



<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1
<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population



RF EXPOSURE EVALUATION

SPECIFIC ABSORPTION RATE

SAR TEST REPORT

FOR

UNIDEN AMERICA CORPORATION

PORTABLE 5.8 GHZ CORDLESS TELEPHONE HANDSET

Model(s): UP855BH / TRU9385

FCC ID: AMWUP855

IC ID: 513C-UP855

TEST STANDARD(S) & PROCEDURE(S) APPLIED
FCC OET Bulletin 65, Supplement C (01-01)
FCC OET SAR Measurement Requirements for 3 - 6 GHz
Industry Canada RSS-102 Issue 2
IEEE 1528-2003

Test Report Serial No.

050107AMW-T829-S15T

Test Report Revision No.(s)

Revision 1.1 (June 20, 2007)

Revision 1.0 (May 18, 2007)

Test Lab and Location

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<u>Testing and Report By:</u> Cheri Frangiadakis Celltech Labs Inc.	<u>Test Report Reviewed By:</u> Jonathan Hughes Celltech Labs Inc.
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Company: Uniden America Corporation	FCC ID: AMWUP855	IC ID: 513C-UP855	
Model(s): UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset	5725.8-5848.9 MHz	
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DECLARATION OF COMPLIANCE SAR RF EXPOSURE EVALUATION

<u>Test Lab and Location</u> CELLTECH LABS INCORPORATED Testing and Engineering Services 21-364 Lougheed Road Kelowna, B.C. V1X 7R8 Canada Phone: 250-765-7650 Fax: 250-765-7645 e-mail: info@celltechlabs.com web site: www.celltechlabs.com		<u>Company Information</u> UNIDEN AMERICA CORPORATION Engineering Services Office 181 N. Country Club Road Lake City, SC 29560 United States	
FCC IDENTIFIER: IC IDENTIFIER: Model No.(s):	AMWUP855 513C-UP855 UP855BH / TRU9385		
Standard(s) Applied: Procedure(s) Applied:	FCC 47 CFR §2.1093; Health Canada Safety Code 6 FCC OET Bulletin 65, Supplement C (01-01) FCC OET SAR Measurement Requirements for 3 - 6 GHz Industry Canada RSS-102 Issue 2; IEEE 1528-2003		
FCC Device Classification: IC Device Classification:	Part 15 Spread Spectrum Transmitter (DSS) Low Power License-Exempt Radiocommunication Device (RSS-210 Issue 6)		
Device Description: Transmit Frequency Range(s): Spread Spectrum Method: Mode(s) of Operation: Max. Duty Cycle Tested: Max. RF Output Power Tested:	Portable 5.8 GHz Cordless Telephone Handset 5725.8 - 5848.9 MHz (ISM Band) Frequency Hopping TDMA/TDD (4 Uplink Slots) 25 % (Source-Based Time-Averaged) 117 mW / 20.7 dBm EIRP (5787.35 MHz) (Source-Based Time-Averaged)		
Battery Type(s) Tested: Antenna Type(s) Tested:	Ni-MH 3.6 V, 500 mAh (Model: BT-1004) Internal		
Body-worn Accessories Tested: Audio Accessories Tested:	Plastic Belt-Clip (P/N: UP-820B) Headset with Boom-Microphone (P/N: HS910)		
Max. SAR Level(s) Evaluated:	Head: 0.0115 W/kg (1g average) Body: 0.249 W/kg (1g average)		

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device is 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 Requirements for 3-6 GHz, Industry Canada RSS-102 Issue 2 and IEEE Standard 1528-2003. 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:

Jonathan Hughes
Celltech Labs Inc.



Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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1.0 INTRODUCTION

This measurement report demonstrates that the UNIDEN AMERICA CORPORATION Model(s): UP855BH / TRU9385 Portable 5.8 GHz Cordless Telephone Handset 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 measurement procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]), FCC OET SAR Measurement Requirements for 3 - 6 GHz (see reference [7]), IC RSS-102 Issue 2 (see reference [4]), and IEEE Standard 1528-2003 (see reference [5]) were employed. A description of the product, 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 DESCRIPTION of DEVICE UNDER TEST (DUT)

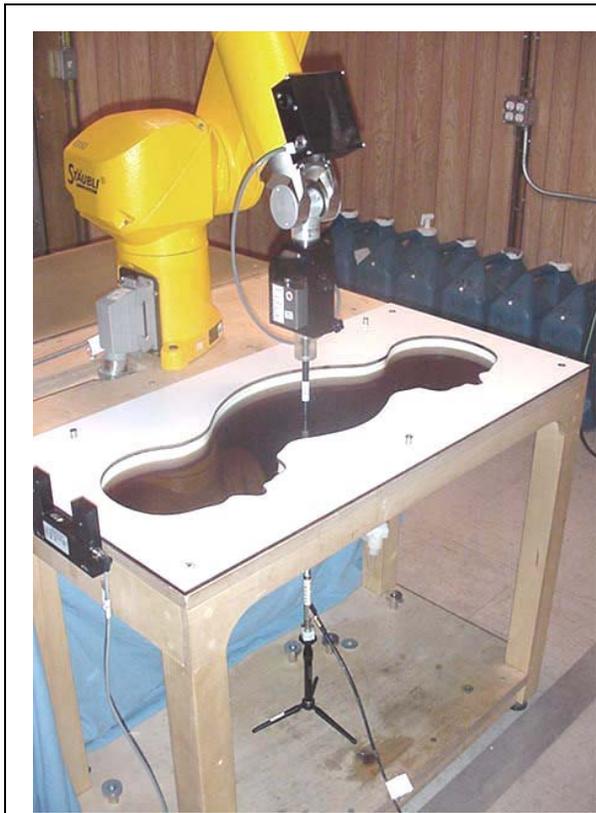
Standard(s) Applied	FCC	47 CFR §2.1093		
	IC	Health Canada Safety Code 6		
Procedure(s) Applied	FCC	OET Bulletin 65, Supplement C (01-01)		
		OET SAR Measurement Requirements for 3 - 6 GHz		
	IC	RSS-102 Issue 2		
Device Classification(s)	IEEE	1528-2003		
	FCC	Part 15 Spread Spectrum Transmitter (DSS)	FCC §15 Subpart C	
	IC	Low Power License-Exempt Radiocommunication Device	RSS-210 Issue 6	
Device Description	Portable 5.8 GHz Cordless Telephone Handset			
RF Exposure Category	General Population / Uncontrolled Environment			
FCC IDENTIFIER	AMWUP855			
IC IDENTIFIER	513C-UP855			
Model No.(s)	UP855BH		TRU9385	
Test Sample Serial No.	None		Identical Prototype	
Mode(s) of Operation	TDMA / TDD (4 Uplink Slots)			
Max Duty Cycle Tested	25%	Source-Based Time-Averaged		Crest Factor: 1:4
Transmit Frequency Range(s)	5725.8 - 5848.9 MHz (ISM Band)			
Max. RF Output Power Tested	117 mW	20.7 dBm	EIRP	5787.3503 MHz Source-Based Time-Averaged
Antenna Type(s) Tested	Internal			
Battery Type(s) Tested	Ni-MH	3.6 V	500 mAh	Model: BT-1004
Body-worn Accessories Tested	Plastic Belt-Clip		P/N: UP-820B	
Audio Accessories Tested	Headset with Boom-Microphone		P/N: HS910	
Additional Audio Accessories (Addit. SAR Evaluations Not Required)	Headset		P/N: HS915	

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3.0 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 alternate 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



SAM Phantom with 5 GHz Tissue Simulant

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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4.0 MEASUREMENT SUMMARY

HEAD SAR EVALUATION RESULTS

Freq. MHz	Chan.	Test Mode	Uplink Slots	Duty Cycle	Battery Type	Phantom Section	Test Position	DUT SBTA Start Power ³	SAR Drift During Test ⁴	Measured SAR 1g
								mW	dB	W/kg
5787.3503	70	TDMA/TDD	4	25 %	Ni-MH	Right Ear	Cheek/Touch	117	~	0.00899
5787.3503	70	TDMA/TDD	4	25 %	Ni-MH	Right Ear	Ear/Tilt (15°)	117	~	0.000484
5787.3503	70	TDMA/TDD	4	25 %	Ni-MH	Left Ear	Cheek/Touch	117	~	0.0115
5787.3503	70	TDMA/TDD	4	25 %	Ni-MH	Left Ear	Ear/Tilt (15°)	117	~	0.00177
ANSI / IEEE C95.1: 2005 - SAFETY LIMIT				BRAIN: 1.6 W/kg (averaged over 1 gram)			Spatial Peak Uncontrolled Exposure / General Population			
Test Date(s)		May 9, 2007				Relative Humidity		33	%	
Measured Fluid Type		5800 MHz Brain				Atmospheric Pressure		102.2	kPa	
Dielectric Constant ϵ_r		IEEE Target		Measured	Deviation	Ambient Temperature		22.9	°C	
		35.3	± 10%	35.8	+1.4%	Fluid Temperature		21.9	°C	
Conductivity σ (mho/m)		IEEE Target		Measured	Deviation	Fluid Depth		≥ 15	cm	
		5.27	± 5%	5.47	+3.8%	ρ (Kg/m³)		1000		

BODY SAR EVALUATION RESULTS

Freq. (MHz)	Chan.	Test Mode	Uplink Slots	Duty Cycle	Battery Type	Phantom Section	DUT Position to Planar Phantom	Accessories			DUT SBTA Start Power ³	SAR Drift During Test ⁵	Measured SAR 1g
								Body-worn	Spacing	Audio	mW	dB	W/kg
5787.3503	70	TDMA/TDD	4	25%	Ni-MH	Planar	Back Side	Belt-Clip	1.6 cm	Headset	117	-0.214	0.249
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)		May 10, 2007				Relative Humidity		33	%				
Measured Fluid Type		5800 MHz Body				Atmospheric Pressure		102.2	kPa				
Dielectric Constant ϵ_r		IEEE Target		Measured	Deviation	Ambient Temperature		24.6	°C				
		48.2	± 10%	44.6	-7.4%	Fluid Temperature		21.8	°C				
Conductivity σ (mho/m)		IEEE Target		Measured	Deviation	Fluid Depth		≥ 15	cm				
		6.00	± 5%	5.97	-0.5%	ρ (Kg/m³)		1000					

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MEASUREMENT SUMMARY (Cont.)

Note(s):

- 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.
- If the SAR measurements performed at the mid channel were ≥ 3 dB below the SAR limit; SAR evaluation for the low and high channels was optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
- The referenced output power (EIRP) of the DUT was measured by Timco Engineering Inc.
- The power drift of the DUT was measured by the DASY4 system during the head SAR evaluations. The power drifts were measured at the reference point of the phantom with low SAR. The drift values reported for the head SAR evaluations were inaccurate due to the SAR value at the reference point was close to the measurement noise floor and therefore the drifts are not reported.
- The power drift of the DUT measured by the DASY4 system during the body SAR evaluation was $< 5\%$ from the start power.
- The DUT battery was fully charged prior to the SAR evaluations.
- The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within $\pm 2^\circ\text{C}$ of the fluid temperature reported during the dielectric parameter measurements.
- The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
- The SAR evaluations were performed within 24 hours of the system performance check.

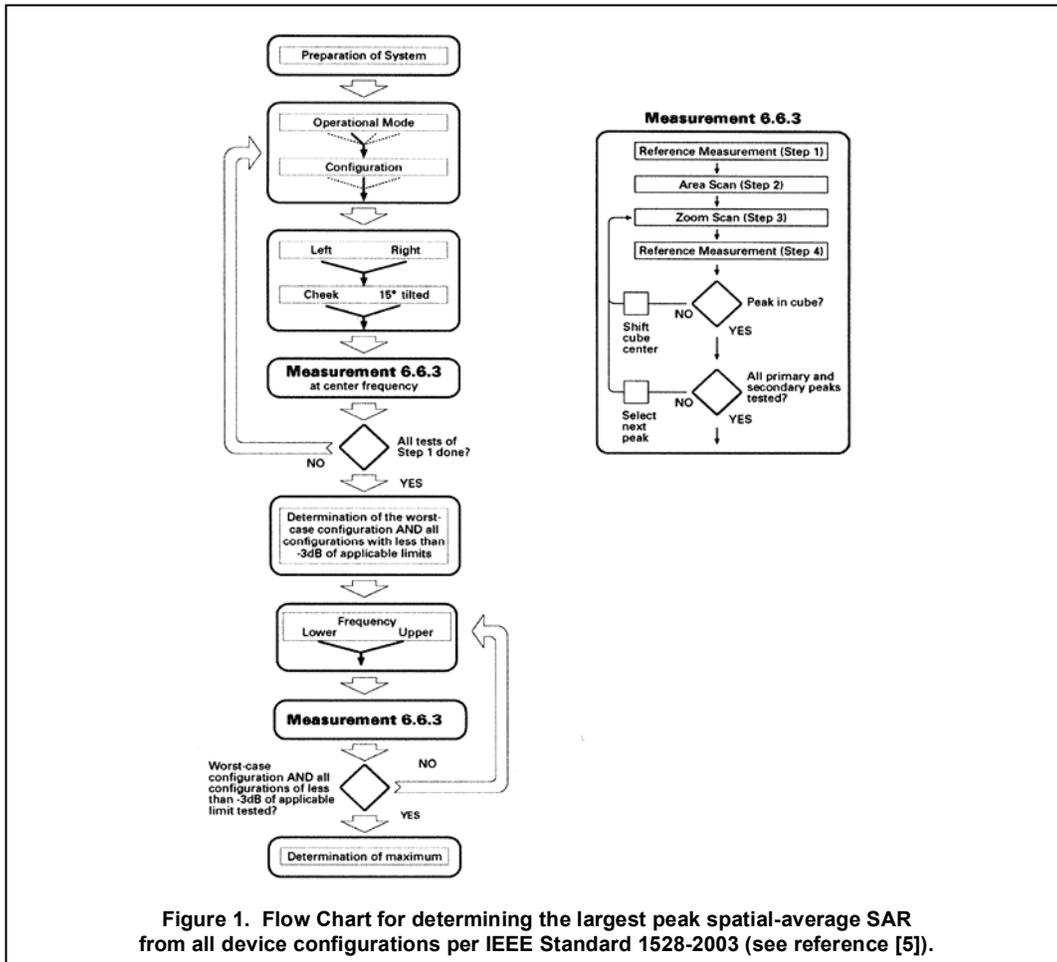


Figure 1. Flow Chart for determining the largest peak spatial-average SAR from all device configurations per IEEE Standard 1528-2003 (see reference [5]).

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5.0 DETAILS OF SAR EVALUATION

The UNIDEN AMERICA CORPORATION Model(s): UP855BH / TRU9385 Portable 5.8 GHz Cordless Telephone Handset was compliant for localized Specific Absorption Rate (Uncontrolled Exposure) based on the test provisions and conditions described below. The detailed test setup photographs are shown in Appendix E.

Ear-held Configuration

- 1) The DUT was tested in an ear-held configuration on both the left and right sections of the SAM phantom at the mid channel of the operating band. If the SAR level at the mid channel of the frequency band for each test configuration (left ear, right ear, cheek/touch, ear/tilt) was ≥ 3 dB below the SAR limit, measurements at the low and high channels were optional (per FCC OET Bulletin 65, Supplement C, Edition 01-01 - see reference [3]).
 - a) The handset was placed in the device holder in a normal operating position with the test device reference point located along the vertical centerline on the front of the device aligned to the ear reference point, with the center of the earpiece touching the center of the ear spacer of the SAM phantom.
 - b) With the handset positioned parallel to the cheek, the test device reference point was aligned to the ear reference point on the head phantom, and the vertical centerline was aligned to the phantom reference plane (initial ear position).
 - c) While maintaining the three alignments, the body of the handset was gradually adjusted to each of the following test positions:
 - Cheek/Touch Position: the handset was brought toward the mouth of the head phantom by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.

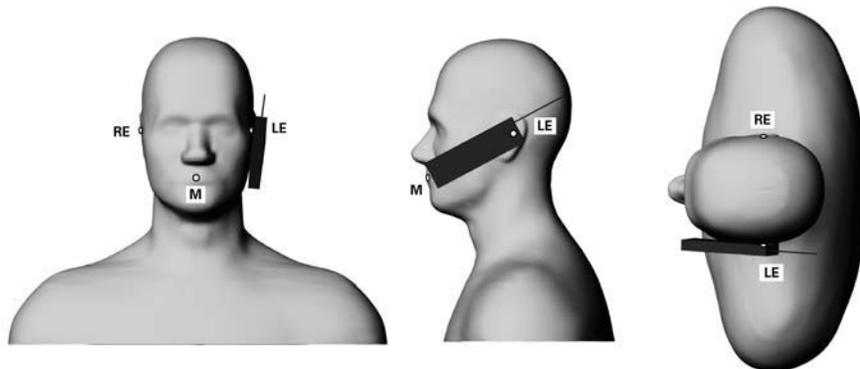


Figure 2. Phone position 1, “cheek” or “touch” position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning, are indicated (Shoulders are shown for illustration only).

- Ear/Tilt Position: With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

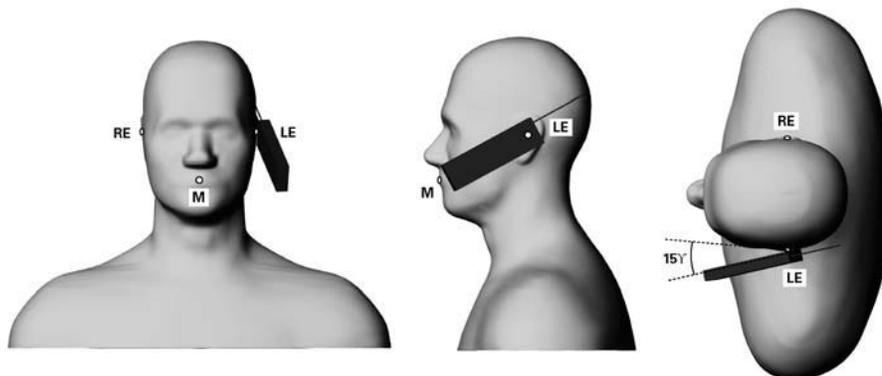


Figure 3. Phone position 2, “tilted position.” The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning, are indicated (Shoulders are shown for illustration only).

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DETAILS OF SAR EVALUATION (Cont.)

Body-worn Configuration

- 2) The DUT was tested in a body-worn configuration with the back of the device placed parallel to the outer surface of the SAM phantom (planar section). The attached plastic belt-clip accessory was touching the outer surface of the SAM phantom (planar section) and provided a 1.6 cm spacing from the back of the handset to the SAM phantom (planar section).
- 3) A headset audio accessory provided by the manufacturer was connected to the DUT for the duration of the SAR evaluation.

Test Modes & Power Settings

- 4) The DUT was placed in test mode using the manufacturer's internal test software programmed via the keypad.
- 5) The SAR evaluations were performed with the DUT transmitting at maximum power on a fixed frequency with a modulated signal and source-based time-averaged duty cycle of 25% (crest factor: 1:4).
- 6) The conducted power level(s) of the DUT could not be measured for the SAR evaluation due to internal antenna. The DUT was evaluated for SAR at the maximum conducted power level preset by the manufacturer.

6.0 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 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.
- h. The procedures described in FCC document "SAR Measurement Requirements for 3 - 6 GHz" (see reference [7]) were applied.

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7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations a system check was performed at the planar section of the SAM phantom with a SPEAG D5GHzV2 validation dipole (see Appendix F 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 $\pm 10\%$ (see Appendix B for system performance check test plot).

SYSTEM PERFORMANCE CHECK EVALUATION																	
Test Date	Equiv. Tissue (MHz)	SAR 1g (W/kg)			PEAK SAR (W/kg)			Dielectric Constant ϵ_r			Conductivity σ (mho/m)			Amb. Temp. (°C)	Fluid Temp. (°C)	Humid %	Barom. Press. (kPa)
		SPEAG Target	Meas.	Dev.	SPEAG Target	Meas.	Dev.	IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.				
May 9 th	5800 Brain	19.5 \pm 10%	20.4	+4.6%	85.2 \pm 15%	95.4	+12.0%	35.3 \pm 10%	35.8	+1.4%	5.27 \pm 5%	5.47	+3.8%	22.9	21.9	33	102.2
Fluid Depth		≥ 15 cm		Note(s)	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.												
ρ (Kg/m³)		1000															

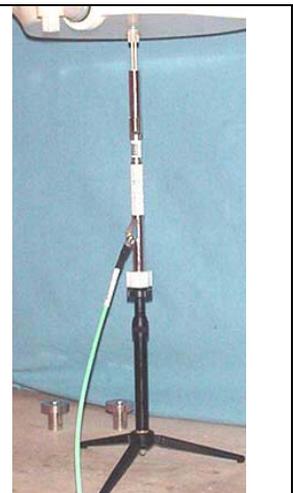
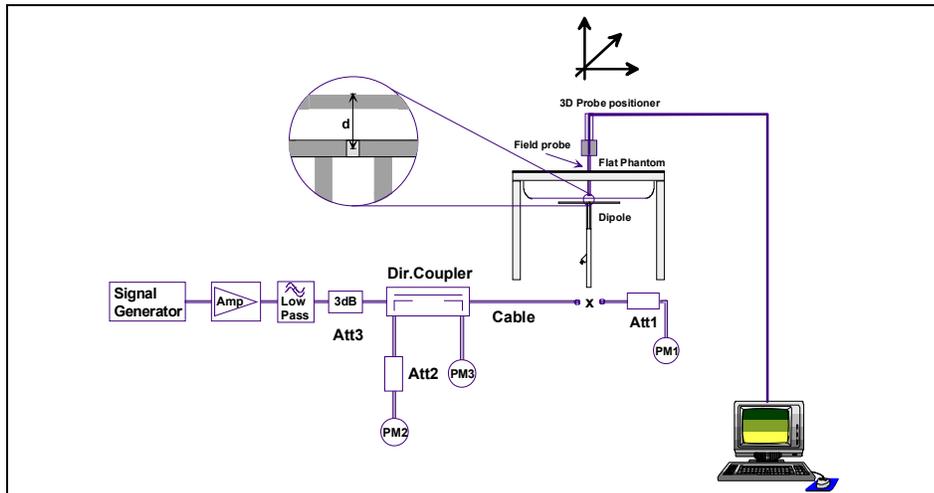


Figure 4. System Performance Check Measurement Setup

5 GHz Dipole Setup

Reference SAR values

The reference SAR values were calculated using finite-difference time-domain FDTD method (feed-point impedance set to 50 Ω) and the mechanical dimensions of the D5GHzV2 dipole (manufactured by SPEAG).

f (GHz)	Head Tissue			Body Tissue		
	SAR_{1g}	SAR_{10g}	SAR_{peak}	SAR_{1g}	SAR_{10g}	SAR_{peak}
5.0	72.9	20.7	285.6	68.1	19.2	260.3
5.1	74.6	21.1	297.5	78.8	19.6	272.3
5.2	76.5	21.6	310.3	71.8	20.1	284.7
5.5	83.3	23.4	349.4	79.1	22.0	326.3
5.8	78.0	21.9	340.9	74.1	20.5	324.7

Table 27.2: Numerical reference SAR values for D5GHzV2 dipole and flat phantom.

Figure 5. System Manufacturer's Reference SAR Values



5 GHz Dipole

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8.0 SIMULATED EQUIVALENT TISSUES

The 5.8 GHz simulated tissue mixtures were provided by the SAR system manufacturer (SPEAG) and are listed below. The dielectric parameters of the tissue mixture (permittivity and conductivity) were measured prior to the SAR evaluations. See Appendix D for manufacturer's fluid data sheet.

SIMULATED TISSUE MIXTURES								
INGREDIENT		SYSTEM PERFORMANCE CHECK & DUT EVALUATION						
		5.8 GHz Brain		5.8 GHz Body		5 GHz Fluid		
Water		64 - 78%		64 - 78%				
Mineral Oil		11 - 18%		11 - 18%				
Emulsifiers		9 - 15%		9 - 15%				
Additives and Salt		2 - 3%		2 - 3%				
TISSUE TEMPERATURE SENSITIVITY								
Date	Tissue Type	Temp. (°C)	Dielectric Constant ϵ_r			Conductivity σ (mho/m)		
			IEEE Target	Measured	Deviation	IEEE Target	Measured	Deviation
May 10	Body	20	48.2 ±10%	44.7	-7.2%	6.00 ±5%	5.86	-2.3%
May 10	Body	22		44.6	-7.4%		5.97	-0.5%
May 10	Body	24		45.1	-6.4%		5.98	-0.3%
Note(s)	1. The fluid temperature during the SAR evaluations remained within +/-2°C from the temperature reported during the dielectric parameter measurements. The fluid temperature sensitivity data is reported to show that the tissue dielectric parameters remained within the required tolerance during the SAR evaluations.							

9.0 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.		

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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10.0 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: DASYS4, 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

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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11.0 PROBE SPECIFICATION (EX3DV4)

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. DGBE)
Calibration:	Basic Broadband Calibration in air: 10-3000 MHz Conversion Factors (CF) for HSL 900 and HSL 1750
Frequency:	10 MHz to >6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity:	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range:	10 μ W/g to >100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
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
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%.



EX3DV4 E-Field Probe

12.0 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 H for specifications of the SAM phantom V4.0C).



SAM Phantom V4.0C

13.0 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

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
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14.0 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	21Jun06	21Jun07	21Jun07	
	-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	
x	5 GHz Validation Dipole	5800 MHz	00126	1031	Brain	09May07	09May08
					Body	10May07	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	00013	1833713	26Mar07	26Mar08	26Mar08	
	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	
	HP 8648D Signal Generator	00005	3847A00611	NCR	NCR	NCR	
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	NCR	NCR	NCR	
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR	NCR	
	HP E4408B Spectrum Analyzer	00015	US39240170	05Feb07	05Feb08	05Feb08	

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15.0 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 GHz)	6.6	Normal	1	1	6.6	∞
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	2	Rectangular	1.732050808	1	1.2	∞
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	0.8	Rectangular	1.732050808	1	0.5	∞
Probe positioning	5.7	Rectangular	1.732050808	1	3.3	∞
Extrapolation & integration	4	Rectangular	1.732050808	1	2.3	∞
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)	10	Rectangular	1.732050808	0.6	3.5	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					12.74	
Expanded Uncertainty (k=2)					25.47	

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])

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Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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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 _{eff}
Measurement System						
Probe calibration (5 GHz)	6.6	Normal	1	1	6.6	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	9.6	Rectangular	1.732050808	1	5.5	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	2	Rectangular	1.732050808	1	1.2	∞
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	0.8	Rectangular	1.732050808	1	0.5	∞
Probe positioning	5.7	Rectangular	1.732050808	1	3.3	∞
Extrapolation & integration	4	Rectangular	1.732050808	1	2.3	∞
Dipole						
Dipole positioning	2	Rectangular	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Rectangular	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)	10	Rectangular	1.732050808	0.6	3.5	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					12.58	
Expanded Uncertainty (k=2)					25.15	

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
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16.0 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] ANSI/IEEE C95.1-2005 - "American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz", New York: IEEE, April 2006.
- [7] Federal Communications Commission - "SAR Measurement Requirements for 3 - 6 GHz": October 2006 (Rev. 1.1).

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Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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APPENDIX A - SAR MEASUREMENT DATA

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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Date Tested: 05/09/2007

Head SAR - Right Ear - Cheek/Touch Position - Channel 70 - 5787.3503 MHz

DUT: Uniden Model: TRU9385; Type: 5.8 GHz Cordless Telephone Handset; Serial: None

Ambient Temp: 22.9°C; Fluid Temp: 21.9°C; Barometric Pressure: 102.2 kPa; Humidity: 33%

Communication System: TDMA/TDD

RF Output Power: 117 mW (EIRP)

3.6V, 500mAh Ni-MH Battery (Model: BT-1004)

Frequency: 5787.3503 MHz; Duty Cycle: 1:4

Medium: HSL5200-5800 Medium parameters used: $f = 5787.35 \text{ MHz}$; $\sigma = 5.47 \text{ mho/m}$; $\epsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.34, 4.34, 4.34); Calibrated: 24/01/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head SAR - Right Ear - Cheek/Touch Position - Mid Channel

Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.022 mW/g

Head SAR - Right Ear - Cheek/Touch Position - Mid Channel

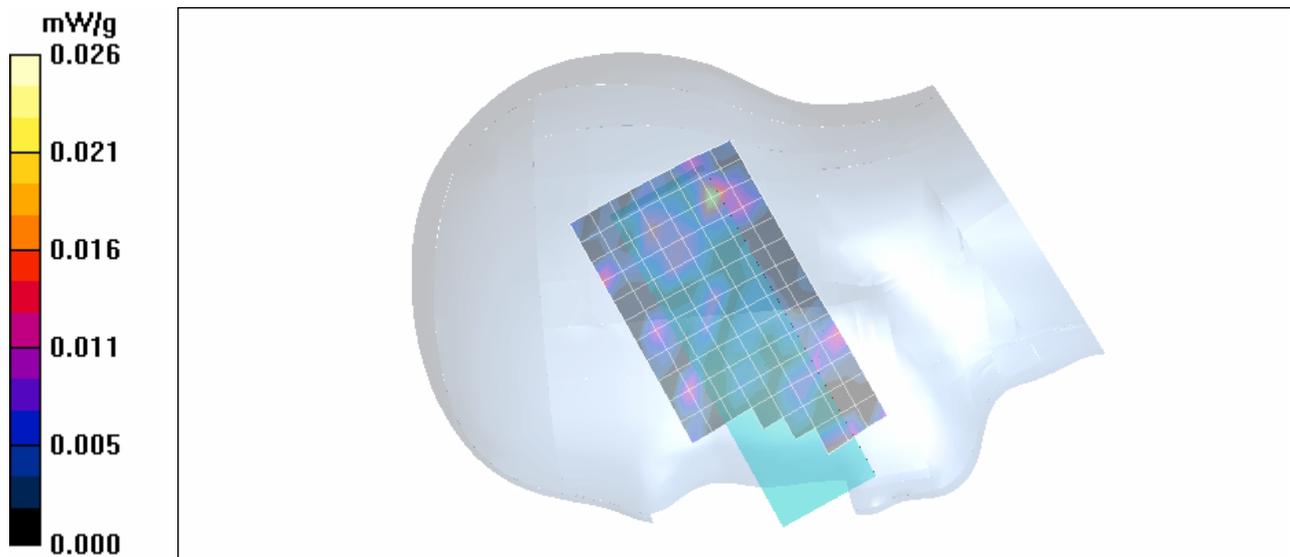
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 1.63 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 0.118 W/kg

SAR(1 g) = 0.00899 mW/g

Maximum value of SAR (measured) = 0.026 mW/g



Company: Uniden America Corporation	FCC ID: AMWUP855	IC ID: 513C-UP855	
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Date Tested: 05/09/2007

Head SAR - Right Ear - Tilt Position (15°) - Channel 70 - 5787.3503 MHz

DUT: Uniden Model: TRU9385; Type: 5.8 GHz Cordless Telephone Handset; Serial: None

Ambient Temp: 22.9°C; Fluid Temp: 21.9°C; Barometric Pressure: 102.2 kPa; Humidity: 33%

Communication System: TDMA/TDD

RF Output Power: 117 mW (EIRP)

3.6V, 500mAh Ni-MH Battery (Model: BT-1004)

Frequency: 5787.3503 MHz; Duty Cycle: 1:4

Medium: HSL5200-5800 Medium parameters used: $f = 5787.35 \text{ MHz}$; $\sigma = 5.47 \text{ mho/m}$; $\epsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.34, 4.34, 4.34); 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

Head SAR - Right Ear - Tilt Position (15°) - Mid Channel

Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.039 mW/g

Head SAR - Right Ear - Tilt Position (15°) - Mid Channel

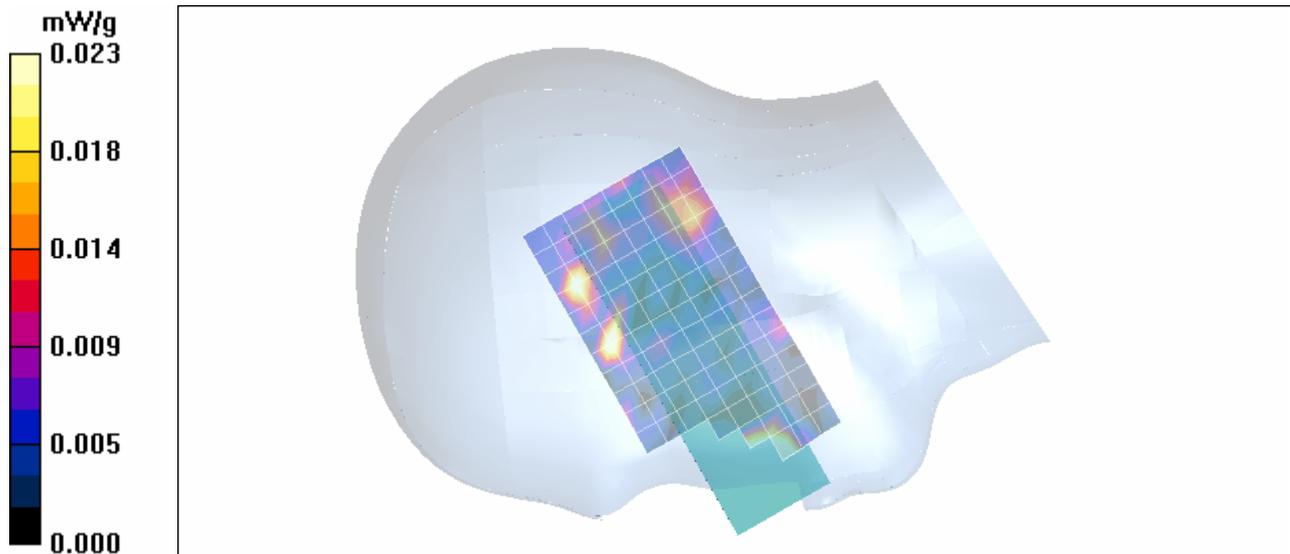
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 1.73 V/m; Power Drift = -0.898 dB

Peak SAR (extrapolated) = 0.084 W/kg

SAR(1 g) = 0.000484 mW/g

Maximum value of SAR (measured) = 0.023 mW/g



Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 05/09/2007

Head SAR - Left Ear - Cheek/Touch Position - Channel 70 - 5787.3503 MHz

DUT: Uniden Model: TRU9385; Type: 5.8 GHz Cordless Telephone Handset; Serial: None

Ambient Temp: 22.9°C; Fluid Temp: 21.9°C; Barometric Pressure: 102.2 kPa; Humidity: 33%

Communication System: TDMA/TDD

RF Output Power: 117 mW (EIRP)

3.6V, 500mAh Ni-MH Battery (Model: BT-1004)

Frequency: 5787.3503 MHz; Duty Cycle: 1:4

Medium: HSL5200-5800 Medium parameters used: $f = 5787.35 \text{ MHz}$; $\sigma = 5.47 \text{ mho/m}$; $\epsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.34, 4.34, 4.34); Calibrated: 24/01/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head SAR - Left Ear - Cheek/Touch Position - Mid Channel

Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.017 mW/g

Head SAR - Left Ear - Cheek/Touch Position - Mid Channel

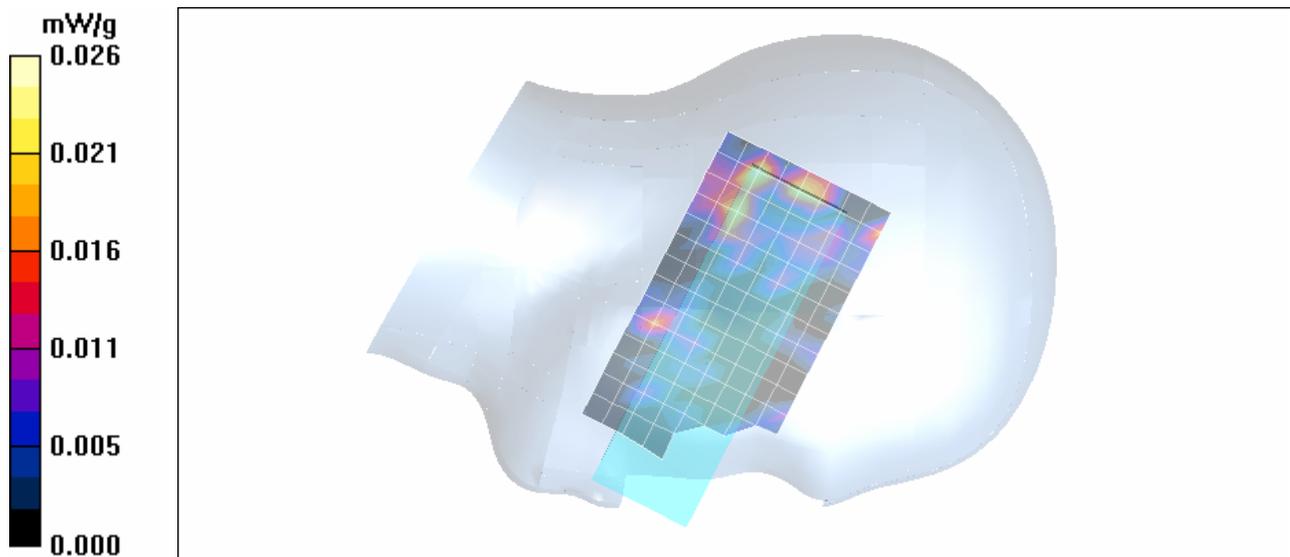
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 1.45 V/m; Power Drift = -1.21 dB

Peak SAR (extrapolated) = 0.146 W/kg

SAR(1 g) = 0.0115 mW/g

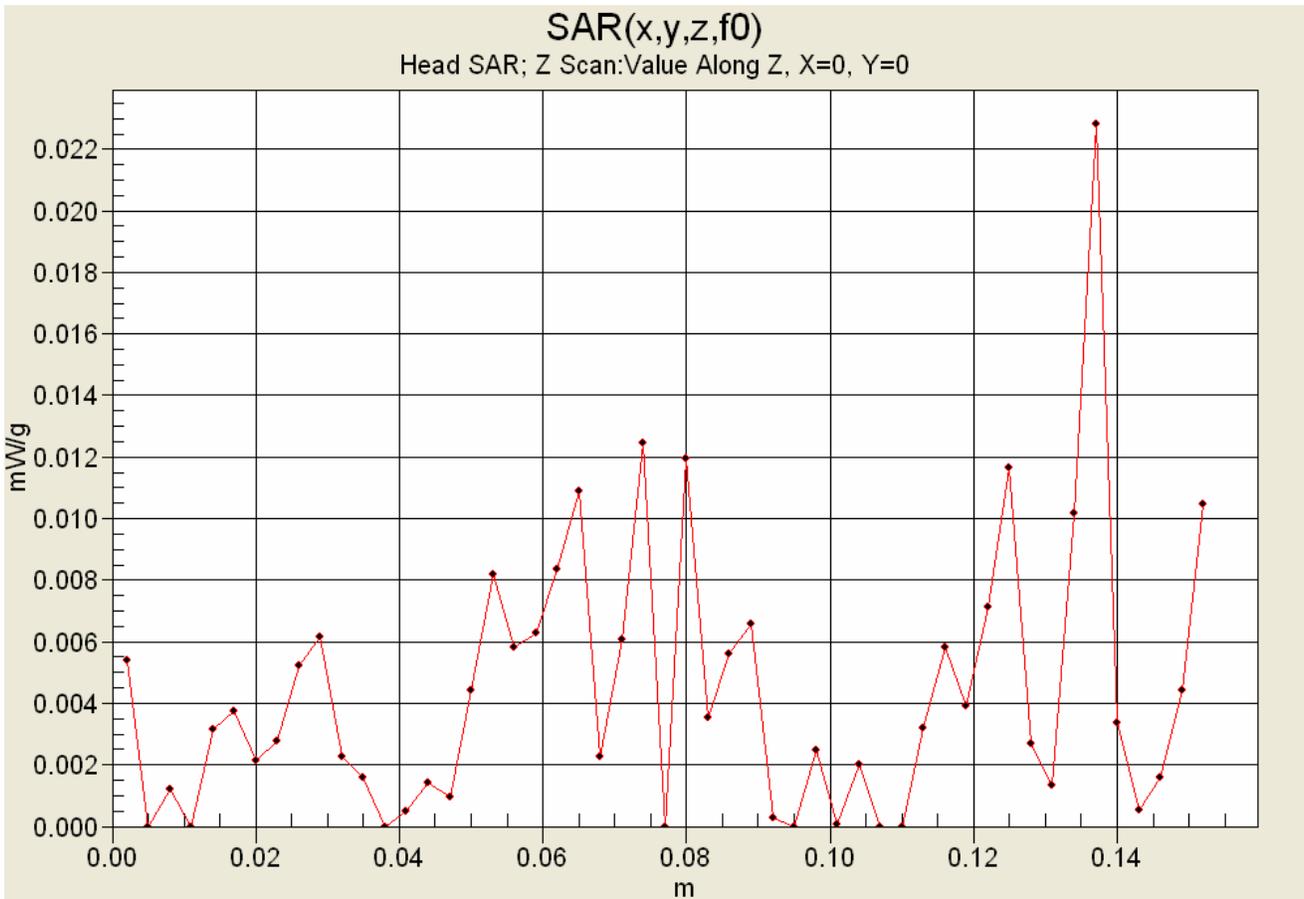
Maximum value of SAR (measured) = 0.026 mW/g



Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Z-Axis Scan

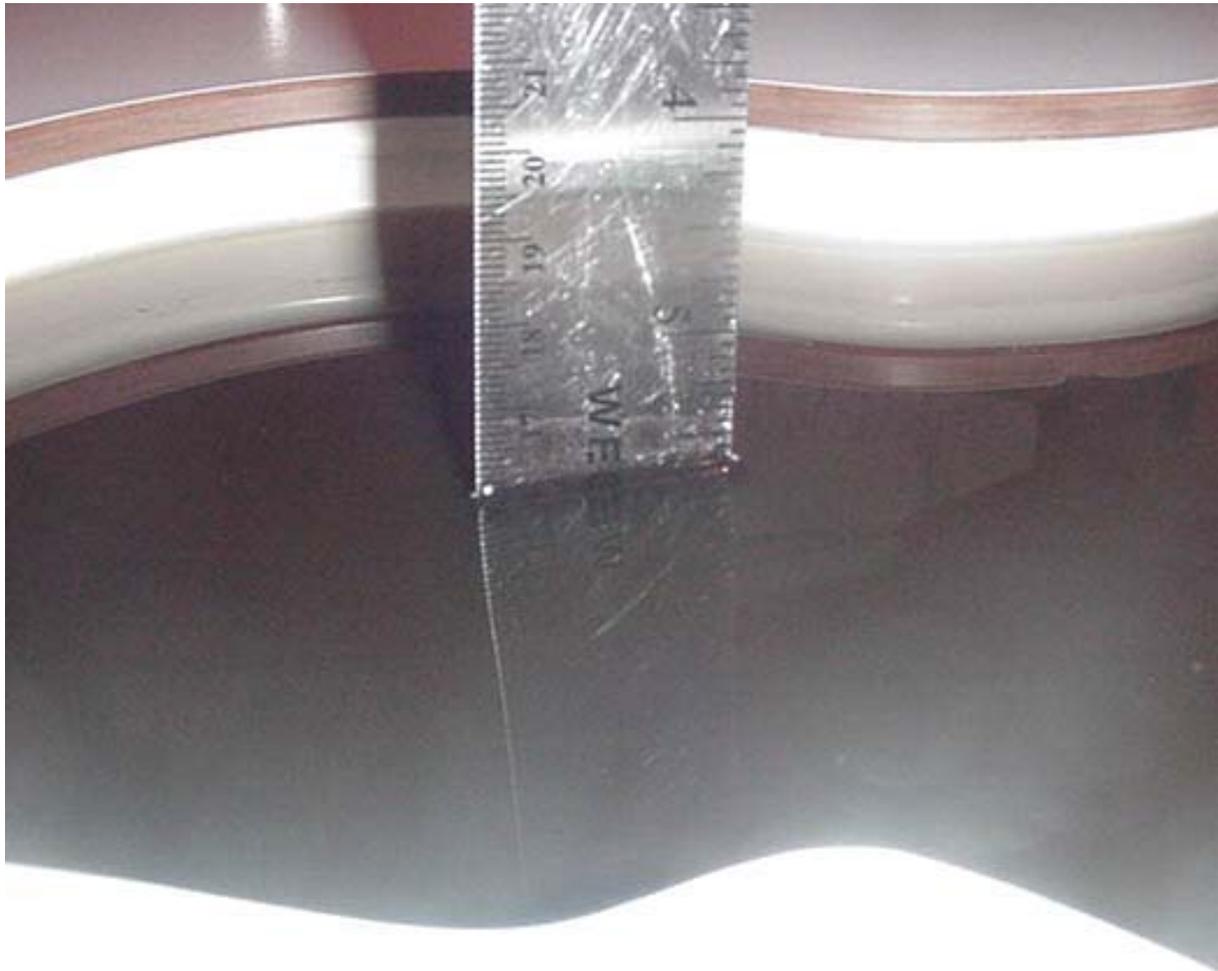


Due to the very low SAR level measured in this configuration the Z-axis scan is only reporting noise. The DASY4 software adjusts the scale according to the measured SAR level, which for this evaluation is close to the measurement noise floor.

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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Fluid Depth (>15cm)



Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 05/09/2007

Head SAR - Left Ear - Tilt Position (15°) - Channel 70 - 5787.3503 MHz

DUT: Uniden Model: TRU9385; Type: 5.8 GHz Cordless Telephone Handset; Serial: None

Ambient Temp: 22.9°C; Fluid Temp: 21.9°C; Barometric Pressure: 102.2 kPa; Humidity: 33%

Communication System: TDMA/TDD

RF Output Power: 117 mW (EIRP)

3.6V, 500mAh Ni-MH Battery (Model: BT-1004)

Frequency: 5787.3503 MHz; Duty Cycle: 1:4

Medium: HSL5200-5800 Medium parameters used: $f = 5787.35 \text{ MHz}$; $\sigma = 5.47 \text{ mho/m}$; $\epsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.34, 4.34, 4.34); 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

Head SAR - Left Ear - Tilt Position (15°) - Mid Channel

Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.033 mW/g

Head SAR - Left Ear - Tilt Position (15°) - Mid Channel

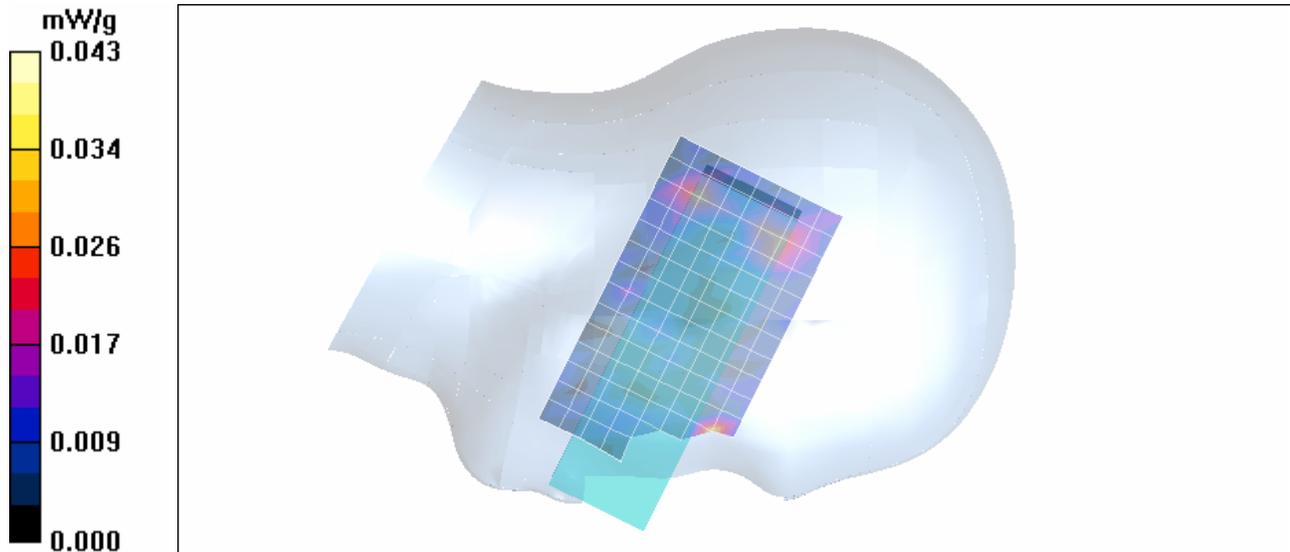
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 2.15 V/m; Power Drift = -1.65 dB

Peak SAR (extrapolated) = 0.089 W/kg

SAR(1 g) = 0.00177 mW/g

Maximum value of SAR (measured) = 0.043 mW/g



Company: Uniden America Corporation	FCC ID: AMWUP855	IC ID: 513C-UP855	
Model(s): UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset	5725.8-5848.9 MHz	
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 05/10/2007

Body-Worn SAR - Back Side of DUT with Belt-Clip and Headset - Channel 70 - 5787.3503 MHz

DUT: Uniden Model: TRU9385; Type: 5.8 GHz Cordless Telephone Handset; Serial: None

Body-worn Accessory: Plastic Belt-Clip (P/N: UP-820B); Audio Accessory: Headset/Boom-Mic (P/N: HS910)

Ambient Temp: 24.6°C; Fluid Temp: 21.8°C; Barometric Pressure: 102.2 kPa; Humidity: 33%

Communication System: TDMA/TDD

RF Output Power: 117 mW (EIRP)

3.6V, 500mAh Ni-MH Battery (Model: BT-1004)

Frequency: 5787.3503 MHz; Duty Cycle: 1:4

Medium: M5200-5800 Medium parameters used: $f = 5787.35 \text{ MHz}$; $\sigma = 5.97 \text{ mho/m}$; $\epsilon_r = 44.6$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.14, 4.14, 4.14); 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

Body SAR - 1.6 cm Belt-Clip Spacing from Back Side of DUT to Planar Phantom - Mid Channel

Area Scan (8x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.461 mW/g

Body SAR - 1.6 cm Belt-Clip Spacing from Back Side of DUT to Planar Phantom - Mid Channel

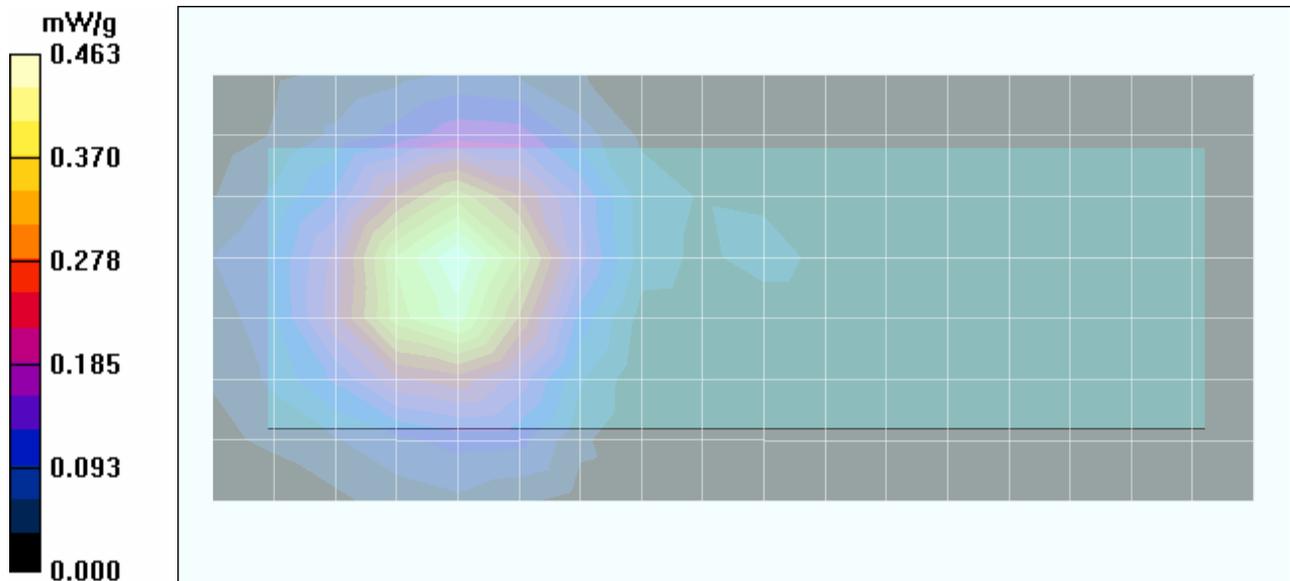
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 9.27 V/m; Power Drift = -0.214 dB

Peak SAR (extrapolated) = 0.923 W/kg

SAR(1 g) = 0.249 mW/g

Maximum value of SAR (measured) = 0.463 mW/g



	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Z-Axis Scan



Company: Uniden America Corporation	FCC ID: AMWUP855	IC ID: 513C-UP855	
Model(s): UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset	5725.8-5848.9 MHz	
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Fluid Depth (>15cm)



Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Date Tested: 05/09/2007

System Performance Check - 5800 MHz Dipole

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Validation: 05/09/2007

Ambient Temp: 22.9°C; Fluid Temp: 21.9°C; Barometric Pressure: 102.2 kPa; Humidity: 33%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: HSL5200-5800 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.47 \text{ mho/m}$; $\epsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.34, 4.34, 4.34); Calibrated: 24/01/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz Dipole - System Performance Check/Area Scan (9x13x1):

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

Maximum value of SAR (measured) = 42.0 mW/g

5800 MHz Dipole - System Performance Check/Zoom Scan (7x7x9)/Cube 0:

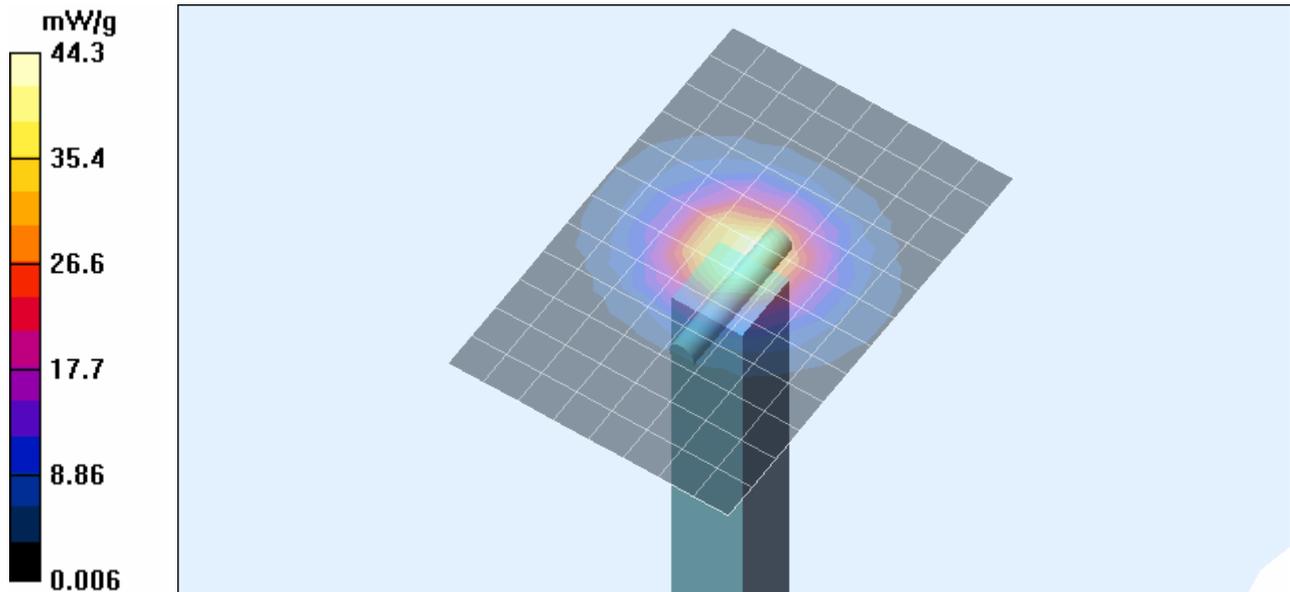
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 95.8 V/m; Power Drift = -0.0183 dB

Peak SAR (extrapolated) = 95.4 W/kg

SAR(1 g) = 20.4 mW/g; SAR(10 g) = 5.73 mW/g

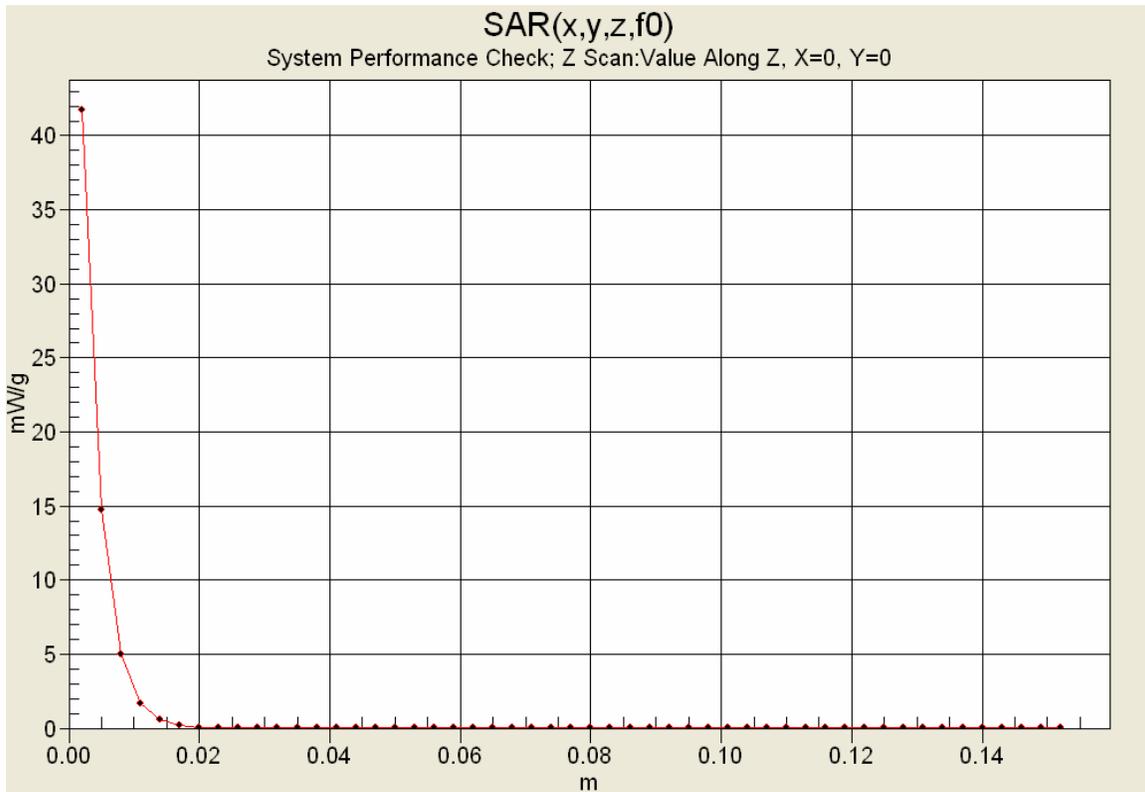
Maximum value of SAR (measured) = 44.3 mW/g



Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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Z-Axis Scan



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APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

5800 MHz System Performance Check & DUT Evaluation (Brain)

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

Wed 9/May/2007

Frequency (GHz)

FCC_eHFCC OET 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sHFCC OET 65 Supplement C (June 2001) Limits for Head Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eHFCC_sH	Test_e	Test_s	
5.7000	35.41	5.17	36.11	5.45
5.7100	35.40	5.18	36.19	5.48
5.7200	35.39	5.19	35.92	5.45
5.7300	35.38	5.20	35.99	5.44
5.7400	35.37	5.21	35.96	5.53
5.7500	35.36	5.22	35.75	5.46
5.7600	35.35	5.23	35.91	5.42
5.7700	35.33	5.24	35.71	5.48
5.7800	35.32	5.25	35.53	5.40
5.7900	35.31	5.26	35.65	5.51
5.8000	35.30	5.27	35.76	5.47
5.8100	35.29	5.28	35.53	5.46
5.8200	35.28	5.29	35.54	5.54
5.8300	35.27	5.30	35.41	5.45
5.8400	35.25	5.31	35.41	5.47
5.8500	35.24	5.32	35.53	5.54
5.8600	35.23	5.33	35.31	5.52
5.8700	35.22	5.34	35.10	5.53
5.8800	35.21	5.35	35.13	5.61
5.8900	35.20	5.36	35.43	5.50
5.9000	35.19	5.37	35.31	5.60

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

5800 MHz DUT Evaluation (Body)

Celltech Labs Inc.
 Test Result for UIM Dielectric Parameter
 Thr 10/May/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
5.7000	48.34	5.88	45.03	5.70
5.7100	48.32	5.89	45.08	5.77
5.7200	48.31	5.91	44.72	5.82
5.7300	48.30	5.92	44.91	5.84
5.7400	48.28	5.93	44.85	5.83
5.7500	48.27	5.94	44.75	5.89
5.7600	48.25	5.95	44.80	5.85
5.7700	48.24	5.96	44.88	5.90
5.7800	48.23	5.98	44.69	5.90
5.7900	48.21	5.99	44.80	5.88
5.8000	48.20	6.00	44.56	5.97
5.8100	48.19	6.01	44.88	5.91
5.8200	48.17	6.02	44.48	5.90
5.8300	48.16	6.04	44.49	5.95
5.8400	48.15	6.05	44.48	5.98
5.8500	48.13	6.06	44.65	5.91
5.8600	48.12	6.07	44.58	6.07
5.8700	48.10	6.08	44.59	5.94
5.8800	48.09	6.09	44.62	6.06
5.8900	48.08	6.11	44.14	5.99
5.9000	48.06	6.12	44.54	6.01

Company: Uniden America Corporation	FCC ID: AMWUP855	IC ID: 513C-UP855	
Model(s): UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset	5725.8-5848.9 MHz	
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APPENDIX D - MANUFACTURER'S TISSUE SIMULANT DATA SHEET

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Material Safety Data Sheet

1 Identification of the substance and of the manufacturer / origin

Item	Head Tissue Simulation Liquid HSL5800 Muscle Tissue Simulation Liquid MSL 5800
Type No	SL AAH 580, SL AAM 580
Series No	N/A
Manufacturer / Origin	Schmid & Partner Engineering AG Zeughausstrasse 43 8004 Zürich Switzerland Phone +41 1 245 9700, Fax +41 1 245 9779, support@speag.com

Use of the substance:

Liquid simulating physical parameters of Head or Muscle Tissue in the RF range to 6GHz.

2 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	64 - 78%
Mineral Oil	11 - 18%
Emulsifiers	9 - 15%
Additives and Salt	2 - 3%

Safety relevant ingredients according to EU directives:

CAS-No 107-41-5	< 4%	2-Methyl-2,4-pentandiol (Hexylene Glycol): Xi irritant, R36/38 irritant for eyes and skin
CAS-No 770-35-4	< 2%	1-Phenoxy-2-propanol (Propylene Glycol Phenyl Ether): Xi irritant, R36 irritant for eyes
CAS-No 93-83-4	< 2%	N,N-bis(2-Hydroxyethyl)oleamide: Xi irritant, R36/38 irritant for eyes and skin
CAS-No 9004-95-9	< 0.5%	Polyethylene glycol cetyl ether: Xi irritant, R22 harmful if swallowed, R36/38 irritant for eyes and skin R50 Very toxic to aquatic organisms

According to EU guidelines and Swiss rules, the product is not a dangerous mixture and therefore not required to be marked by symbols.

3 Hazards identification

Identification not required.

4 First aid measures

The product reacts slightly alkaline.

After skin contact:	Wash with fresh water and mild sope
After eye contact:	Rinse out with plenty of water for several minutes with the eyelid held open. Consult an ophthalmologist if necessary.
After ingestion:	Do not induce vomiting. Get medical attention.

5 Fire-fighting measures

Firefighting media	CO2, foam, dry chemical
Combustion products	Carbon oxides, nitrogen and traces of oxides of chlorine and sulfur, HCl

Due to the high water content, the liquid is self-extinguishing.

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

6 Accidental release measures

Person-related precaution measures: wash with water and mild soap.
Environmental-protection measures: do not allow to enter sewerage system.
Procedures for cleaning / absorption: Use oil-binding agents., forward for disposal. Spills may cause slippery conditions.

7 Handling and storage

Handling: Keep in open container only for minimum required time in order to avoid water evaporation.
Storage: tightly closed, between >0 to 40°C. Avoid direct solar irradiation of the storage containers.

8 Exposure controls / personal protection

Protection measures are not generally required. For eye protection, industrial safety glasses are recommended.
Personal hygiene and clean working practices are sufficient.

9 Physical and chemical properties

Form: liquid
Colour: medium to dark brown, transparent to opaque
Odour: almost odourless / slightly oily
pH-Value: slightly alcalic
Boiling point: 100°C
Density: 1g/cm³

10 Stability and reactivity

Conditions to be avoided: heating above 40°C
The product contains water and is not compatible with strong oxidizers or magnesium.

11 Toxicological information

LD50 > 40 g/kg
Further data: the product should be handled with the care usual when dealing with chemicals

12 Ecological information

Contains mineral oil. Do not allow to enter waters, waste water, or soil!

13 Disposal considerations

Disposal is possible by splitting the mineral oil from the emulsion with absorbing agents, with salt or ultra-filtration. Dispose as other mineral oil containing products according to local regulations.
Product packing must be disposed of in compliance with respect national regulations.

14 Transport information

Not subject to transport regulations.

15 Regulatory information

No special labelling required.

16 Other information

Release date: 6.1.2005
Responsible: FB

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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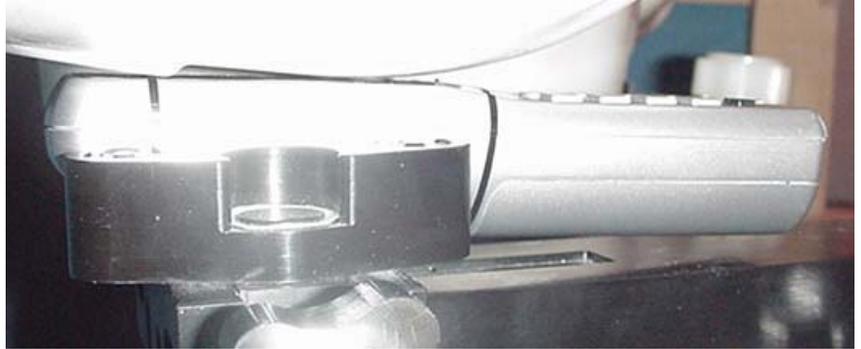
	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX E - SAR TEST SETUP & DUT PHOTOGRAPHS

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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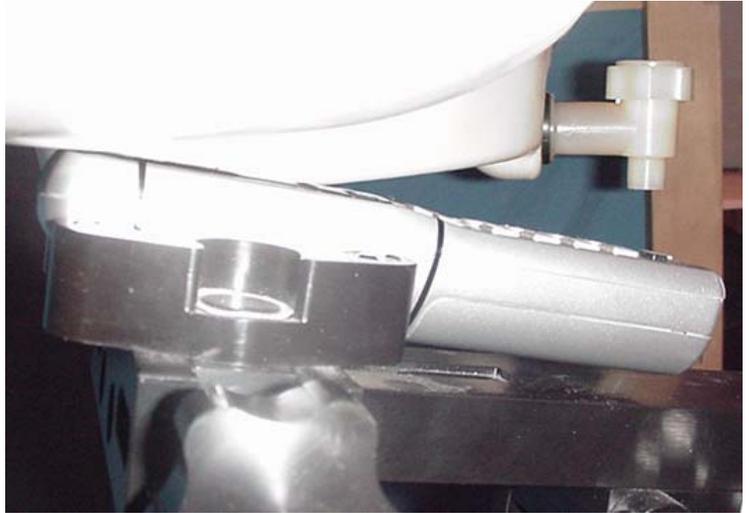
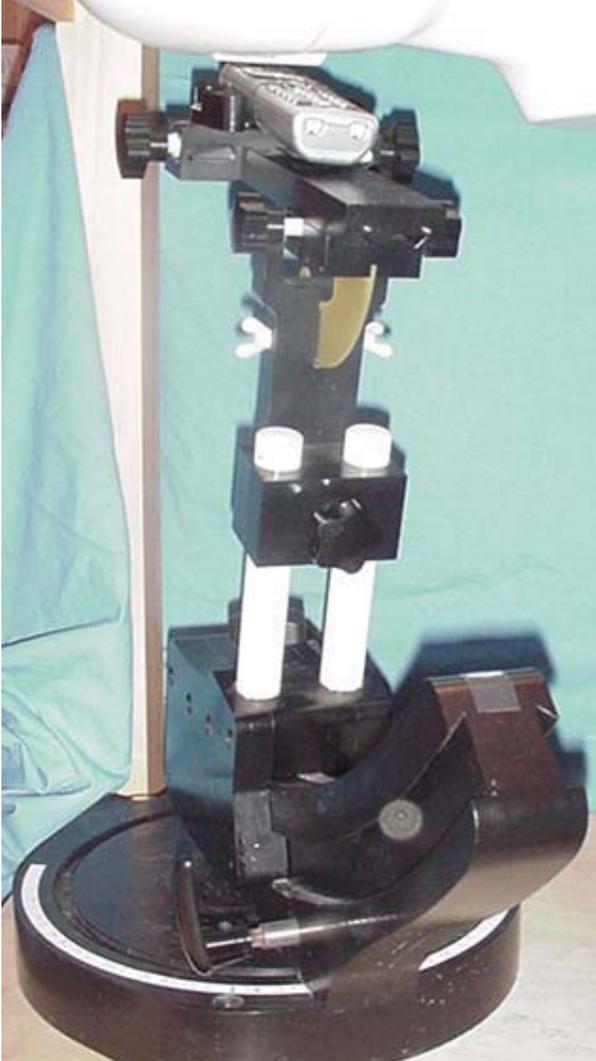


HEAD SAR TEST SETUP PHOTOGRAPHS
Right Head Section / Cheek-Touch Position





HEAD SAR TEST SETUP PHOTOGRAPHS
Right Head Section / Ear-Tilt Position (15°)



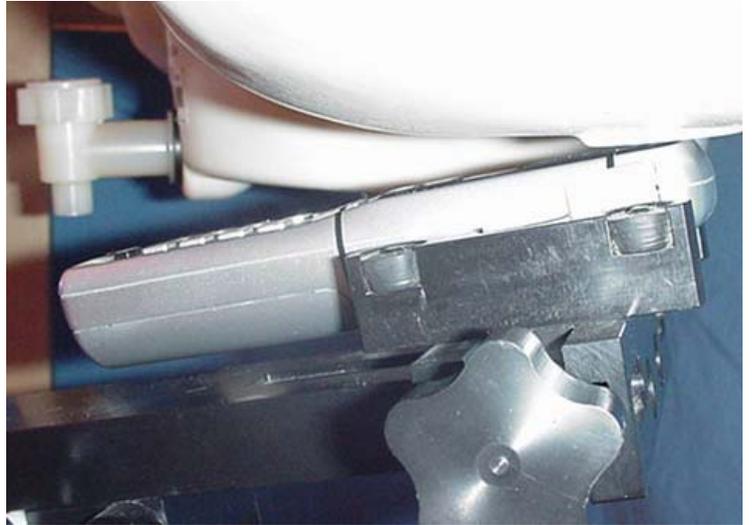


HEAD SAR TEST SETUP PHOTOGRAPHS
Left Head Section / Cheek-Touch Position



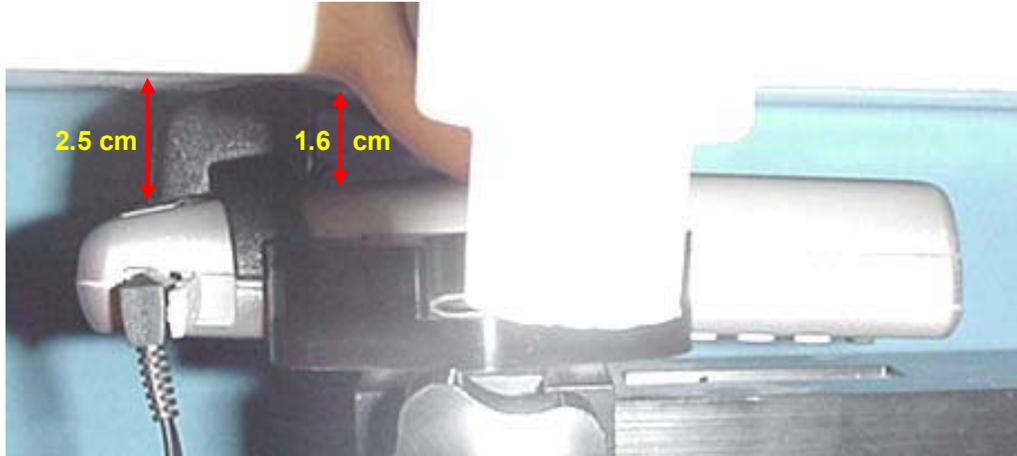


HEAD SAR TEST SETUP PHOTOGRAPHS
Left Head Section / Ear-Tilt Position (15°)





BODY-WORN SAR TEST SETUP PHOTOGRAPHS
1.6 cm Belt-Clip Spacing from Back of DUT to Planar Phantom
(DUT with Plastic Belt-Clip and Headset with Boom-Microphone)





DUT PHOTOGRAPHS



Front of DUT



Back of DUT



Back of DUT with Plastic Belt-Clip



Top end of DUT



Bottom end of DUT

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset			5725.8-5848.9 MHz	
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	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

DUT PHOTOGRAPHS



Left Side of DUT with Plastic Belt-Clip Accessory (P/N: UP-820B)



Right Side of DUT with Plastic Belt-Clip Accessory (P/N: UP-820B)



DUT Battery Compartment



Ni-MH Battery 3.6V, 500mAh

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 MHz		
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	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

DUT PHOTOGRAPHS



DUT with Headset & Boom-Microphone Audio Accessory (P/N: HS910)

	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX F - SYSTEM VALIDATION

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset	5725.8-5848.9 MHz			
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	Date of Evaluation:	May 09, 2007	Document Serial No.:	SV5800B-050907-R1.0	
	Evaluation Type:	System Validation	Validation Dipole:	5800 MHz	Fluid Type:

5800 MHz SYSTEM VALIDATION

Type: **5800 MHz Validation Dipole**

Asset Number: **00126**

Serial Number: **1031**

Place of Validation: **Celltech Labs Inc.**

Date of Validation: **May 09, 2007**

Celltech Labs Inc. certifies that the 5800 MHz System Validation was performed on the date indicated above.

Performed by: **Cheri Frangiadakis**

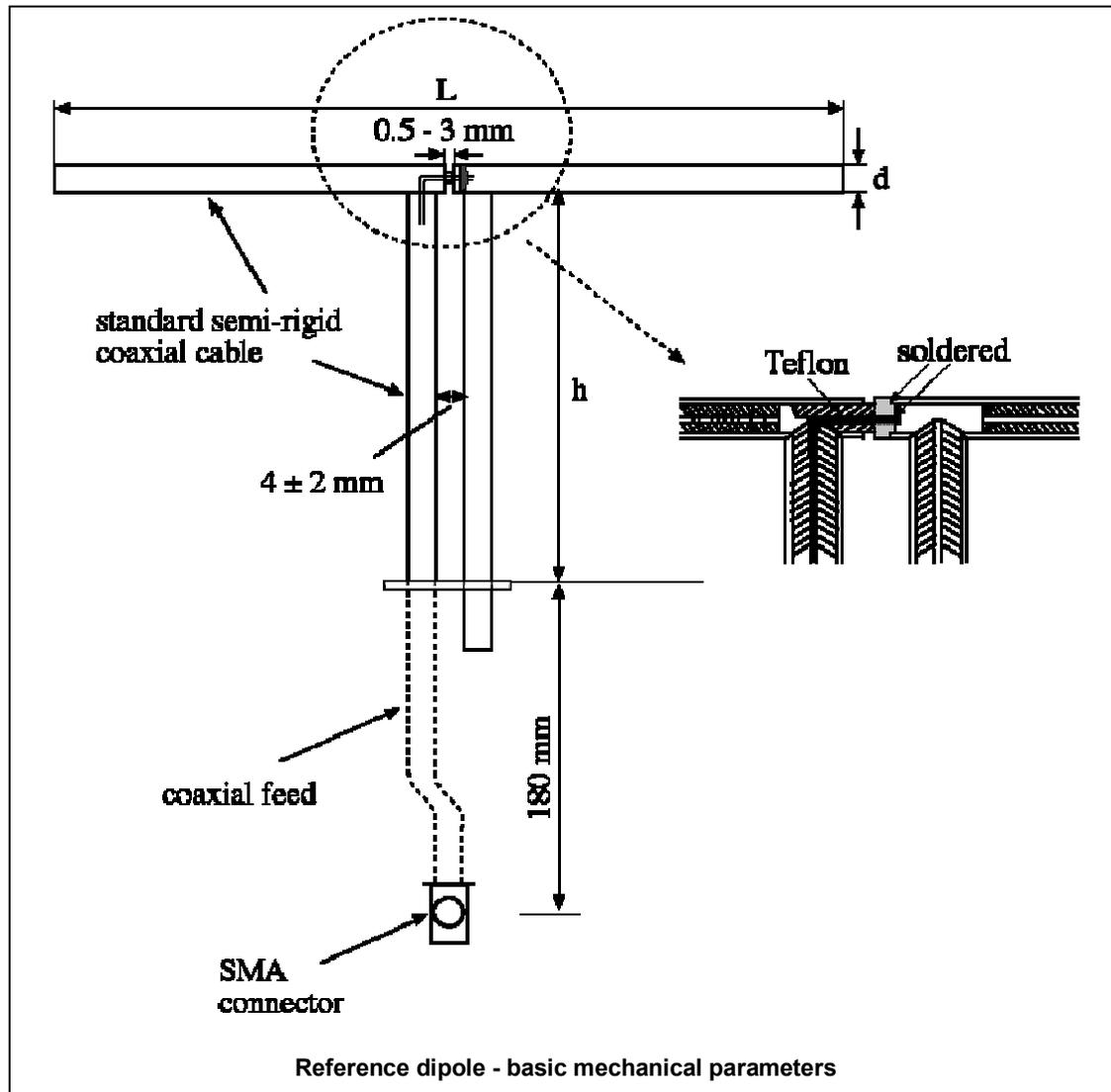
Approved by: **Jon Hughes**

1. Dipole Construction & Electrical Characteristics

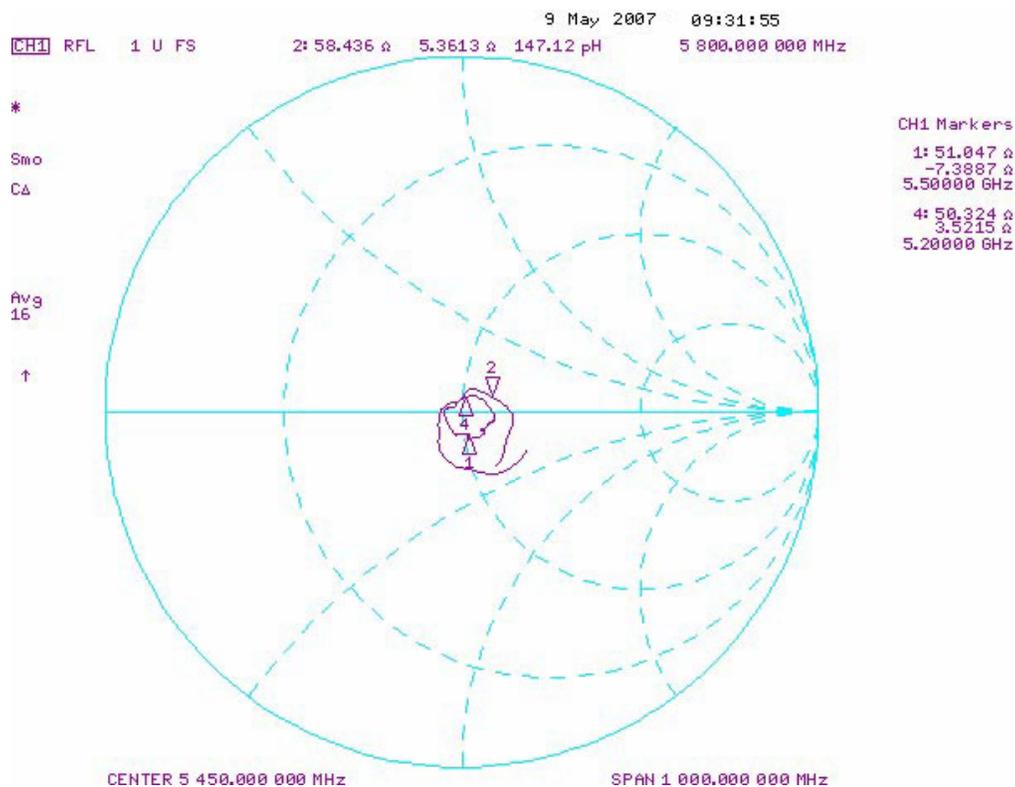
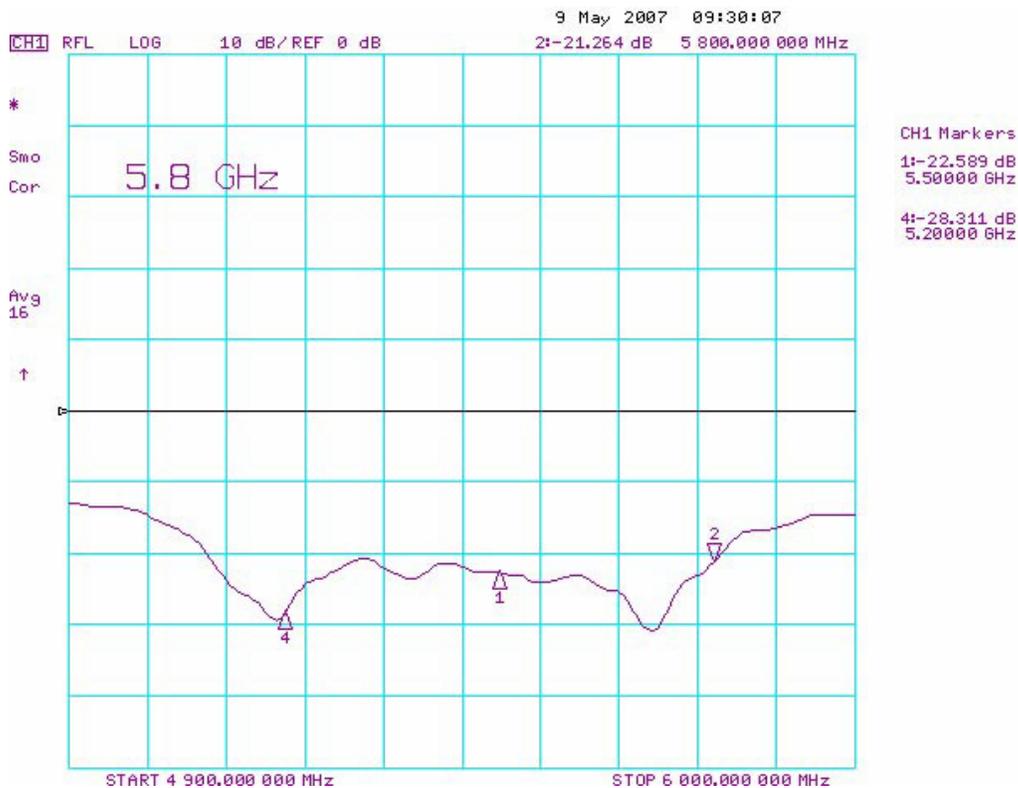
The validation dipole was manufactured by Schmid and Partner Engineering AG. The electrical properties were measured using an HP 8753ET Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed 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 5800 MHz $\text{Re}\{Z\} = 58.436\Omega$
 $\text{Im}\{Z\} = 5.3613\Omega$

Return Loss at 5800 MHz -21.264 dB



2. Validation Dipole VSWR Data



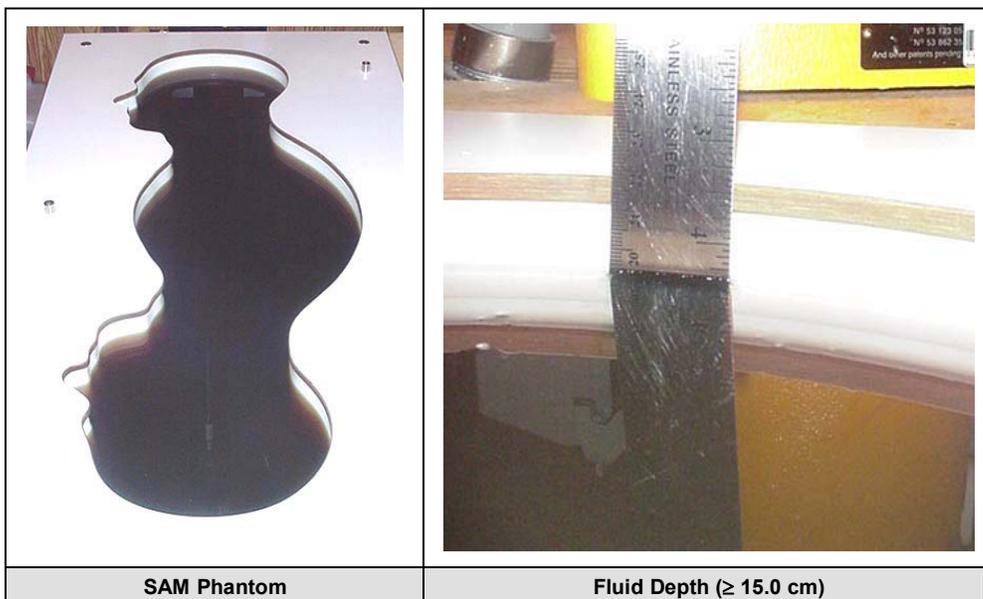
3. Validation Dipole Dimensions

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
5200 - 5800	20.6	40.65	3.6

4. Validation Phantom

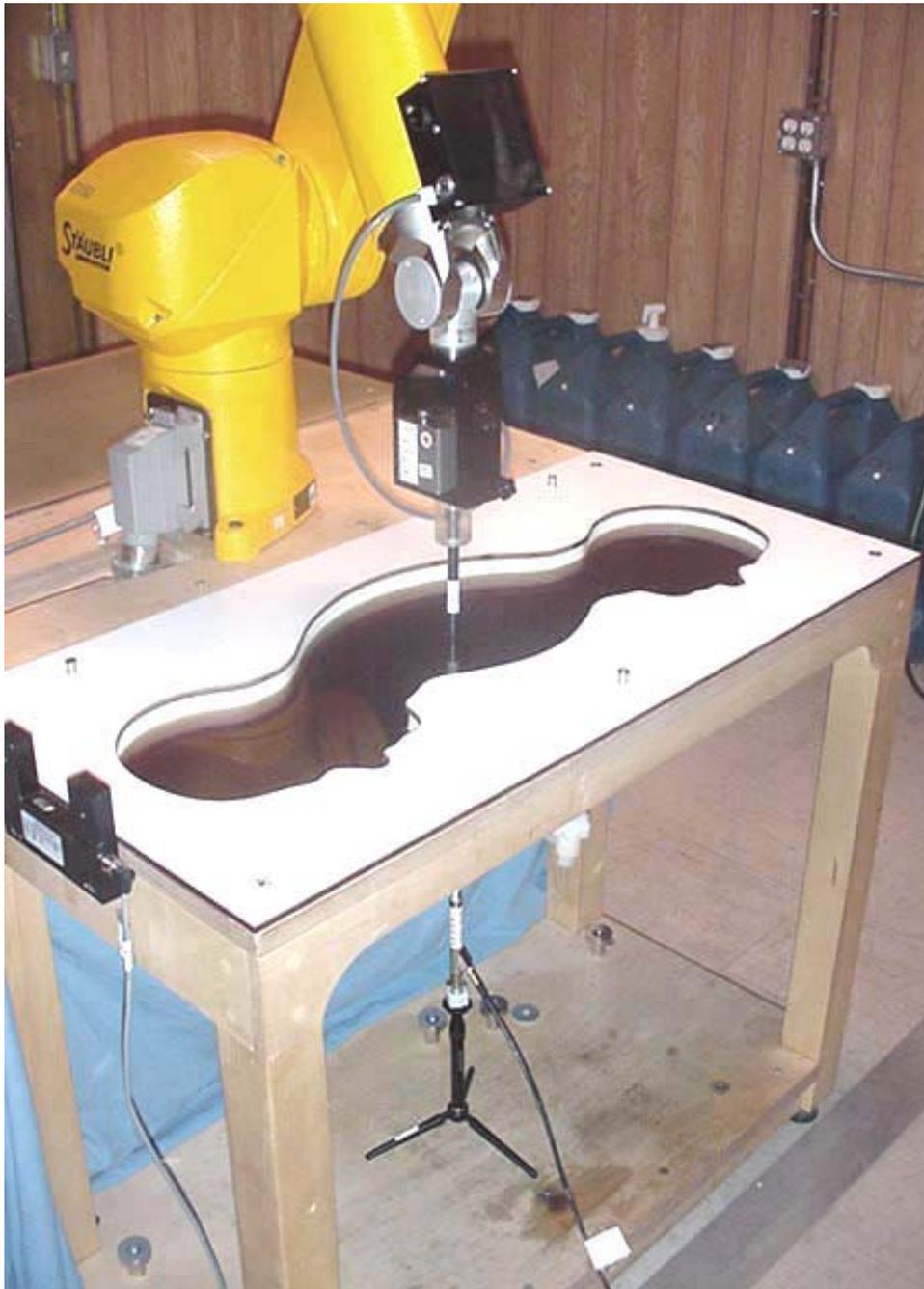
The validation phantom is the SAM (Specific Anthropomorphic Mannequin) phantom manufactured by Schmid & Partner Engineering AG. The SAM phantom is a Fiberglass shell integrated in a wooden table. The shape of the shell corresponds to the phantom defined by SCC34-SC2. It enables the dosimetric evaluation 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)



 Celltech <small>Testing and Engineering Services Lab.</small>	Date of Evaluation:	May 09, 2007	Document Serial No.:	SV5800B-050907-R1.0		
	Evaluation Type:	System Validation	Validation Dipole:	5800 MHz	Fluid Type:	Brain

5. 5800 MHz System Validation Setup



	Date of Evaluation:	May 09, 2007	Document Serial No.:	SV5800B-050907-R1.0		
	Evaluation Type:	System Validation	Validation Dipole:	5800 MHz	Fluid Type:	Brain

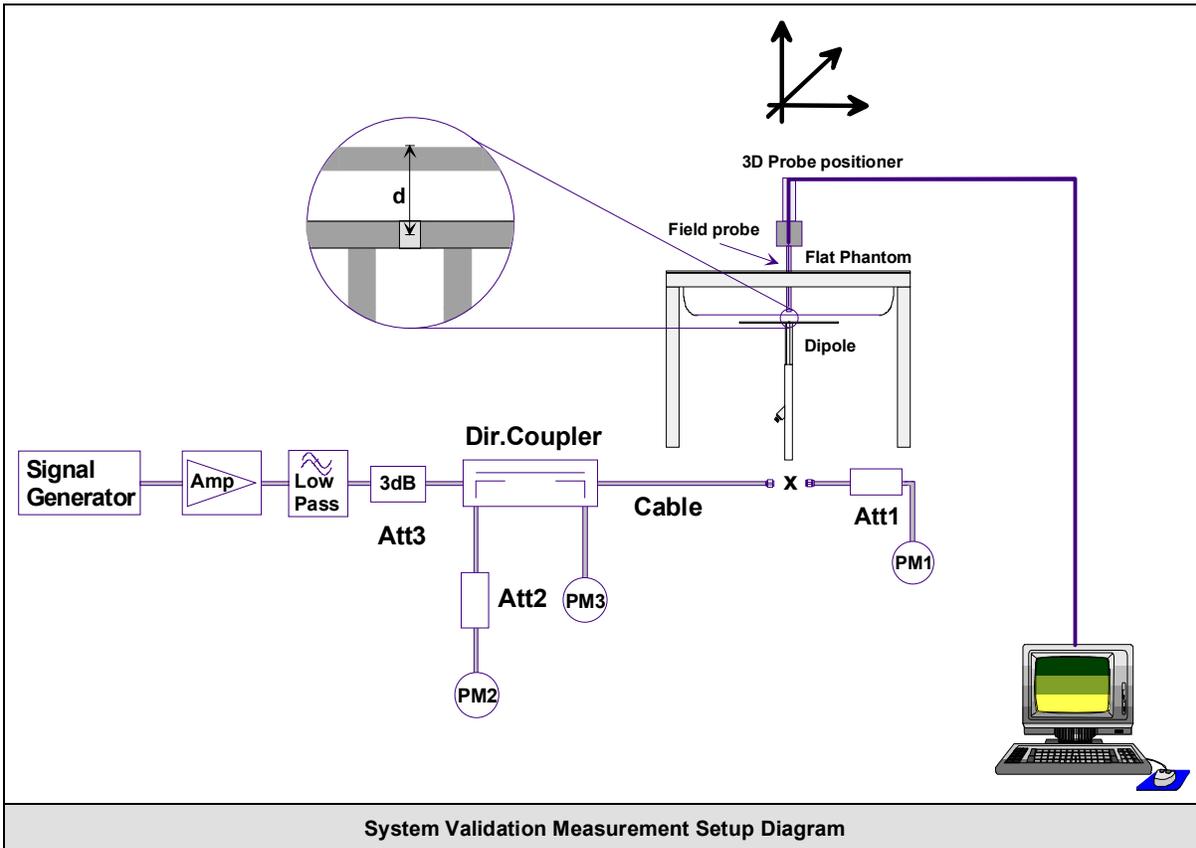
6. 5800 MHz Dipole Setup



7. SAR Measurement

Measurements were made using a dosimetric E-field probe EX3DV4 (S/N: 3600, Conversion Factor 4.34). 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 5800 MHz Brain tissue simulant.

Relative Permittivity: 31.99 (-9.37% deviation from target)
 Conductivity: 5.53 mho/m (+1.5% deviation from target)
 Fluid Temperature: 23.8°C (Start of Test) / 23.2°C (End of Test)
 Fluid Depth: ≥ 15.0 cm

Environmental Conditions:

Ambient Temperature: 23.3°C
 Humidity: 44%
 Barometric Pressure: 95.6 kPa

The 5800 MHz Brain tissue simulant consisted of the following ingredients:

Ingredient	Percentage by weight	
Water	64 - 78%	
Mineral Oil	11 - 18%	
Emulsifiers	9 - 15%	
Additives and Salt	2 - 3%	
Target Dielectric Parameters:	$\epsilon_r = 35.3$ (+/-10%)	$\sigma = 5.27$ 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
19.5	+/- 10%	21.4	+9.8%	78.0	+/- 10%	85.6	+9.8%
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
5.48	+/- 10%	6.02	+9.85%	21.92	+/- 10%	24.08	+9.85%
Extrapolated Peak SAR	SPEAG Target	85.2	+/- 15%	Measured	97.4	+14.35%	

Reference SAR values

The reference SAR values were calculated using finite-difference time-domain FDTD method (feed-point impedance set to 50 Ω) and the mechanical dimensions of the D5GHzV2 dipole (manufactured by SPEAG).

f (GHz)	Head Tissue			Body Tissue		
	SAR_{1g}	SAR_{10g}	SAR_{peak}	SAR_{1g}	SAR_{10g}	SAR_{peak}
5.0	72.9	20.7	285.6	68.1	19.2	260.3
5.1	74.6	21.1	297.5	78.8	19.6	272.3
5.2	76.5	21.6	310.3	71.8	20.1	284.7
5.5	83.3	23.4	349.4	79.1	22.0	326.3
5.8	78.0	21.9	340.9	74.1	20.5	324.7

Table 27.2: Numerical reference SAR values for D5GHzV2 dipole and flat phantom.

	Date of Evaluation:	May 09, 2007	Document Serial No.:	SV5800B-050907-R1.0	
	Evaluation Type:	System Validation	Validation Dipole:	5800 MHz	Fluid Type:

System Validation - 5800 MHz Dipole - May 9, 2007

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Asset: 00126

Ambient Temp: 23.3°C; Fluid Temp: 23.8°C; Barometric Pressure: 95.6 kPa; Humidity: 44%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: HSL5200-5800 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.53 \text{ mho/m}$; $\epsilon_r = 31.99$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(4.34, 4.34, 4.34); Calibrated: 24/01/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 21/06/2006
- Phantom: SAM 4.0; Type: Fibreglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz System Validation/Area Scan (9x13x1):

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

Maximum value of SAR (measured) = 42.5 mW/g

5800 MHz System Validation/Zoom Scan (7x7x9)/Cube 0:

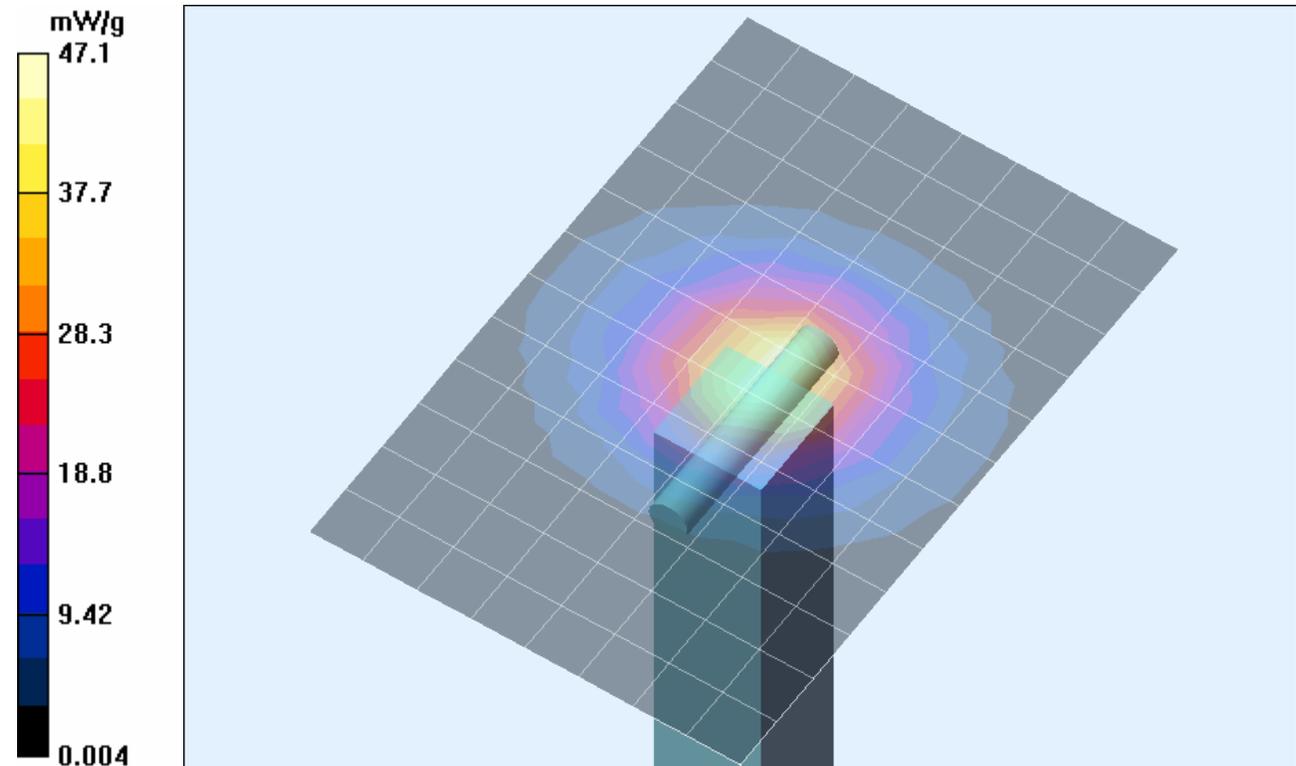
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

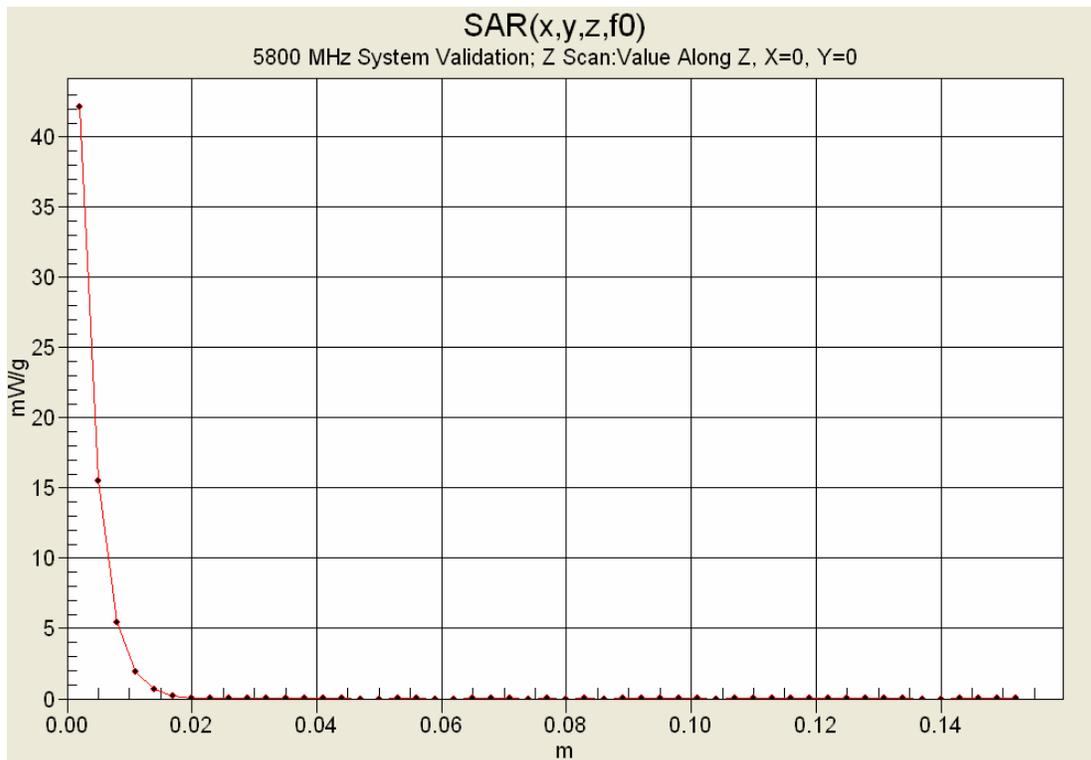
Reference Value = 94.1 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 97.4 W/kg

SAR(1 g) = 21.4 mW/g; SAR(10 g) = 6.02 mW/g

Maximum value of SAR (measured) = 47.1 mW/g





10. Measured Fluid Dielectric Parameters

System Validation - 5800 MHz (Brain)

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

Tue 09/May/2007

Frequency (GHz)

FCC_eHFCC OET 65 Supplement C (June 2001) Limits for Head Epsilon

FCC_sHFCC OET 65 Supplement C (June 2001) Limits for Head Sigma

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eHFCC_e	FCC_sHFCC_s	Test_e	Test_s
5.7000	35.41	5.17	32.17	5.39
5.7100	35.40	5.18	32.17	5.48
5.7200	35.39	5.19	32.36	5.50
5.7300	35.38	5.20	32.58	5.43
5.7400	35.37	5.21	32.57	5.39
5.7500	35.36	5.22	32.52	5.38
5.7600	35.35	5.23	32.35	5.31
5.7700	35.33	5.24	32.18	5.36
5.7800	35.32	5.25	32.09	5.40
5.7900	35.31	5.26	31.89	5.46
5.8000	35.30	5.27	31.99	5.53
5.8100	35.29	5.28	32.09	5.57
5.8200	35.28	5.29	32.25	5.60
5.8300	35.27	5.30	32.51	5.57
5.8400	35.25	5.31	32.40	5.55
5.8500	35.24	5.32	32.43	5.51
5.8600	35.23	5.33	32.28	5.46
5.8700	35.22	5.34	32.15	5.49
5.8800	35.21	5.35	32.02	5.52
5.8900	35.20	5.36	31.96	5.57
5.9000	35.19	5.37	31.88	5.65

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 (5 GHz)	6.6	Normal	1	1	6.6	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	9.6	Rectangular	1.732050808	1	5.5	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	2	Rectangular	1.732050808	1	1.2	∞
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	0.8	Rectangular	1.732050808	1	0.5	∞
Probe positioning	5.7	Rectangular	1.732050808	1	3.3	∞
Extrapolation & integration	4	Rectangular	1.732050808	1	2.3	∞
Dipole						
Dipole positioning	2	Rectangular	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Rectangular	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)	10	Rectangular	1.732050808	0.6	3.5	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
Combined Standard Uncertainty					12.58	
Expanded Uncertainty (k=2)					25.15	
Note(s)	1. Measurement Uncertainty Table in accordance with IEEE 1528-2003 and IEC 62209-1:2005.					

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
SPEAG 5GHz Validation Dipole	00126	1031	09May07	09May08
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
Rohde & Schwarz SMR20 Signal Generator	00006	100104	NCR	NCR

	<u>Date(s) of Evaluation</u> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX G - PROBE CALIBRATION

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset		5725.8-5848.9 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

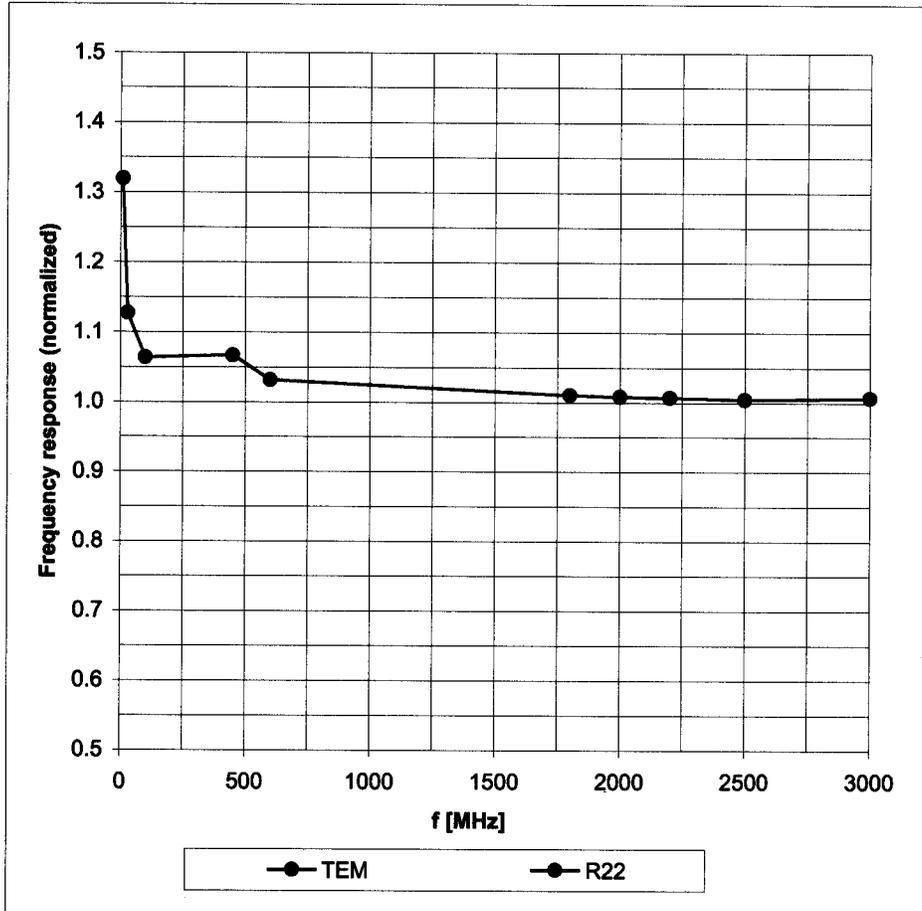
Manufactured:	January 10, 2007
Calibrated:	January 24, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

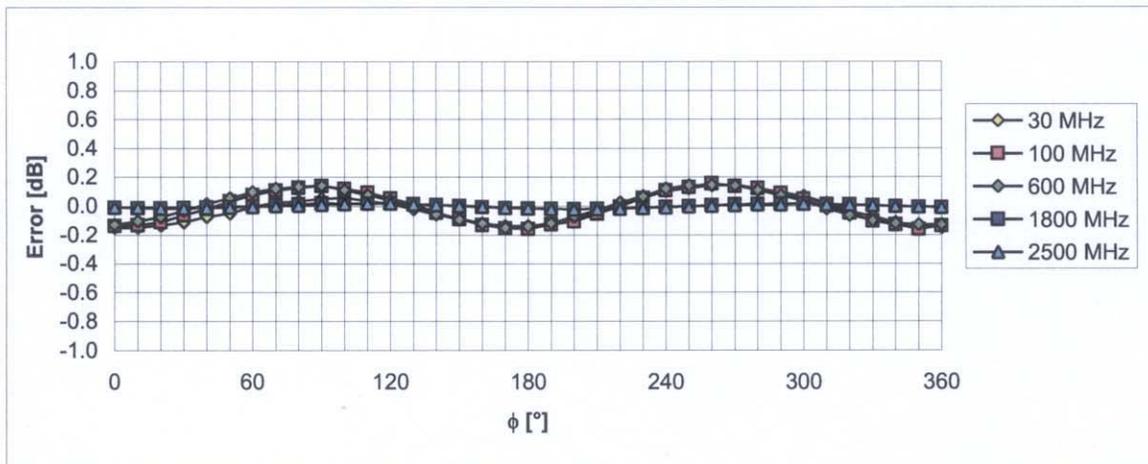
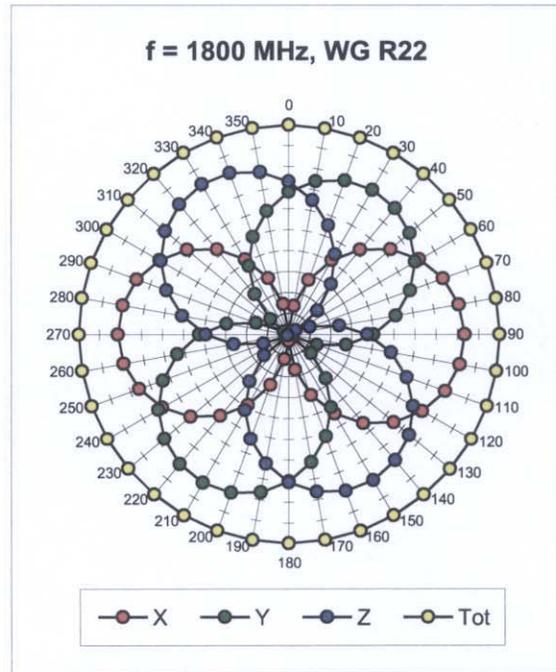
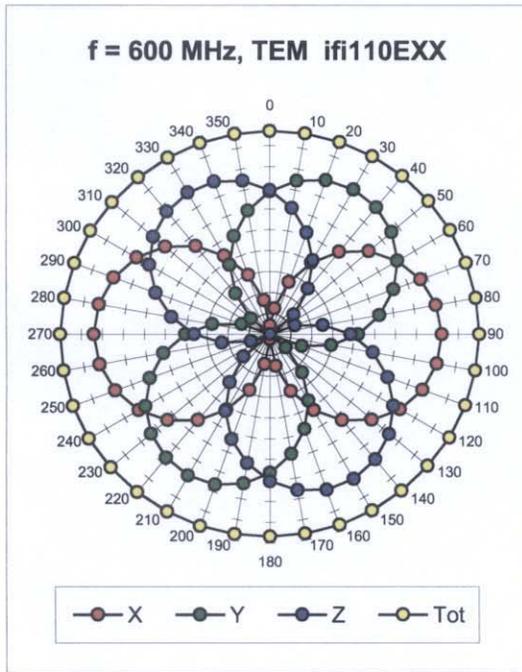
Frequency Response of E-Field

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



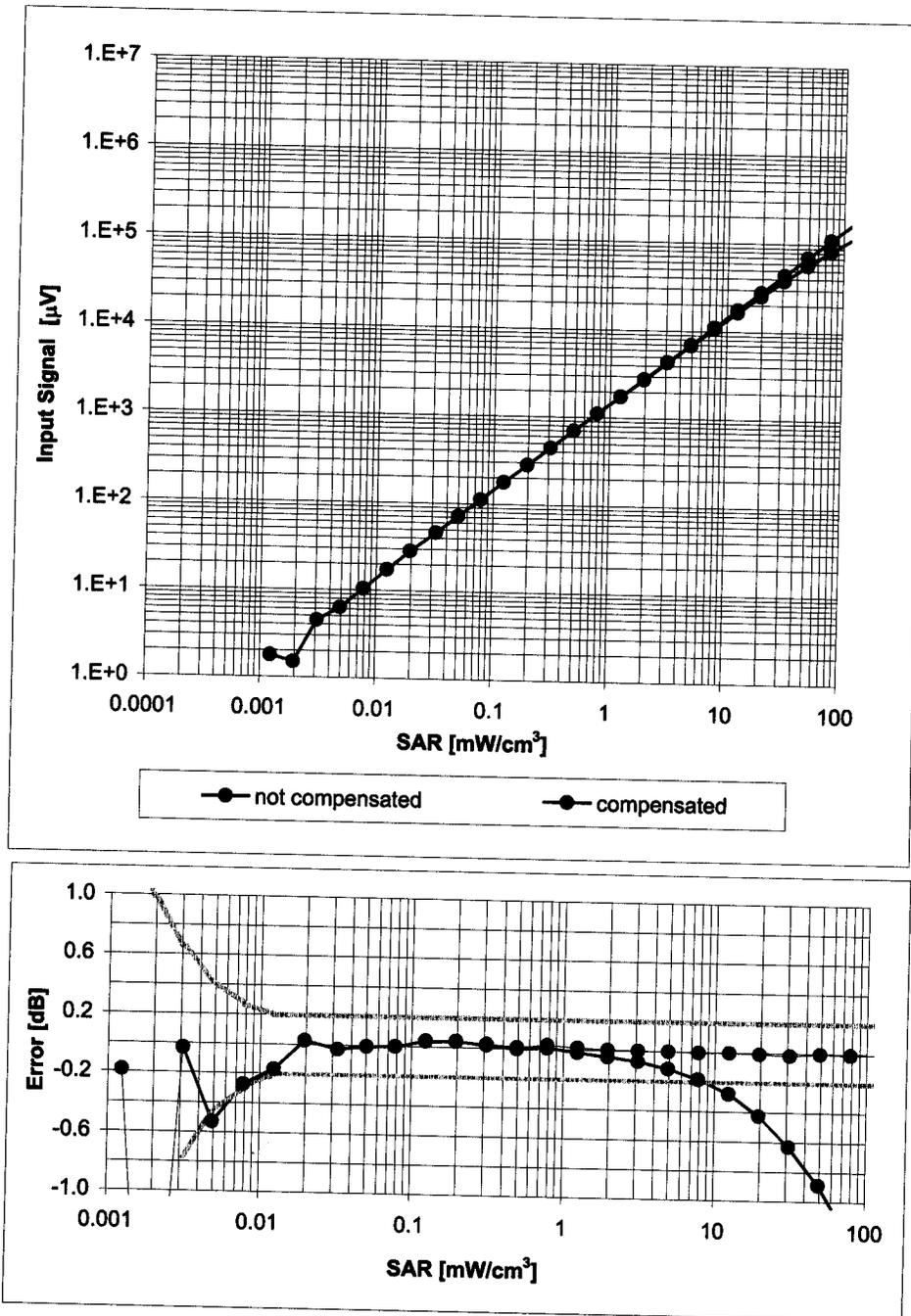
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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



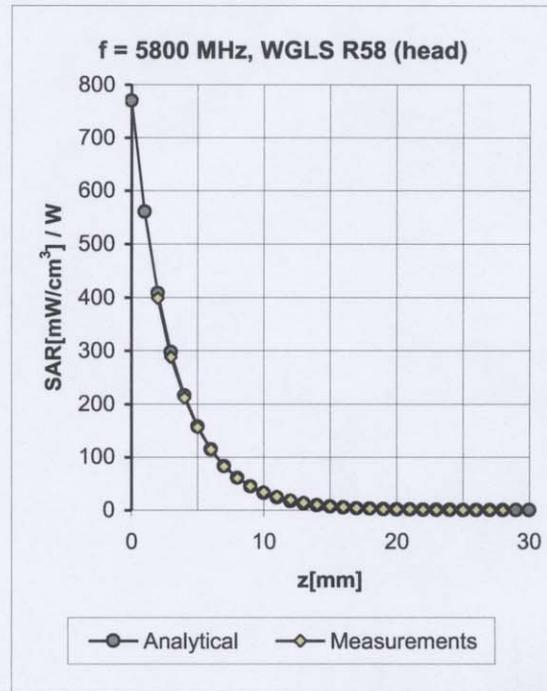
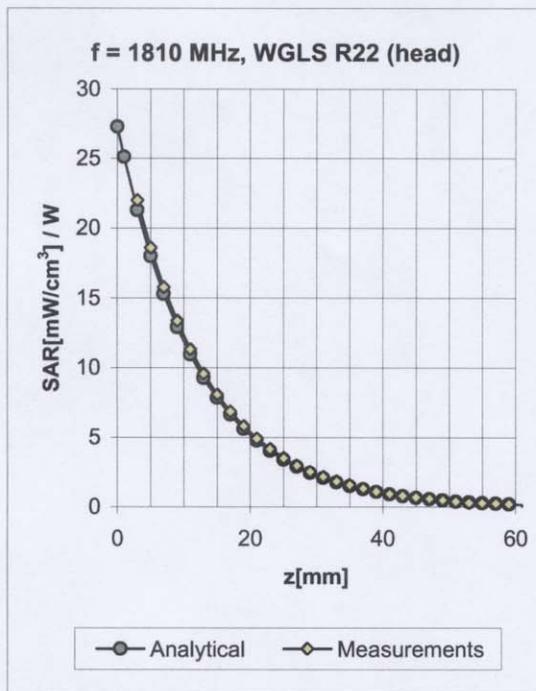
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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

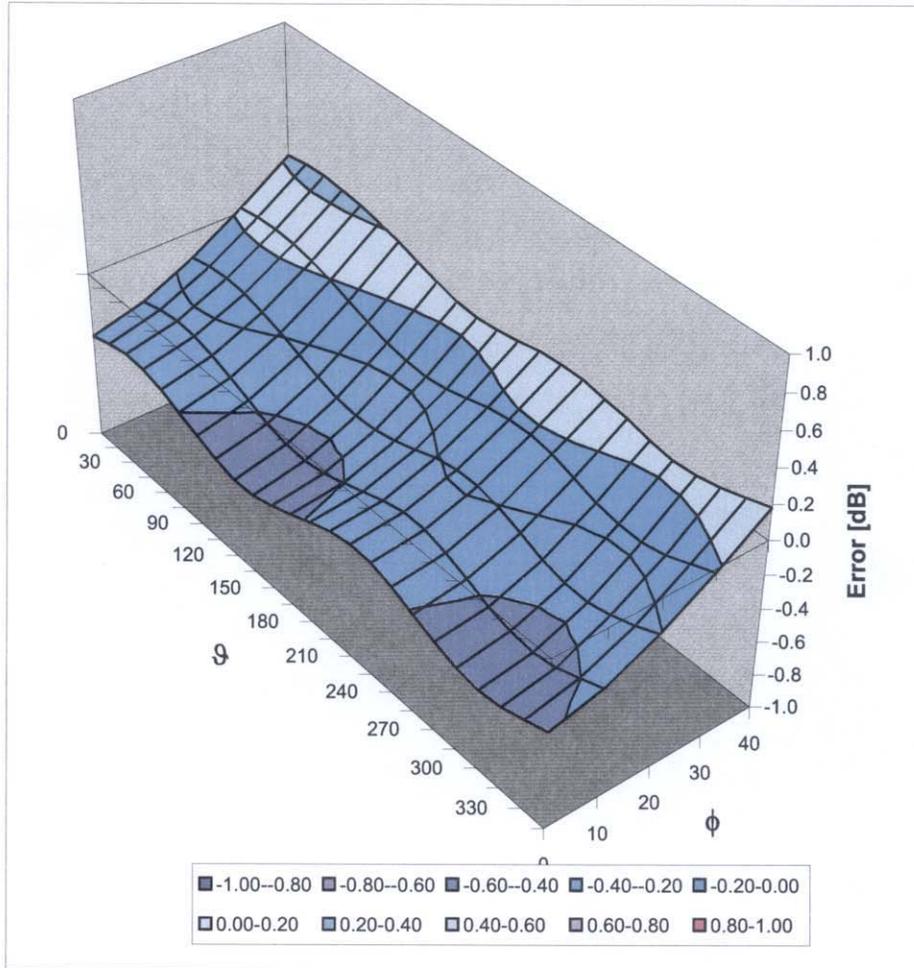


f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.20	1.01	7.02 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.26	1.05	6.59 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.44	1.00	6.37 ± 11.8% (k=2)
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> May 09 - 10, 2007	<u>Test Report Serial No.</u> 050107AMW-T829-S15T	<u>Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 20, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> General Population	

APPENDIX H - SAM PHANTOM CERTIFICATE OF CONFORMITY

Company:	Uniden America Corporation	FCC ID:	AMWUP855	IC ID:	513C-UP855	
Model(s):	UP855BH / TRU9385	Portable 5.8 GHz Cordless Telephone Handset	5725.8-5848.9 MHz			
2007 Celltech Labs Inc.		This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc.				Page 48 of 48

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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