DECLARATION OF COMPLIANCE - SAR RF EXPOSURE EVALUATION - FCC & IC C2PC

Test Lab Information	**Name**	**CELLTECH LABS INC.**				
	Address	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada				
Test Lab Accreditation(s)	**A2LA**	ISO/IEC 17025:2005 (A2LA Test Lab Certificate No. 2470.01)				
Applicant Information	**Name**	**HARRIS CORPORATION**				
	Address	221 Jefferson Ridge Parkway, Lynchburg, VA 24501 U.S.A.				
Standard(s) Applied	**FCC**	47 CFR §2.1093		**IC**	Health Canada Safety Code 6	
Procedure(s) Applied	**FCC**	OET Bulletin 65, Supplement C		**FCC**	KDB 447498 D01v04	
	FCC	KDB 643646 D01v01r01		**FCC**	KDB Inquiry #298203, #235657	
	IC	RSS-102 Issue 4	**IEEE** 1528-2003	**IEC**	62209-1:2005; 62209-2:2010	
Device Classification(s)	**FCC**	Licensed Non-Broadcast Transmitter Held to Face (TNF) - FCC Part 90				
	IC	Land Mobile Radio Transmitter/Receiver (27.41-960 MHz) - RSS-119				
Device Identifier(s)	**FCC ID:**	OWDTR-0070-E		**Application Type**	**Class II Permissive Change**	
	IC:	3636B-0070			**Add XG-75 UHF-L Scan Model**	
Date of Sample Receipt	June 30, 2011			**Dates of Evaluation**	August 17, 2011	
Device Description	Portable UHF-L Digital Push-To-Talk (PTT) Radio Transceiver					
Device Model(s)	**XG-75 UHF-L**	System (Black/Gray)	PN: RU-018272-002	MN: EVXG-PFU1B	DTMF Keypad	
		System (Yellow/Black)	PN: RU-018272-006	MN: EVXG-PFU1Y	DTMF Keypad	
		Scan (Black/Gray)	PN: RU-018272-001	MN: EVXG-PBU1B	without DTMF	
		Scan (Yellow/Black)	PN: RU-018272-005	MN: EVXG-PBU1Y	without DTMF	
Device Model(s) Tested	XG-75 UHF-L Scan	S/N: T2-UL-123 (Identical Prototype)		PN: RU-018272-001		
Test Sample Revision No.s	**Hardware**	Revision -		**Firmware**	R14B03	
Transmit Frequency Range(s)	**FCC**	406.1-470.0 MHz		**IC**	406.1-430.0; 450.0 -470.0 MHz	
Manufacturer's Rated Output Power	5 Watts Nominal (Conducted)			**Upper Tolerance Spec.**	+ 0.36 Watts	
Antenna Type(s) Tested	(1) Helical Stub	P/N: KRE 101 1219/10		Gain Spec.: 0 dBi	403-430 MHz	
	(2) 1/4-wave Whip	P/N: KRE 101 1223/10		Gain Spec.: 0 dBi	378-430 MHz	
	(3) 1/4-wave Whip	P/N: KRE 101 1223/12		Gain Spec.: 0 dBi	440-470 MHz	
	(4) Helical Stub	P/N: KRE 101 1219/12		Gain Spec.: 0 dBi	440-470 MHz	
Battery Type(s) Tested	Ni-MH	Immersible, non-IS		7.5V, 2400 mAh	BT-023406-003	
	Ni-MH	Immersible, <IS>		7.5V, 2400 mAh	BT-023406-004	
	Li-Ion	Immersible, non-IS		7.4V, 2000 mAh	BT-023406-005	
Body-worn Accessories Tested	See manufacturer's accessory listing (Section 7.0)					
Audio Accessories Tested	See manufacturer's accessory listing (Section 7.0)					
Max. SAR Level(s) Evaluated	Face-held	**2.00 W/kg**	1g	50% PTT duty cycle	Occupational / Controlled Exp.	
	Body-worn	**4.95 W/kg**	1g	50% PTT duty cycle	Occupational / Controlled Exp.	
FCC/IC Spatial Peak SAR Limit	Head/Body	8.0 W/kg	1g	50% PTT duty cycle	Occupational / Controlled Exp.	

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device has demonstrated compliance with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada Safety Code 6 for the Occupational / Controlled Exposure environment. The device was tested in accordance with the measurement procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), Industry Canada RSS-102 Issue 4, IEEE Standard 1528-2003, IEC International Standard 62209-1:2005 and IEC International Standard 62209-2:2010. All measurements were performed in accordance with the SAR system manufacturer recommendations.

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

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

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

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REVISION HISTORY			
REVISION NO.	**DESCRIPTION**	**IMPLEMENTED BY**	**RELEASE DATE**
1.0	Initial Release	Jon Hughes	October 07, 2011

TEST REPORT SIGN-OFF			
DEVICE TESTED BY	**REPORT PREPARED BY**	**QA REVIEW BY**	**REPORT APPROVED BY**
Mike Meaker	Cheri Frangiadakis	Jon Hughes	Sean Johnston

1.0 INTRODUCTION

This measurement report demonstrates that the HARRIS Corporation Model: XG-75 UHF-L Portable UHF-L PTT Radio Transceiver (Scan model variant) 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 Occupational / Controlled Exposure environment. The measurement procedures described in FCC OET Bulletin 65, Supplement C 01-01 (see reference [3]), IC RSS-102 Issue 4 (see reference [4]), IEEE Standard 1528-2003 (see reference [5]), IEC 62209-1:2005 (see reference [6]) and IEC 62209-2:2010 (see reference [7]) were employed. A description of the device, 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 head 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 a controller with a built in VME-bus computer.

3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

MEASURED RF CONDUCTED OUTPUT POWER LEVELS (SCAN RADIO MODEL)

Band	Test Frequency	Mode	dBm	Watts	Method
FCC/IC	406.1 MHz	CW	37.3	5.41	Average Conducted
FCC/IC	418.05 MHz	CW	37.4	5.51	Average Conducted
FCC/IC	430.0 MHz	CW	37.5	5.57	Average Conducted
FCC	440.0 MHz	CW	37.4	5.46	Average Conducted
FCC/IC	455.0 MHz	CW	37.2	5.29	Average Conducted
FCC/IC	470.0 MHz	CW	37.3	5.34	Average Conducted

Notes

1. The test channels were selected in accordance with the procedures specified in FCC KDB 447498 Section 6) c) (see reference [8]).

2. The RF conducted output power levels of the DUT were measured by Celltech prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter at the external antenna connector of the radio in accordance with FCC 47 CFR §2.1046 (see reference [14]) and IC RSS-Gen (see reference [15]).

4.0 FCC POWER THRESHOLDS FOR PTT DEVICES ($f \leq 0.5$ GHz)

FCC SAR Evaluation Power Thresholds for PTT Devices, $f \leq 0.5$ GHz*			Manufacturer's Rated RF Output Power	
Exposure Conditions	***P* mW (General Population)**	***P* mW (Occupational)**	**100% PTT Duty Cycle**	**50% PTT Duty Cycle**
Held to face, $d \geq 2.5$ cm	250	**1250**	5.0 Watts	**2.5 Watts**
Body-worn, $d \geq 1.5$ cm	200	**1000**		
Body-worn, $d \geq 1.0$ cm	150	**750**		
1. The time-averaged output power, corresponding to the required PTT duty factor, is compared with these thresholds. 2. The closest distance between the user and the device or its antenna is used to determine the power thresholds. * Per FCC KDB 447498 D01v04 Section 5)b)i) (see reference [8]).			1. The conducted output power level of the DUT exceeds the FCC power threshold and therefore SAR evaluation is required.	

5.0 SAR PROBE CALIBRATION & MEASUREMENT FREQUENCIES

The following procedures are recommended for measurements at 150 MHz - 3 GHz to minimize probe calibration and tissue dielectric parameter discrepancies. In general, SAR measurements below 300 MHz should be within ±50 MHz of the probe calibration frequency. At 300 MHz to 3 GHz, measurements should be within ±100 MHz of the probe calibration frequency. Measurements exceeding 50% of these intervals, ±25 MHz < 300 MHz and ±50 MHz ≥300 MHz, require additional steps (per FCC KDB 450824 D01 v01r01, SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz - see reference [10]).

Probe Calibration Freq.	Device Measurement Freq.	Frequency Interval	±50 MHz ≥ 300 MHz
450 MHz	406.1 MHz	43.9 MHz	<50 MHz
	418.05 MHz	31.95 MHz	<50 MHz
	430.0 MHz	20 MHz	<50 MHz
	440.0 MHz	10 MHz	<50 MHz
	455.0 MHz	5 MHz	<50 MHz
	470.0 MHz	20 MHz	<50 MHz
Note: The probe calibration and measurement frequency interval is < 50 MHz; therefore additional steps were not required.			

6.0 NO. OF TEST CHANNELS (N_c)

Antenna Part No.		Antenna Type	Test Frequency Range	Band	N_c	Test Frequencies (MHz)
(1)	KRE 101 1219/10	Helical Stub	406.1 - 430.0 MHz	FCC/IC	3	406.1, 418.05, 430.0
(2)	KRE 101 1223/10	¼-wave Whip	406.1 - 430.0 MHz	FCC/IC	3	406.1, 418.05, 430.0
(3)	KRE 101 1223/12	¼-wave Whip	440.0 - 470.0 MHz	FCC/IC	3	440.0, 455.0, 470.0
(4)	KRE 101 1219/12	Helical Stub	440.0 - 470.0 MHz	FCC/IC	3	440.0, 455.0, 470.0
Note: The number of test channels (*Nc*) were calculated in accordance with the procedures specified in FCC KDB 447498 Section 6) c) (see reference [8]).						

7.0 MANUFACTURER'S DISCLOSED ACCESSORY LISTING

Accessory ID # for Test Report	ACCESSORY CATEGORY: ANTENNA		
	Part Number		**Description**
1	KRE 101 1219/10		Helical Stub (403-430 MHz)
2	KRE 101 1223/10		¼-wave Whip (378-430 MHz)
3	KRE 101 1223/12		¼-wave Whip (440-470 MHz)
4	KRE 101 1219/12		Helical Stub (440-470 MHz)
Accessory ID # for Test Report	**ACCESSORY CATEGORY: BATTERY**		
	Part Number		**Description**
a	BT-023406-003		Ni-MH, immersible, non-IS (7.5V, 2400 mAh)
b	BT-023406-004		Ni-MH, immersible, <IS> (7.5V, 2400 mAh)
c	BT-023406-005		Li-Ion, immersible, non-IS (7.4V, 2000 mAh)
n/a*	BT-023406-103		Ni-MH, immersible, Goldpeak cells, non-IS
Accessory ID # for Test Report	**ACCESSORY CATEGORY: BODY-WORN**		
	Part Number		**Description**
1	Old	KT-016201-001 (kit)	Kit containing: FM-016199-001 P7300 BEE Nylon case (Black) (with radio retaining strap) & CC-014527 BEE Leather Belt Loop
	New	14011-0012-01	Kit containing: 14011-0011-01 P7300/XG-75/XG-25 BEE Nylon case (Black) (with radio retaining strap) & CC-014527 BEE Leather Belt Loop
2**	Old	KT-016201-002 (kit)	Kit contains: FM-016199-002 P7300 BEE Nylon case (Orange) (with radio retaining strap) & CC-014527 BEE Leather Belt Loop
	New	14011-0012-02	Kit containing: 14011-0011-02 P7300/XG-75/XG-25 BEE Nylon case (Orange) (with radio retaining strap) & CC-014527 BEE Leather Belt Loop
3	Old	KT-016201-003 (kit)	Kit contains: FM-016199-003 P7300 BEE Leather Case (with radio retaining strap) w/o Shoulder Strap D-rings, KRY1011608/2 Swivel Mount & CC-014527 BEE Leather Belt Loop
	New	14011-0012-03	Kit contains: 14011-0011-03 P7300/XG-75/XG-25 BEE Leather Case (with radio retaining strap) w/o Shoulder Strap D-rings,, KRY1011608/2 Swivel Mount & CC-014527 BEE Leather Belt Loop
4	Old	KT-016201-004	Kit contains: FM-016199-004 P7300 BEE Leather Case with Shoulder Strap D-rings (with radio retaining strap), KRY1011608/2 Swivel Mount & CC-014524-001 BEE Shoulder Strap
	New	14011-0012-04	Kit contains: 14011-0011-04 P7300/XG-75/XG-25 BEE Leather Case with Shoulder Strap D-rings (with radio retaining strap), KRY1011608/2 Swivel Mount & CC-014524-001 BEE Shoulder Strap
5	CC23894		Metal Belt Clip

Accessory ID # for Test Report	ACCESSORY CATEGORY: AUDIO		
	Part Number	**Description**	**Audio Accessory Grouping**
G7a	MC-023933-001	Speaker-Mic, No Ant. (cc), <IS>	Group 7
n/a	MC-023933-002	Speaker-Mic, W/ Ant. (cc) provision, <IS>	n/a (contains integral antenna)
G7b	MC-009104-002	Speaker-Mic, GPS, non-IS	Group 7
n/a	LS103239V1	Earphone for Speaker-Mic <IS>	n/a (accessory to Group 7)
G7c	MC-011617-601	Ruggedized Speaker Mic-Coil Cord	Group 7
G7d	MC-011617-701	Standard Speaker Mic - Non Ant	Group 7
G12a	EA-009580-001	Earphone Kit, Black	Group 12
G12b***	EA-009580-002	Earphone Kit, Beige	Group 12
G8a	EA-009580-003	2-Wire Kit, Palm mic, Black	Group 8
G8b***	EA-009580-004	2-Wire Kit, Palm mic, Beige	Group 8
G9a	EA-009580-005	3-Wire Kit, Mini-Lapel Mic, Black	Group 9
G9b***	EA-009580-006	3-Wire Kit, Mini-Lapel Mic, Beige	Group 9
G4	EA-009580-007	Explorer Headset w/ PTT	Group 4
G2	EA-009580-008	Lightweight headset single spkr w/ PTT	Group 2
G3a	EA-009580-009	Breeze Headset w/ PTT	Group 3
G1a	EA-009580-010	Headset, heavy duty, N/C behind the head, w/ PTT	Group 1
G5	EA-009580-011	Ranger Headset w/ PTT	Group 5
G10	EA-009580-012	Skull mic w/body PTT & earcup	Group 10
G1b	EA-009580-013	Headset, heavy duty, N/C over the head, w/ PTT	Group 1
G11a	EA-009580-014	Throat mic w/acoustic tube & body PTT	Group 11
G11b	EA-009580-015	Throat mic w/acoustic tube, body PTT, & ring PTT	Group 11
G3b	EA-009580-016	Breeze headset w/ PTT & pigtail jack	Group 3
G6a	EA-009580-017	Hurricane headset w/ PTT	Group 6
G6b	EA-009580-018	Hurricane headset w/ PTT & pigtail jack	Group 6

Manufacturer's disclosed accessory listing information provided by HARRIS Corporation

* BT-023406-103 does not need to be explicitly tested for SAR since the Goldpeak cells have the same physical form factor as the Sanyo cells used in the BT-023406-003.

** The orange nylon case does NOT have to be explicitly tested for SAR due to physical similarity to the black case.

*** Audio accessories G8b, G9b and G12b were not tested as they differ only in color to G8a, G9a and G12a respectively.

8.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS

Date: 08/17/2011		Frequency: 450 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.350	58.2	0.85	56.7	0.94	2.65%	-9.57%
0.360	58.03	0.86	56.7	0.94	2.35%	-8.51%
0.370	57.73	0.84	56.7	0.94	1.82%	-10.64%
0.380	57.08	0.86	56.7	0.94	0.67%	-8.51%
0.390	57.55	0.88	56.7	0.94	1.50%	-6.38%
0.400	57.5	0.87	56.7	0.94	1.41%	-7.45%
0.410	57.32	0.9	56.7	0.94	1.09%	-4.26%
0.41805*	57	0.9	56.7	0.94	0.53%	-4.26%
0.420	56.91	0.9	56.7	0.94	0.37%	-4.26%
0.430	56.99	0.9	56.7	0.94	0.51%	-4.26%
0.440	55.92	0.92	56.7	0.94	-1.38%	-2.13%
0.450	55.78	0.93	56.7	0.94	-1.62%	-1.06%
0.455*	55.9	0.93	56.7	0.94	-1.41%	-1.06%
0.460	55.92	0.93	56.7	0.94	-1.38%	-1.06%
0.470	56.12	0.95	56.7	0.94	-1.02%	1.06%
0.480	56.4	0.94	56.7	0.94	-0.53%	0.00%
0.490	55.93	0.96	56.7	0.94	-1.36%	2.13%
0.500	55.5	0.95	56.7	0.94	-2.12%	1.06%
0.510	55.26	0.96	56.7	0.94	-2.54%	2.13%
0.520	55.54	0.98	56.7	0.94	-2.05%	4.26%
0.530	55.39	0.99	56.7	0.94	-2.31%	5.32%
0.540	55.34	1	56.7	0.94	-2.40%	6.38%
0.550	54.73	1.01	56.7	0.94	-3.47%	7.45%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Aug 17	450 Body	23.0 °C	21.7 °C	≥ 15 cm	101.1 kPa	31%	1000

FLUID DIELECTRIC PARAMETERS

Date: 08/17/2011		Frequency: 450 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.350	46.71	0.79	43.5	0.87	7.38%	-9.20%
0.360	47.04	0.79	43.5	0.87	8.14%	-9.20%
0.370	46.14	0.79	43.5	0.87	6.07%	-9.20%
0.380	45.49	0.8	43.5	0.87	4.57%	-8.05%
0.390	45.47	0.82	43.5	0.87	4.53%	-5.75%
0.400	45.78	0.82	43.5	0.87	5.24%	-5.75%
0.410	45.85	0.84	43.5	0.87	5.40%	-3.45%
0.420	45.22	0.85	43.5	0.87	3.95%	-2.30%
0.430	44.91	0.85	43.5	0.87	3.24%	-2.30%
0.440	44.18	0.88	43.5	0.87	1.56%	1.15%
0.450	44.2	0.87	43.5	0.87	1.61%	0.00%
0.460	44.6	0.87	43.5	0.87	2.53%	0.00%
0.470	43.92	0.9	43.5	0.87	0.97%	3.45%
0.480	43.74	0.9	43.5	0.87	0.55%	3.45%
0.490	43.66	0.89	43.5	0.87	0.37%	2.30%
0.500	43.69	0.9	43.5	0.87	0.44%	3.45%
0.510	42.58	0.91	43.5	0.87	-2.11%	4.60%
0.520	43.34	0.92	43.5	0.87	-0.37%	5.75%
0.530	43.03	0.94	43.5	0.87	-1.08%	8.05%
0.540	42.52	0.95	43.5	0.87	-2.25%	9.20%
0.550	42.78	0.95	43.5	0.87	-1.66%	9.20%

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Aug 17	450 Head	23.0 °C	23.8 °C	≥ 15 cm	101.1 kPa	31%	1000

9.0 TEST REDUCTION PROCEDURES FOR SYSTEM MODEL (FCC KDB 643646)

a. Face-held Configuration - Default Battery Selection - per FCC KDB 643646, Page 2, Section 1) A): *"When multiple standard batteries are supplied with a radio, the battery with the highest capacity is considered the default battery for making head SAR measurements."*

b. Face-held Configuration - Audio Accessory with Integral Antenna - face-held SAR evaluation for audio accessories with integral antenna are not specifically addressed in FCC KDB 643646. The procedures described in a. above were applied.

c. Body-worn Configuration - Audio Accessory with Integral Antenna - per FCC KDB 643646, Page 7-8: *"Audio accessories with an integral antenna or radiating element must be tested separately from those without any primary radiating element. An audio accessory with a built-in antenna that enables the antenna on a PTT radio to be disconnected from its output while the audio accessory is in use should be tested using the highest capacity default battery. When transmission from the antenna on the PTT radio is disabled while the audio accessory is transmitting using its integral antenna, the normal body-worn accessories for the radio are not expected to influence the SAR of the audio accessory. In addition, special body-worn attachments are generally used for audio accessories with an integral antenna; the audio accessory must be tested according to how it is attached to the user during normal operation. Body SAR is measured with the audio accessory positioned against a flat phantom representative of the normal operating and exposure conditions expected by users. All sides of the audio accessory that may be positioned against the user must be considered for SAR compliance. 1) An audio accessory is tested on the highest output power channel, according to the test channels required by KDB 447498 (6)(c) and in the frequency range covered by the antenna on the audio accessory within the operating frequency bands of the radio to measure body SAR. B) When the body SAR of an audio accessory tested in 1) is: I) $\leq$ 3.5 W/kg, testing of all other required channels is not necessary for that audio accessory."*

d. Body-worn Configuration - Default Battery Selection - per FCC KDB 643646, Page 5, Section 1) A):*"Start by testing a PTT radio with the thinnest battery and a standard (default) body-worn accessory that are both supplied with the radio and, if applicable, a default audio accessory……..."*

e. Body-worn Configuration - Default Body-worn Accessory Selection - the belt-clip was selected as the default body-worn accessory based on the smaller separation distance it provides between the radio and the user in comparison to the remaining accessories. Per FCC KDB 643646, Page 5, Section 1) A): *"When multiple default body-worn accessories are supplied with a radio, the standard body-worn accessory expected to result in the highest SAR based on its construction and exposure conditions is considered the default body-worn accessory for making body-worn measurements."*

f. Body-worn Configuration - Additional Body-worn Accessories - the remaining body-worn accessories were evaluated based on the *"additional body-worn accessory"* guidance provided in FCC KDB 643646, Page 7, Section 4). The remaining body-worn accessories can be utilized with all the audio accessory options.

g. Body-worn Configuration - Default Audio Accessory Selection - According to the manufacturer, the radio is not supplied to the end user with a standard default audio accessory (as referenced in FCC KDB 643646, Page 4, Section "Body SAR Test Considerations for Body-worn Accessories"); therefore the procedures described in note (j) below were applied in order to establish the default audio accessory.

h. Body-worn Configuration - Selection of Remaining Default Audio Accessories by Category - the Remaining Default Audio Accessories by Category were selected based on the guidance provided in FCC KDB 643646, Section "Body SAR Test Considerations for Audio Accessories without Built-in Antenna", Page 10: *"For audio accessories with similar construction and operating requirements, test only the audio accessory within the group that is expected to result in the highest SAR, with respect to changes in RF characteristics and exposure conditions for the combination. If it is unclear which audio accessory within a group of similar accessories is expected to result in the highest SAR, good engineering judgment and preliminary testing should be applied to select the accessory that is expected to result in the highest SAR."* Please refer to note (i) below for the procedure implemented to establish the Default Audio Accessory by Category (Grouping). The Remaining Default Audio Accessories by Category were evaluated on the highest SAR channel and antenna combination from the Default Audio Accessory evaluations (see note e.) based on the guidance provided in FCC KDB 643646, Page 10, Section 1) A) thru D).

i. Body-worn Configuration - Selection of Additional Audio Accessories by Category - the Additional Audio Accessories by Category were selected based on the guidance provided in FCC KDB 643646, Section "Body SAR Test Considerations for Audio Accessories without Built-in Antenna", Page 10 and the following procedures were applied per Section C:

"C) > 6.0 W/kg, test on all required channels for that audio accessory"

j. According to the manufacturer, all the optional audio accessories can be used with any accessory combination (antenna, battery & body-worn accessory) - see also Appendix H. Therefore, in order to establish the overall default audio accessory and default accessory by category (grouping), preliminary SAR evaluations (area scans with belt-clip, thinnest battery and worst-case antenna configuration from face-held evaluations) were performed by Celltech with all of the optional audio accessories connected to the radio consecutively.

10.0 TEST REDUCTION PROCEDURES FOR SCAN MODEL (FCC KDB INQ. #235657)

With respect to the SAR results for the *original model*, please test the SAR for *additional models* according to the following where reported and measured should mean the SAR results at 50% duty factor before further scaling or compensation.

1. For face exposure, *additional models* should be measured for each of the antennas using the highest SAR configuration reported among the battery configurations for the *base model*; i.e., one SAR per antenna for each additional model.

2. For body-worn accessories with the default audio accessory, *additional models* should be measured for each of the antennas and body-worn accessories using the highest SAR configuration reported among the battery configurations for the *base model*; i.e., one SAR per antenna and body-worn accessory combination. For each of these configurations, if the measured SAR for the *additional models* is > 7.0 W/kg repeat all SAR measured for the *base model* that are > 6.0 W/kg using the *additional models*. In addition, all SAR measured for the *base model* > 7.0 W/kg must be repeated for the *additional models*.

3. For the remaining default audio accessories, all SAR measured for each combination of antenna, battery, body-worn accessory and audio accessory with the *base model* with SAR >= 7.0 W/kg must be repeated for the *additional models* for such combinations. When the highest SAR measured for a *base model* combination of antenna, battery, body-worn accessory and audio accessory is < 7.0 W/kg, measure SAR for the *additional models* using the highest SAR reported for each *base model* combination; i.e., at least one test per combination. However, if the highest reported SAR for a *base model* combination is < 5.0 W/kg, no test is needed for that combination. For each *additional model* combination, if the measured SAR is > 7.0 W/kg repeat all SAR measured for that combination when the reported *base model* SAR is > 6.0 W/kg.

4. For the rest of the additional (non-default) audio accessories tested for the *base model*, apply the same procedures used for the remaining default audio accessories in #3 above. A combination should be determined according to audio accessory part numbers; not by audio category.

11.0 SAR MEASUREMENT SUMMARY

TABLE 1 — FACE-HELD SAR EVALUATION RESULTS (System v Scan Model Comparison)

C			XG-75 UHF-L SCAN Radio Keypad Variant Model						XG-75 UHF-L SYSTEM Radio Base Model					
				1		2	3			4		5	6	
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift (dB)		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #		Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift dB		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #	
1	1 (1219/10)	406.1	5.41	N/A					5.40	N/A				
2		418.05	5.51	N/A					5.50	N/A				
3		430.0	5.57	F1	2.90	1.45	a		5.50	F1	3.01	1.51	a	
4					-0.407	1.59					-0.486	1.68		
5	2 (1223/10)	406.1	5.41	N/A					5.40	N/A				
6		418.05	5.51	N/A					5.50	N/A				
7		430.0	5.57	F2	2.42	1.21	a		5.50	F2	2.14	1.07	a	
8					-0.414	1.33					-0.407	1.18		
9	3 (1223/12)	440.0	5.46	F3	3.18	1.59	c		5.37	F6	3.34	1.67	c	
10					-0.287	1.70					0.485	N/A		
11		455.0	5.29	N/A					5.31	N/A				
12		470.0	5.34	N/A					5.33	N/A				
13	4 (1219/12)	440.0	5.46	F4	4.00	2.00	a		5.37	F4	2.65	1.33	a	
14					-0.185	2.09					-0.277	1.41		
15		455.0	5.29	N/A					5.31	N/A				
16		470.0	5.34	N/A					5.33	N/A				

SAR LIMITS		HEAD	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	8.0 W/kg	1 gram average	Occupational / Controlled

Notes	
Test Date(s): Aug. 17, 2011	N/A = Not Applicable
C = Column; R = Row	Fx denotes the corresponding Face SAR Plot # as shown in Appendix A (SCAN Model only) Fx denotes the corresponding Face SAR Plot # from the original Cert. report (SYSTEM Model)
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Barski Planar Phantom

Front of DUT Distance to Planar Phantom (Front of DUT Parallel to Phantom)	Shortest Distance from Antenna to Planar Phantom			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
2.5 cm	5.5 cm	5.5 cm	5.5 cm	5.5 cm

TABLE 2 — BODY-WORN SAR EVALUATION RESULTS (System v Scan Model Comparison)

BODY-WORN ACCESSORY ID #	5 (Default)
AUDIO ACCESSORY ID #	G7a (Default)

C			XG-75 UHF-L SCAN Radio Keypad Variant Model					XG-75 UHF-L SYSTEM Radio Base Model				
				1		2	3		4		5	6
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift (dB)		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift dB		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #
1	1 (1219/10)	406.1	5.41	N/A				5.40	N/A			
2		418.05	5.51	N/A				5.50	N/A			
3		430.0	5.57	B1	5.19	2.60	a	5.50	B1	4.18	2.09	a
4					-0.500	2.91				-0.258	2.22	
5	2 (1223/10)	406.1	5.41	N/A				5.40	N/A			
6		418.05	5.51	B2	6.91	3.46	a	5.50	B2	10.0	5.00	a
7					-0.218	3.63				-0.048	5.06	
8		430.0	5.57	N/A				5.50	N/A			
9	3 (1223/12)	440.0	5.46	N/A				5.37	N/A			
10		455.0	5.29	B3	9.37	4.69	a	5.31	B5	10.8	5.40	a
11					-0.076	4.77				-0.278	5.76	
12		470.0	5.34	N/A				5.33	N/A			
13	4 (1219/12)	440.0	5.46	B4	9.90	4.95	a	5.37	B7	9.75	4.88	a
14					-0.180	5.16				-0.143	5.04	
15		455.0	5.29	N/A				5.31	N/A			
16		470.0	5.34	N/A				5.33	N/A			

SAR LIMITS		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	8.0 W/kg	1 gram average	Occupational / Controlled

Notes

Test Date(s): Aug. 17, 2011	N/A = Not Applicable
C = Column; R = Row	Bx denotes the corresponding Body SAR Plot # as shown in Appendix A (SCAN Model only) Bx denotes the corresponding Body SAR Plot # from the original Cert. report (SYSTEM Model)
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Barski Planar Phantom

Back of DUT Distance to Planar Phantom (DUT Battery Parallel to Phantom)	Shortest Distance from Antenna to Planar Phantom			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
1.8 cm	2.1 cm	2.1 cm	2.1 cm	2.1 cm

TABLE 3 — BODY-WORN SAR EVALUATION RESULTS (System v Scan Model Comparison)

BODY-WORN ACCESSORY ID #	1 (Additional)
AUDIO ACCESSORY ID #	G7a (Default)

			XG-75 UHF-L SCAN Radio Keypad Variant Model					XG-75 UHF-L SYSTEM Radio Base Model				
C				1		2	3		4		5	6
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift (dB)		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift dB		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #
1	1 (1219/10)	406.1	5.41	N/A				5.40	N/A			
2		418.05	5.51	N/A				5.50	N/A			
3		430.0	5.57	B5	1.96	0.980	a	5.50	B16	1.92	0.960	a
4					-0.374	1.07				-0.467	1.07	
5	2 (1223/10)	406.1	5.41	N/A				5.40	N/A			
6		418.05	5.51	N/A				5.50	N/A			
7		430.0	5.57	B6	1.87	0.935	a	5.50	B17	3.60	1.80	a
8					-0.087	0.954				-0.474	2.01	
9	3 (1223/12)	440.0	5.46	B7	2.45	1.23	a	5.37	B18	2.22	1.11	a
10					-0.059	1.24				-0.246	1.18	
11		455.0	5.29	N/A				5.31	N/A			
12		470.0	5.34	N/A				5.33	N/A			
13	4 (1219/12)	440.0	5.46	B8	3.00	1.50	a	5.37	B19	2.70	1.35	a
14					-0.191	1.57				-0.142	1.40	
15		455.0	5.29	N/A				5.31	N/A			
16		470.0	5.34	N/A				5.33	N/A			

SAR LIMITS		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	8.0 W/kg	1 gram average	Occupational / Controlled

Notes

Test Date(s): Aug. 17, 2011	N/A = Not Applicable
C = Column; R = Row	Bx denotes the corresponding Body SAR Plot # as shown in Appendix A (SCAN Model only) Bx denotes the corresponding Body SAR Plot # from the original Cert. report (SYSTEM Model)
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Barski Planar Phantom

Back of DUT Distance to Planar Phantom (DUT Battery Parallel to Phantom)	Shortest Distance from Antenna to Planar Phantom			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
4.5 cm	4.9 cm	4.9 cm	4.9 cm	4.9 cm

TABLE 4 — BODY-WORN SAR EVALUATION RESULTS (System v Scan Model Comparison)

BODY-WORN ACCESSORY ID #	3 (Additional)
AUDIO ACCESSORY ID #	G7a (Default)

			XG-75 UHF-L SCAN Radio Keypad Variant Model					XG-75 UHF-L SYSTEM Radio Base Model				
C				1	2	3			4	5	6	
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift (dB)		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift dB		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #
1	1 (1219/10)	406.1	5.41	N/A				5.40	N/A			
2		418.05	5.51	N/A				5.50	N/A			
3		430.0	5.57	B9	1.25	0.625	a	5.50	B22	1.66	0.830	a
4					-0.385	0.683				-0.478	0.927	
5	2 (1223/10)	406.1	5.41	N/A				5.40	N/A			
6		418.05	5.51	N/A				5.50	N/A			
7		430.0	5.57	B10	1.52	0.760	a	5.50	B23	1.82	0.910	a
8					-0.350	0.824				-0.196	0.952	
9	3 (1223/12)	440.0	5.46	B11	1.99	0.995	c	5.37	B27	2.18	1.09	c
10					-0.028	1.00				-0.153	1.13	
11		455.0	5.29	N/A				5.31	N/A			
12		470.0	5.34	N/A				5.33	N/A			
13	4 (1219/12)	440.0	5.46	B12	2.16	1.08	a	5.37	B25	1.34	0.670	a
14					-0.164	1.12				-0.391	0.733	
15		455.0	5.29	N/A				5.31	N/A			
16		470.0	5.34	N/A				5.33	N/A			

SAR LIMITS		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	8.0 W/kg	1 gram average	Occupational / Controlled

Notes

Test Date(s): Aug. 17, 2011	N/A = Not Applicable
C = Column; R = Row	Bx denotes the corresponding Body SAR Plot # as shown in Appendix A (SCAN Model only) Bx denotes the corresponding Body SAR Plot # from the original Cert. report (SYSTEM Model)
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Barski Planar Phantom

Back of DUT Distance to Planar Phantom (DUT Battery Parallel to Phantom)	Shortest Distance from Antenna to Planar Phantom			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
5.2 cm	5.5 cm	5.5 cm	5.5 cm	5.5 cm

TABLE 5 — BODY-WORN SAR EVALUATION RESULTS (System v Scan Model Comparison)

BODY-WORN ACCESSORY ID #	4 (Additional)
AUDIO ACCESSORY ID #	G7a (Default)

			XG-75 UHF-L SCAN Radio Keypad Variant Model					XG-75 UHF-L SYSTEM Radio Base Model				
C				1		2	3		4		5	6
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift (dB)		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #	Cond. Power Before Test (W)	SAR W/kg (1g) 100% ptt d/f Drift dB		SAR W/kg (1g) 50% ptt d/f 50%+droop	Battery Accessory ID #
1	1 (1219/10)	406.1	5.41	N/A				5.40	N/A			
2		418.05	5.51	N/A				5.50	N/A			
3		430.0	5.57	B13	4.38	2.19	a	5.50	B28	3.06	1.53	a
4					-0.634	2.53				-0.573	1.75	
5	2 (1223/10)	406.1	5.41	N/A				5.40	N/A			
6		418.05	5.51	N/A				5.50	N/A			
7		430.0	5.57	B14	3.40	1.70	a	5.50	B29	4.62	2.31	a
8					-0.199	1.78				-0.230	2.44	
9	3 (1223/12)	440.0	5.46	B15	5.04	2.52	a	5.37	B30	5.03	2.52	a
10					-0.083	2.57				-0.155	2.61	
11		455.0	5.29	N/A				5.31	N/A			
12		470.0	5.34	N/A				5.33	N/A			
13	4 (1219/12)	440.0	5.46	B16	4.74	2.37	a	5.37	B31	4.78	2.39	a
14					-0.169	2.46				0.0186	N/A	
15		455.0	5.29	N/A				5.31	N/A			
16		470.0	5.34	N/A				5.33	N/A			

SAR LIMITS		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	8.0 W/kg	1 gram average	Occupational / Controlled

Notes

Test Date(s): Aug. 17, 2011	N/A = Not Applicable
C = Column; R = Row	Bx denotes the corresponding Body SAR Plot # as shown in Appendix A (SCAN Model only) Bx denotes the corresponding Body SAR Plot # from the original Cert. report (SYSTEM Model)
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Barski Planar Phantom

Back of DUT Distance to Planar Phantom (DUT Battery Parallel to Phantom)	Shortest Distance from Antenna to Planar Phantom			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
3.0 cm	3.4 cm	3.4 cm	3.4 cm	3.4 cm

12.0 DETAILS OF SAR EVALUATION

1. The number of test frequencies and the test channels evaluated for the original System radio model SAR evaluations were selected in accordance with the procedures described in FCC KDB 447498 Section 6) c) (see reference [8]).
2. The original System radio model was evaluated for SAR in accordance with the procedures described in FCC KDB 643646 (see reference [9]).
3. The number of test frequencies and the test channels evaluated for the Scan radio model SAR evaluations were selected in accordance with the procedures described in FCC KDB Inquiry #298203 and #235657.
4. The SAR evaluations were performed with a fully charged battery.
5. The SAR droop of the DUT was measured by the DASY4 system for the duration of the SAR evaluations. The measured SAR droop was added to the measured SAR levels to report scaled SAR levels as shown in the SAR test data tables. A SAR-versus-Time power droop evaluation was performed (see Appendix A).
6. The fluid temperature remained within +/-2°C from the fluid dielectric parameter measurement to the completion of each SAR test.
7. The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).
8. The DUT was tested at the maximum conducted output power level preset by the manufacturer in unmodulated continuous transmit operation (Continuous Wave mode at 100% duty cycle) with the transmit key constantly depressed. For a push-to-talk device the 50% duty cycle compensation reported assumes a transmit/receive cycle of equal time base.

13.0 SAR EVALUATION PROCEDURES

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

(ii) For body-worn and face-held devices a planar phantom was used.

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

An area scan was determined as follows:

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

d. A linear search is applied to find all the candidate maxima. Subsequently, all maxima are removed that are >2 dB from the global maximum. The remaining maxima are then used to position the cube scans.

A 1g and 10g spatial peak SAR was determined as follows:

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

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

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

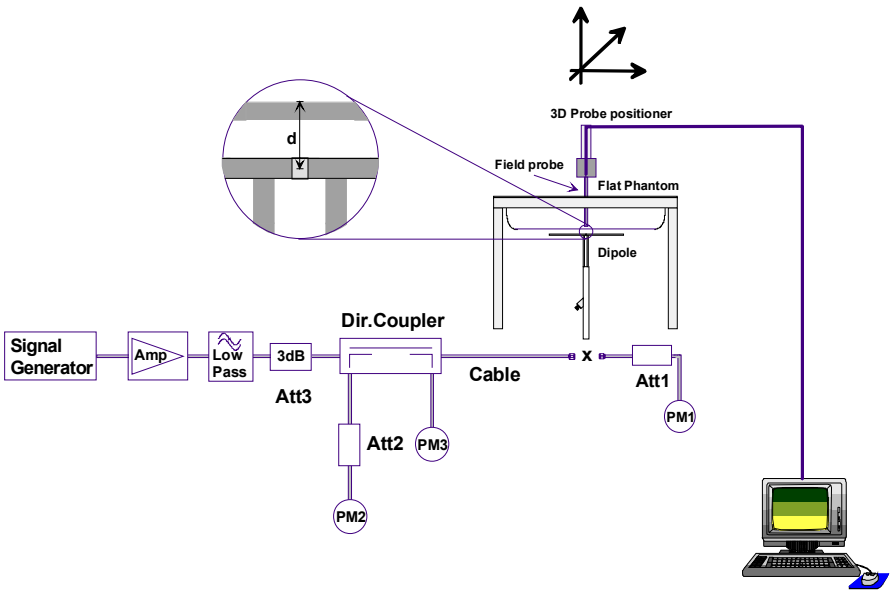
14.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, system checks were performed with the Barski planar phantom and SPEAG 450 MHz dipole (see Appendix B) in accordance with the procedures described in IEEE Standard 1528-2003 (see reference [5]). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C for measured fluid dielectric parameters). A forward power of 398 mW was applied to the dipole and the system was verified to a tolerance of ±10% from the SAR system manufacturer's dipole calibration target SAR value (see Appendix E for system manufacturer's dipole calibration procedures).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Equiv. Tissue	SAR 1g (W/kg)			Dielectric Constant ε_r			Conductivity σ (mho/m)			ρ (Kg/m^3)	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
	Freq. (MHz)	Target	Meas.	Dev.	Target	Meas.	Dev.	Target	Meas.	Dev.						
Aug 17	Body 450	1.78 ±10%	1.81	+1.7%	56.7 ±5%	55.8	-1.5%	0.94 ±5%	0.93	-1.0%	1000	23.0	21.7	≥ 15	31	101.1
Aug 17	Head 450	1.87 ±10%	1.93	+3.2%	43.5 ±5%	44.2	+1.6%	0.87 ±5%	0.87	0.0%	1000	23.0	23.8	≥ 15	31	101.1

Notes		
	1.	The target SAR values are the measured values from the dipole calibration performed by SPEAG (see Appendix E).
	2.	The target dielectric parameters are the nominal values from the dipole calibration performed by SPEAG (see Appendix E).
	3.	The fluid temperature remained within +/-2°C from the fluid dielectric parameter measurement to the completion of the system performance check.
	4.	The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).
	5.	System Performance Checks were not performed for every SAR evaluation test date based on compliance with the following provision per TCBC Workshop Presentation April 5-7, 2011 (Kwok Chan Presentation File 04-06-2011-FCC 4 RF Exposure Guidance 040611- KC): SAR System Verification when head and body tissue dielectric parameters are required to test a device, separate SAR system verifications are required - daily verification of each liquid is usually not necessary when liquid parameter tolerances are maintained in a controlled environment - typically every few days is sufficient or when liquid is changed



System Performance Check Measurement Setup Diagram (IEEE 1528-2003)

450 MHz SPEAG Validation Dipole Setup

15.0 SIMULATED EQUIVALENT TISSUES

The simulated equivalent tissue recipes in the table below are derived from the SAR system manufacturer's suggested recipes in the DASY4 manual (see references [11] and [12]) in accordance with the procedures and requirements specified in IEEE Standard 1528-2003 (see reference [5]). The ingredient percentage may have been adjusted minimally in order to achieve the appropriate target dielectric parameters within the specified tolerance.

SIMULATED TISSUE MIXTURES					
INGREDIENT	Water	**450 MHz Head Tissue Mixture**	38.56 %	**450 MHz Body Tissue Mixture**	52.00 %
	Sugar		56.32 %		45.65 %
	Salt		3.95 %		1.75 %
	HEC		0.98 %		0.50 %
	Bactericide		0.19 %		0.10 %

16.0 SAR LIMITS

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

17.0 ROBOT SYSTEM SPECIFICATIONS

Specifications	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
Data Acquisition Electronic (DAE) System	
Cell Controller	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
Data Converter	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 44
	Postprocessing Software: SEMCAD, V1.8 Build 171
Connecting Lines	Optical downlink for data and status info., Optical uplink for commands and clock
DASY4 Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	ET3DV6
Serial No.	1590
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom	
Type	Barski Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters

18.0 PROBE SPECIFICATION (ET3DV6)

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

ET3DV6 E-Field Probe

19.0 BARSKI PLANAR PHANTOM

The Barski Planar Phantom is a fiberglass shell phantom with a 2.0 mm (+/-0.2mm) thick device measurement area at the center of the phantom for SAR evaluations of devices with a larger surface area than the planar section of the SAM phantom. The planar phantom is integrated in a wooden table. The planar phantom is used for DUT SAR evaluations and system performance check evaluations. See Appendix G for dimensions and specifications of the Barski Planar Phantom.

Barski Planar Phantom

20.0 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

21.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED	CALIBRATION INTERVAL
USED	DESCRIPTION				
x	Schmid & Partner DASY4 System	-	-	-	-
x	-DASY4 Measurement Server	00158	1078	CNR	CNR
x	-Robot	00046	599396-01	CNR	CNR
x	-DAE4	00019	353	27Apr10	Biennial
x	-ET3DV6 E-Field Probe	00017	1590	22Jun11	Annual
x	-SPEAG D450V3 Validation Dipole	00217	1068	18Jan10	Triennial
x	-Barski Planar Phantom	00155	03-01	CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	none	CNR	CNR
x	Gigatronics 8652A Power Meter	00007	1835272	04May10	Biennial
x	Gigatronics 80701A Power Sensor	00014	1833699	04May10	Biennial
x	HP 8753ET Network Analyzer	00134	US39170292	04May10	Biennial
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	CNR	CNR
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required				

22.0 JUSTIFICATION FOR EXTENDED SAR DIPOLE CALIBRATION

SAR dipoles calibrated less than two years ago but more than one year ago were confirmed by maintaining return loss (< -20dB, within 20% of prior calibration) and impedance (within 5Ω from prior calibration) requirements per extended calibrations in FCC KDB 450824 (see reference [10]).

SPEAG VALIDATION DIPOLE D450V3 - SN: 1068						
Measurement Date	Freq.	TSL	Return Loss (dB)	Δ %	Impedance (Ω)	Δ Ω
January 18, 2010	450 MHz	Head	-21.0		57.5	
February 7, 2011			-21.3	1.5%	53.8	3.7
January 18, 2010	450 MHz	Body	-20.0		54.8	
February 7, 2011			-20.5	2.5%	50.4	4.4

23.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION

Uncertainty Component	IEEE 1528 Section	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Uncertainty Value ±% (1g)	Uncertainty Value ±% (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (450 MHz)	E.2.1	6.7	Normal	1	1	1	6.7	6.7	∞
Axial Isotropy	E.2.2	4.7	Rectangular	1.732050808	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	Rectangular	1.732050808	0.7	0.7	3.9	3.9	∞
Boundary Effect	E.2.3	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	E.6.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Extrapolation, interpolation & integration algorithms for max. SAR evaluation	E.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	E.4.1	3.6	Normal	1	1	1	3.6	3.6	8
SAR Drift Measurement	6.6.2	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5	Rectangular	1.732050808	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measured)	E.3.3	4.26	Normal	1	0.64	0.43	2.7	1.8	∞
Liquid Permittivity (target)	E.3.2	5	Rectangular	1.732050808	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measured)	E.3.3	3.24	Normal	1	0.6	0.49	1.9	1.6	∞
Combined Standard Uncertainty			**RSS**				**11.53**	**11.17**	
Expanded Uncertainty (95% Confidence Interval)			**k=2**				**23.06**	**22.34**	

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

24.0 REFERENCES

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

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

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

[4] Industry Canada - “Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)”, Radio Standards Specification RSS-102 Issue 4: March 2010.

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

[6] IEC International Standard 62209-1:2005 - “Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures.”

[7] International Standard IEC 62209-2 Edition 1.0 2010-03 - “Human exposure to radio frequency fields from hand-held & body-mounted wireless communication devices - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)”.

[8] Federal Communications Commission, Office of Engineering and Technology - “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”; KDB 447498 D01v04: November 2009.

[9] Federal Communications Commission, Office of Engineering and Technology - “SAR Test Reduction Considerations for Occupational PTT Radios”, KDB 643646 D01v01r01: April 2011.

[10] Federal Communications Commission, Office of Engineering and Technology - “Application Note: SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz”; KDB 450824 D01 v01r01: January 2007.

[11] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 16 Application Note, Head Tissue Recipe: Sept. 2005.

[12] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 17 Application Note, Body Tissue Recipe: Sept. 2005.

[13] ISO/IEC 17025 - “General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005).”

[14] Federal Communications Commission - “Measurements Required: RF Power Output”; Rule Part 47 CFR §2.1046.

[15] Industry Canada - “General Requirements and Information for the Certification of Radiocommunication Equipment”, Radio Standards Specification RSS-Gen Issue 2: June 2007.

APPENDIX B - SYSTEM PERFORMANCE CHECK

Date Tested: 08/17/2011

System Performance Check - 450 MHz Dipole - Body

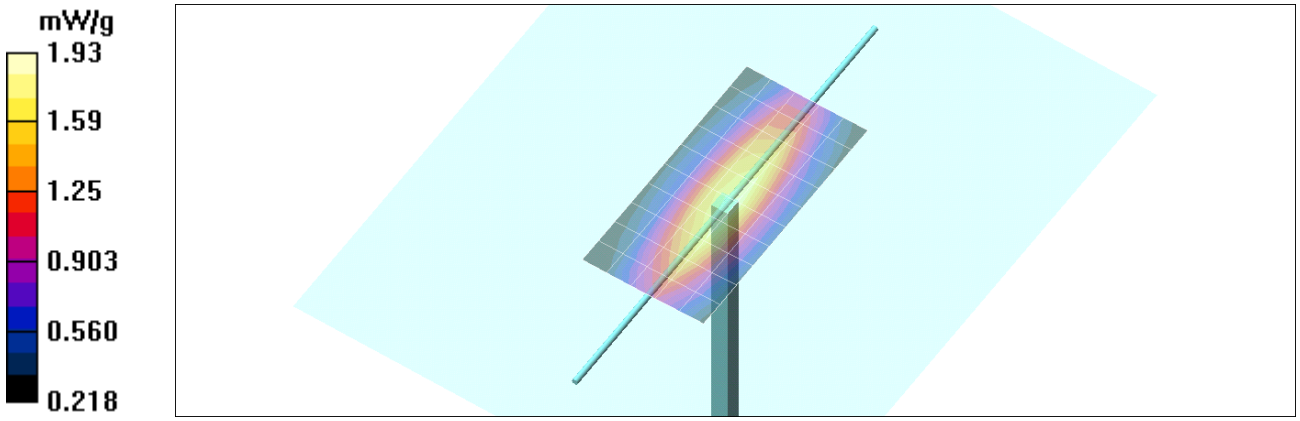
DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 01/18/2010

Ambient Temp: 23C; Fluid Temp: 21.7C; Barometric Pressure: 101.1 kPa; Humidity: 31%

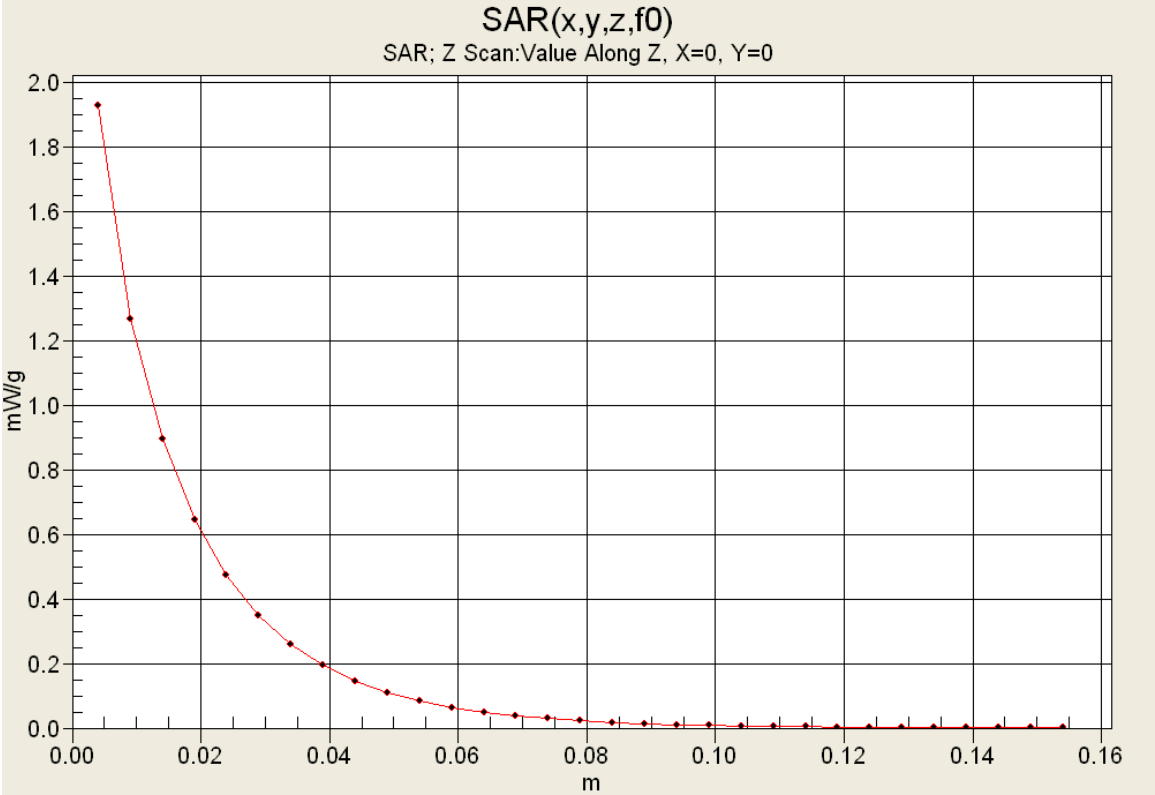
Communication System: CW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: M450 Medium parameters used: f = 450 MHz; σ = 0.93 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.82, 7.82, 7.82); Calibrated: 22/06/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.86 mW/g
Body d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.1 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 2.93 W/kg
SAR(1 g) = 1.81 mW/g; SAR(10 g) = 1.2 mW/g
Maximum value of SAR (measured) = 1.93 mW/g



Z-Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date Tested: 08/17/2011

System Performance Check - 450 MHz Dipole - Head

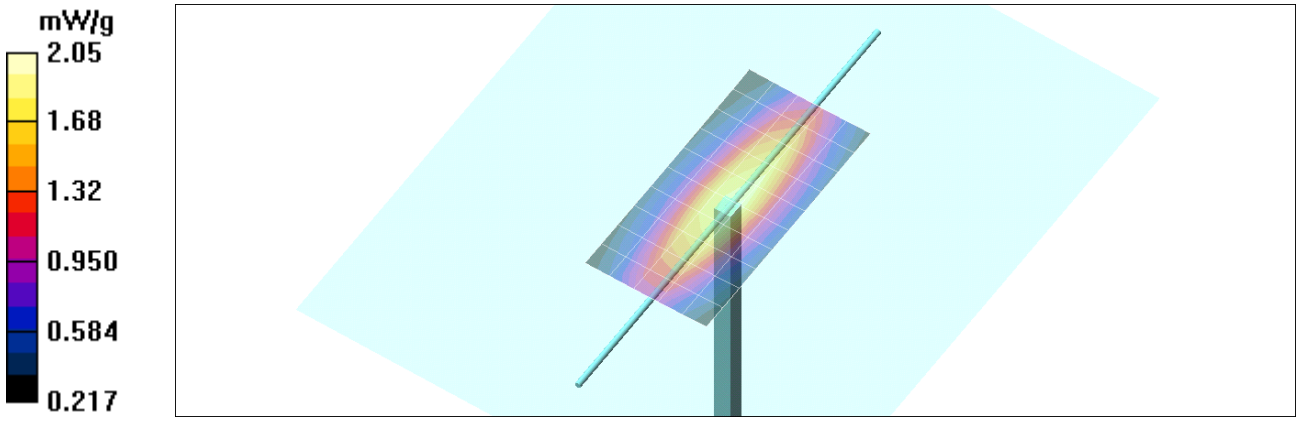
DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 01/18/2010

Ambient Temp: 23C; Fluid Temp: 23.8C; Barometric Pressure: 101.1 kPa; Humidity: 31%

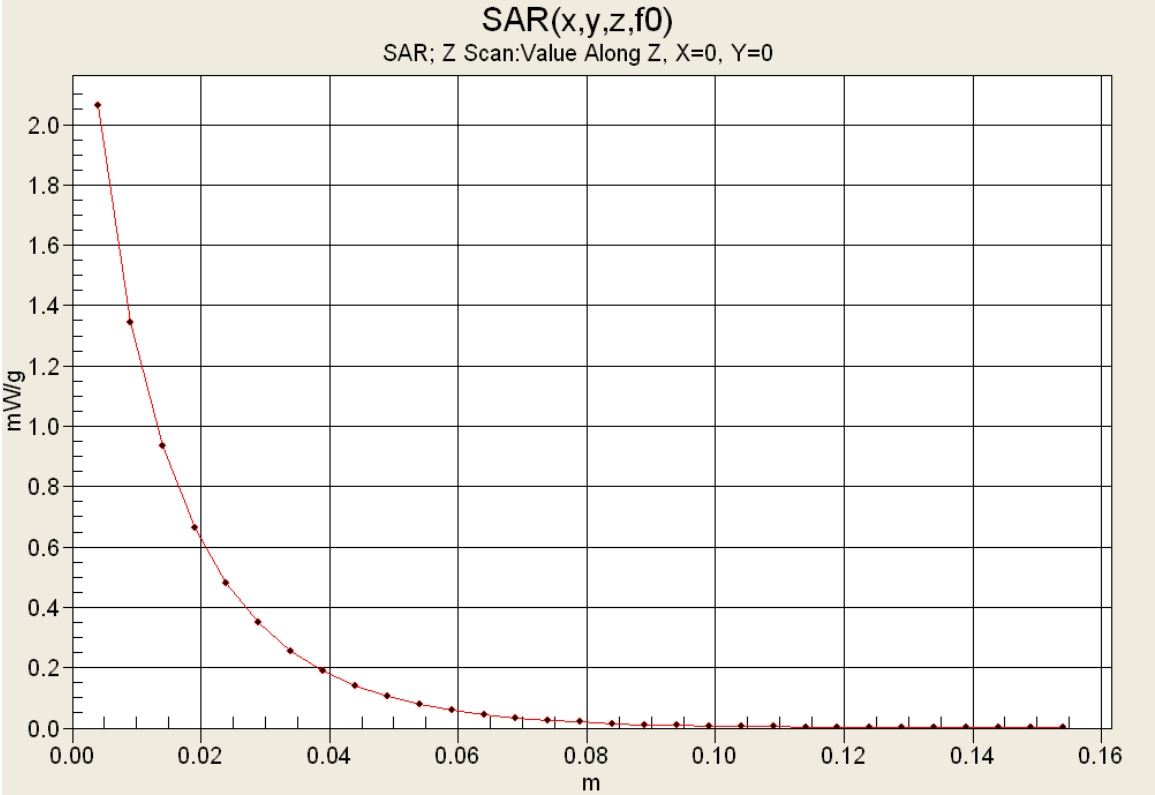
Communication System: CW
Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450 Medium parameters used: f = 450 MHz; σ = 0.87 mho/m; ε_r = 44.2; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1590; ConvF(7.3, 7.3, 7.3); Calibrated: 22/06/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.96 mW/g
Head d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.8 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 3.08 W/kg
SAR(1 g) = 1.93 mW/g; SAR(10 g) = 1.27 mW/g
Maximum value of SAR (measured) = 2.05 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

450 MHz Body

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
17/Aug/2011
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
0.3500	57.70	0.93	58.20	0.85
0.3600	57.60	0.93	58.03	0.86
0.3700	57.50	0.93	57.73	0.84
0.3800	57.40	0.93	57.08	0.86
0.3900	57.30	0.93	57.55	0.88
0.4000	57.20	0.93	57.50	0.87
0.4100	57.10	0.93	57.32	0.90
0.4200	57.00	0.94	56.91	0.90
0.4300	56.90	0.94	56.99	0.90
0.4400	56.80	0.94	55.92	0.92
0.4500	56.70	0.94	55.78	0.93
0.4600	56.66	0.94	55.92	0.93
0.4700	56.62	0.94	56.12	0.95
0.4800	56.58	0.94	56.40	0.94
0.4900	56.54	0.94	55.93	0.96
0.5000	56.51	0.94	55.50	0.95
0.5100	56.47	0.94	55.26	0.96
0.5200	56.43	0.95	55.54	0.98
0.5300	56.39	0.95	55.39	0.99
0.5400	56.35	0.95	55.34	1.00
0.5500	56.31	0.95	54.73	1.01

450 MHz Head

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
17/Aug/2011
Frequency (GHz)
FCC_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	46.71	0.79
0.3600	44.58	0.87	47.04	0.79
0.3700	44.46	0.87	46.14	0.79
0.3800	44.34	0.87	45.49	0.80
0.3900	44.22	0.87	45.47	0.82
0.4000	44.10	0.87	45.78	0.82
0.4100	43.98	0.87	45.85	0.84
0.4200	43.86	0.87	45.22	0.85
0.4300	43.74	0.87	44.91	0.85
0.4400	43.62	0.87	44.18	0.88
0.4500	43.50	0.87	44.20	0.87
0.4600	43.45	0.87	44.60	0.87
0.4700	43.40	0.87	43.92	0.90
0.4800	43.34	0.87	43.74	0.90
0.4900	43.29	0.87	43.66	0.89
0.5000	43.24	0.87	43.69	0.90
0.5100	43.19	0.87	42.58	0.91
0.5200	43.14	0.88	43.34	0.92
0.5300	43.08	0.88	43.03	0.94
0.5400	43.03	0.88	42.52	0.95
0.5500	42.98	0.88	42.78	0.95

APPENDIX E - DIPOLE CALIBRATION

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

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

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

Accreditation No.: SCS 108

Client Celltech

Certificate No: D450V3-1068_Jan10

CALIBRATION CERTIFICATE

Object: D450V3 - SN: 1068

Calibration procedure(s): QA CAL-15.v5
Calibration Procedure for dipole validation kits below 800 MHz

Calibration date: January 18, 2010

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	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ET3DV6 (LF)	SN: 1507	03-Jul-09 (No. ET3-1507_Jul09)	Jul-10
DAE4	SN: 654	04-May-09 (No. DAE4-654_May09)	May-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	i.V.
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 20, 2010

Glossary:

TSL	tissue simulating liquid
ConF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	ELI4 Flat Phantom	Shell thickness: 2 ± 0.2 mm
Distance Dipole Center - TSL	15 mm	with Spacer
Area Scan Resolution	dx, dy = 15 mm	
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	43.5	0.87 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	44.2 ± 6 %	0.86 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	398 mW input power	1.87 mW / g
SAR normalized	normalized to 1W	4.70 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**4.76 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	398 mW input power	1.25 mW / g
SAR normalized	normalized to 1W	3.14 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**3.17 mW / g ± 17.6 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	56.7	0.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.1 ± 6 %	0.90 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	condition	
SAR measured	398 mW input power	1.78 mW / g
SAR normalized	normalized to 1W	4.47 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**4.58 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	398 mW input power	1.19 mW / g
SAR normalized	normalized to 1W	2.99 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**3.06 mW / g ± 17.6 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	57.5 Ω - 5.9 jΩ
Return Loss	- 21.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	54.8 Ω - 9.3 jΩ
Return Loss	- 20.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.350 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 16, 2009

Date/Time: 1/18/2010 10:59:37 AM

DUT: Dipole 450 MHz; Type: D450V3; Serial: D450V3 - SN:1068

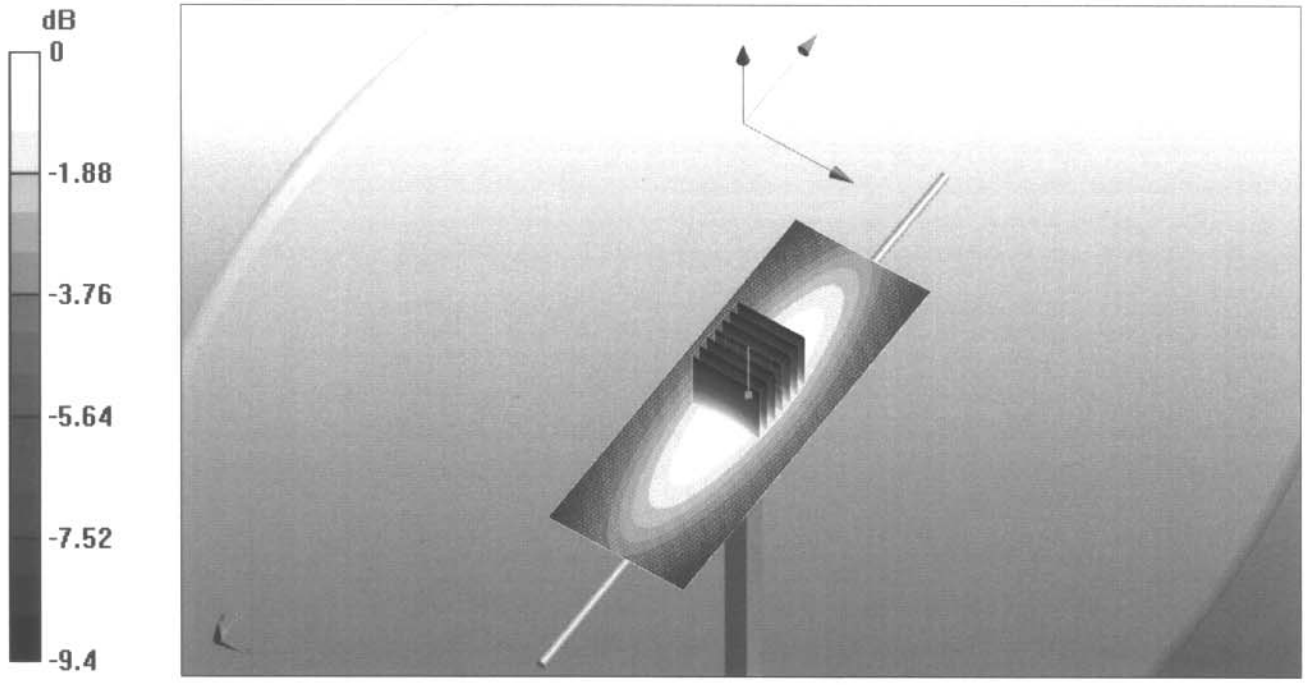
Communication System: CW; Frequency: 450 MHz; Duty Cycle: 1:1
Medium: HSL450
Medium parameters used: f = 450 MHz; σ = 0.86 mho/m; ε_r = 44.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ET3DV6 - SN1507 (LF); ConvF(6.66, 6.66, 6.66); Calibrated: 7/3/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 5/4/2009
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1003
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 57

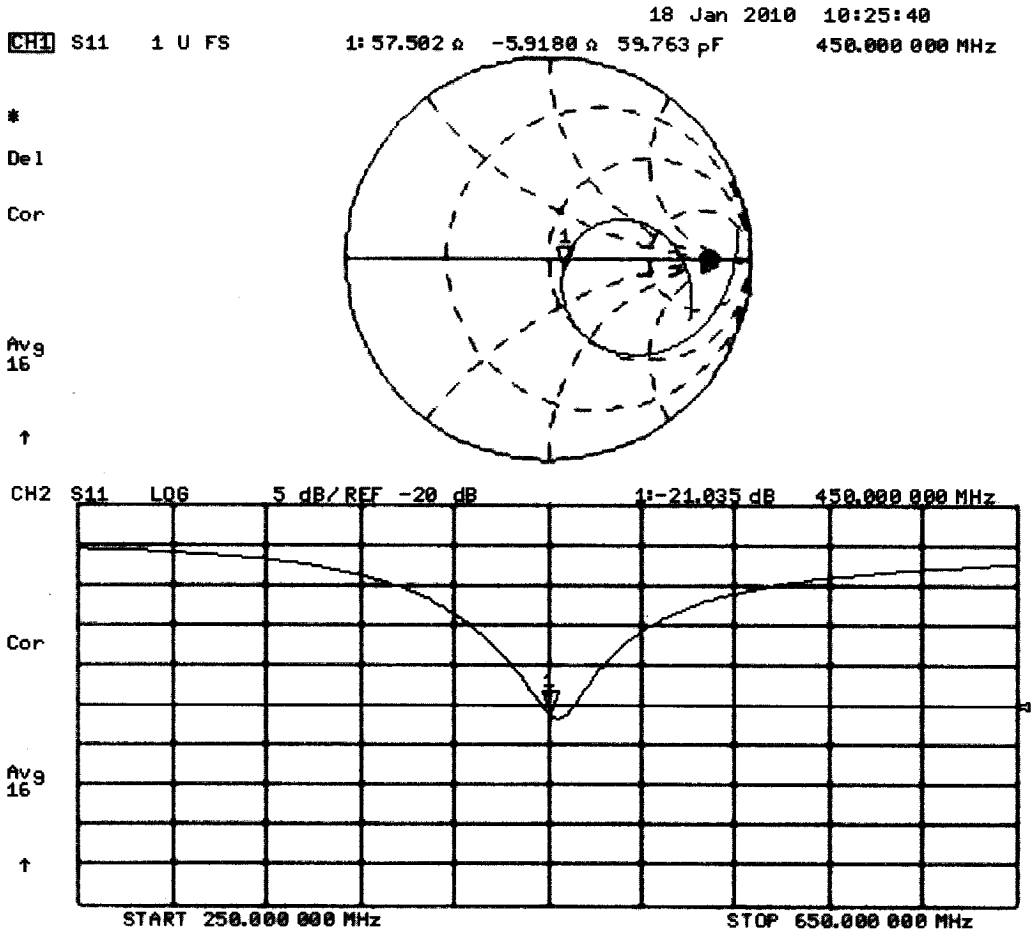
Head/d=15mm, Pin=398mW/Area Scan (41x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.99 mW/g

Head/d=15mm, Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.2 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 2.78 W/kg
SAR(1 g) = 1.87 mW/g; SAR(10 g) = 1.25 mW/g
Maximum value of SAR (measured) = 2 mW/g



0 dB = 2mW/g

Impedance Measurement Plot for Head TSL



Date/Time: 1/18/2010 1:24:11 PM

DUT: Dipole 450 MHz; Type: D450V3; Serial: D450V3 - SN:1068

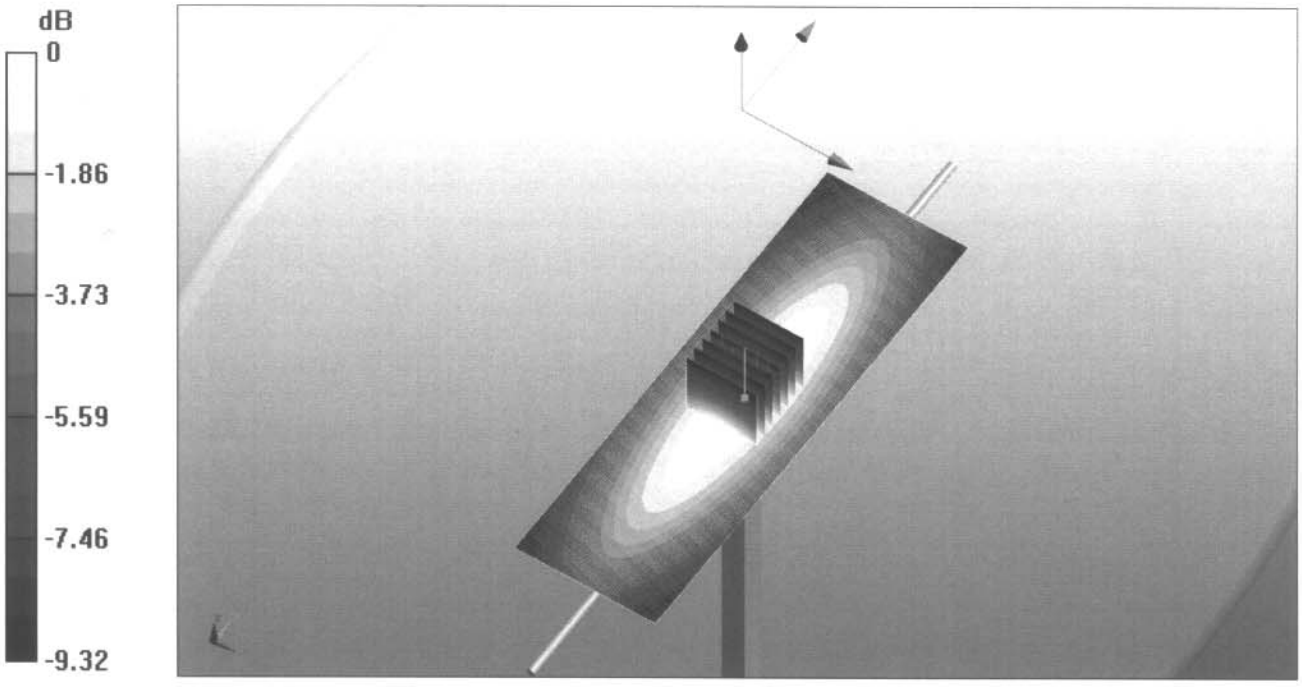
Communication System: CW; Frequency: 450 MHz; Duty Cycle: 1:1
Medium: MSL450
Medium parameters used: f = 450 MHz; σ = 0.9 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ET3DV6 - SN1507 (LF); ConvF(7.11, 7.11, 7.11); Calibrated: 7/3/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 5/4/2009
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1003
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 57

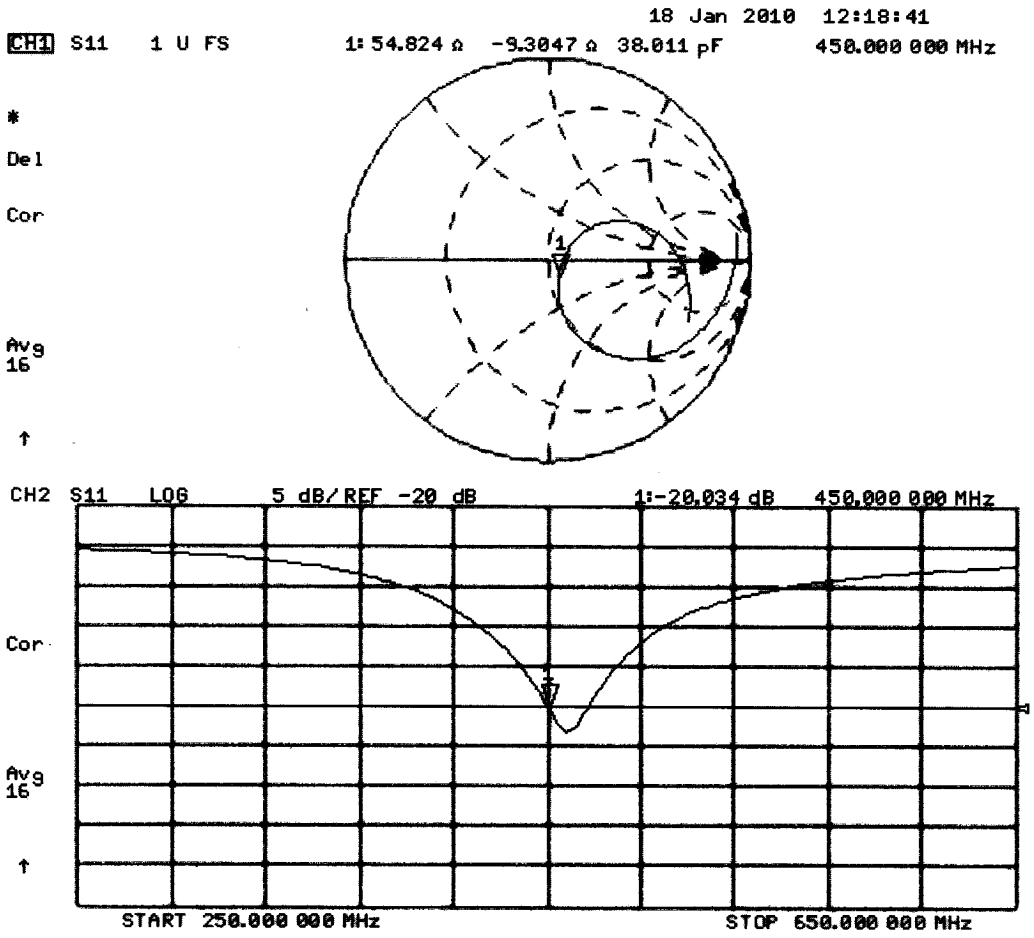
Body/d=15mm, Pin=398mW/Area Scan (61x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.9 mW/g

Body/d=15mm, Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.4 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 2.71 W/kg
SAR(1 g) = 1.78 mW/g; SAR(10 g) = 1.19 mW/g
Maximum value of SAR (measured) = 1.9 mW/g



0 dB = 1.9mW/g

Impedance Measurement Plot for Body TSL



APPENDIX F - PROBE CALIBRATION

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

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

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

Accreditation No.: SCS 108

Client Celltech

Certificate No: ET3-1590_Jun11

CALIBRATION CERTIFICATE

Object: ET3DV6 - SN:1590

Calibration procedure(s): QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: June 22, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 23, 2011

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

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

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

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe ET3DV6

SN:1590

Manufactured: March 19, 2001
Calibrated: June 22, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.93	2.00	1.66	± 10.1 %
DCP (mV)[B]	96.0	98.7	88.6	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	104.2	±2.7 %
			Y	0.00	0.00	1.00	117.7	
			Z	0.00	0.00	1.00	129.9	

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	7.30	7.30	7.30	0.18	2.10	± 13.4 %
835	41.5	0.90	6.50	6.50	6.50	0.38	2.55	± 12.0 %
900	41.5	0.97	6.39	6.39	6.39	0.39	2.47	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

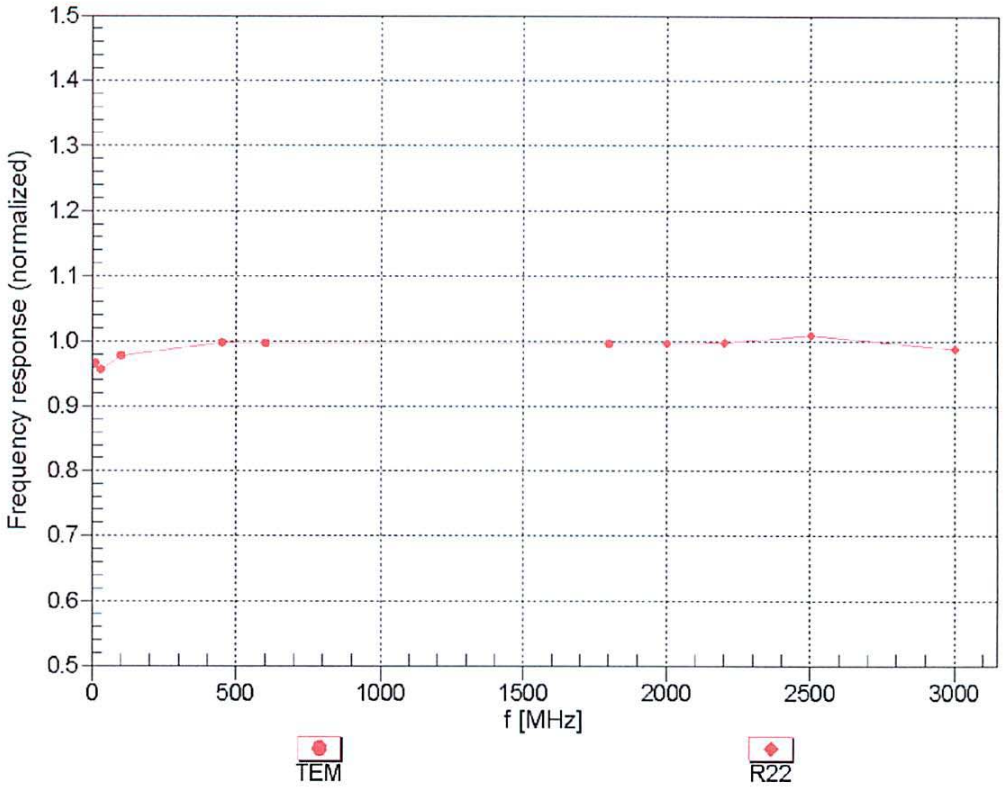
DASY/EASY - Parameters of Probe: ET3DV6- SN:1590

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	7.82	7.82	7.82	0.12	2.04	± 13.4 %
835	55.2	0.97	6.37	6.37	6.37	0.42	2.33	± 12.0 %
900	55.0	1.05	6.27	6.27	6.27	0.40	2.45	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

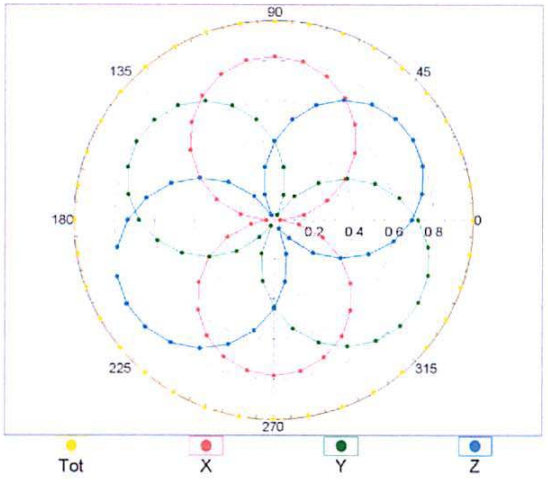
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



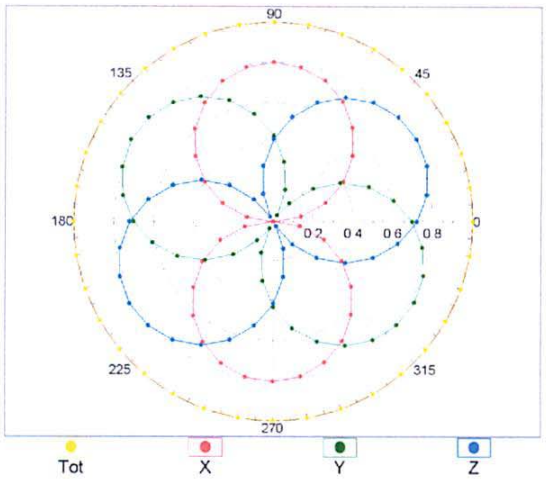
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

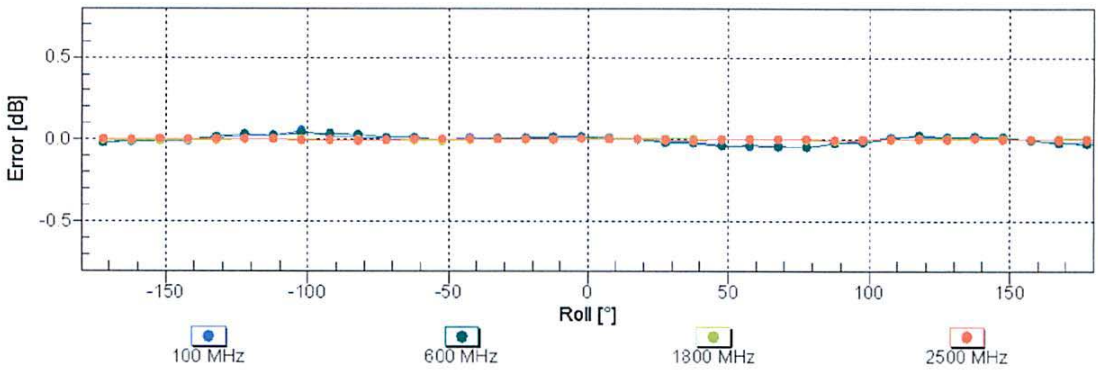
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



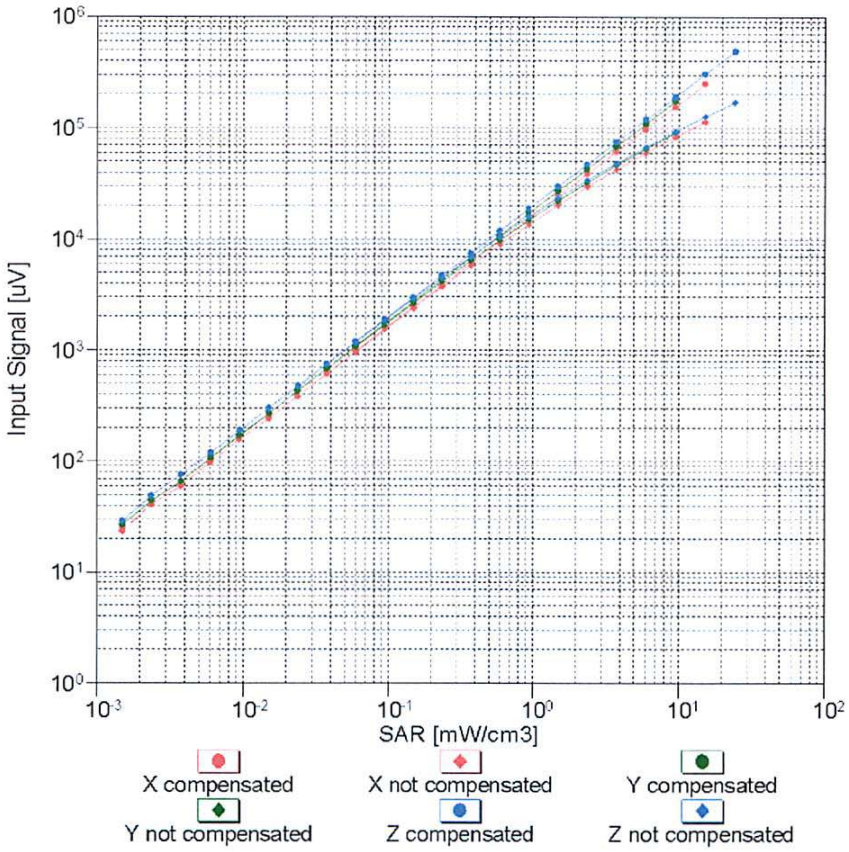
f=1800 MHz,R22

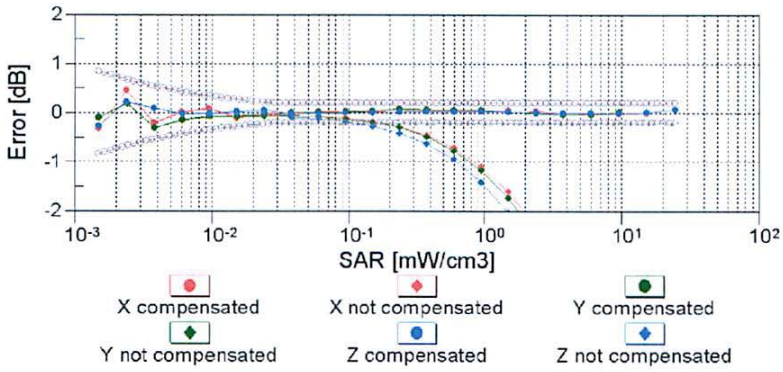




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)

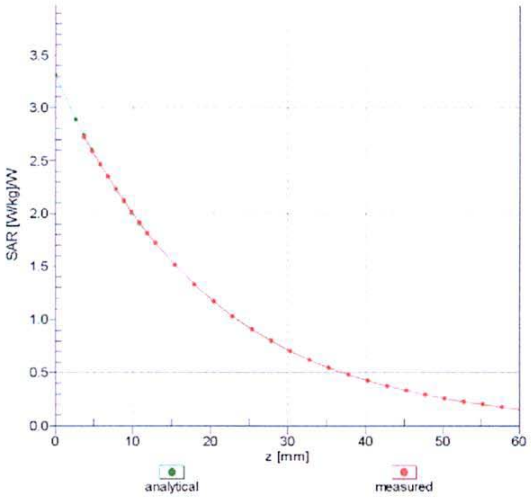




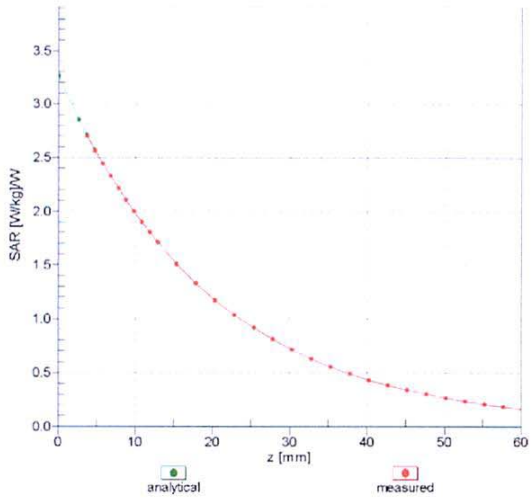
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

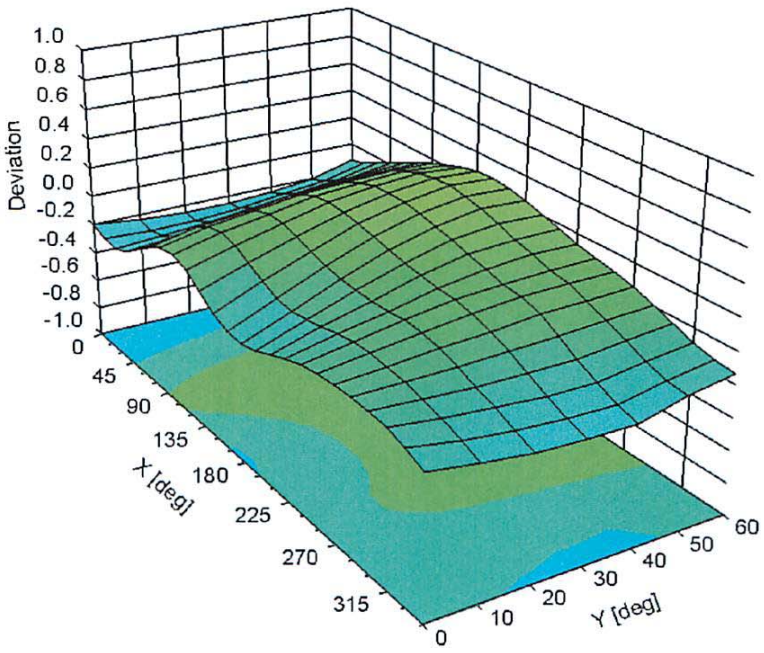


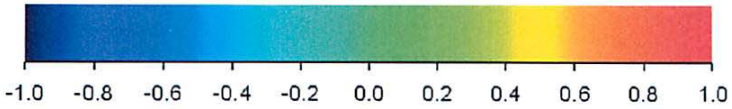
f = 835 MHz,WGLS R9 (M_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1590

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

APPENDIX G - BARSKI PLANAR PHANTOM CERTIFICATE OF CONFORMITY

2378 Westlake Road
Kelowna, B.C. Canada
V1Z-2V2

BARSKI INDUSTRIES (1985) LTD.

Ph. # 250-769-6848
Fax # 250-769-6334
E-mail: barskiind@shaw.ca
Web: www.bcfiberglass.com

FIBERGLASS FABRICATORS

Certificate of Conformity

Item : Flat Planar Phantom Unit # 03-01
Date: June 16, 2003
Manufacturer: Barski Industries (1985 Ltd)

Test	Requirement	Details
Shape	Compliance to geometry according to drawing	Supplied CAD drawing
Material Thickness	Compliant with the requirements	2mm +/- 0.2mm in measurement area
Material Parameters	Dielectric parameters for required frequencies Based on Dow Chemical technical data	100 MHz-5 GHz Relative permittivity<5 Loss Tangent<0.05

Conformity

Based on the above information, we certify this product to be compliant to the requirements specified.

Signature: 

Daniel Chailler

Fiberglass Planar Phantom - Top View

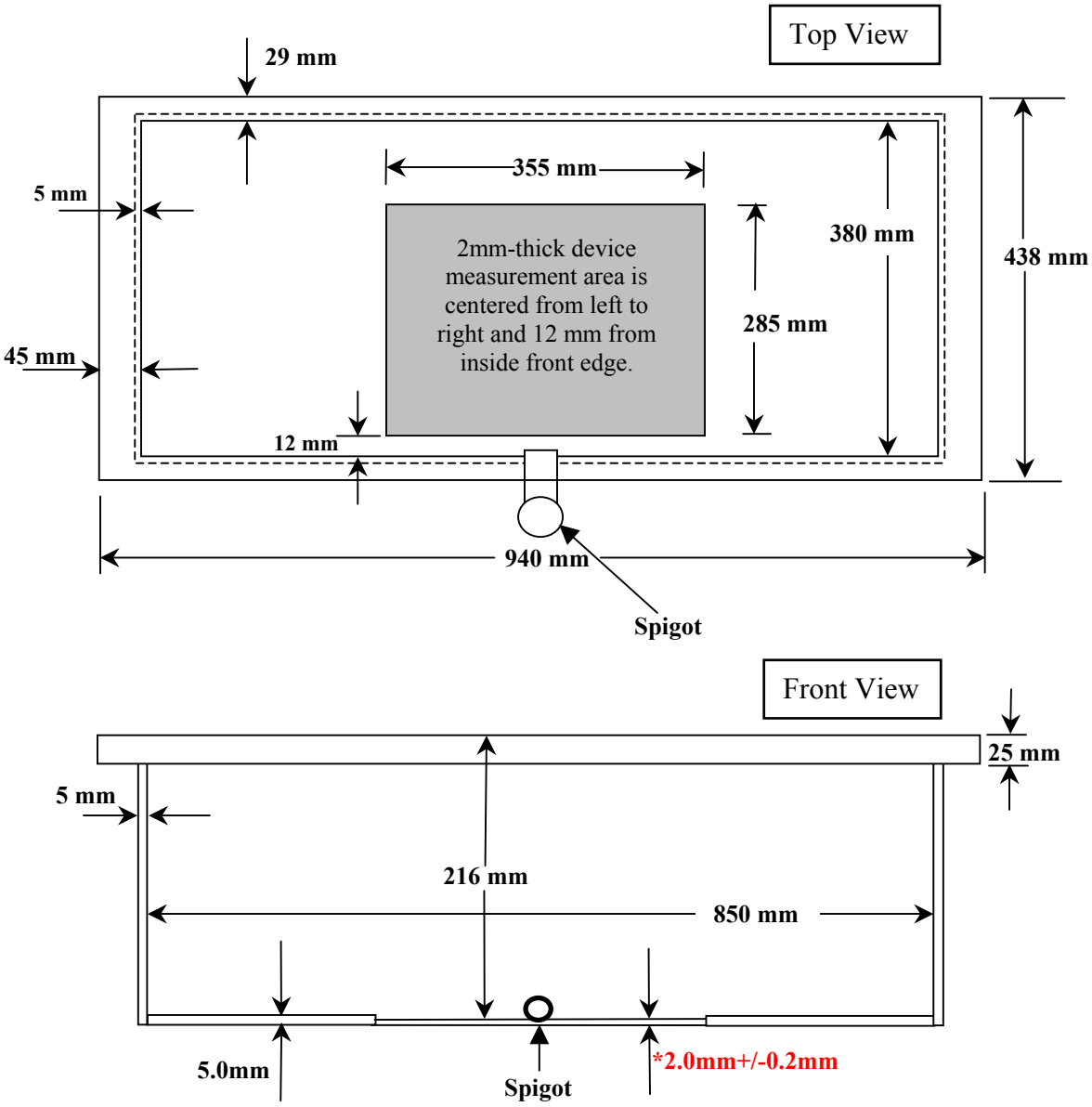
Fiberglass Planar Phantom - Front View

Fiberglass Planar Phantom - Back View

Fiberglass Planar Phantom - Bottom View

Dimensions of Fiberglass Planar Phantom

(Manufactured by Barski Industries Ltd. - Unit# 03-01)



Note: Measurements that aren't repeated for the opposite sides are the same as the side measured. This drawing is not to scale.

APPENDIX H - AUDIO ACCESSORY COMBINATIONS (FCC KDB 643646 D01v01r01)

HARRIS CORPORATION FCC ID: OWDTR-0070-E
XG-75 UHF-L PTT Radio Transceiver (Scan)

Body SAR Test Considerations for Audio Accessories without Built-in Antenna - Audio Accessory Combinations (FCC KDB 643646 D01v01r01 Page 9)

Audio Accessory ID #	Battery a																Battery b																Battery c											
	Antenna 1-4																Antenna 1-4																Antenna 1-4											
	Bw#1				Bw#3				Bw#4				Bw#5				Bw#1				Bw#3				Bw#4				Bw#5				Bw#1				Bw#3				Bw#4			
G1a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G1b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G2	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G3a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G3b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G5	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G6a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G6b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G7a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G7b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G7c	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G7d	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G8a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G8b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G9a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G9b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G10	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G11a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G11b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G12a	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
G12b	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Notes:

1. All audio accessory options can be utilized with any antenna, battery and body-worn combination.
2. The accessory combinations evaluated for SAR are highlighted in yellow.
3. Please refer to Section 7.0 of the SAR report for description of accessory ID #.
4. Bw = Body-worn