
	Date(s) of Evaluation May 14-19, 2014	Test Report Serial No. 051014OWDTR-1299S	Test Report Revision No. Rev. 1.1 (2nd Release)	
	Test Report Issue Date Sep 10, 2014	Description of Test(s) Specific Absorption Rate	RF Exposure Category Occupational (Controlled)	

DECLARATION OF COMPLIANCE

SAR RF EXPOSURE EVALUATION - FCC / IC Original Filing

TEST LAB INFORMATION	Name	CELLTECH LABS INC.				
	Address	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada				
TEST LAB ACCREDITATION	Type	ISO / IEC 17025	Accreditation	A2LA Test Lab Certificate No. 2470.01		
APPLICANT INFORMATION	Name	HARRIS CORPORATION				
	Address	221 Jefferson Ridge Parkway, Lynchburg, VA 24501 U.S.A.				
STANDARDS APPLIED	FCC	47 CFR §2.1093	IC	Health Canada Safety Code 6		
PROCEDURES APPLIED	FCC	KDB 447498 D01v05r02, KDB 865664 D01v01r02	IC	RSS102 Issue 4		
	FCC	KDB 865664 D02v01r01, KDB 643646 D01v01r01	IEC	62209-1:2005		
	IEEE	IEEE 1528-2013	IEC	62209-2:2010		
DEVICE CLASSIFICATION	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 DESCRIPTION	Portable UHF Band Digital Push-To-Talk (PTT) Radio Transceiver					
APPLICATION TYPE	Original Filing					
DATE(S) OF EVALUATION	May 13-19, 2014			SAMPLES RECEIVED		

Devices Tested

FCC ID	IC Certification	Model	P/N:	Type	Frequency Range	Manufacturer's Rated Output Power
OWDTR-0131-E	3636B-0131	XG-75 UHF-H	RU-018271-002, -004, -006, -008	System	FCC: 450 - 522 MHz IC: 450-470MHz	5W +/-10%
			RU-018271-001, -003, -005, -007	Scan		


Antenna Type(s) Tested	See manufacturer's accessory listing (Section 5.0)					
Battery Type(s) Tested	See manufacturer's accessory listing (Section 5.0)					
Body-worn Accessories Tested	See manufacturer's accessory listing (Section 5.0)					
Audio Accessories Tested	See manufacturer's accessory listing (Section 5.0)					
Maximum SAR Level Evaluated FCC	Head	2.21	W/kg	1g	50% PTT Duty Factor	Occupational / Controlled Exposure
	Body	6.44				
Maximum SAR Level Evaluated IC	Head	2.29	W/kg	1g	50% PTT Duty Factor	Occupational / Controlled Exposure
	Body	6.45				
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 General Population / Uncontrolled 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 1528-2013 and International Standard IEC 62209-2:2010. All measurements were performed in accordance with the SAR system manufacturer recommendations.

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

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.

Test Report Approved By		Art Voss, P.Eng.	Senior Engineer	Celltech Labs Inc.
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Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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	<u>Test Report Issue Date</u> Sep 10, 2014	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

REVISION HISTORY			
REVISION NO.	DESCRIPTION	IMPLEMENTED BY	RELEASE DATE
1.0	1st Release	Art Voss	May 28, 2014
1.1	Corrected IC Band	Art Voss	September 10, 2014

TEST REPORT SIGN-OFF			
DEVICE TESTED BY	REPORT PREPARED BY	QA REVIEW BY	REPORT APPROVED BY
Art Voss	Cheri Frangiadakis	Art Voss	Art Voss

Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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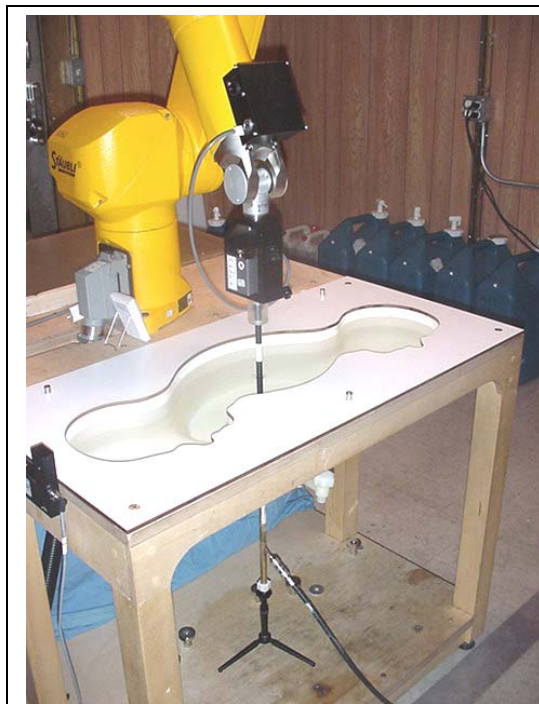
	<u>Date(s) of Evaluation</u> May 14-19, 2014	<u>Test Report Serial No.</u> 051014OWDTR-1299S	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
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1.0 INTRODUCTION

This measurement report demonstrates that the HARRIS Corporation XG-75 UHF-H Portable PTT Radio 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 KDB 865664 (see reference [3]), IC RSS-102 Issue 4 (see reference [4]), IEEE Standard 1528-2013 (see reference [5]) and IEC Standard 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 System



DASY4 Measurement Server



Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

MEASURED RF CONDUCTED OUTPUT POWER LEVELS						
Test Freq.	Mode	System Radio		Scan Radio		Method
MHz		dBm	Watts	dBm	Watts	
450	CW	37.44	5.55	37.34	5.42	Average Conducted
453.775		37.44	5.55			
457.55		37.44	5.55			
461.325		37.11	5.14			
465.1		37.40	5.50			
468.875		37.50	5.62			
472.65		37.52	5.65	37.50	5.62	
476.425		37.44	5.55			
480.2		37.44	5.55			
483.975		37.37	5.46			
487.75		37.32	5.40	37.20	5.25	
491.525		37.22	5.27			
495.3		37.15	5.19			
499.075		37.20	5.25			
502.85		37.25	5.31	37.15	5.19	
506.625		37.30	5.37	37.30	5.37	
510.4		37.30	5.37			
514.175		37.34	5.42			
517.95		37.33	5.41			
522		37.30	5.37			
Notes						
1. The test channels were selected in accordance with the procedures specified in FCC KDB 447498 (see reference [8]).						
2. The RF conducted output power levels of the DUT were measured by Celltech Labs prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter at the external antenna connector of the radio in accordance with requirements of FCC 47 CFR §2.1046 (see reference [13]) and IC RSS-Gen (see reference [14]).						

4.0 NO. OF TEST CHANNELS (N_c)

Antenna Part No.	Antenna Type	Antenna Freq. Range	N_c	Test Frequencies (MHz)
1 KRE 101 1219/12	Helical Stub	440 - 494 MHz	4	450, 472.65, 487.75, 502.85
2 KRE 101 1219/13	Helical Stub	470 - 494 MHz	1	450
3 KRE 101 1219/14	Helical Stub	470 - 512 MHz	3	450, 502.85, 517.95
4 KRE 101 1223/12	Whip	440 - 512 MHz	1	450
Note: The number of test channels (N_c) were calculated in accordance with the procedures specified in FCC KDB 447498 (see reference [8]).				


 Testing and Engineering Services Lab	<u>Date(s) of Evaluation</u> May 14-19, 2014	<u>Test Report Serial No.</u> 051014OWDTR-1299S	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
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5.0 MANUFACTURER'S DISCLOSED ACCESSORY LISTING

Accessory ID # for Test Report	ACCESSORY CATEGORY: ANTENNA		
	Part Number	Description	SAR Evaluation
1	KRE 101 1219/12	Helical Stub (440-494 MHz)	Yes
2	KRE 101 1219/13	Helical Stub (470-494 MHz)	Yes
3	KRE 101 1219/14	Helical Stub (470-512 MHz)	Yes
4	KRE 101 1223/12	¼-wave Whip (440-512 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-023406-006	Li-ion, immersible IS (7.4V, 2000mAh)	Yes
e	BT-023436-001	Lithium-polymer, immersible, non-IS (7.4V, 3000mAh)	Yes
f	14002-0214-01	Li-ion, immersible, non-IS (7.4V, 2400mAh)	Yes
g	14002-0199-01	Battery AA Clamshell	Yes
Accessory ID # for Test Report	ACCESSORY CATEGORY: BODY-WORN		
	Part Number	Description	SAR Evaluation
1	CC23894	Metal Belt Clip (Standard)	Yes
2	14011-0012-01	Kit containing: 14011-0011-01 BEE Nylon case (Black) (with radio retaining strap) & CC-014527 BEE Leather Belt Loop	No
3	14011-0012-02	Kit containing: 14011-0011-02 BEE Nylon case (Orange) (with radio retaining strap) & CC-014527 BEE Leather Belt Loop	No
4	14011-0012-03	Kit contains: 14011-0011-03 BEE Leather Case (with radio retaining strap) w/o Shoulder Strap D-rings, FM-017262-001 Swivel Mount & CC-014527 BEE Leather Belt Loop	No
5	14011-0012-04	Kit contains: 14011-0011-04 BEE Leather Case with Shoulder Strap D-rings (with radio retaining strap), FM-017262-001 Swivel Mount & CC-014524-001 BEE Shoulder Strap	No
6	FM-017262-001 CC-014527	Swivel Mount Belt Loop, Leather (BEE)	No
7	CC-014524-002	[BEE] Short Leather Retaining Strap (For use with shoulder strap application)	No
8	KRY1011609/1 FM-017262-001	Merzon belt loop D-swivel	No
9	14011-0011-01 KRY1011609/1	BEE Black nylon case Merzon belt loop	No
10	14011-0011-02 KRY1011609/1	BEE Orange nylon case Merzon belt loop	No
11	14011-0011-03 KRY1011609/1 FM-017262-001	BEE leather case Merzon belt loop D-swivel	No
12	14002-0215-01	Premium Leather Case with Belt-Loop	No
13	14002-0215-02	Premium Leather Case with Shoulder-Strap	No
14	14002-0215-03	Premium Nylon Case (Black) with Belt-Loop	No
15	14002-0215-04	Premium Nylon Case (Orange) with Belt-Loop	No
16	14002-0217-01	Olive Drab Case	No

Note:

- 1) The orange nylon case differs only in color from the black nylon case and therefore was not tested.
- 2) The Short retaining strap has no impact on SAR compared to the regular long strap and therefore was not tested.
- 3) The alternate Merzon Belt-loop is similar in construction to the standard belt-loop, therefore it was not tested.

Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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Accessory ID # for Test Report	ACCESSORY CATEGORY: AUDIO			
	Part Number	Description	Audio Accessory Grouping	SAR Evaluation
G1a	EA-009580-001	Earphone Kit, Black	1	No
G1b	EA-009580-002	Earphone Kit, Beige		No
G2a	EA-009580-003	2-Wire Kit, Palm mic, Black	2	No
G2b	EA-009580-004	2-Wire Kit, Palm mic, Beige		No
G3a	EA-009580-005	3-Wire Kit, Mini-Lapel Mic, Black	3	No
G3b	EA-009580-006	3-Wire Kit, Mini-Lapel Mic, Beige		No
G4a	EA-009580-007	Explorer Headset w/ PTT	4	No
G4b	EA-009580-008	Lightweight headset single spkr w/ PTT		No
G4c	EA-009580-009	Breeze Headset w/ PTT		No
G4d	EA-009580-011	Ranger Headset w/ PTT		No
G4e	EA-009580-016	Breeze headset w/ PTT & pigtail jack		No
G4f	EA-009580-017	Hurricane headset w/ PTT		No
G4g	EA-009580-018	Hurricane headset w/ PTT & pigtail jack		No
G4h	EA-009580-031	Headset, TAC4, Small Body		No
G5	EA-009580-012	Skull mic w/body PTT & earcup	5	No
G6a	EA-009580-010	Headset, heavy duty, N/C behind the head, w/ PTT	6	No
G6b	EA-009580-013	Headset, heavy duty, N/C over the head, w/ PTT		No
G7a	EA-009580-014	Throat mic w/acoustic tube & body PTT	7	No
G7b	EA-009580-015	Throat mic w/acoustic tube, body PTT, & ring PTT		No
G8a	MC-023933-001	Speaker-Mic No Ant. (cc), <IS>	8	
G8b	MC-009104-002	Speaker-Mic GPS, non-IS		
G8c	MC-011617-601	Speaker-Mic Ruggedized Coil Cord		
G8d	MC-011617-602	Speaker-Mic Ruggedized, Antenna ,Straight		
G8e	MC-011617-606	Speaker-Mic Ruggedized Coil Cord ,Yellow		
G8f	MC-011617-611	Speaker-Mic Ruggedized Coil Cord,P7300,Hirose		
G8g	MC-011617-701	Speaker-Mic Standard - Non Ant		
G8h	MC-011617-703	Speaker-Mic , Straight Cord, 25.6in, Antenna		
G8i	MC-011617-718	Speaker-Mic , Antenna, Straight, 18in		
G8j	MC-011617-730	Speaker-Mic , Antenna, Straight, 30in		
	LS103239V1	Earphone for Speaker-mic	n/a	
	FM-014712	UDC Weatherproof Cover	n/a	

Note:

- 1) The Beige versions differ only in color from the black and therefore were not tested.
- 2) The Earphone and Weatherproof cover are not tested as they have no impact on SAR.

Manufacturer's disclosed accessory listing information provided by HARRIS Corporation.

***All audio accessories can be used with any body worn and antenna combination.**

Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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6.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS						
Date: 14 May 2014		Frequency: 450 MHz			Tissue: Head	
Freq (MHz)	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
350	44.80	0.76	44.70	0.87	0.22%	-12.64%
360	45.17	0.77	44.58	0.87	1.32%	-11.49%
370	45.46	0.79	44.46	0.87	2.25%	-9.20%
380	44.55	0.80	44.34	0.87	0.47%	-8.05%
390	44.47	0.81	44.22	0.87	0.57%	-6.90%
400	44.70	0.82	44.10	0.87	1.36%	-5.75%
410	43.96	0.81	43.98	0.87	-0.05%	-6.90%
420	43.98	0.82	43.86	0.87	0.27%	-5.75%
430	44.32	0.84	43.74	0.87	1.33%	-3.45%
440	43.69	0.85	43.62	0.87	0.16%	-2.30%
450	43.33	0.86	43.50	0.87	-0.39%	-1.15%
460	42.75	0.86	43.45	0.87	-1.61%	-1.15%
470	43.02	0.88	43.40	0.87	-0.88%	1.15%
472.65*	43.00	0.88	43.39	0.87	-0.90%	1.15%
480	42.86	0.88	43.34	0.87	-1.11%	1.15%
487.75*	42.60	0.88	43.30	0.87	-1.62%	1.15%
490	42.57	0.88	43.29	0.87	-1.66%	1.15%
500	42.81	0.90	43.24	0.87	-0.99%	3.45%
502.85*	42.70	0.90	43.22	0.87	-1.20%	3.79%
510	42.26	0.91	43.19	0.87	-2.15%	4.60%
517.95*	42.40	0.91	43.15	0.87	-1.74%	4.60%
520	42.40	0.91	43.14	0.88	-1.72%	3.41%
530	41.79	0.92	43.08	0.88	-2.99%	4.55%
540	41.79	0.92	43.03	0.88	-2.88%	4.55%
550	41.47	0.94	42.98	0.88	-3.51%	6.82%



*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m ³)
May 13	450 Head	24°C	23.0°C	≥ 15 cm	101.6 kPa	20%	1000
May 14	450 Head	24°C	23.8°C	≥ 15 cm	101.6 kPa	13%	1000
May 15	450 Head	24°C	23.8°C	≥ 15 cm	101.6 kPa	28%	1000
May 16	450 Head	24°C	23.8°C	≥ 15 cm	101.6 kPa	28%	1000

FLUID DIELECTRIC PARAMETERS						
Date: 17 May 2014		Frequency: 450 MHz			Tissue: Body	
Freq (MHz)	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
350	56.70	0.82	57.70	0.93	-1.73%	-11.83%
360	56.57	0.83	57.60	0.93	-1.79%	-10.75%
370	57.14	0.84	57.50	0.93	-0.63%	-9.68%
380	56.25	0.85	57.40	0.93	-2.00%	-8.60%
390	56.23	0.86	57.30	0.93	-1.87%	-7.53%
400	55.96	0.88	57.20	0.93	-2.17%	-5.38%
410	57.14	0.87	57.10	0.93	0.07%	-6.45%
420	55.77	0.88	57.00	0.94	-2.16%	-6.38%
430	56.70	0.91	56.90	0.94	-0.35%	-3.19%
440	55.94	0.90	56.80	0.94	-1.51%	-4.26%
450	55.33	0.91	56.70	0.94	-2.42%	-3.19%
460	55.67	0.93	56.66	0.94	-1.75%	-1.06%
470	55.58	0.92	56.62	0.94	-1.84%	-2.13%
472.65*	55.50	0.93	56.60	0.94	-1.94%	-1.28%
480	55.39	0.95	56.58	0.94	-2.10%	1.06%
487.75*	55.50	0.95	56.55	0.94	-1.86%	1.06%
490	55.54	0.95	56.54	0.94	-1.77%	1.06%
500	55.30	0.96	56.51	0.94	-2.14%	2.13%
502.85*	55.30	0.97	56.50	0.94	-2.12%	2.77%
510	55.42	0.98	56.47	0.94	-1.86%	4.26%
517.95*	54.90	0.97	56.43	0.94	-2.71%	3.40%
520	54.81	0.97	56.43	0.95	-2.87%	2.11%
530	54.46	0.99	56.39	0.95	-3.42%	4.21%
540	54.52	1.01	56.35	0.95	-3.25%	6.32%
550	54.38	1.00	56.31	0.95	-3.43%	5.26%


*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m ³)
May 17	450 Body	23°C	23.0°C	≥ 15 cm	101.6 kPa	28%	1000
May 18	450 Body	24°C	23.5°C	≥ 15 cm	101.6 kPa	27%	1000
May 19	450 Body	23°C	22.8°C	≥ 15 cm	101.6 kPa	30%	1000

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7.0 SAR MEASUREMENT SUMMARY

TABLE 1			FACE-HELD SAR EVALUATION RESULTS								
Device-Under-Test			XG-75 UHF-H Radio Transceiver								
Test Date(s)			May 14, 15, & 16, 2014								
Radio	Plot#	Antenna Accessory ID#	Battery		Test Freq. (MHz)	Cond. Power Before Test (W)	Measured SAR W/kg 1g		Power Drift	Scaled SAR for Drift 1g	
			ID#	P/N			100% Duty Cycle	50% Duty Cycle		dB	100% Duty Cycle
SYSTEM RADIO	F3	1 (219/12)	e	36-001	450	37.44	4.04	2.02	-0.196	4.23	2.11
	F1		e	36-001	472.65	37.52	2.90	1.45	-0.368	3.16	1.58
	F4		e	36-001	487.75	37.32	2.33	1.17	-0.348	2.52	1.26
	F5		e	36-001	502.85	37.25	1.65	0.825	-0.346	1.79	0.893
	F2	2 (219/13)	e	36-001	450	37.44	4.08	2.04	0.028	4.08	2.04
	F8	3 (219/14)	e	36-001	450	37.44	4.00	2.00	0.179	4.00	2.00
	F7		e	36-001	502.85	37.25	3.20	1.60	-0.368	3.48	1.74
	F6		e	36-001	517.95	37.33	2.56	1.28	-0.199	2.68	1.34
	F9	4 (223/12)	e	36-001	450	37.44	3.49	1.75	-0.062	3.54	1.77
	F10	2 (219/13)	a	06-003	450	37.44	3.59	1.80	-0.510	4.04	2.02
	F11		b	06-004	450	37.44	3.20	1.60	-0.464	3.56	1.78
	F12		c	06-005	450	37.44	3.61	1.81	-0.021	3.63	1.81
	F13		d	06-006	450	37.44	3.14	1.57	-0.280	3.35	1.68
	F14		g	99-01	450	37.44	2.78	1.39	-1.43	3.86	1.93
	F15		f	14-01	450	37.44	3.87	1.94	-0.014	3.88	1.94
SCAN RADIO	F16		e	36-001	450	37.44	3.90	1.95	-0.038	3.93	1.97
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 = ELI 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	
2.5 cm						6.2 cm		6.2 cm		6.2 cm	

Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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TABLE 2			BODY-WORN SAR EVALUATION RESULTS									
Device-Under-Test			XG-75 UHF-H Radio Transceiver									
Test Date(s)			May 18 & 19, 2014									
Radio	Plot#	Antenna Accessory ID#	Battery		Test Freq. (MHz)	Cond. Power Before Test (W)	Measured SAR W/kg 1g		Power Drift	Scaled SAR for Drift 1g		
			ID#	PN			100% Duty Cycle	50% Duty Cycle		dB	100% Duty Cycle	50% Duty Cycle
SYSTEM RADIO	B2	1 (219/12)	e	36-001	450	37.44	9.50	4.75	-0.230	10.02	5.01	
	B1		e	36-001	472.65	37.52	6.31	3.16	-0.239	6.67	3.33	
	B3		e	36-001	487.75	37.32	5.38	2.69	-0.415	5.92	2.96	
	B6	2 (219/13)	e	36-001	450	37.44	11.8	5.90	-0.048	11.93	5.97	
	B7	3 (219/14)	e	36-001	450	37.44	11.1	5.55	0.007	11.10	5.55	
	B4		e	36-001	502.85	37.25	8.15	4.08	-0.443	9.03	4.51	
	B5		e	36-001	517.95	37.33	5.73	2.87	-0.374	6.25	3.12	
	B8	4 (223/12)	e	36-001	450	37.44	10.1	5.05	-0.100	10.34	5.17	
	B9	2 (219/13)	a	06-003	450	37.44	11.5	5.75	-0.303	12.33	6.17	
	B10		b	06-004	450	37.44	9.60	4.80	-0.603	11.03	5.52	
	B11		c	06-005	450	37.44	9.28	4.64	0.301	9.28	4.64	
	B12		d	06-006	450	37.44	8.47	4.24	-0.080	8.63	4.31	
	B13		g	99-01	450	37.44	7.99	4.00	-1.36	10.93	5.46	
	B14		f	14-01	450	37.44	9.39	4.70	-0.067	9.54	4.77	
SCAN RADIO	B15		e	36-001	450	37.44	11.9	5.95	0.047	11.90	5.95	
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 = ELI Planar Phantom							
Back of DUT Distance to Planar Phantom (see Appendix D) (Back of Radio Parallel to Planar Phantom)					Shortest Antenna Distance to Planar Phantom (see Appendix D)							
					Antenna 1		Antenna 2		Antenna 3		Antenna 4	
1.7 cm					2.5 cm		2.5 cm		2.5 cm		2.5 cm	

Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
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8.0 SAR SCALING (TUNE-UP TOLERANCE)



SCALING OF MAXIMUM SAR LEVELS TO MANUFACTURER'S TUNE-UP TOLERANCE SPECIFICATION

Test Config.	Test Freq. (MHz)	Antenna ID#	Battery ID#	Body-worn Accessory ID #	Cond. Power	Drift	SAR Level 1g (50% PTT d/f)		Scaling up to Manuf. Upper Tol. Power Spec.	Scaled SAR (50% PTT d/f) 1g (W/kg)
					dB	dB	W/kg	Plot #		
FCC (scaled without drift)										
Face-Held (System)	450	2	e	N/A	37.44	0.028	2.04	F2	+0.34dB	2.21
Body-worn (Scan))	450	1	e	1	37.44	0.047	5.95	B15	+0.34dB	6.44
IC (scaled with drift)										
Face-Held (system)	450	1	e	N/A	37.44	-0.196	2.02	F3	+0.34 dB	2.29
Body-worn (scan)	450	1	e	1	37.44	-0.048	5.90	B6	+0.34dB	6.45

Notes:

1. Only the highest SAR values for face and body per frequency band are scaled.
2. The resulting value is the reported SAR.
3. The scaled SAR levels are below the FCC/IC Occupational SAR Limit of 8.0 W/kg.

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9.0 SAR PROBE CALIBRATION & MEASUREMENT FREQUENCIES

The following procedures are recommended for 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 6 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 865664 D01v01 - see reference [15]).

Probe Calibration Freq.	Device Measurement Freq.	Frequency Interval	± 50 MHz ≥ 300 MHz
450 MHz	450 MHz	0 MHz	< 50 MHz ¹
	472.65 MHz	22.65 MHz	< 50 MHz ¹
	487.75 MHz	37.75 MHz	< 50 MHz ¹
	502.85 MHz	52.85 MHz	> 50 MHz ²
	517.95 MHz	67.95 MHz	> 50 MHz ²
<p>1. The probe calibration and measurement frequency interval is < 50 MHz; therefore the additional steps were not required.</p> <p>2. The probe calibration and measurement frequency interval is > 50 MHz; therefore the following additional steps were implemented (per FCC KDB 865664 D01 v01r01): <i>The measured 1-g SAR may be compensated with respect to +5% tolerances in ϵ_r and -5% tolerances in σ, computed according to valid SAR sensitivity data, to reduce SAR underestimation and maintain conservativeness.</i> The measured fluid parameters were within 5%, therefore compensation is not required.</p>			

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10.0 DETAILS OF SAR EVALUATION



- The number of test frequencies and the test channels selected for the SAR evaluations are in accordance with the procedures described in FCC KDB 447498 (see reference [8]).
- The DUT was evaluated for SAR in accordance with the procedures described in FCC KDB 643646 (see reference [9]).
- The SAR evaluations were performed with a fully charged battery.
- 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.
- The fluid temperature remained within $\pm 2^{\circ}\text{C}$ from the fluid dielectric parameter measurement to the completion of the SAR evaluation.
- 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).
- The DUT was evaluated for SAR 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.
- The Scan radio model differs from the System radio model in front keypad only. The scan radio was evaluated for the worst case configuration of each antenna and head/body test position from the system radio testing.

11.0 SAR EVALUATION PROCEDURES

- 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.
 - For body-worn and face-held devices, a planar phantom was used.
- 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:
- 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.
- 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:
- 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.
- 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).
- 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.

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13.0 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 [10] and [11]) 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	450 MHz HEAD	450 MHz BODY
Water	38.56 %	52.00 %
Sugar	56.32 %	45.65 %
Salt	3.95 %	1.75 %
HEC	0.98 %	0.50 %
Bactericide	0.19 %	0.10 %

14.0 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.			




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15.0 ROBOT SYSTEM SPECIFICATIONS

<u>Specifications</u>	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
<u>Data Acquisition Electronic (DAE) System</u>	
<u>Cell Controller</u>	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
<u>Data Converter</u>	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 80
	Postprocessing Software: SEMCAD, V1.8 Build 186
Connecting Lines	Optical downlink for data and status info., Optical uplink for commands and clock
<u>DASY4 Measurement Server</u>	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
<u>E-Field Probe</u>	
Model	EX3DV6
Serial No.	3600
Construction	Triangular core fiber optic detection system
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
<u>Phantom</u>	
Type	ELI Elliptical Planar Phantom
Shell Material	Fiberglass
Thickness	2mm +/- .2mm
Volume	> 30 Liter

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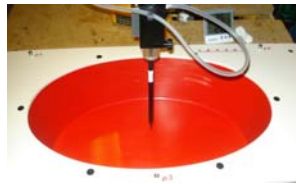
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16.0 PROBE SPECIFICATION (ET3DV6)

Construction:	Symmetrical design with triangular core; Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, glycol)	
Calibration:	In air from 10 MHz to 2.5 GHz In head simulating tissue at frequencies of 900 MHz and 1.8 GHz (accuracy $\pm 8\%$)	
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 μ W/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

17.0 PHANTOM(S)


<p>The ELI V5.0 phantom is an elliptical planar fiberglass shell phantom with a shell thickness of 2.0mm \pm .2mm at the planar area. This phantom conforms to OET Bulletin 65, Supplement C, IEEE 1528-2013, IEC 62209-1 and IEC 62209-2.</p>	
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ELI Planar Phantom

180 DEVICE HOLDER

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



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19.0 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	9 April 2014	Biennial
x	-EX3DV6 E-Field Probe	00017	3600	15 April 2014	Annual
x	-D450V3 Validation Dipole	00221	1068	29 May 13	Triennial
x	ELI Elliptical Planar Phantom			CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	none	CNR	CNR
x	Gigatronics 8652A Power Meter	00110	1835801	17 March 2014	Biennial
x	Gigatronics 80701A Power Sensor	00249	1834473	17 March 2014	Biennial
x	Gigatronics 80701A Power Sensor	00248	1833687	17 March 2014	Biennial
x	HP 8753ET Network Analyzer	00134	US39170292	10 May 14	Biennial
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	8 May 2014	Biennial
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required				

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20.0 MEASUREMENT UNCERTAINTIES



UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEC 62209-2:2010)

Source of Uncertainty	IEC 62209-2 Section	Tolerance / Uncertainty $\pm\%$	Probability Distribution	Divisor	ci 1g	ci 10g	Standard Uncertainty $\pm\%$ (1g)	Standard Uncertainty $\pm\%$ (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (450 MHz)	7.2.2.1	6.7	Normal	1	1	1	6.7	6.7	∞
Isotropy	7.2.2.2	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Boundary Effect	7.2.2.6	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	7.2.2.3	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Detection Limits	7.2.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	7.2.2.7	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	7.2.2.8	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	7.2.2.9	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	7.2.4.5	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Restrictions	7.2.3.1	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	7.2.3.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Post-processing	7.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	7.2.3.4.3	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	7.2.3.4.2	3.6	Normal	1	1	1	3.6	3.6	8
Drift of Output Power (meas. SAR drift)	7.2.2.10	0	Rectangular	1.732050808	1	1	0.0	0.0	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	7.2.3.2	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
SAR Correction Algorithm for deviations in permittivity and conductivity	7.2.4.3	1.9	Normal	1	1	0.81	1.9	1.54	∞
Liquid Conductivity (measured)	7.2.4.3	4.6	Normal	1	0.78	0.71	3.6	3.3	∞
Liquid Permittivity (measured)	7.2.4.3	2.71	Normal	1	0.23	0.26	0.6	0.7	∞
Liquid Permittivity - temp. uncertainty	7.2.4.4	1	Rectangular	1.732050808	0.78	0.71	0.5	0.4	∞
Liquid Conductivity - temp. uncertainty	7.2.4.4	0.25	Rectangular	1.732050808	0.23	0.26	0.0	0.0	∞
Combined Standard Uncertainty	7.3.1		RSS				10.62	10.46	
Expanded Uncertainty (95% Confidence Interval)	7.3.2		k=2				21.24	20.92	

Measurement Uncertainty Table in accordance with International Standard IEC 62209-2:2010


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

Applicant:	HARRIS Corporation	FCC ID:	OWDTR-0131-E	IC:	3636B-0131	
DUT Type:	Portable UHF Band PTT Radio Transceiver			DUT Name:	XG-75 UHF-H	
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	<u>Date(s) of Evaluation</u> May 14-19, 2014	<u>Test Report Serial No.</u> 051014OWDTR-1299S	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
	<u>Test Report Issue Date</u> Sep 10, 2014	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

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