



TEST REPORT

Report Number: 100934762ATL-002

November 30, 2012

Product Name: Onyx EZ

Product Model Number: XEZ1

Standard: FCC Part 15, Subpart C, Intentional Radiators (15.239)

Tested by:

Intertek Testing Services NA Inc.
1950 Evergreen Blvd., Suite 100
Duluth, GA 30096

Client:

SIRIUS XM Radio Inc
1500 Eckington PL NE
Washington, DC 20002
Contact: Beejay Jolayemi
Phone: 202.680.4288
Fax: 202.380.4091

Report prepared by:

A handwritten signature in blue ink, appearing to read "T. Ihle".

Troy Ihle
Project Engineer

Report reviewed by:

A handwritten signature in blue ink, appearing to read "R. Bianco".

Richard Bianco
EMC Team Leader

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1.0 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 3.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested complies with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Refer to the Test Summary for the specific details.

Summary of Test Results – Fundamental Measurements

Test Performed	Configuration	Result
Small Sized Vehicle (Honda CR-Z)		
Field Strength of Fundamental Emissions - Low Channel	PowerConnect (InSitu)	PASS
Field Strength of Fundamental Emissions - Mid Channel	PowerConnect (InSitu)	PASS
Field Strength of Fundamental Emissions - High Channel	PowerConnect (InSitu)	PASS
Midsized Vehicle (Infiniti G35)		
Field Strength of Fundamental Emissions - Low Channel	PowerConnect (InSitu)	PASS
Field Strength of Fundamental Emissions - Mid Channel	PowerConnect (InSitu)	PASS
Field Strength of Fundamental Emissions - High Channel	PowerConnect (InSitu)	PASS
Large Vehicle (Toyota Sequoia)		
Field Strength of Fundamental Emissions - Low Channel	PowerConnect (InSitu)	PASS
Field Strength of Fundamental Emissions - Mid Channel	PowerConnect (InSitu)	PASS
Field Strength of Fundamental Emissions - High Channel	PowerConnect (InSitu)	PASS

2.0 Test Summary

Section	Test Full Name	Test Date	Result
3.0	Description of Equipment Under Test		
4.0	System setup including cable interconnection details, support equipment and simplified block diagram.		
5.0	Transmitter Information for equipment operating under Parts 11, 15 and 18 of the rules (Transmitter Info -		PASS
6.0	Occupied Bandwidth (FCC 15C - 15.239 (a))		PASS
7.1	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – (Small Vehicle)		PASS
7.2	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – (Midsized Vehicle)		PASS
7.3	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – (Large Vehicle)		PASS
8.0	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA unit		PASS
9.0	Conducted Power Measurements		PASS
10.0	Test Equipment List		
11.0	Revision History		

3.0 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Onyx EZ Radio	SIRIUS XM Satellite Radio	XEZ1	5G5PR2RR
Satellite Antenna	SIRIUS XM Satellite Radio	1236	NA
FEA	SIRIUS XM Satellite Radio	None	None
DC Adapter	SIRIUS XM Satellite Radio	SXDPIP1	U434C42033D6J01
V-Dock	SIRIUS XM Satellite Radio	XDPIV2	1243

EUT receive date:	November 9, 2012
EUT receive condition:	Good

Description of EUT provided by Client:

Sirius Hardware Features

- Revolutionary SiriusXM *PowerConnect*™ FM Transmitter works through your vehicle's radio* with easy Do-It-Yourself Installation. The color-coded Vehicle Dock makes it simple to connect.
- View artist name, song title, and channel information on the large color display.
- Browse programs, artists, and songs playing on other channels without having to change the channel.
- One-Touch Jump™ to traffic and weather of the 20 most congested cities, or to the previous channel to which you were listening.
- Save and enjoy fast access to your favorite channels.
- Lock and unlock channels with easy-to-use parental controls.
- Complete *PowerConnect* Vehicle Kit included.
- Universal docking capability - add accessories for your home, office, additional vehicles or even outdoors.

Description of EUT exercising:

The EUT was powered with a 12Vdc battery supplied to the dock. The satellite signal was amplified and retransmitted into the emissions chamber to the radio under test. The radio then transmitted the music on the FM channel being investigated. The channels tested were 88.1, 96.9, and 107.9MHz.

Mode of Operation	Frequency Range (MHz)	Number of Channels	Channel Separation (kHz)
FM	88.1-107.9	100	200

Applicant Information:

XM Radio Inc.
1500 Eckington Pl, NE
Washington, DC 20002

Manufacturer Information:

WNC (Kunshan) Corp.
NO. 88 Central Avenue, Area B, Kunshan Export Processing Zone
Kunshan City, Jiangsu, China

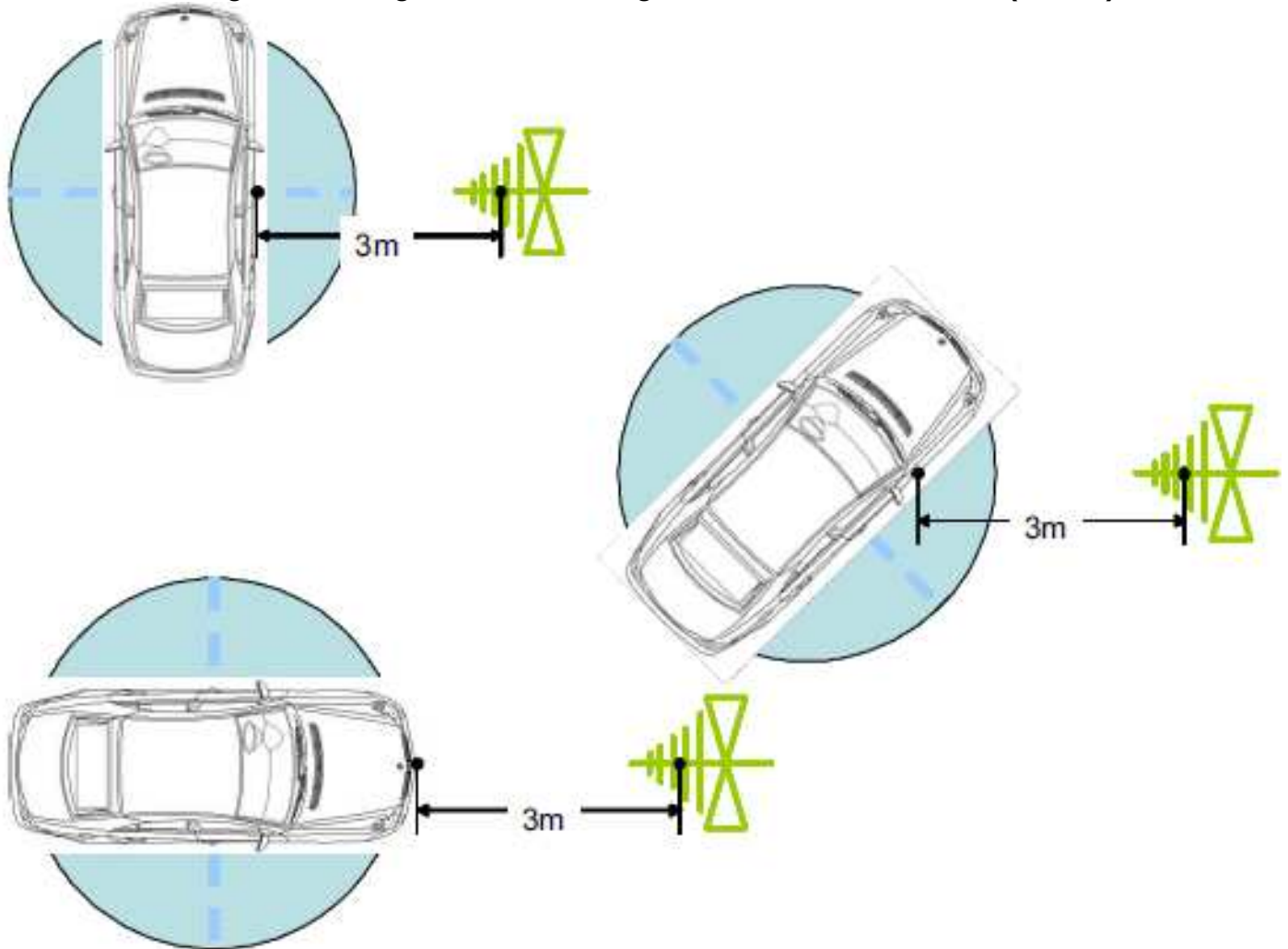
4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Method:

Record the details of EUT cabling, document the support equipment, and show the interconnections in a block diagram.

Support Equipment - <i>Power Connect Configuration</i>			
Description	Manufacturer	Model Number	Serial Number
None			

Configuration Diagram – Test Configuration 6 –*PowerConnect* (In-Situ)

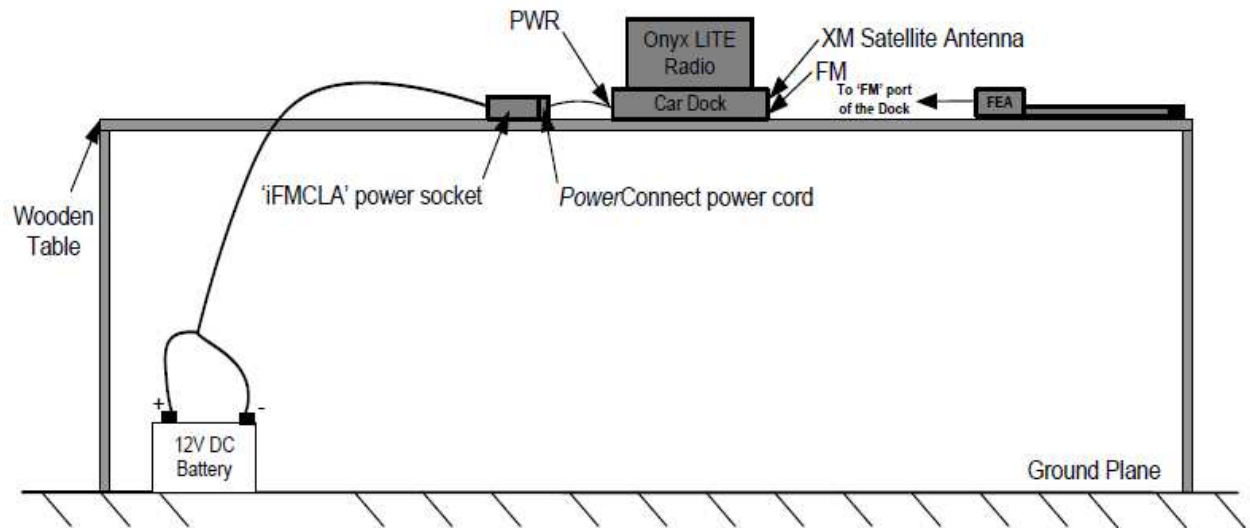


4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Support Equipment - FEA			
Description	Manufacturer	Model Number	Serial Number
None			

4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Configuration Diagram –Radiated Emissions (FEA)



5.0 Transmitter Information for equipment operating under Parts 11, 15 and 18 of the rules (Transmitter Info - Unlicensed)

FCC Rule Part		
2.1033(b)(1)	Applicant	Company Name: Sirius XM Satellite Radio, Inc.
		Address: 3161 S.W. 10th Street, Deerfield Beach, FL 33442
		Phone: 202-680-4288
		Contact Name: Beejay Jolayemi
	Manufacturer	Company Name: Same
		Address: Same
		Phone: Same
		Contact Name: Same
2.1033(b)(2)	Equipment	FCC ID: RS2XEZ1
		EUT Model Number: XEZ1
		EUT Serial Number: NA
2.1033(b)(3)	User Manual Attach as separate exhibit.	
2.1033(b)(4)	Brief description of circuit functions Attach as separate exhibit.	
2.1033(b)(5)	Block diagram showing frequency of oscillators Attach as separate exhibit.	
2.1033(b)(6)	Test report Incorporated with this document	
2.1033(b)(7)	Internal and external photographs Attach as separate exhibit.	
2.1033(b)(8)	Peripheral Equipment	Can be used? N/A
		Comercially available? N/A
2.1033(b)(9)	Transition rules apply? No	
2.1033(b)(10)	Scanning receiver? No	
2.1033(b)(11)	Transmitter in 59-64 GHz band? No	
2.1033(b)(12)	Software defined radio? No	

6.0 Occupied Bandwidth (FCC 15C - 15.239 (a))

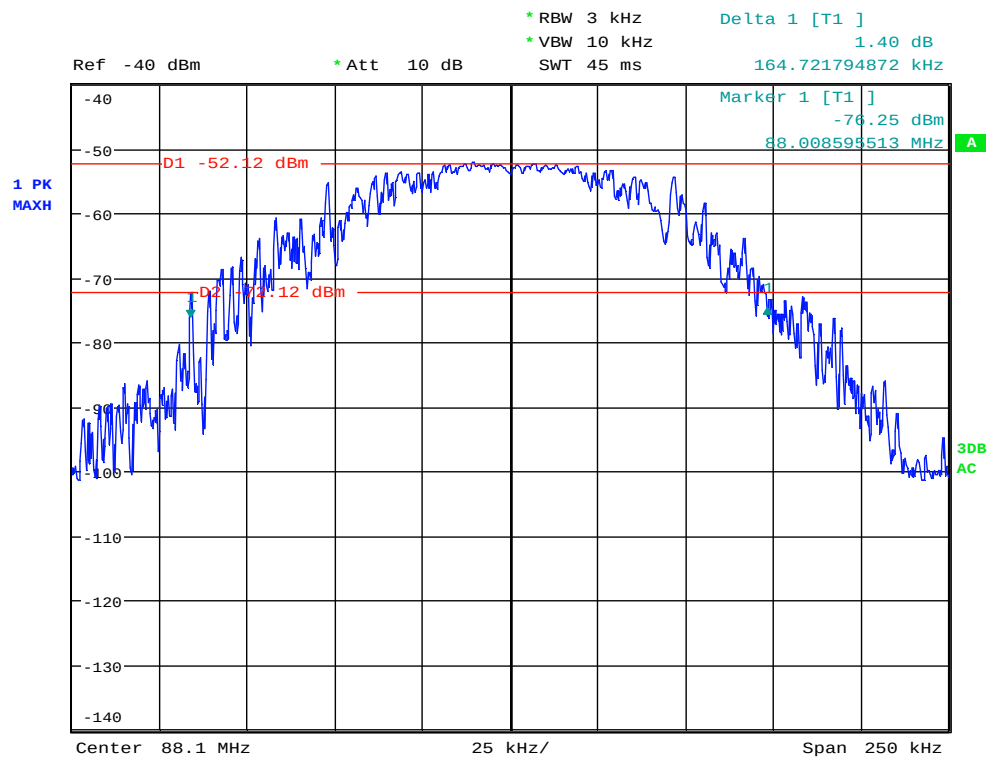
Method:

Test Requirement: Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

Test Procedure: ANSI C63.4: 2003, Section 13.1.7 and Annex H.6

Results: The sample tested was found to Comply

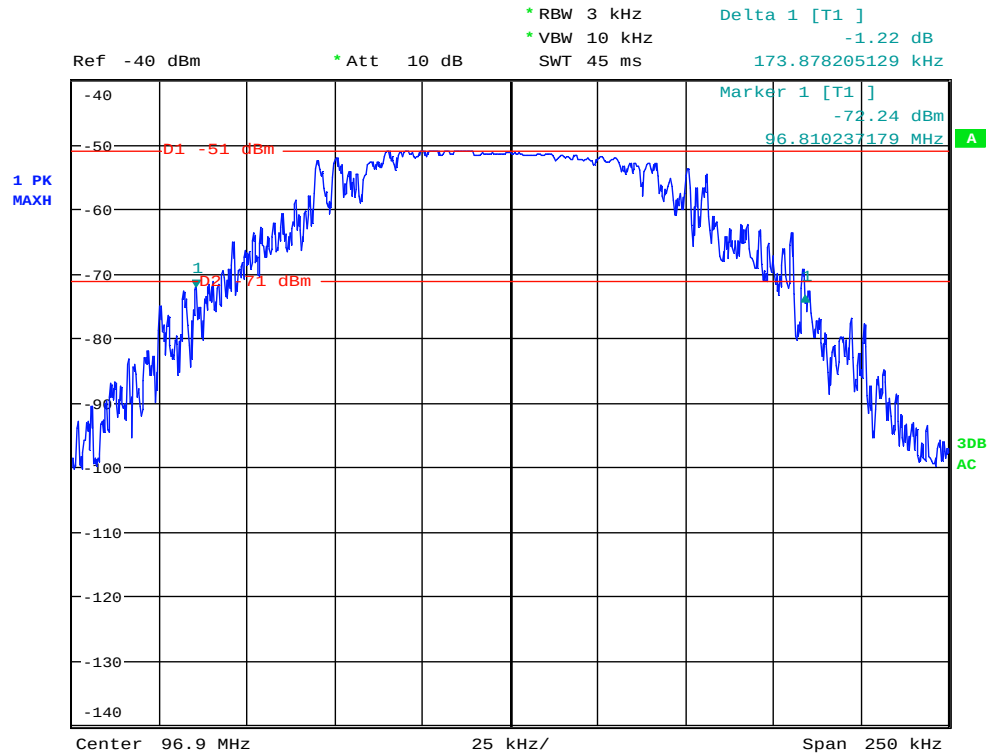
Channel 88.1 – 164.721kHz



Date: 28.NOV.2012 10:15:34

Lower Channel – 88.1MHz

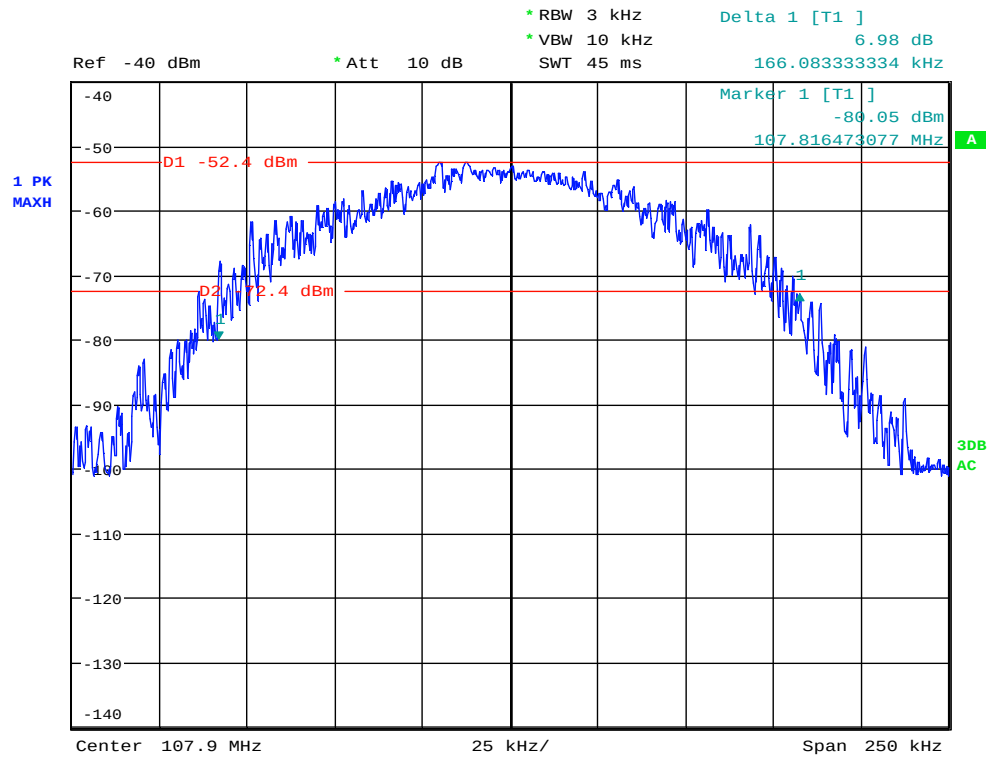
Channel 96.9 – 173.878kHz



Date: 28.NOV.2012 10:10:02

Middle Channel – 96.9MHz

Channel 107.9 – 166.083kHz



Date: 28.NOV.2012 10:02:00

Upper Channel – 107.9MHz

7.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ)

Method:

TEST REQUIREMENT

The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

TEST PROCEDURE:

- EUT connected to the vehicle's CLA socket by its PowerConnect plug module, supplying the EUT with 5V for each of the three sized vehicles used (i.e. small, medium and large.)
- EUT connected to a satellite antenna which mounted at the rear of the vehicle's roof
- Vehicle cradle connected to the satellite antenna which is mounted on the roof at the rear of the vehicle.
- Measurement antenna maintains a distance of 3 meters from the surface of the vehicle.
- At each emission peak, the antenna height was be adjusted from 1 to 4 meters to maximize the emissions.
- Testing should be performed with the receive antenna positioned both vertically and horizontally.
- All peak measurements should be performed with the RBW set to 120KHz and the VBW set to 300KHz; then with the VBW set to 100Hz for average measurements.
- EUT should be configured to receive live Sirius XM broadcast channels.
- EUT should be configured for Max audio output levels.
- The process described above should be repeated for each position of the vehicle (i.e. 0°, 45°, 90°, 135°, 180°, 225°, 270° & 315°) at a low, mid and high frequency of the FM band

TEST SITE

The test site is a 10 meter semi-anechoic chamber located at 1950 Evergreen Blvd, Suite 100, Duluth, GA 30096. This site is accredited by A2LA (see <http://www.a2la.org/scopepdf/1455-01.pdf>) and listed by the FCC. The test site number for Industry Canada is 2042J-1.

MEASUREMENT UNCERTAINTY

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes. The values given are the measurement uncertainty values with an expanded uncertainty of k=2.

30 MHz to 1000 MHz at 3 meters: +/- 3.9 dB

30 MHz to 1000 MHz at 10 meters: +/- 3.6 dB

1 GHz to 18 GHz at 3 meters: +/- 4.2 dB

Results: The sample tested was found to Comply.

7.1 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Small Vehicle)

Tabular Data – Fundamental (Low Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Small Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
Low Channel										
V	88.100	71.7	9.1	1.8	37.2	45.5	68.0	-22.5	0	PK/120k/300k
V	88.100	70.3	9.1	1.8	37.2	44.1	48.0	-3.9	0	Av/120k/1.6Hz
H	88.100	63.9	10.5	1.8	37.2	39.1	68.0	-28.9	0	PK/120k/300k
H	88.100	62.3	10.5	1.8	37.2	37.5	48.0	-10.5	0	Av/120k/1.6Hz
V	88.100	68.8	9.1	1.8	37.2	42.6	68.0	-25.4	45	PK/120k/300k
V	88.100	67.1	9.1	1.8	37.2	40.9	48.0	-7.1	45	Av/120k/1.6Hz
H	88.100	56.8	10.5	1.8	37.2	32.0	68.0	-36.0	45	PK/120k/300k
H	88.100	54.3	10.5	1.8	37.2	29.5	48.0	-18.5	45	Av/120k/1.6Hz
V	88.100	57.0	9.1	1.8	37.2	30.8	68.0	-37.2	90	PK/120k/300k
V	88.100	54.4	9.1	1.8	37.2	28.2	48.0	-19.8	90	Av/120k/1.6Hz
H	88.100	54.8	10.5	1.8	37.2	30.0	68.0	-38.0	90	PK/120k/300k
H	88.100	52.7	10.5	1.8	37.2	27.9	48.0	-20.1	90	Av/120k/1.6Hz
V	88.100	58.1	9.1	1.8	37.2	31.9	68.0	-36.1	135	PK/120k/300k
V	88.100	56.1	9.1	1.8	37.2	29.9	48.0	-18.1	135	Av/120k/1.6Hz
H	88.100	60.9	10.5	1.8	37.2	36.1	68.0	-31.9	135	PK/120k/300k
H	88.100	59.3	10.5	1.8	37.2	34.5	48.0	-13.5	135	Av/120k/1.6Hz
V	88.100	61.6	9.1	1.8	37.2	35.4	68.0	-32.6	180	PK/120k/300k
V	88.100	59.9	9.1	1.8	37.2	33.7	48.0	-14.3	180	Av/120k/1.6Hz
H	88.100	60.5	10.5	1.8	37.2	35.7	68.0	-32.3	180	PK/120k/300k
H	88.100	58.9	10.5	1.8	37.2	34.1	48.0	-13.9	180	Av/120k/1.6Hz
V	88.100	62.6	9.1	1.8	37.2	36.4	68.0	-31.6	225	PK/120k/300k
V	88.100	61.1	9.1	1.8	37.2	34.9	48.0	-13.1	225	Av/120k/1.6Hz
H	88.100	62.6	10.5	1.8	37.2	37.8	68.0	-30.2	225	PK/120k/300k
H	88.100	60.9	10.5	1.8	37.2	36.1	48.0	-11.9	225	Av/120k/1.6Hz
V	88.100	63.8	9.1	1.8	37.2	37.6	68.0	-30.4	270	PK/120k/300k
V	88.100	62.3	9.1	1.8	37.2	36.1	48.0	-11.9	270	Av/120k/1.6Hz
H	88.100	53.7	10.5	1.8	37.2	28.9	68.0	-39.1	270	PK/120k/300k
H	88.100	51.5	10.5	1.8	37.2	26.7	48.0	-21.3	270	Av/120k/1.6Hz
V	88.100	68.0	9.1	1.8	37.2	41.8	68.0	-26.2	315	PK/120k/300k
V	88.100	66.3	9.1	1.8	37.2	40.1	48.0	-7.9	315	Av/120k/1.6Hz
H	88.100	64.6	10.5	1.8	37.2	39.8	68.0	-28.2	315	PK/120k/300k
H	88.100	63.3	10.5	1.8	37.2	38.5	48.0	-9.5	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F			I=G-H					

7.1 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Small Vehicle)

Tabular Data – Fundamental (Mid Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Small Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
Mid Channel										
V	96.900	64.4	10.7	1.9	37.1	39.8	68.0	-28.2	0	PK/120k/300k
V	96.900	62.5	10.7	1.9	37.1	37.9	48.0	-10.1	0	Av/120k/1.6Hz
H	96.900	55.2	12.3	1.9	37.1	32.3	68.0	-35.7	0	PK/120k/300k
H	96.900	53.1	12.3	1.9	37.1	30.2	48.0	-17.8	0	Av/120k/1.6Hz
V	96.900	62.4	10.7	1.9	37.1	37.8	68.0	-30.2	45	PK/120k/300k
V	96.900	60.7	10.7	1.9	37.1	36.1	48.0	-11.9	45	Av/120k/1.6Hz
H	96.900	57.9	12.3	1.9	37.1	35.0	68.0	-33.0	45	PK/120k/300k
H	96.900	55.7	12.3	1.9	37.1	32.8	48.0	-15.2	45	Av/120k/1.6Hz
V	96.900	56.7	10.7	1.9	37.1	32.1	68.0	-35.9	90	PK/120k/300k
V	96.900	54.7	10.7	1.9	37.1	30.1	48.0	-17.9	90	Av/120k/1.6Hz
H	96.900	57.5	12.3	1.9	37.1	34.6	68.0	-33.4	90	PK/120k/300k
H	96.900	55.6	12.3	1.9	37.1	32.7	48.0	-15.3	90	Av/120k/1.6Hz
V	96.900	57.2	10.7	1.9	37.1	32.6	68.0	-35.4	135	PK/120k/300k
V	96.900	55.3	10.7	1.9	37.1	30.7	48.0	-17.3	135	Av/120k/1.6Hz
H	96.900	61.9	12.3	1.9	37.1	39.0	68.0	-29.0	135	PK/120k/300k
H	96.900	60.2	12.3	1.9	37.1	37.3	48.0	-10.7	135	Av/120k/1.6Hz
V	96.900	61.7	10.7	1.9	37.1	37.1	68.0	-30.9	180	PK/120k/300k
V	96.900	59.7	10.7	1.9	37.1	35.1	48.0	-12.9	180	Av/120k/1.6Hz
H	96.900	58.0	12.3	1.9	37.1	35.1	68.0	-32.9	180	PK/120k/300k
H	96.900	55.8	12.3	1.9	37.1	32.9	48.0	-15.1	180	Av/120k/1.6Hz
V	96.900	55.5	10.7	1.9	37.1	30.9	68.0	-37.1	225	PK/120k/300k
V	96.900	53.1	10.7	1.9	37.1	28.5	48.0	-19.5	225	Av/120k/1.6Hz
H	96.900	58.5	12.3	1.9	37.1	35.6	68.0	-32.4	225	PK/120k/300k
H	96.900	56.2	12.3	1.9	37.1	33.3	48.0	-14.7	225	Av/120k/1.6Hz
V	96.900	61.2	10.7	1.9	37.1	36.6	68.0	-31.4	270	PK/120k/300k
V	96.900	59.7	10.7	1.9	37.1	35.1	48.0	-12.9	270	Av/120k/1.6Hz
H	96.900	55.4	12.3	1.9	37.1	32.5	68.0	-35.5	270	PK/120k/300k
H	96.900	52.9	12.3	1.9	37.1	30.0	48.0	-18.0	270	Av/120k/1.6Hz
V	96.900	56.0	10.7	1.9	37.1	31.4	68.0	-36.6	315	PK/120k/300k
V	96.900	53.0	10.7	1.9	37.1	28.4	48.0	-19.6	315	Av/120k/1.6Hz
H	96.900	59.6	12.3	1.9	37.1	36.7	68.0	-31.3	315	PK/120k/300k
H	96.900	57.7	12.3	1.9	37.1	34.8	48.0	-13.2	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F			I=G-H					

7.1 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Small Vehicle)

Tabular Data – Fundamental (High Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Small Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
High Channel										
V	107.900	63.2	12.3	2.0	37.1	40.4	68.0	-27.6	0	PK/120k/300k
V	107.900	58.9	12.3	2.0	37.1	36.1	48.0	-11.9	0	Av/120k/1.6Hz
H	107.900	48.9	13.1	2.0	37.1	26.9	68.0	-41.1	0	PK/120k/300k
H	107.900	44.2	13.1	2.0	37.1	22.2	48.0	-25.8	0	Av/120k/1.6Hz
V	107.900	61.9	12.3	2.0	37.1	39.1	68.0	-28.9	45	PK/120k/300k
V	107.900	57.9	12.3	2.0	37.1	35.1	48.0	-12.9	45	Av/120k/1.6Hz
H	107.900	58.7	13.1	2.0	37.1	36.7	68.0	-31.3	45	PK/120k/300k
H	107.900	55.8	13.1	2.0	37.1	33.8	48.0	-14.2	45	Av/120k/1.6Hz
V	107.900	58.2	12.3	2.0	37.1	35.4	68.0	-32.6	90	PK/120k/300k
V	107.900	55.0	12.3	2.0	37.1	32.2	48.0	-15.8	90	Av/120k/1.6Hz
H	107.900	52.3	13.1	2.0	37.1	30.3	68.0	-37.7	90	PK/120k/300k
H	107.900	49.0	13.1	2.0	37.1	27.0	48.0	-21.0	90	Av/120k/1.6Hz
V	107.900	48.7	12.3	2.0	37.1	25.9	68.0	-42.1	135	PK/120k/300k
V	107.900	44.5	12.3	2.0	37.1	21.7	48.0	-26.3	135	Av/120k/1.6Hz
H	107.900	48.6	13.1	2.0	37.1	26.6	68.0	-41.4	135	PK/120k/300k
H	107.900	37.5	13.1	2.0	37.1	15.5	48.0	-32.5	135	Av/120k/1.6Hz
V	107.900	54.7	12.3	2.0	37.1	31.9	68.0	-36.1	180	PK/120k/300k
V	107.900	51.7	12.3	2.0	37.1	28.9	48.0	-19.1	180	Av/120k/1.6Hz
H	107.900	53.4	13.1	2.0	37.1	31.4	68.0	-36.6	180	PK/120k/300k
H	107.900	51.0	13.1	2.0	37.1	29.0	48.0	-19.0	180	Av/120k/1.6Hz
V	107.900	56.1	12.3	2.0	37.1	33.3	68.0	-34.7	225	PK/120k/300k
V	107.900	52.9	12.3	2.0	37.1	30.1	48.0	-17.9	225	Av/120k/1.6Hz
H	107.900	51.8	13.1	2.0	37.1	29.8	68.0	-38.2	225	PK/120k/300k
H	107.900	48.5	13.1	2.0	37.1	26.5	48.0	-21.5	225	Av/120k/1.6Hz
V	107.900	56.8	12.3	2.0	37.1	34.0	68.0	-34.0	270	PK/120k/300k
V	107.900	52.0	12.3	2.0	37.1	29.2	48.0	-18.8	270	Av/120k/1.6Hz
H	107.900	55.8	13.1	2.0	37.1	33.8	68.0	-34.2	270	PK/120k/300k
H	107.900	52.8	13.1	2.0	37.1	30.8	48.0	-17.2	270	Av/120k/1.6Hz
V	107.900	63.3	12.3	2.0	37.1	40.5	68.0	-27.5	315	PK/120k/300k
V	107.900	60.5	12.3	2.0	37.1	37.7	48.0	-10.3	315	Av/120k/1.6Hz
H	107.900	59.7	13.1	2.0	37.1	37.7	68.0	-30.3	315	PK/120k/300k
H	107.900	56.7	13.1	2.0	37.1	34.7	48.0	-13.3	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F		I=G-H						

7.2 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Midsize Vehicle)

Tabular Data – Fundamental (Low Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Mid Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
Low Channel										
V	88.100	60.8	9.1	1.8	37.2	34.6	68.0	-33.4	0	PK/120k/300k
V	88.100	58.3	9.1	1.8	37.2	32.1	48.0	-15.9	0	Av/120k/1.6Hz
H	88.100	65.1	10.5	1.8	37.2	40.3	68.0	-27.7	0	PK/120k/300k
H	88.100	63.7	10.5	1.8	37.2	38.9	48.0	-9.1	0	Av/120k/1.6Hz
V	88.100	64.4	9.1	1.8	37.2	38.2	68.0	-29.8	45	PK/120k/300k
V	88.100	62.6	9.1	1.8	37.2	36.4	48.0	-11.6	45	Av/120k/1.6Hz
H	88.100	68.3	10.5	1.8	37.2	43.5	68.0	-24.5	45	PK/120k/300k
H	88.100	66.8	10.5	1.8	37.2	42.0	48.0	-6.0	45	Av/120k/1.6Hz
V	88.100	57.5	9.1	1.8	37.2	31.3	68.0	-36.7	90	PK/120k/300k
V	88.100	55.6	9.1	1.8	37.2	29.4	48.0	-18.6	90	Av/120k/1.6Hz
H	88.100	61.3	10.5	1.8	37.2	36.5	68.0	-31.5	90	PK/120k/300k
H	88.100	59.7	10.5	1.8	37.2	34.9	48.0	-13.1	90	Av/120k/1.6Hz
V	88.100	54.9	9.1	1.8	37.2	28.7	68.0	-39.3	135	PK/120k/300k
V	88.100	52.8	9.1	1.8	37.2	26.6	48.0	-21.4	135	Av/120k/1.6Hz
H	88.100	64.5	10.5	1.8	37.2	39.7	68.0	-28.3	135	PK/120k/300k
H	88.100	62.6	10.5	1.8	37.2	37.8	48.0	-10.2	135	Av/120k/1.6Hz
V	88.100	65.5	9.1	1.8	37.2	39.3	68.0	-28.7	180	PK/120k/300k
V	88.100	63.7	9.1	1.8	37.2	37.5	48.0	-10.5	180	Av/120k/1.6Hz
H	88.100	65.6	10.5	1.8	37.2	40.8	68.0	-27.2	180	PK/120k/300k
H	88.100	64.1	10.5	1.8	37.2	39.3	48.0	-8.7	180	Av/120k/1.6Hz
V	88.100	64.4	9.1	1.8	37.2	38.2	68.0	-29.8	225	PK/120k/300k
V	88.100	62.0	9.1	1.8	37.2	35.8	48.0	-12.2	225	Av/120k/1.6Hz
H	88.100	56.0	10.5	1.8	37.2	31.2	68.0	-36.8	225	PK/120k/300k
H	88.100	52.7	10.5	1.8	37.2	27.9	48.0	-20.1	225	Av/120k/1.6Hz
V	88.100	60.8	9.1	1.8	37.2	34.6	68.0	-33.4	270	PK/120k/300k
V	88.100	58.7	9.1	1.8	37.2	32.5	48.0	-15.5	270	Av/120k/1.6Hz
H	88.100	55.7	10.5	1.8	37.2	30.9	68.0	-37.1	270	PK/120k/300k
H	88.100	52.5	10.5	1.8	37.2	27.7	48.0	-20.3	270	Av/120k/1.6Hz
V	88.100	62.4	9.1	1.8	37.2	36.2	68.0	-31.8	315	PK/120k/300k
V	88.100	60.4	9.1	1.8	37.2	34.2	48.0	-13.8	315	Av/120k/1.6Hz
H	88.100	52.4	10.5	1.8	37.2	27.6	68.0	-40.4	315	PK/120k/300k
H	88.100	48.7	10.5	1.8	37.2	23.9	48.0	-24.1	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F		I=G-H						

7.2 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Midsize Vehicle)

Tabular Data – Fundamental (Mid Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Mid Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
Mid Channel										
V	96.900	61.7	10.7	1.9	37.1	37.1	68.0	-30.9	0	PK/120k/300k
V	96.900	58.7	10.7	1.9	37.1	34.1	48.0	-13.9	0	Av/120k/1.6Hz
H	96.900	62.3	12.3	1.9	37.1	39.4	68.0	-28.6	0	PK/120k/300k
H	96.900	60.3	12.3	1.9	37.1	37.4	48.0	-10.6	0	Av/120k/1.6Hz
V	96.900	56.0	10.7	1.9	37.1	31.4	68.0	-36.6	45	PK/120k/300k
V	96.900	53.1	10.7	1.9	37.1	28.5	48.0	-19.5	45	Av/120k/1.6Hz
H	96.900	62.0	12.3	1.9	37.1	39.1	68.0	-28.9	45	PK/120k/300k
H	96.900	59.9	12.3	1.9	37.1	37.0	48.0	-11.0	45	Av/120k/1.6Hz
V	96.900	59.8	10.7	1.9	37.1	35.2	68.0	-32.8	90	PK/120k/300k
V	96.900	57.2	10.7	1.9	37.1	32.6	48.0	-15.4	90	Av/120k/1.6Hz
H	96.900	58.2	12.3	1.9	37.1	35.3	68.0	-32.7	90	PK/120k/300k
H	96.900	55.8	12.3	1.9	37.1	32.9	48.0	-15.1	90	Av/120k/1.6Hz
V	96.900	55.8	10.7	1.9	37.1	31.2	68.0	-36.8	135	PK/120k/300k
V	96.900	52.1	10.7	1.9	37.1	27.5	48.0	-20.5	135	Av/120k/1.6Hz
H	96.900	64.4	12.3	1.9	37.1	41.5	68.0	-26.5	135	PK/120k/300k
H	96.900	62.1	12.3	1.9	37.1	39.2	48.0	-8.8	135	Av/120k/1.6Hz
V	96.900	64.5	10.7	1.9	37.1	39.9	68.0	-28.1	180	PK/120k/300k
V	96.900	62.9	10.7	1.9	37.1	38.3	48.0	-9.7	180	Av/120k/1.6Hz
H	96.900	61.9	12.3	1.9	37.1	39.0	68.0	-29.0	180	PK/120k/300k
H	96.900	59.7	12.3	1.9	37.1	36.8	48.0	-11.2	180	Av/120k/1.6Hz
V	96.900	63.4	10.7	1.9	37.1	38.8	68.0	-29.2	225	PK/120k/300k
V	96.900	61.4	10.7	1.9	37.1	36.8	48.0	-11.2	225	Av/120k/1.6Hz
H	96.900	66.8	12.3	1.9	37.1	43.9	68.0	-24.1	225	PK/120k/300k
H	96.900	65.1	12.3	1.9	37.1	42.2	48.0	-5.8	225	Av/120k/1.6Hz
V	96.900	63.0	10.7	1.9	37.1	38.4	68.0	-29.6	270	PK/120k/300k
V	96.900	61.3	10.7	1.9	37.1	36.7	48.0	-11.3	270	Av/120k/1.6Hz
H	96.900	60.3	12.3	1.9	37.1	37.4	68.0	-30.6	270	PK/120k/300k
H	96.900	58.3	12.3	1.9	37.1	35.4	48.0	-12.6	270	Av/120k/1.6Hz
V	96.900	63.6	10.7	1.9	37.1	39.0	68.0	-29.0	315	PK/120k/300k
V	96.900	61.5	10.7	1.9	37.1	36.9	48.0	-11.1	315	Av/120k/1.6Hz
H	96.900	53.1	12.3	1.9	37.1	30.2	68.0	-37.8	315	PK/120k/300k
H	96.900	49.9	12.3	1.9	37.1	27.0	48.0	-21.0	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F		I=G-H						

7.2 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Midsize Vehicle)

Tabular Data – Fundamental (High Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Mid Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
High Channel										
V	107.900	62.6	12.3	2.0	37.1	39.8	68.0	-28.2	0	PK/120k/300k
V	107.900	60.6	12.3	2.0	37.1	37.8	48.0	-10.2	0	Av/120k/1.6Hz
H	107.900	60.9	13.1	2.0	37.1	38.9	68.0	-29.1	0	PK/120k/300k
H	107.900	59.2	13.1	2.0	37.1	37.2	48.0	-10.8	0	Av/120k/1.6Hz
V	107.900	59.1	12.3	2.0	37.1	36.3	68.0	-31.7	45	PK/120k/300k
V	107.900	57.1	12.3	2.0	37.1	34.3	48.0	-13.7	45	Av/120k/1.6Hz
H	107.900	58.1	13.1	2.0	37.1	36.1	68.0	-31.9	45	PK/120k/300k
H	107.900	55.8	13.1	2.0	37.1	33.8	48.0	-14.2	45	Av/120k/1.6Hz
V	107.900	56.7	12.3	2.0	37.1	33.9	68.0	-34.1	90	PK/120k/300k
V	107.900	54.4	12.3	2.0	37.1	31.6	48.0	-16.4	90	Av/120k/1.6Hz
H	107.900	59.4	13.1	2.0	37.1	37.4	68.0	-30.6	90	PK/120k/300k
H	107.900	57.6	13.1	2.0	37.1	35.6	48.0	-12.4	90	Av/120k/1.6Hz
V	107.900	51.3	12.3	2.0	37.1	28.5	68.0	-39.5	135	PK/120k/300k
V	107.900	47.7	12.3	2.0	37.1	24.9	48.0	-23.1	135	Av/120k/1.6Hz
H	107.900	58.4	13.1	2.0	37.1	36.4	68.0	-31.6	135	PK/120k/300k
H	107.900	56.1	13.1	2.0	37.1	34.1	48.0	-13.9	135	Av/120k/1.6Hz
V	107.900	55.8	12.3	2.0	37.1	33.0	68.0	-35.0	180	PK/120k/300k
V	107.900	53.1	12.3	2.0	37.1	30.3	48.0	-17.7	180	Av/120k/1.6Hz
H	107.900	53.9	13.1	2.0	37.1	31.9	68.0	-36.1	180	PK/120k/300k
H	107.900	51.2	13.1	2.0	37.1	29.2	48.0	-18.8	180	Av/120k/1.6Hz
V	107.900	54.2	12.3	2.0	37.1	31.4	68.0	-36.6	225	PK/120k/300k
V	107.900	51.3	12.3	2.0	37.1	28.5	48.0	-19.5	225	Av/120k/1.6Hz
H	107.900	51.8	13.1	2.0	37.1	29.8	68.0	-38.2	225	PK/120k/300k
H	107.900	48.5	13.1	2.0	37.1	26.5	48.0	-21.5	225	Av/120k/1.6Hz
V	107.900	55.3	12.3	2.0	37.1	32.5	68.0	-35.5	270	PK/120k/300k
V	107.900	52.3	12.3	2.0	37.1	29.5	48.0	-18.5	270	Av/120k/1.6Hz
H	107.900	51.7	13.1	2.0	37.1	29.7	68.0	-38.3	270	PK/120k/300k
H	107.900	48.6	13.1	2.0	37.1	26.6	48.0	-21.4	270	Av/120k/1.6Hz
V	107.900	59.9	12.3	2.0	37.1	37.1	68.0	-30.9	315	PK/120k/300k
V	107.900	57.8	12.3	2.0	37.1	35.0	48.0	-13.0	315	Av/120k/1.6Hz
H	107.900	51.7	13.1	2.0	37.1	29.7	68.0	-38.3	315	PK/120k/300k
H	107.900	48.2	13.1	2.0	37.1	26.2	48.0	-21.8	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F		I=G-H						

7.3 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Large Vehicle)

Tabular Data – Fundamental (Low Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Large Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
Low Channel										
V	88.100	68.7	9.1	1.8	37.2	42.5	68.0	-25.5	0	PK/120k/300k
V	88.100	66.8	9.1	1.8	37.2	40.6	48.0	-7.4	0	Av/120k/1.6Hz
H	88.100	66.0	10.5	1.8	37.2	41.2	68.0	-26.8	0	PK/120k/300k
H	88.100	64.4	10.5	1.8	37.2	39.6	48.0	-8.4	0	Av/120k/1.6Hz
V	88.100	64.2	9.1	1.8	37.2	38.0	68.0	-30.0	45	PK/120k/300k
V	88.100	62.6	9.1	1.8	37.2	36.4	48.0	-11.6	45	Av/120k/1.6Hz
H	88.100	64.8	10.5	1.8	37.2	40.0	68.0	-28.0	45	PK/120k/300k
H	88.100	63.2	10.5	1.8	37.2	38.4	48.0	-9.6	45	Av/120k/1.6Hz
V	88.100	59.9	9.1	1.8	37.2	33.7	68.0	-34.3	90	PK/120k/300k
V	88.100	58.2	9.1	1.8	37.2	32.0	48.0	-16.0	90	Av/120k/1.6Hz
H	88.100	65.6	10.5	1.8	37.2	40.8	68.0	-27.2	90	PK/120k/300k
H	88.100	63.9	10.5	1.8	37.2	39.1	48.0	-8.9	90	Av/120k/1.6Hz
V	88.100	60.2	9.1	1.8	37.2	34.0	68.0	-34.0	135	PK/120k/300k
V	88.100	58.5	9.1	1.8	37.2	32.3	48.0	-15.7	135	Av/120k/1.6Hz
H	88.100	64.2	10.5	1.8	37.2	39.4	68.0	-28.6	135	PK/120k/300k
H	88.100	62.4	10.5	1.8	37.2	37.6	48.0	-10.4	135	Av/120k/1.6Hz
V	88.100	66.3	9.1	1.8	37.2	40.1	68.0	-27.9	180	PK/120k/300k
V	88.100	64.8	9.1	1.8	37.2	38.6	48.0	-9.4	180	Av/120k/1.6Hz
H	88.100	60.5	10.5	1.8	37.2	35.7	68.0	-32.3	180	PK/120k/300k
H	88.100	58.8	10.5	1.8	37.2	34.0	48.0	-14.0	180	Av/120k/1.6Hz
V	88.100	58.3	9.1	1.8	37.2	32.1	68.0	-35.9	225	PK/120k/300k
V	88.100	56.0	9.1	1.8	37.2	29.8	48.0	-18.2	225	Av/120k/1.6Hz
H	88.100	67.7	10.5	1.8	37.2	42.9	68.0	-25.1	225	PK/120k/300k
H	88.100	66.1	10.5	1.8	37.2	41.3	48.0	-6.7	225	Av/120k/1.6Hz
V	88.100	61.4	9.1	1.8	37.2	35.2	68.0	-32.8	270	PK/120k/300k
V	88.100	59.6	9.1	1.8	37.2	33.4	48.0	-14.6	270	Av/120k/1.6Hz
H	88.100	64.6	10.5	1.8	37.2	39.8	68.0	-28.2	270	PK/120k/300k
H	88.100	63.1	10.5	1.8	37.2	38.3	48.0	-9.7	270	Av/120k/1.6Hz
V	88.100	68.6	9.1	1.8	37.2	42.4	68.0	-25.6	315	PK/120k/300k
V	88.100	66.9	9.1	1.8	37.2	40.7	48.0	-7.3	315	Av/120k/1.6Hz
H	88.100	66.6	10.5	1.8	37.2	41.8	68.0	-26.2	315	PK/120k/300k
H	88.100	64.8	10.5	1.8	37.2	40.0	48.0	-8.0	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F			I=G-H					

7.3 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Large Vehicle)

Tabular Data – Fundamental (Mid Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Large Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
Mid Channel										
V	96.900	62.4	10.7	1.9	37.1	37.8	68.0	-30.2	0	PK/120k/300k
V	96.900	60.4	10.7	1.9	37.1	35.8	48.0	-12.2	0	Av/120k/1.6Hz
H	96.900	59.0	12.3	1.9	37.1	36.1	68.0	-31.9	0	PK/120k/300k
H	96.900	56.6	12.3	1.9	37.1	33.7	48.0	-14.3	0	Av/120k/1.6Hz
V	96.900	57.6	10.7	1.9	37.1	33.0	68.0	-35.0	45	PK/120k/300k
V	96.900	54.7	10.7	1.9	37.1	30.1	48.0	-17.9	45	Av/120k/1.6Hz
H	96.900	58.1	12.3	1.9	37.1	35.2	68.0	-32.8	45	PK/120k/300k
H	96.900	55.5	12.3	1.9	37.1	32.6	48.0	-15.4	45	Av/120k/1.6Hz
V	96.900	62.1	10.7	1.9	37.1	37.5	68.0	-30.5	90	PK/120k/300k
V	96.900	59.2	10.7	1.9	37.1	34.6	48.0	-13.4	90	Av/120k/1.6Hz
H	96.900	59.3	12.3	1.9	37.1	36.4	68.0	-31.6	90	PK/120k/300k
H	96.900	56.4	12.3	1.9	37.1	33.5	48.0	-14.5	90	Av/120k/1.6Hz
V	96.900	61.5	10.7	1.9	37.1	36.9	68.0	-31.1	135	PK/120k/300k
V	96.900	59.9	10.7	1.9	37.1	35.3	48.0	-12.7	135	Av/120k/1.6Hz
H	96.900	65.3	12.3	1.9	37.1	42.4	68.0	-25.6	135	PK/120k/300k
H	96.900	63.7	12.3	1.9	37.1	40.8	48.0	-7.2	135	Av/120k/1.6Hz
V	96.900	60.5	10.7	1.9	37.1	35.9	68.0	-32.1	180	PK/120k/300k
V	96.900	58.7	10.7	1.9	37.1	34.1	48.0	-13.9	180	Av/120k/1.6Hz
H	96.900	60.1	12.3	1.9	37.1	37.2	68.0	-30.8	180	PK/120k/300k
H	96.900	57.8	12.3	1.9	37.1	34.9	48.0	-13.1	180	Av/120k/1.6Hz
V	96.900	54.8	10.7	1.9	37.1	30.2	68.0	-37.8	225	PK/120k/300k
V	96.900	51.9	10.7	1.9	37.1	27.3	48.0	-20.7	225	Av/120k/1.6Hz
H	96.900	58.5	12.3	1.9	37.1	35.6	68.0	-32.4	225	PK/120k/300k
H	96.900	56.1	12.3	1.9	37.1	33.2	48.0	-14.8	225	Av/120k/1.6Hz
V	96.900	54.7	10.7	1.9	37.1	30.1	68.0	-37.9	270	PK/120k/300k
V	96.900	52.2	10.7	1.9	37.1	27.6	48.0	-20.4	270	Av/120k/1.6Hz
H	96.900	58.1	12.3	1.9	37.1	35.2	68.0	-32.8	270	PK/120k/300k
H	96.900	55.8	12.3	1.9	37.1	32.9	48.0	-15.1	270	Av/120k/1.6Hz
V	96.900	61.1	10.7	1.9	37.1	36.5	68.0	-31.5	315	PK/120k/300k
V	96.900	59.0	10.7	1.9	37.1	34.4	48.0	-13.6	315	Av/120k/1.6Hz
H	96.900	63.1	12.3	1.9	37.1	40.2	68.0	-27.8	315	PK/120k/300k
H	96.900	61.3	12.3	1.9	37.1	38.4	48.0	-9.6	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F		I=G-H						

7.3 § 15.239(b)/(c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect (In-Situ – Large Vehicle)

Tabular Data – Fundamental (High Channel)

Frequency Range (MHz): 88-108

Test Distance (m): 3

Input power: 12VDC

Limit: 15_239-3m

Note: Large Car

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Azimuth	Detectors / Bandwidths Det/RBW/VBW
High Channel										
V	107.900	66.2	12.3	2.0	37.1	43.4	68.0	-24.6	0	PK/120k/300k
V	107.900	64.7	12.3	2.0	37.1	41.9	48.0	-6.1	0	Av/120k/1.6Hz
H	107.900	49.4	13.1	2.0	37.1	27.4	68.0	-40.6	0	PK/120k/300k
H	107.900	44.9	13.1	2.0	37.1	22.9	48.0	-25.1	0	Av/120k/1.6Hz
V	107.900	63.5	12.3	2.0	37.1	40.7	68.0	-27.3	45	PK/120k/300k
V	107.900	61.9	12.3	2.0	37.1	39.1	48.0	-8.9	45	Av/120k/1.6Hz
H	107.900	57.7	13.1	2.0	37.1	35.7	68.0	-32.3	45	PK/120k/300k
H	107.900	54.7	13.1	2.0	37.1	32.7	48.0	-15.3	45	Av/120k/1.6Hz
V	107.900	61.1	12.3	2.0	37.1	38.3	68.0	-29.7	90	PK/120k/300k
V	107.900	59.2	12.3	2.0	37.1	36.4	48.0	-11.6	90	Av/120k/1.6Hz
H	107.900	58.9	13.1	2.0	37.1	36.9	68.0	-31.1	90	PK/120k/300k
H	107.900	56.6	13.1	2.0	37.1	34.6	48.0	-13.4	90	Av/120k/1.6Hz
V	107.900	57.3	12.3	2.0	37.1	34.5	68.0	-33.5	135	PK/120k/300k
V	107.900	54.9	12.3	2.0	37.1	32.1	48.0	-15.9	135	Av/120k/1.6Hz
H	107.900	65.1	13.1	2.0	37.1	43.1	68.0	-24.9	135	PK/120k/300k
H	107.900	63.7	13.1	2.0	37.1	41.7	48.0	-6.3	135	Av/120k/1.6Hz
V	107.900	59.8	12.3	2.0	37.1	37.0	68.0	-31.0	180	PK/120k/300k
V	107.900	57.9	12.3	2.0	37.1	35.1	48.0	-12.9	180	Av/120k/1.6Hz
H	107.900	56.0	13.1	2.0	37.1	34.0	68.0	-34.0	180	PK/120k/300k
H	107.900	53.6	13.1	2.0	37.1	31.6	48.0	-16.4	180	Av/120k/1.6Hz
V	107.900	61.7	12.3	2.0	37.1	38.9	68.0	-29.1	225	PK/120k/300k
V	107.900	59.8	12.3	2.0	37.1	37.0	48.0	-11.0	225	Av/120k/1.6Hz
H	107.900	58.9	13.1	2.0	37.1	36.9	68.0	-31.1	225	PK/120k/300k
H	107.900	56.5	13.1	2.0	37.1	34.5	48.0	-13.5	225	Av/120k/1.6Hz
V	107.900	53.4	12.3	2.0	37.1	30.6	68.0	-37.4	270	PK/120k/300k
V	107.900	50.2	12.3	2.0	37.1	27.4	48.0	-20.6	270	Av/120k/1.6Hz
H	107.900	59.6	13.1	2.0	37.1	37.6	68.0	-30.4	270	PK/120k/300k
H	107.900	57.7	13.1	2.0	37.1	35.7	48.0	-12.3	270	Av/120k/1.6Hz
V	107.900	61.7	12.3	2.0	37.1	38.9	68.0	-29.1	315	PK/120k/300k
V	107.900	59.7	12.3	2.0	37.1	36.9	48.0	-11.1	315	Av/120k/1.6Hz
H	107.900	59.9	13.1	2.0	37.1	37.9	68.0	-30.1	315	PK/120k/300k
H	107.900	58.0	13.1	2.0	37.1	36.0	48.0	-12.0	315	Av/120k/1.6Hz
Calculations		G=C+D+E-F		I=G-H						

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) - FEA

Method:

Testing was performed using the emissions test methods described in the previous section

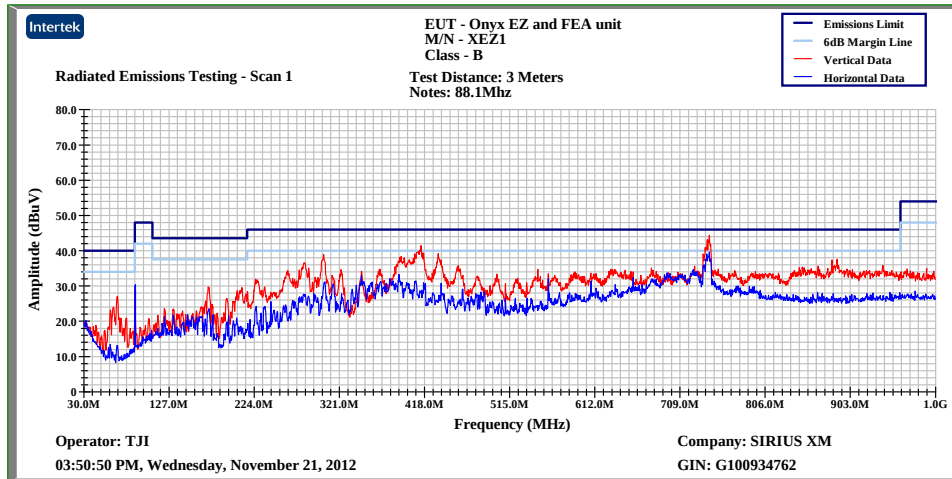
Results: The sample tested was found to Comply.

Specific Setup Details

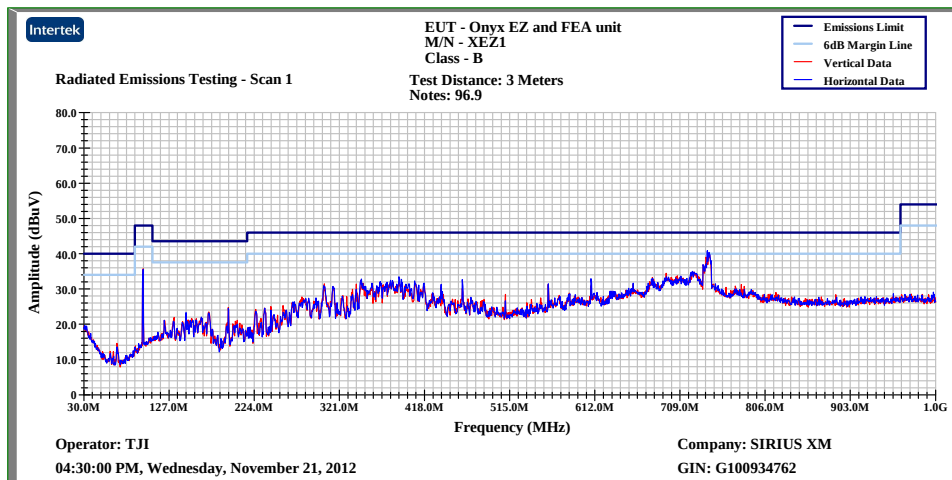
- The Onyx LITE is positioned in a vertical position with at the back edge of the wooden testing table.
- The FEA unit is connected to the Onyx LITE's dock 'FM' port with its cable spread out all over the testing table.
- Onyx LITE is powered by its 5V PowerConnect adapter via a 12V DC battery placed on the floor and an 'iFMCLA' power socket.
- The XM Satellite antenna is connected to the Onyx LITE's 'Antenna' port.
- The 'Audio' port of the Onyx LITE is terminated with its 'Aux-In' audio cable.
- The FM Modulator menu should be used to enable the FM signal from the Onyx LITE.
- The Onyx LITE is configured to receive live ***XM*** programming service.
- The Onyx LITE is configured for Max audio output level.

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) - FEA

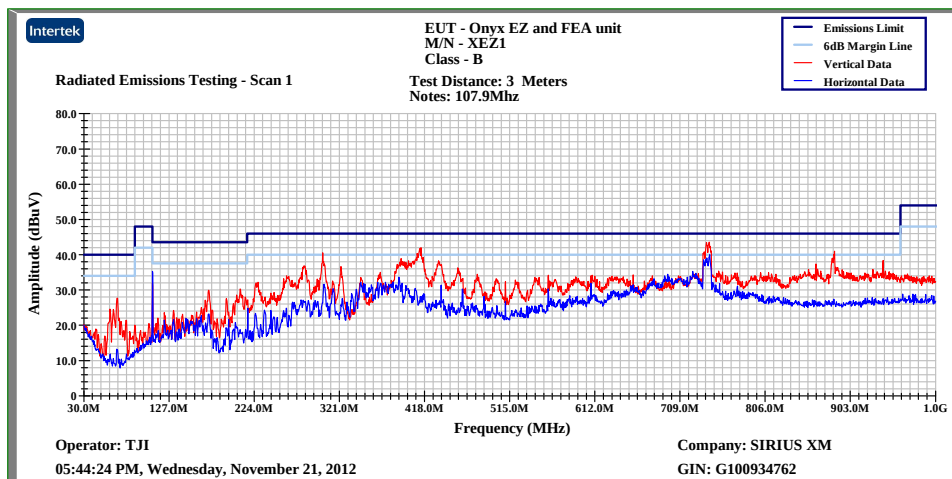
Peak Plot – 30MHz-1000MHz



Peak Plot – 30MHz-1000MHz

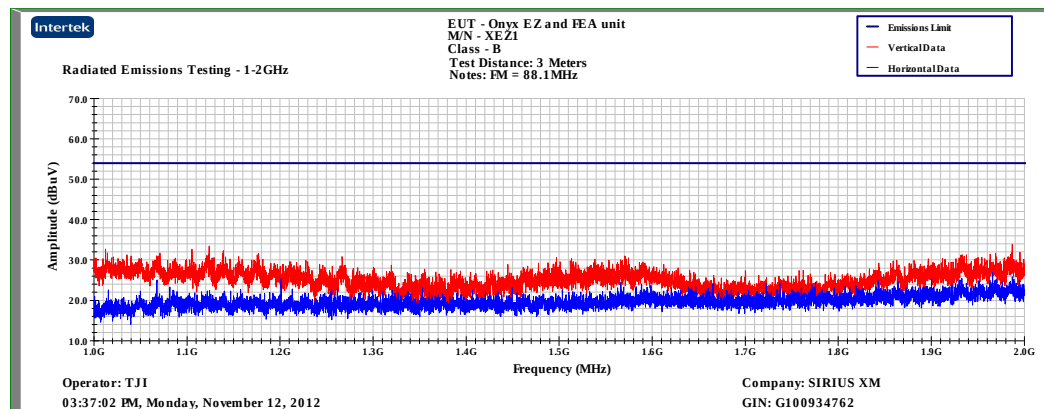


Peak Plot – 30MHz-1000MHz

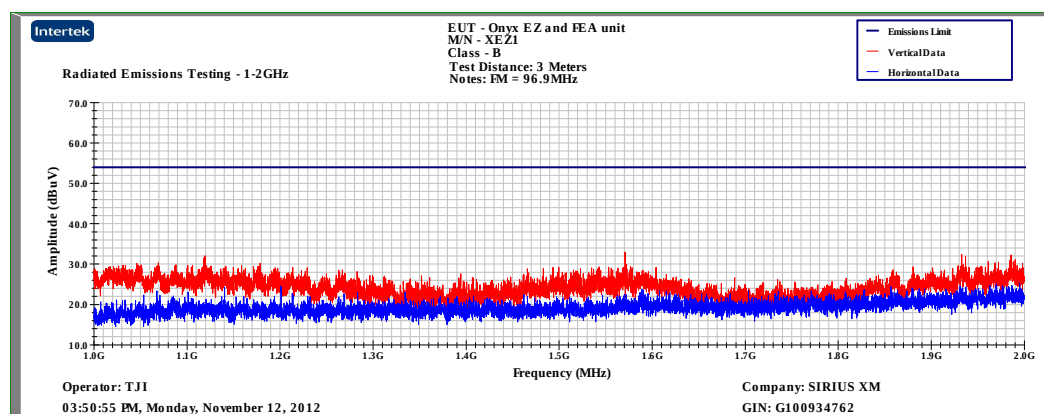


8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) - FEA

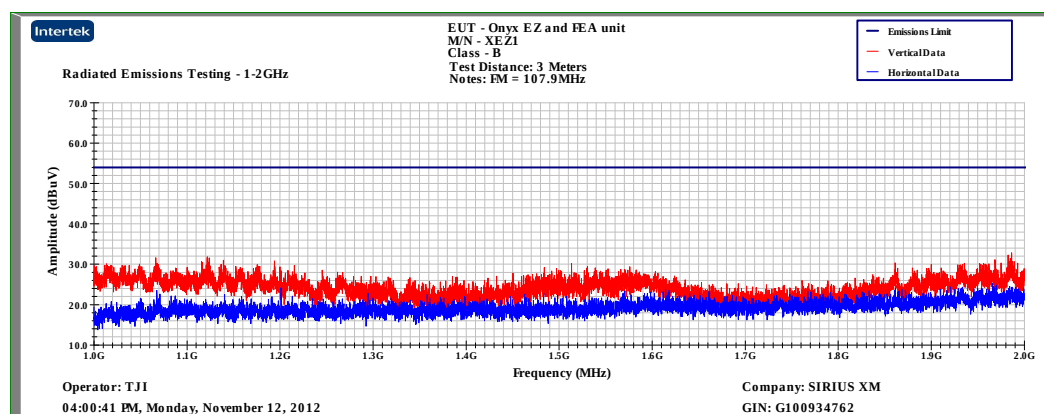
Peak Plot – 1000MHz-2000MHz



Peak Plot – 1000MHz-2000MHz



Peak Plot – 1000MHz-2000MHz



8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) - FEA

Tabular Data

Frequency Range (MHz): 30-1000Mhz

Test Distance (m): 3

Input power: 12V Configuration 6

Limit: 15_239-3m

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
Low Channel 88.1Mhz									
V	301.500	53.2	14.3	3.4	37.1	33.9	46.0	-12.1	QP/120/300
V	412.700	52.3	17.3	3.9	37.1	36.5	46.0	-9.5	QP/120/300
V	741.500	49.0	20.4	5.5	36.6	38.2	46.0	-7.8	QP/120/300
V	88.100	50.9	9.1	1.8	37.2	24.7	48.0	-23.3	QP/120/300
H	88.100	54.5	10.5	1.8	37.2	29.7	48.0	-18.3	QP/120/300
Mid Channel 96.9Mhz									
V	345.000	47.2	15.2	3.6	37.1	28.9	46.0	-17.1	QP/120/300
V	606.700	46.5	19.3	4.9	36.9	33.8	46.0	-12.2	QP/120/300
V	741.200	48.1	20.4	5.5	36.6	37.3	46.0	-8.7	QP/120/300
V	96.900	54.3	10.7	1.9	37.1	29.7	48.0	-18.3	QP/120/300
H	96.900	58.0	12.3	1.9	37.1	35.1	48.0	-12.9	QP/120/300
High Channel 107.9Mhz									
V	302.000	53.1	14.3	3.4	37.1	33.8	46.0	-12.2	QP/120/300
V	413.400	52.3	17.3	3.9	37.1	36.5	46.0	-9.5	QP/120/300
V	741.000	47.2	20.4	5.4	36.6	36.4	46.0	-9.6	QP/120/300
V	884.990	39.6	21.7	6.0	36.3	31.1	46.0	-14.9	QP/120/300
V	107.900	51.3	12.3	2.0	37.1	28.5	48.0	-19.5	QP/120/300
H	107.900	56.2	13.1	2.0	37.1	34.2	48.0	-13.8	QP/120/300
Calculations		G=C+D+E-F		I=G-H					

9.0 Conducted Power Measurements

Method:

Testing was performed using the following method;

The CLA shall be connected to the spectrum analyzer input through a bias-T circuit which provides the necessary DC voltage to the CLA for normal operation, but which prevents the DC voltage from appearing at the spectrum analyzer input. The bias-T shall not attenuate the FM signal, or provide any impedance matching circuitry. This method may only be used when the EUT output impedance is 50Ωohms.

Conducted power measurements have been performed on a number of FM transmitters on a tabletop and compared with the results of compliant FM transmitters measured in accordance with 7.15.4. Based on these comparisons, a correction factor of 24.2dB, which when applied to the theoretical EIRP equation yields a conducted power value of approximately -23dBm, which was used for determining compliance of the fundamental emission of an FM transmitter.

Results: The sample tested was found to Comply.

Specific Setup Details

- The Sirius XEZ1 is connected to the FM port of the bias-T.
- Sirius XEZ1 is powered by its 5V PowerConnect adapter via a 12V DC power supply and an 'iFMCLA' power socket.
- The Sirius satellite antenna is connected to the Sirius XEZ1's 'Antenna' port.
- The FM Modulator button should be used to enable the FM signal from the RSR.
- The Sirius XEZ1 is configured to receive live **Sirius** programming service.
- The Sirius XEZ1 is configured for Max audio output level.

Tabular Data:

Channel	Conducted dBm	Limit dBm	Margin	Results
88.1	-47.59	-23	-24.59	Pass
96.9	-47.69	-23	-24.69	Pass
107.9	-47.76	-23	-24.76	Pass

10.0 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal Due
Bilog Antenna	Chase	CBL6112A	2228	02/21/2013
Cable E203	Megaphase	TM18 NKNK 118	9053201 002	05/07/2013
Cable E206	Megaphase	TM18 NKNK 118	9053201 004	05/07/2013
Cable MP3	Megaphase	G919-NKNK-394	MP3	05/07/2013
Cable ST-4	Storm Products Co.	A81-0303-275.6	12-07-001	07/25/2013
Cable TW2	Andrews	Cable TW2	TW2	05/07/2013
EMI Receiver	Hewlett Packard	8546A	213109	12/29/2012
EMI Receiver RF Preselector	Hewlett Packard	85460A	213108	12/29/2012
Horn Antenna (1-18GHz)	EMCO	3115	9208-3919	07/19/2013
Preamplifier, 10 MHz to 2000 MHz	Mini-Circuits	ZKL-2	D011105	07/19/2013
Preamplifier (1-18GHz)	A.H. Systems	PAM-0118	199	05/22/2013
Power Meter	Boonton	4232A	120802	12/15/2012
Power Sensor	Boonton	51011-EMC	34915	12/15/2012

11.0 Revision History

Revision Level	Date	Report Number	Notes
Original issue	November 30, 2012	100455091ATL-002	--
1	December 4, 2012	100455091ATL-002	Page 25, corrected model name in configuration. Adjusted the table of content.
2	December 7, 2012	100455091ATL-002	Page 3, Corrected EUT product description.