (battery side) of the host PDA placed parallel to and touching the outer surface of the SAM phantom (planar section). The SAR evaluation was performed with the DUT inserted in the Compact Flash card slot of the host PDA and powered from the PDA battery. The separation distance from the back side of the DUT to the outer surface of the SAM Phantom (planar section) was 3 mm.



Test Mode(s) & Power Setting(s)

3. The DUT was tested using an executable test program installed on the host PDA provided by the customer. The DUT was tested at the maximum power setting in modulated DSSS continuous transmit mode with 100% duty cycle.
4. The average and peak conducted power levels were measured at the CF card antenna connector prior to the SAR evaluations using a spectrum analyzer according to 15.247(b) (KDB Publication #558074 - Power Output Option 2, Method 1). The RBW was set to 1 MHz and the VBW was set to 3 MHz.
5. The power drift of the DUT was measured by the DASY4 system during the SAR evaluations.
6. The host PDA battery was fully charged prior to the SAR evaluations.

5.0 EVALUATION PROCEDURES

- (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.
- e. A 1g and 10g spatial peak SAR was determined as follows:
Extrapolation is used to determine the values between the dipole center of the probe and the surface of the phantom. This data cannot be measured because the center of the dipole sensors is 1.0 mm away from the probe tip and the distance between the probe and the boundary must be larger than 25% of the probe diameter. The probe diameter is 2.4 mm. In the DASY4 software, the distance between the sensor center and phantom surface is set to 2.0 mm. This provides a distance of 1.0 mm between the probe tip and the surface. The extrapolation of the values between the dipole center and the surface of the phantom 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 1 mm grid (42875 interpolated points).
- g. A zoom scan volume of 24 mm x 24 mm x 20 mm (7x7x9 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 4 mm x 4 mm x 2.5 mm was used.

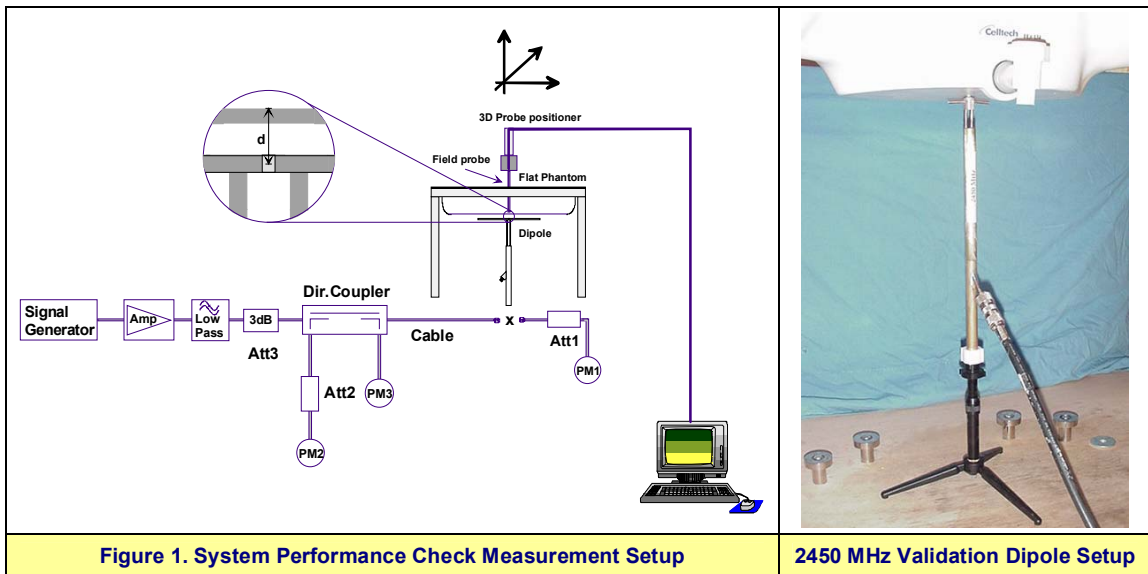
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6.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations a system check was performed using a planar phantom with a 2450 MHz validation dipole (see Appendix E for system validation procedures). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET 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 $\pm 10\%$ from the system validation target SAR value (see Appendix B for system performance check test plot).

SYSTEM PERFORMANCE CHECK EVALUATION																
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)
		2450 MHz	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.	Dev.	Sys. Val. Target	Meas.						
Aug 13	Body	13.4 $\pm 10\%$	13.6	+1.5%	50.1 $\pm 5\%$	50.1	0.0%	1.99 $\pm 5\%$	2.00	+0.5%	1000	24.5	23.8	≥ 15	33	101.1
Note(s)		<ol style="list-style-type: none"> The target SAR value is referenced from the System Validation procedure performed by Celltech Labs Inc. (see Appendix E). The target dielectric parameters are referenced from the System Validation procedure performed by Celltech Labs Inc. (see Appendix E). The fluid temperature was measured prior to and after the system performance check to ensure the temperature remained within $\pm 2^\circ\text{C}$ of the fluid temperature reported during the dielectric parameter measurements. The SAR evaluations were performed within 24 hours of the system performance check. 														



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7.0 SIMULATED EQUIVALENT TISSUES

The 2450 MHz simulated tissue mixture consisted of Glycol-monobutyl, water, and salt. The fluid was prepared according to standardized procedures and measured for dielectric parameters (permittivity and conductivity).

SIMULATED TISSUE MIXTURES		
INGREDIENT	2450 MHz Body	
	System Performance Check	DUT Evaluation
Water	69.98 %	69.98 %
Glycol Monobutyl	30.00 %	30.00 %
Salt	0.02 %	0.02 %


8.0 SAR SAFETY LIMITS



EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	1.60	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0
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.		

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9.0 ROBOT SYSTEM SPECIFICATIONS

<u>Specifications</u>	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
<u>Data Acquisition Electronic (DAE) System</u>	
<u>Cell Controller</u>	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
<u>Data Converter</u>	
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
<u>DASY4 Measurement Server</u>	
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
<u>E-Field Probe</u>	
Model	EX3DV4
Serial No.	3600
Construction	Symmetrical design with triangular core
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
<u>Phantom(s)</u>	
Type	SAM V4.0C
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 25 liters


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10.0 PROBE SPECIFICATION (EX3DV4)


<p>Construction: Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. DGBE)</p> <p>Calibration: Basic Broadband Calibration in air: 10-3000 MHz Conversion Factors (CF) for HSL 900 and HSL 1750</p> <p>Frequency: 10 MHz to >6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)</p> <p>Directivity: ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)</p> <p>Dynamic Range: 10 μW/g to >100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μW/g)</p> <p>Dimensions: Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1.0 mm</p> <p>Application: High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better than 30%.</p>	
EX3DV4 E-Field Probe	

11.0 SAM PHANTOM V4.0C

<p>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).</p>	
SAM Phantom V4.0C	

12.0 DEVICE HOLDER

<p>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.</p>	
Device Holder	



Company: Socket Communications Inc.	FCC ID: LUB-P500CF-1	IC ID: 2529A-P500CF1	
Model(s): Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs	2412 - 2462 MHz	
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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	N/A	N/A	N/A	
x	-Robot	00046	599396-01	N/A	N/A	N/A	
x	-DAE4	00019	353	10Jul07	10Jul08	10Jul08	
	-DAE3	00018	370	13Mar07	13Mar08	13Mar08	
	-ET3DV6 E-Field Probe	00016	1387	16Mar07	16Mar08	16Mar08	
x	-EX3DV4 E-Field Probe	00213	3600	24Jan07	24Jan08	24Jan08	
	-300 MHz Validation Dipole	00023	135	08Jun07	08Jun08	08Jun08	
	-450 MHz Validation Dipole	00024	136	07Jun07	07Jun08	07Jun08	
	-835 MHz Validation Dipole	00022	411	Brain	07Jun07	07Jun08	
				Body	07Jun07	07Jun08	
	-900 MHz Validation Dipole	00020	054	Brain	07Jun07	07Jun08	
				Body	07Jun07	07Jun08	
	-1800 MHz Validation Dipole	00021	247	Brain	06Jun07	06Jun08	
				Body	06Jun07	06Jun08	
	-1900 MHz Validation Dipole	00032	151	Brain	06Jun07	06Jun08	
				Body	06Jun07	06Jun08	
	-2450 MHz Validation Dipole	00025	150	Brain	08Jun07	08Jun08	
x				Body	08Jun07	08Jun08	
	5GHz Validation Dipole	00126	1031	Body	18May07	18May08	
				-5200 MHz	Body	22May07	22May08
				-5500 MHz	Brain	09May07	09May08
	-5800 MHz	Body	10May07	10May08	10May08		
x	-SAM Phantom V4.0C	00154	1033	N/A	N/A	N/A	
	-Barski Planar Phantom	00155	03-01	N/A	N/A	N/A	
	-Plexiglas Side Planar Phantom	00156	161	N/A	N/A	N/A	
	-Plexiglas Validation Planar Phantom	00157	137	N/A	N/A	N/A	
x	ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A	N/A	N/A	
x	Gigatronics 8652A Power Meter	00007	1835272	26Mar07	26Mar08	26Mar08	
	Gigatronics 8652A Power Meter	00008	1835267	22Jan07	22Jan08	22Jan08	
	Gigatronics 80701A Power Sensor	00012	1834350	22Jan07	22Jan08	22Jan08	
x	Gigatronics 80701A Power Sensor	00014	1833699	22Jan07	22Jan08	22Jan08	
x	Gigatronics 80701A Power Sensor	00109	1834366	26Mar07	26Mar08	26Mar08	
x	HP 8753ET Network Analyzer	00134	US39170292	20Apr07	20Apr08	20Apr08	
x	HP 8648D Signal Generator	00005	3847A00611	NCR	NCR	NCR	
	Rohde & Schwarz SMR20 Signal Generator	00006	100104	NCR	NCR	NCR	
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR	NCR	
	Amplifier Research 10W1000C Power Amplifier	00041	27887	NCR	NCR	NCR	
	Nextec NB00383 Microwave Amplifier	00151	0535	NCR	NCR	NCR	
x	HP E4408B Spectrum Analyzer	00015	US39240170	05Feb07	05Feb08	05Feb08	


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 (2.4 GHz)	5.9	Normal	1	1	5.9	∞
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	1	Rectangular	1.732050808	1	0.6	∞
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)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					11.44	
Expanded Uncertainty (k=2)					22.89	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])						

	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	
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MEASUREMENT UNCERTAINTIES (Cont.)


UNCERTAINTY BUDGET FOR SYSTEM VALIDATION						
Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	Uncertainty Value ±% (1g)	V _i or V _{off}
Measurement System						
Probe calibration (2.4 GHz)	5.9	Normal	1	1	5.9	∞
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	1	Rectangular	1.732050808	1	0.6	∞
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)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					9.81	
Expanded Uncertainty (k=2)					19.61	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])						



Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	


15.0 REFERENCES



- [1] Federal Communications Commission - "Radiofrequency radiation exposure evaluation: portable devices", Rule Part 47 CFR §2.1093: 1999.
- [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] Federal Communications Commission - "SAR Measurement Procedures for 802.11a/b/g Transmitters": May 2007 (Rev 1.2).

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX A - SAR MEASUREMENT DATA

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 08/13/2007

Body SAR - 802.11b - 1 Mbps - Back Side of DUT & PDA - Low Channel - 2412 MHz

DUT: Socket; Model: Go Wi-Fi! P500; Type: 802.11b/g Compact Flash Card for PDAs; Serial: 0723000131

Ambient Temp: 24.5°C; Fluid Temp: 23.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN
Power Source: Host PDA Li-ion Battery
Frequency: 2412 MHz; Duty Cycle: 1:1
RF Output Power: 14.62 dBm (Average Conducted)
Medium: M2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 2.00 \text{ mho/m}$; $\epsilon_r = 50.1$; $\rho = 1000 \text{ kg/m}^3$

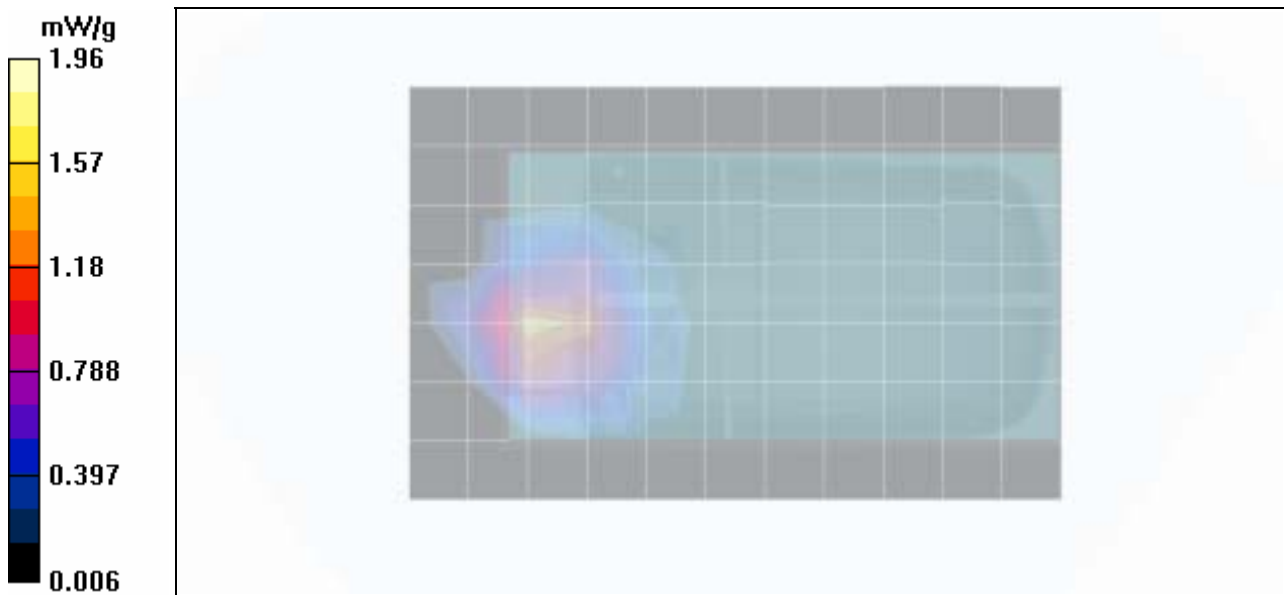
- Probe: EX3DV4 - SN3600; ConvF(6.31, 6.31, 6.31); Calibrated: 24/01/2007
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171


**Body SAR - Back Side (Battery Side) of Host PDA Touching Planar Phantom
3 mm Spacing from Back Side of DUT to Planar Phantom - Channel 1 - 2412 MHz)**

Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (measured) = 1.27 mW/g

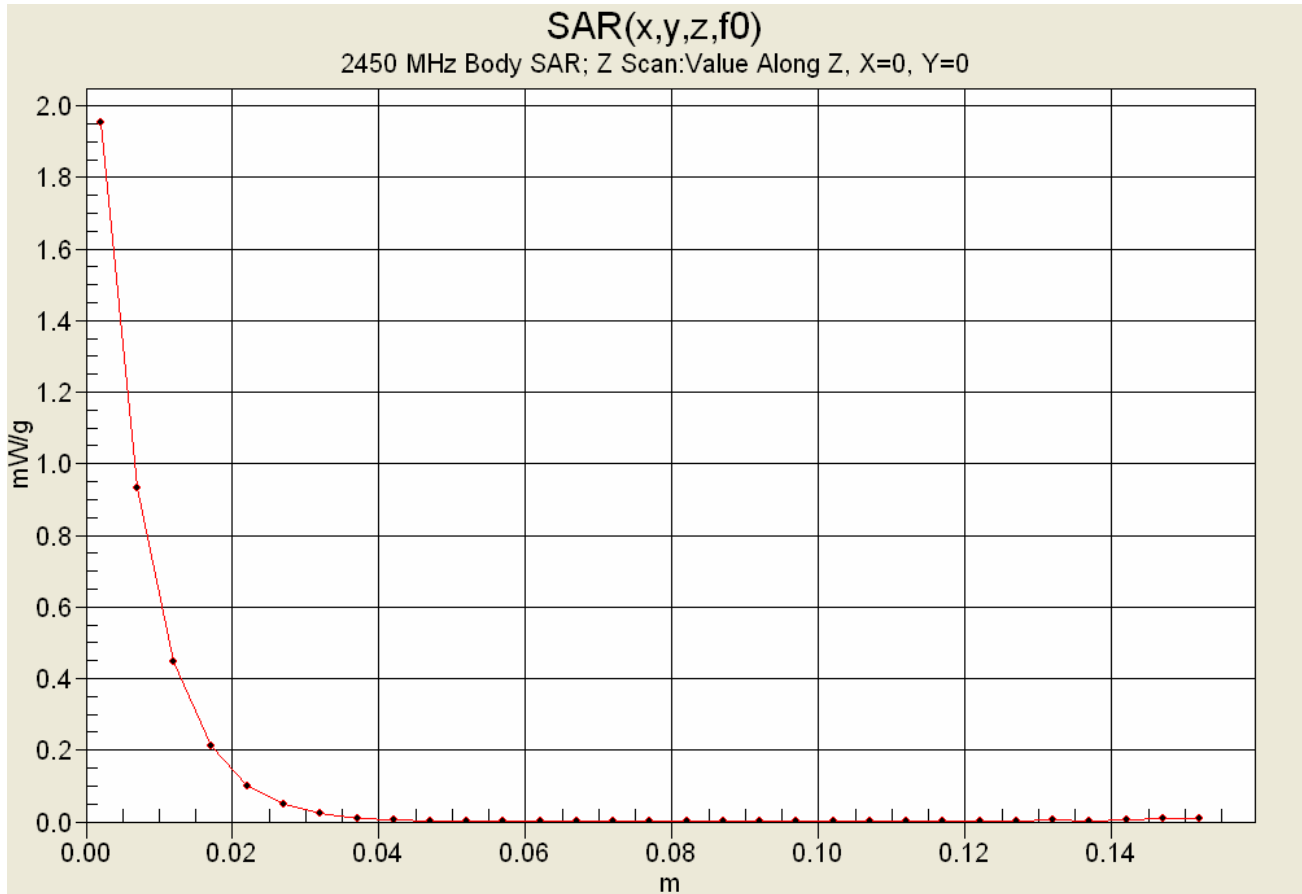
**Body SAR - Back Side (Battery Side) of Host PDA Touching Planar Phantom
3 mm Spacing from Back Side of DUT to Planar Phantom - Channel 1 - 2412 MHz)**



Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 7.64 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 2.72 W/kg
SAR(1 g) = 1.26 mW/g; SAR(10 g) = 0.593 mW/g
Maximum value of SAR (measured) = 1.96 mW/g



Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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Z-Axis Scan



	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 08/13/2007

Body SAR - 802.11b - 1 Mbps - Back Side of DUT & PDA - Mid Channel - 2442 MHz

DUT: Socket; Model: Go Wi-Fi! P500; Type: 802.11b/g Compact Flash Card for PDAs; Serial: 0723000131

Ambient Temp: 24.5°C; Fluid Temp: 23.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN
Power Source: Host PDA Li-ion Battery
Frequency: 2442 MHz; Duty Cycle: 1:1
RF Output Power: 14.27 dBm (Average Conducted)
Medium: M2450 Medium parameters used: f = 2442 MHz; $\sigma = 2.00$ mho/m; $\epsilon_r = 50.1$; $\rho = 1000$ kg/m³

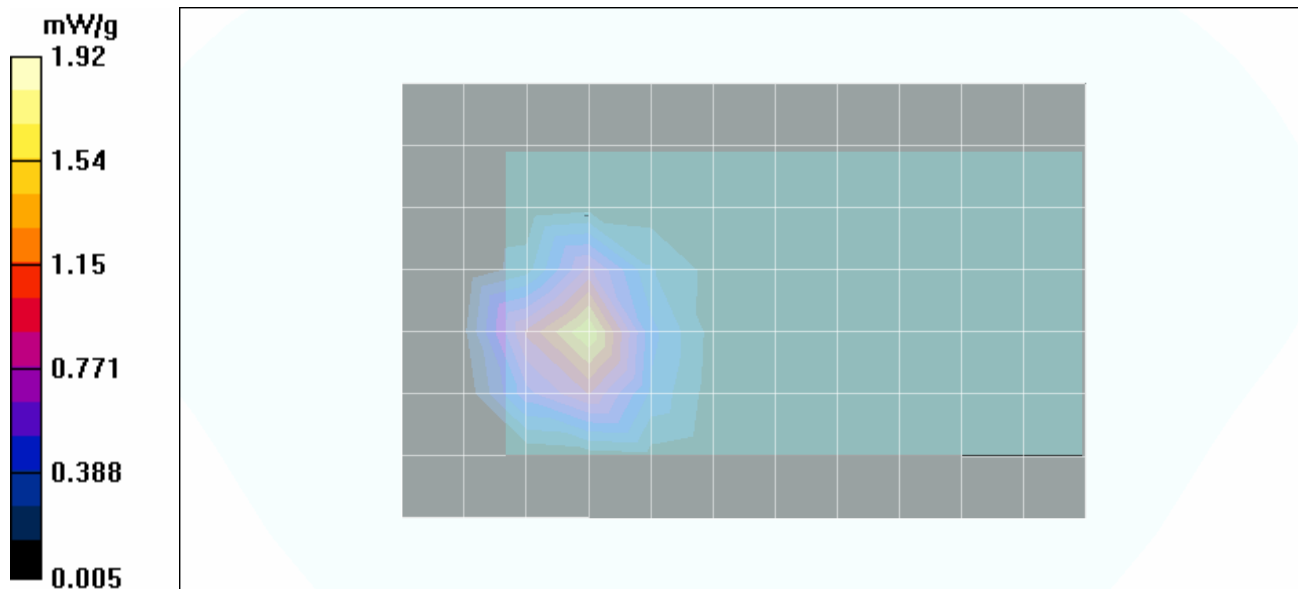
- Probe: EX3DV4 - SN3600; ConvF(6.31, 6.31, 6.31); Calibrated: 24/01/2007
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171


**Body SAR - Back Side (Battery Side) of Host PDA Touching Planar Phantom
3 mm Spacing from Back Side of DUT to Planar Phantom - Channel 7 - 2442 MHz**



Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.42 mW/g

**Body SAR - Back Side (Battery Side) of Host PDA Touching Planar Phantom
3 mm Spacing from Back Side of DUT to Planar Phantom - Channel 7 - 2442 MHz**

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.31 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 2.64 W/kg
SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.557 mW/g
Maximum value of SAR (measured) = 1.92 mW/g



Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 08/13/2007

Body SAR - 802.11b - 1 Mbps - Back Side of DUT & PDA - High Channel - 2462 MHz

DUT: Socket; Model: Go Wi-Fi! P500 Type: 802.11b/g Compact Flash Card for PDAs; Serial: 0723000131

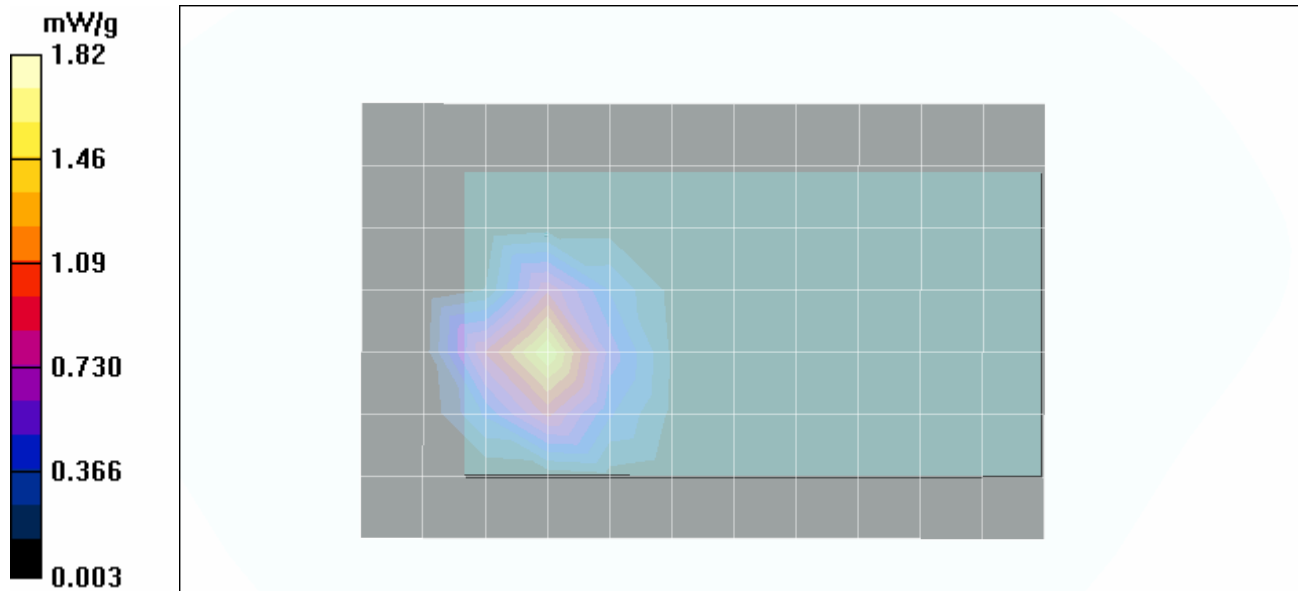
Ambient Temp: 24.5°C; Fluid Temp: 23.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%


Communication System: DSSS WLAN
 Power Source: Host PDA Li-ion Battery
 Frequency: 2462 MHz; Duty Cycle: 1:1
 RF Output Power: 14.10 dBm (Average Conducted)
 Medium: M2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.00 \text{ mho/m}$; $\epsilon_r = 50.1$; $\rho = 1000 \text{ kg/m}^3$



- Probe: EX3DV4 - SN3600; ConvF(6.31, 6.31, 6.31); Calibrated: 24/01/2007
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body SAR - Back Side (Battery Side) of Host PDA Touching Planar Phantom
 3 mm Spacing from Back Side of DUT to Planar Phantom - Channel 11 - 2462 MHz
 Area Scan (8x12x1):** Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (measured) = 1.47 mW/g

**Body SAR - Back Side (Battery Side) of Host PDA Touching Planar Phantom
 3 mm Spacing from Back Side of DUT to Planar Phantom - Channel 11 - 2462 MHz
 Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 7.66 V/m; Power Drift = 0.095 dB
 Peak SAR (extrapolated) = 2.60 W/kg
SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.524 mW/g
 Maximum value of SAR (measured) = 1.82 mW/g



Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs	2412 - 2462 MHz			
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	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 08/13/2007

Body SAR - 802.11b - 1 Mbps - Front Side of DUT & PDA - Low Channel - 2412 MHz

DUT: Socket; Model: Go Wi-Fi! P500 Type: 802.11b/g Compact Flash Card for PDAs; Serial: 0723000131

Ambient Temp: 24.5°C; Fluid Temp: 23.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN

Power Source: Host PDA Li-ion Battery

Frequency: 2412 MHz; Duty Cycle: 1:1

RF Output Power: 14.62 dBm (Average Conducted)

Medium: M2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 2.00 \text{ mho/m}$; $\epsilon_r = 50.1$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.31, 6.31, 6.31); Calibrated: 24/01/2007
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 10/07/2007
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front Side (LCD Side) of Host PDA Touching Planar Phantom 9 mm Spacing from Front Side of DUT to Planar Phantom - Channel 1 - 2412 MHz

Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.495 mW/g

Body SAR - Front Side (LCD Side) of Host PDA Touching Planar Phantom 9 mm Spacing from Front Side of DUT to Planar Phantom - Channel 1 - 2412 MHz

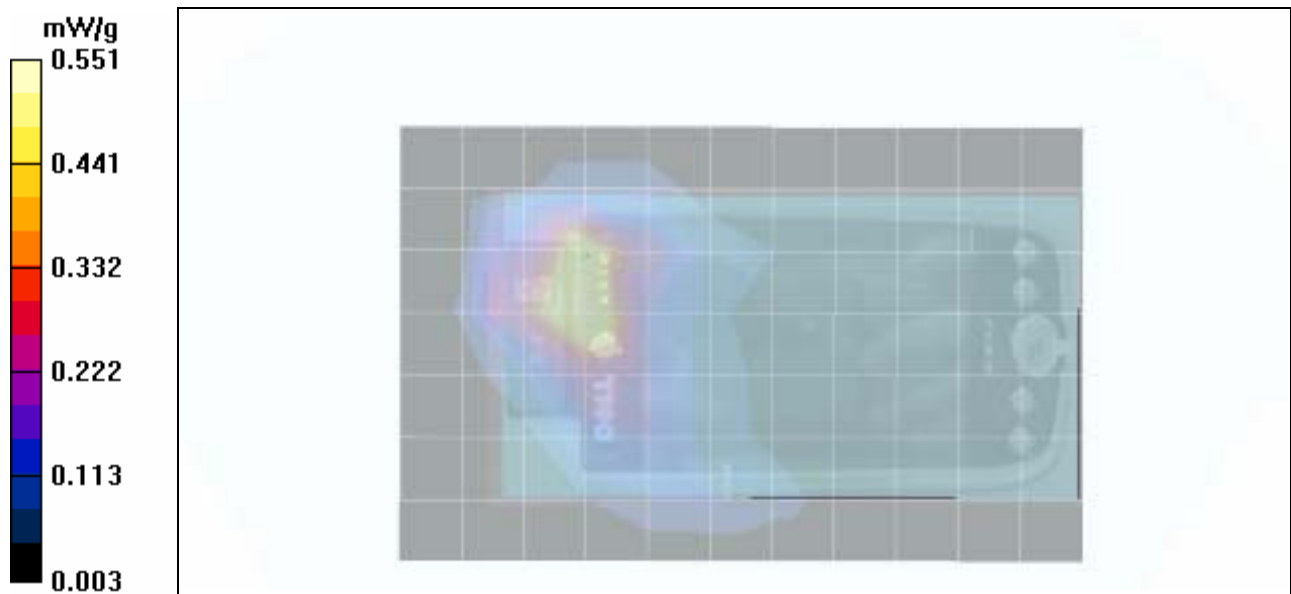
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$


Reference Value = 5.20 V/m; Power Drift = -0.042 dB



Peak SAR (extrapolated) = 0.762 W/kg

SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.177 mW/g


Maximum value of SAR (measured) = 0.551 mW/g





Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs	2412 - 2462 MHz			
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	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 08/13/2007

System Performance Check - 2450 MHz Dipole

DUT: Dipole 2450 MHz; Asset: 00025; Serial: 150; Validation: 06/08/2007

Ambient Temp: 24.5°C; Fluid Temp: 23.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2450$ MHz; $\sigma = 2.00$ mho/m; $\epsilon_r = 50.1$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(6.31, 6.31, 6.31); Calibrated: 24/01/2007

- Sensor-Surface: 2 mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn353; Calibrated: 10/07/2007

- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033

- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

2450 MHz Dipole - System Performance Check/Area Scan (6x10x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 16.7 mW/g

2450 MHz Dipole - System Performance Check/Zoom Scan (7x7x7)/Cube 0:

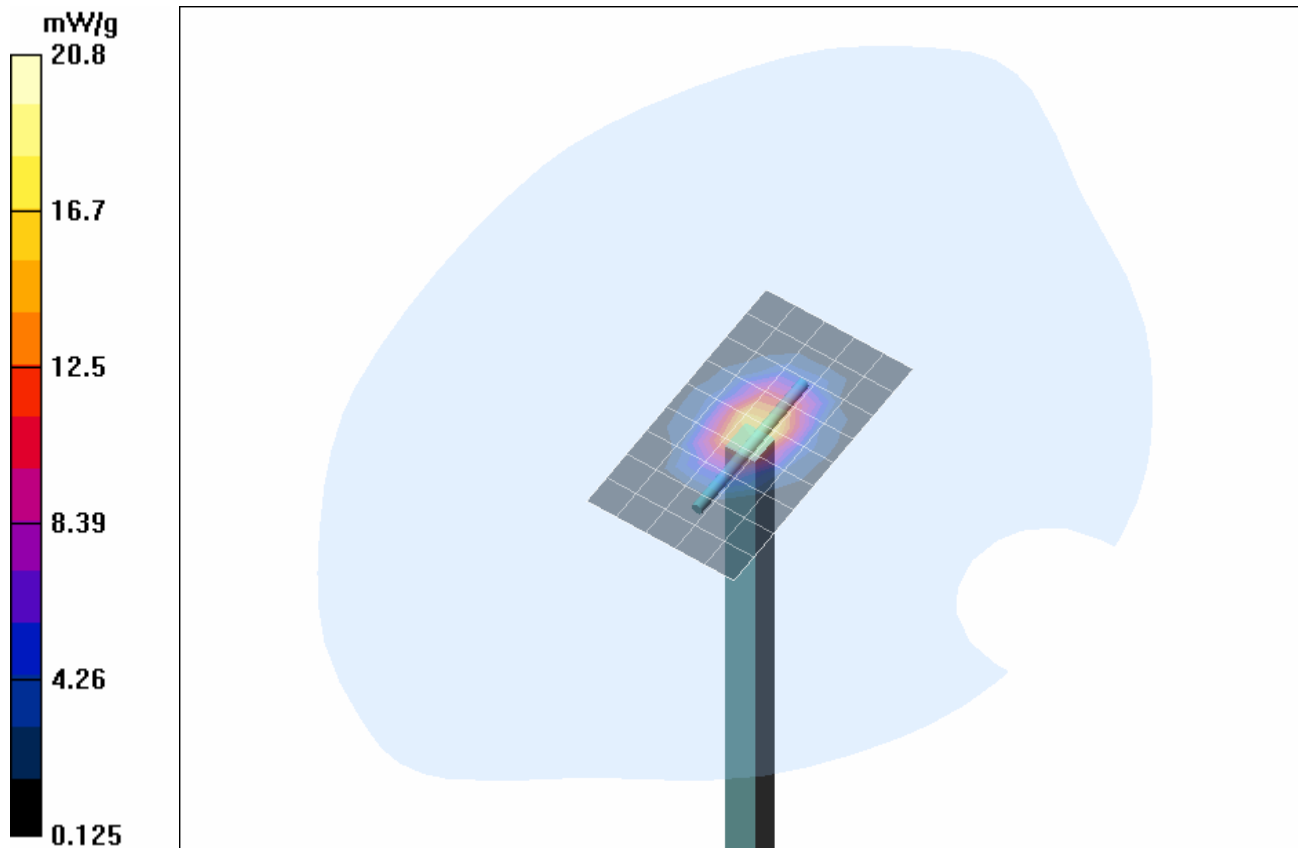
Measurement grid: dx=5mm, dy=5mm, dz=5mm


Reference Value = 104.5 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 27.6 W/kg

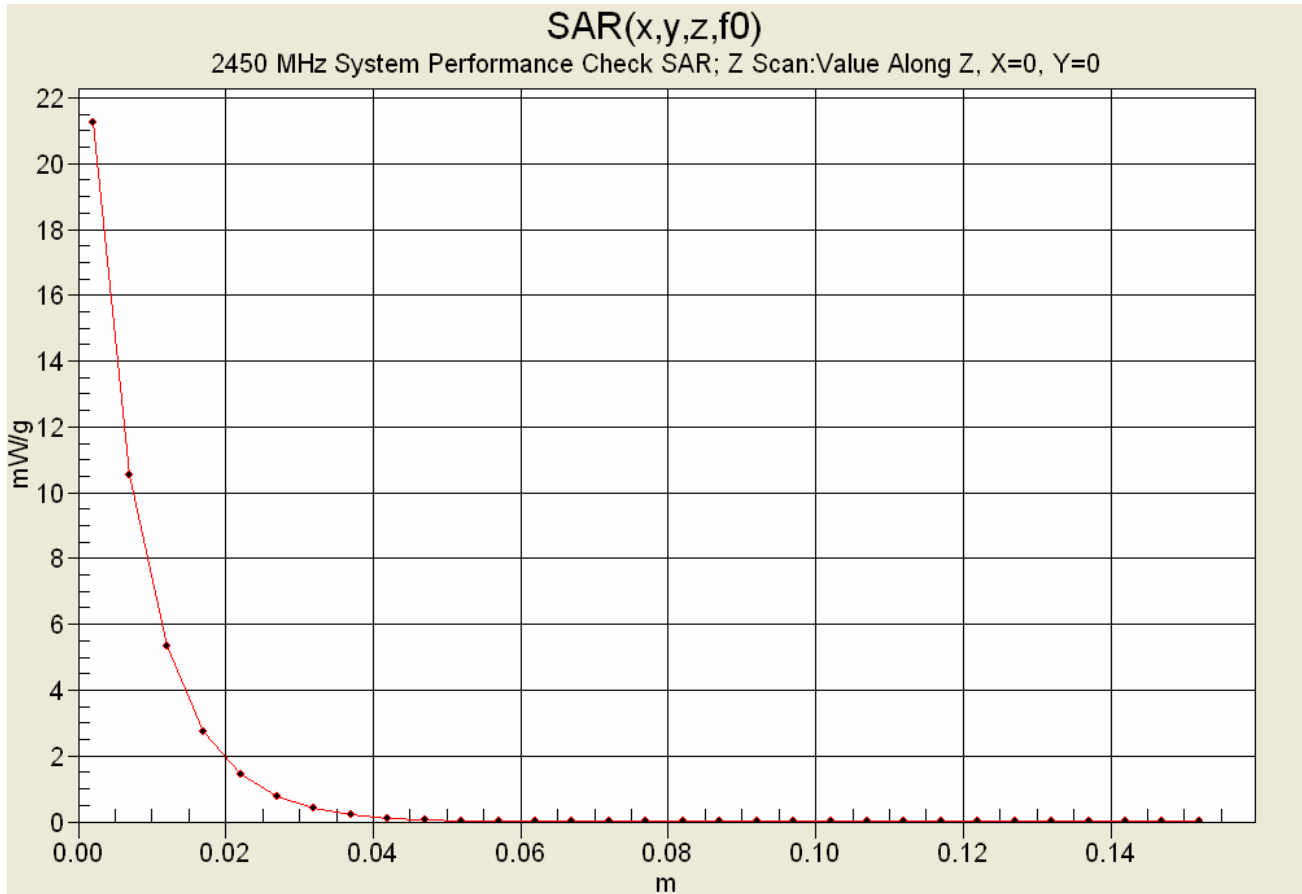
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.25 mW/g



Maximum value of SAR (measured) = 20.8 mW/g




Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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Z-Axis Scan



	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS


Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

2450 MHz System Performance Check & DUT Evaluation (Body)


Celltech Labs Inc.
 Test Result for UIM Dielectric Parameter
 Mon 13/Aug/2007
 Frequency (GHz)
 FCC_eHFCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
 FCC_sHFCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
 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
2.3500	52.83	1.85	50.42	1.89
2.3600	52.82	1.86	50.47	1.91
2.3700	52.81	1.87	50.40	1.91
2.3800	52.79	1.88	50.40	1.92
2.3900	52.78	1.89	50.30	1.94
2.4000	52.77	1.90	50.27	1.95
2.4100	52.75	1.91	50.25	1.96
2.4200	52.74	1.92	50.26	1.97
2.4300	52.73	1.93	50.20	1.99
2.4400	52.71	1.94	50.15	1.99
2.4500	52.70	1.95	50.13	2.00
2.4600	52.69	1.96	50.11	2.02
2.4700	52.67	1.98	50.09	2.04
2.4800	52.66	1.99	50.05	2.05
2.4900	52.65	2.01	50.00	2.06
2.5000	52.64	2.02	49.92	2.08
2.5100	52.62	2.04	49.95	2.09
2.5200	52.61	2.05	49.83	2.09
2.5300	52.60	2.06	49.85	2.12
2.5400	52.59	2.08	49.79	2.14
2.5500	52.57	2.09	49.85	2.15

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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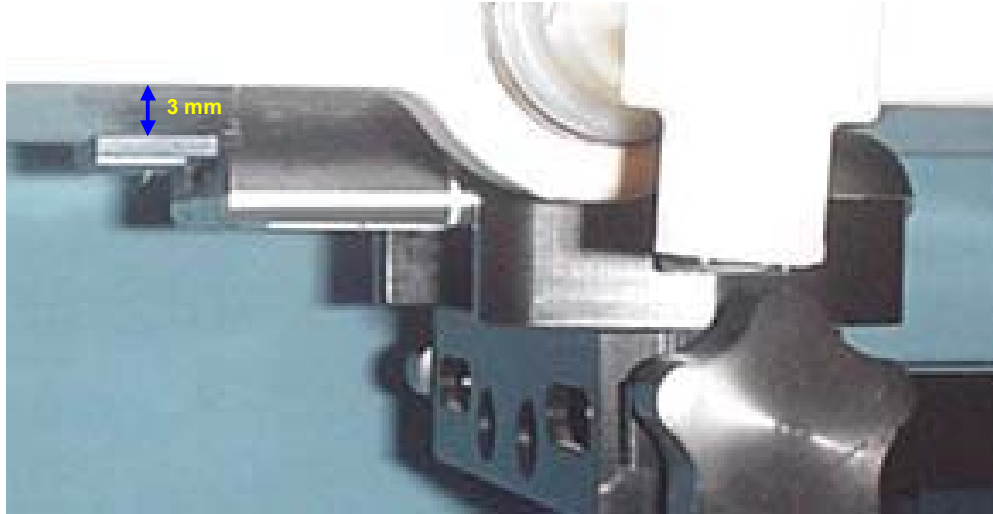
	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	


APPENDIX D - SAR TEST SETUP PHOTOGRAPHS



Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

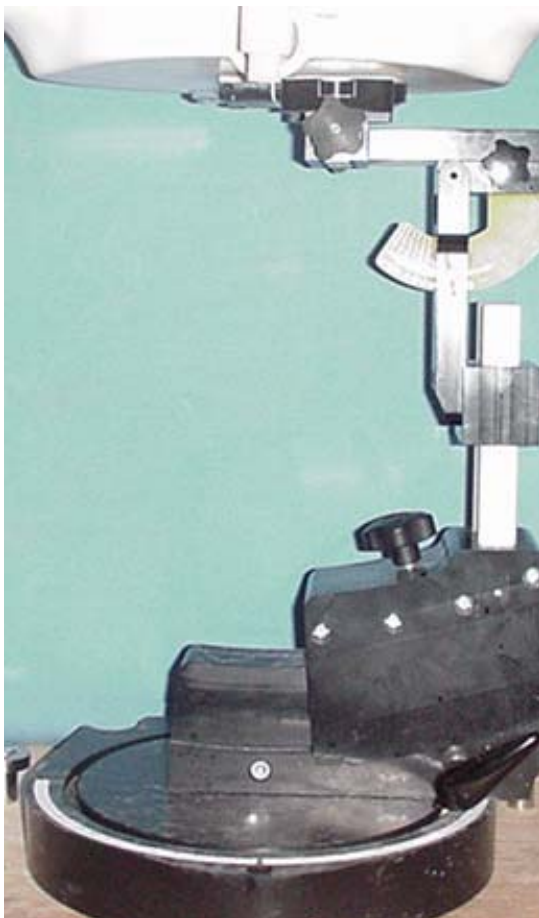
BODY-WORN SAR TEST SETUP PHOTOGRAPHS
 Back Side of Host PDA Touching Planar Phantom
 3 mm Spacing from Back Side of DUT to Planar Phantom






Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500		802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz	
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

BODY-WORN SAR TEST SETUP PHOTOGRAPHS
Front Side of Host PDA Touching Planar Phantom
9 mm Spacing from Front Side of DUT to Planar Phantom



Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500		802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz	
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

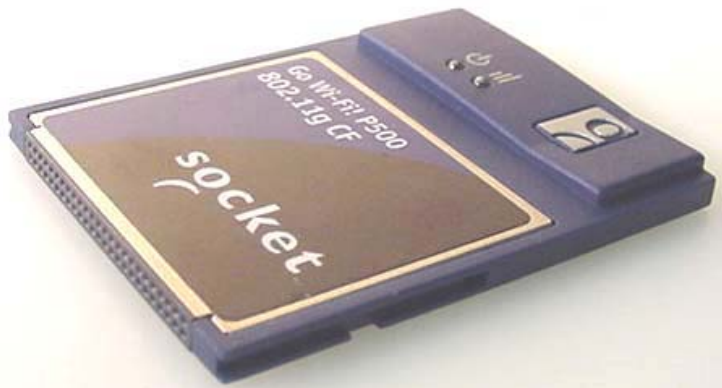
DUT PHOTOGRAPHS



Front of DUT




Back of DUT





Bottom End - Right Side of DUT



Top End - Left Side of DUT

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

DUT PHOTOGRAPHS
DUT with Dell Axim Host PDA




Front Side of DUT in Host PDA





Back Side of DUT in Host PDA



Host DUT Li-ion Battery

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

DUT PHOTOGRAPHS
DUT with Dell Axim Host PDA



Bottom Right Side of Host PDA



Top Left Side of Host DUT




CF Card Slot - Top End of PDA
(Compact Flash Card Removed)





3 mm Spacing from CF Card to Back Side of Host PDA





9 mm Spacing from CF Card to Front Side of Host PDA

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500		802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz	
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	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX E - SYSTEM VALIDATION

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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	Date of Evaluation:	June 08, 2007	Document Serial No.:	SV2450M-060807-R1.2	
	Evaluation Type:	System Validation	Validation Dipole:	2450 MHz	Fluid Type:

2450 MHz SYSTEM VALIDATION

Type:

2450 MHz Validation Dipole

Asset Number:

00025

Serial Number:

150

Place of Validation:

Celltech Labs Inc.

Date of Validation:

June 08, 2007

Celltech Labs Inc. certifies that the 2450 MHz System Validation was performed on the date indicated above.

Performed by:

Cheri Frangiadakis

Approved by:

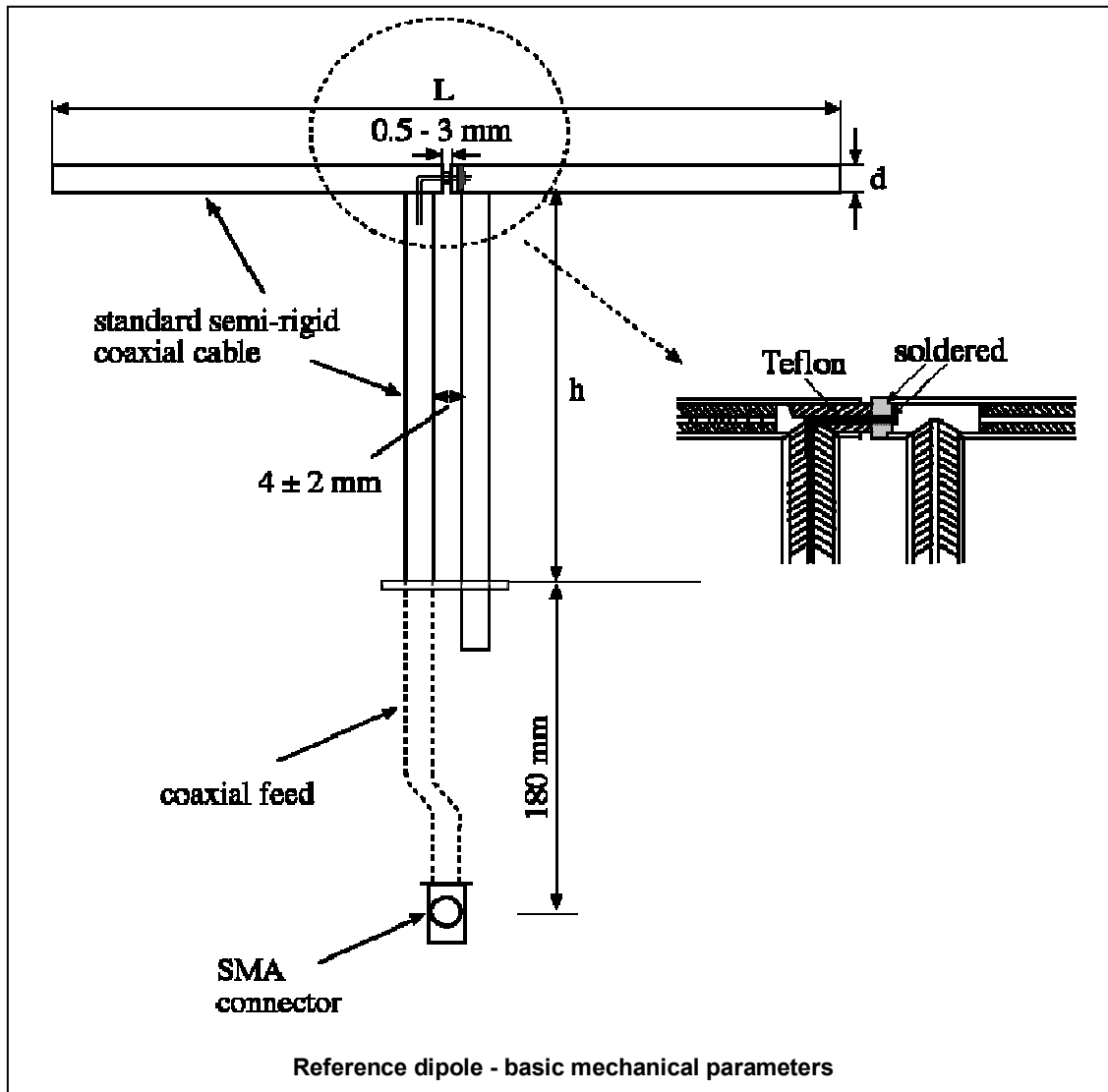
Jon Hughes

1. Dipole Construction & Electrical Characteristics

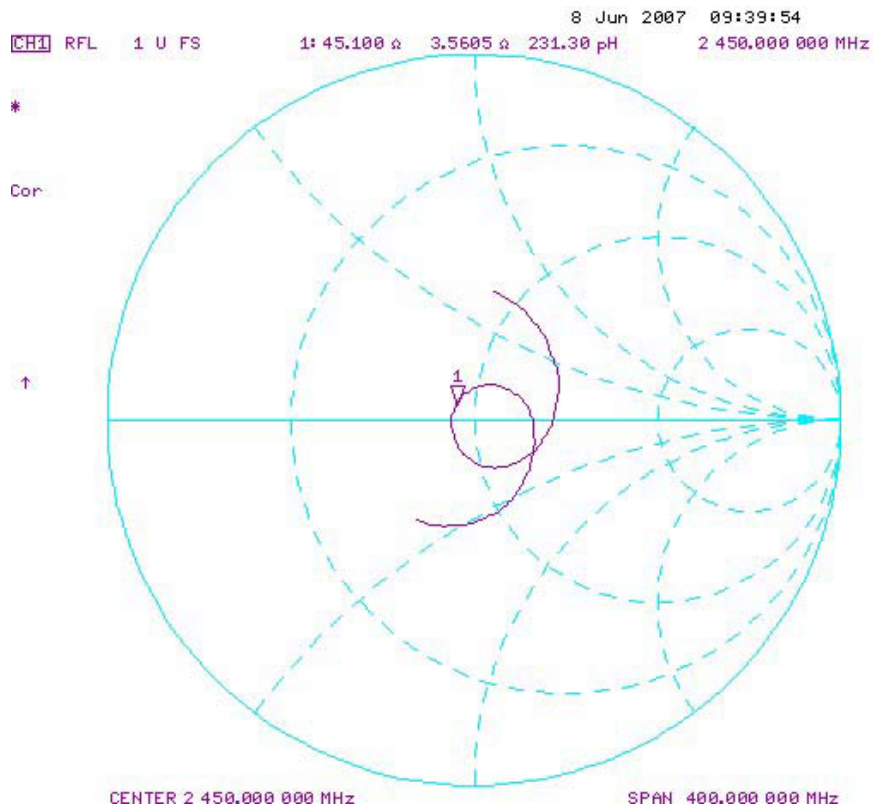
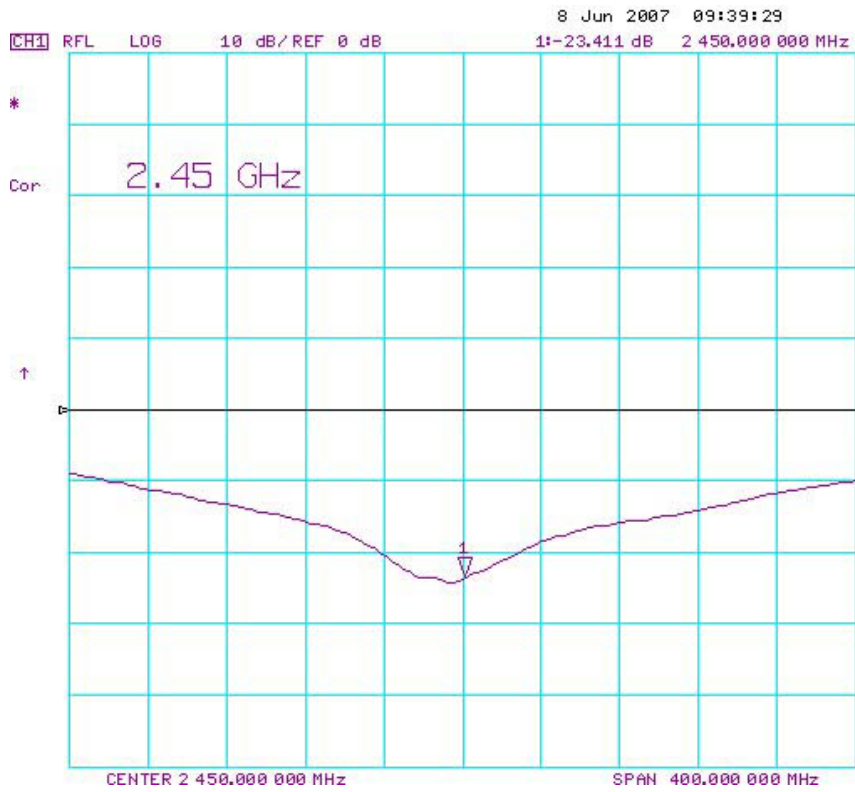
The validation dipole was constructed in accordance with the requirements specified in IEEE Standard 1528-2003 and International Standard IEC 62209-1:2005. The electrical properties were measured using an HP 8753ET Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 10.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

Feed point impedance at 2450 MHz
 $\text{Re}\{Z\} = 45.100\Omega$
 $\text{Im}\{Z\} = 3.5605\Omega$

Return Loss at 2450 MHz
 -23.411dB



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)



SAM Phantom



Fluid Depth (≥ 15.0 cm)

	Date of Evaluation:	June 08, 2007	Document Serial No.:	SV2450M-060807-R1.2	
	Evaluation Type:	System Validation	Validation Dipole:	2450 MHz	Fluid Type:

5. 2450 MHz System Validation Setup



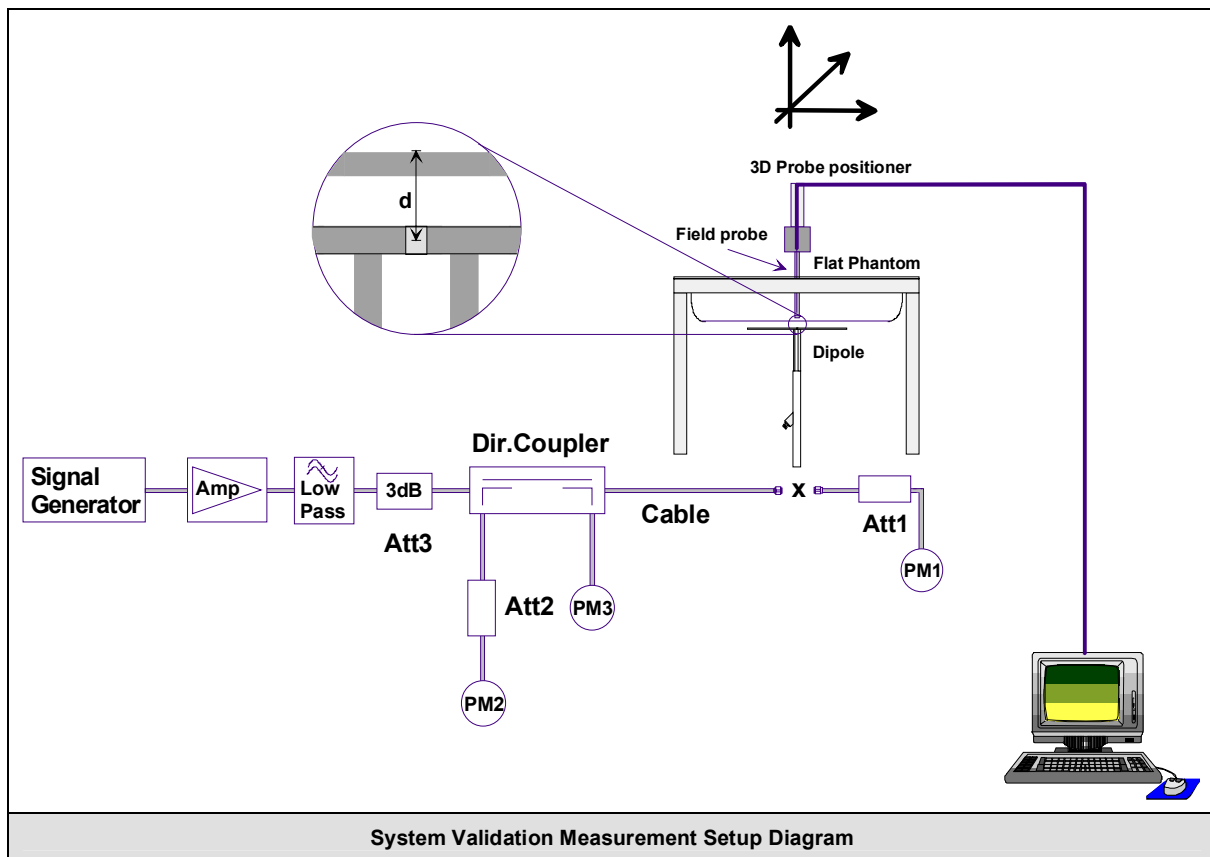
6. 2450 MHz Dipole Setup



7. SAR Measurement

Measurements were made at the planar section of the SAM phantom using a dosimetric E-field probe EX3DV4 (S/N: 3600, conversion factor 6.31). The SAR measurement was performed with the E-field probe in mechanical detection mode only. The setup and determination of the forward power into the dipole was performed using the procedures described below.

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.



8. Measurement Conditions

The SAM phantom was filled with 2450 MHz Body tissue simulant.

Relative Permittivity: 50.1 (-4.9% deviation from target)
 Conductivity: 1.99 mho/m (+2.1% deviation from target)
 Fluid Temperature: 21.5 °C (Start of Test) / 21.2 °C (End of Test)
 Fluid Depth: ≥ 15.0 cm

Environmental Conditions:

Ambient Temperature: 22.7 °C
 Barometric Pressure: 101.1 kPa
 Humidity: 31 %

The 2450 MHz Body tissue simulant consisted of the following ingredients:


Ingredient	Percentage by weight	
Water	69.98%	
Glycol Monobutyl	30.00%	
Salt	0.02%	
IEEE Target Dielectric Parameters:	$\epsilon_r = 52.7 (+/-5\%)$	$\sigma = 1.95 \text{ S/m } (+/-5\%)$

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
12.8	+/- 10%	13.4	+4.7%	51.2	+/- 10%	53.6	+4.7%
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
5.93	+/- 10%	6.03	+1.7%	23.7	+/- 10%	24.1	+1.7%

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 of Evaluation:	June 08, 2007	Document Serial No.:	SV2450M-060807-R1.2
	Evaluation Type:	System Validation	Validation Dipole:	2450 MHz
			Fluid Type:	Body

System Validation - 2450 MHz Dipole - June 8, 2007

DUT: Dipole 2450 MHz; Asset: 00025; Serial: 150

Ambient Temp: 22.7°C; Fluid Temp: 21.5°C; Barometric Pressure: 101.1 kPa; Humidity: 31%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.99 \text{ mho/m}$; $\epsilon_r = 50.1$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.31, 6.31, 6.31); Calibrated: 24/01/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

2450 MHz System Validation/Area Scan (6x10x1):

Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 13.1 mW/g

2450 MHz System Validation/Zoom Scan (7x7x7)/Cube 0:

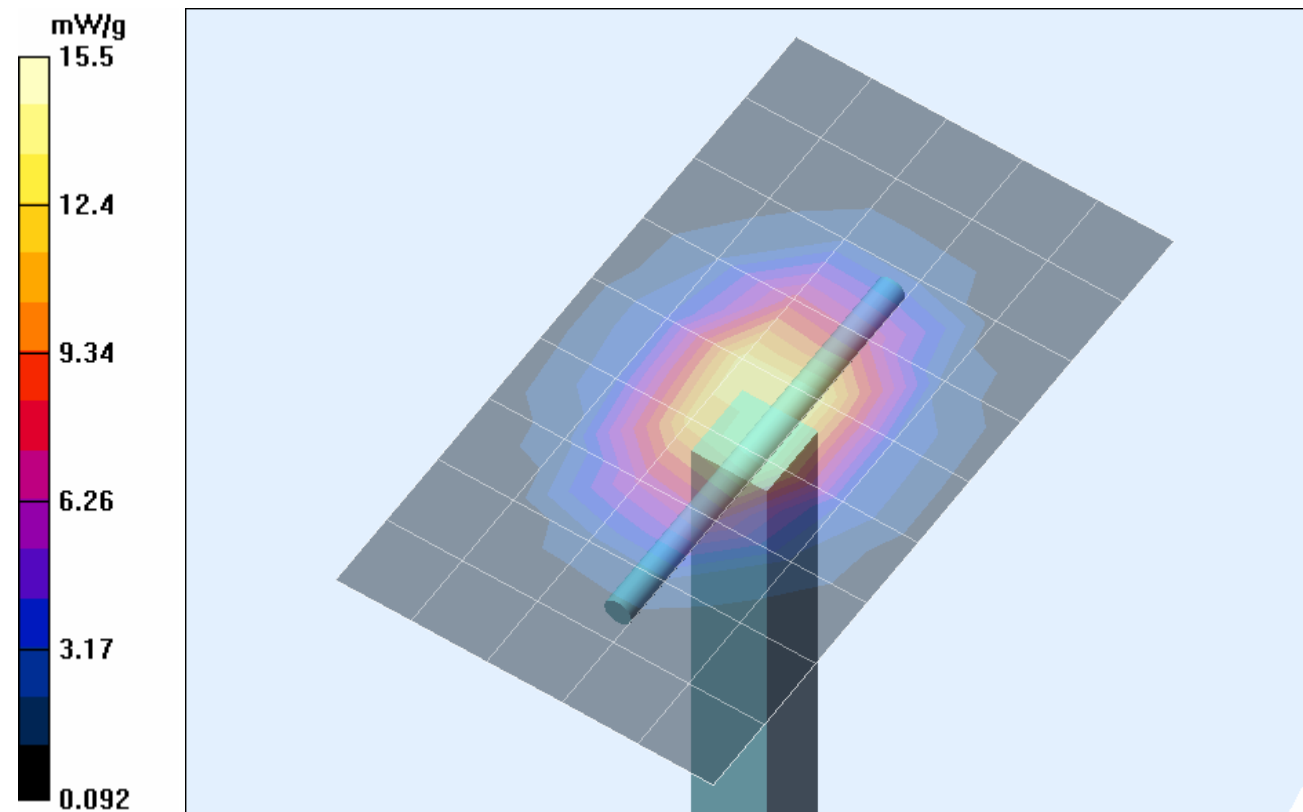
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

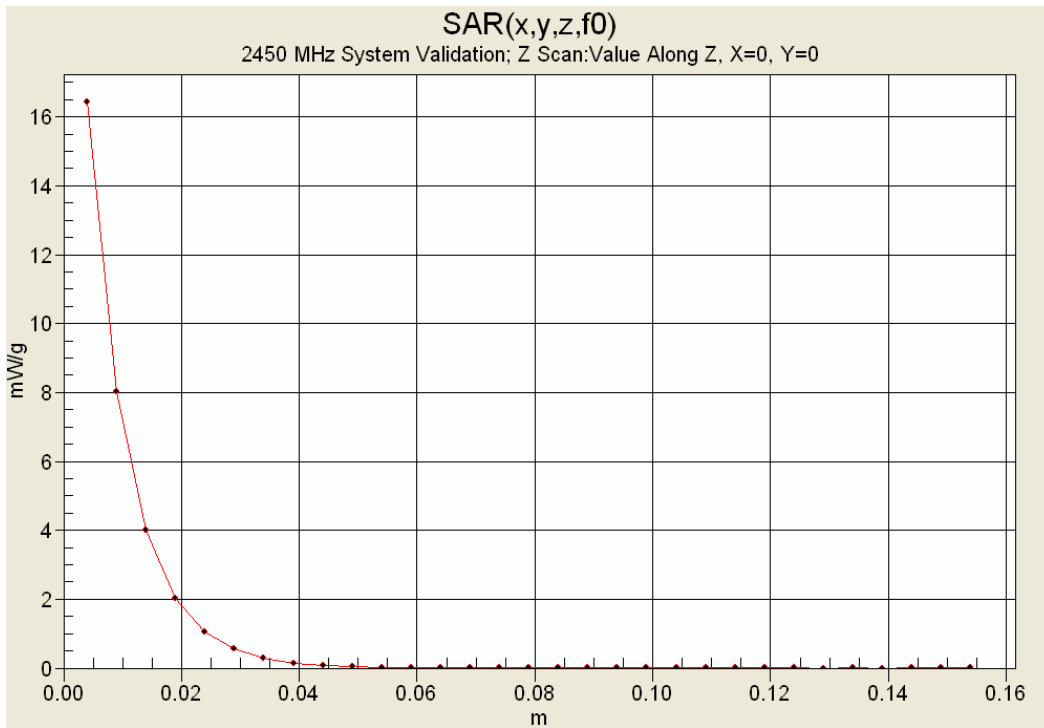
Reference Value = 91.9 V/m; Power Drift = -0.128 dB

Peak SAR (extrapolated) = 28.6 W/kg

SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.03 mW/g

Maximum value of SAR (measured) = 15.5 mW/g





10. Measured Fluid Dielectric Parameters

System Validation - 2450 MHz (Body)

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

Fri 08/Jun/2007

Frequency (GHz)

FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

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
2.3500	52.83	1.85	50.39	1.89
2.3600	52.82	1.86	50.32	1.90
2.3700	52.81	1.87	50.28	1.91
2.3800	52.79	1.88	50.28	1.93
2.3900	52.78	1.89	50.31	1.94
2.4000	52.77	1.90	50.26	1.95
2.4100	52.75	1.91	50.24	1.96
2.4200	52.74	1.92	50.21	1.96
2.4300	52.73	1.93	50.21	1.98
2.4400	52.71	1.94	50.13	1.99
2.4500	52.70	1.95	50.09	1.99
2.4600	52.69	1.96	50.01	2.03
2.4700	52.67	1.98	50.10	2.03
2.4800	52.66	1.99	50.12	2.05
2.4900	52.65	2.01	50.09	2.07
2.5000	52.64	2.02	50.08	2.07
2.5100	52.62	2.04	50.03	2.08
2.5200	52.61	2.05	50.02	2.09
2.5300	52.60	2.06	49.93	2.10
2.5400	52.59	2.08	49.87	2.11
2.5500	52.57	2.09	49.78	2.13

11. Measurement Uncertainties



UNCERTAINTY BUDGET FOR SYSTEM VALIDATION						
Error Description	Uncertainty Value $\pm\%$	Probability Distribution	Divisor	c_i 1g	Uncertainty Value $\pm\%$ (1g)	V_i or V_{eff}
Measurement System						
Probe calibration (2450 MHz)	5.9	Normal	1	1.0	5.9	∞
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	0.0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	1.0	Rectangular	1.732050808	1	0.6	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1.0	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	3.0	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	1.0	Rectangular	1.732050808	1	0.6	∞
Test Sample Related						
Device positioning	2.0	Normal	1.732050808	1	1.2	∞
Power drift	5.0	Rectangular	1.732050808	1	2.9	∞
Phantom and Setup						
Phantom uncertainty	4.0	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5.0	Rectangular	1.732050808	0.7	2.0	∞
Liquid conductivity (measured)	5.0	Rectangular	1.732050808	0.7	2.0	∞
Liquid permittivity (target)	5.0	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5.0	Rectangular	1.732050808	0.6	1.7	∞
Combined Standard Uncertainty					9.97	
Expanded Uncertainty (k=2)					19.94	
Note(s)	1. Measurement Uncertainty Table in accordance with IEC 62209-1:2005.					

	Date of Evaluation:	June 08, 2007	Document Serial No.:	SV2450M-060807-R1.2	
	Evaluation Type:	System Validation	Validation Dipole:	2450 MHz	Fluid Type:


UNCERTAINTY BUDGET FOR SYSTEM VALIDATION						
Error Description	Uncertainty Value $\pm\%$	Probability Distribution	Divisor	ci 1g	Uncertainty Value $\pm\%$ (1g)	V_i or V_{eff}
Measurement System						
Probe calibration (2450 MHz)	5.9	Normal	1	1	5.9	∞
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	1	Rectangular	1.732050808	1	0.6	∞
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)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					9.81	
Expanded Uncertainty (k=2)					19.61	
Note(s)	1. Measurement Uncertainty Table in accordance with IEEE 1528-2003.					

12. 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	21Jun06	21Jun07
SPEAG EX3DV4 E-Field Probe	00213	3600	24Jan07	24Jan08
2450 MHz Validation Dipole	00025	150	08Jun07	08Jun08
SPEAG SAM Phantom V4.0C	00154	1033	N/A	N/A
ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A	N/A
Gigatronics 8652A Power Meter	00007	1835272	26Mar07	26Mar08
Gigatronics 80701A Power Sensor	00014	1833699	22Jan07	22Jan08
Gigatronics 80701A Power Sensor	00109	1834366	26Mar07	26Mar08
HP 8753ET Network Analyzer	00134	US39170292	20Apr07	20Apr08
HP 8648D Signal Generator	00005	3847A00611	NCR	NCR
Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR

	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX F - PROBE CALIBRATION

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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Accredited by the Swiss Federal Office of Metrology and Accreditation
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: **EX3-3600_Jan07**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:3600**

Calibration procedure(s): **QA CAL-01.v5 and QA CAL-14.v3
Calibration procedure for dosimetric E-field probes**

Calibration date: **January 24, 2007**

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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

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

Issued: January 24, 2007

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,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:

- 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
- CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z} = NORM_{x,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*.
- DCP_{x,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 NORM_{x,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 EX3DV4

SN:3600

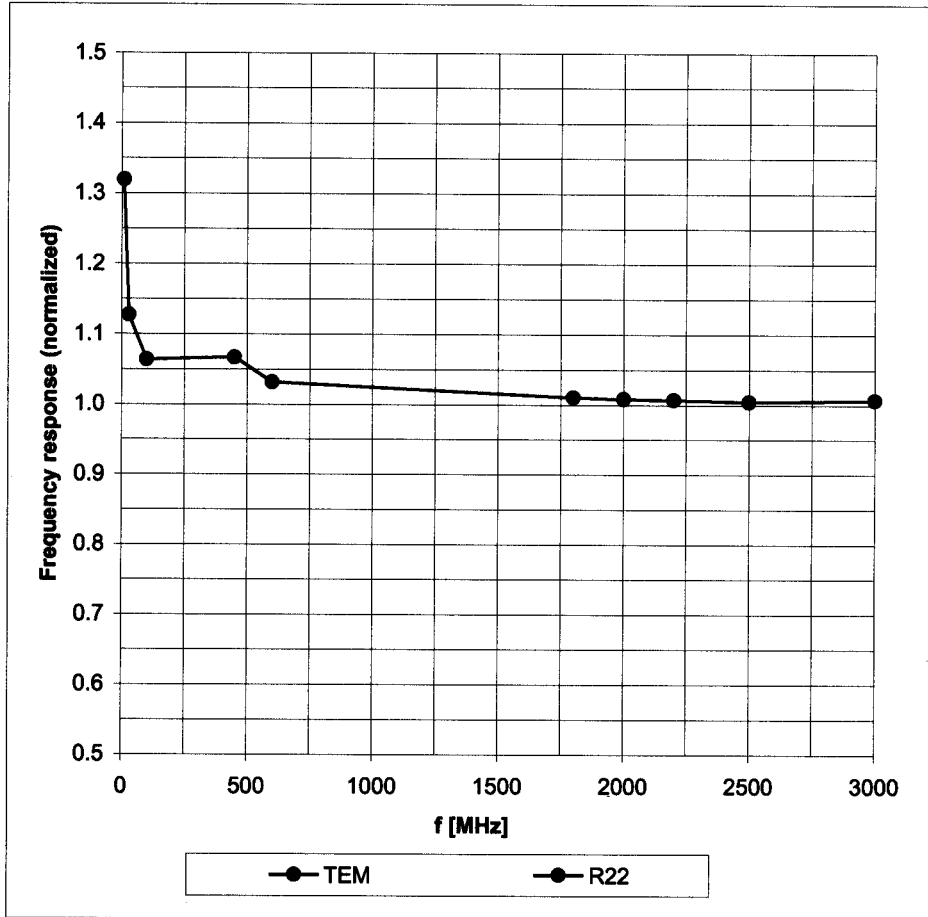
Manufactured: January 10, 2007
Calibrated: January 24, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

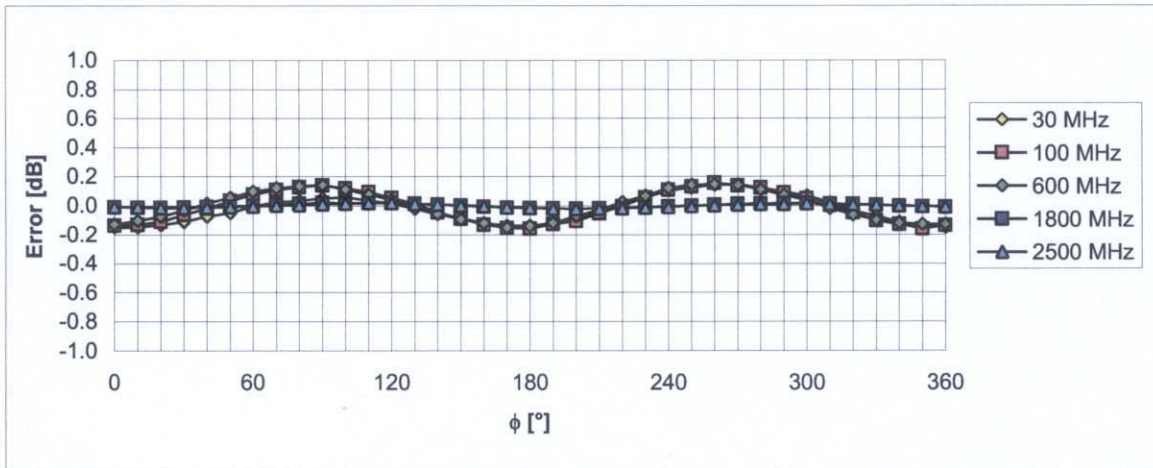
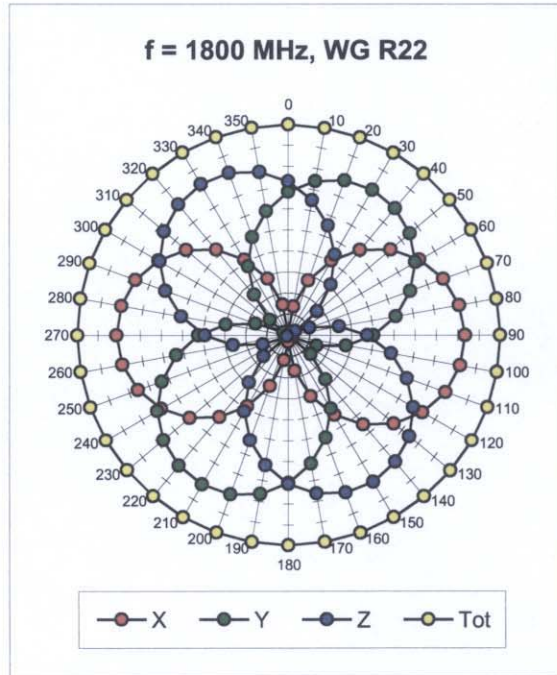
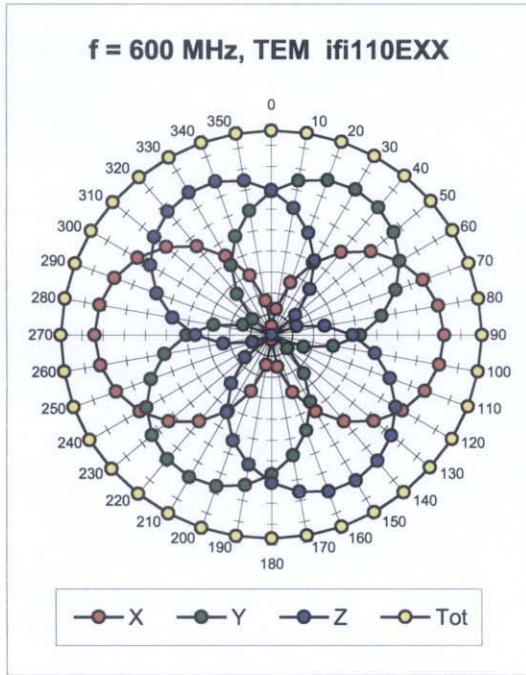
Frequency Response of E-Field

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



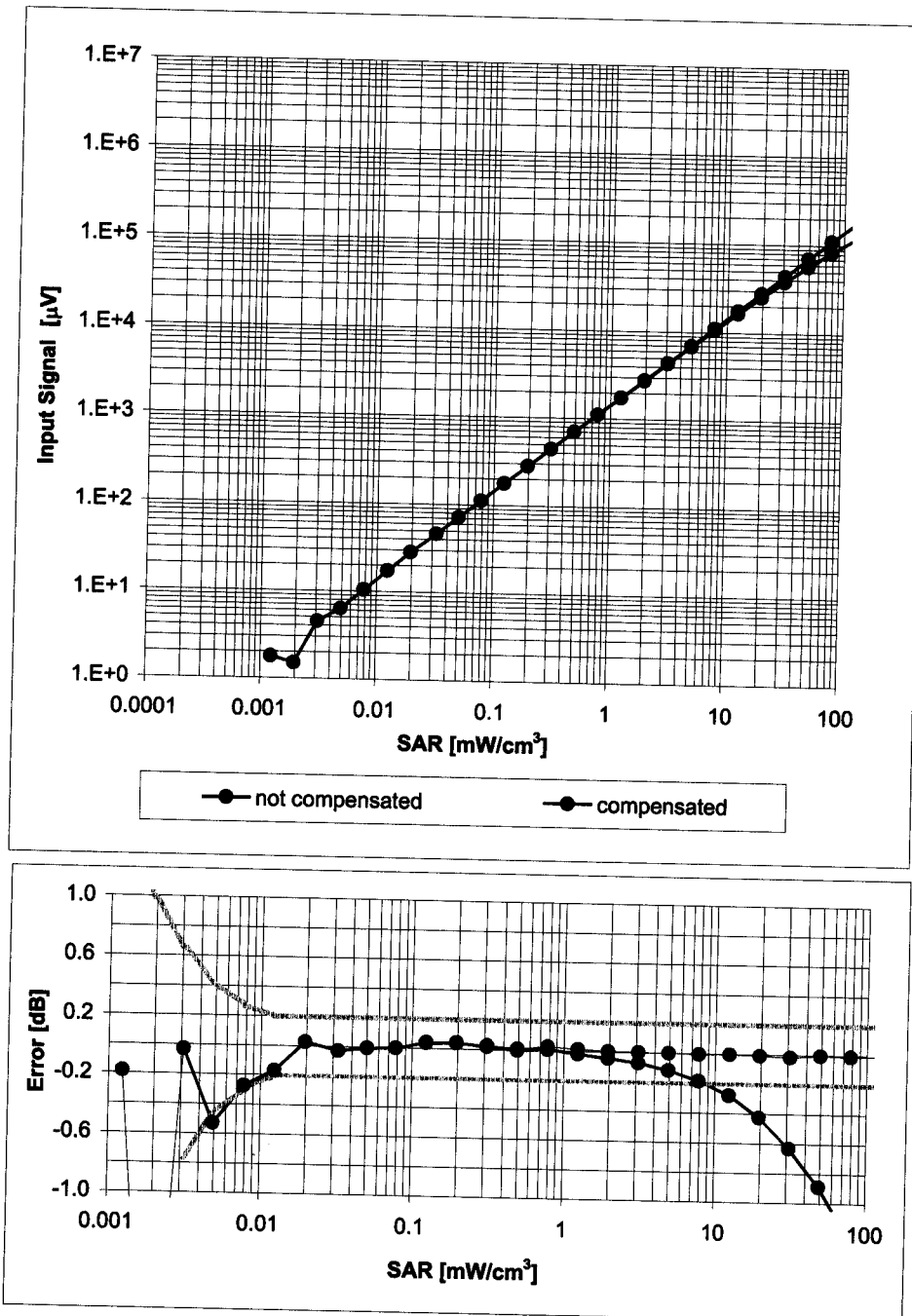
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$



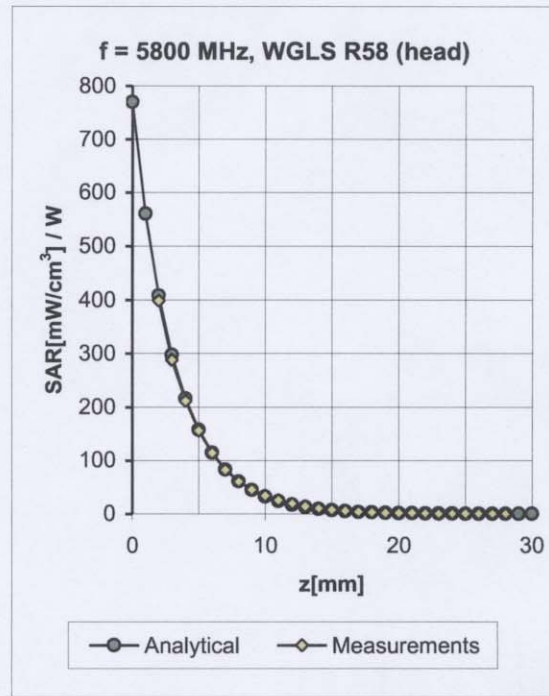
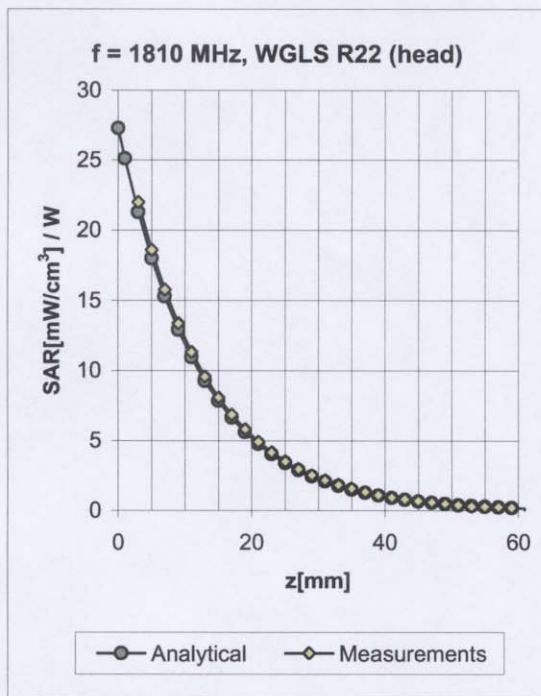
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment

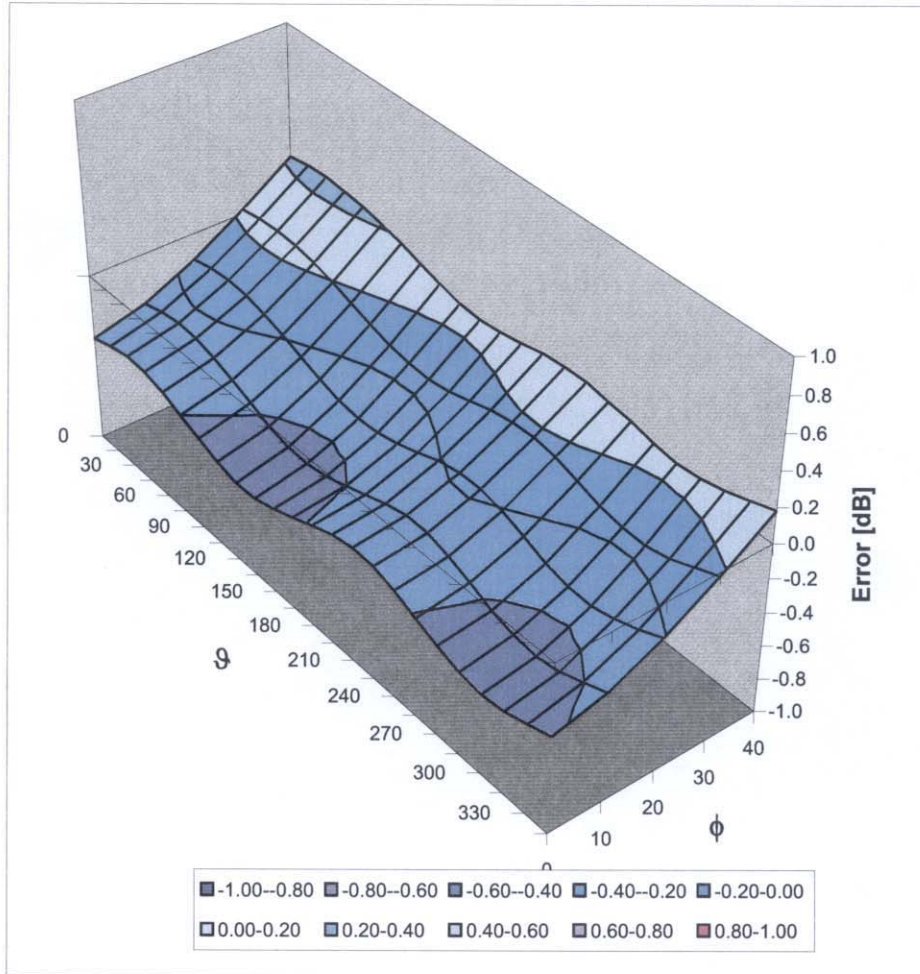


f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.20	1.01	7.02 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.26	1.05	6.59 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.44	1.00	6.37 ± 11.8% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.37	1.65	4.34 ± 13.1% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.24	1.06	6.85 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.16	1.35	6.54 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.42	1.00	6.31 ± 11.8% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.35	1.70	4.10 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.32	1.70	3.95 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.33	1.70	4.14 ± 13.1% (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: $\pm 2.6\%$ ($k=2$)

	<u>Date(s) of Evaluation</u> August 13, 2007	<u>Test Report Serial No.</u> 072407LUB-T844-S15W	<u>Test Report Revision No.</u> Revision 1.0	 Certificate No. 2470.01
	<u>Test Report Issue Date</u> August 17, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX G - SAM PHANTOM CERTIFICATE OF CONFORMITY

Company:	Socket Communications Inc.	FCC ID:	LUB-P500CF-1	IC ID:	2529A-P500CF1	
Model(s):	Go Wi-Fi! P500	802.11b/g WLAN Compact Flash Card for PDAs		2412 - 2462 MHz		
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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

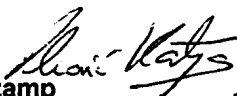
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

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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