DECLARATION OF COMPLIANCE | SAR RF EXPOSURE EVALUATION | FCC & IC

Test Lab Information	**Name**	**CELLTECH LABS INC.**				
	Address	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada				
Test Lab Accreditation(s)	**ISO 17025**	(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	KDB 447498 D01v04	KDB 643646 D01v01r01		
	IC	RSS-102 Issue 4	**IEEE**	1528-2003	**IEC**	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-0067-E				
	IC:	3636B-0067				
Application Type(s)	**FCC**	TCB Certification				
	IC	CB Certification				
Date of Sample Receipt	September 02, 2011					
Dates of Evaluation	October 04-17, 2011					
Device Description	Portable VHF Digital Push-To-Talk (PTT) Radio Transceiver					
Device Model(s) & P/N(s)	**P5500 VHF**	M/N: P5570 VHF - EX55	P/N: RU-123550-014	SYSTEM	With DTMF	
		M/N: P5550 VHF - EX55	P/N: RU-123550-013	SCAN	Without DTMF	
Test Sample Serial No.(s)	Re-VT-004 (Identical Prototype) - P5500 VHF (System)					
	Re-VT-003 (Identical Prototype) - P5500 VHF (Scan)					
Test Sample Revision No.(s)	**Hardware**	Revision -				
	Firmware	R14B05				
Transmit Frequency Range(s)	**FCC**	150.8 - 173.4 MHz				
	IC	138.0 - 144.0, 150.0 - 174.0 MHz				
Manuf. Max. Rated Output Power	5 Watts Nominal (Conducted)					
Manuf. Upper Tolerance Spec.	+ 0.35 Watts					
Antenna Type(s) Tested **Battery Type(s) Tested** **Body-worn Accessories Tested** **Audio Accessories Tested**	See manufacturer's accessory listing (Section 7.0)					
Max. SAR Level(s) Evaluated	Face-held	**0.865 W/kg**	1g	50% PTT duty factor	Occupational / Controlled Exposure	
	Body-worn	**5.90 W/kg**	1g	50% PTT duty factor	Occupational / Controlled Exposure	
FCC/IC Spatial Peak SAR Limit	Head/Body	8.0 W/kg	1g	50% PTT duty factor	Occupational / Controlled Exposure	

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 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	1st Release	Jon Hughes	November 10, 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: P5500 VHF Portable VHF PTT Radio Transceiver 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]) and IEC 62209-2:2010 (see reference [6]) 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.

DASY4 SAR System with Plexiglas side planar phantom

DASY4 SAR System with Barski Fiberglas Planar Phantom

3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

MEASURED RF CONDUCTED OUTPUT POWER LEVELS

Band	Test Freq.	Mode	Radio	dBm	Watts	Method
IC	138.0 MHz	CW	System	37.23	5.28	Average Conducted
			Scan	37.22	5.27	
IC	144.0 MHz	CW	System	37.23	5.28	Average Conducted
			Scan	37.23	5.28	
FCC/IC	150.8 MHz	CW	System	37.25	5.31	Average Conducted
			Scan	37.22	5.27	
FCC/IC	156.4 MHz	CW	System	37.27	5.33	Average Conducted
			Scan	37.27	5.33	
FCC/IC	158.3 MHz	CW	System	37.28	5.34	Average Conducted
			Scan	37.27	5.33	
FCC/IC	162.0 MHz	CW	System	37.27	5.33	Average Conducted
			Scan	37.27	5.33	
FCC/IC	165.9 MHz	CW	System	37.28	5.34	Average Conducted
			Scan	37.26	5.32	
FCC/IC	167.7 MHz	CW	System	37.28	5.34	Average Conducted
			Scan	37.27	5.33	
FCC/IC	173.4 MHz	CW	System	37.28	5.35	Average Conducted
			Scan	37.28	5.35	

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*

Exposure Conditions	*P* mW (General Population)	*P* mW (Occupational)
Held to face, $d \geq 2.5$ cm	250	1250
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]).

5.0 NO. OF TEST CHANNELS (N_c)

Antenna Part No.		Antenna Type	Antenna Freq. Range	Band	N_c	Test Frequencies (MHz)
(1)	KRE 101 1219/1	Helical Coil	136 - 151 MHz	IC	2	138.0, 144.0
(2)	KRE 101 1219/2	Helical Coil	150 - 162 MHz	FCC/IC	3	150.8, 156.4, 162.0
(3)	KRE 101 1219/3	Helical Coil	162 - 174 MHz	FCC/IC	3	162.0, 167.7, 173.4
(4)	KRE 101 1219/21	Helical Coil	150 - 174 MHz	FCC/IC	4	150.8, 158.3, 165.9, 173.4
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]).						

6.0 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	±25 MHz ≤ 300 MHz
150 MHz	138.0 MHz	12 MHz	< 25 MHz
	144.0 MHz	6 MHz	< 25 MHz
	150.8 MHz	0.8 MHz	< 25 MHz
	156.4 MHz	6.4 MHz	< 25 MHz
	158.3 MHz	8.3 MHz	< 25 MHz
	162.0 MHz	12 MHz	< 25 MHz
	165.9 MHz	15.9 MHz	< 25 MHz
	167.7 MHz	17.7 MHz	< 25 MHz
	173.4 MHz	23.4 MHz	< 25 MHz
Note: The probe calibration and measurement frequency interval is < 25 MHz; therefore additional steps were not required.			

7.0 MANUFACTURER'S DISCLOSED ACCESSORY LISTING

Accessory ID # for Test Report	ACCESSORY CATEGORY: ANTENNA		
	Part Number	**Description**	**SAR Evaluation**
1	KRE 101 1219/1	Helical Coil (136-151 MHz)	Yes
2	KRE 101 1219/2	Helical Coil (150-162 MHz)	Yes
3	KRE 101 1219/3	Helical Coil (162-174 MHz)	Yes
4	KRE 101 1219/21	Helical Coil (150-174 MHz)	Yes
Accessory ID # for Test Report	**ACCESSORY CATEGORY: BATTERY**		
	Part Number	**Description**	**SAR Evaluation**
a	BT-023406-003	Ni-MH, immersible, non-IS (7.5V, 2400mAh)	Yes
b	BT-023406-004	Ni-MH, immersible, <IS> (7.5V, 2400mAh)	Yes
c	BT-023406-005	Li-Ion, immersible, non-IS (7.4V, 2000mAh)	Yes
d	BT-023406-001	Lithium-Polymer, non-IS (7.4V, 3000mAh)	Yes
e	BT-023406-103	Ni-MH, immersible, Goldpeak cells, non-IS (7.5V, 2400mAh)	No[1]
Accessory ID # for Test Report	**ACCESSORY CATEGORY: BODY-WORN**		
	Part Number	**Description**	**SAR Evaluation**
1	CC-023931-003 (kit) KRY 101 1609/1 (belt loop)	Kit contains (CC-023931-001 Leather Case w/o D-rings, FM-011820 elastic strap, KRY1011608/2 swivel mount), used with KRY 101 1609/1 Belt Loop	No[2]
2	CC-023931-004 (kit) KRY 101 1609/1 (belt loop)	Kit contains (CC-023931-002 Leather Case w/ D-rings, FM-011820 elastic strap, KRY1011608/2 swivel mount), used with KRY 101 1609/1 Belt Loop	Yes
3	CC-023931-002 FM-011820 CC103333V1	CC-023931-002 Leather Case w/ D-rings + FM-011820 elastic strap, used with CC103333V1 Shoulder Strap	Yes
4	KRY 101 1608/2 KRY 101 1609/1	Swivel Mount & Belt Loop	Yes
5	CC-023932-001 KRY 101 1609/1	Nylon Case (black) w/ Belt Loop	Yes
n/a	CC-023932-002 KRY 101 1609/1	Nylon Case (orange) w/ Belt Loop	No[3]
6	CC23894	Metal Belt Clip	Yes
7	CC-014534-002	Kit containing CC-014534-001 BEE Nylon Case (black) & CC-014527 BEE Leather Belt Loop	No[2]
8	CC-014528-003	Kit containing CC-014528-001 BEE Leather Case w/o D-rings, & KRY1011608/2 swivel mount, and CC-014527 BEE Leather Belt Loop	Yes
9	CC-014528-004	Kit containing CC-014528-002 BEE Leather Case w/ D-rings, & KRY1011608/2 swivel mount, and CC-014524-001 BEE Shoulder Strap	No[2]
10	CC-014524-002	BEE Short Leather Retaining Strap (for use with shoulder strap)	No

Accessory ID # for Test Report	ACCESSORY CATEGORY: AUDIO			
	Part Number	**Description**	**Audio Acc. Grouping**	**SAR Evaluation**
n/a	MC-023933-002	Speaker-Mic, W/ Ant. (cc) provision, <IS>	n/a (contains integral antenna)	Yes
G7a	MC-023933-001	Speaker-Mic, No Ant. (cc), <IS>	Group 7	Yes
G7b	MC-009104-002	Speaker-Mic, GPS, non-IS	Group 7	No[5]
G7c	MC-011617-601	Ruggedized Speaker Mic-Coil Cord	Group 7	No[5]

G7d	MC-011617-701	Standard Speaker Mic - Non Ant	Group 7	No[5]
n/a	LS103239V1	Earphone for speaker-mic <IS>	n/a (accessory to Group 7)	Yes
G12a	EA-009580-001	Earphone Kit, Black	Group 12	Yes
G12b	EA-009580-002	Earphone Kit, Beige	Group 12	No[4]
G8a	EA-009580-003	2-Wire Kit, Palm mic, Black	Group 8	Yes
G8b	EA-009580-004	2-Wire Kit, Palm mic, Beige	Group 8	No[4]
G9a	EA-009580-005	3-Wire Kit, Mini-Lapel Mic, Black	Group 9	Yes
G9b	EA-009580-006	3-Wire Kit, Mini-Lapel Mic, Beige	Group 9	No[4]
G4	EA-009580-007	Explorer Headset w/ PTT	Group 4	Yes
G2	EA-009580-008	Lightweight headset single spkr w/ PTT	Group 2	Yes
G3a	EA-009580-009	Breeze Headset w/ PTT	Group 3	No[5]
G3b	EA-009580-016	Breeze headset w/ PTT & pigtail jack	Group 3	Yes
G1a	EA-009580-010	Headset, heavy duty, N/C behind the head, w/ PTT	Group 1	Yes
G1b	EA-009580-013	Headset, heavy duty, N/C over the head, w/ PTT	Group 1	No[5]
G5	EA-009580-011	Ranger Headset w/ PTT	Group 5	Yes
G10	EA-009580-012	Skull mic w/body PTT & earcup	Group 10	Yes
G11a	EA-009580-014	Throat mic w/acoustic tube & body PTT	Group 11	No[5]
G11b	EA-009580-015	Throat mic w/acoustic tube, body PTT, & ring PTT	Group 11	Yes
G6a	EA-009580-017	Hurricane headset w/ PTT	Group 6	No[5]
G6b	EA-009580-018	Hurricane headset w/ PTT & pigtail jack	Group 6	Yes
Manufacturer's disclosed accessory listing information provided by HARRIS Corporation				

Notes
1. Goldpeak cells are the same physical form factor as the Sanyo cells used in battery "a".
2. Body-worn accessories #1, #7 and #9 were not evaluated for SAR due to their physical similarity to accessories #8, #5 and #3 respectively. Preliminary SAR evaluations were performed in order to establish the worst-case between each similar accessory, which was then selected for the compliance evaluations.
3. The orange nylon case is identical to body-worn accessory #5 except for color difference only.
4. Audio accessories #G8b, #G9b and #G12b are identical to audio accessories #G8a, #G9a and #G12a respectively except for color difference only.
5. Audio accessories not evaluated for SAR; in accordance with the procedures and provisions of FCC KDB 643646 D01v01r01 Page 10 Section 1).

8.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS

Date: 10/04/2011		Frequency: 300 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.200	50.76	0.78	45.3	0.87	12.05%	-10.34%
0.210	50.79	0.79	45.3	0.87	12.12%	-9.20%
0.220	50.67	0.79	45.3	0.87	11.85%	-9.20%
0.230	50.07	0.8	45.3	0.87	10.53%	-8.05%
0.240	48.74	0.8	45.3	0.87	7.59%	-8.05%
0.250	47.64	0.81	45.3	0.87	5.17%	-6.90%
0.260	47.08	0.83	45.3	0.87	3.93%	-4.60%
0.270	46.79	0.83	45.3	0.87	3.29%	-4.60%
0.280	47.52	0.85	45.3	0.87	4.90%	-2.30%
0.290	47.45	0.84	45.3	0.87	4.75%	-3.45%
0.300	46.38	0.87	45.3	0.87	2.38%	0.00%
0.310	46.8	0.86	45.3	0.87	3.31%	-1.15%
0.320	46.87	0.88	45.3	0.87	3.47%	1.15%
0.330	45.41	0.89	45.3	0.87	0.24%	2.30%
0.340	44.91	0.9	45.3	0.87	-0.86%	3.45%
0.350	44.53	0.9	45.3	0.87	-1.70%	3.45%
0.360	44.51	0.91	45.3	0.87	-1.74%	4.60%
0.370	43.65	0.91	45.3	0.87	-3.64%	4.60%
0.380	43.86	0.92	45.3	0.87	-3.18%	5.75%
0.390	43.46	0.92	45.3	0.87	-4.06%	5.75%
0.400	43.47	0.95	45.3	0.87	-4.04%	9.20%

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 4	300 Head	23.0°C	21.2°C	≥ 15 cm	101.1 kPa	36%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/4/2011		Frequency: 150 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	127.4	0.63	61.9	0.8	105.82%	-21.25%
0.060	105.09	0.7	61.9	0.8	69.77%	-12.50%
0.070	94.39	0.7	61.9	0.8	52.49%	-12.50%
0.080	76.01	0.72	61.9	0.8	22.79%	-10.00%
0.090	69.72	0.74	61.9	0.8	12.63%	-7.50%
0.100	70.23	0.76	61.9	0.8	13.46%	-5.00%
0.110	65.96	0.74	61.9	0.8	6.56%	-7.50%
0.120	63.79	0.74	61.9	0.8	3.05%	-7.50%
0.130	65.26	0.76	61.9	0.8	5.43%	-5.00%
0.140	63.88	0.76	61.9	0.8	3.20%	-5.00%
0.144*	63.5	0.764	61.9	0.8	2.58%	-4.50%
0.150	62.89	0.77	61.9	0.8	1.60%	-3.75%
0.1508*	62.9	0.771	61.9	0.8	1.62%	-3.63%
0.1564*	62.7	0.776	61.9	0.8	1.29%	-3.00%
0.160	62.52	0.78	61.9	0.8	1.00%	-2.50%
0.170	64.64	0.79	61.9	0.8	4.43%	-1.25%
0.1734*	64.1	0.787	61.9	0.8	3.55%	-1.63%
0.180	63.13	0.78	61.9	0.8	1.99%	-2.50%
0.190	62.8	0.78	61.9	0.8	1.45%	-2.50%
0.200	63.2	0.81	61.9	0.8	2.10%	1.25%
0.210	62.93	0.82	61.9	0.8	1.66%	2.50%
0.220	60.92	0.81	61.9	0.8	-1.58%	1.25%
0.230	61.28	0.8	61.9	0.8	-1.00%	0.00%
0.240	59.83	0.82	61.9	0.8	-3.34%	2.50%
0.250	61.59	0.83	61.9	0.8	-0.50%	3.75%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 4	150 Body	23.0°C	21.2°C	≥ 15 cm	101.1 kPa	36%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/5&6/2011**		Frequency: 150 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	88.83	0.72	61.9	0.8	43.51%	-10.00%
0.060	77.98	0.69	61.9	0.8	25.98%	-13.75%
0.070	73.46	0.71	61.9	0.8	18.68%	-11.25%
0.080	66.68	0.72	61.9	0.8	7.72%	-10.00%
0.090	73.19	0.71	61.9	0.8	18.24%	-11.25%
0.100	65.38	0.74	61.9	0.8	5.62%	-7.50%
0.110	65.3	0.76	61.9	0.8	5.49%	-5.00%
0.120	65.51	0.76	61.9	0.8	5.83%	-5.00%
0.130	61.75	0.76	61.9	0.8	-0.24%	-5.00%
0.138*	63.2	0.76	61.9	0.8	2.10%	-5.00%
0.140	63.55	0.76	61.9	0.8	2.67%	-5.00%
0.144*	64	0.764	61.9	0.8	3.39%	-4.50%
0.150	64.8	0.77	61.9	0.8	4.68%	-3.75%
0.1508*	64.6	0.77	61.9	0.8	4.36%	-3.75%
0.1564*	63.2	0.77	61.9	0.8	2.10%	-3.75%
0.160	62.24	0.77	61.9	0.8	0.55%	-3.75%
0.162*	62.6	0.772	61.9	0.8	1.13%	-3.50%
0.170	64.11	0.78	61.9	0.8	3.57%	-2.50%
0.1734*	64.2	0.783	61.9	0.8	3.72%	-2.13%
0.180	64.3	0.79	61.9	0.8	3.88%	-1.25%
0.190	61.42	0.78	61.9	0.8	-0.78%	-2.50%
0.200	61.55	0.8	61.9	0.8	-0.57%	0.00%
0.210	61.06	0.81	61.9	0.8	-1.36%	1.25%
0.220	60.96	0.82	61.9	0.8	-1.52%	2.50%
0.230	61.35	0.83	61.9	0.8	-0.89%	3.75%
0.240	61.11	0.83	61.9	0.8	-1.28%	3.75%
0.250	60.06	0.81	61.9	0.8	-2.97%	1.25%

*interpolated using DASY4 software

** The SAR evaluations on Oct 6 were performed within 24 hours of the Oct 5 fluid parameter measurement

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 5	150 Body	22.0°C	20.9°C	≥ 15 cm	101.1 kPa	34%	1000
Oct 6	150 Body	22.0°C	20.9°C	≥ 15 cm	101.1 kPa	34%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/11/2011		Frequency: 300 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.200	50.81	0.76	45.3	0.87	12.16%	-12.64%
0.210	50.66	0.79	45.3	0.87	11.83%	-9.20%
0.220	48.18	0.77	45.3	0.87	6.36%	-11.49%
0.230	48.67	0.78	45.3	0.87	7.44%	-10.34%
0.240	48.47	0.78	45.3	0.87	7.00%	-10.34%
0.250	46.82	0.8	45.3	0.87	3.36%	-8.05%
0.260	47.51	0.81	45.3	0.87	4.88%	-6.90%
0.270	46.88	0.81	45.3	0.87	3.49%	-6.90%
0.280	46.69	0.83	45.3	0.87	3.07%	-4.60%
0.290	45.78	0.82	45.3	0.87	1.06%	-5.75%
0.300	45	0.84	45.3	0.87	-0.66%	-3.45%
0.310	45.24	0.85	45.3	0.87	-0.13%	-2.30%
0.320	45.34	0.86	45.3	0.87	0.09%	-1.15%
0.330	44.64	0.86	45.3	0.87	-1.46%	-1.15%
0.340	44.57	0.88	45.3	0.87	-1.61%	1.15%
0.350	43.84	0.9	45.3	0.87	-3.22%	3.45%
0.360	43.63	0.9	45.3	0.87	-3.69%	3.45%
0.370	43.37	0.91	45.3	0.87	-4.26%	4.60%
0.380	43.12	0.92	45.3	0.87	-4.81%	5.75%
0.390	43.03	0.92	45.3	0.87	-5.01%	5.75%
0.400	42.37	0.93	45.3	0.87	-6.47%	6.90%

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 11	300 Head	22.0°C	21.2°C	≥ 15 cm	101.1 kPa	37%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/11/2011		Frequency: 150 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	95.14	0.67	61.9	0.8	53.70%	-16.25%
0.060	84.28	0.7	61.9	0.8	36.16%	-12.50%
0.070	79.06	0.72	61.9	0.8	27.72%	-10.00%
0.080	70.46	0.73	61.9	0.8	13.83%	-8.75%
0.090	74.19	0.77	61.9	0.8	19.85%	-3.75%
0.100	69.59	0.72	61.9	0.8	12.42%	-10.00%
0.110	65.42	0.75	61.9	0.8	5.69%	-6.25%
0.120	64.68	0.76	61.9	0.8	4.49%	-5.00%
0.130	65.87	0.77	61.9	0.8	6.41%	-3.75%
0.140	64.72	0.77	61.9	0.8	4.56%	-3.75%
0.144*	64.3	0.77	61.9	0.8	3.88%	-3.75%
0.150	63.67	0.77	61.9	0.8	2.86%	-3.75%
0.1564*	62.5	0.776	61.9	0.8	0.97%	-3.00%
0.160	61.82	0.78	61.9	0.8	-0.13%	-2.50%
0.170	62.85	0.77	61.9	0.8	1.53%	-3.75%
0.1734*	62.7	0.77	61.9	0.8	1.29%	-3.75%
0.180	62.33	0.77	61.9	0.8	0.69%	-3.75%
0.190	62.58	0.81	61.9	0.8	1.10%	1.25%
0.200	60.78	0.79	61.9	0.8	-1.81%	-1.25%
0.210	60.34	0.82	61.9	0.8	-2.52%	2.50%
0.220	60.27	0.82	61.9	0.8	-2.63%	2.50%
0.230	61.42	0.82	61.9	0.8	-0.78%	2.50%
0.240	61.77	0.83	61.9	0.8	-0.21%	3.75%
0.250	60.73	0.83	61.9	0.8	-1.89%	3.75%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 11	150 Body	22.0°C	20.3°C	≥ 15 cm	101.1 kPa	37%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/12/2011		Frequency: 150 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	86.69	0.73	61.9	0.8	40.05%	-8.75%
0.060	79.02	0.73	61.9	0.8	27.66%	-8.75%
0.070	76.89	0.73	61.9	0.8	24.22%	-8.75%
0.080	71.18	0.72	61.9	0.8	14.99%	-10.00%
0.090	66.61	0.75	61.9	0.8	7.61%	-6.25%
0.100	65.61	0.78	61.9	0.8	5.99%	-2.50%
0.110	64.99	0.76	61.9	0.8	4.99%	-5.00%
0.120	66.32	0.77	61.9	0.8	7.14%	-3.75%
0.130	61.96	0.75	61.9	0.8	0.10%	-6.25%
0.140	62.04	0.77	61.9	0.8	0.23%	-3.75%
0.144*	62.2	0.766	61.9	0.8	0.48%	-4.25%
0.150	62.43	0.76	61.9	0.8	0.86%	-5.00%
0.1564*	63.1	0.76	61.9	0.8	1.94%	-5.00%
0.160	63.41	0.76	61.9	0.8	2.44%	-5.00%
0.170	63.26	0.79	61.9	0.8	2.20%	-1.25%
0.1734*	63.3	0.793	61.9	0.8	2.26%	-0.88%
0.180	63.26	0.8	61.9	0.8	2.20%	0.00%
0.190	61.33	0.8	61.9	0.8	-0.92%	0.00%
0.200	62.32	0.8	61.9	0.8	0.68%	0.00%
0.210	61.49	0.8	61.9	0.8	-0.66%	0.00%
0.220	61.32	0.8	61.9	0.8	-0.94%	0.00%
0.230	62.69	0.82	61.9	0.8	1.28%	2.50%
0.240	61.71	0.81	61.9	0.8	-0.31%	1.25%
0.250	60.88	0.83	61.9	0.8	-1.65%	3.75%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 12	150 Body	22.0°C	20.9°C	≥ 15 cm	101.1 kPa	35%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/13/2011		Frequency: 300 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.200	49.51	0.79	45.3	0.87	9.29%	-9.20%
0.210	49.34	0.78	45.3	0.87	8.92%	-10.34%
0.220	49.7	0.78	45.3	0.87	9.71%	-10.34%
0.230	48.5	0.8	45.3	0.87	7.06%	-8.05%
0.240	47.35	0.8	45.3	0.87	4.53%	-8.05%
0.250	47.88	0.81	45.3	0.87	5.70%	-6.90%
0.260	47.4	0.81	45.3	0.87	4.64%	-6.90%
0.270	46.03	0.83	45.3	0.87	1.61%	-4.60%
0.280	46.02	0.83	45.3	0.87	1.59%	-4.60%
0.290	45.54	0.85	45.3	0.87	0.53%	-2.30%
0.300	45.56	0.86	45.3	0.87	0.57%	-1.15%
0.310	45.08	0.86	45.3	0.87	-0.49%	-1.15%
0.320	44.64	0.88	45.3	0.87	-1.46%	1.15%
0.330	43.86	0.88	45.3	0.87	-3.18%	1.15%
0.340	44.21	0.88	45.3	0.87	-2.41%	1.15%
0.350	44.18	0.89	45.3	0.87	-2.47%	2.30%
0.360	43.56	0.9	45.3	0.87	-3.84%	3.45%
0.370	43.3	0.91	45.3	0.87	-4.42%	4.60%
0.380	42.53	0.91	45.3	0.87	-6.11%	4.60%
0.390	42.91	0.93	45.3	0.87	-5.28%	6.90%
0.400	42.86	0.95	45.3	0.87	-5.39%	9.20%

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 13	300 Head	22.0°C	22.2°C	≥ 15 cm	101.1 kPa	31%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/13/2011		Frequency: 150 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	76.92	0.73	61.9	0.8	24.26%	-8.75%
0.060	75.86	0.79	61.9	0.8	22.55%	-1.25%
0.070	74.74	0.74	61.9	0.8	20.74%	-7.50%
0.080	74.39	0.77	61.9	0.8	20.18%	-3.75%
0.090	71.21	0.78	61.9	0.8	15.04%	-2.50%
0.100	68.52	0.79	61.9	0.8	10.69%	-1.25%
0.110	62.44	0.77	61.9	0.8	0.87%	-3.75%
0.120	63.84	0.79	61.9	0.8	3.13%	-1.25%
0.130	63.35	0.8	61.9	0.8	2.34%	0.00%
0.140	62.03	0.8	61.9	0.8	0.21%	0.00%
0.144*	62.2	0.804	61.9	0.8	0.48%	0.50%
0.150	62.56	0.81	61.9	0.8	1.07%	1.25%
0.1508*	62.6	0.811	61.9	0.8	1.13%	1.38%
0.1564*	62.9	0.816	61.9	0.8	1.62%	2.00%
0.160	63.05	0.82	61.9	0.8	1.86%	2.50%
0.170	62.17	0.83	61.9	0.8	0.44%	3.75%
0.1734*	62.6	0.827	61.9	0.8	1.13%	3.37%
0.180	63.51	0.82	61.9	0.8	2.60%	2.50%
0.190	62.58	0.83	61.9	0.8	1.10%	3.75%
0.200	62.77	0.83	61.9	0.8	1.41%	3.75%
0.210	61.5	0.84	61.9	0.8	-0.65%	5.00%
0.220	60.41	0.85	61.9	0.8	-2.41%	6.25%
0.230	60.26	0.85	61.9	0.8	-2.65%	6.25%
0.240	60.76	0.85	61.9	0.8	-1.84%	6.25%
0.250	59.83	0.85	61.9	0.8	-3.34%	6.25%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 13	150 Body	22.0°C	21.9°C	≥ 15 cm	101.1 kPa	31%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/14/2011		Frequency: 150 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	97.8	0.65	52.3	0.76	87.00%	-14.47%
0.060	79.26	0.64	52.3	0.76	51.55%	-15.79%
0.070	80.09	0.65	52.3	0.76	53.14%	-14.47%
0.080	70.93	0.64	52.3	0.76	35.62%	-15.79%
0.090	63.38	0.65	52.3	0.76	21.19%	-14.47%
0.100	60.95	0.68	52.3	0.76	16.54%	-10.53%
0.110	63.53	0.68	52.3	0.76	21.47%	-10.53%
0.120	58.71	0.7	52.3	0.76	12.26%	-7.89%
0.130	56.4	0.7	52.3	0.76	7.84%	-7.89%
0.140	53.64	0.722	52.3	0.76	2.56%	-5.00%
0.144*	53.9	0.722	52.3	0.76	3.06%	-5.00%
0.150	54.34	0.722	52.3	0.76	3.90%	-5.00%
0.1564*	54.3	0.726	52.3	0.76	3.82%	-4.47%
0.160	54.22	0.73	52.3	0.76	3.67%	-3.95%
0.170	53.53	0.75	52.3	0.76	2.35%	-1.32%
0.1734*	53.5	0.743	52.3	0.76	2.29%	-2.24%
0.180	53.41	0.73	52.3	0.76	2.12%	-3.95%
0.190	52.05	0.77	52.3	0.76	-0.48%	1.32%
0.200	51.06	0.76	52.3	0.76	-2.37%	0.00%
0.210	50.28	0.77	52.3	0.76	-3.86%	1.32%
0.220	49.96	0.78	52.3	0.76	-4.47%	2.63%
0.230	48.86	0.79	52.3	0.76	-6.58%	3.95%
0.240	48.86	0.79	52.3	0.76	-6.58%	3.95%
0.250	48.93	0.81	52.3	0.76	-6.44%	6.58%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 14	150 Head	22.0°C	21.6°C	≥ 15 cm	101.1 kPa	31%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/17/2011		Frequency: 300 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.200	51.25	0.75	45.3	0.87	13.13%	-13.79%
0.210	50.19	0.75	45.3	0.87	10.79%	-13.79%
0.220	49.44	0.76	45.3	0.87	9.14%	-12.64%
0.230	48.49	0.77	45.3	0.87	7.04%	-11.49%
0.240	48.47	0.78	45.3	0.87	7.00%	-10.34%
0.250	47.97	0.79	45.3	0.87	5.89%	-9.20%
0.260	47.42	0.8	45.3	0.87	4.68%	-8.05%
0.270	47.72	0.8	45.3	0.87	5.34%	-8.05%
0.280	47.15	0.81	45.3	0.87	4.08%	-6.90%
0.290	46.47	0.82	45.3	0.87	2.58%	-5.75%
0.300	45.94	0.84	45.3	0.87	1.41%	-3.45%
0.310	45.27	0.83	45.3	0.87	-0.07%	-4.60%
0.320	45.04	0.86	45.3	0.87	-0.57%	-1.15%
0.330	45.11	0.86	45.3	0.87	-0.42%	-1.15%
0.340	44.41	0.87	45.3	0.87	-1.96%	0.00%
0.350	42.9	0.87	45.3	0.87	-5.30%	0.00%
0.360	43.5	0.89	45.3	0.87	-3.97%	2.30%
0.370	43.19	0.88	45.3	0.87	-4.66%	1.15%
0.380	43.18	0.9	45.3	0.87	-4.68%	3.45%
0.390	42.56	0.91	45.3	0.87	-6.05%	4.60%
0.400	42.82	0.9	45.3	0.87	-5.47%	3.45%

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 17	300 Head	22.0°C	21.5°C	≥ 15 cm	101.1 kPa	32%	1000

FLUID DIELECTRIC PARAMETERS

Date: 10/17/2011		Frequency: 150 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.050	74.81	0.66	52.3	0.76	43.04%	-13.16%
0.060	75.44	0.65	52.3	0.76	44.24%	-14.47%
0.070	73.64	0.64	52.3	0.76	40.80%	-15.79%
0.080	59.46	0.67	52.3	0.76	13.69%	-11.84%
0.090	66.48	0.67	52.3	0.76	27.11%	-11.84%
0.100	61.35	0.69	52.3	0.76	17.30%	-9.21%
0.110	58.92	0.7	52.3	0.76	12.66%	-7.89%
0.120	57.02	0.69	52.3	0.76	9.02%	-9.21%
0.130	56.17	0.7	52.3	0.76	7.40%	-7.89%
0.140	52.3	0.722	52.3	0.76	0.00%	-5.00%
0.144*	53.4	0.722	52.3	0.76	2.10%	-5.00%
0.150	54.96	0.722	52.3	0.76	5.09%	-5.00%
0.1564*	54.4	0.726	52.3	0.76	4.02%	-4.47%
0.160	54.12	0.73	52.3	0.76	3.48%	-3.95%
0.170	54.85	0.73	52.3	0.76	4.88%	-3.95%
0.1734*	54.3	0.737	52.3	0.76	3.82%	-3.03%
0.180	53.1	0.75	52.3	0.76	1.53%	-1.32%
0.190	52.19	0.74	52.3	0.76	-0.21%	-2.63%
0.200	52.52	0.77	52.3	0.76	0.42%	1.32%
0.210	49.91	0.78	52.3	0.76	-4.57%	2.63%
0.220	50.07	0.78	52.3	0.76	-4.26%	2.63%
0.230	49.76	0.77	52.3	0.76	-4.86%	1.32%
0.240	49.23	0.81	52.3	0.76	-5.87%	6.58%
0.250	47.99	0.81	52.3	0.76	-8.24%	6.58%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct 17	150 Head	22.0°C	21.6°C	≥ 15 cm	101.1 kPa	32%	1000

9.0 SAR TEST REDUCTION PROCEDURES - 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) ≤ 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.

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 (Audio Accessory Combinations). 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 SAR TEST REDUCTION PROCEDURES - 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

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Test Date(s)	October 14 & 17, 2011

C				1	2	3	4	5	6	7	8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default		SAR W/kg 1g Battery (a) - Additional		SAR W/kg 1g Battery (b) - Additional		SAR W/kg 1g Battery (c) - Additional	
				100% ptt d/f	50% ptt d/f	100% ptt d/f	50% ptt d/f	100% ptt d/f	50% ptt d/f	100% ptt d/f	50% ptt d/f
				Drift (dB)	50%+droop	Drift dB	50%+droop	Drift dB	50%+droop	Drift dB	50%+droop
1	1 (IC only)	138.0	5.28	N/A		N/A		N/A		N/A	
2		144.0	5.28	F1 1.31	0.655	N/A		N/A		N/A	
3				-0.113	0.672						
4	2	150.8	5.31	N/A		N/A		N/A		N/A	
5		156.4	5.33	F2 1.01	0.505	N/A		N/A		N/A	
6				-0.017	0.507						
7		162.0	5.33	N/A		N/A		N/A		N/A	
8	3	162.0	5.33	N/A		N/A		N/A		N/A	
9		167.7	5.34	N/A		N/A		N/A		N/A	
10		173.4	5.35	F3 0.331	0.166	N/A		N/A		N/A	
11				-0.254	0.175						
12	4	150.8	5.31	N/A		N/A		N/A		N/A	
13		158.3	5.34	N/A		N/A		N/A		N/A	
14		165.9	5.34	N/A		N/A		N/A		N/A	
15		173.4	5.35	F4 1.73	0.865	F5 1.39	0.695	F6 1.25	0.625	F7 1.73	**0.865**
16				-0.081	0.881	-0.448	0.771	-0.410	0.687	-0.343	0.936

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

C = Column; R = Row	Fx (F = Face) denotes the corresponding Face SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

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

Test Procedures in accordance with FCC KDB 643646 (see reference [9])

1. For face-held configuration, battery “d” was selected as the default battery (highest mAh).
2. When the head SAR of an antenna tested on the highest output power channel with the default battery is ≤ 3.5 W/kg (F1-F4), testing of all other required channels is not necessary.
3. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg (F1-F4), test additional batteries using the antenna and channel configuration that resulted in the highest SAR among all antennas (F5-F7).
4. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 2 — FACE-HELD SAR EVALUATION RESULTS

Device-Under-Test	Speaker-Microphone Audio Accessory with Antenna (with P5500 VHF System Radio)
Test Date(s)	October 17, 2011

C				1		2	3	4	5	6	7	8
R	**Antenna Accessory ID #**	**Test Freq. (MHz)**	**Cond. Power Before Test (W)**	**SAR W/kg 1g**			**SAR W/kg 1g**		**SAR W/kg 1g**		**SAR W/kg 1g**	
				Battery (d) - Default			**Battery (a) - Additional**		**Battery (b) - Additional**		**Battery (c) - Additional**	
				100% ptt d/f		**50% ptt d/f**	**100% ptt d/f**	**50% ptt d/f**	**100% ptt d/f**	**50% ptt d/f**	**100% ptt d/f**	**50% ptt d/f**
				Drift (dB)		**50%+droop**	**Drift dB**	**50%+droop**	**Drift dB**	**50%+droop**	**Drift dB**	**50%+droop**
1	1 (IC only)	138.0	5.28	N/A			N/A		N/A		N/A	
2	1 (IC only)	144.0	5.28	F8	1.00	0.500	N/A		N/A		N/A	
3	1 (IC only)	144.0	5.28	F8	-0.070	0.508	N/A		N/A		N/A	
4	2	150.8	5.31	N/A			N/A		N/A		N/A	
5	2	156.4	5.33	F9	1.10	0.550	N/A		N/A		N/A	
6	2	156.4	5.33	F9	-0.065	0.558	N/A		N/A		N/A	
7	2	162.0	5.33	N/A			N/A		N/A		N/A	
8	3	162.0	5.33	N/A			N/A		N/A		N/A	
9	3	167.7	5.34	N/A			N/A		N/A		N/A	
10	3	173.4	5.35	F10	0.341	0.171	N/A		N/A		N/A	
11	3	173.4	5.35	F10	-0.301	0.183	N/A		N/A		N/A	
12	4	150.8	5.31	N/A			N/A		N/A		N/A	
13	4	158.3	5.34	N/A			N/A		N/A		N/A	
14	4	165.9	5.34	N/A			N/A		N/A		N/A	
15	4	173.4	5.35	F11	1.11	0.555	N/A		N/A		N/A	
16	4	173.4	5.35	F11	-0.081	0.565	N/A		N/A		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

C = Column; R = Row	Fx (F = Face) denotes the corresponding Face SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Front of DUT Distance to Planar Phantom (see Appendix D) (Front of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
2.5 cm	3.2 cm	3.2 cm	3.2 cm	3.2 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])

1. For face-held configuration, battery “d” was selected as the default battery (highest mAh).
2. When the head SAR of an antenna tested on the highest output power channel is ≤ 3.5 W/kg (F8-F11), testing of all other required channels is not necessary for that audio accessory.
3. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

Subsets of tests were performed for the Scan radio model variant based on re-evaluating the maximum SAR levels per antenna configuration from the System model evaluations.

TABLE 3 — FACE-HELD SAR COMPARISON - SYSTEM and SCAN Models

Device-Under-Test			P5500 VHF SCAN Radio Model (Variant)					P5500 VHF SYSTEM Radio Model (Base)					
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 (IC only)	138.0	5.27	N/A				5.28	N/A				
2		144.0	5.28	F12	1.35	0.675	d	5.28	F1	1.31	0.655		d
3					-0.076	0.687				-0.113	0.672		
4	2	150.8	5.27	N/A				5.31	N/A				
5		156.4	5.33	F13	1.04	0.520	d	5.33	F2	1.01	0.505		d
6					-0.017	0.522				-0.017	0.507		
7		162.0	5.33	N/A				5.33	N/A				
8	3	162.0	5.33	N/A				5.33	N/A				
9		167.7	5.33	N/A				5.34	N/A				
10		173.4	5.35	F14	0.306	0.153	d	5.35	F3	0.331	0.166		d
11					-0.255	0.162				-0.254	0.175		
12	4	150.8	5.27	N/A				5.31	N/A				
13		158.3	5.33	N/A				5.34	N/A				
14		165.9	5.32	N/A				5.34	N/A				
15		173.4	5.35	F15	1.72	0.860	c	5.35	F7	1.73	0.865		c
16					-0.338	0.930				-0.343	0.936		

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	
C = Column; R = Row	Fx (F = Face) denotes the corresponding Face SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

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

TABLE 4 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	Speaker-Microphone Audio Accessory with Antenna (with P5500 VHF System Radio)
Accessory Part No.	MC-023933-002
Body-worn Accessory	Lapel-Clip
Audio Accessory	LS103239V1
Test Date(s)	October 13, 2011

C				1		2	3		4	5		6	7		8
R	**Antenna Accessory ID #**	**Test Freq. (MHz)**	**Cond. Power Before Test (W)**	**SAR W/kg 1g**			**SAR W/kg 1g**			**SAR W/kg 1g**			**SAR W/kg 1g**		
				Battery (d) - Default			**Battery (a) - Additional**			**Battery (b) - Additional**			**Battery (c) - Additional**		
				100% ptt d/f		**50% ptt d/f**	**100% ptt d/f**		**50% ptt d/f**	**100% ptt d/f**		**50% ptt d/f**	**100% ptt d/f**		**50% ptt d/f**
				Drift (dB)		**50%+droop**	**Drift dB**		**50%+droop**	**Drift dB**		**50%+droop**	**Drift dB**		**50%+droop**
1	1 (IC only)	138.0	5.28	N/A			N/A			N/A			N/A		
2	1 (IC only)	144.0	5.28	B1	2.30	1.15	N/A			N/A			N/A		
3	1 (IC only)				0.035	N/A									
4	2	150.8	5.31	N/A			N/A			N/A			N/A		
5	2	156.4	5.33	B2	1.55	0.775	N/A			N/A			N/A		
6	2				2.02	N/A									
7	2	162.0	5.33	N/A			N/A			N/A			N/A		
8	3	162.0	5.33	N/A			N/A			N/A			N/A		
9	3	167.7	5.34	N/A			N/A			N/A			N/A		
10	3	173.4	5.35	B3	0.399	0.200	N/A			N/A			N/A		
11	3				-0.184	0.208									
12	4	150.8	5.31	N/A			N/A			N/A			N/A		
13	4	158.3	5.34	N/A			N/A			N/A			N/A		
14	4	165.9	5.34	N/A			N/A			N/A			N/A		
15	4	173.4	5.35	B4	1.35	0.675	N/A			N/A			N/A		
16	4				-0.202	0.707									

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
1.6 cm	2.5 cm	2.5 cm	2.5 cm	2.5 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])

1. For body-worn configuration, battery “d” was selected as the default battery.
2. When the body SAR of an audio accessory is: ≤ 3.5 W/kg (B1-B4), testing of all other required channels is not necessary for that audio accessory.
3. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 5 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	6 (Default)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 4 & 5, 2011

C				1		2	3		4	5		6	7		8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default			SAR W/kg 1g Battery (a) - Additional			SAR W/kg 1g Battery (b) - Additional			SAR W/kg 1g Battery (c) - Additional		
				100% ptt d/f Drift (dB)		50% ptt d/f 50%+droop	100% ptt d/f Drift dB		50% ptt d/f 50%+droop	100% ptt d/f Drift dB		50% ptt d/f 50%+droop	100% ptt d/f Drift dB		50% ptt d/f 50%+droop
1	1 (IC only)	138.0	5.28	B5	6.06	3.03	N/A			N/A			N/A		
2					-0.191	3.17									
3		144.0	5.28	B6	8.65	4.33	B12	3.67	1.84	B13	1.42	0.710	B14	1.26	0.630
4					-0.088	4.41		0.398	N/A		-0.459	0.789		-0.807	0.759
5	2	150.8	5.31	B7	11.0	5.50	B15	8.62	4.31	B16	8.39	4.20	B17	9.25	4.63
6					-0.174	5.73		-0.393	4.72		0.018	N/A		0.057	N/A
7		156.4	5.33	B8	8.77	4.39	N/A			N/A			N/A		
8					-0.496	4.92									
9		162.0	5.33	B9	4.53	2.27	N/A			N/A			N/A		
10					-0.362	2.46	N/A			N/A			N/A		
11	3	162.0	5.33	N/A			N/A			N/A			N/A		
12		167.7	5.34	N/A			N/A			N/A			N/A		
13		173.4	5.35	B10	0.405	0.203	N/A			N/A			N/A		
14					0.027	N/A									
15	4	150.8	5.31	N/A			N/A			N/A			N/A		
16		158.3	5.34	N/A			N/A			N/A			N/A		
17		165.9	5.34	N/A			N/A			N/A			N/A		
18		173.4	5.35	B11	2.26	1.13	N/A			N/A			N/A		
19					0.238	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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
1.8 cm	2.1 cm	2.1 cm	2.1 cm	2.1 cm

Test Procedures applied in accordance with FCC KDB 643646 (see reference [9])
1. For body-worn configuration, battery “d” was selected as the default battery (All batteries are the same thickness and battery “d” is the highest mAh).
2.When the body SAR of an antenna tested on the highest output power channel with the default battery is > 4.0 W/kg and < 6.0 W/kg (B6, B8), test the immediately adjacent channels for that antenna (B5, B7, B9).
3. When the body SAR of an antenna is ≤ 3.5 W/kg (B10, B11), testing of all other required channels is not necessary for that antenna.
4. When the highest SAR of an antenna tested with the default battery using the default body-worn and audio accessory is > 4.0 W/kg (B6, B7), test additional batteries with the default body-worn and audio accessory on the channel that resulted in the highest SAR for that antenna (B12-B14, B15-B17).
5. The audio accessory G4 was selected as the default audio accessory based on preliminary evaluations resulting in the most conservative SAR of all the disclosed audio accessory options.
6. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 6 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	3 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 5, 2011

C				1	2	3	4	5	6	7	8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default		SAR W/kg 1g Battery (a) - Additional		SAR W/kg 1g Battery (b) - Additional		SAR W/kg 1g Battery (c) - Additional	
				100% ptt d/f Drift (dB)	50% ptt d/f 50%+droop	100% ptt d/f Drift dB	50% ptt d/f 50%+droop	100% ptt d/f Drift dB	50% ptt d/f 50%+droop	100% ptt d/f Drift dB	50% ptt d/f 50%+droop
1	1 (IC only)	138.0	5.28	N/A		N/A		N/A		N/A	
2		144.0	5.28	B18 1.96	0.980	N/A		N/A		N/A	
3				-0.084	0.999						
4	2	150.8	5.31	N/A		N/A		N/A		N/A	
5		156.4	5.33	B19 5.37	2.69	B22 5.79	2.90	B23 4.34	2.17	B24 4.61	2.31
6				-0.121	2.76	-0.123	2.98	-0.105	2.22	-0.184	2.41
7		162.0	5.33	N/A		N/A		N/A		N/A	
8	3	162.0	5.33	N/A		N/A		N/A		N/A	
9		167.7	5.34	N/A		N/A		N/A		N/A	
10		173.4	5.35	B20 0.579	0.290	N/A		N/A		N/A	
11				-0.192	0.303						
12	4	150.8	5.31	N/A		N/A		N/A		N/A	
13		158.3	5.34	N/A		N/A		N/A		N/A	
14		165.9	5.34	N/A		N/A		N/A		N/A	
15		173.4	5.35	B21 3.01	1.51	N/A		N/A		N/A	
16				-0.195	1.57						

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
2.7 cm	3.1 cm	3.1 cm	3.1 cm	3.1 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])
1. For body-worn configuration, battery “d” was selected as the default battery (All batteries are the same thickness and battery “d” has the highest mAh).
2. When the body SAR of an antenna is ≤ 3.5 W/kg (B18-B21), testing of all other required channels is not necessary for that antenna.
3. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg (B18-B21), test additional batteries using the antenna and channel configuration that resulted in the highest SAR among all antennas (B22-B24).
4. The audio accessory G4 was selected as the default audio accessory based on preliminary evaluations resulting in the most conservative SAR of all the disclosed audio accessory options.
5. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 7 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	8 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 5 & 6, 2011

C				1		2	3		4	5		6	7		8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default			SAR W/kg 1g Battery (a) - Additional			SAR W/kg 1g Battery (b) - Additional			SAR W/kg 1g Battery (c) - Additional		
				100% ptt d/f		50% ptt d/f	100% ptt d/f		50% ptt d/f	100% ptt d/f		50% ptt d/f	100% ptt d/f		50% ptt d/f
				Drift (dB)		50%+droop	Drift dB		50%+droop	Drift dB		50%+droop	Drift dB		50%+droop
1	1 (IC only)	138.0	5.28	N/A			N/A			N/A			N/A		
2		144.0	5.28	B25	0.542	0.271	N/A			N/A			N/A		
3					-0.035	0.273									
4	2	150.8	5.31	N/A			N/A			N/A			N/A		
5		156.4	5.33	B26	0.765	0.383	N/A			N/A			N/A		
6					-0.124	0.394									
7		162.0	5.33	N/A			N/A			N/A			N/A		
8	3	162.0	5.33	N/A			N/A			N/A			N/A		
9		167.7	5.34	N/A			N/A			N/A			N/A		
10		173.4	5.35	B27	0.159	0.080	N/A			N/A			N/A		
11					-0.189	0.083									
12	4	150.8	5.31	N/A			N/A			N/A			N/A		
13		158.3	5.34	N/A			N/A			N/A			N/A		
14		165.9	5.34	N/A			N/A			N/A			N/A		
15		173.4	5.35	B28	0.963	0.482	B29	0.782	0.391	B30	0.679	0.340	B31	1.29	0.645
16					-0.278	0.513		-0.716	0.461		-0.221	0.357		-0.141	0.666

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
5.5 cm	5.9 cm	5.9 cm	5.9 cm	5.9 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])
1. For body-worn configuration, battery “d” was selected as the default battery (All batteries are the same thickness and battery “d” has the highest mAh).
2. When the body SAR of an antenna is ≤ 3.5 W/kg (B25-B28), testing of all other required channels is not necessary for that antenna.
3. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg (B25-B28), test additional batteries using the antenna and channel configuration that resulted in the highest SAR among all antennas (B29-B31).
4. The audio accessory G4 was selected as the default audio accessory based on preliminary evaluations resulting in the most conservative SAR of all the disclosed audio accessory options.
5. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 8 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	2 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 6 & 11, 2011

C				1	2	3	4	5	6	7	8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default		SAR W/kg 1g Battery (a) - Additional		SAR W/kg 1g Battery (b) - Additional		SAR W/kg 1g Battery (c) - Additional	
				100% ptt d/f Drift (dB)	50% ptt d/f 50%+droop	100% ptt d/f Drift dB	50% ptt d/f 50%+droop	100% ptt d/f Drift dB	50% ptt d/f 50%+droop	100% ptt d/f Drift dB	50% ptt d/f 50%+droop
1	1 (IC only)	138.0	5.28	N/A		N/A		N/A		N/A	
2		144.0	5.28	B32 0.310	0.155	N/A		N/A		N/A	
3				-0.093	0.158						
4	2	150.8	5.31	N/A		N/A		N/A		N/A	
5		156.4	5.33	B33 0.606	0.303	N/A		N/A		N/A	
6				-0.237	0.320						
7		162.0	5.33	N/A		N/A		N/A		N/A	
8	3	162.0	5.33	N/A		N/A		N/A		N/A	
9		167.7	5.34	N/A		N/A		N/A		N/A	
10		173.4	5.35	B34 0.228	0.114	N/A		N/A		N/A	
11				-0.172	0.119						
12	4	150.8	5.31	N/A		N/A		N/A		N/A	
13		158.3	5.34	N/A		N/A		N/A		N/A	
14		165.9	5.34	N/A		N/A		N/A		N/A	
15		173.4	5.35	B35 0.840	0.420	B36 0.791	0.396	B37 0.644	0.322	B38 0.792	0.396
16				-0.102	0.430	-0.324	0.426	-0.302	0.345	-0.413	0.436

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
4.3 cm	4.5 cm	4.5 cm	4.5 cm	4.5 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])
1. For body-worn configuration, battery “d” was selected as the default battery (All batteries are the same thickness and battery “d” has the highest mAh).
2. When the body SAR of an antenna is ≤ 3.5 W/kg (B32-B35), testing of all other required channels is not necessary for that antenna.
3. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg (B32-B35), test additional batteries using the antenna and channel configuration that resulted in the highest SAR among all antennas (B36-B38).
4. The audio accessory G4 was selected as the default audio accessory based on preliminary evaluations resulting in the most conservative SAR of all the disclosed audio accessory options.
5. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 9 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	4 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 11, 2011

C				1	2	3	4	5	6	7	8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default 100% ptt d/f	SAR W/kg 1g Battery (d) - Default 50% ptt d/f	SAR W/kg 1g Battery (a) - Additional 100% ptt d/f	SAR W/kg 1g Battery (a) - Additional 50% ptt d/f	SAR W/kg 1g Battery (b) - Additional 100% ptt d/f	SAR W/kg 1g Battery (b) - Additional 50% ptt d/f	SAR W/kg 1g Battery (c) - Additional 100% ptt d/f	SAR W/kg 1g Battery (c) - Additional 50% ptt d/f
				Drift (dB)	50%+droop	Drift dB	50%+droop	Drift dB	50%+droop	Drift dB	50%+droop
1	1 (IC only)	138.0	5.28	N/A		N/A		N/A		N/A	
2		144.0	5.28	B39 0.675	0.338	N/A		N/A		N/A	
3				-0.098	0.345						
4	2	150.8	5.31	N/A		N/A		N/A		N/A	
5		156.4	5.33	B40 1.98	0.990	B43 1.40	0.700	B44 1.60	0.800	B45 1.40	0.700
6				-0.147	1.02	-0.102	0.717	-0.278	0.853	0.067	N/A
7		162.0	5.33	N/A		N/A		N/A		N/A	
8	3	162.0	5.33	N/A		N/A		N/A		N/A	
9		167.7	5.34	N/A		N/A		N/A		N/A	
10		173.4	5.35	B41 0.351	0.176	N/A		N/A		N/A	
11				0.041	N/A						
12	4	150.8	5.31	N/A		N/A		N/A		N/A	
13		158.3	5.34	N/A		N/A		N/A		N/A	
14		165.9	5.34	N/A		N/A		N/A		N/A	
15		173.4	5.35	B42 1.25	0.625	N/A		N/A		N/A	
16				-0.031	0.630						

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
3.4 cm	3.5 cm	3.5 cm	3.5 cm	3.5 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])
1. For body-worn configuration, battery “d” was selected as the default battery (All batteries are the same thickness and battery “d” has the highest mAh).
2. When the body SAR of an antenna is ≤ 3.5 W/kg (B39-B42), testing of all other required channels is not necessary for that antenna.
3. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg (B39-B42), test additional batteries using the antenna and channel configuration that resulted in the highest SAR among all antennas (B43-B45).
4. The audio accessory G4 was selected as the default audio accessory based on preliminary evaluations resulting in the most conservative SAR of all the disclosed audio accessory options.
5. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

TABLE 10 — BODY-WORN SAR EVALUATION RESULTS

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	5 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 11 & 12, 2011

C				1	2	3	4	5	6	7	8
R	Antenna Accessory ID #	Test Freq. (MHz)	Cond. Power Before Test (W)	SAR W/kg 1g Battery (d) - Default 100% ptt d/f	SAR W/kg 1g Battery (d) - Default 50% ptt d/f	SAR W/kg 1g Battery (a) - Additional 100% ptt d/f	SAR W/kg 1g Battery (a) - Additional 50% ptt d/f	SAR W/kg 1g Battery (b) - Additional 100% ptt d/f	SAR W/kg 1g Battery (b) - Additional 50% ptt d/f	SAR W/kg 1g Battery (c) - Additional 100% ptt d/f	SAR W/kg 1g Battery (c) - Additional 50% ptt d/f
				Drift (dB)	50%+droop	Drift dB	50%+droop	Drift dB	50%+droop	Drift dB	50%+droop
1	1 (IC only)	138.0	5.28	N/A		N/A		N/A		N/A	
2		144.0	5.28	B46 0.552	0.276	N/A		N/A		N/A	
3				-0.269	0.294						
4	2	150.8	5.31	N/A		N/A		N/A		N/A	
5		156.4	5.33	B47 1.24	0.620	B50 0.996	0.498	B51 0.794	0.397	B52 1.03	0.515
6				-0.120	0.637	-0.410	0.547	-0.148	0.411	-0.161	0.534
7		162.0	5.33	N/A		N/A		N/A		N/A	
8	3	162.0	5.33	N/A		N/A		N/A		N/A	
9		167.7	5.34	N/A		N/A		N/A		N/A	
10		173.4	5.35	B48 0.251	0.126	N/A		N/A		N/A	
11				-0.119	0.129						
12	4	150.8	5.31	N/A		N/A		N/A		N/A	
13		158.3	5.34	N/A		N/A		N/A		N/A	
14		165.9	5.34	N/A		N/A		N/A		N/A	
15		173.4	5.35	B49 1.21	0.605	N/A		N/A		N/A	
16				-0.562	0.689						

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	Shortest Antenna Distance to Planar Phantom (see Appendix D)			
	Antenna 1	Antenna 2	Antenna 3	Antenna 4
4.5 cm	4.8 cm	4.8 cm	4.8 cm	4.8 cm

Test Procedures in accordance with FCC KDB 643646 (see reference [9])
1. For body-worn configuration, battery “d” was selected as the default battery (All batteries are the same thickness and battery “d” has the highest mAh).
2. When the body SAR of an antenna is ≤ 3.5 W/kg (B46-B49), testing of all other required channels is not necessary for that antenna.
3. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg (B46-B49), test additional batteries using the antenna and channel configuration that resulted in the highest SAR among all antennas (B50-B52).
4. The audio accessory G4 was selected as the default audio accessory based on preliminary evaluations resulting in the most conservative SAR of all the disclosed audio accessory options.
5. When test reduction applies, the data table entries for such configurations are denoted with N/A (Not Applicable).

Subsets of tests were performed for the Scan radio model variant based on re-evaluating the maximum SAR levels per antenna configuration from the System model evaluations.

TABLE 11 — BODY-WORN SAR COMPARISON - SYSTEM and SCAN Models

Body-worn Acc. ID #	6 (Default)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 12 & 13, 2011

Device-Under-Test			**P5500 VHF SCAN Radio Model (Variant)**					**P5500 VHF SYSTEM Radio Model (Base)**				
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 (IC only)	138.0	5.27	N/A				5.28	N/A			
2		144.0	5.28	B53	3.45	1.73	d	5.28	B6	8.65	4.33	d
3					-0.041	1.74				-0.088	4.41	
4	2	150.8	5.27	B54	6.50	3.25	d	5.31	B7	11.0	5.50	d
5					-0.133	3.35				-0.174	5.73	
6		156.4	5.33	N/A				5.33	N/A			
7		162.0	5.33	N/A				5.33	N/A			
8	3	162.0	5.33	N/A				5.33	N/A			
9		167.7	5.33	N/A				5.34	N/A			
10		173.4	5.35	B55	0.468	0.234	d	5.35	B10	0.405	0.203	d
11					-0.052	0.237				0.207	N/A	
12	4	150.8	5.27	N/A				5.31	N/A			
13		158.3	5.33	N/A				5.34	N/A			
14		165.9	5.32	N/A				5.34	N/A			
15		173.4	5.35	B56	1.77	0.885	d	5.35	B11	2.26	1.13	d
16					-0.019	0.889				0.238	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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
1.8 cm	2.1 cm	2.1 cm	2.1 cm	2.1 cm

TABLE 12 — BODY-WORN SAR COMPARISON - SYSTEM and SCAN Models

Body-worn Acc. ID #	3 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 12, 2011

Device-Under-Test	**P5500 VHF SCAN Radio Model (Variant)**						**P5500 VHF SYSTEM Radio Model (Base)**					
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 (IC only)	138.0	5.27	N/A				5.28	N/A			
2		144.0	5.28	B57	1.85	0.925	d	5.28	B18	1.96	0.980	d
3					-0.242	0.978				-0.084	0.999	
4	2	150.8	5.27	N/A				5.31	N/A			
5		156.4	5.33	B58	7.98	3.99	a	5.33	B22	5.79	2.90	a
6					-0.226	4.20				-0.123	2.98	
7		162.0	5.33	N/A				5.33	N/A			
8	3	162.0	5.33	N/A				5.33	N/A			
9		167.7	5.33	N/A				5.34	N/A			
10		173.4	5.35	B59	0.413	0.207	d	5.35	B20	0.579	0.290	d
11					-0.100	0.211				-0.192	0.303	
12	4	150.8	5.27	N/A				5.31	N/A			
13		158.3	5.33	N/A				5.34	N/A			
14		165.9	5.32	N/A				5.34	N/A			
15		173.4	5.35	B60	1.98	0.990	d	5.35	B21	3.01	1.51	d
16					-0.014	0.993				-0.195	1.57	

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
2.7 cm	3.1 cm	3.1 cm	3.1 cm	3.1 cm

TABLE 13 — BODY-WORN SAR COMPARISON - SYSTEM and SCAN Models

Body-worn Acc. ID #	8 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 12, 2011

Device-Under-Test			**P5500 VHF SCAN Radio Model (Variant)**					**P5500 VHF SYSTEM Radio Model (Base)**				
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 (IC only)	138.0	5.27	N/A				5.28	N/A			
2		144.0	5.28	B61	0.313	0.157	d	5.28	B25	0.542	0.271	d
3					-0.057	0.159				-0.035	0.273	
4	2	150.8	5.27	N/A				5.31	N/A			
5		156.4	5.33	B62	0.631	0.316	d	5.33	B26	0.765	0.383	d
6					-0.169	0.328				-0.124	0.394	
7		162.0	5.33	N/A				5.33	N/A			
8	3	162.0	5.33	N/A				5.33	N/A			
9		167.7	5.33	N/A				5.34	N/A			
10		173.4	5.35	B63	0.174	0.087	d	5.35	B27	0.159	0.080	d
11					-0.199	0.091				-0.189	0.083	
12	4	150.8	5.27	N/A				5.31	N/A			
13		158.3	5.33	N/A				5.34	N/A			
14		165.9	5.32	N/A				5.34	N/A			
15		173.4	5.35	B64	0.777	0.389	c	5.35	B31	1.29	0.645	c
16					-0.217	0.408				-0.141	0.666	

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
5.5 cm	5.9 cm	5.9 cm	5.9 cm	5.9 cm

TABLE 14 — BODY-WORN SAR COMPARISON - SYSTEM and SCAN Models

Body-worn Acc. ID #	2 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 12, 2011

Device-Under-Test			**P5500 VHF SCAN Radio Model (Variant)**					**P5500 VHF SYSTEM Radio Model (Base)**				
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 (IC only)	138.0	5.27	N/A				5.28	N/A			
2		144.0	5.28	B65	0.338	0.169	d	5.28	B32	0.310	0.155	d
3					-0.056	0.171				-0.093	0.158	
4	2	150.8	5.27	N/A				5.31	N/A			
5		156.4	5.33	B66	0.639	0.320	d	5.33	B33	0.606	0.303	d
6					-0.179	0.333				-0.237	0.320	
7		162.0	5.33	N/A				5.33	N/A			
8	3	162.0	5.33	N/A				5.33	N/A			
9		167.7	5.33	N/A				5.34	N/A			
10		173.4	5.35	B67	0.192	0.096	d	5.35	B34	0.228	0.114	d
11					-0.143	0.099				-0.172	0.119	
12	4	150.8	5.27	N/A				5.31	N/A			
13		158.3	5.33	N/A				5.34	N/A			
14		165.9	5.32	N/A				5.34	N/A			
15		173.4	5.35	B68	0.871	0.436	d	5.35	B35	0.840	0.420	d
16					0.016	0.436				-0.102	0.430	

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
4.3 cm	4.5 cm	4.5 cm	4.5 cm	4.5 cm

TABLE 15 — BODY-WORN SAR COMPARISON - SYSTEM and SCAN Models

Body-worn Acc. ID #	4 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 12, 2011

Device-Under-Test			**P5500 VHF SCAN Radio Model (Variant)**						**P5500 VHF SYSTEM Radio Model (Base)**					
C			**Cond. Power Before Test (W)**	**1**		**2**	**3**		**Cond. Power Before Test (W)**	**4**		**5**	**6**	
R	**Antenna Accessory ID #**	**Test Freq. (MHz)**		**SAR W/kg (1g) 100% ptt d/f Drift (dB)**		**SAR W/kg (1g) 50% ptt d/f 50%+droop**	**Battery Accessory ID #**			**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 (IC only)	138.0	5.27	N/A					5.28	N/A				
2		144.0	5.28	B69	0.632	0.316	d		5.28	B39	0.675	0.338	d	
3					-0.089	0.323					-0.098	0.345		
4	2	150.8	5.27	N/A					5.31	N/A				
5		156.4	5.33	B70	2.00	1.00	d		5.33	B40	1.98	0.990	d	
6					-0.109	1.03					-0.147	1.02		
7		162.0	5.33	N/A					5.33	N/A				
8	3	162.0	5.33	N/A					5.33	N/A				
9		167.7	5.33	N/A					5.34	N/A				
10		173.4	5.35	B71	0.338	0.169	d		5.35	B41	0.351	0.176	d	
11					-0.062	0.171					0.041	N/A		
12	4	150.8	5.27	N/A					5.31	N/A				
13		158.3	5.33	N/A					5.34	N/A				
14		165.9	5.32	N/A					5.34	N/A				
15		173.4	5.35	B72	1.23	0.615	d		5.35	B42	1.25	0.625	d	
16					0.004	N/A					-0.031	0.630		

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
3.4 cm	3.5 cm	3.5 cm	3.5 cm	3.5 cm

TABLE 16 — BODY-WORN SAR COMPARISON - SYSTEM and SCAN Models

Body-worn Acc. ID #	5 (Additional)
Audio Accessory ID #	G4 (Default)
Test Date(s)	October 12, 2011

Device-Under-Test			**P5500 VHF SCAN Radio Model (Variant)**					**P5500 VHF SYSTEM Radio Model (Base)**				
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 (IC only)	138.0	5.27	N/A				5.28	N/A			
2		144.0	5.28	B73	1.03	0.515	d	5.28	B46	0.552	0.276	d
3					-0.459	0.572				-0.269	0.294	
4	2	150.8	5.27	N/A				5.31	N/A			
5		156.4	5.33	B74	0.684	0.342	d	5.33	B47	1.24	0.620	d
6					-0.134	0.353				-0.120	0.637	
7		162.0	5.33	N/A				5.33	N/A			
8	3	162.0	5.33	N/A				5.33	N/A			
9		167.7	5.33	N/A				5.34	N/A			
10		173.4	5.35	B75	0.163	0.082	d	5.35	B48	0.251	0.126	d
11					-0.169	0.085				-0.119	0.129	
12	4	150.8	5.27	N/A				5.31	N/A			
13		158.3	5.33	N/A				5.34	N/A			
14		165.9	5.32	N/A				5.34	N/A			
15		173.4	5.35	B76	0.644	0.322	d	5.35	B49	1.21	0.605	d
16					-0.118	0.331				-0.562	0.689	

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

C = Column; R = Row	Bx (B = Body) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
N/A = Not Applicable	Test reduction procedures were applied to Scan model per FCC KDB Inquiry #235657

Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**			
	Antenna 1	**Antenna 2**	**Antenna 3**	**Antenna 4**
4.5 cm	4.8 cm	4.8 cm	4.8 cm	4.8 cm

TABLE 17 — BODY-WORN SAR EVALUATION RESULTS
REMAINING DEFAULT AUDIO ACCESSORIES BY GROUPING

Device-Under-Test	P5500 VHF Radio Transceiver (System)
Body-worn Accessory ID #	6 (Default)
Test Date(s)	October 13, 2011

C							1	2
R	Antenna Accessory ID #	Battery Accessory ID #	Audio Accessory ID #	Radio Model	Cond. Power Before Test (W)	Test Freq. (MHz)	1g SAR (W/kg)	
							Plot #	100% ptt d/f
								SAR Drift dB
								50% ptt d/f
								50%+droop
1	2	d	G1a	System	5.31	150.8	A1	8.78
2								-0.197
3			G2	System	5.31	150.8	A2	9.94
4								-0.184
5			G3b	System	5.31	150.8	A3	10.4
6								-0.153
7			G7a	System	5.31	150.8	A4	11.8
8								-0.171
9				Scan	5.27	150.8	A5	10.1
10								0.092
11			G5	System	5.31	150.8	A6	9.20
12								-0.170
13			G6b	System	5.31	150.8	A7	6.89
14								-0.174
15			G8a	System	5.31	150.8	A8	9.02
16								-0.182
17			G9a	System	5.31	150.8	A9	4.30
18								-0.206
19			G10	System	5.31	150.8	A10	9.91
20								-0.148
21			G11b	System	5.31	150.8	A11	9.32
22								-0.179
23			G12a	System	5.31	150.8	A12	9.31
24								-1.01

50% ptt d/f (50%+droop)
4.39
4.59
4.97
5.19
5.20
5.39
5.90
6.14
5.05
N/A
4.60
4.78
3.45
3.59
4.51
4.70
2.15
2.25
4.96
5.13
4.66
4.86
4.66
5.87

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

C = Column; R = Row	Ax (A = Accessory) denotes the corresponding Body SAR Plot # as shown in Appendix A
Test Mode = CW (Unmodulated Continuous Wave)	Phantom = Side Planar Phantom
Back of DUT Distance to Planar Phantom (see Appendix D) (Back of DUT Parallel to Planar Phantom)	**Shortest Antenna Distance to Planar Phantom (see Appendix D)**
	Antenna 2
1.8 cm	2.1 cm

Test Procedures applied in accordance with FCC KDB 643646 (see reference [9])
1. The audio accessories selected are the default accessories per grouping.
2. The antenna, battery and body-worn accessory were selected based on the maximum SAR level configuration from the body-worn accessory test sequence.
3. SAR evaluations for the remaining audio accessories within each grouping were not required based on the SAR levels from the default audio accessories per grouping were not > 7.0 W/kg (A1-A12).

12.0 SAR SCALING (TUNE-UP TOLERANCE)

SCALING OF MAX. SAR LEVEL (MANUFACTURER'S TUNE-UP TOLERANCE SPECIFICATION)

Test Config.	Test Freq. (MHz)	Antenna Acc. ID #	Battery Acc. ID #	Radio Model	Conducted Power (W) Before Test	SAR Level 1g (50% PTT d/f)		Scaling up to Manuf. Upper Tol.	Scaled SAR (50% PTT d/f) 1g (W/kg)
						W/kg	Plot #		
Body-worn	150.8	2	d	System	5.31	5.90	A4	+0.03 dB	5.94
Body-worn	150.8	2	d	Scan	5.27	5.05	A5	+0.07 dB	5.13
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	

13.0 DETAILS OF SAR EVALUATION

1. The number of test frequencies and the test channels evaluated for SAR were selected in accordance with the procedures described in FCC KDB 447498 Section 6) c) (see reference [8]).
2. The DUT was evaluated for SAR in accordance with the procedures described in FCC KDB 643646 (see reference [9]).
3. The SAR evaluations were performed with a fully charged battery.
4. The SAR drift 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).
5. The fluid temperature remained within +/-2°C from the fluid dielectric parameter measurement to the completion of each SAR test.
6. 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).
7. 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.

14.0 SAR EVALUATION PROCEDURES

a. 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 30 mm x 30 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.

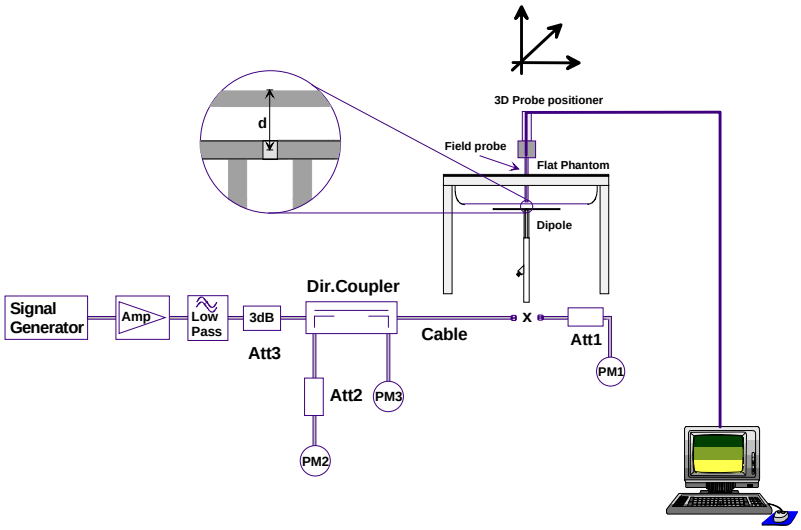
15.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, system checks were performed with a planar phantom and 300 MHz SPEAG dipole (see Appendix B for system performance check test plots) 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 system manufacturer's dipole calibration target SAR value (see Appendix E for system manufacturer's dipole calibration procedures).

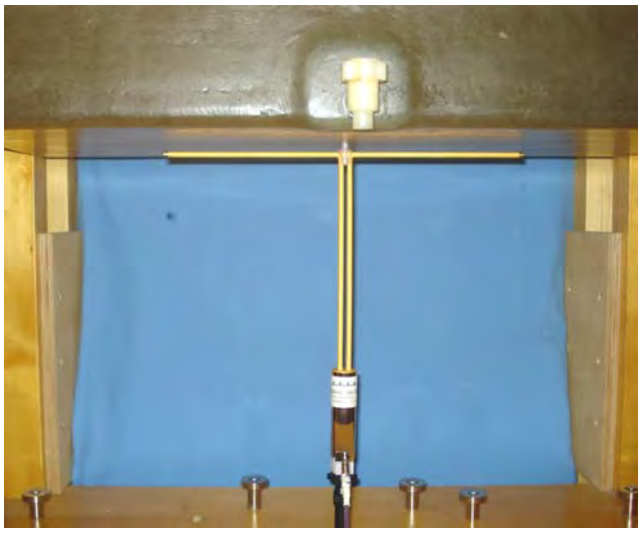
SYSTEM PERFORMANCE CHECK EVALUATIONS

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.						
Oct 4	Head 300	1.14 ±10%	1.19	+4.4%	45.3 ±5%	46.4	+2.4%	0.87 ±5%	0.87	0.0%	1000	23.0	21.2	≥ 15	36	101.1
Oct 11	Head 300	1.14 ±10%	1.16	+1.8%	45.3 ±5%	45.0	-0.7%	0.87 ±5%	0.84	-3.4%	1000	22.0	21.2	≥ 15	37	101.1
Oct 13	Head 300	1.14 ±10%	1.14	0.0%	45.3 ±5%	45.6	+0.7%	0.87 ±5%	0.86	-1.1%	1000	22.0	22.2	≥ 15	31	101.1
Oct 17	Head 300	1.14 ±10%	1.17	+2.6%	45.3 ±5%	45.9	+1.3%	0.87 ±5%	0.84	-3.4%	1000	22	21.5	≥ 15	32	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 on all SAR evaluation test dates 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 Standard 1528-2003)



300 MHz SPEAG Validation Dipole Setup

16.0 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	**300 MHz HEAD Tissue Mixture**	37.56 %	**150 MHz HEAD Tissue Mixture**	38.35 %	**150 MHz BODY Tissue Mixture**	46.6 %
	Sugar		55.32 %		55.5%		49.7 %
	Salt		5.95 %		5.15%		2.6 %
	HEC		0.98 %		0.9%		1.0 %
	Bactericide		0.19 %		0.1%		0.1 %

17.0 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.			

18.0 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 1	
Type	Side Planar Phantom
Shell Material	Plexiglass
Bottom Thickness	2.0 mm ± 0.1 mm
Inner Dimensions	72.6 cm (L) x 20.3 cm (W) x 20.3 cm (H)
Phantom 2	
Type	Barski Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters

19.0 PROBE SPECIFICATION

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

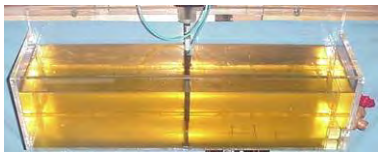
ET3DV6 E-Field Probe

20.0 PHANTOM(S)

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 was used for the DUT SAR evaluations and the system performance check evaluations. See Appendix G for dimensions and specifications of the Barski planar phantom.

Barski Planar Phantom

The side planar phantom is constructed of Plexiglas material with a 2.0 mm shell thickness for face-held and body-worn SAR evaluations of portable radio transceivers. The side planar phantom is mounted on the side of the DASY4 compact system table.



Plexiglas Side Planar Phantom

21.0 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

22.0 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 D300V3 Validation Dipole	00216	1009	18Jan10	Triennial
x	Side Planar Phantom	00156	161	CNR	CNR
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				

23.0 JUSTIFICATION FOR EXTENDED 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 D300V3 SN: 1009						
Date of Measurement	Frequency	Fluid Type	Return Loss (dB)	Δ %	Impedance (Ω)	Δ Ω
January 18, 2010	300 MHz	Head	-20.1	-	56.3	-
June 6, 2011			-21.2	-5.5%	50.3	5

24.0 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 (150 MHz)	E.2.1	10.0	Normal	1	1	1	10.0	10.0	∞
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	2.5	Rectangular	1.732050808	1	1	1.4	1.4	∞
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	5	Normal	1	0.64	0.43	3.2	2.2	∞
Liquid Permittivity (target)	E.3.2	5	Rectangular	1.732050808	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measured)	E.3.3	4.36	Normal	1	0.6	0.49	2.6	2.1	∞
Combined Standard Uncertainty			**RSS**				**13.99**	**13.60**	
Expanded Uncertainty (95% Confidence Interval)			**k=2**				**27.98**	**27.20**	

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

25.0 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 PLOTS

Date Tested: 10/04/2011

System Performance Check - 300 MHz Dipole - Head

DUT: Dipole 300 MHz; Type: D300V3; Serial: 1009; Calibrated: 01/18/2010

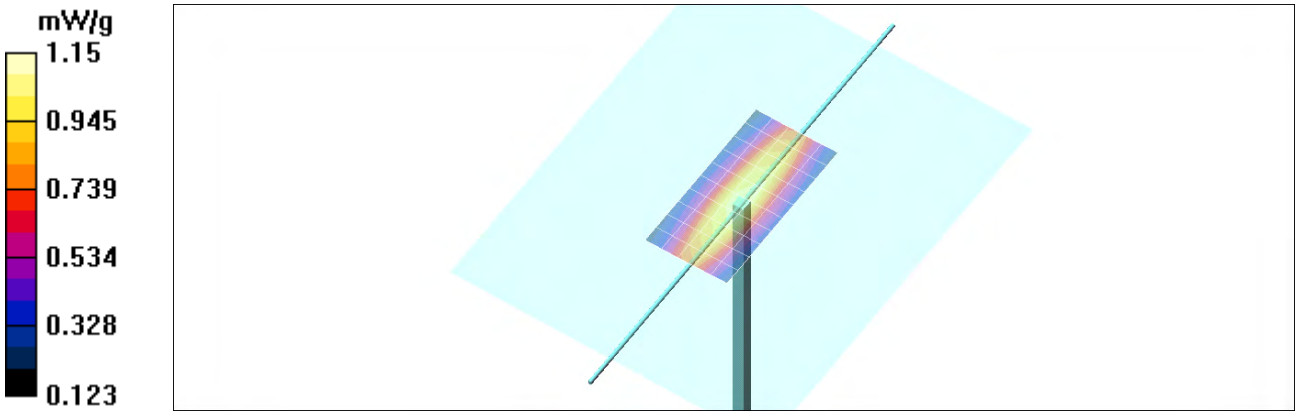
Ambient Temp: 23C; Fluid Temp: 21.2C; Barometric Pressure: 101.1 kPa; Humidity: 36%

Communication System: CW
Frequency: 300 MHz; Duty Cycle: 1:1
Medium: 300 HSL Medium parameters used: f = 300 MHz; σ = 0.87 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3

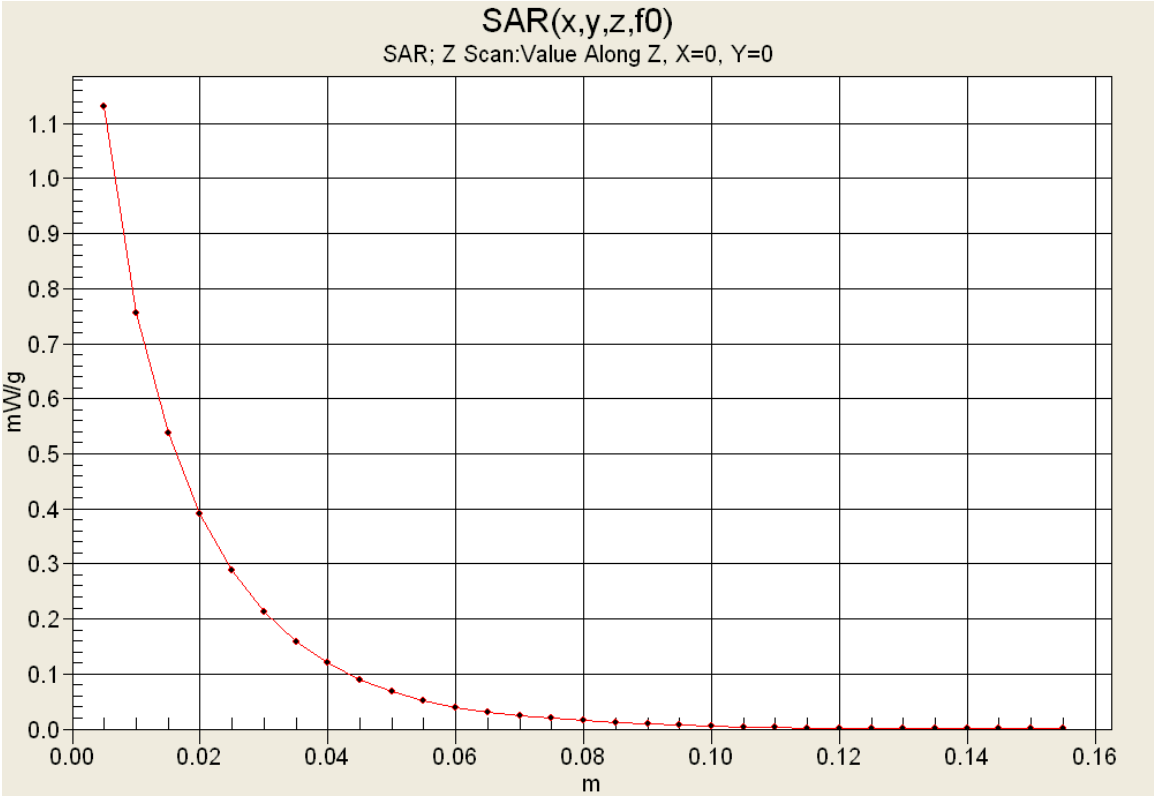
- Probe: ET3DV6 - SN1590; ConvF(8, 8, 8); Calibrated: 22/06/2011
- Sensor-Surface: 5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head d=15mm, Pin = 398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.09 mW/g

Head d=15mm, Pin = 398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 36.2 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.788 mW/g
Maximum value of SAR (measured) = 1.15 mW/g



Z-Axis Scan



Date Tested: 10/11/2011

System Performance Check - 300 MHz Dipole - Head

DUT: Dipole 300 MHz; Type: D300V3; Serial: 1009; Calibrated: 01/18/2010

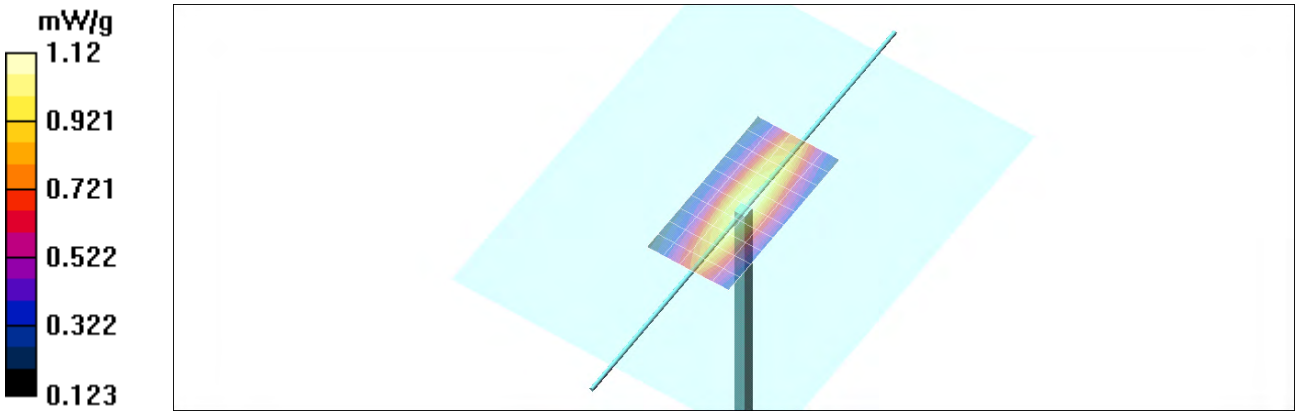
Ambient Temp: 22C; Fluid Temp: 21.2C; Barometric Pressure: 101.1 kPa; Humidity: 37%

Communication System: CW
Frequency: 300 MHz; Duty Cycle: 1:1
Medium: 300 HSL Medium parameters used: f = 300 MHz; σ = 0.84 mho/m; ε_r = 45; ρ = 1000 kg/m^3

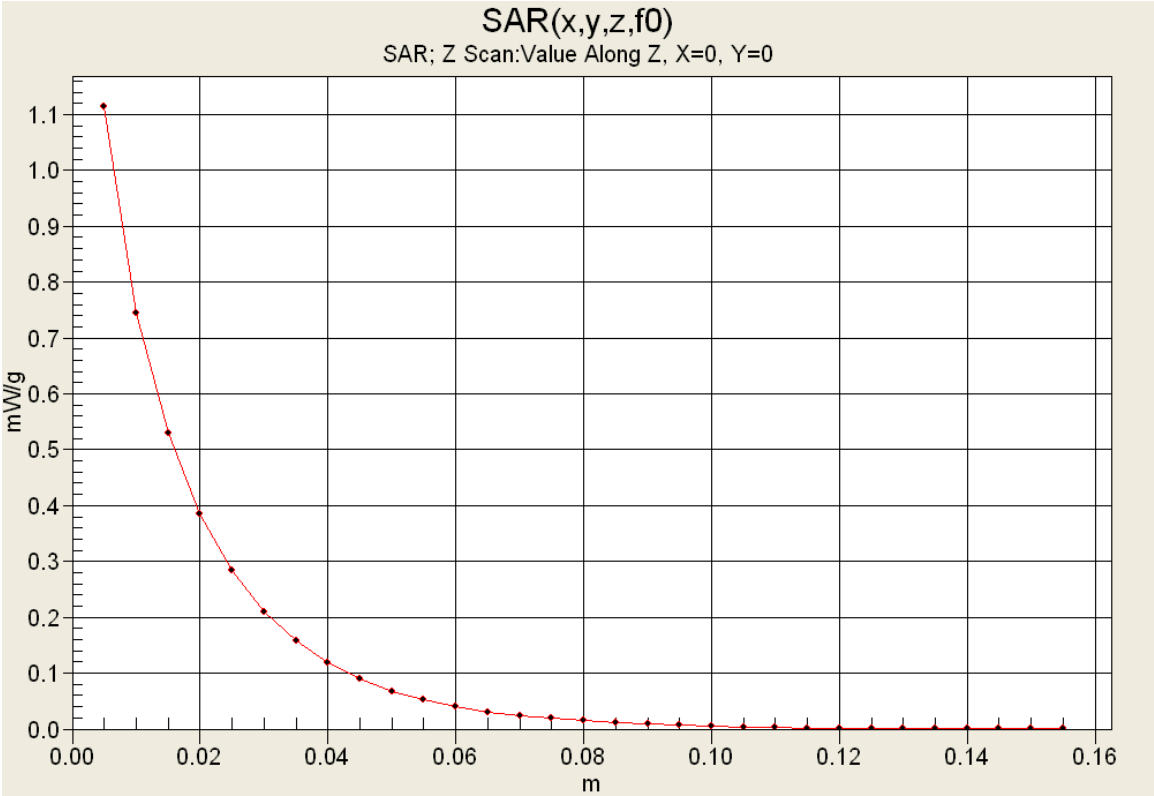
- Probe: ET3DV6 - SN1590; ConvF(8, 8, 8); Calibrated: 22/06/2011
- Sensor-Surface: 5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head d=15mm, Pin = 398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.10 mW/g

Head d=15mm, Pin = 398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 36.3 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.770 mW/g
Maximum value of SAR (measured) = 1.12 mW/g



Z-Axis Scan



Date Tested: 10/13/2011

System Performance Check - 300 MHz Dipole - Head

DUT: Dipole 300 MHz; Type: D300V3; Serial: 1009; Calibrated: 01/18/2010

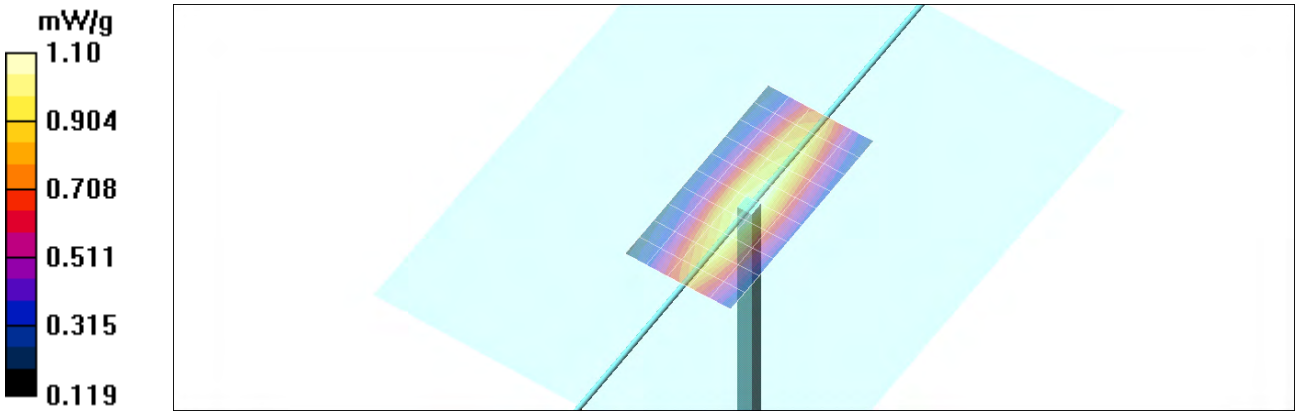
Ambient Temp: 22C; Fluid Temp: 22.2C; Barometric Pressure: 101.1 kPa; Humidity: 31%

Communication System: CW
Frequency: 300 MHz; Duty Cycle: 1:1
Medium: 300 HSL Medium parameters used: f = 300 MHz; σ = 0.86 mho/m; ε_r = 45.6; ρ = 1000 kg/m^3

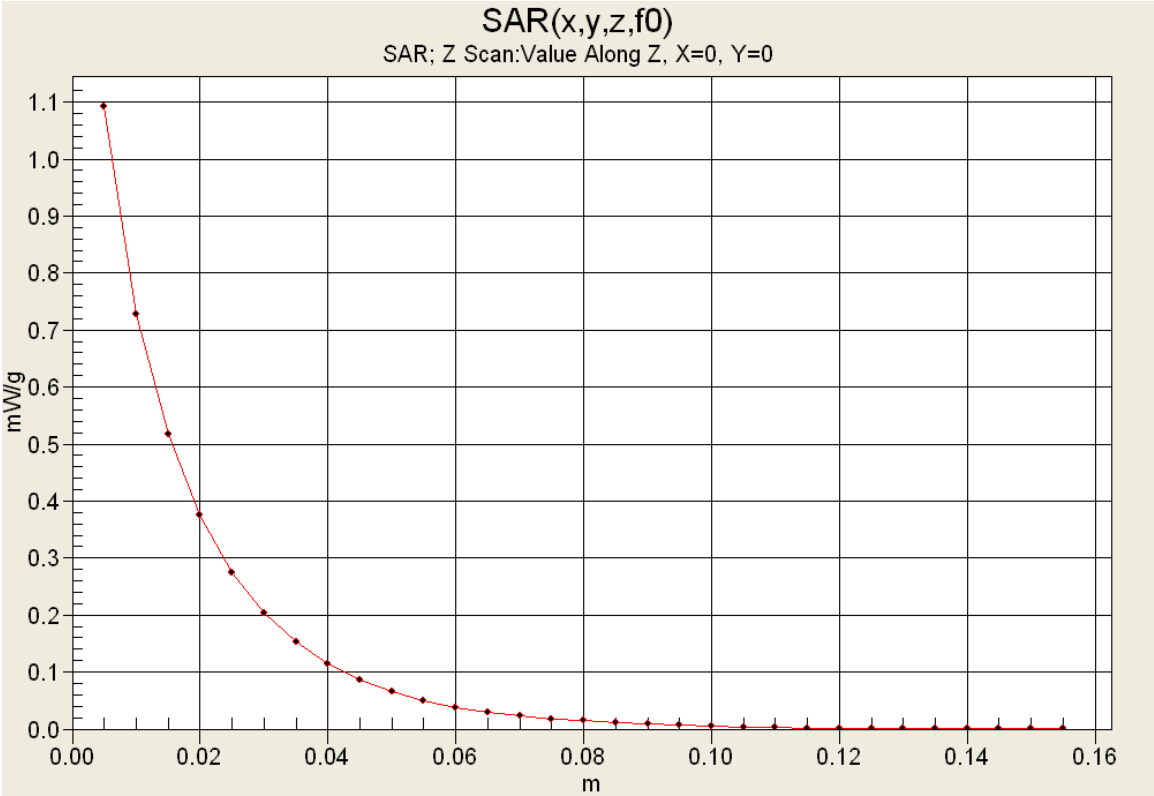
- Probe: ET3DV6 - SN1590; ConvF(8, 8, 8); Calibrated: 22/06/2011
- Sensor-Surface: 5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head d=15mm, Pin = 398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.09 mW/g

Head d=15mm, Pin = 398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.6 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.760 mW/g
Maximum value of SAR (measured) = 1.10 mW/g



Z-Axis Scan



Date Tested: 10/17/2011

System Performance Check - 300 MHz Dipole - Head

DUT: Dipole 300 MHz; Type: D300V3; Serial: 1009; Calibrated: 01/18/2010

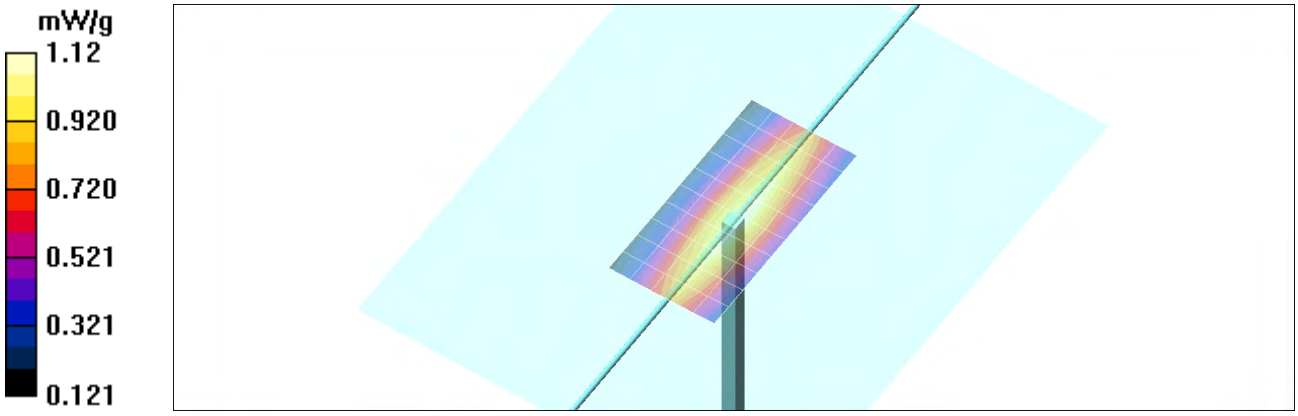
Ambient Temp: 22C; Fluid Temp: 21.5C; Barometric Pressure: 101.1 kPa; Humidity: 32%

Communication System: CW
Frequency: 300 MHz; Duty Cycle: 1:1
Medium: 300 HSL Medium parameters used: f = 300 MHz; σ = 0.84 mho/m; ε_r = 45.9; ρ = 1000 kg/m^3

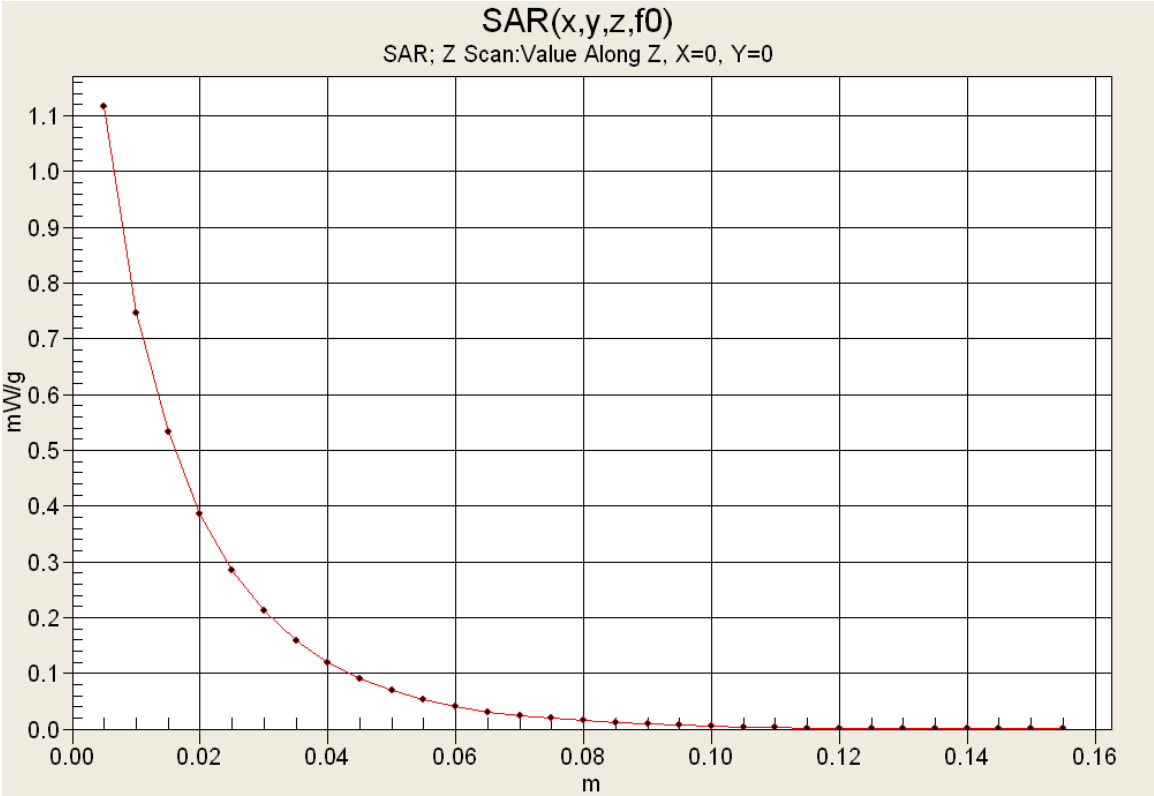
- Probe: ET3DV6 - SN1590; ConvF(8, 8, 8); Calibrated: 22/06/2011
- Sensor-Surface: 5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglas Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Head d=15mm, Pin = 398mW/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.13 mW/g

Head d=15mm, Pin = 398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.6 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.772 mW/g
Maximum value of SAR (measured) = 1.12 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

300 MHz Head

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Celltech Labs
Test Result for UIM Dielectric Parameter
04/Oct/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
0.2000	49.97	0.80	50.76	0.78
0.2100	49.50	0.80	50.79	0.79
0.2200	49.03	0.81	50.67	0.79
0.2300	48.57	0.82	50.07	0.80
0.2400	48.10	0.83	48.74	0.80
0.2500	47.63	0.83	47.64	0.81
0.2600	47.17	0.84	47.08	0.83
0.2700	46.70	0.85	46.79	0.83
0.2800	46.23	0.86	47.52	0.85
0.2900	45.77	0.86	47.45	0.84
0.3000	45.30	0.87	46.38	0.87
0.3100	45.18	0.87	46.80	0.86
0.3200	45.06	0.87	46.87	0.88
0.3300	44.94	0.87	45.41	0.89
0.3400	44.82	0.87	44.91	0.90
0.3500	44.70	0.87	44.53	0.90
0.3600	44.58	0.87	44.51	0.91
0.3700	44.46	0.87	43.65	0.91
0.3800	44.34	0.87	43.86	0.92
0.3900	44.22	0.87	43.46	0.92
0.4000	44.10	0.87	43.47	0.95

150 MHz Body

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Celltech Labs
Test Result for UIM Dielectric Parameter
04/Oct/2011
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.0500	64.37	0.72	127.40	0.63
0.0600	64.12	0.73	105.09	0.70
0.0700	63.87	0.74	94.39	0.70
0.0800	63.63	0.74	76.01	0.72
0.0900	63.38	0.75	69.72	0.74
0.1000	63.13	0.76	70.23	0.76
0.1100	62.89	0.77	65.96	0.74
0.1200	62.64	0.78	63.79	0.74
0.1300	62.39	0.78	65.26	0.76
0.1400	62.15	0.79	63.88	0.76
0.1500	61.90	0.80	62.89	0.77
0.1600	61.65	0.81	62.52	0.78
0.1700	61.41	0.82	64.64	0.79
0.1800	61.16	0.82	63.13	0.78
0.1900	60.91	0.83	62.80	0.78
0.2000	60.67	0.84	63.20	0.81
0.2100	60.42	0.85	62.93	0.82
0.2200	60.17	0.86	60.92	0.81
0.2300	59.93	0.86	61.28	0.80
0.2400	59.68	0.87	59.83	0.82
0.2500	59.43	0.88	61.59	0.83

150 MHz Body

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Celltech Labs
Test Result for UIM Dielectric Parameter
05/Oct/2011
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

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Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.0500	64.37	0.72	88.83	0.72
0.0600	64.12	0.73	77.98	0.69
0.0700	63.87	0.74	73.46	0.71
0.0800	63.63	0.74	66.68	0.72
0.0900	63.38	0.75	73.19	0.71
0.1000	63.13	0.76	65.38	0.74
0.1100	62.89	0.77	65.30	0.76
0.1200	62.64	0.78	65.51	0.76
0.1300	62.39	0.78	61.75	0.76
0.1400	62.15	0.79	63.55	0.76
0.1500	61.90	0.80	64.80	0.77
0.1600	61.65	0.81	62.24	0.77
0.1700	61.41	0.82	64.11	0.78
0.1800	61.16	0.82	64.30	0.79
0.1900	60.91	0.83	61.42	0.78
0.2000	60.67	0.84	61.55	0.80
0.2100	60.42	0.85	61.06	0.81
0.2200	60.17	0.86	60.96	0.82
0.2300	59.93	0.86	61.35	0.83
0.2400	59.68	0.87	61.11	0.83
0.2500	59.43	0.88	60.06	0.81

300 MHz Head

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Celltech Labs
Test Result for UIM Dielectric Parameter
11/Oct/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
0.2000	49.97	0.80	50.81	0.76
0.2100	49.50	0.80	50.66	0.79
0.2200	49.03	0.81	48.18	0.77
0.2300	48.57	0.82	48.67	0.78
0.2400	48.10	0.83	48.47	0.78
0.2500	47.63	0.83	46.82	0.80
0.2600	47.17	0.84	47.51	0.81
0.2700	46.70	0.85	46.88	0.81
0.2800	46.23	0.86	46.69	0.83
0.2900	45.77	0.86	45.78	0.82
0.3000	45.30	0.87	45.00	0.84
0.3100	45.18	0.87	45.24	0.85
0.3200	45.06	0.87	45.34	0.86
0.3300	44.94	0.87	44.64	0.86
0.3400	44.82	0.87	44.57	0.88
0.3500	44.70	0.87	43.84	0.90
0.3600	44.58	0.87	43.63	0.90
0.3700	44.46	0.87	43.37	0.91
0.3800	44.34	0.87	43.12	0.92
0.3900	44.22	0.87	43.03	0.92
0.4000	44.10	0.87	42.37	0.93

150 MHz Body

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Celltech Labs
Test Result for UIM Dielectric Parameter
11/Oct/2011
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.0500	64.37	0.72	95.14	0.67
0.0600	64.12	0.73	84.28	0.70
0.0700	63.87	0.74	79.06	0.72
0.0800	63.63	0.74	70.46	0.73
0.0900	63.38	0.75	74.19	0.77
0.1000	63.13	0.76	69.59	0.72
0.1100	62.89	0.77	65.42	0.75
0.1200	62.64	0.78	64.68	0.76
0.1300	62.39	0.78	65.87	0.77
0.1400	62.15	0.79	64.72	0.77
0.1500	61.90	0.80	63.67	0.77
0.1600	61.65	0.81	61.82	0.78
0.1700	61.41	0.82	62.85	0.77
0.1800	61.16	0.82	62.33	0.77
0.1900	60.91	0.83	62.58	0.81
0.2000	60.67	0.84	60.78	0.79
0.2100	60.42	0.85	60.34	0.82
0.2200	60.17	0.86	60.27	0.82
0.2300	59.93	0.86	61.42	0.82
0.2400	59.68	0.87	61.77	0.83
0.2500	59.43	0.88	60.73	0.83

150 MHz Body

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Celltech Labs
Test Result for UIM Dielectric Parameter
12/Oct/2011
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.0500	64.37	0.72	86.69	0.73
0.0600	64.12	0.73	79.02	0.73
0.0700	63.87	0.74	76.89	0.73
0.0800	63.63	0.74	71.18	0.72
0.0900	63.38	0.75	66.61	0.75
0.1000	63.13	0.76	65.61	0.78
0.1100	62.89	0.77	64.99	0.76
0.1200	62.64	0.78	66.32	0.77
0.1300	62.39	0.78	61.96	0.75
0.1400	62.15	0.79	62.04	0.77
0.1500	61.90	0.80	62.43	0.76
0.1600	61.65	0.81	63.41	0.76
0.1700	61.41	0.82	63.26	0.79
0.1800	61.16	0.82	63.26	0.80
0.1900	60.91	0.83	61.33	0.80
0.2000	60.67	0.84	62.32	0.80
0.2100	60.42	0.85	61.49	0.80
0.2200	60.17	0.86	61.32	0.80
0.2300	59.93	0.86	62.69	0.82
0.2400	59.68	0.87	61.71	0.81
0.2500	59.43	0.88	60.88	0.83

300 MHz Head

****

Celltech Labs
Test Result for UIM Dielectric Parameter
13/Oct/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
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.2000	60.67	0.84	49.51	0.79
0.2100	60.42	0.85	49.34	0.78
0.2200	60.17	0.86	49.70	0.78
0.2300	59.93	0.86	48.50	0.80
0.2400	59.68	0.87	47.35	0.80
0.2500	59.43	0.88	47.88	0.81
0.2600	59.19	0.89	47.40	0.81
0.2700	58.94	0.90	46.03	0.83
0.2800	58.69	0.90	46.02	0.83
0.2900	58.45	0.91	45.54	0.85
0.3000	58.20	0.92	45.56	0.86
0.3100	58.10	0.92	45.08	0.86
0.3200	58.00	0.92	44.64	0.88
0.3300	57.90	0.92	43.86	0.88
0.3400	57.80	0.93	44.21	0.88
0.3500	57.70	0.93	44.18	0.89
0.3600	57.60	0.93	43.56	0.90
0.3700	57.50	0.93	43.30	0.91
0.3800	57.40	0.93	42.53	0.91
0.3900	57.30	0.93	42.91	0.93
0.4000	57.20	0.93	42.86	0.95

150 MHz Body

****

Celltech Labs
Test Result for UIM Dielectric Parameter
13/Oct/2011
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.0500	64.37	0.72	76.92	0.73
0.0600	64.12	0.73	75.86	0.79
0.0700	63.87	0.74	74.74	0.74
0.0800	63.63	0.74	74.39	0.77
0.0900	63.38	0.75	71.21	0.78
0.1000	63.13	0.76	68.52	0.79
0.1100	62.89	0.77	62.44	0.77
0.1200	62.64	0.78	63.84	0.79
0.1300	62.39	0.78	63.35	0.80
0.1400	62.15	0.79	62.03	0.80
0.1500	61.90	0.80	62.56	0.81
0.1600	61.65	0.81	63.05	0.82
0.1700	61.41	0.82	62.17	0.83
0.1800	61.16	0.82	63.51	0.82
0.1900	60.91	0.83	62.58	0.83
0.2000	60.67	0.84	62.77	0.83
0.2100	60.42	0.85	61.50	0.84
0.2200	60.17	0.86	60.41	0.85
0.2300	59.93	0.86	60.26	0.85
0.2400	59.68	0.87	60.76	0.85
0.2500	59.43	0.88	59.83	0.85

150 MHz Head

****

Celltech Labs
Test Result for UIM Dielectric Parameter
14/Oct/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
0.0500	56.97	0.69	97.80	0.65
0.0600	56.50	0.69	79.26	0.64
0.0700	56.03	0.70	80.09	0.65
0.0800	55.57	0.71	70.93	0.64
0.0900	55.10	0.72	63.38	0.65
0.1000	54.63	0.72	60.95	0.68
0.1100	54.17	0.73	63.53	0.68
0.1200	53.70	0.74	58.71	0.70
0.1300	53.23	0.75	56.40	0.70
0.1400	52.77	0.75	53.64	0.72
0.1500	52.30	0.76	54.34	0.72
0.1600	51.83	0.77	54.22	0.73
0.1700	51.37	0.77	53.53	0.75
0.1800	50.90	0.78	53.41	0.73
0.1900	50.43	0.79	52.05	0.77
0.2000	49.97	0.80	51.06	0.76
0.2100	49.50	0.80	50.28	0.77
0.2200	49.03	0.81	49.96	0.78
0.2300	48.57	0.82	48.86	0.79
0.2400	48.10	0.83	48.86	0.79
0.2500	47.63	0.83	48.93	0.81

300 MHz Head

****

Celltech Labs
Test Result for UIM Dielectric Parameter
17/Oct/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
0.2000	49.97	0.80	51.25	0.75
0.2100	49.50	0.80	50.19	0.75
0.2200	49.03	0.81	49.44	0.76
0.2300	48.57	0.82	48.49	0.77
0.2400	48.10	0.83	48.47	0.78
0.2500	47.63	0.83	47.97	0.79
0.2600	47.17	0.84	47.42	0.80
0.2700	46.70	0.85	47.72	0.80
0.2800	46.23	0.86	47.15	0.81
0.2900	45.77	0.86	46.47	0.82
0.3000	45.30	0.87	45.94	0.84
0.3100	45.18	0.87	45.27	0.83
0.3200	45.06	0.87	45.04	0.86
0.3300	44.94	0.87	45.11	0.86
0.3400	44.82	0.87	44.41	0.87
0.3500	44.70	0.87	42.90	0.87
0.3600	44.58	0.87	43.50	0.89
0.3700	44.46	0.87	43.19	0.88
0.3800	44.34	0.87	43.18	0.90
0.3900	44.22	0.87	42.56	0.91
0.4000	44.10	0.87	42.82	0.90

150 MHz Head

****

Celltech Labs
Test Result for UIM Dielectric Parameter
17/Oct/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
0.0500	56.97	0.69	74.81	0.66
0.0600	56.50	0.69	75.44	0.65
0.0700	56.03	0.70	73.64	0.64
0.0800	55.57	0.71	59.46	0.67
0.0900	55.10	0.72	66.48	0.67
0.1000	54.63	0.72	61.35	0.69
0.1100	54.17	0.73	58.92	0.70
0.1200	53.70	0.74	57.02	0.69
0.1300	53.23	0.75	56.17	0.70
0.1400	52.77	0.75	52.30	0.72
0.1500	52.30	0.76	54.96	0.72
0.1600	51.83	0.77	54.12	0.73
0.1700	51.37	0.77	54.85	0.73
0.1800	50.90	0.78	53.10	0.75
0.1900	50.43	0.79	52.19	0.74
0.2000	49.97	0.80	52.52	0.77
0.2100	49.50	0.80	49.91	0.78
0.2200	49.03	0.81	50.07	0.78
0.2300	48.57	0.82	49.76	0.77
0.2400	48.10	0.83	49.23	0.81
0.2500	47.63	0.83	47.99	0.81

APPENDIX E - DIPOLE CALIBRATION

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

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

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Accreditation No.: SCS 108

Client **Celltech**

Certificate No: D300V3-1009_Jan10

CALIBRATION CERTIFICATE

Object **D300V3 - SN: 1009**

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 certificete.

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

Calibration Equipment usad (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 Attenuetor	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)	Mer-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 Analyzar 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

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

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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
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	300 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	45.3	0.87 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	45.8 ± 6 %	0.84 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	1.14 mW / g
SAR normalized	normalized to 1W	2.86 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**2.95 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	398 mW input power	0.76 mW / g
SAR normalized	normalized to 1W	1.92 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**1.97 mW / g ± 17.6 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	56.3 Ω - 8.5 jΩ
Return Loss	- 20.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.747 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	February 26, 2009

DASY5 Validation Report for Head TSL

Date/Time: 1/18/2010 2:57:54 PM

DUT: Dipole 300 MHz; Type: D300V3; Serial: D300V3 - SN:1009

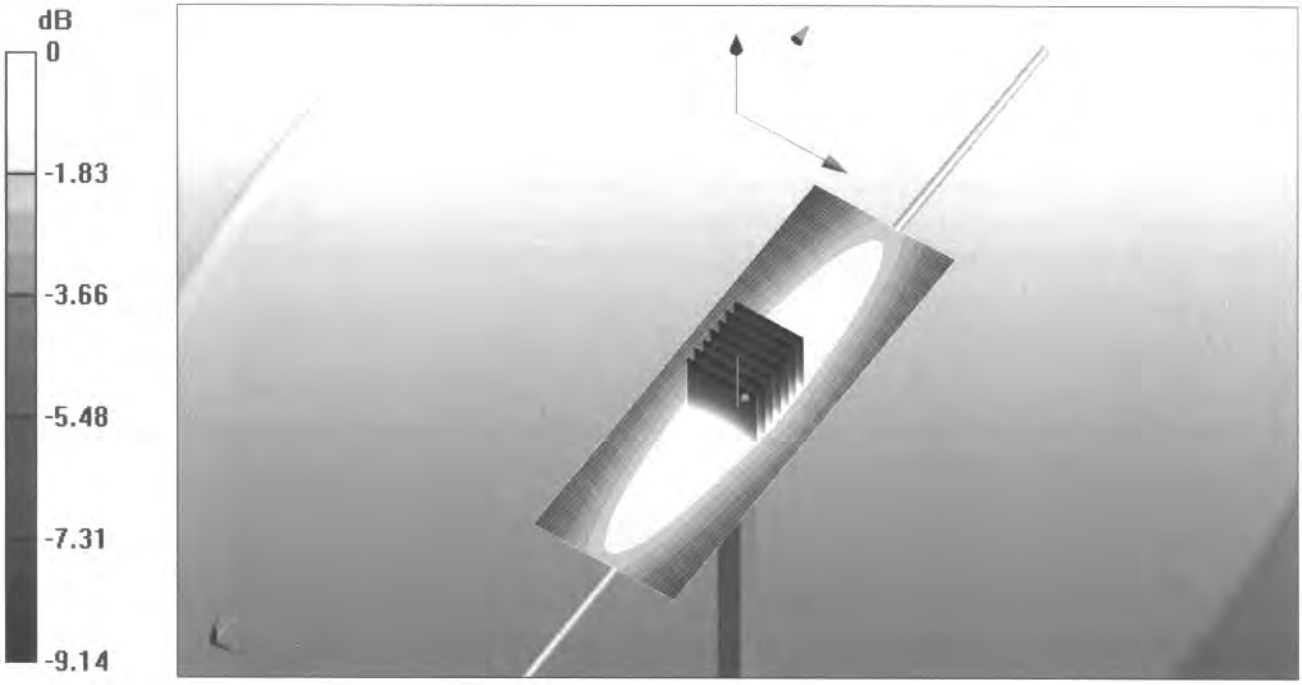
Communication System: CW; Frequency: 300 MHz; Duty Cycle: 1:1
Medium: HSL300
Medium parameters used: f = 300 MHz; σ = 0.84 mho/m; ε_r = 45.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ET3DV6 - SN1507 (LF); ConvF(7.5, 7.5, 7.5); 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

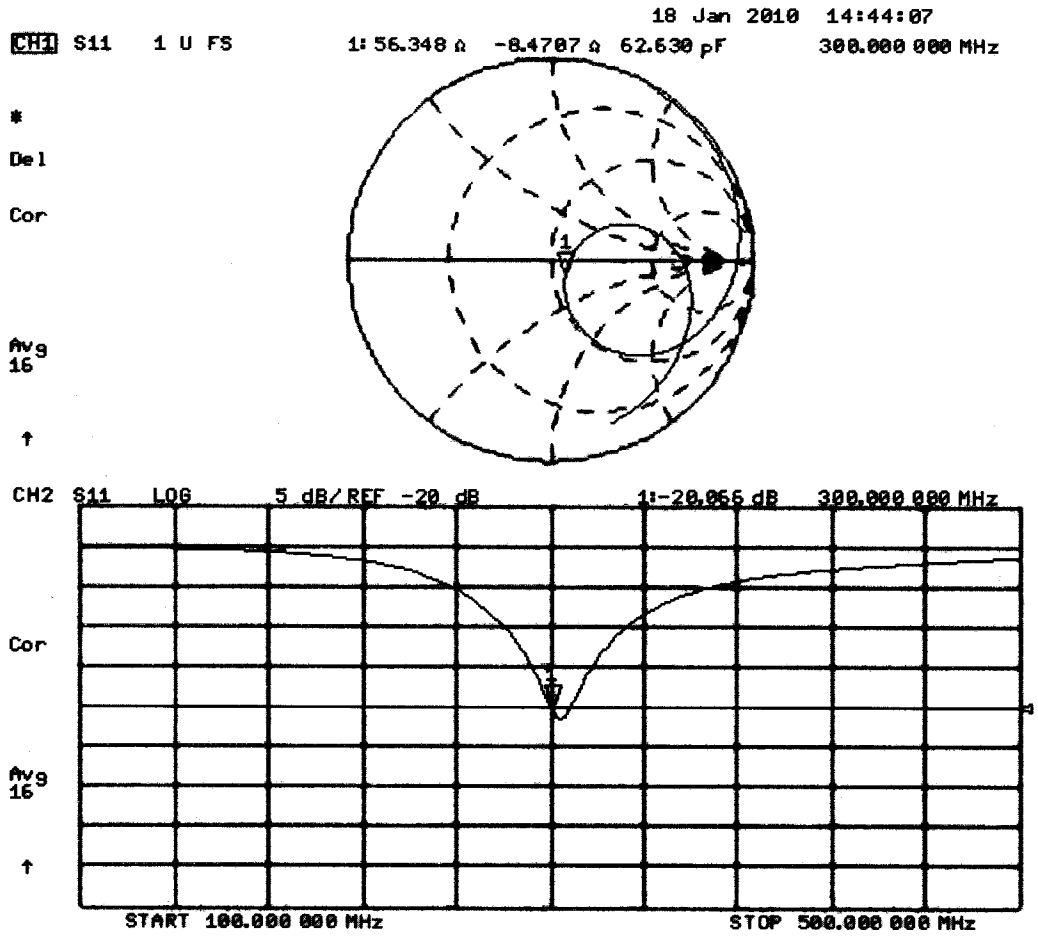
Head/d=15mm, Pin=398mW/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.2 mW/g

Head/d=15mm, Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 38.7 V/m; Power Drift = 0.00736 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.763 mW/g
Maximum value of SAR (measured) = 1.21 mW/g



0 dB = 1.21mW/g

Impedance Measurement Plot for Head TSL



APPENDIX F - PROBE CALIBRATION

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

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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
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accredited by the Swiss Accreditation Service (SAS) **Accreditation No.: SCS 108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

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.

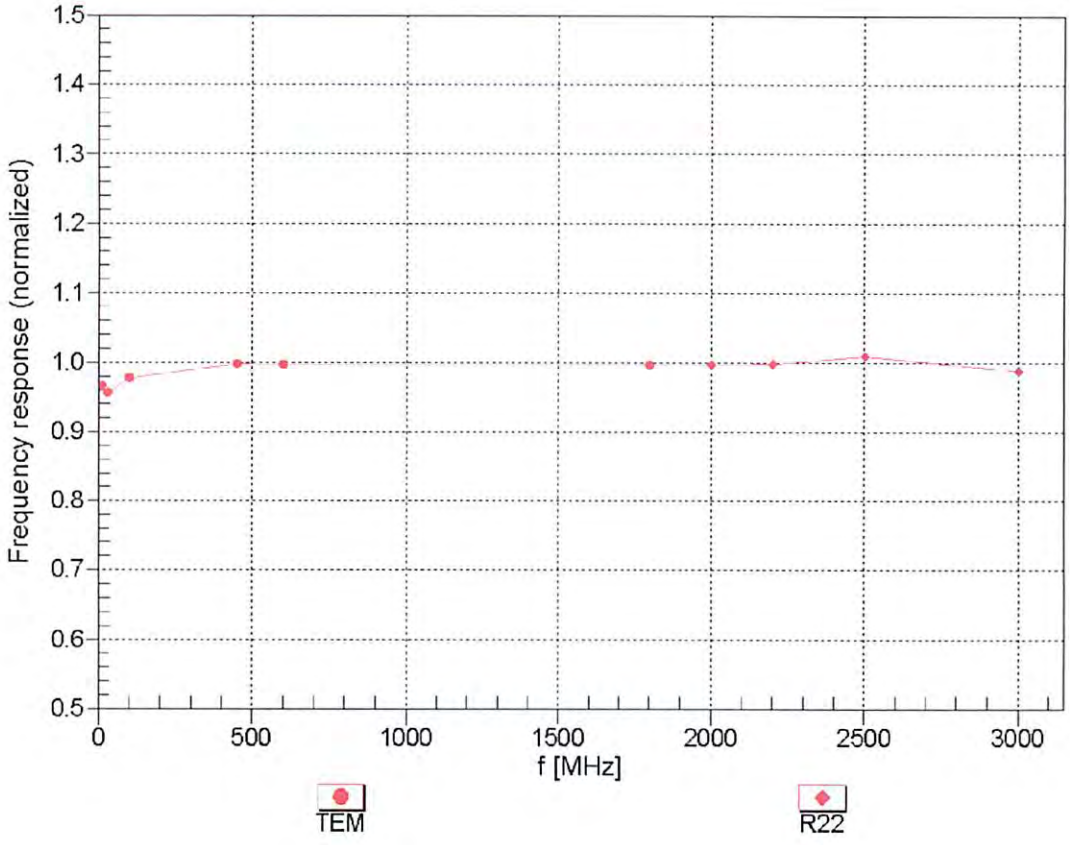
DASY/EASY - Parameters of Probe: ET3DV6- SN:1590

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.

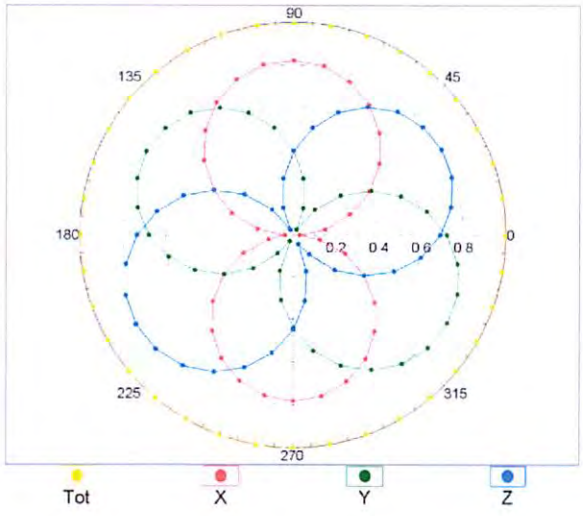
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



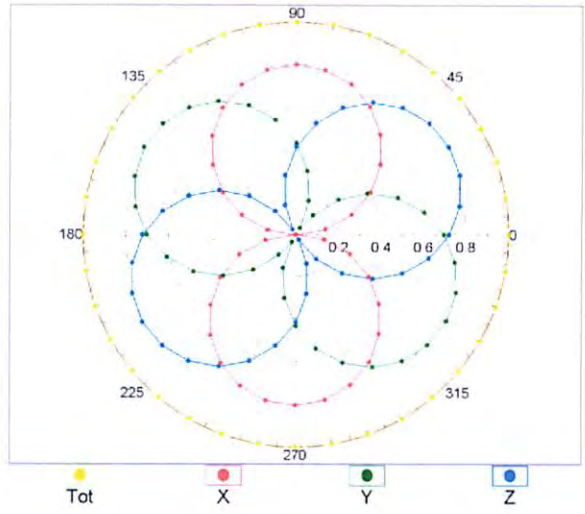
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

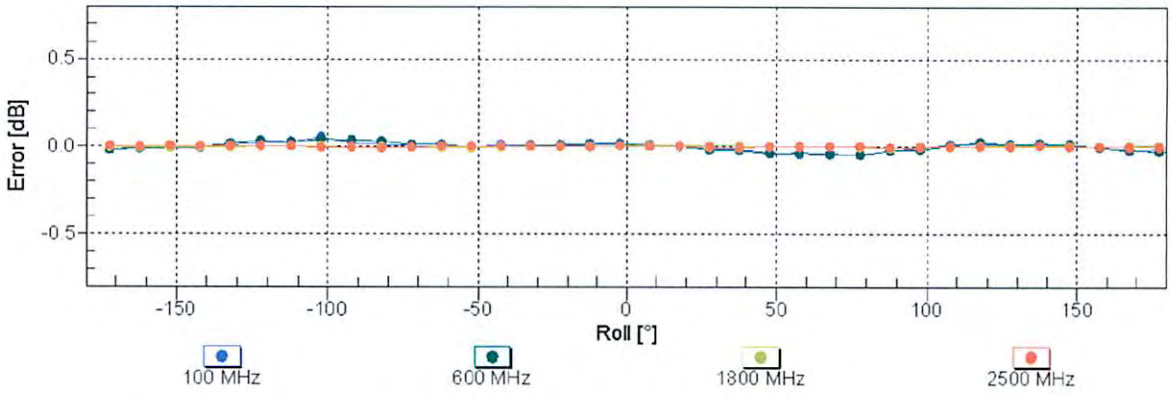
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



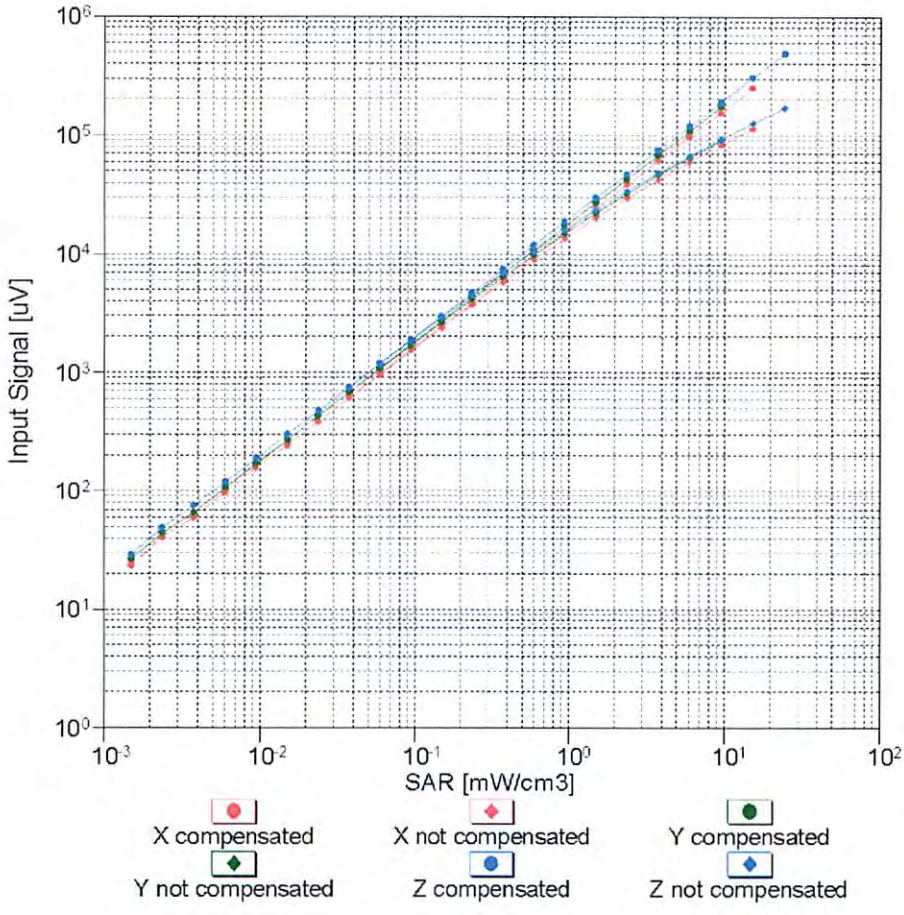
f=1800 MHz,R22

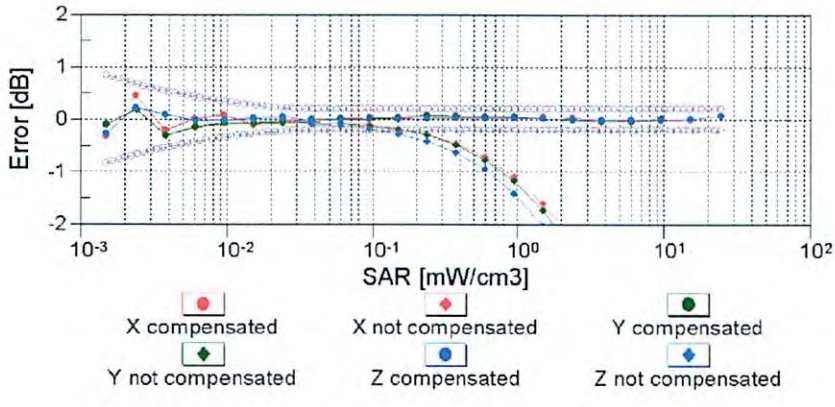




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

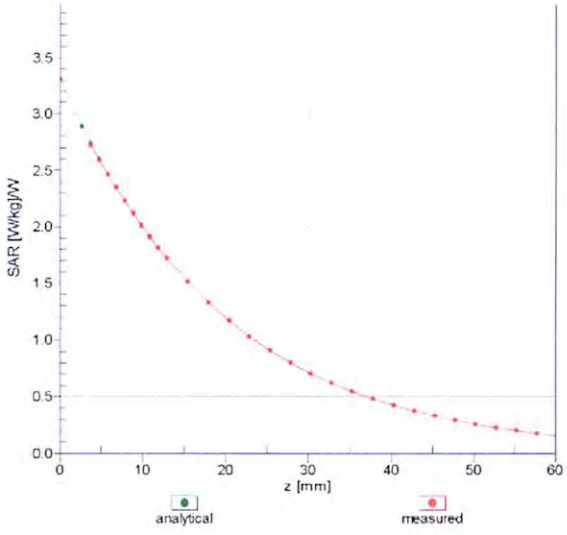




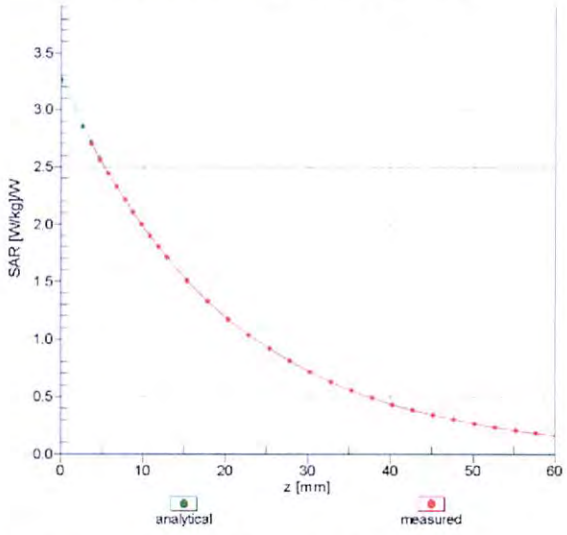
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

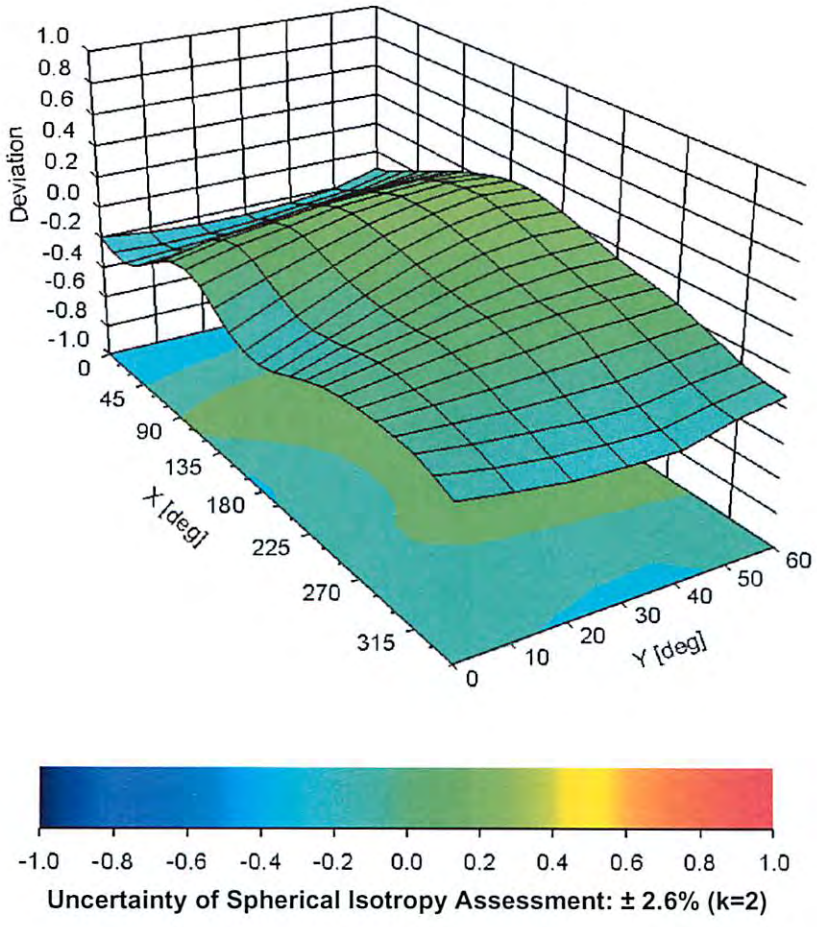


f = 835 MHz,WGLS R9 (M_convF)



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

Schmid & Partner Engineering AG

s p e a g

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info@speag.com, http://www.speag.com

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1590**
Place of Assessment:	**Zurich**
Date of Assessment:	**June 24, 2011**
Probe Calibration Date:	**June 22, 2011**

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 450, 835 and 900 MHz.

Assessed by:

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

Dosimetric E-Field Probe ET3DV6 SN:1590

Conversion factor (± standard deviation)

150 ± 50 MHz	*ConvF*	**8.9 ± 10%**	**ε_r = 52.3** **σ = 0.76 mho/m** (head tissue)
300 ± 50 MHz	*ConvF*	**8.0 ± 9%**	**ε_r = 45.3** **σ = 0.87 mho/m** (head tissue)
150 ± 50 MHz	*ConvF*	**8.3 ± 10%**	**ε_r = 61.9** **σ = 0.80 mho/m** (body tissue)

Important Note:

For numerically assessed probe conversion factors, parameters Alpha and Delta in the DASY software must have the following entries: Alpha = 0 and Delta = 1.

Please see also DASY Manual.

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

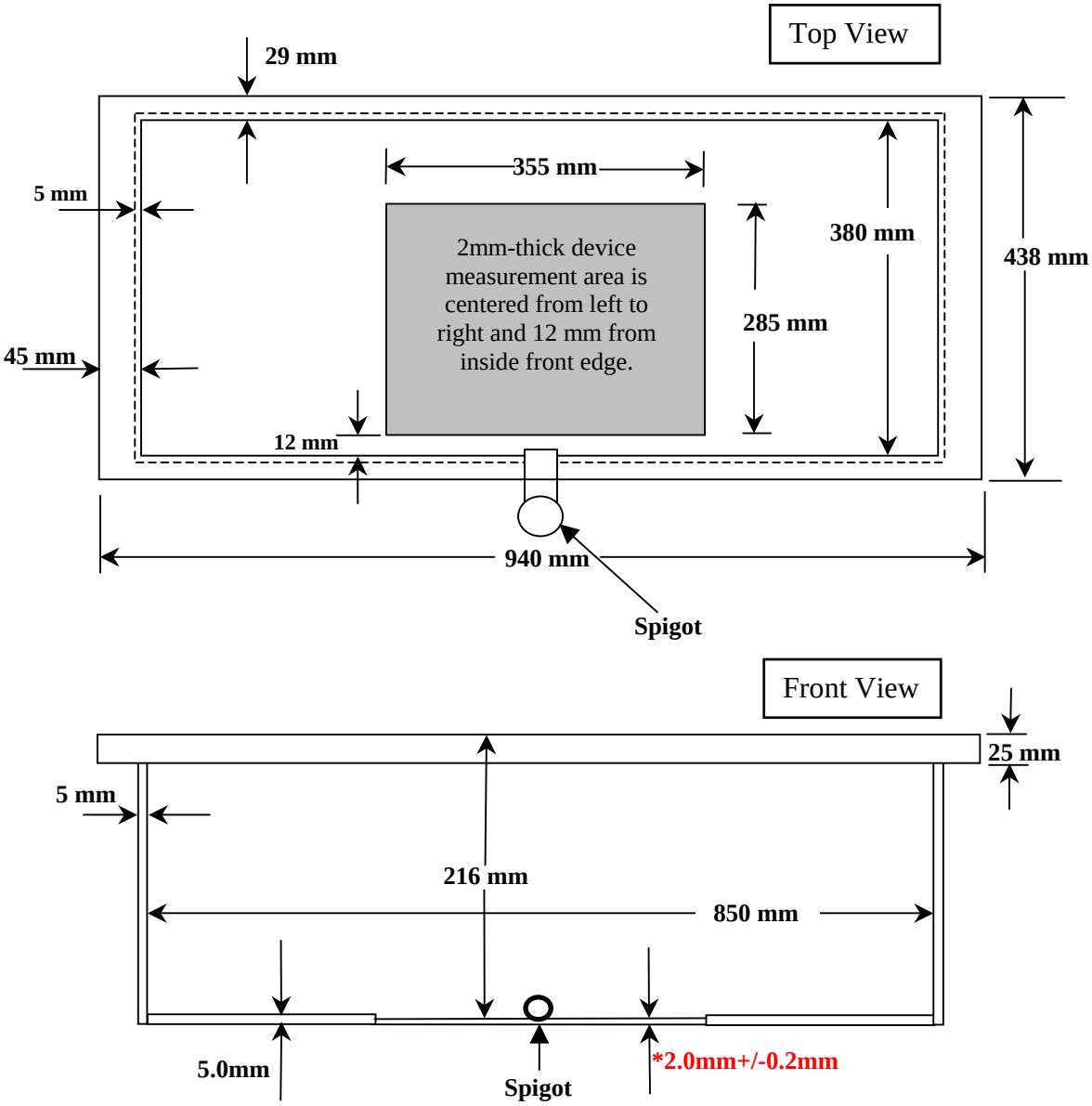
Fiberglass Planar Phantom - Front View

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-0067-E
P5500 VHF-Band PTT Radio Transceiver (System)

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

Audio Accessory ID #	Battery a Antenna 1-4						Battery b Antenna 1-4						Battery c Antenna 1-4						Battery d Antenna 1-4					
	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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

HARRIS CORPORATION FCC ID: OWDTR-0067-E
P5500 VHF-Band PTT Radio Transceiver (Scan)

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

Audio Accessory ID #	Battery a Antenna 1-4						Battery b Antenna 1-4						Battery c Antenna 1-4						Battery d Antenna 1-4					
	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8	Bw#2	Bw#3	Bw#4	Bw#5	Bw#6	Bw#8
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	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	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	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	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	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	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	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	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	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	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	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**	**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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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