Test Report

Curtis-Straus LLC, *a wholly owned subsidiary of BV CPS*

Report No	EQ2777-2
Client	BioSensics LLC
Address	42 Pleasant Street Suite 2 Watertown, MA 02472
Phone	(617) 678-3206
Items tested	ActivePERS (Model: AP004)
FCC ID	2AA5HAP004
IC	22184-AP004
Equipment Type	Digital Transmission System
Equipment Code	DTS
FCC/IC Rule Parts	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1
Test Dates	Oct 26, 31, Nov 15, 18 and Dec 15, 2016
Results	As detailed within this report
Prepared by	Tuyen Truong – EMC Engineer
Authorized by	Christopher Reynolds – EMC Supervisor
Issue Date	1/17/2017
Conditions of Issue	This Test Report is issued subject to the conditions stated in the '*Conditions of Testing*' section on page 33 of this report.

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Form Final Report REV 7-20-07 (DW)

Summary

This test report supports an application for certification of a transmitter operating pursuant to: CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 1

ActivePERS (Model: AP004) is a Bluetooth Low Energy transmitter operating in the 2402MHz-2480MHz frequency range.

Antenna Type: Internal surface mount chip

Gain: 1.5dBi

We found that the product met the above requirements with modification.

Detail of modifications as followed:

- A shunt capacitor (3pf) was added at L4 location on the RF portion of the circuit (PCA-02-51-0010-002.
- Test points TP14, TP15, TP16, TP17 and TP18 were added to the circuit (PCA-02-51-0010-002). Test point 12C lines (FLASH_SDO, FLASH_SDI, FLASH_SCLK) were added to the existing Flash Memory so the 12c lines were not shared with Accelerometer within the circuit (PCA-02-51-0010-002). Due to the change, the EUT circuit PCA-02-51-0010-02_rev1 was updated to PCA-02-51-0010-02_rev3.

The following tests were repeated with the above modifications: Output Power and Radiated Spurious Emissions.

Test samples were received in good condition.

Issue No.	Reason for change	Date Issued
1	Original Release	January 17, 2017

Test Methodology

All testing was performed according to the following rules/procedures/documents; CFR 47 Part 15.247, RSS-247 Issue 1, RSS-Gen Issue 4, FCC KDB 558074 D01 DTS Measurement Guidance v03r05 and ANSI C63.10-2013.

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) as well as varying the test antenna's height and polarity.

A second sample was provided with temporary RF connector for Antenna Port measurement.

RF measurements were performed at the antenna port. 3 channels were tested as follows:

- 2402MHz: Low Channel (#0)
- 2440MHz: Mid Channel (#19)
- 2480MHz: High Channel (#39)

EUT operating voltage is 3VDC from battery

The following bandwidths were used during radiated spurious emissions testing.

Frequency	RBW	VBW
30-1000MHz	120kHz	1MHz
1-25GHz	1MHz	3MHz

Product Tested - Configuration Documentation

EUT Configuration			
Work Order:	Q2777		
Company:	BioSensics LLC		
Company Address:	42 Pleasant St. Suite 2		
	Watertown, MA, 02472		
Contact:	Jackson Maier		
	MN	**PN**	**SN**
EUT:	AP004	PCA-02-51-0010-002	78C7 (Antenna port tests)
	AP004	PCA-02-51-0010-002	Sample 1 (Radiated tests)
EUT Description:	ActivePERS		
EUT Max Frequency:	24 MHz (digital circuitry)		
EUT Min Frequency:	0.032768 MHz (digital circuitry)		
Transmit Frequency Range:	2402MHz – 2480MHz		
Support Equipment	**MN**		
DC Power Supply	HP E3612A		
Software Operating Mode Description:			
Transmitting on 3 channels: 2402MHz (low), 2440MHz (middle), 2480MHz (high)			

Statement of Conformity

The ActivePERS (Model: AP004) has been found to conform to the following parts of 47 CFR as detailed below:

RSS-GEN	RSP-100	RSS 247	Part 15	Comments
6.3			15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
	3.1		15.19	The label is shown in the label exhibit.
	4		15.21	Information to the user is shown in the instruction manual exhibit.
			15.27	No special accessories are required for compliance.
3, 6.1			15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13			15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
8.1			15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
8.3			15.203	EUT has an internal surface mount chip antenna with 1.5dBi gain
8.10			15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable
8.8			15.207	N/A, battery powered only.
			15.247	The unit complies with the requirements of 15.247
		RSS 247		The unit complies with the requirements of RSS-247
6.6				Occupied Bandwidth measurements were made.

Test Results

DTS Bandwidth

Limit: The minimum 6 dB bandwidth shall be at least 500 kHz. [15.247(a)(2)]

MEASUREMENTS / RESULTS

6dB Bandwidth

Date: Oct-26-2016 **Company:** BioSensics LLC **Work Order:** Q2777
Engineer: Yunus Faziloglu **EUT:** ActivePERS™ Model: AP004 **EUT Operating Voltage/Frequency:** 3VDC Battery
Temp: 21.2°C **Humidity:** 41% **Pressure:** 1013mbar

Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted
Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance v03r05 Section 8.2

Notes: EUT powered by DC power supply during the test

Frequency (MHz)	Reading (kHz)	6dB Bandwidth Limit (kHz)	Margin (kHz)	Result (Pass/Fail)
2402	702	≥500	202	Pass
2440	720	≥500	220	Pass
2480	731	≥500	231	Pass

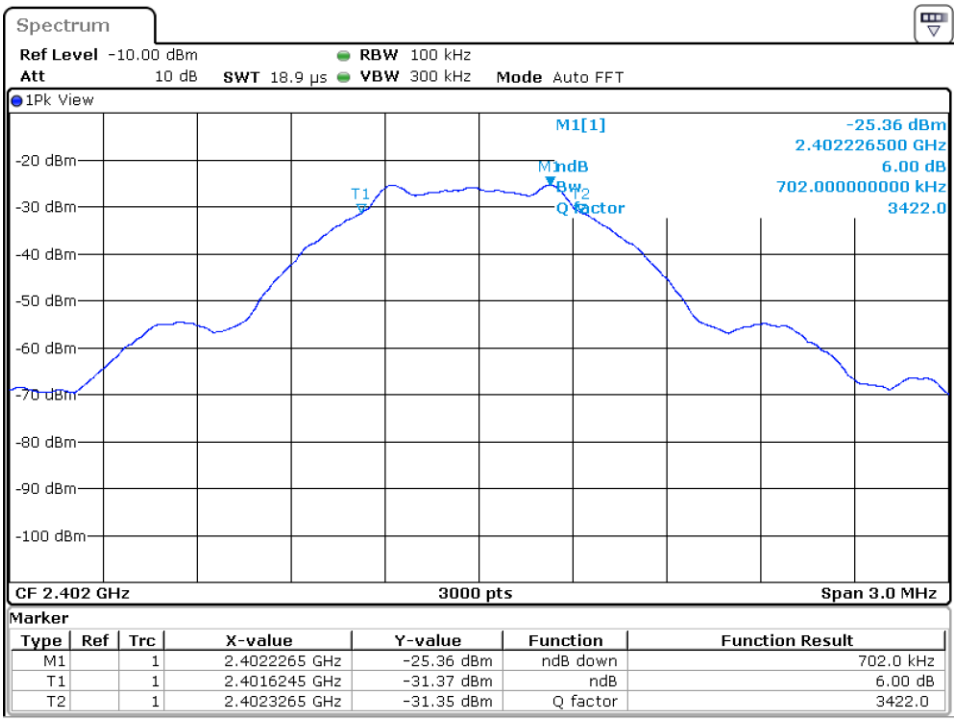
Test Site: Wireless Test Room **Attenuator** A2121
Analyzer: A2200

Rev. 10/2/2016

Spectrum Analyzer	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
FSV40 Signal/Spectrum Analyzer	10Hz-40GHz	FSV40	ROHDE & SCHWARZ	101551	2200	I	6/1/2017	6/1/2016
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2082		HTC-1	HDE		2082	II	4/5/2017	4/5/2016

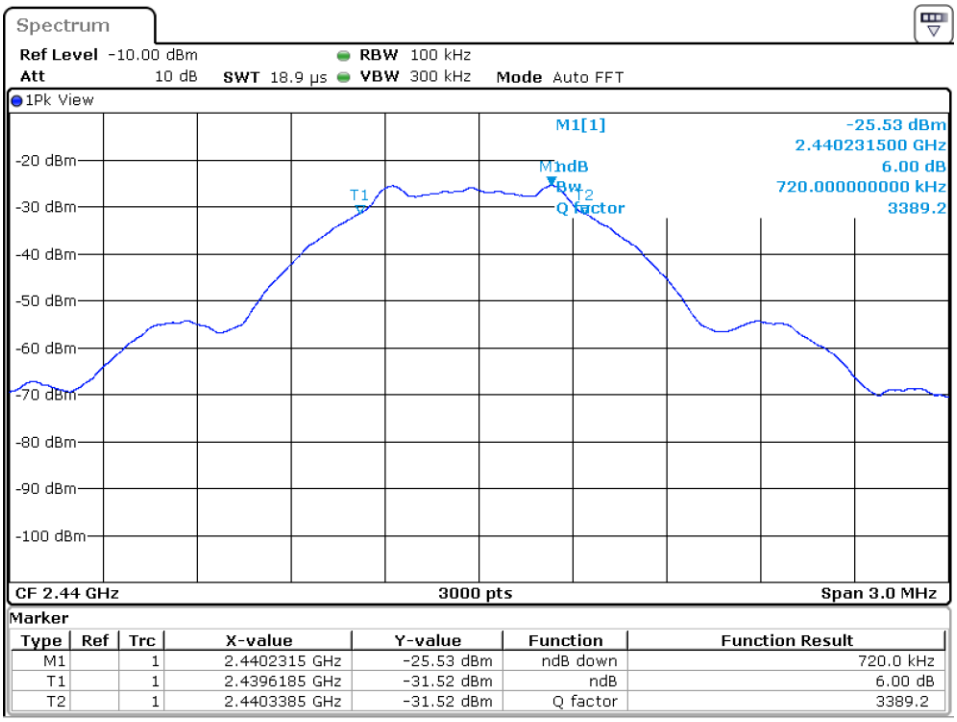
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOT(s)



Date: 26.OCT.2016 10:10:16

6 dB Bandwidth – Low Channel



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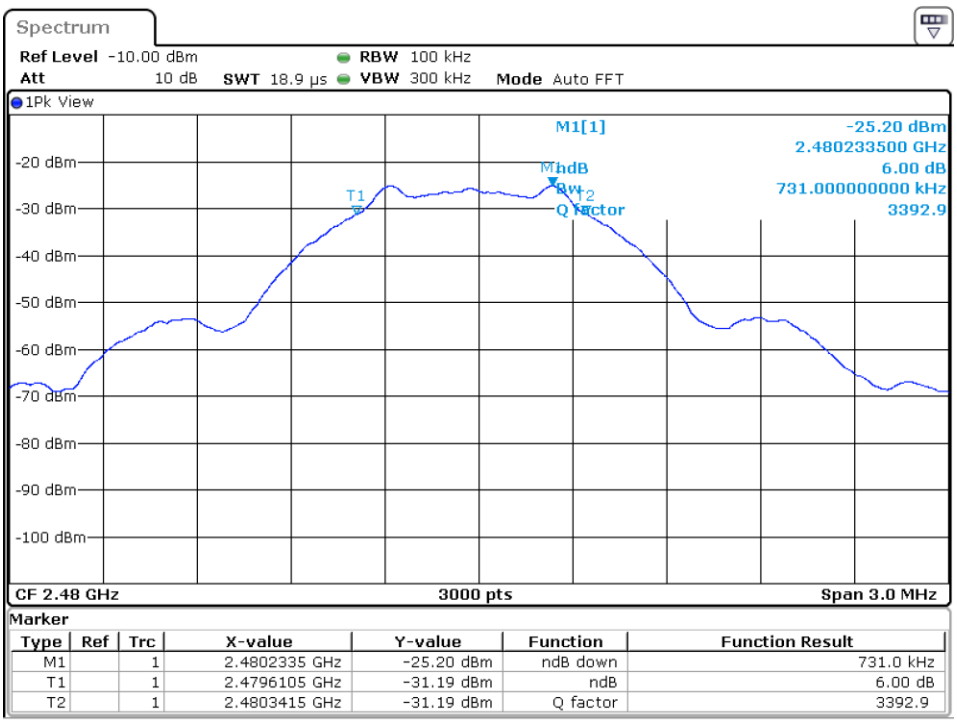
6 dB Bandwidth – Mid Channel



6 dB Bandwidth – High Channel

Output Power

Limit: 1 Watt Conducted Output Power [15.247(b)(3)]

Per 558074 D01 DTS Measurement Guidance v03r05 Section 9.1.1

MEASUREMENTS / RESULTS

Peak Output Power

Date: Nov-18-2016 **Company:** BioSensics LLC **Work Order:** Q2777
Engineer: Yunus Faziloglu **EUT:** ActivePERS™ Model: AP004 **EUT Operating Voltage/Frequency:** 3VDC Battery
Temp: 21.2°C **Humidity:** 41% **Pressure:** 1013mbar
Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted
Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance v03r05 Section 9.1.2
Notes: EUT powered by DC power supply during the test

Frequency (MHz)	Peak Reading (dBm)	Cable Loss (dB)	Attenuator Loss (dB)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)	Result (Pass/Fail)
2402.0	-29.29	1.0	29.44	1.15	30.0	-28.85	Pass
2440.0	-29.14	1.0	29.44	1.30	30.0	-28.70	Pass
2480.0	-28.41	1.0	29.44	2.03	30.0	-27.97	Pass

Test Site: Wireless Test Room **Analyzer** A2200
Peak Output Power (dBm)= Peak Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dB)

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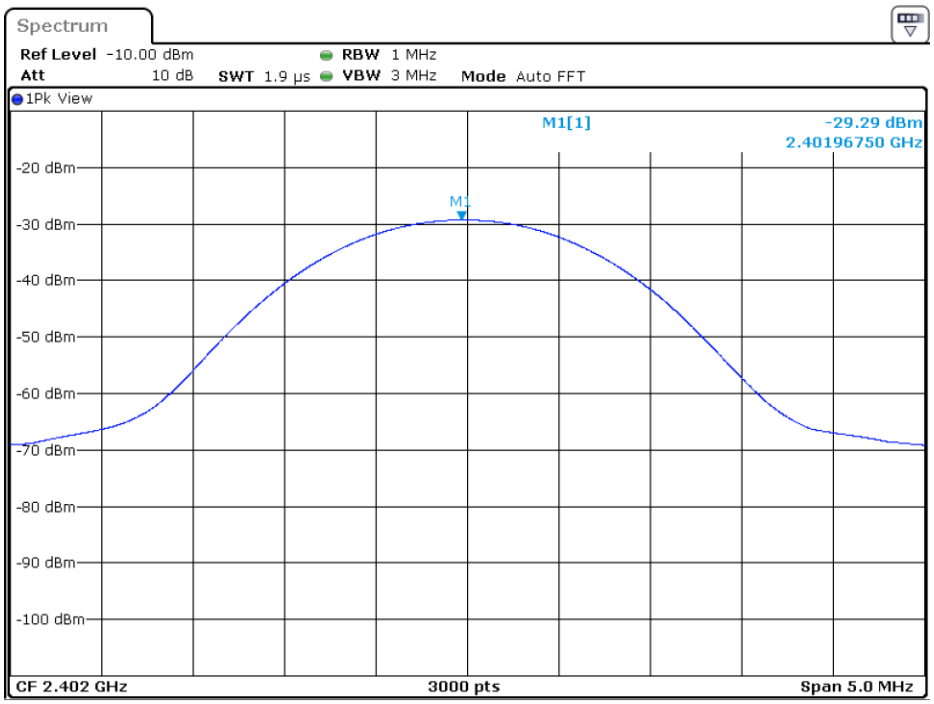
Spectrum Analyzer	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
FSV40 Signal/Spectrum Analyzer	10Hz-40GHz	FSV40	OHDE & SCHWAF	101551	2200	I	6/1/2017	6/1/2016

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	2/10/2017	2/10/2016

Meteorological Meters	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)	BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2082	HTC-1	HDE		2082	II	4/5/2017	4/5/2016

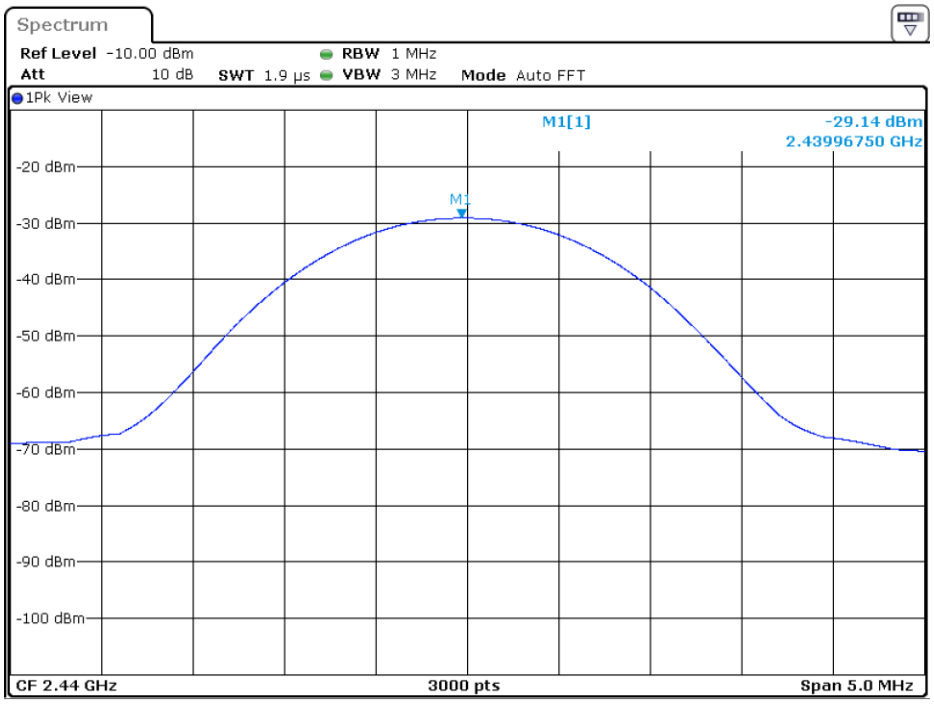
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOT(s)



Date: 18.NOV.2016 10:31:16

Peak Output Power – Low Channel



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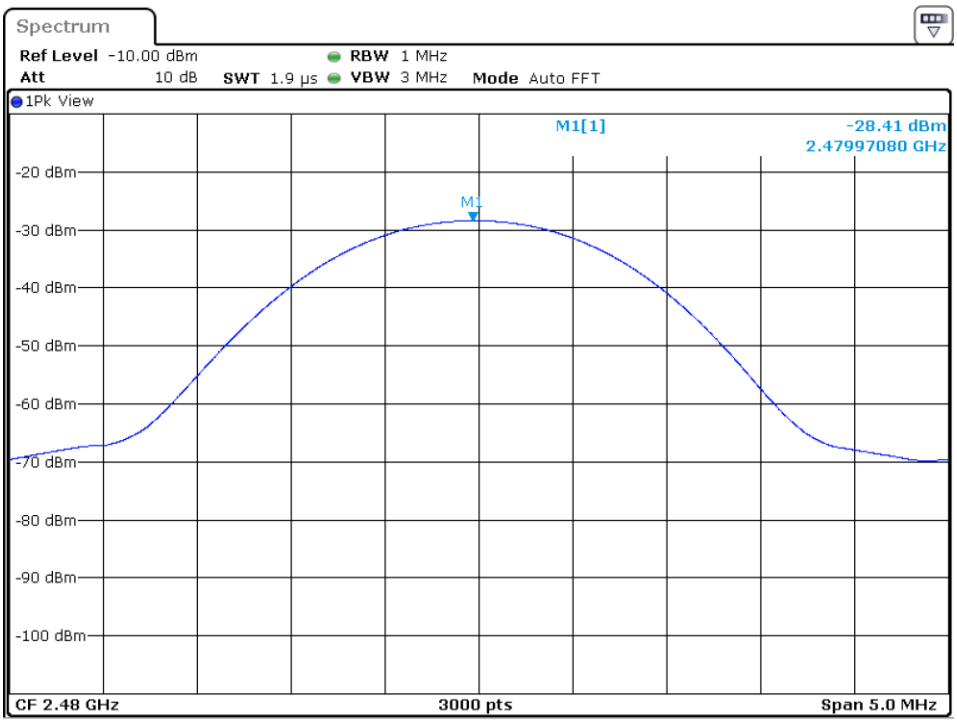
Peak Output Power – Mid Channel



Peak Output Power – High Channel

Duty Cycle Correction Factor

MEASUREMENTS / RESULTS

Radiated Emissions Table - Duty Cycle Correction Factor

Date: 18-Nov-16	**Company:** BioSensics		**Work Order:** Q2777
Engineer: Jason Haley & Zachary Johnson	**EUT Desc:** Active PERS		**EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C	**Humidity:** 25%	**Pressure:** 1011mBar	Battery
Frequency Range: 2480MHz		**Measurement Distance:** 1 m	
Notes:		**EUT Max Freq:** 2480MHz	
Test Site: EMI Chamber 2	**Cable 1:** Asset #2052	**Cable 2:** Asset #2053	**Cable 3:** EMIR-HIGH-06
Analyzer: SA#2	**Preamp:** Asset #2111	**Antenna:** Black Horn	**Preselector:** ---

CSsoft Radiated Emissions Calculator v 1.017.178

DCCF = 20*LOG(0.121337/100) = -58.3dB, Note: a 20dB DCCF is used as a worst case throughout this report

Rev. 11/2/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA #2 (1860)	9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I	12/23/2016	12/23/2015

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
A#2111 HF Preamp	0.5-18GHz	PAM-118A	COM-POWER	551063	2111	II	11/5/2017	11/5/2016

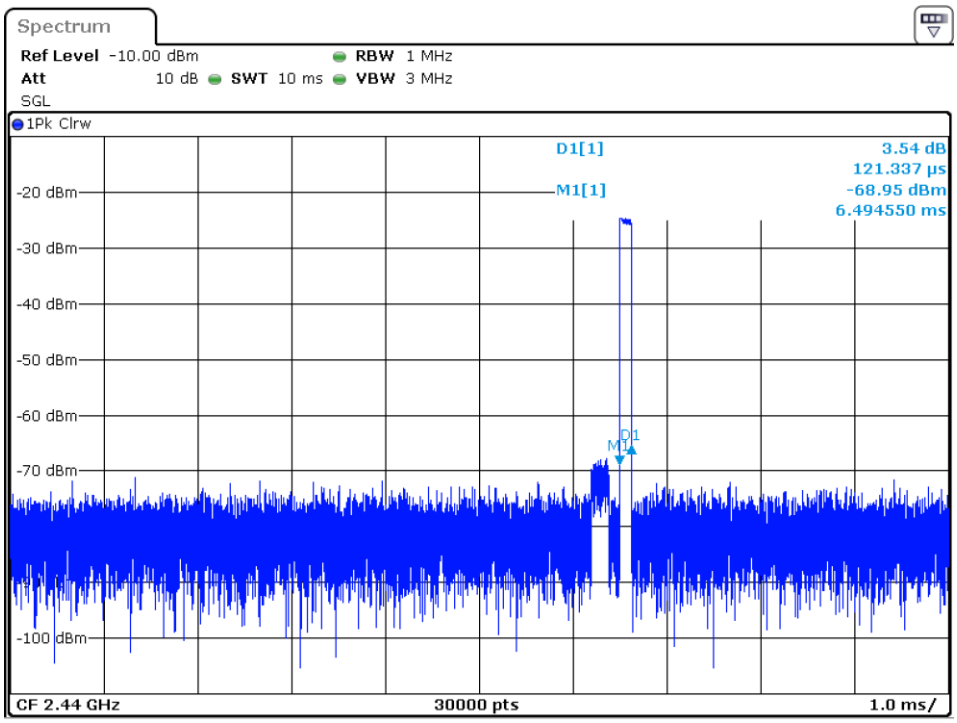
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Black Horn	1-18GHz	3115	EMCO	9703-5148	56	I	8/29/2018	8/29/2016

Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016

Cables	Range		Mfr			Cat	Calibration Due	Calibrated on
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016
Asset #2053	9kHz - 18GHz		Florida RF			II	10/1/3017	10/30/2016
REMI-High-06	1 - 26.5GHz	U-21B0707-1	TRU			II	8/14/2017	8/14/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Plot(s)



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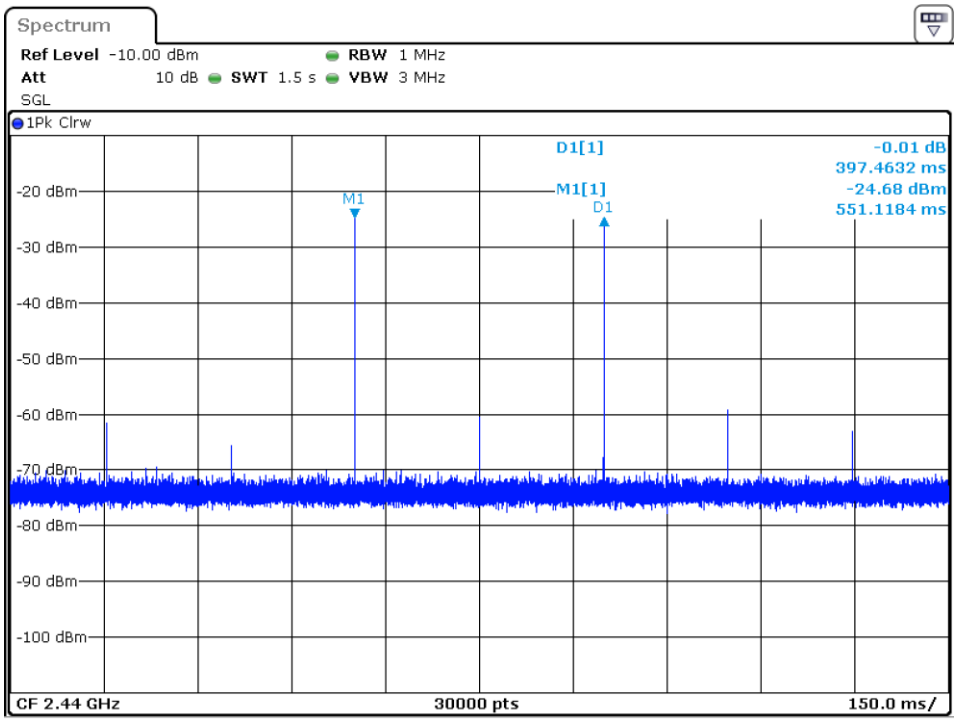
Duration of single pulse



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Period

Radiated Spurious Emissions

LIMITS

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
[15.247(d)]

Radiated emissions were maximized by rotating the device around 3 orthogonal planes (X, Y and Z) and worst case emissions observed in X orientation. All the results below are for the worst case orientation only.

MEASUREMENTS / RESULTS

Band Edge

Radiated Emissions Table

Date: 31-Oct-16 **Company:** BioSensics LLC **Work Order:** Q2777
Engineer: Yunus Faziloglu **EUT Desc:** ActivePERS™ Model: AP004 **EUT Operating Voltage/Frequency:** 3VDC Battery
Temp: 23.5°C **Humidity:** 29% **Pressure:** 1011mbar
Frequency Range: Band edges **Measurement Distance:** 3 m
Notes: Powered from DC power supply **EUT Max Freq:** 2480MHz
Worst case orientation X

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC Class B High Frequency - Peak Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	FCC Class B High Frequency - Average Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
H - NF	2483.5	24.9	11.4	0.0	32.4	3.3	60.6	47.1	74.0	-13.4	Pass	54.0	-6.9	Pass
V - NF	2483.5	24.9	11.5	0.0	32.4	3.3	60.6	47.2	74.0	-13.4	Pass	54.0	-6.8	Pass
H - NF	2390.0	23.9	9.8	0.0	32.3	3.2	59.4	45.3	74.0	-14.6	Pass	54.0	-8.7	Pass
V - NF	2390.0	23.1	9.8	0.0	32.3	3.2	58.6	45.3	74.0	-15.4	Pass	54.0	-8.7	Pass

Table Result: Pass by -6.8 dB ***Worst Freq:*** 2483.5 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: MXE Receiver **Preamp:** none **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.176

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Rev. 10/30/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range	Cat	Calibration Due	Calibrated on
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz	I	4/29/2017	4/29/2015

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	2/8/2017	2/8/2015

Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016

Cables	Range	Mfr	Cat	Calibration Due	Calibrated on
Asset #2052	9kHz - 18GHz	Florida RF	II	3/2/2017	3/2/2016
Asset #2053	9kHz - 18GHz	Florida RF	II	10/1/3017	10/30/2016

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
None								

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Spurious Radiated Emissions

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH & ZJ **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 30-1000MHz **Measurement Distance:** 3 m
Notes: Center channel, FCC 80cm height **EUT Max Freq:** 2480MHz
all channels tested; only the worst case recorded.

Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBµV/m)	--- Limit (dBµV/m)	--- Margin (dB)	--- Result (Pass/Fail)	FCC 15.209 Limit (dBµV/m)	FCC 15.209 Margin (dB)	FCC 15.209 Result (Pass/Fail)
H	73.213	25.4	22.4	8.4	0.5	11.9	---	---	---	40.0	-28.1	Pass
H	107.067	24.4	22.4	12.3	0.6	14.9	---	---	---	43.5	-28.6	Pass
H	199.386	25.4	22.5	12.9	0.9	16.7	---	---	---	43.5	-26.8	Pass
H	525.985	27.1	21.9	17.8	1.6	24.6	---	---	---	46.0	-21.4	Pass
H	816.136	26.7	22.3	21.7	1.9	28.0	---	---	---	46.0	-18.0	Pass
H	999.345	25.7	22.0	23.6	2.1	29.4	---	---	---	54.0	-24.6	Pass
V	48.406	26.6	22.5	8.4	0.4	12.9	---	---	---	40.0	-27.1	Pass
V	87.545	29.8	22.5	7.7	0.5	15.5	---	---	---	40.0	-24.5	Pass
V	89.437	28.4	22.5	7.8	0.5	14.2	---	---	---	43.5	-29.3	Pass
V	105.733	24.3	22.4	12.0	0.6	14.5	---	---	---	43.5	-29.0	Pass
V	200.138	26.0	22.5	12.7	0.8	17.0	---	---	---	43.5	-26.5	Pass
V	816.403	26.2	22.3	21.7	1.9	27.5	---	---	---	46.0	-18.5	Pass

Table Result: Pass by -18.0 dB ***Worst Freq:*** 816.136 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** ---
Analyzer: MXE Receiver **Preamp:** Blue **Antenna:** Red-White **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Rev. 11/2/2016

Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz		II	3/22/2017	3/22/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Blue	0.009-2000MHz	ZFL-1000-LN	CS	N/A	759	II	5/13/2017	5/13/2016
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	I	8/12/2017	8/12/2015
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016
Asset #2053	9kHz - 18GHz		Florida RF			II	10/1/3017	10/30/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 15-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH and ZJ **EUT Desc:** ActivePERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 23.6°C **Humidity:** 24% **Pressure:** 1008mBar Battery
Frequency Range: 1-6GHz **Measurement Distance:** 3 m
Notes: DCCF = -58.3dB, Average = Peak -20dB (worst case) **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC part 15.209 - Peak Limit (dBµV/m)	Peak Margin (dB)	Peak Result (Pass/Fail)	FCC part 15.209 - Average Limit (dBµV/m)	Average Margin (dB)	Average Result (Pass/Fail)
Vert Y, lo ch	4804.0	39.1	19.1	17.7	34.4	4.9	60.7	40.7	74.0	-13.3	Pass	54.0	-13.3	Pass
Horz Y, lo ch	4804.0	44.5	24.5	17.7	34.4	4.9	66.1	46.1	74.0	-7.9	Pass	54.0	-7.9	Pass

Table Result: Pass by -7.9 dB ***Worst Freq:*** 4804.4 MHz

Test Site: EMI Chamber 1 **Cable 1:** Asset #2051 **Cable 2:** Asset #2054 **Cable 3:** ---
Analyzer: MXE Receiver **Preamp:** Brown **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table

Date: 15-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH and ZJ **EUT Desc:** ActivePERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 23.6°C **Humidity:** 24% **Pressure:** 1008mBar Battery
Frequency Range: 1-6GHz **Measurement Distance:** 3 m
Notes: DCCF = -58.3dB, Average = Peak -20dB (worst case) **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC part 15.209 - Peak			FCC part 15.209 - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Vert Y, mid ch	4880.0	38.7	18.7	17.4	34.4	4.9	60.6	40.6	74.0	-13.4	Pass	54.0	-13.4	Pass
Horz Y, mid ch	4880.0	36.5	16.5	17.4	34.4	4.9	58.4	38.4	74.0	-15.6	Pass	54.0	-15.6	Pass

Table Result: Pass by -13.4 dB ***Worst Freq:*** 4880.0 MHz

Test Site: EMI Chamber 1 **Cable 1:** Asset #2051 **Cable 2:** Asset #2054 **Cable 3:** ---
Analyzer: MXE Receiver **Preamp:** Brown **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table

Date: 15-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH and ZJ **EUT Desc:** ActivePERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 23.6°C **Humidity:** 24% **Pressure:** 1008mBar Battery
Frequency Range: 1-6GHz **Measurement Distance:** 3 m
Notes: DCCF = -58.3dB, Average = Peak -20dB (worst case) **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC part 15.209 - Peak			FCC part 15.209 - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Vert Y, hi ch	4960.0	49.6	29.6	17.3	34.4	4.9	71.6	51.6	74.0	-2.4	Pass	54.0	-2.4	Pass
Horz Y, hi ch	4960.0	36.5	16.5	17.3	34.4	4.9	58.5	38.5	74.0	-15.5	Pass	54.0	-15.5	Pass

Table Result: Pass by -2.4 dB ***Worst Freq:*** 4960.0 MHz

Test Site: EMI Chamber 1 **Cable 1:** Asset #2051 **Cable 2:** Asset #2054 **Cable 3:** ---
Analyzer: MXE Receiver **Preamp:** Brown **Antenna:** Blue Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
MXE EMI Receiver	20Hz-26.5GHz	N9038A	Agilent	MY51210181	2093	I	8/9/2017	8/9/2016

Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrated on
EMI Chamber 1	719150	2762A-6	A-0015	1-18GHz		I	5/23/2017	5/23/2015

Preamps /Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Brown	1-10GHz	CS	CS	N/A	1523	II	9/25/2017	9/25/2016

Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Blue Horn	1-18Ghz	3117	ETS	157647	1861	I	2/8/2017	2/8/2015

Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2080		HTC-1	HDE		2080	II	4/5/2017	4/5/2016

Cables	Range	Mfr			Cat	Calibration Due	Calibrated on
Asset #2051	9kHz - 18GHz	Florida RF			II	3/2/2017	3/2/2016
Asset #2054	9kHz - 18GHz	Florida RF			II	10/1/3017	10/30/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH & ZJ **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 6-18GHz **Measurement Distance:** 1 m
Notes: DCCF = -58.3dB, Average = Peak -20dB (worst case) **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Low Channel				---	---	---	---	---	---	---	---	---	---	---
V - Y axis	7206.6	70.0	50.0	37.1	37.5	9.6	80.0	60.0	83.5	-3.5	Pass	63.5	-3.5	Pass
V - Y axis	9609.0	60.7	40.7	36.3	38.4	10.5	73.3	53.3	83.5	-10.2	Pass	63.5	-10.2	Pass
V - Y axis	12011.1	51.7	31.7	37.0	39.2	12.2	66.1	46.1	83.5	-17.4	Pass	63.5	-17.4	Pass
V - Y axis	13995.9	48.9	28.9	36.6	42.0	13.2	67.5	47.5	83.5	-16.0	Pass	63.5	-16.0	Pass

Table Result: Pass by -3.5 dB ***Worst Freq:*** 7206.6 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** EMIR-HIGH-06
Analyzer: SA#2 **Preamp:** Asset #2111 **Antenna:** Black Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH & ZJ **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 6-18GHz **Measurement Distance:** 1 m
Notes: DCCF = -58.3dB, Average = Peak -20dB (worst case) **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
mid channel				---	---	---	---	---	---	---	---	---	---	---
H - Y axis	7320.0	62.0	42.0	37.0	37.8	9.7	72.5	52.5	83.5	-11.0	Pass	63.5	-11.0	Pass
H - Y axis	9760.0	55.2	35.2	36.2	38.6	10.6	68.2	48.2	83.5	-15.3	Pass	63.5	-15.3	Pass
V - Y axis	7320.0	66.8	46.8	37.0	37.8	9.7	77.3	57.3	83.5	-6.2	Pass	63.5	-6.2	Pass

Table Result: Pass by -6.2 dB ***Worst Freq:*** 7320.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** EMIR-HIGH-06
Analyzer: SA#2 **Preamp:** Asset #2111 **Antenna:** Black Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: JH & ZJ **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 6-18GHz **Measurement Distance:** 1 m
Notes: DCCF = -58.3dB, Average = Peak -20dB (worst case) **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Hi channel				---	---	---	---	---	---	---	---	---	---	---
V - Y axis	9920.0	42.9	22.9	36.1	38.9	10.8	56.5	36.5	83.5	-27.0	Pass	63.5	-27.0	Pass
H - Y axis	9920.0	44.6	24.6	36.1	38.9	10.8	58.2	38.2	83.5	-25.3	Pass	63.5	-25.3	Pass

Table Result: Pass by -25.3 dB ***Worst Freq:*** 9920.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** Asset #2052 **Cable 2:** Asset #2053 **Cable 3:** EMIR-HIGH-06
Analyzer: SA#2 **Preamp:** Asset #2111 **Antenna:** Black Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA #2 (1860)	9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I	12/23/2016	12/23/2015
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
A#2111 HF Preamp	0.5-18GHz	PAM-118A	COM-POWER	551063	2111	II	11/5/2017	11/5/2016
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Black Horn	1-18GHz	3115	EMCO	9703-5148	56	I	8/29/2018	8/29/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
Asset #2052	9kHz - 18GHz		Florida RF			II	3/2/2017	3/2/2016
Asset #2053	9kHz - 18GHz		Florida RF			II	10/1/3017	10/30/2016
REMI-High-06	1 - 26.5GHz	U-21B0707-1	TRU			II	8/14/2017	8/14/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: Zac Johnson **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 18-25GHz **Measurement Distance:** 0.1m
Notes: **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Low Channel				---	---	---	---	---	---	---	---	---	---	---
H / V	19218.0	48.0	48.0	42.0	40.3	5.8	52.1	52.1	103.5	-51.4	Pass	83.5	-31.4	Pass
H / V	19932.0	41.8	41.8	42.6	40.2	5.9	45.3	45.3	103.5	-58.2	Pass	83.5	-38.2	Pass
H / V	20800.0	43.2	43.2	42.9	40.1	5.9	46.3	46.3	103.5	-57.2	Pass	83.5	-37.2	Pass
H / V	21619.0	43.1	43.1	43.0	40.3	6.1	46.5	46.5	103.5	-57.0	Pass	83.5	-37.0	Pass
H / V	22781.0	41.6	41.6	42.2	40.5	6.4	46.3	46.3	103.5	-57.2	Pass	83.5	-37.2	Pass
H / V	24020.0	45.1	45.1	40.9	40.4	6.5	51.1	51.1	103.5	-52.4	Pass	83.5	-32.4	Pass

Table Result: Pass by -31.4 dB ***Worst Freq:*** 19218.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** EMIR-HIGH-06 **Cable 2:** --- **Cable 3:** ---
Analyzer: Rental SA#2 **Preamp:** 18-26.5GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: Zac Johnson **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 18-25GHz **Measurement Distance:** 0.1m
Notes: **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
Center Channel				---	---	---	---	---	---	---	---	---	---	---
H / V	18812.0	40.8	40.8	41.7	40.2	5.7	45.0	45.0	103.5	-58.5	Pass	83.5	-38.5	Pass
H / V	19519.0	56.22	56.2	42.0	40.3	5.8	60.3	60.3	103.5	-43.2	Pass	83.5	-23.2	Pass
H / V	20919.0	42.5	42.5	42.8	40.1	5.9	45.7	45.7	103.5	-57.8	Pass	83.5	-37.8	Pass
H / V	21962.0	43.4	43.4	42.9	40.5	6.2	47.2	47.2	103.5	-56.3	Pass	83.5	-36.3	Pass
H / V	23593.0	42.4	42.4	41.6	40.4	6.6	47.8	47.8	103.5	-55.7	Pass	83.5	-35.7	Pass
H / V	24405.0	50.6	50.6	41.0	40.2	6.6	56.4	56.4	103.5	-47.1	Pass	83.5	-27.1	Pass

Table Result: Pass by -23.2 dB ***Worst Freq:*** 19519.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** EMIR-HIGH-06 **Cable 2:** --- **Cable 3:** ---
Analyzer: Rental SA#2 **Preamp:** 18-26.5GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

Radiated Emissions Table

Date: 18-Nov-16 **Company:** BioSensics **Work Order:** Q2777
Engineer: Zac Johnson **EUT Desc:** Active PERS **EUT Operating Voltage/Frequency:** 3V DC
Temp: 24.1°C **Humidity:** 25% **Pressure:** 1011mBar Battery
Frequency Range: 18-25GHz **Measurement Distance:** 0.1m
Notes: **EUT Max Freq:** 2480MHz

Antenna Polarization (H / V)	Frequency (MHz)	Peak Reading (dBµV)	Average Reading (dBµV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Peak Reading (dBµV/m)	Adjusted Avg Reading (dBµV/m)	FCC 15.209 High Frequency - Peak			FCC 15.209 High Frequency - Average		
									Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)	Limit (dBµV/m)	Margin (dB)	Result (Pass/Fail)
High Channel				---	---	---	---	---	---	---	---	---	---	---
H / V	18938.0	41.3	41.3	41.8	40.3	5.7	45.5	45.5	103.5	-58.0	Pass	83.5	-38.0	Pass
H / V	19491.0	41.8	41.8	42.0	40.3	5.8	45.9	45.9	103.5	-57.6	Pass	83.5	-37.6	Pass
H / V	20758.0	43.0	43.0	42.9	40.1	6.0	46.2	46.2	103.5	-57.3	Pass	83.5	-37.3	Pass
H / V	21731.0	42.4	42.4	43.1	40.4	6.1	45.8	45.8	103.5	-57.7	Pass	83.5	-37.7	Pass
H / V	22704.0	41.8	41.8	42.1	40.5	6.4	46.6	46.6	103.5	-56.9	Pass	83.5	-36.9	Pass
H / V	24048.0	41.2	41.2	40.9	40.4	6.5	47.2	47.2	103.5	-56.3	Pass	83.5	-36.3	Pass

Table Result: Pass by -36.3 dB ***Worst Freq:*** 24048.0 MHz

Test Site: EMI Chamber 2 **Cable 1:** EMIR-HIGH-06 **Cable 2:** --- **Cable 3:** ---
Analyzer: Rental SA#2 **Preamp:** 18-26.5GHz **Antenna:** 18-26.5GHz Horn **Preselector:** ---
CSsoft Radiated Emissions Calculator v 1.017.178

Adjusted Reading = Reading - Preamp Factor + Antenna Factor + Cable Factor

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Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
SA #2 (1860)	9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I	12/23/2016	12/23/2015
Radiated Emissions Sites	**FCC Code**	**IC Code**	**VCCI Code**	**Range**		**Cat**	**Calibration Due**	**Calibrated on**
EMI Chamber 2	719150	2762A-7	A-0015	1-18GHz		I	4/29/2017	4/29/2015
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
A#2111 HF Preamp	0.5-18GHz	PAM-118A	COM-POWER	551063	2111	II	11/5/2017	11/5/2016
Antennas	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	Verify before Use	date of test
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2081		HTC-1	HDE		2081	II	4/5/2017	4/5/2016
Cables	**Range**		**Mfr**			**Cat**	**Calibration Due**	**Calibrated on**
REMI-High-06	1 - 26.5GHz	U-21B0707-1	TRU			II	8/14/2017	8/14/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

Conducted Spurious Emissions

LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth that contains the highest level of desired power based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB …
[15.247(d)]

MEASUREMENTS / RESULTS

Conducted Band Edges

Conducted Bandedge

Date: Oct-26-2016 **Company:** BioSensics LLC **Work Order:** Q2777
Engineer: Yunus Faziloglu **EUT:** ActivePERS™ Model: AP004 **EUT Operating Voltage/Frequency:** 3VDC Battery
Temp: 21.2°C **Humidity:** 41% **Pressure:** 1013mbar
Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted
Notes: EUT powered by DC power supply during the test

	Bandedge (dBm)	Delta (dB)	Limit (dB)	(Pass/Fail)
Low Bandedge	-71.51	46.25	≥ 20	Pass
High Bandedge	-78.46	53.18	≥ 20	Pass

Test Site: Wireless Test Room **Attenuator** A2121
Analyzer: A2200

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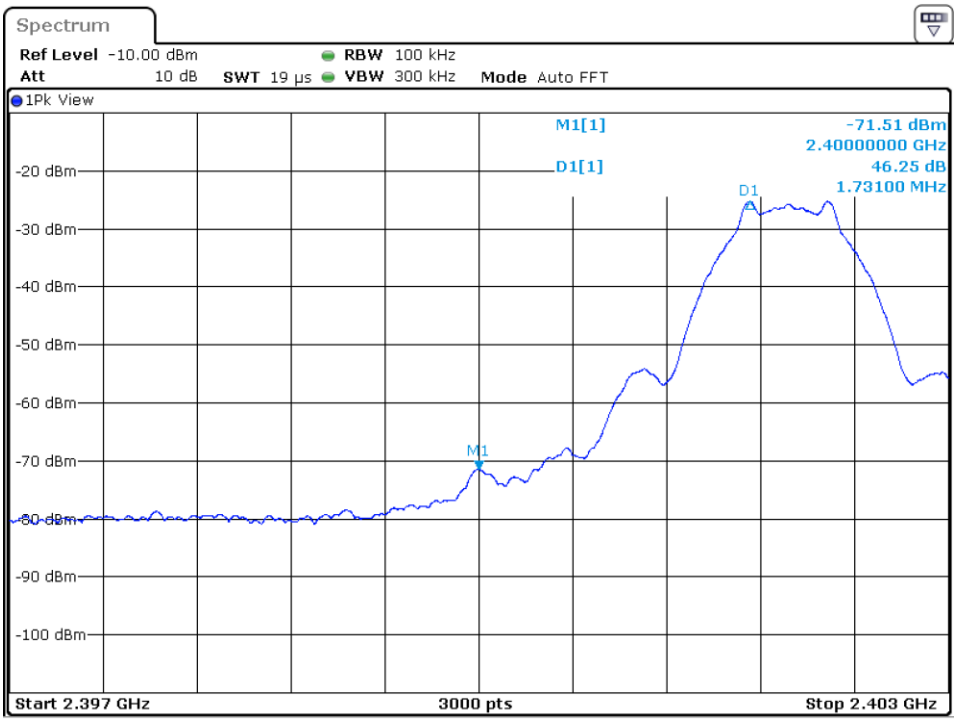
Signal Generators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
FSV40 Signal/Spectrum Analyzer	10Hz-40GHz	FSV40	ROHDE & SCHWARZ	101551	2200	I	6/1/2017	6/1/2016
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2082		HTC-1	HDE		2082	II	4/5/2017	4/5/2016

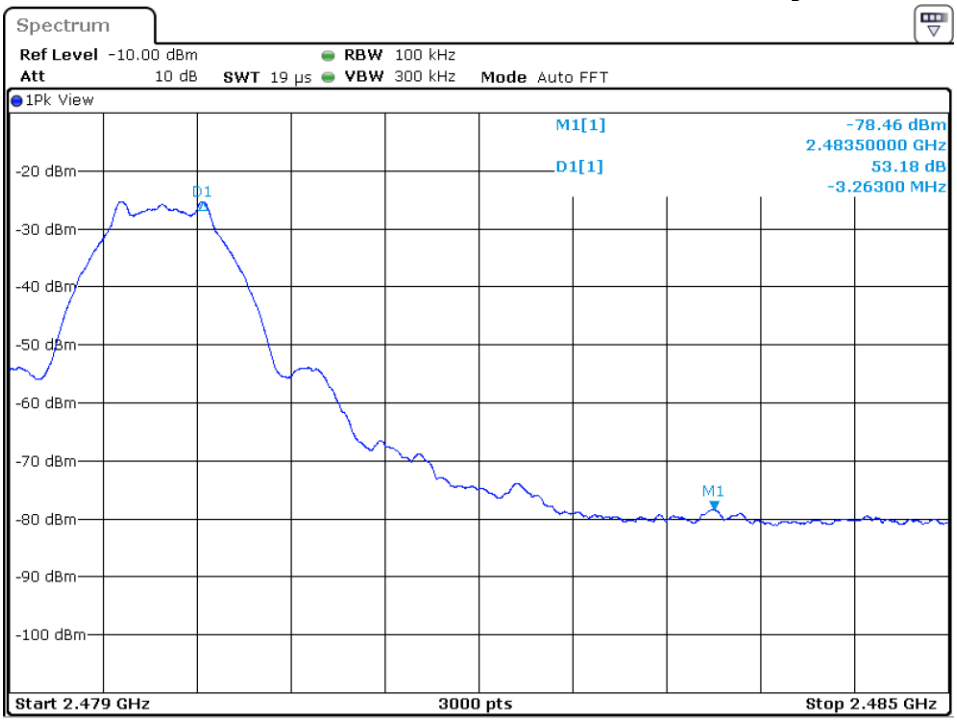
All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOT(s)



Date: 26.OCT.2016 11:12:27

Conducted Emission – Lower Band Edge



Date: 26.OCT.2016 11:19:51

Conducted Emission – Upper Band Edge

Conducted Spurious Emission

Note: 9 kHz - 25 GHz frequency range was investigated for all 3 channels (low, middle and high) at the EUT antenna port. No spurious emissions found in this range, which is more than 20dB below the fundamental.

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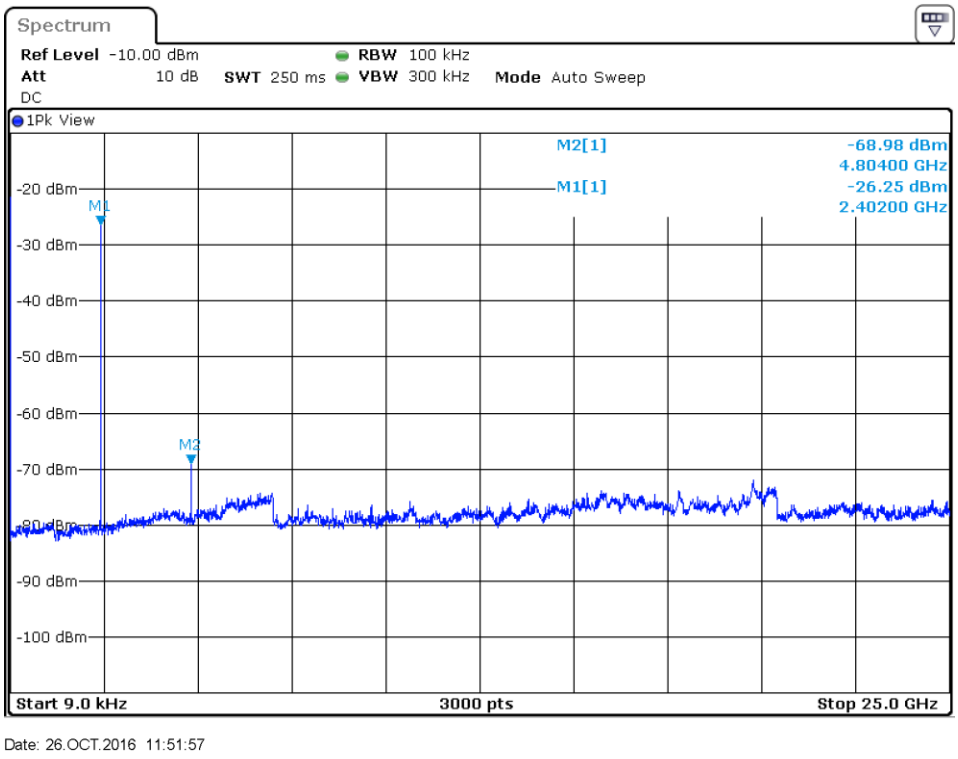
Signal Generators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
FSV40 Signal/Spectrum Analyzer	10Hz-40GHz	FSV40	ROHDE & SCHWARZ	101551	2200	I	6/1/2017	6/1/2016
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2082		HTC-1	HDE		2082	II	4/5/2017	4/5/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOT(s)



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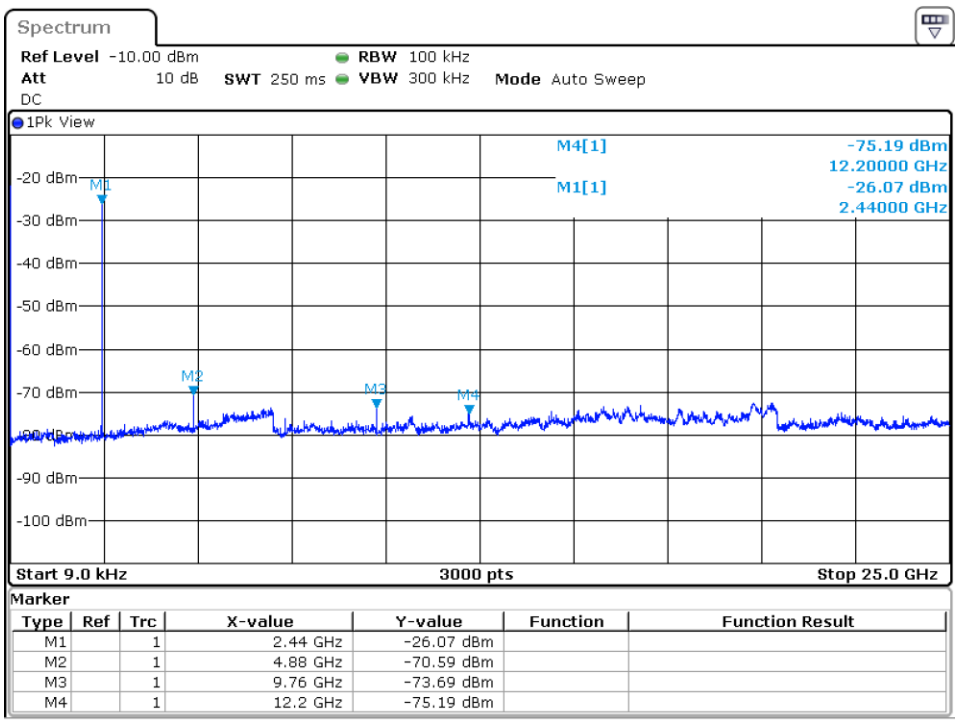
Conducted Spurious – 9kHz to 25GHz (Low Channel)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44 GHz	-26.07 dBm		
M2		1	4.88 GHz	-70.59 dBm		
M3		1	9.76 GHz	-73.69 dBm		
M4		1	12.2 GHz	-75.19 dBm		

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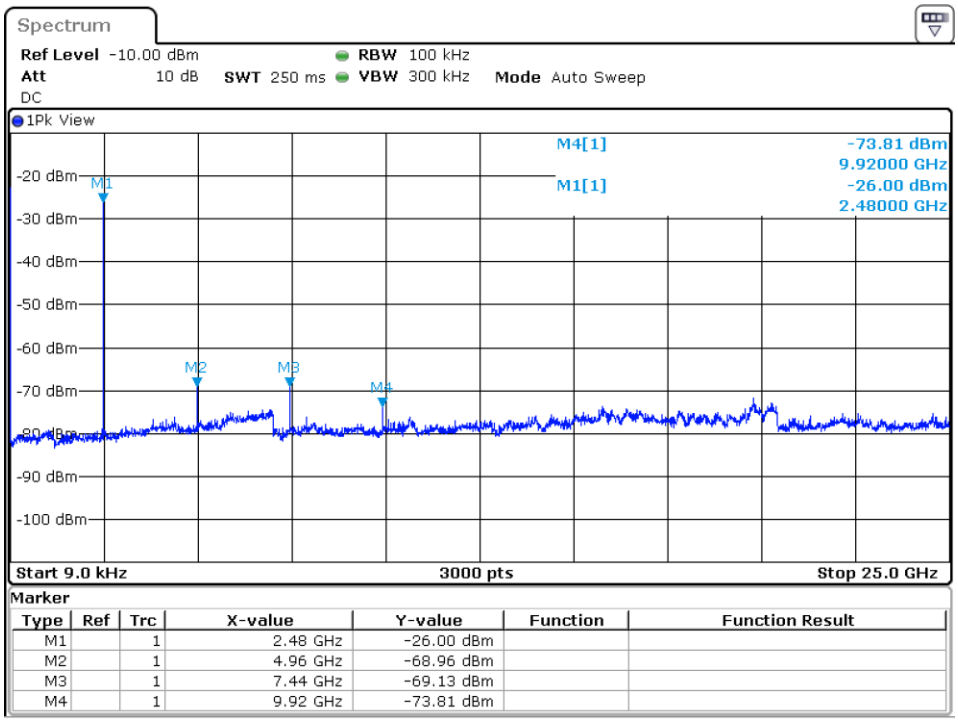
Conducted Spurious – 9kHz to 25GHz (Mid Channel)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48 GHz	-26.00 dBm		
M2		1	4.96 GHz	-68.96 dBm		
M3		1	7.44 GHz	-69.13 dBm		
M4		1	9.92 GHz	-73.81 dBm		

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Conducted Spurious – 9kHz to 25GHz (High Channel)

Power Spectral Density

Limit: Power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. [15.247(e)]

Per 558074 D01 DTS Measurement Guidance v03r05 Section 10.2

MEASUREMENTS / RESULTS

Peak Power Spectral Density

Date: Oct-26-2016 **Company:** BioSensics LLC **Work Order:** Q2777
Engineer: Yunus Faziloglu **EUT:** ActivePERS™ Model: AP004 **EUT Operating Voltage/Frequency:** 3VDC Battery
Temp: 21.2°C **Humidity:** 41% **Pressure:** 1013mbar

Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted
Measurement Method: FCC KDB 558074 D01 DTS Meas Guidance v03r05 Section 10.2

Notes: EUT powered by DC power supply during the test

Frequency (MHz)	Peak Reading (dBm)	Cable Loss (dB)	Attenuator Loss (dB)	Peak PSD (dBm)	Limit (dBm)	Margin (dB)	Result
2402.0	-29.77	1.0	29.44	0.67	8.0	-7.33	Pass
2440.0	-30.03	1.0	29.44	0.41	8.0	-7.59	Pass
2480.0	-29.71	1.0	29.44	0.73	8.0	-7.27	Pass

Test Site: Wireless Test Room **Attenuator:** A2121
Analyzer: A2200

PSD(dBm) = Reading (dBm) + Cable Loss (dB) + Attenuator Loss (dBm)

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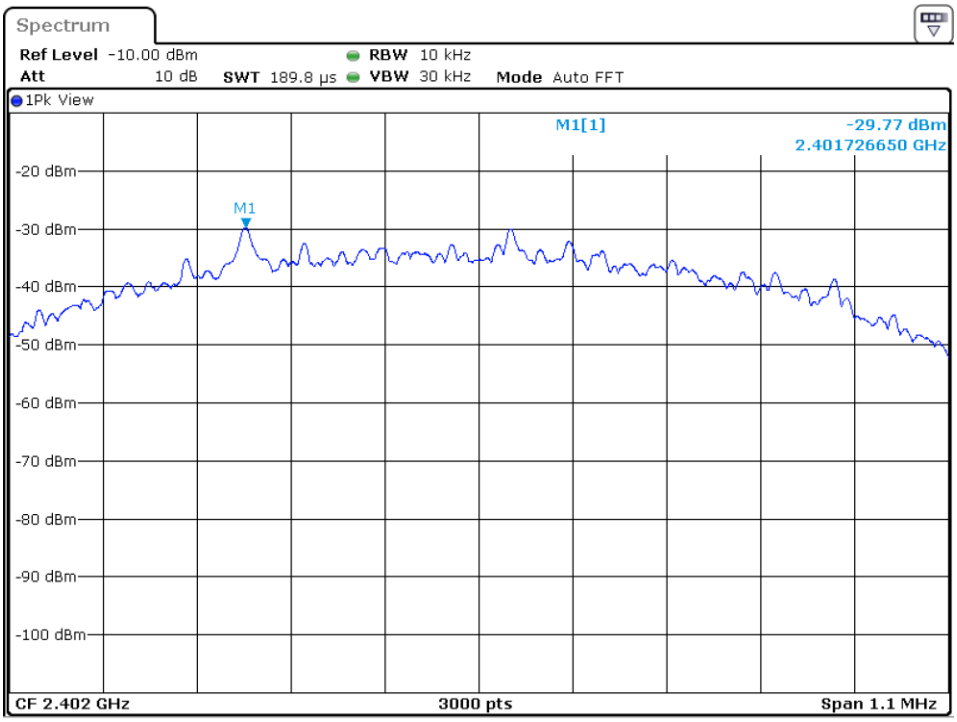
Signal Generators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
FSV40 Signal/Spectrum Analyzer	10Hz-40GHz	FSV40	ROHDE & SCHWARZ	101551	2200	I	6/1/2017	6/1/2016
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
API - 30dB 20W Attenuator	9KHz-40GHz	89-30-11	API Weinschel	703	2121	I	2/10/2017	2/10/2016
Meteorological Meters		**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2082		HTC-1	HDE		2082	II	4/5/2017	4/5/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOT(s)



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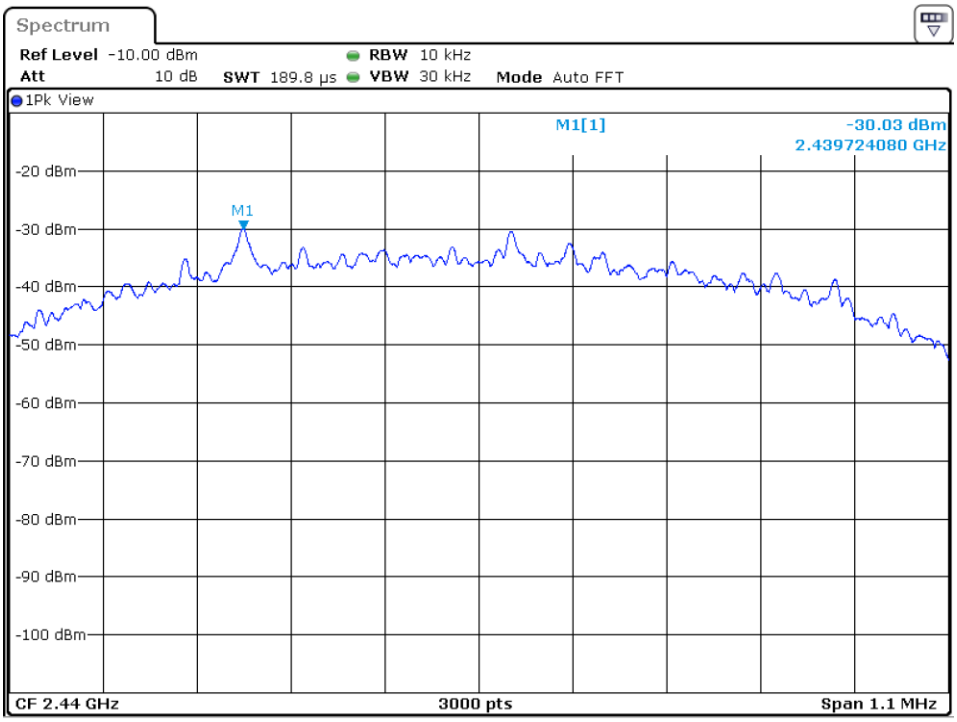
PSD – Low Channel



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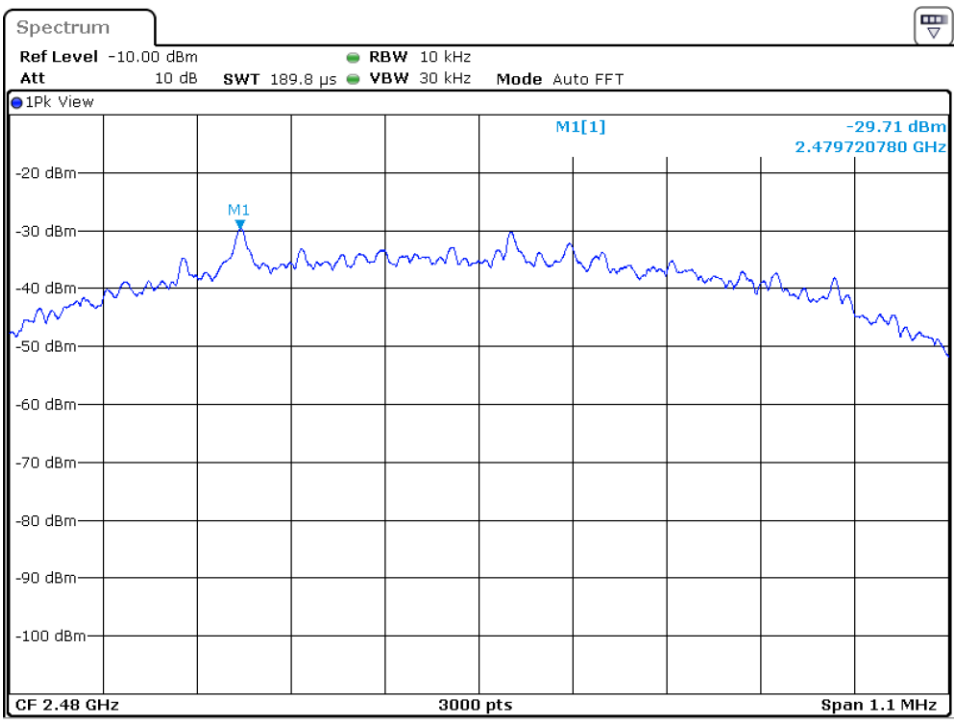
PSD – Mid Channel



PSD – High Channel

AC Line Conducted Emissions

LIMITS

Frequency of emission (MHz)	Quasi-peak limit (dBµV)	Average limit (dBµV)
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a)]

MEASUREMENTS / RESULTS

Testing is not applicable since EUT is battery powered.

Occupied Bandwidth

Requirement: When an occupied bandwidth is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured. [RSS-GEN 6.6]

MEASUREMENTS / RESULTS

99% Occupied Bandwidth

Date: Oct-26-2016 **Company:** BioSensics LLC **Work Order:** Q2777
Engineer: Yunus Faziloglu **EUT:** ActivePERS™ Model: AP004 **EUT Operating Voltage/Frequency:** 3VDC Battery
Temp: 21.2°C **Humidity:** 41% **Pressure:** 1013mbar

Frequency Range: 2402-2480 MHz **Measurement Type:** Conducted
Measurement Method: RSS-Gen Issue 4 Section 6.6

Notes: EUT powered by DC power supply during the test

Frequency (MHz)	99% OBW (kHz)
2402	1050
2440	1057
2480	1061

Test Site: Wireless Test Room **Attenuator** A2121
Analyzer: A2200

Rev. 10/2/2016

Spectrum Analyzer	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrated on
FSV40 Signal/Spectrum Analyzer	10Hz-40GHz	FSV40	ROHDE & SCHWARZ	101551	2200	I	6/1/2017	6/1/2016
Preamps /Couplers Attenuators / Filters	**Range**	**MN**	**Mfr**	**SN**	**Asset**	**Cat**	**Calibration Due**	**Calibrated on**
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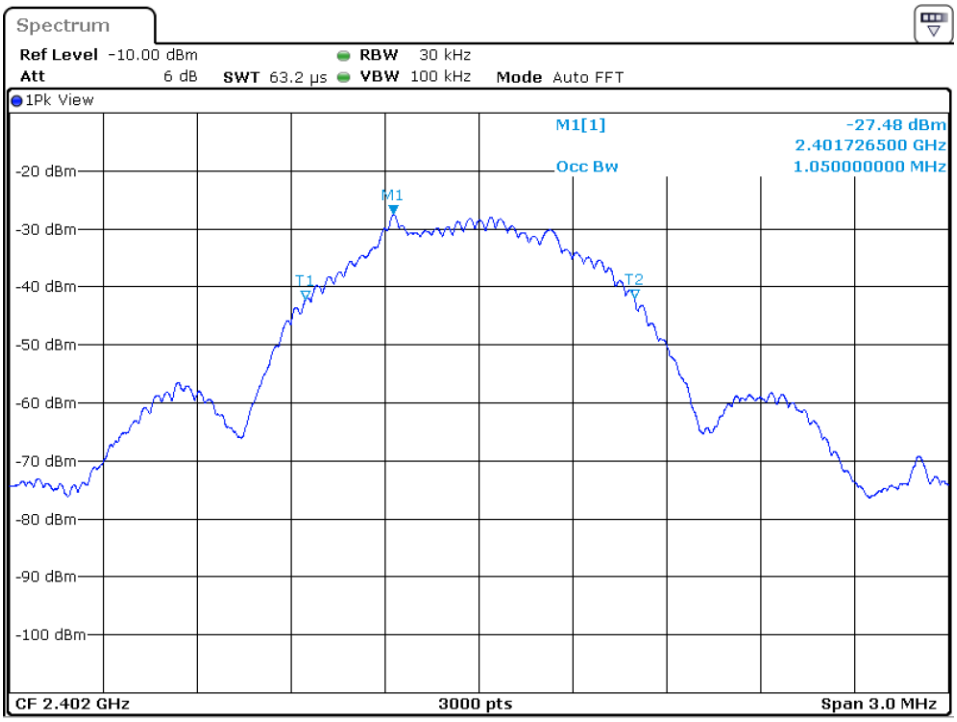
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	I	4/28/2018	4/28/2016
TH A#2082		HTC-1	HDE		2082	II	4/5/2017	4/5/2016

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

PLOT(s)



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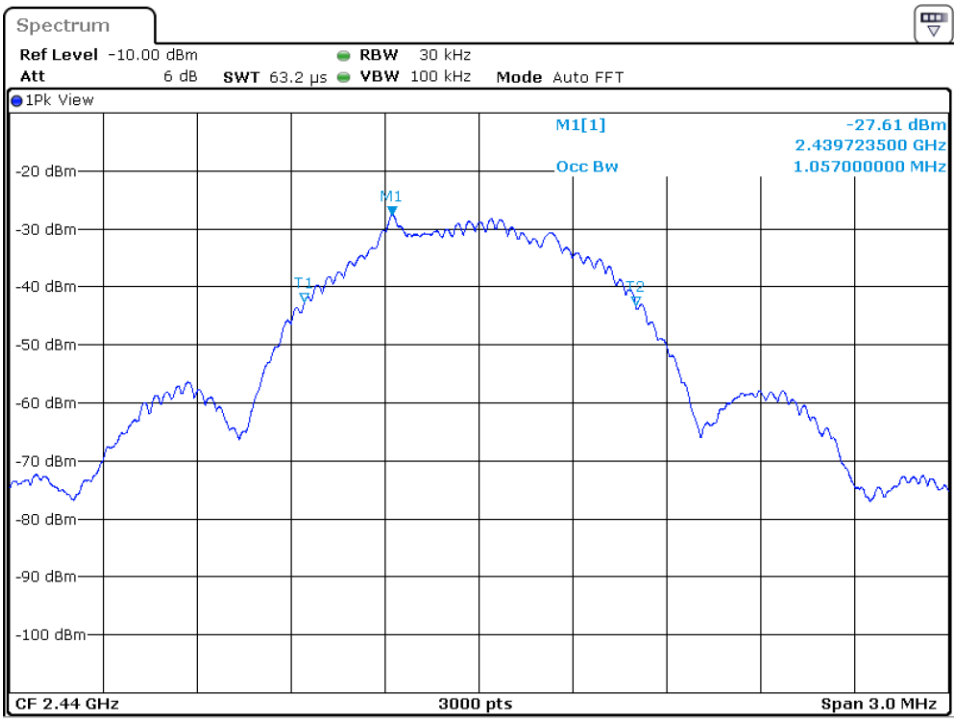
Occupied Bandwidth – Low Channel



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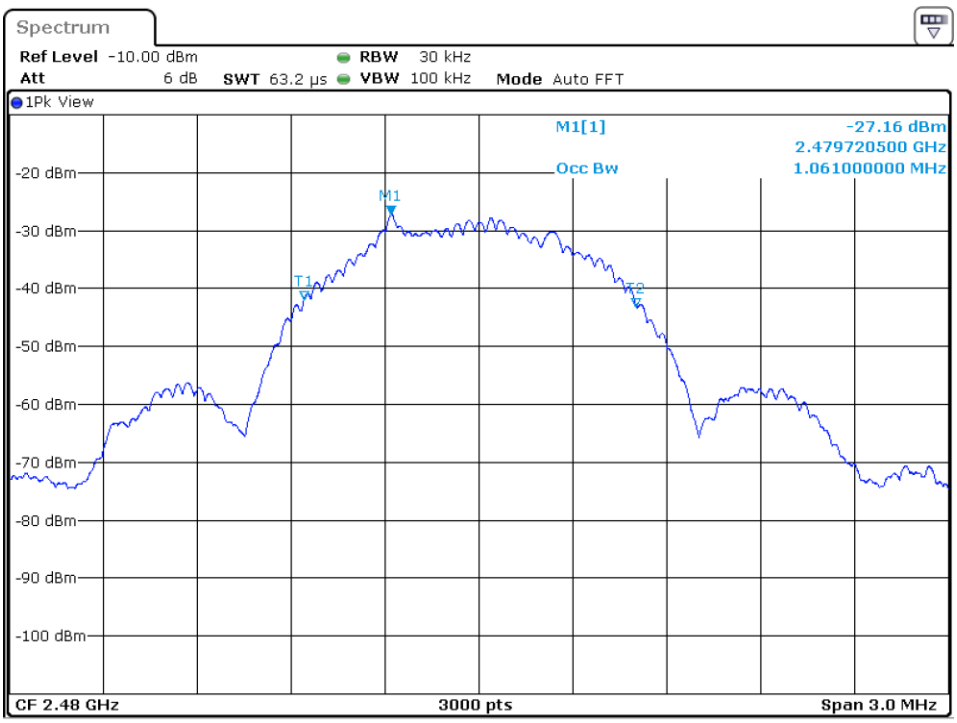
Occupied Bandwidth – Mid Channel



Occupied Bandwidth – High Channel

Measurement Uncertainty

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Expanded Uncertainty k=2	Maximum allowable uncertainty
Radiated Emissions (30-1000MHz) NIST CISPR	 5.6dB 4.6dB	 N/A 5.2dB (Ucispr)
Radiated Emissions (1-26.5GHz)	4.6dB	N/A
Radiated Emissions (above 26.5GHz)	4.9dB	N/A
Magnetic Radiated Emissions	5.6dB	N/A
Conducted Emissions NIST CISPR	 3.9dB 3.6dB	 N/A 3.6dB (Ucispr)
Telco Conducted Emissions (Current)	2.9dB	N/A
Telco Conducted Emissions (Voltage)	4.4dB	N/A
Electrostatic Discharge	11.5%	N/A
Radiated RF Immunity (Uniform Field)	1.6dB	N/A
Electrical Fast Transients	23.1%	N/A
Surge	23.1%	N/A
Conducted RF Immunity	3dB	N/A
Magnetic Immunity	12.8%	N/A
Dips and Interrupts	2.3V	N/A
Harmonics	3.5%	N/A
Flicker	3.5%	N/A
Radio frequency (@ 2.4GHz)	3.23×10^{-8}	1×10^{-7}
RF power, conducted	0.40dB	0.75dB
Maximum frequency deviation: • Within 300Hz and 6kHz of audio frequency / Within 6kHz and 25kHz of audio frequency	 3.4% 0.3dB	 5% 3dB
Adjacent channel power	1.9dB	3dB
Conducted spurious emission of transmitter, valid up to 12.75GHz	2.39dB	3dB
Conducted emission of receivers	1.3dB	3dB
Radiated emission of transmitter, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of transmitter, valid up to 80GHz	3.3dB	6dB
Radiated emission of receiver, valid up to 26.5GHz	3.9dB	6dB
Radiated emission of receiver, valid up to 80GHz	3.3dB	6dB
Humidity	2.37%	5%
Temperature	0.7°C	1.0°C
Time	4.1%	10%
RF Power Density, Conducted	0.4dB	3dB
DC and low frequency voltages	1.3%	3%
Voltage (AC, <10kHz)	1.3%	2%
Voltage (DC)	0.62%	1%
The above reflects a 95% confidence level		

Conditions Of Testing

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("Test Report") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.
2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.
3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.
4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.
5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "**BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS", "MTL", "ACTS", "MTL-ACTS" and CURTIS-STRAUS** (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.
6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon.
7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.
8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.
9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.
10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.
11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.
12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.
13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.
14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B)NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

The complete list of the Approved Subcontractors Curtis-Straus may use to delegate the performance of work can be provided upon request.
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