

	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

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)	A2LA	ISO/IEC 17025:2005 (A2LA Test Lab Certificate No. 2470.01)			
Applicant Information	Name	VERTEX STANDARD USA INC.			
	Address	8000 West Sunrise Blvd. Ft. Lauderdale, FL 33322, USA			
Application Type(s)	FCC	TCB Certification	IC	CB Certification	
Standard(s) Applied	FCC	47 CFR §2.1093	IC	Health Canada Safety Code 6	
Procedure(s) Applied	FCC	OET Bulletin 65, Supplement C	FCC	KDB 447498 D01v05	
	FCC	KDB 643646 D01v01	IC	RSS-102 Issue 4	
	IEEE	1528-2003	IEC	62209-1:2005, 62209-2:2010	
Device Classification(s)	FCC	Licensed Non-Broadcast Transmitter Held to Face (TNF) - FCC Part 90			
	IC	Land Mobile Radio Transmitter/Receiver (27.41-960 MHz) - RSS-119 Issue 11			
Device Identifier(s)	FCC ID:	AXI11134620	IC	10239A-11134620	
Device Model(s) Tested	EVX-531-G6-5 (S/N: 212M070016, 212M070025)				
Test Sample Revision No.s	Hardware	PCB: FR024520E	Firmware	CPU: 2.05 / DSP: 2.06	
Date of Sample Receipt	Jan. 10, 2013		Date(s) of SAR Evaluations	Jan. 17-18, 2013	
Device Description	Portable FM UHF Push-To-Talk (PTT) Radio Transceiver				
Transmit Frequency Range	FCC	406.1 - 470.0 MHz			
	IC	406.1 - 430.0, 450.0 - 470.0 MHz			
Manuf. Rated Output Power	5 Watts (Conducted)		Manuf. Tolerance Specification	+/- 10%	
Antenna Type(s) Tested	See manufacturer's accessory listing (Section 7.0)				
Battery Type(s) Tested	Li-ion	7.4 V	1350mAh	P/N: FNB-V133LI	a
	Li-ion	7.4 V	2250 mAh	P/N: FNB-V134LI	b
Body-worn Accessories Tested	Belt-Clip (contains metal)			P/N: CLIP-20	1
Audio Accessories Tested	See manufacturer's accessory listing (Section 7.0)				
Max. SAR Level(s) Evaluated	Face-held	3.31 W/kg	1g	50% PTT duty cycle	Occupational / Controlled Exposure
	Body-worn	5.08 W/kg	1g	50% PTT duty cycle	Occupational / Controlled Exposure
FCC Spatial Peak SAR Limit	Head/Body	8.0 W/kg	1g	50% PTT duty cycle	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 62209-1:2005. All measurements were performed in accordance with the SAR system manufacturer recommendations. I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc. The results and statements contained in this report pertain only to the device(s) evaluated.					
Test Report Approved By			Mike Meaker	Engineering Technologist	Celltech Labs Inc.

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

REVISION HISTORY

REVISION NO.	DESCRIPTION	IMPLEMENTED BY	RELEASE DATE
1.0	Initial Release	Mike Meaker	Jan. 21, 2012

TEST REPORT SIGN-OFF

DEVICE TESTED BY	REPORT PREPARED BY	QA REVIEW BY	REPORT APPROVED BY
Mike Meaker	Mike Meaker	Glen Westwell	Mike Meaker

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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Test Lab Certificate No. 2470.01				

1.0 INTRODUCTION

This measurement report demonstrates that the Vertex Standard USA Inc. Model: EVX-531-G6-5 Portable UHF PTT Radio Transceiver FCC ID: AXI11134620 complies with the SAR (Specific Absorption Rate) RF exposure requirements of 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 Standard 62209-1:2005 (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 sideways probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot uses a controller with a built in VME-bus computer.

3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

MEASURED RF CONDUCTED OUTPUT POWER LEVELS

Radio Model	Test Frequency	Mode	dBm	Watts	Method
EVX-531-G7-5	406.1 MHz	CW	37.3	5.4	Average Conducted
	413.0 MHz	CW	37.4	5.5	Average Conducted
	414.0 MHz	CW	37.4	5.5	Average Conducted
	420.0 MHz	CW	37.4	5.5	Average Conducted
	422.0 MHz	CW	37.4	5.5	Average Conducted
	430.0 MHz	CW	37.3	5.4	Average Conducted
	440.0 MHz	CW	37.2	5.2	Average Conducted
	450.0 MHz	CW	37.2	5.2	Average Conducted
	460.0 MHz	CW	37.2	5.3	Average Conducted
	470.0 MHz	CW	37.3	5.4	Average Conducted

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 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 [15]) and IC RSS-Gen (see reference [16]).

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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4.0 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 D01v01r01, SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz - see reference [11]).

Probe Calibration Freq.	Device Measurement Freq.	Frequency Interval	± 50 MHz (≥ 300 MHz)
450 MHz	406.1 MHz	43.9 MHz	< 50 MHz ¹
	413.0 MHz	37.0 MHz	< 50 MHz ¹
	414.0 MHz	36.0 MHz	< 50 MHz ¹
	420.0 MHz	30.0 MHz	< 50 MHz ¹
	422.0 MHz	28.0 MHz	< 50 MHz ¹
	430.0 MHz	20.0 MHz	< 50 MHz ¹
	440.0 MHz	10.0 MHz	< 50 MHz ¹
	450.0 MHz	0.0 MHz	< 50 MHz ¹
	460.0 MHz	10.0 MHz	< 50 MHz ¹
	470.0 MHz	20.0 MHz	< 50 MHz ¹

1. The probe calibration and measurement frequency interval is < 50 MHz; therefore the additional steps were not required.

5.0 NO. OF TEST CHANNELS (N_c)

Antenna Part No.	Antenna Freq. Range	Test Freq. Range	N_c	Test Frequencies (MHz)
1	ATU-16B	400 - 420 MHz	3	406.1, 413.0, 420.0
2	ATU-16BS	400 - 430 MHz	4	406.1, 414.0, 422.0, 430.0
3	ATU-16C	420 - 450 MHz	4	420.0, 430.0, 440.0, 450.0
4	ATU-16D	450 - 470 MHz	3	450.0, 460.0, 470.0
5	ATU-16DS	450 - 490 MHz	3	450.0, 460.0, 470.0

Note: The number of test channels (N_c) were calculated in accordance with the procedures specified in FCC KDB 447498 (see reference [8]).

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6.0 MANUFACTURER'S DISCLOSED ACCESSORY LISTING

Accessory ID # for Test Report	ACCESSORY CATEGORY: ANTENNA			
	Part Number	Description	SAR Evaluation	
1	ATU-16B	Detachable (400-420 MHz)	Yes	
2	ATU-16BS	Detachable (400-430 MHz)	Yes	
3	ATU-16C	Detachable (420-450 MHz)	Yes	
4	ATU-16D	Detachable (450-470 MHz)	Yes	
5	ATU-16DS	Detachable (450-490 MHz)	Yes	
Accessory ID # for Test Report	ACCESSORY CATEGORY: BATTERY			
	Part Number	Description	SAR Evaluation	
a	FNB-V133LI / FNB-V133LI-UNI	Li-ion (7.4V, 1350mAh)	Yes	
b	FNB-V134LI / FNB-V134LI-UNI	Li-ion (7.4V, 2250mAh)	Yes	
Accessory ID # for Test Report	ACCESSORY CATEGORY: BODY-WORN			
	Part Number	Description	SAR Evaluation	
1	CLIP-20	Belt-clip (contains metal)	Yes	
Accessory ID # for Test Report	ACCESSORY CATEGORY: AUDIO			
	Part Number	Description	Audio Accessory Grouping	SAR Evaluation
G1a	MH-360S	Compact Speaker-Mic	Group 1	Yes
G1b	MH-450S	Standard Speaker-Mic		No ¹
G2a	MH-81A4B	Light duty VOX headset	Group 2	Yes
G3a	MH-37A4B	Earpiece mic	Group 3	Yes

Manufacturer's disclosed accessory listing information provided by Vertex Standard USA Inc.

Notes:

1. Audio accessories not evaluated for SAR in accordance with the procedures and provisions of FCC KDB 643646 D01v01r01 Page 10 Section 1).

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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Test Lab Certificate No. 2470.01

7.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS						
Date: 01/16&17/2013		Frequency: 450 MHz			Tissue: Body	
Freq	Test e	Test s	Target e	Target s	Deviation Permittivity	Deviation Conductivity
0.350	58.9	0.83	56.7	0.94	3.88%	-11.70%
0.360	58.42	0.84	56.7	0.94	3.03%	-10.64%
0.370	57.73	0.83	56.7	0.94	1.82%	-11.70%
0.380	58.2	0.84	56.7	0.94	2.65%	-10.64%
0.390	57.74	0.86	56.7	0.94	1.83%	-8.51%
0.400	57.36	0.87	56.7	0.94	1.16%	-7.45%
0.410	56.8	0.87	56.7	0.94	0.18%	-7.45%
0.420	57.29	0.91	56.7	0.94	1.04%	-3.19%
0.422*	57.3	0.906	56.7	0.94	1.06%	-3.62%
0.430	57.19	0.89	56.7	0.94	0.86%	-5.32%
0.440	57.12	0.92	56.7	0.94	0.74%	-2.13%
0.450	57.25	0.93	56.7	0.94	0.97%	-1.06%
0.460	57.05	0.93	56.7	0.94	0.62%	-1.06%
0.470	56.44	0.93	56.7	0.94	-0.46%	-1.06%
0.480	56.2	0.93	56.7	0.94	-0.88%	-1.06%
0.490	56.04	0.93	56.7	0.94	-1.16%	-1.06%
0.500	55.77	0.95	56.7	0.94	-1.64%	1.06%
0.510	55.77	0.97	56.7	0.94	-1.64%	3.19%
0.520	55.39	0.98	56.7	0.94	-2.31%	4.26%
0.530	55.23	1.01	56.7	0.94	-2.59%	7.45%
0.540	55.13	1.01	56.7	0.94	-2.77%	7.45%
0.550	55.12	1	56.7	0.94	-2.79%	6.38%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m ³)
Jan 16	450 Body	23.0°C	22.7°C	≥ 15 cm	103.8 kPa	34%	1000
Jan 17	450 Body	22.0°C	22.7°C	≥ 15 cm	103.8 kPa	34%	1000

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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FLUID DIELECTRIC PARAMETERS						
Date: 01/18/2013		Frequency: 450 MHz			Tissue: Body	
Freq	Test e	Test s	Target e	Target s	Deviation Permittivity	Deviation Conductivity
0.350	58.63	0.84	56.7	0.94	3.40%	-10.64%
0.360	59.06	0.85	56.7	0.94	4.16%	-9.57%
0.370	58.98	0.86	56.7	0.94	4.02%	-8.51%
0.380	57.58	0.87	56.7	0.94	1.55%	-7.45%
0.390	57.83	0.9	56.7	0.94	1.99%	-4.26%
0.400	57.8	0.89	56.7	0.94	1.94%	-5.32%
0.4061*	58.1	0.89	56.7	0.94	2.47%	-5.32%
0.410	58.28	0.89	56.7	0.94	2.79%	-5.32%
0.420	58.34	0.9	56.7	0.94	2.89%	-4.26%
0.430	57.61	0.92	56.7	0.94	1.60%	-2.13%
0.440	57.9	0.92	56.7	0.94	2.12%	-2.13%
0.450	57.12	0.94	56.7	0.94	0.74%	0.00%
0.460	56.75	0.92	56.7	0.94	0.09%	-2.13%
0.470	57.41	0.93	56.7	0.94	1.25%	-1.06%
0.480	56.83	0.96	56.7	0.94	0.23%	2.13%
0.490	56.81	0.94	56.7	0.94	0.19%	0.00%
0.500	56.5	0.97	56.7	0.94	-0.35%	3.19%
0.510	56.26	0.97	56.7	0.94	-0.78%	3.19%
0.520	56.2	0.98	56.7	0.94	-0.88%	4.26%
0.530	56.19	1.01	56.7	0.94	-0.90%	7.45%
0.540	55.81	0.99	56.7	0.94	-1.57%	5.32%
0.550	55.64	1.01	56.7	0.94	-1.87%	7.45%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m ³)
Jan 18	450 Body	22.0°C	22.3°C	≥ 15 cm	102.6 kPa	32%	1000

FLUID DIELECTRIC PARAMETERS						
Date: 01/18/2013		Frequency: 450 MHz			Tissue: Head	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
0.350	47.03	0.78	43.5	0.87	8.11%	-10.34%
0.360	47.69	0.79	43.5	0.87	9.63%	-9.20%
0.370	47.05	0.79	43.5	0.87	8.16%	-9.20%
0.380	45.87	0.78	43.5	0.87	5.45%	-10.34%
0.390	46.36	0.82	43.5	0.87	6.57%	-5.75%
0.400	45.4	0.81	43.5	0.87	4.37%	-6.90%
0.410	46.09	0.83	43.5	0.87	5.95%	-4.60%
0.420	45.39	0.84	43.5	0.87	4.34%	-3.45%
0.422*	45.4	0.84	43.5	0.87	4.37%	-3.45%
0.430	45.43	0.84	43.5	0.87	4.44%	-3.45%
0.440	45.54	0.85	43.5	0.87	4.69%	-2.30%
0.450	44.99	0.86	43.5	0.87	3.43%	-1.15%
0.460	44.64	0.87	43.5	0.87	2.62%	0.00%
0.470	44.73	0.88	43.5	0.87	2.83%	1.15%
0.480	44.43	0.88	43.5	0.87	2.14%	1.15%
0.490	44.51	0.89	43.5	0.87	2.32%	2.30%
0.500	43.9	0.92	43.5	0.87	0.92%	5.75%
0.510	43.33	0.91	43.5	0.87	-0.39%	4.60%
0.520	43.42	0.9	43.5	0.87	-0.18%	3.45%
0.530	42.86	0.94	43.5	0.87	-1.47%	8.05%
0.540	42.95	0.93	43.5	0.87	-1.26%	6.90%
0.550	42.72	0.94	43.5	0.87	-1.79%	8.05%

*interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m ³)
Jan 18	450 Head	22.0°C	20.8°C	≥ 15 cm	102.6 kPa	32%	1000

Test Procedures applied in accordance with FCC KDB 643646 D01v01 (see reference [10])
1. For face-held configuration, the highest capacity battery was selected as the default battery (battery “b”).
2. The SAR evaluations commenced at the highest output power channel per antenna and frequency range.
3. When the head SAR of an antenna tested on the highest output power channel using the default battery is ≤ 3.5 W/kg (50% PTT duty factor), testing of all other required channels is not necessary.
4. When the SAR for all antennas tested using the default battery is ≤ 4.0 W/kg, test additional batteries using the antenna and channel configuration that resulted in the highest SAR.
5. When test reduction applies, the slots for such configurations are denoted with N/A (Not Applicable).

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	Test Report Issue Date Jan. 21, 2013	Description of Test(s) Specific Absorption Rate	RF Exposure Category Occupational (Controlled)	

Table 2				BODY-WORN SAR EVALUATION RESULTS															
C	Test Date(s): Jan. 17-18, 2013			1		2		3		4		5		6		7		8	
R	Antenna Tested	Test Freq. (MHz)	Cond. Pwr (W)	SAR W/kg 1g						SAR W/kg 1g									
				Default Battery (a)						Battery (b)									
				Default Body-worn Acc. (1)						Default Body-worn Acc. (1)									
				Default Audio Acc. (G2a)						Default Audio Acc. (G2a)									
				100% ptt d/f		50% ptt d/f		Drift (dB)		50%+droop		100% ptt d/f		50% ptt d/f		Drift dB		50%+droop	
1	ANT. 1	406.1	5.4	B1	7.55	3.78	-0.337	4.08	N/A										
2		413.0	5.5	N/A						N/A									
3		420.0	5.5	B2	7.71	3.86	-0.417	4.24	N/A										
4	ANT. 2	406.1	5.4	N/A						N/A									
5		414.0	5.5	N/A						N/A									
6		422.0	5.5	B3	5.95	2.98	-0.153	3.08	N/A										
7		430.0	5.4	N/A						N/A									
8	ANT. 3	420.0	5.5	B4	7.40	3.70	-0.400	4.06	N/A										
9		430.0	5.4	N/A						N/A									
10		440.0	5.2	B5	7.37	3.69	-0.439	4.08	N/A										
11		450.0	5.2	N/A						N/A									
12	ANT. 4	450.0	5.2	N/A						N/A									
13		460.0	5.3	B6	7.84	3.92	-0.396	4.29	N/A										
14		470.0	5.4	B7	9.14	4.57	-0.505	5.13	B11	8.81	4.41	-0.496	4.94						
15	ANT. 5	450.0	5.2	B8	6.63	3.32	-0.451	3.68	N/A										
16		460.0	5.3	B9	8.79	4.40	-0.494	4.92	N/A										
17		470.0	5.4	B10	9.89	4.95	-0.627	5.71	B12	9.55	4.78	-0.515	5.38						
SAR LIMITS						HEAD			SPATIAL PEAK			RF EXPOSURE CATEGORY							
FCC 47 CFR 2.1093						Health Canada Safety Code 6			8.0 W/kg			1g averaging			Occupational / Controlled				
Notes																			
Test Mode = CW (Unmodulated Continuous Wave)										Phantom = Barski Planar Phantom									
Battery		Back of DUT Distance to Planar Phantom (see Appendix D)				Antenna Distance to Planar Phantom (see Appendix D)													
						Ant. 1		Ant. 2		Ant. 3		Ant. 4		Ant. 5					
a		1.7 cm				2.7 cm		2.6 cm		2.7 cm		2.7 cm		2.6 cm					
b		1.2 cm				N/A		N/A		N/A		2.9 cm		2.8 cm					
C = Column; R = Row						F1-Fx (F = Face) denotes the corresponding Face SAR Plot # as shown in Appendix A													

Test Procedures applied in accordance with FCC KDB 643646 D01v01 (see reference [10])													
1. For body-worn configuration, the thinnest standard battery was selected as the default battery (battery "a").													
2. The SAR evaluations commenced at the highest output power channel per antenna and frequency range.													
3. When the SAR of an antenna tested on the highest output power channel using the default battery is ≤ 3.5 W/kg (50% PTT duty factor), testing of all other required channels is not necessary.													
4. When the SAR of an antenna tested on the highest output power channel using the default battery is > 3.5 W/kg and ≤ 4.0 W/kg, testing on the required immediately adjacent channels is not necessary, but other channels must still be considered.													
5. When the SAR of an antenna tested on the highest output power channel using the default battery is > 4.0 W/kg and ≤ 6.0 W/kg, testing on the required immediately adjacent channels is required and other channels must still be considered.													
6. When the highest SAR of an antenna tested with the thinnest (default) battery is > 4.0 W/kg and ≤ 6.0 W/kg, test additional batteries with the default body-worn and audio accessory on the channel that resulted in the highest SAR for that antenna.													
7. Audio accessory (G2a) was selected as the default audio accessory based on preliminary evaluations with the most conservative SAR.													
8. When test reduction applies, the slots for such configurations are denoted with N/A (Not Applicable).													

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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TABLE 3		ADDITIONAL AUDIO ACC'S SAR EVALUATION RESULTS							
C	Test Date(s): Jan. 18, 2013					1		2	
R	Antenna Tested	Audio Accessory Grouping	Audio Accessory ID	Test Frequency (MHz)	Conducted Power (W)	1g SAR (W/kg)			
						Battery (a)			
						Body-worn Acc. (1)			
						Plot #	100% ptt d/f	50% ptt d/f	
							SAR Drift dB	50%+droop	
1	ANT. 5	G1	G1a	470.0	5.4	A1	9.91	4.96	
2							-0.672	5.78	
3		G3	G3a	470.0	5.4	A2	9.83	4.92	
4							-0.560	5.59	
SAR LIMITS				BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY			
FCC 47 CFR 2.1093		Health Canada Safety Code 6		8.0 W/kg	1g average	Occupational / Controlled			
Notes									
Test Mode = CW (Unmodulated Continuous Wave)				DUT Distance to Phantom		Antenna Distance to Phantom			
Phantom = Barski Planar Phantom				1.7 cm		2.6 cm			
C = Column; R = Row									
Audio accessories do not contain any built-in radiating element									

TABLE 4		REPEATABILITY TESTS							
C	Test Date(s): Jan. 18, 2013					1		2	
R	Antenna Tested	Audio Accessory Grouping	Audio Accessory ID	Test Frequency (MHz)	Conducted Power (W)	1g SAR (W/kg)			
						Battery (a)			
						Body-worn Acc. (1)			
						Plot #	100% ptt d/f	50% ptt d/f	
SAR Drift dB	50%+droop								
1	ANT. 5	G1	G1a	470.0	5.4	R1	9.56	4.78	
2							-0.622	5.52	
SAR LIMITS				BODY		SPATIAL PEAK		RF EXPOSURE CATEGORY	
FCC 47 CFR 2.1093		Health Canada Safety Code 6		8.0 W/kg		1g average		Occupational / Controlled	
Notes									
Test Mode = CW (Unmodulated Continuous Wave)						DUT Distance to Phantom		Antenna Distance to Phantom	
Phantom = Barski Planar Phantom						1.7 cm		2.6 cm	
C = Column; R = Row									
Repeatability tests done in accordance to FCC KDB 865664 (see reference [9])									

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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10.0 SAR TEST REDUCTION PROCEDURES APPLIED (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. Body-worn Configuration - Default Battery and Body-worn Accessory 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....."*
- c. 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 (f) below were applied in order to establish the default audio accessory.
- d. 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
- e. 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.
- f. According to the manufacturer, all the optional audio accessories can be used with any accessory combination (antenna, battery & body-worn accessory). Therefore, in order to determine the default audio accessory (in accordance with FCC KDB 643646, Page 4, footnote 8), preliminary SAR evaluations (area scans with belt-clip and thinnest battery) were performed by Celltech with all of the optional audio accessories connected to the radio consecutively in order to select the audio accessory expected to result in the highest SAR level for the final compliance evaluations.

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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11.0 DETAILS OF SAR EVALUATION

- The number of test frequencies and the test channels evaluated for SAR were selected 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 D01v01 (see reference [10]).
- Each SAR evaluation was performed with a fully charged battery. The radio was allowed a cooldown period and the battery was swapped between the area and zoom scan evaluations.
- The SAR droop of the DUT was measured by the DASY4 system for the duration of the SAR evaluations. The measured SAR droop was added to the measured SAR levels to report scaled SAR levels as shown in the SAR test data tables. A SAR-versus-Time power droop evaluation was performed (see Appendix A).
- The fluid temperature was measured prior to and after the SAR evaluations. The fluid temperature remained within $\pm 2^{\circ}\text{C}$ during the SAR evaluations.
- 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 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.

12.0 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 SYSTEM PERFORMANCE CHECK

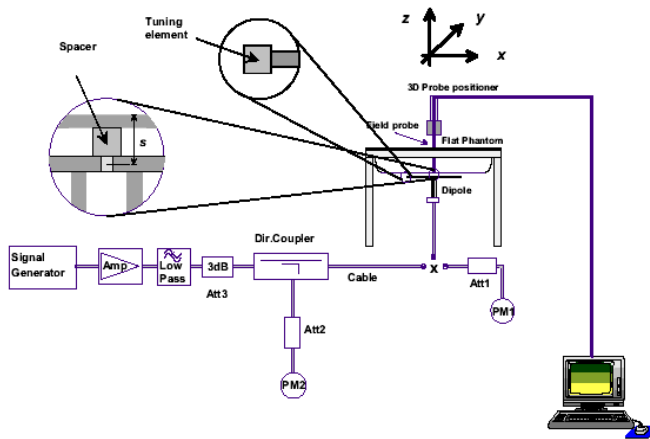
Prior to the SAR evaluations, system checks were performed with a planar phantom and SPEAG 450 MHz dipole (see Appendix B) in accordance with the procedures described in IEEE Standard 1528-2003 (see reference [5]) and IEC Standard 62209-1:2005 (see reference [6]). The dielectric parameters of the simulated 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 $\pm 10\%$ from the SAR system manufacturer's dipole calibration target SAR value (see Appendix E for system manufacturer's dipole calibration procedures).

SYSTEM PERFORMANCE CHECK EVALUATIONS

Test Date	Equiv. Tissue	SAR 1g (W/kg)			Dielectric Constant ϵ_r			Conductivity σ (mho/m)			ρ (Kg/m ³)	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
	Freq. (MHZ)	SPEAG Target	Meas.	Dev.	SPEAG Target	Meas.	Dev.	SPEAG Target	Meas.	Dev.						
Jan 16	Body 450	1.81 ±10%	1.92	+6.1%	56.7 ±5%	57.3	+1.1%	0.94 ±5%	0.93	-1.1%	1000	23.0	22.7	≥ 15	34	103.8
Jan 18	Body 450	1.81 ±10%	1.88	+3.9%	56.7 ±5%	57.1	+0.7%	0.94 ±5%	0.94	0.0%	1000	22.0	22.3	≥ 15	32	102.6
Jan 18	Head 450	1.87 ±10%	1.87	0.0%	43.5 ±5%	45.0	+3.4%	0.87 ±5%	0.86	-1.1%	1000	22.0	20.8	≥ 15	32	102.6

Notes

- The target SAR values are the measured values from the SAR system manufacturer's dipole calibration (see Appendix E).
- The target dielectric parameters are the nominal values from the SAR system manufacturer's dipole calibration (see Appendix E).
- The fluid temperature was measured prior to and after the system performance check evaluations. The fluid temperature remained within $\pm 2^\circ\text{C}$ during the system performance check evaluations.
- 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).



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



SPEAG 450 MHz Validation Dipole Setup

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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14.0 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 [12] and [13]) in accordance with the procedures and requirements specified in IEEE Standard 1528-2003 (see reference [5]) and IEC Standard 62209-1:2005 (see reference [6]). 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 %

15.0 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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16.0 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 171
Connecting Lines	Optical downlink for data and status info., Optical uplink for commands and clock
<u>DASY4 Measurement Server</u>	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
<u>E-Field Probe</u>	
Model	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)
<u>Phantom</u>	
Type	Barski Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters

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17.0 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

18.0 BARSKI PLANAR PHANTOM

The Barski Planar Phantom is a fiberglass shell phantom with a 2.0 mm (+/-0.2mm) thick device measurement area at the center of the phantom for SAR evaluations of devices with a larger surface area than the planar section of the SAM phantom. The planar phantom is integrated in a wooden table. The planar phantom 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

19.0 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. For evaluations of larger devices a Plexiglas platform is attached to the device holder.



Device Holder

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20.0 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	19-Apr-12	Biennial
x	-ET3DV6 E-Field Probe	00017	1590	24-Apr-12	Annual
x	-D450V3 Validation Dipole	00221	1068	27-Apr-12	Triennial
x	-Barski Planar Phantom	00155	03-01	CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	none	CNR	CNR
x	Gigatronics 8652A Power Meter	00007	1835272	03-May-12	Biennial
x	Gigatronics 80701A Power Sensor	00014	1833542	03-May-12	Biennial
x	Gigatronics 80334A Power Sensor	-	1837001	03-May-12	Biennial
x	HP 8753ET Network Analyzer	00134	US39170292	26-Apr-12	Biennial
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	02-May-12	Biennial
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required				

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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21.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEC 62209-2:2010)									
Source of Uncertainty	IEC 62209-2 Section	Tolerance / Uncertainty ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Standard Uncertainty ±% (1g)	Standard Uncertainty ±% (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	1.2	Normal	1	1	0.81	1.2	0.97	∞
Liquid Conductivity (measured)	7.2.4.3	5.32	Normal	1	0.78	0.71	4.1	3.8	∞
Liquid Permittivity (measured)	7.2.4.3	4.37	Normal	1	0.23	0.26	1.0	1.1	∞
Liquid Permittivity - temp. uncertainty	7.2.4.4	0.27	Rectangular	1.732050808	0.78	0.71	0.1	0.1	∞
Liquid Conductivity - temp. uncertainty	7.2.4.4	0.84	Rectangular	1.732050808	0.23	0.26	0.1	0.1	∞
Combined Standard Uncertainty	7.3.1		RSS				10.74	10.60	
Expanded Uncertainty (95% Confidence Interval)	7.3.2		k=2				21.49	21.19	

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:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

22.0 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 D01 v05: October 2012.
- [9] Federal Communications Commission, Office of Engineering and Technology - "SAR Measurement Requirements for 100 MHz to 6 GHz"; KDB 865664 D01v01: October 2012.
- [10] Federal Communications Commission, Office of Engineering and Technology - "SAR Test Reduction Considerations for Occupational PTT Radios", KDB 643646 D01v01: December 2010.
- [11] 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.
- [12] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 16 Application Note, Head Tissue Recipe: Sept. 2005.
- [13] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 17 Application Note, Body Tissue Recipe: Sept. 2005.
- [14] ISO/IEC 17025 - "General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)."
- [15] Federal Communications Commission - "Measurements Required: RF Power Output"; Rule Part 47 CFR §2.1046.
- [16] Industry Canada - "General Requirements and Information for the Certification of Radiocommunication Equipment", Radio Standards Specification RSS-Gen Issue 3: December 2010.

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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Test Lab Certificate No. 2470.01

APPENDIX A - SAR MEASUREMENT PLOTS

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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Plot F1

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 420 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used: $f = 420 \text{ MHz}$; $\sigma = 0.84 \text{ mho/m}$; $\epsilon_r = 45.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

16B - 134LI - 420MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 4.84 mW/g

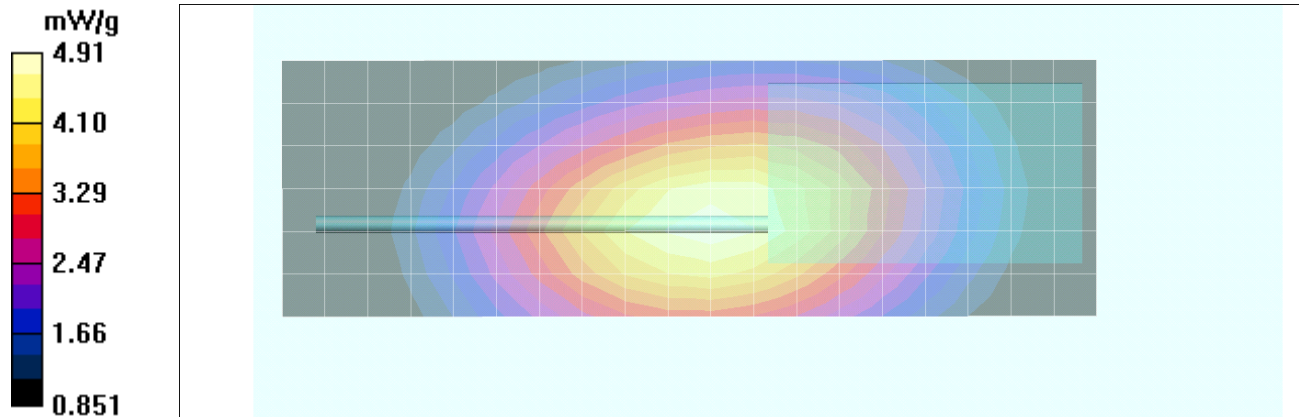
16B - 134LI - 420MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 76.6 V/m; Power Drift = -0.431 dB

Peak SAR (extrapolated) = 6.49 W/kg

SAR(1 g) = 4.7 mW/g; SAR(10 g) = 3.46 mW/g

Maximum value of SAR (measured) = 4.91 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot F2

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 422 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used (interpolated): $f = 422 \text{ MHz}$; $\sigma = 0.84 \text{ mho/m}$; $\epsilon_r = 45.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

16BS - 134LI - 422MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 5.34 mW/g

16BS - 134LI - 422MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

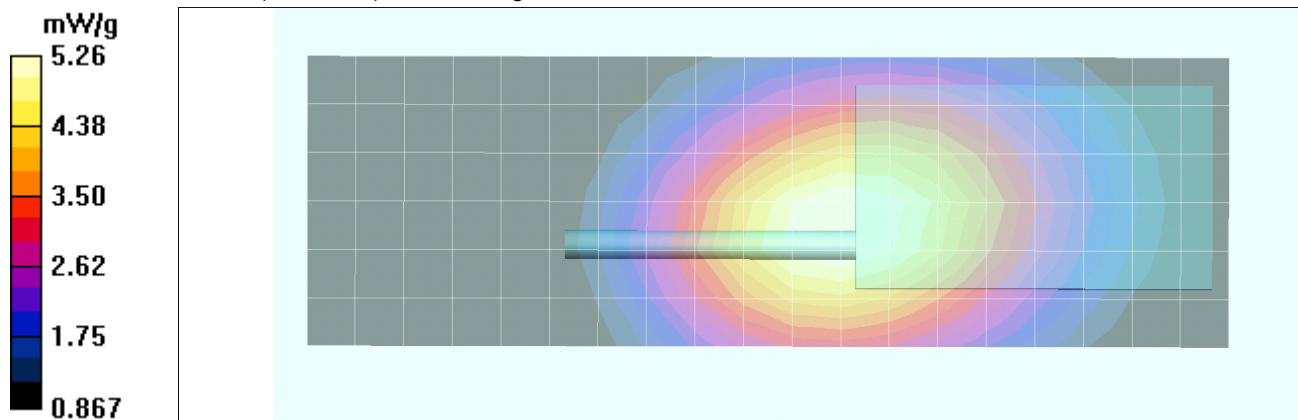
Reference Value = 81.2 V/m; Power Drift = -0.580 dB

Peak SAR (extrapolated) = 6.94 W/kg

SAR(1 g) = 5.04 mW/g; SAR(10 g) = 3.72 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 5.26 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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Test Lab Certificate No. 2470.01

Plot F3

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 420 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used: $f = 420 \text{ MHz}$; $\sigma = 0.84 \text{ mho/m}$; $\epsilon_r = 45.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

16C - 134LI - 420MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

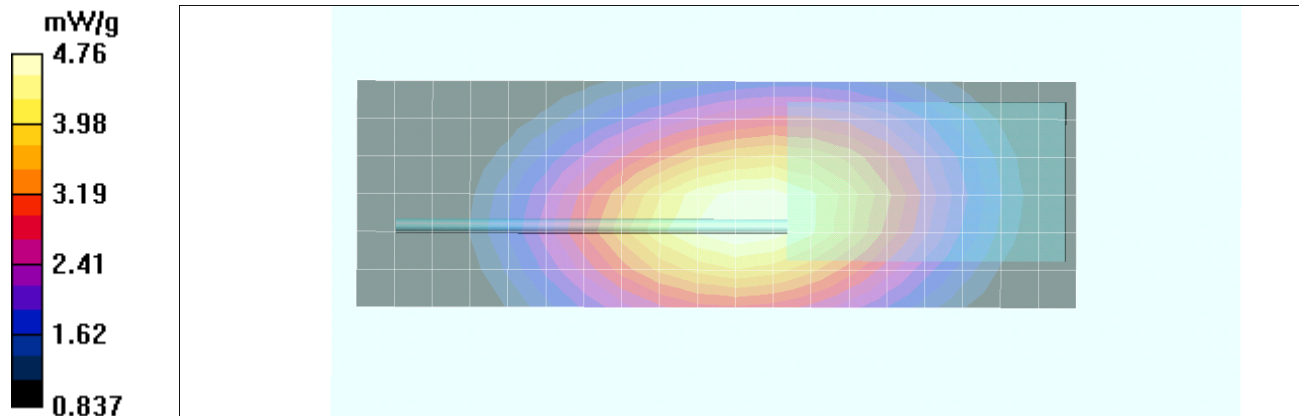
Maximum value of SAR (measured) = 4.76 mW/g

16C - 134LI - 420MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 75.6 V/m; Power Drift = -0.441 dB

Peak SAR (extrapolated) = 6.26 W/kg

SAR(1 g) = 4.53 mW/g; SAR(10 g) = 3.34 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Plot F4

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 44.7$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

16D - 134LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 5.70 mW/g

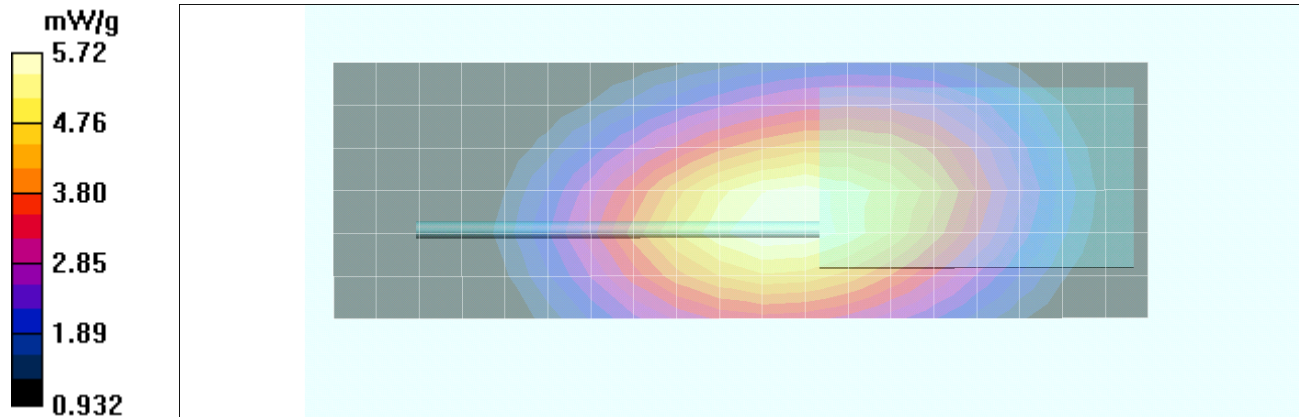
16D - 134LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 84.1 V/m; Power Drift = -0.761 dB

Peak SAR (extrapolated) = 7.56 W/kg

SAR(1 g) = 5.44 mW/g; SAR(10 g) = 3.99 mW/g

Maximum value of SAR (measured) = 5.72 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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Plot F5

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 44.7$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

16DS - 134LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 6.51 mW/g

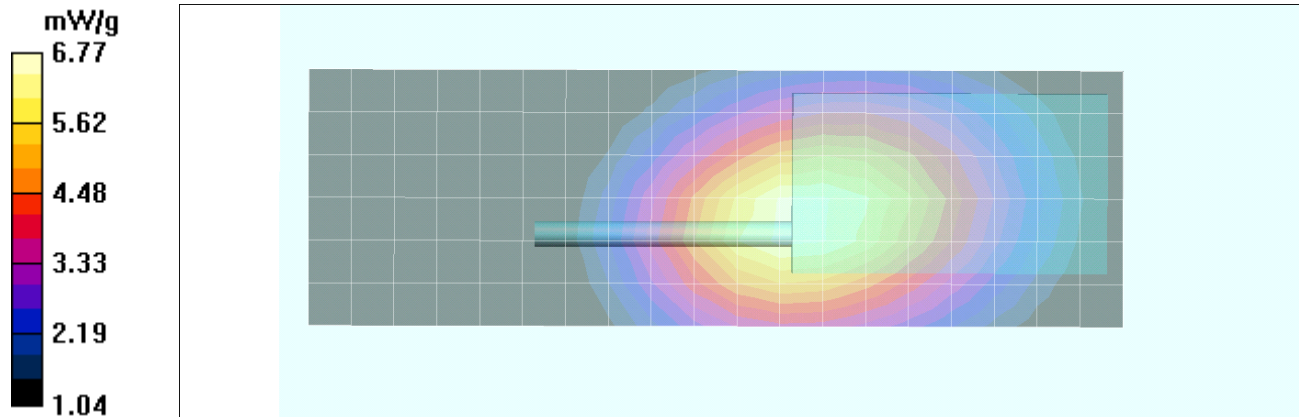
16DS - 134LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 89.3 V/m; Power Drift = -0.582 dB

Peak SAR (extrapolated) = 9.02 W/kg

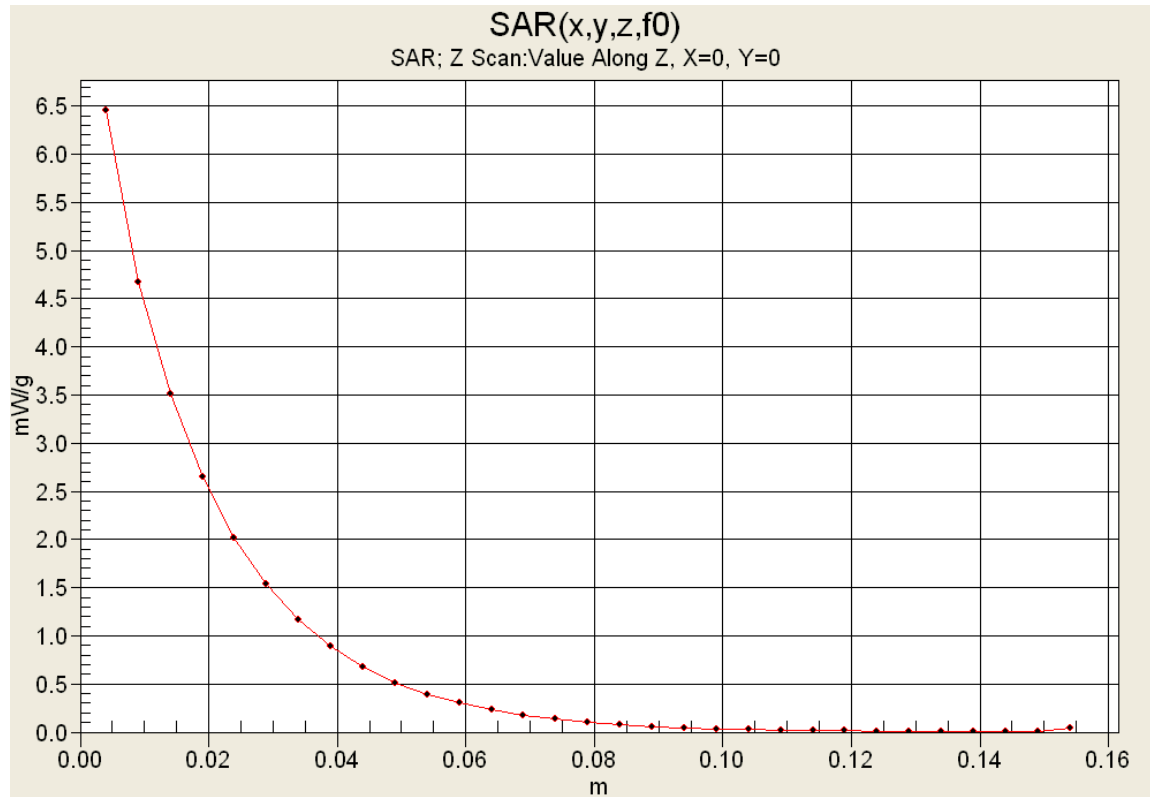
SAR(1 g) = 6.46 mW/g; SAR(10 g) = 4.72 mW/g

Maximum value of SAR (measured) = 6.77 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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Z-axis Scan



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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Plot F6

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 44.7$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

16DS - 133LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 6.40 mW/g

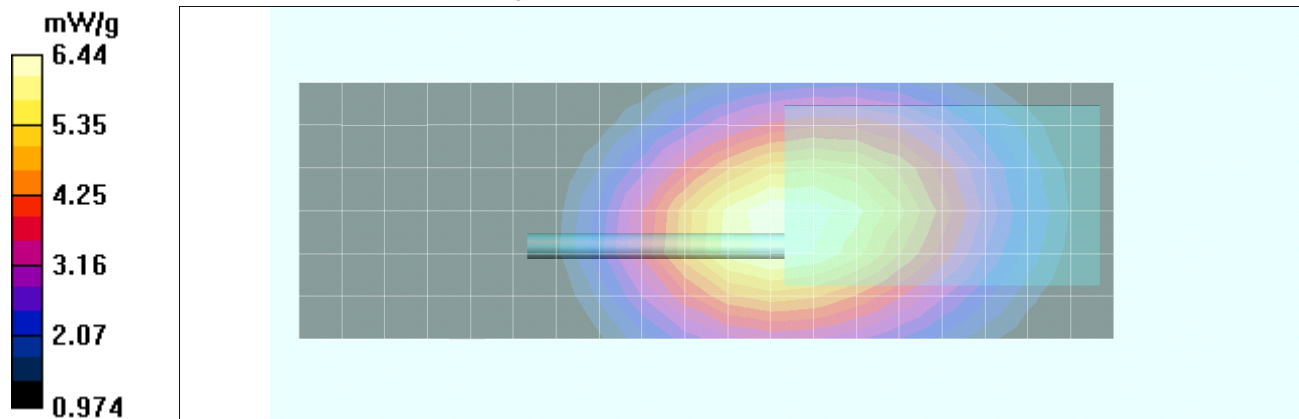
16DS - 133LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 88.4 V/m; Power Drift = -0.720 dB

Peak SAR (extrapolated) = 8.57 W/kg

SAR(1 g) = 6.15 mW/g; SAR(10 g) = 4.5 mW/g

Maximum value of SAR (measured) = 6.44 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B1

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 406.1 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used (interpolated): $f = 406.1$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 58.1$; $\rho = 1000$ kg/m³

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16B - 133LI - 406.1MHz/Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 7.90 mW/g

MH-81A4B - 16B - 133LI - 406.1MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

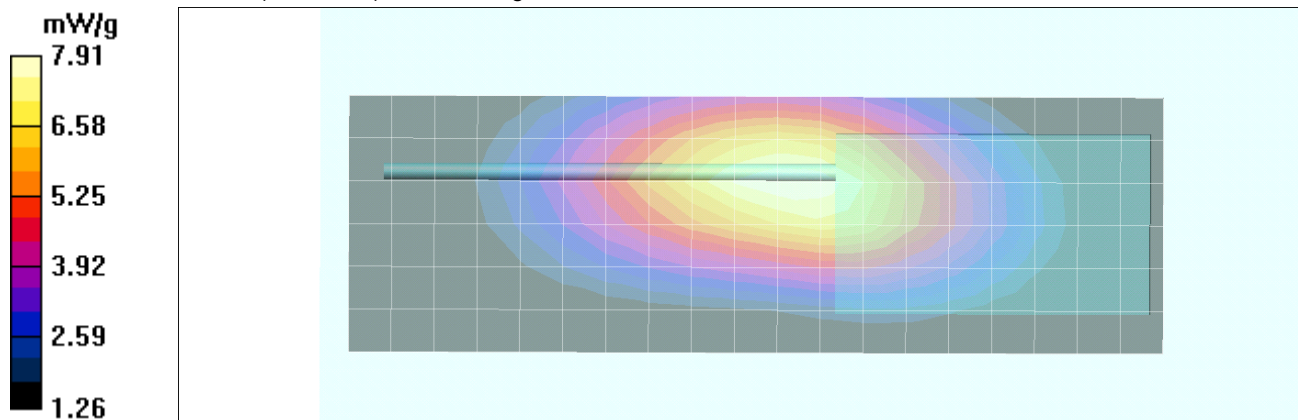
Reference Value = 91.1 V/m; Power Drift = -0.337 dB

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 7.55 mW/g; SAR(10 g) = 5.49 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 7.91 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	Page 31 of 79
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Plot B2

Date Tested: 01/17/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.7C; Barometric Pressure: 103.8 kPa; Humidity: 34%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 420 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 420 \text{ MHz}$; $\sigma = 0.91 \text{ mho/m}$; $\epsilon_r = 57.3$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16B - 133LI - 420MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.32 mW/g

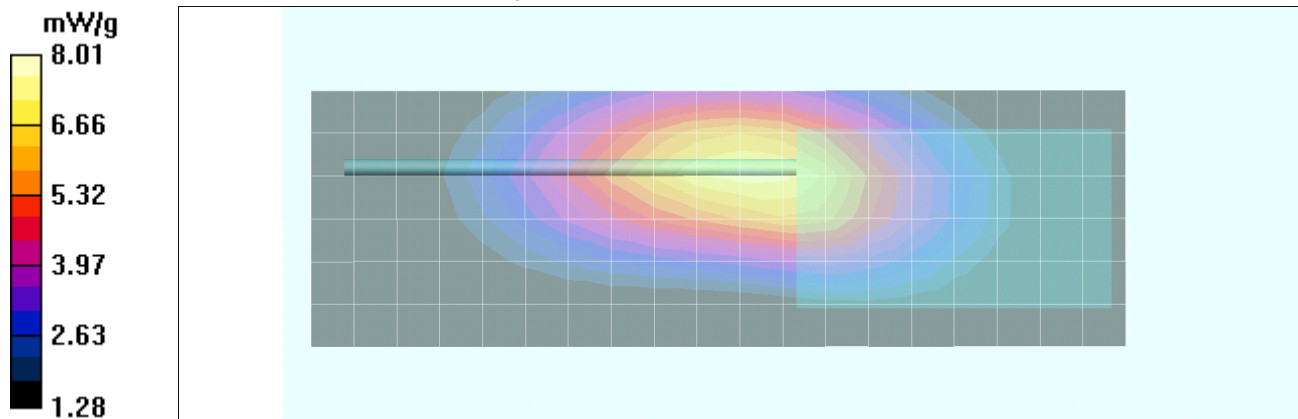
MH-81A4B - 16B - 133LI - 420MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 93.0 V/m; Power Drift = -0.417 dB

Peak SAR (extrapolated) = 10.9 W/kg

SAR(1 g) = 7.71 mW/g; SAR(10 g) = 5.68 mW/g

Maximum value of SAR (measured) = 8.01 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	Page 32 of 79
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B3

Date Tested: 01/17/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.7C; Barometric Pressure: 103.8 kPa; Humidity: 34%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 422 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used (interpolated): $f = 422 \text{ MHz}$; $\sigma = 0.906 \text{ mho/m}$; $\epsilon_r = 57.3$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16BS - 133LI - 422MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 6.55 mW/g

MH-81A4B - 16BS - 133LI - 422MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

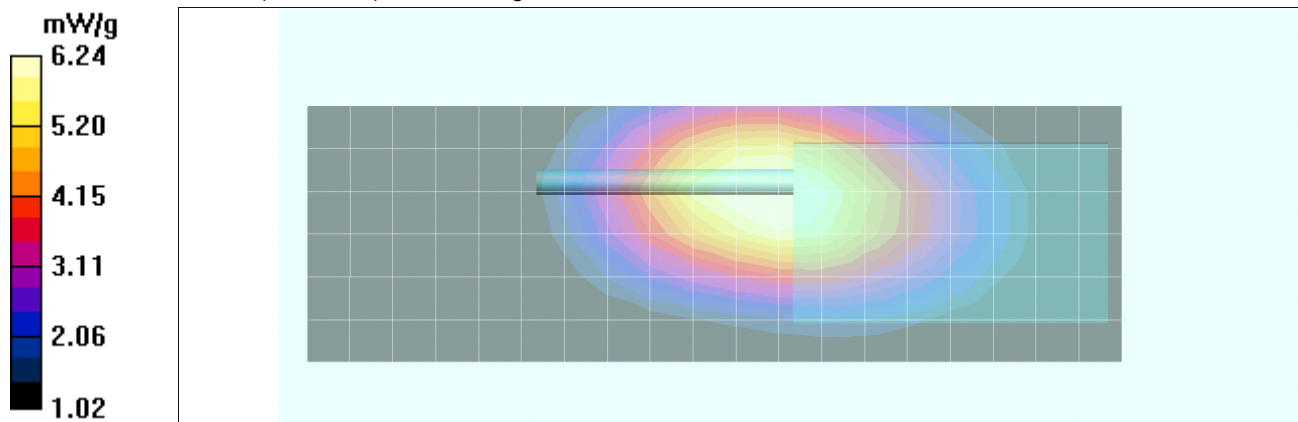
Reference Value = 79.9 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 8.49 W/kg

SAR(1 g) = 5.95 mW/g; SAR(10 g) = 4.34 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 6.24 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B4

Date Tested: 01/17/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.7C; Barometric Pressure: 103.8 kPa; Humidity: 34%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 420 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 420 \text{ MHz}$; $\sigma = 0.91 \text{ mho/m}$; $\epsilon_r = 57.3$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16C - 133LI - 420MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.89 mW/g

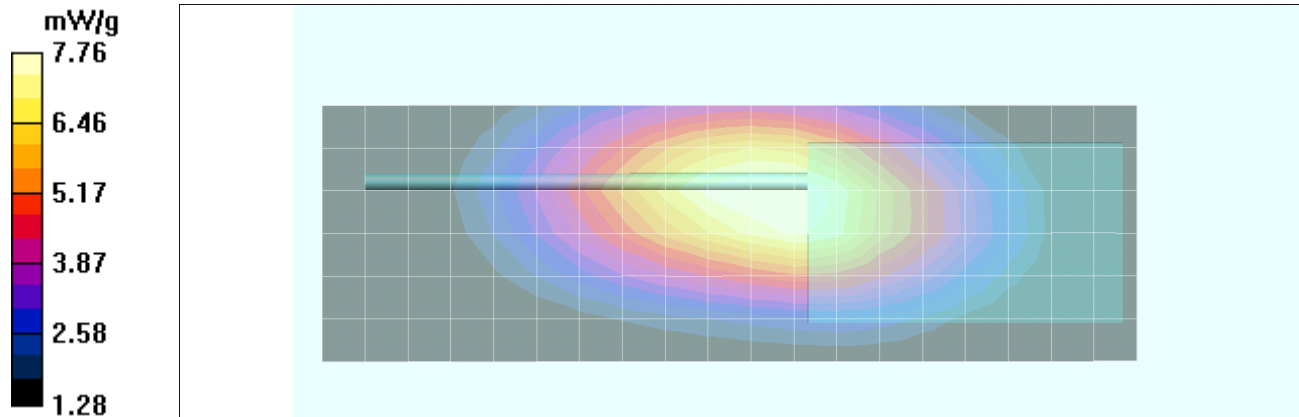
MH-81A4B - 16C - 133LI - 420MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 89.8 V/m; Power Drift = -0.400 dB

Peak SAR (extrapolated) = 10.6 W/kg

SAR(1 g) = 7.4 mW/g; SAR(10 g) = 5.38 mW/g

Maximum value of SAR (measured) = 7.76 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B5

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 440 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 440 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 57.9$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16C - 133LI - 440MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.04 mW/g

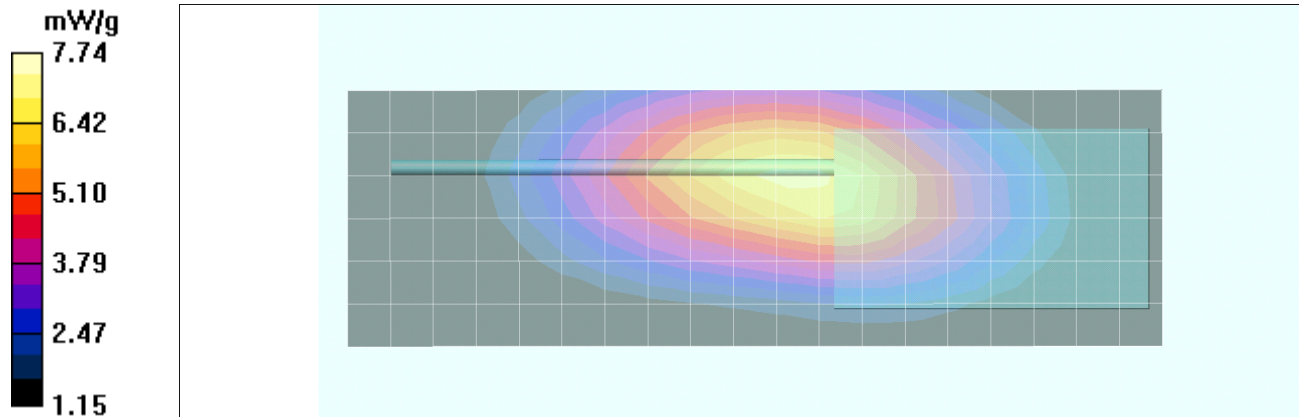
MH-81A4B - 16C - 133LI - 440MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 90.4 V/m; Power Drift = -0.439 dB

Peak SAR (extrapolated) = 10.6 W/kg

SAR(1 g) = 7.37 mW/g; SAR(10 g) = 5.32 mW/g

Maximum value of SAR (measured) = 7.74 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Plot B6

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 460 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 460 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16D - 133LI - 460MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 8.17 mW/g

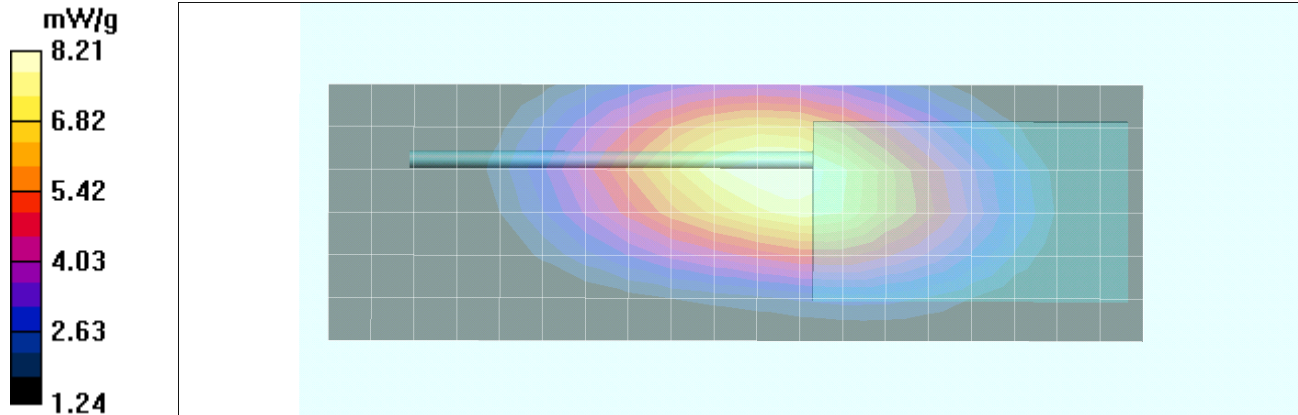
MH-81A4B - 16D - 133LI - 460MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 93.3 V/m; Power Drift = -0.396 dB

Peak SAR (extrapolated) = 11.3 W/kg

SAR(1 g) = 7.84 mW/g; SAR(10 g) = 5.66 mW/g

Maximum value of SAR (measured) = 8.21 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B7

Date Tested: 01/17/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.7C; Barometric Pressure: 103.8 kPa; Humidity: 34%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 56.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16D - 133LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 8.71 mW/g

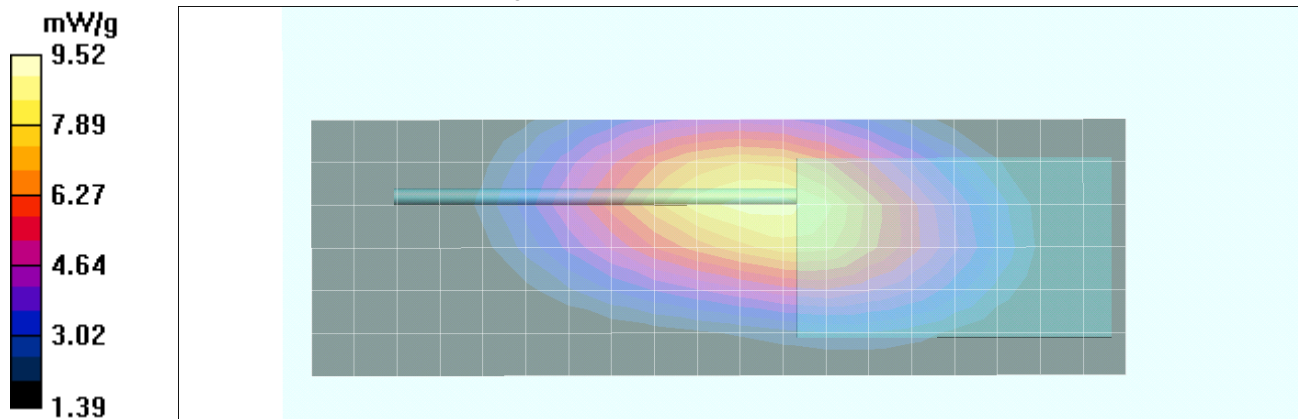
MH-81A4B - 16D - 133LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 100.5 V/m; Power Drift = -0.505 dB

Peak SAR (extrapolated) = 13.1 W/kg

SAR(1 g) = 9.14 mW/g; SAR(10 g) = 6.66 mW/g

Maximum value of SAR (measured) = 9.52 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Plot B8

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 450 \text{ MHz}$; $\sigma = 0.94 \text{ mho/m}$; $\epsilon_r = 57.1$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16DS - 133LI - 450MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 6.58 mW/g

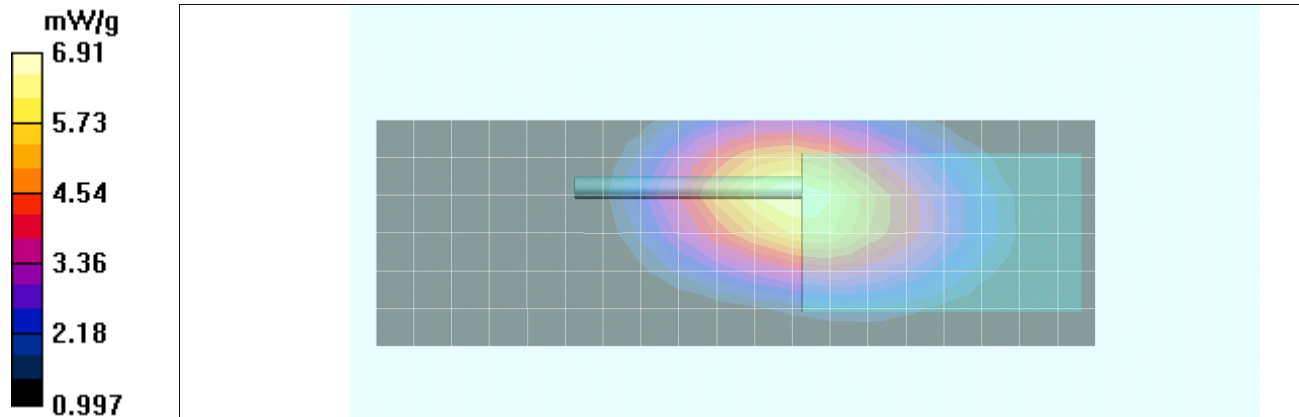
MH-81A4B - 16DS - 133LI - 450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 85.1 V/m; Power Drift = -0.451 dB

Peak SAR (extrapolated) = 9.63 W/kg

SAR(1 g) = 6.63 mW/g; SAR(10 g) = 4.76 mW/g

Maximum value of SAR (measured) = 6.91 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B9

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 460 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 460 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16DS - 133LI - 460MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.15 mW/g

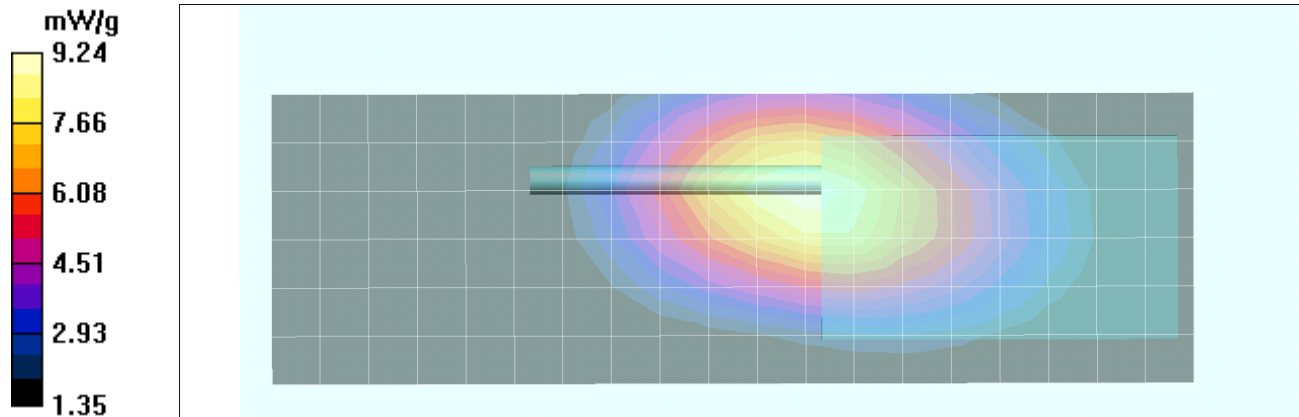
MH-81A4B - 16DS - 133LI - 460MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 99.4 V/m; Power Drift = -0.494 dB

Peak SAR (extrapolated) = 12.8 W/kg

SAR(1 g) = 8.79 mW/g; SAR(10 g) = 6.29 mW/g

Maximum value of SAR (measured) = 9.24 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B10

Date Tested: 01/17/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.7C; Barometric Pressure: 103.8 kPa; Humidity: 34%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470$ MHz; $\sigma = 0.93$ mho/m; $\epsilon_r = 56.4$; $\rho = 1000$ kg/m³

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16DS - 133LI - 470MHz/Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 8.60 mW/g

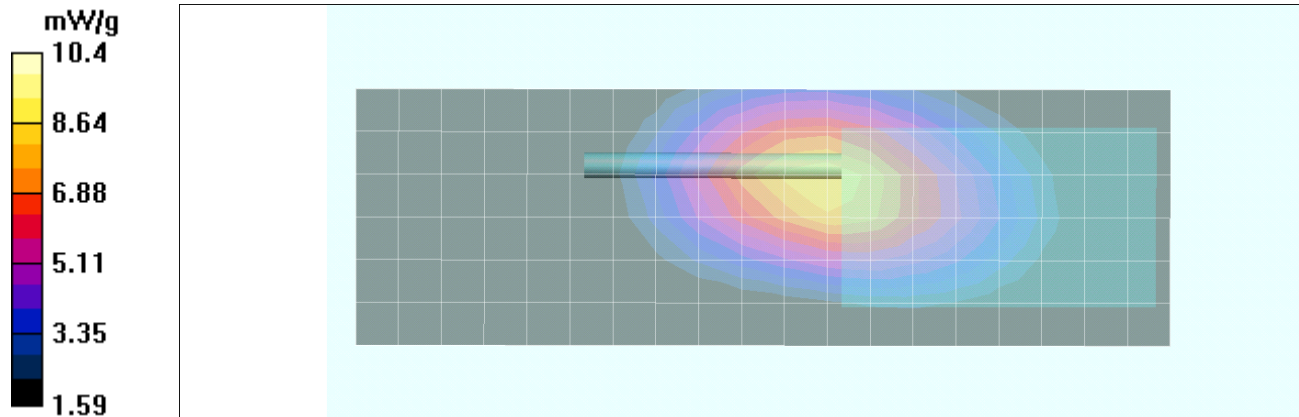
MH-81A4B - 16DS - 133LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 107.2 V/m; Power Drift = -0.627 dB

Peak SAR (extrapolated) = 14.2 W/kg

SAR(1 g) = 9.89 mW/g; SAR(10 g) = 7.16 mW/g

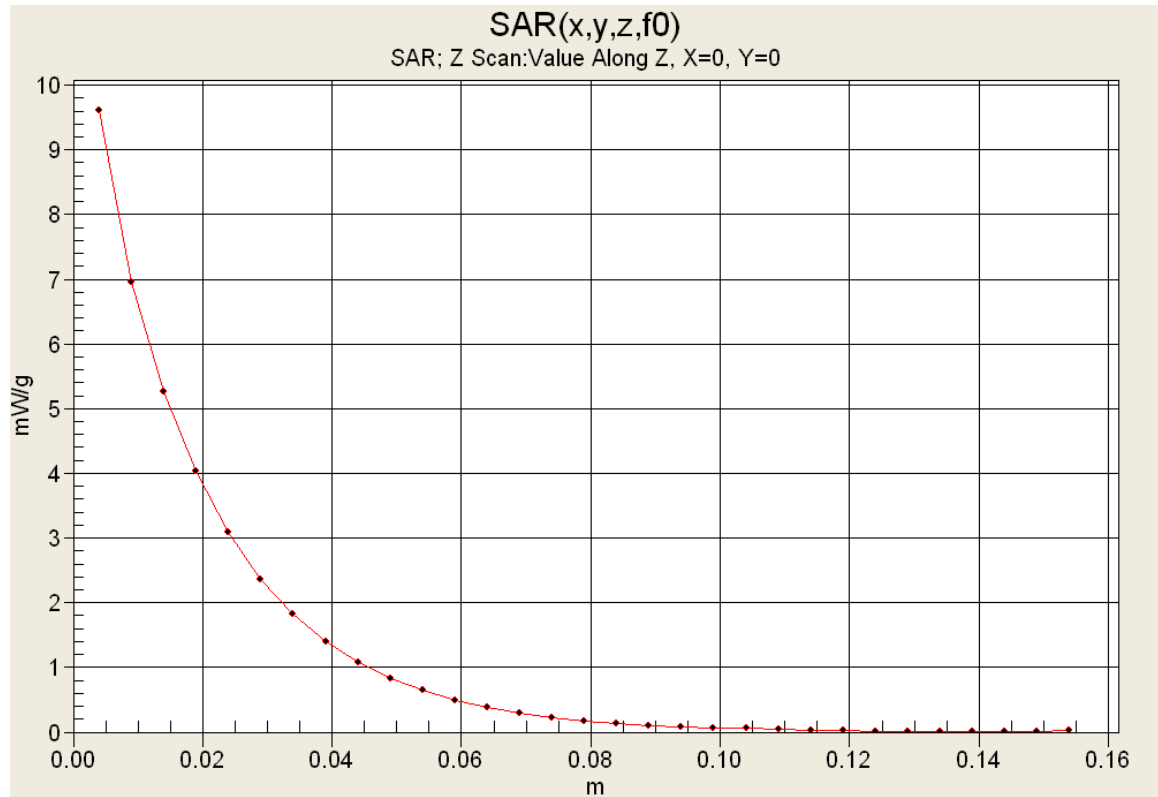
Maximum value of SAR (measured) = 10.4 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Z-axis Scan



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B11

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 57.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16D - 134LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 8.83 mW/g

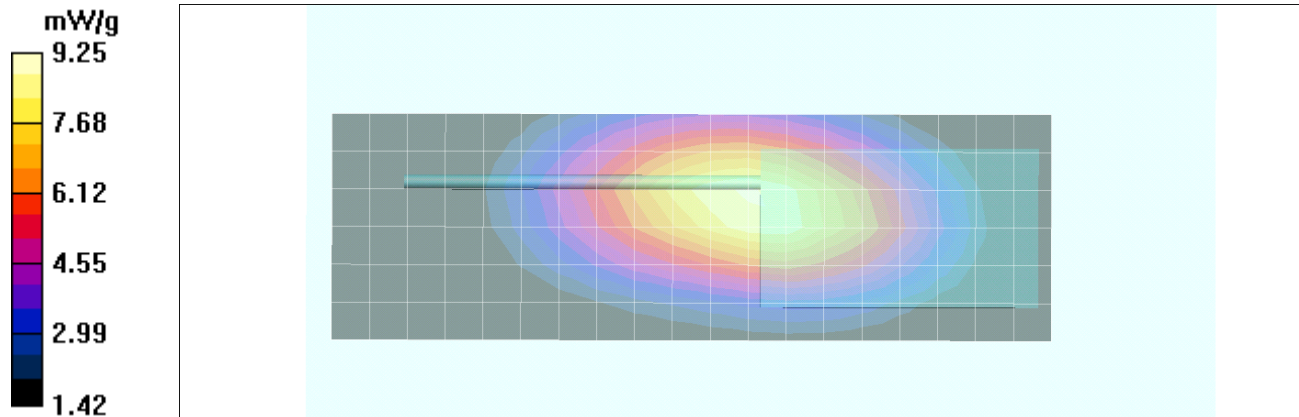
MH-81A4B - 16D - 134LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 100.8 V/m; Power Drift = -0.496 dB

Peak SAR (extrapolated) = 12.6 W/kg

SAR(1 g) = 8.81 mW/g; SAR(10 g) = 6.37 mW/g

Maximum value of SAR (measured) = 9.25 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot B12

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 57.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-81A4B - 16DS - 134LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.71 mW/g

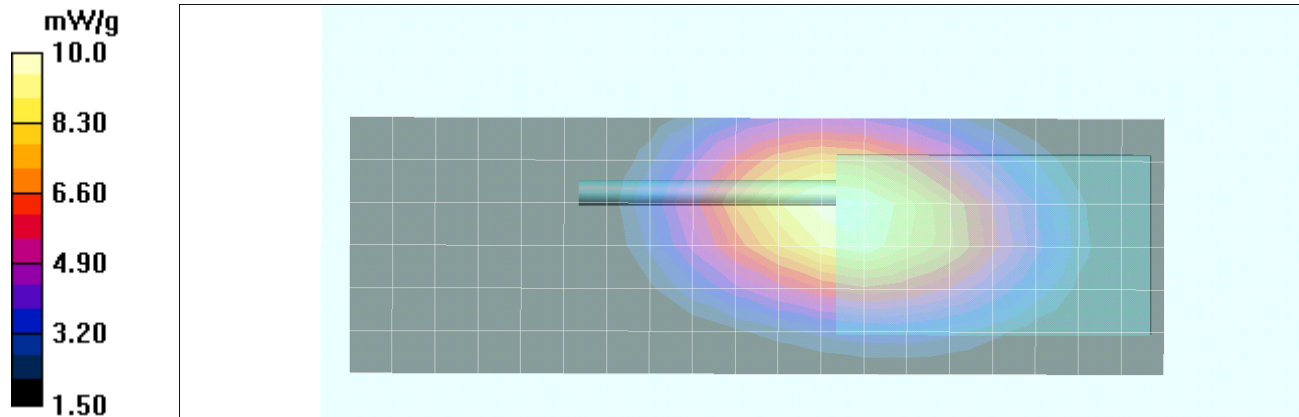
MH-81A4B - 16DS - 134LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 104.5 V/m; Power Drift = -0.515 dB

Peak SAR (extrapolated) = 13.8 W/kg

SAR(1 g) = 9.55 mW/g; SAR(10 g) = 6.87 mW/g

Maximum value of SAR (measured) = 10.0 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot A1

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 57.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-360S - 16DS - 133LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.89 mW/g

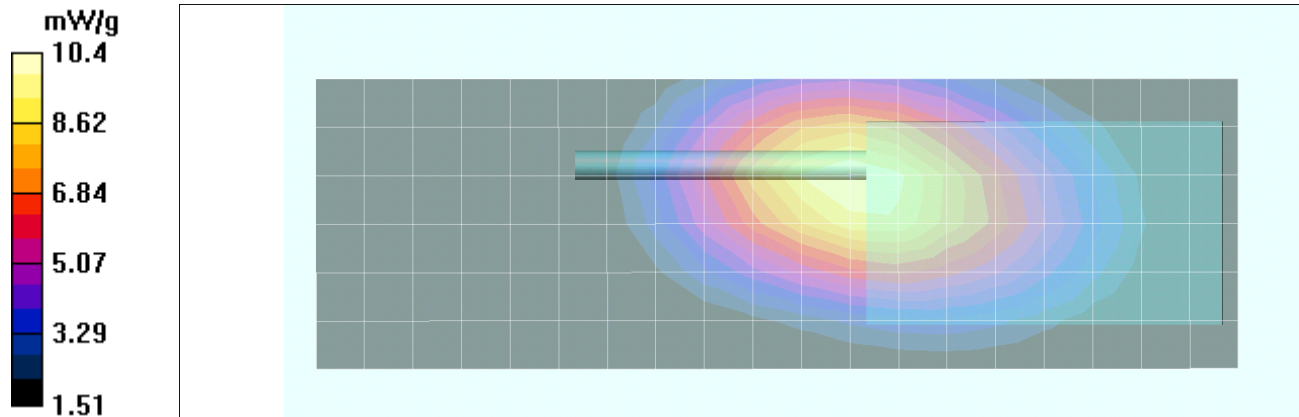
MH-360S - 16DS - 133LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 107.5 V/m; Power Drift = -0.672 dB

Peak SAR (extrapolated) = 14.4 W/kg

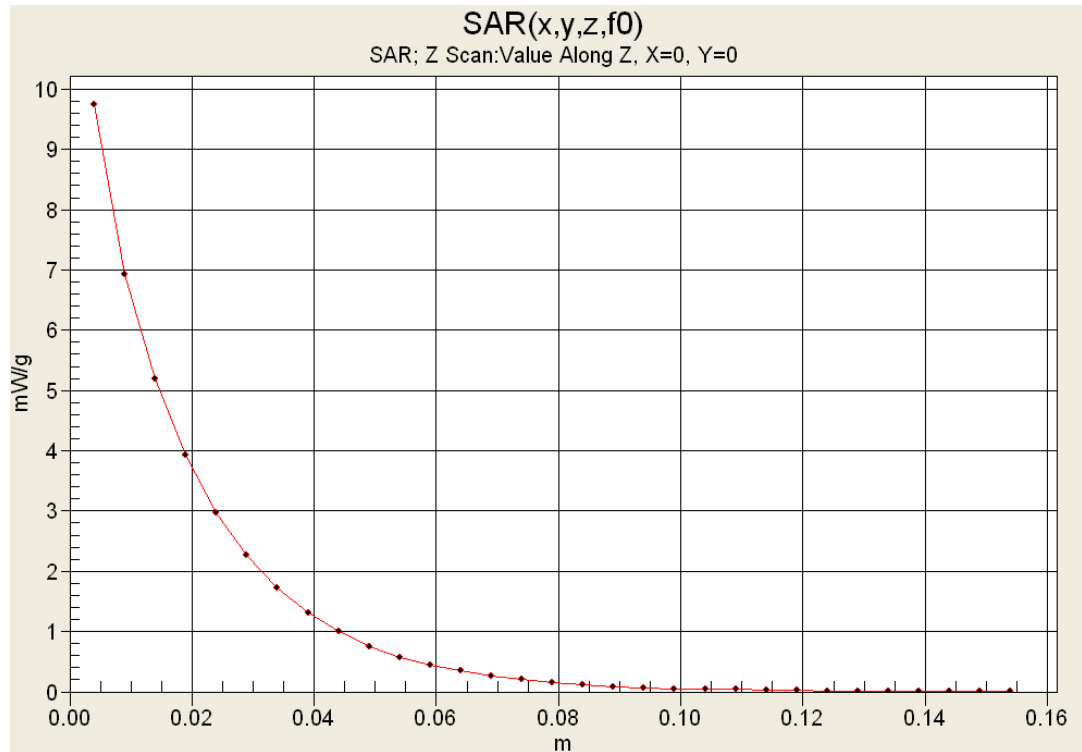
SAR(1 g) = 9.91 mW/g; SAR(10 g) = 7.14 mW/g

Maximum value of SAR (measured) = 10.4 mW/g

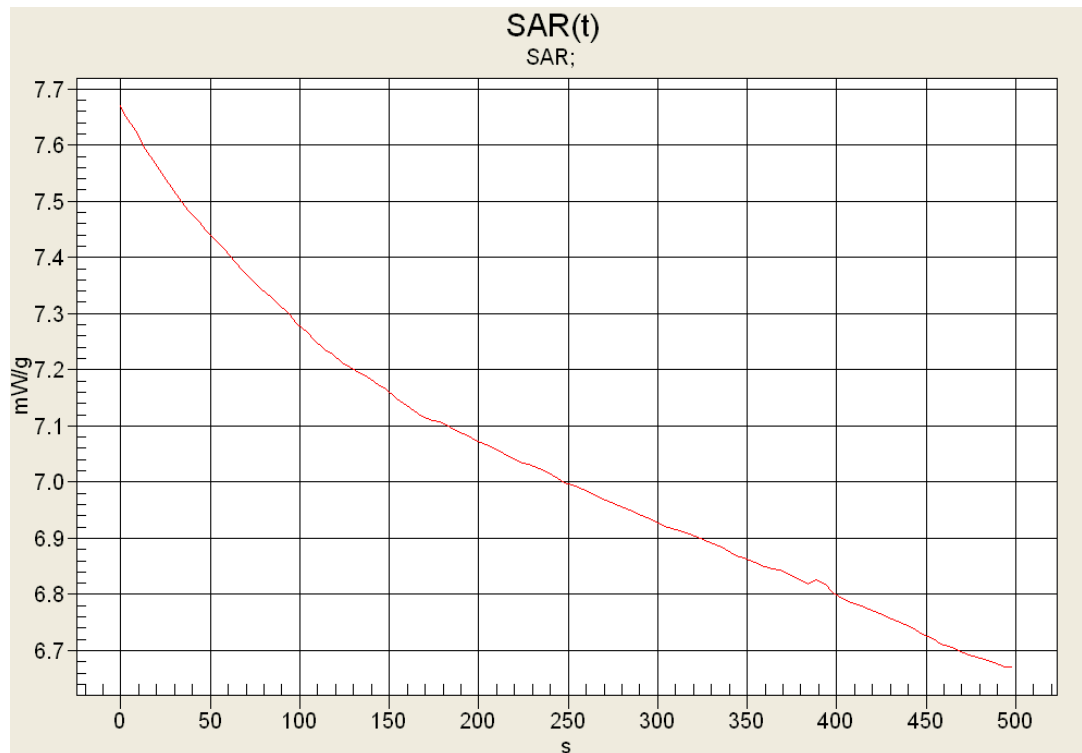


Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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Z-axis Scan



SAR vs. Time



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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot A2

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 57.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-37A4B - 16DS - 133LI - 470MHz/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 10.0 mW/g

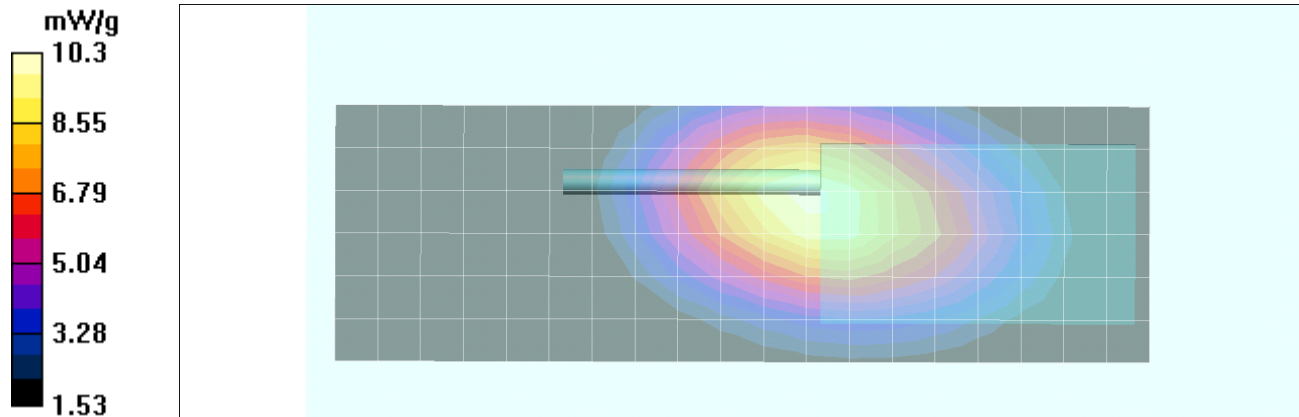
MH-37A4B - 16DS - 133LI - 470MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 107.0 V/m; Power Drift = -0.560 dB

Peak SAR (extrapolated) = 14.2 W/kg

SAR(1 g) = 9.83 mW/g; SAR(10 g) = 7.11 mW/g

Maximum value of SAR (measured) = 10.3 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Plot R1

Date Tested: 01/18/2013

DUT: EVX-531-G6-5; Type: UHF PTT Radio Transceiver; Serial: Not Specified

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: UHF 400-470

Frequency: 470 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 470 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 57.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

MH-360S - 16DS - 133LI - 470MHz 2/Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

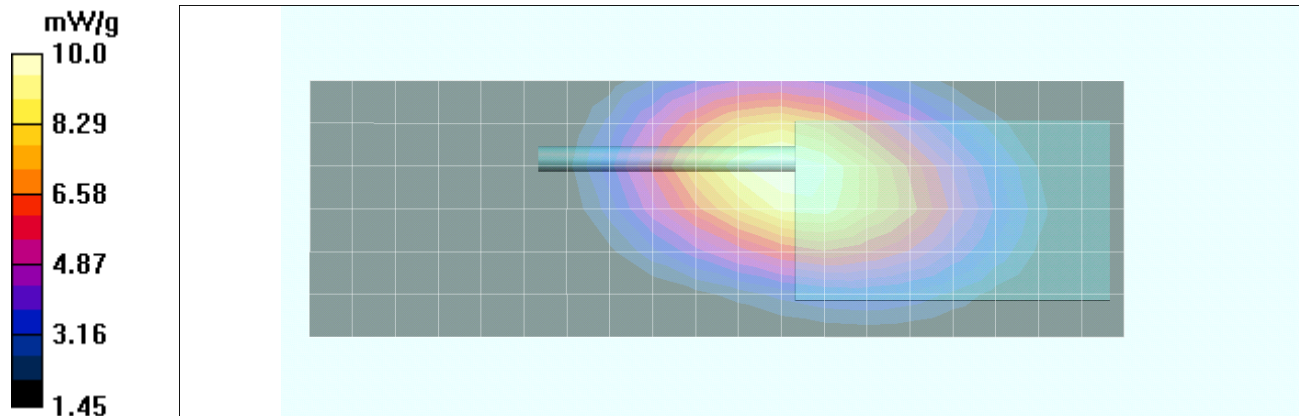
Maximum value of SAR (measured) = 10.0 mW/g

MH-360S - 16DS - 133LI - 470MHz 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 105.1 V/m; Power Drift = -0.622 dB

Peak SAR (extrapolated) = 13.9 W/kg

SAR(1 g) = 9.56 mW/g; SAR(10 g) = 6.87 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

APPENDIX B - SYSTEM PERFORMANCE CHECK PLOTS

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

System Performance Check - 450 MHz Body

Date Tested: 01/16/2013

DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 04/27/2012

Program Notes: Ambient Temp: 23.0C; Fluid Temp: 22.7C; Barometric Pressure: 103.8 kPa; Humidity: 34%

Procedure Notes:

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 450 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 57.3$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.92 mW/g

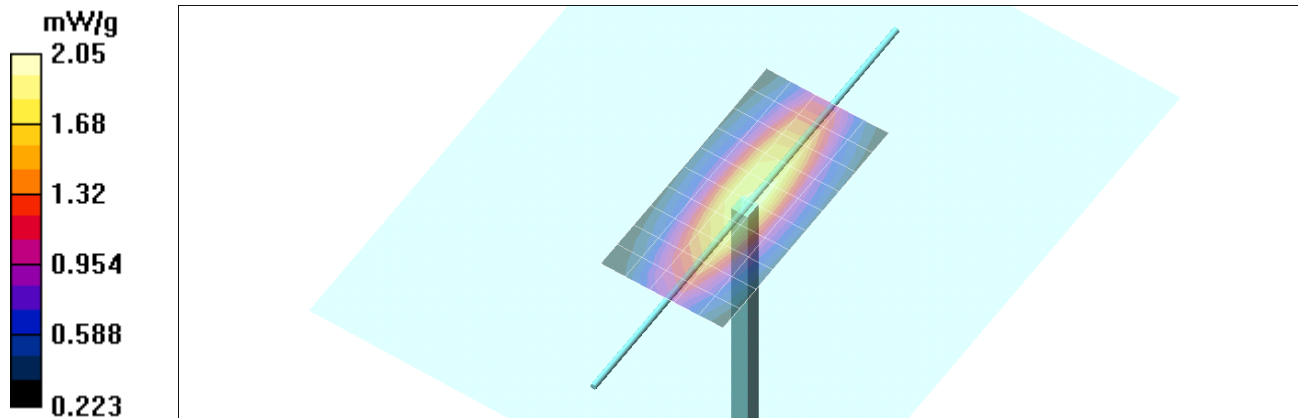
Body d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 46.8 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 3.11 W/kg

SAR(1 g) = 1.92 mW/g; SAR(10 g) = 1.27 mW/g

Maximum value of SAR (measured) = 2.05 mW/g

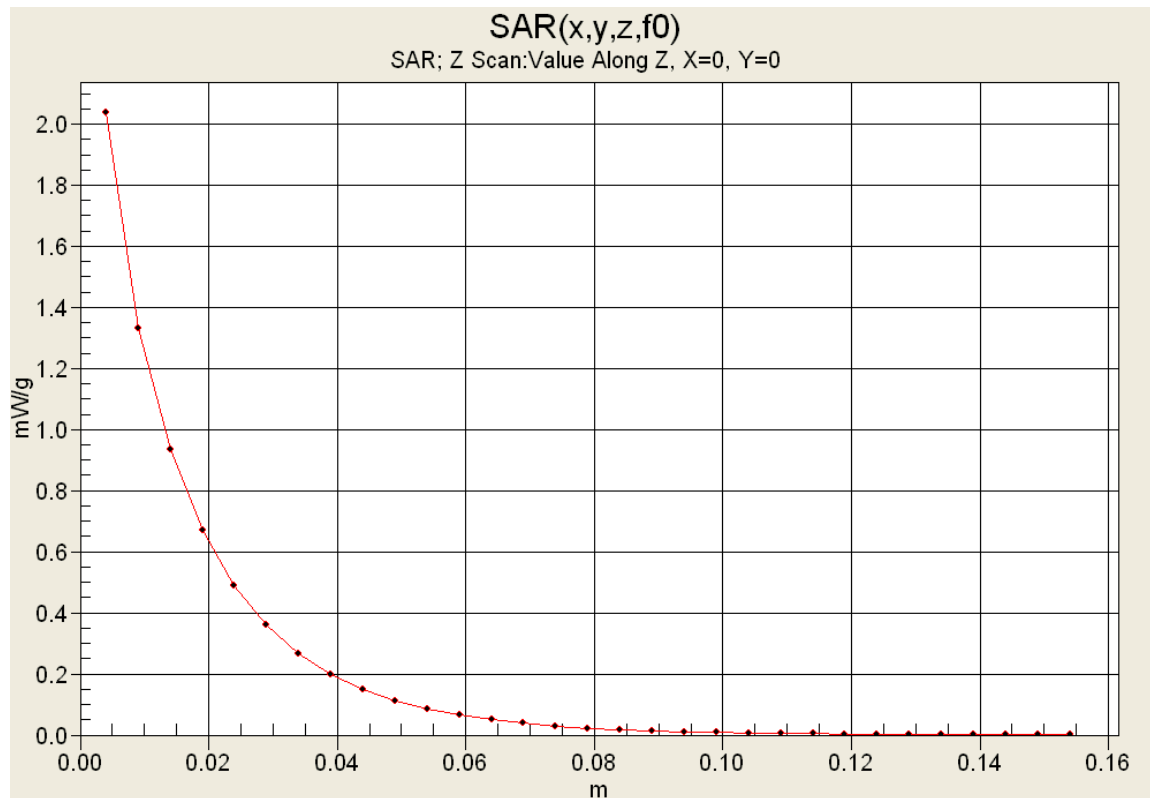


Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Z-Axis Scan



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

System Performance Check - 450 MHz Body

Date Tested: 01/18/2013

DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 04/27/2012

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 22.3C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used: $f = 450 \text{ MHz}$; $\sigma = 0.94 \text{ mho/m}$; $\epsilon_r = 57.1$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.93, 7.93, 7.93); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.80 mW/g

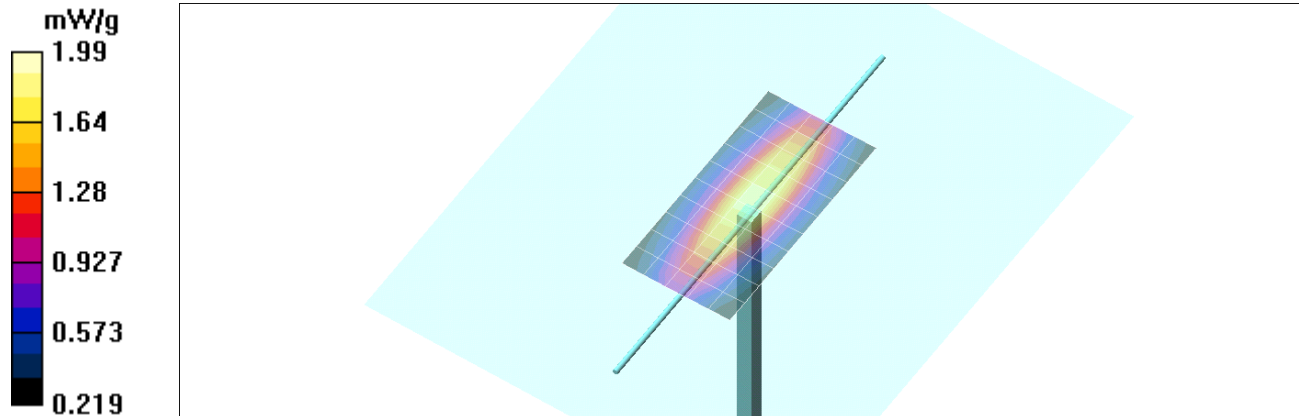
Body d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 46.4 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 3.00 W/kg

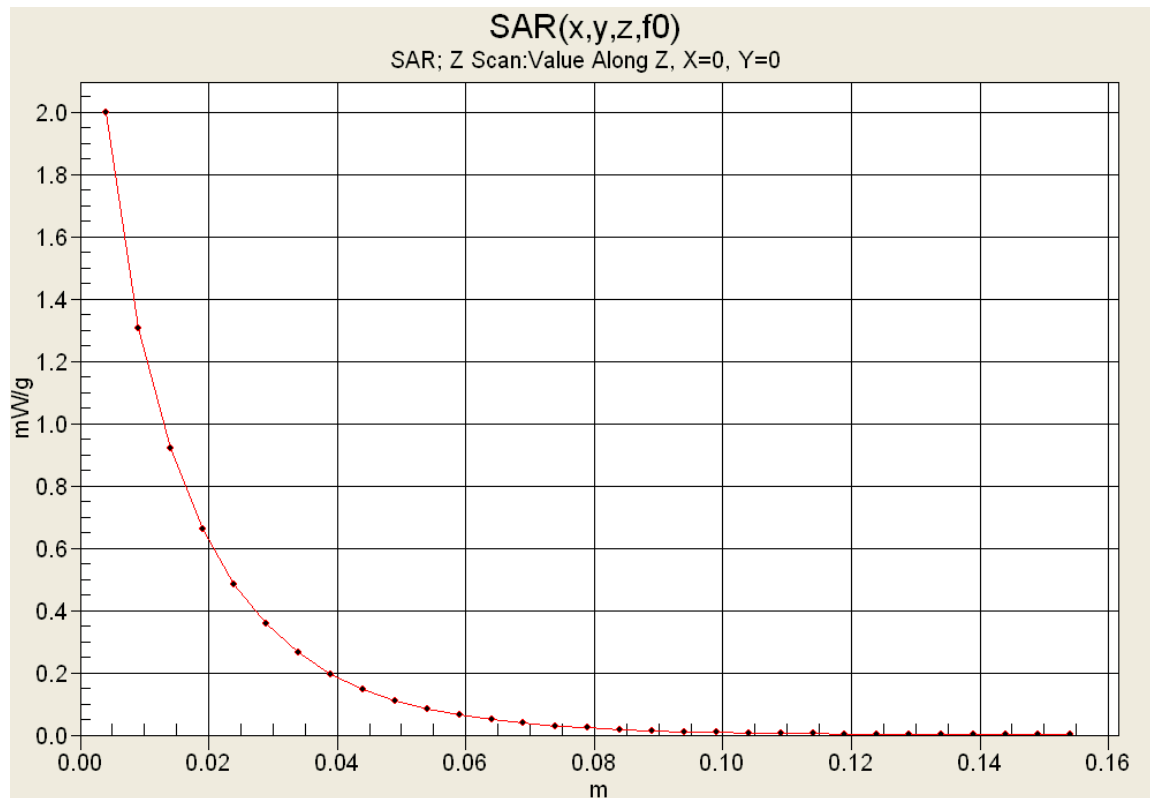
SAR(1 g) = 1.88 mW/g; SAR(10 g) = 1.25 mW/g

Maximum value of SAR (measured) = 1.99 mW/g



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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Z-Axis Scan



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	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

System Performance Check - 450 MHz Head

Date Tested: 01/18/2013

DUT: Dipole 450 MHz; Type: D450V3; Serial: 1068; Calibrated: 04/27/2012

Program Notes: Ambient Temp: 22.0C; Fluid Temp: 20.8C; Barometric Pressure: 102.6 kPa; Humidity: 32%

Procedure Notes:

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used: $f = 450 \text{ MHz}$; $\sigma = 0.86 \text{ mho/m}$; $\epsilon_r = 45$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.54, 7.54, 7.54); Calibrated: 24/04/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 19/04/2012
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Head d=15mm Pin=398mW/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.86 mW/g

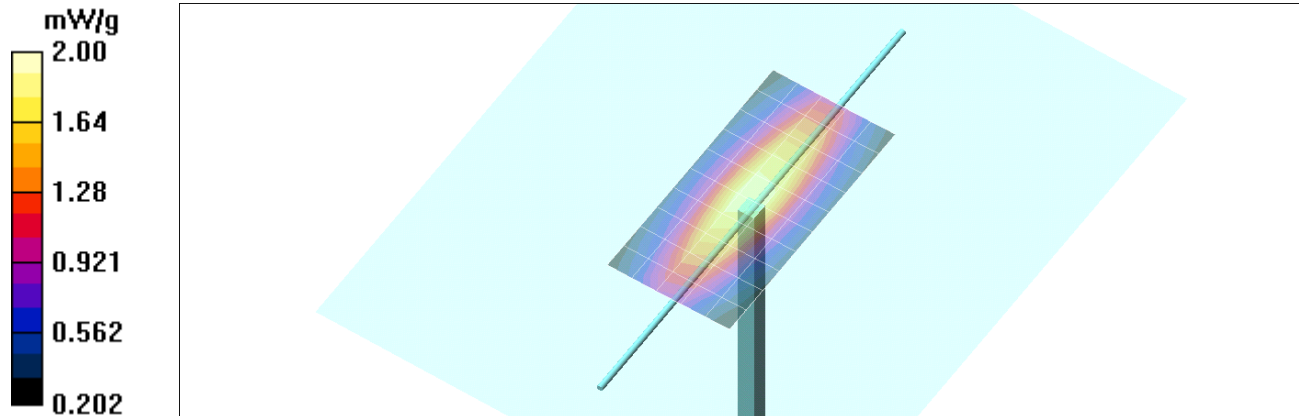
Head d=15mm Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 49.1 V/m; Power Drift = -0.033 dB

Peak SAR (extrapolated) = 2.96 W/kg

SAR(1 g) = 1.87 mW/g; SAR(10 g) = 1.24 mW/g

Maximum value of SAR (measured) = 2.00 mW/g

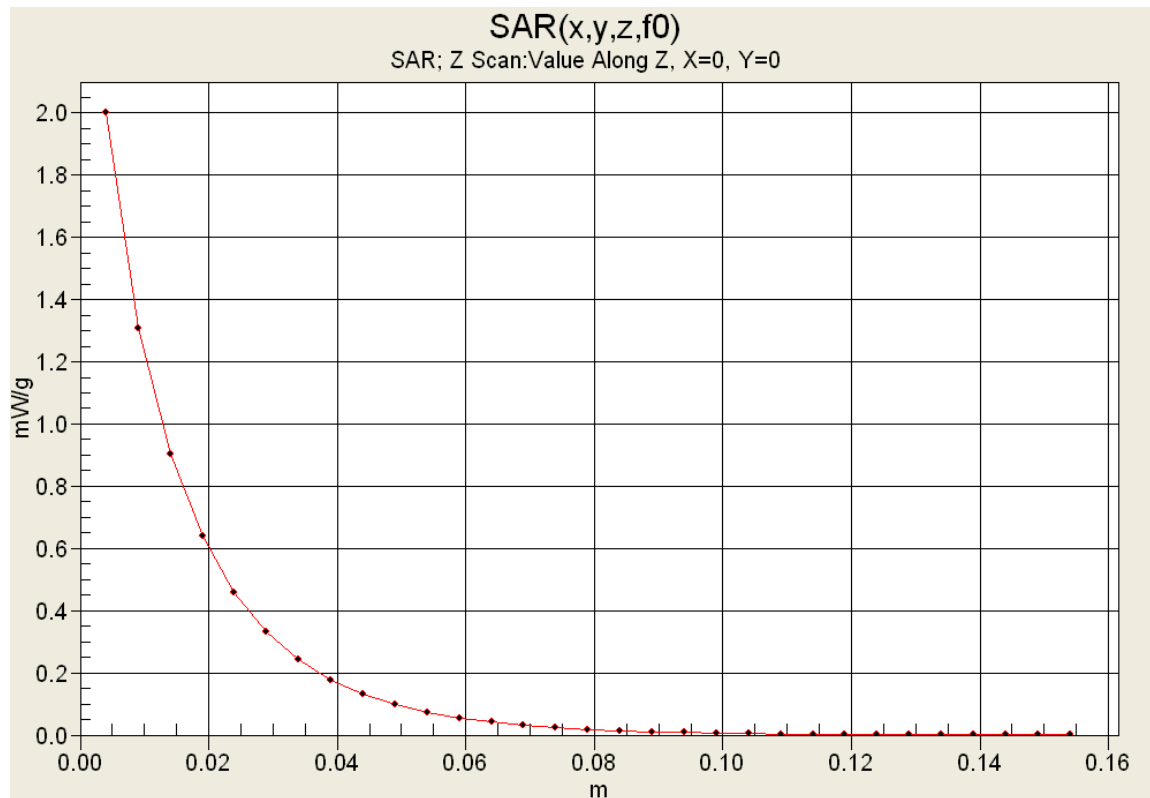


Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

Z-Axis Scan



Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver		Models:	EVX-531-G6-5	406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5	406.1 – 470.0 MHz		
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

450 MHz Body

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
16/Jan/2013
Freq 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
0.3500	57.70	0.93	58.90	0.83
0.3600	57.60	0.93	58.42	0.84
0.3700	57.50	0.93	57.73	0.83
0.3800	57.40	0.93	58.20	0.84
0.3900	57.30	0.93	57.74	0.86
0.4000	57.20	0.93	57.36	0.87
0.4100	57.10	0.93	56.80	0.87
0.4200	57.00	0.94	57.29	0.91
0.4300	56.90	0.94	57.19	0.89
0.4400	56.80	0.94	57.12	0.92
0.4500	56.70	0.94	57.25	0.93
0.4600	56.66	0.94	57.05	0.93
0.4700	56.62	0.94	56.44	0.93
0.4800	56.58	0.94	56.20	0.93
0.4900	56.54	0.94	56.04	0.93
0.5000	56.51	0.94	55.77	0.95
0.5100	56.47	0.94	55.77	0.97
0.5200	56.43	0.95	55.39	0.98
0.5300	56.39	0.95	55.23	1.01
0.5400	56.35	0.95	55.13	1.01
0.5500	56.31	0.95	55.12	1.00

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

450 MHz Body

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

18/Jan/2013

Freq 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
0.3500	57.70	0.93	58.63	0.84
0.3600	57.60	0.93	59.06	0.85
0.3700	57.50	0.93	58.98	0.86
0.3800	57.40	0.93	57.58	0.87
0.3900	57.30	0.93	57.83	0.90
0.4000	57.20	0.93	57.80	0.89
0.4100	57.10	0.93	58.28	0.89
0.4200	57.00	0.94	58.34	0.90
0.4300	56.90	0.94	57.61	0.92
0.4400	56.80	0.94	57.90	0.92
0.4500	56.70	0.94	57.12	0.94
0.4600	56.66	0.94	56.75	0.92
0.4700	56.62	0.94	57.41	0.93
0.4800	56.58	0.94	56.83	0.96
0.4900	56.54	0.94	56.81	0.94
0.5000	56.51	0.94	56.50	0.97
0.5100	56.47	0.94	56.26	0.97
0.5200	56.43	0.95	56.20	0.98
0.5300	56.39	0.95	56.19	1.01
0.5400	56.35	0.95	55.81	0.99
0.5500	56.31	0.95	55.64	1.01

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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	<u>Date(s) of Evaluation</u> Jan. 17-18, 2013	<u>Test Report Serial No.</u> 011013AXI-T1214-S90	<u>Test Report Revision No.</u> Rev. 1.0 (1st Release)	
	<u>Test Report Issue Date</u> Jan. 21, 2013	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Test Lab Certificate No. 2470.01

450 MHz Head

Celltech Labs Inc
Test Result for UIM Dielectric Parameter
18/Jan/2013

Freq Frequency(GHz)

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

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

Test_e Epsilon of UIM

Test_s Sigma of UIM

Freq	FCC_eHF	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	47.03	0.78
0.3600	44.58	0.87	47.69	0.79
0.3700	44.46	0.87	47.05	0.79
0.3800	44.34	0.87	45.87	0.78
0.3900	44.22	0.87	46.36	0.82
0.4000	44.10	0.87	45.40	0.81
0.4100	43.98	0.87	46.09	0.83
0.4200	43.86	0.87	45.39	0.84
0.4300	43.74	0.87	45.43	0.84
0.4400	43.62	0.87	45.54	0.85
0.4500	43.50	0.87	44.99	0.86
0.4600	43.45	0.87	44.64	0.87
0.4700	43.40	0.87	44.73	0.88
0.4800	43.34	0.87	44.43	0.88
0.4900	43.29	0.87	44.51	0.89
0.5000	43.24	0.87	43.90	0.92
0.5100	43.19	0.87	43.33	0.91
0.5200	43.14	0.88	43.42	0.90
0.5300	43.08	0.88	42.86	0.94
0.5400	43.03	0.88	42.95	0.93
0.5500	42.98	0.88	42.72	0.94

Applicant:	Vertex Standard USA Inc.	FCC ID:	AXI11134620	IC ID:	10239A-11134620	
DUT Type:	Portable UHF PTT Radio Transceiver	Models:	EVX-531-G6-5		406.1 – 470.0 MHz	
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