



## TEST REPORT

Report Number: 100439624ATL-001

July 28, 2011

**Product Name: Sirius XM Edge**

**Product Model Number: SX1E**

Standard: FCC Part 15, Subpart C, Intentional Radiators (15.239)  
RSS-210, Issue 8 (Annex A2.8)

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:

Richard Bianco  
EMC Project Engineer

Report reviewed by:

Jeremy O. Pickens  
Department Manager - EMC

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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.

## 2.0 Test Summary

Section	Test Full Name	Result
4.0	System setup including cable interconnection details, support equipment and simplified block diagram. (System	PASS
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
7.0	Occupied Bandwidth (RSS-210 A2.8 OBW)	PASS
8.0	§ 15.107(a) / RSS-Gen 7.2.2 Conducted Emissions – Home Cradle	PASS
9.0	§ 15.109(a) Unintentional Radiated Emissions – Home Cradle	PASS
10.0	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FM Direct	PASS
11.0	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – Cassette Adapter	PASS
12.0	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit	PASS
13.0	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect	PASS
14.0	Test Equipment List	
15.0	Revision History	

### 3.0 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Sirius XM Edge	SIRIUS XM Satellite Radio	SX1E	Not Labeled

EUT receive date:	June 24, 2011
EUT receive condition:	Good

Description of EUT provided by Client:

Sirius XM Edge 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 up to 10 of 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 PI, 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 EUTcabling, document the support equipment, and show the interconnections in a block diagram.

Support Equipment - Homedock Configurations			
Description	Manufacturer	Model Number	Serial Number
Indoor/Outdoor Antenna	Sirius XM	Not Labeled	9K309457M
Homedock	Sirius XM	XDPHD1	1025
AC Power Supply	Phihong	PSM08A-052	NA

Support Equipment - Cassette Configuration			
Description	Manufacturer	Model Number	Serial Number
PowerConnect Dock	Sirius XM	XDPIV1	1121
Cassette	Sirius XM	XMTTZ00257	NA
Cigarette Lighter Socket w/	Sirius XM	NA	NA
Sirius Vehicle Antenna	Sirius XM	ROANT2	620
Vehicle Power Adapter	Sirius XM	SXDPIP1	1121
Cigarette Lighter Socket w/	Sirius XM	NA	NA
12V AGM Battery	Werker	WKA12-80C/FR	NA

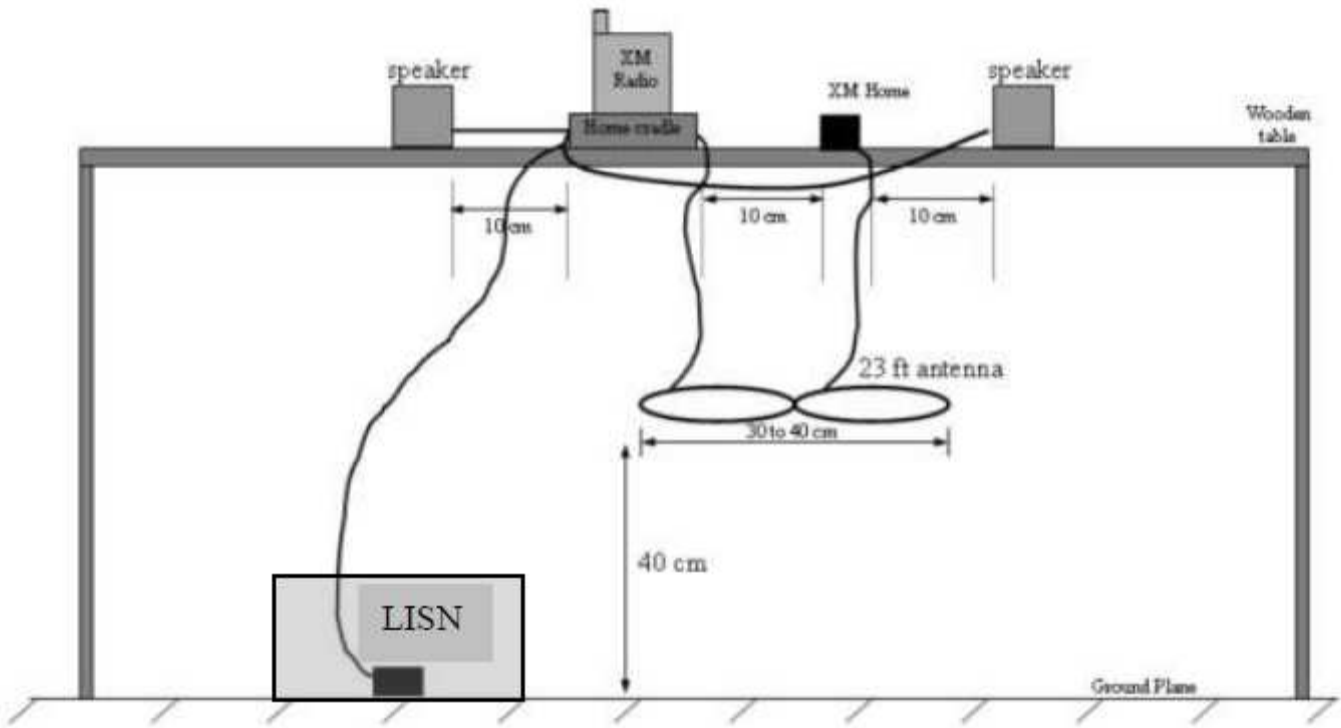
Support Equipment - FEA Configuration			
Description	Manufacturer	Model Number	Serial Number
PowerConnect Dock	Sirius XM	XDPIV1	1121
FM Extender Antenna (FEA)	Sirius XM	FEA25	NA
Cigarette Lighter Socket w/	Sirius XM	NA	NA
Sirius Vehicle Antenna	Sirius XM	ROANT2	620
Vehicle Power Adapter	Sirius XM	SXDPIP1	1121
Cigarette Lighter Socket w/	Sirius XM	NA	NA
12V AGM Battery	Werker	WKA12-80C/FR	NA

Support Equipment - FM Direct Configuration			
Description	Manufacturer	Model Number	Serial Number
PowerConnect Dock	Sirius XM	XDPIV1	1121
FM Direct Adapter	Sirius XM	FMDA25	NA
Auxiliary Cable	Sirius XM	VZCC-A4B9090-LP4	NA
Extendable Monopole Antenna	NA	NA	NA
Cigarette Lighter Socket w/	Sirius XM	NA	NA
Sirius Vehicle Antenna	Sirius XM	ROANT2	620
Vehicle Power Adapter	Sirius XM	SXDPIP1	1121
Cigarette Lighter Socket w/ Twisted Pair Cable	Sirius XM	NA	NA
12V AGM Battery	Werker	WKA12-80C/FR	NA

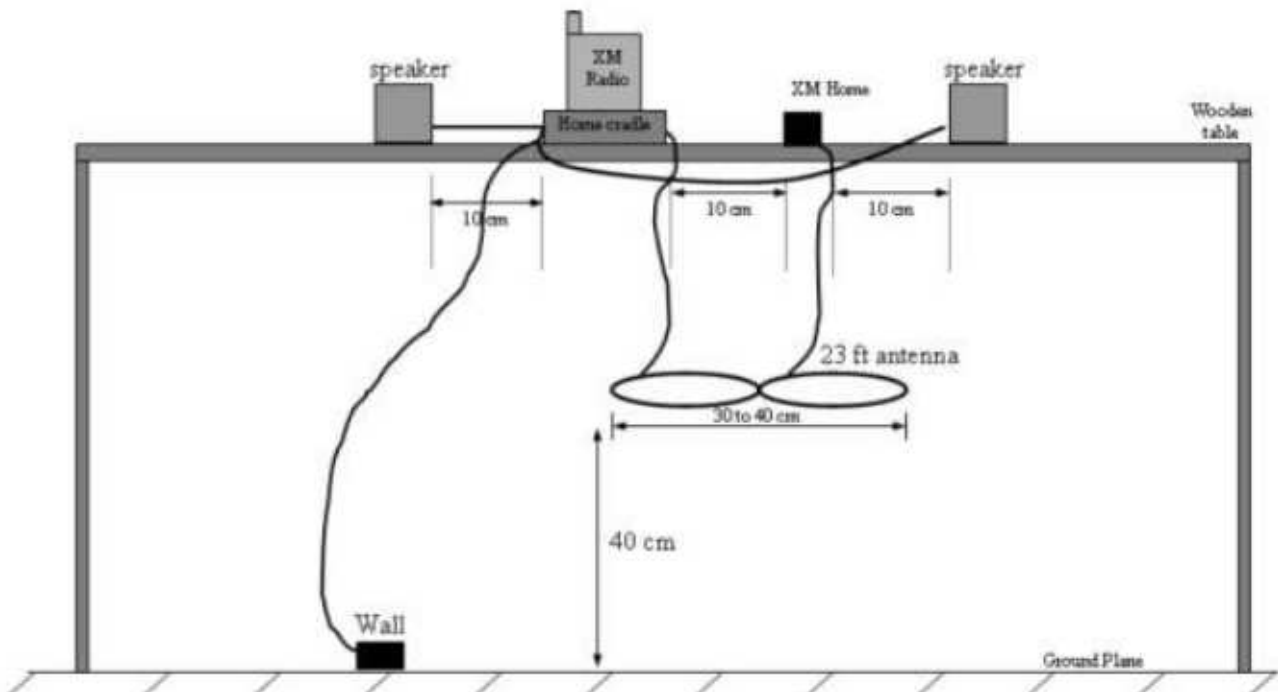
Support Equipment - PowerConnect Configuration			
Description	Manufacturer	Model Number	Serial Number
PowerConnect Dock	Sirius XM	XDPIV1	1121
Cigarette Lighter Socket w/	Sirius XM	NA	NA
Sirius Vehicle Antenna	Sirius XM	ROANT2	620
Vehicle Power Adapter	Sirius XM	SXDPIP1	1117
Cigarette Lighter Socket w/	Sirius XM	NA	NA
12V AGM Battery	Werker	WKA12-80C/FR	NA

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

Configuration Diagram –Conducted Emissions (Home Dock)

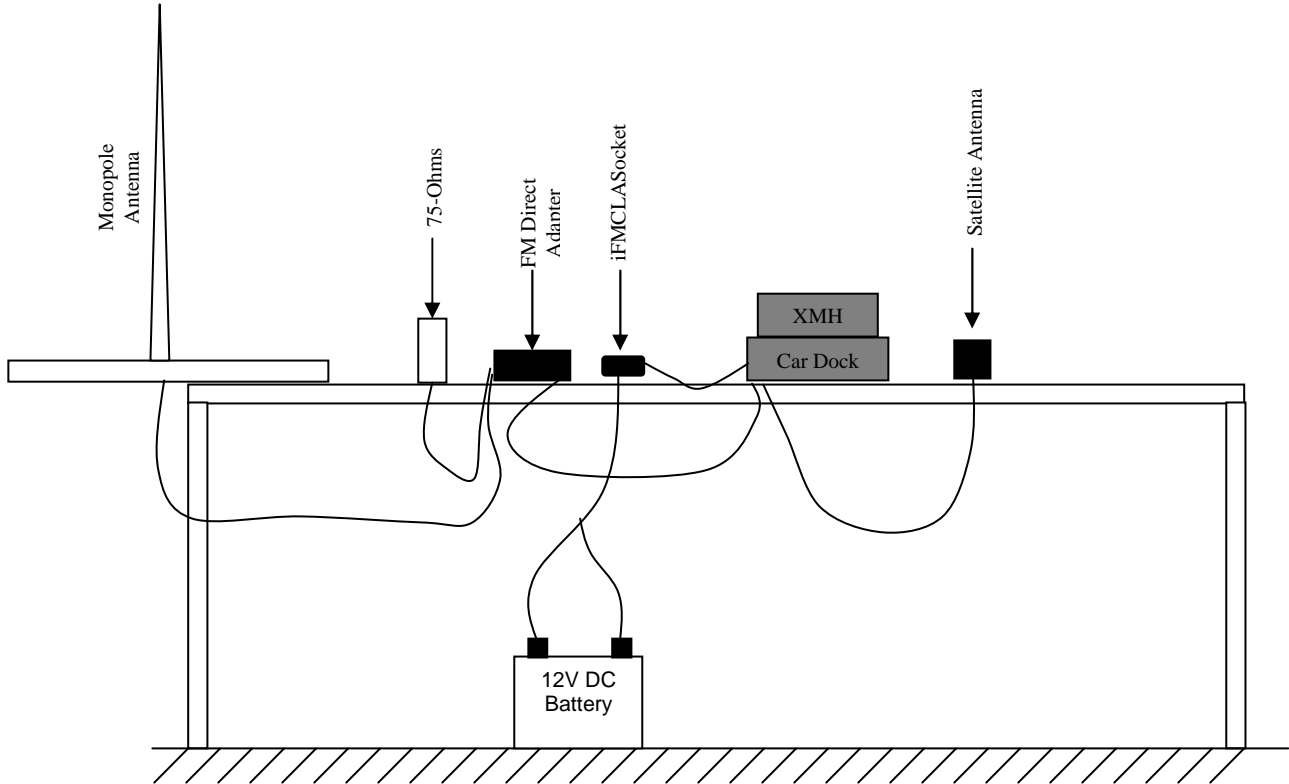


Configuration Diagram –Radiated Emissions (Home Dock)



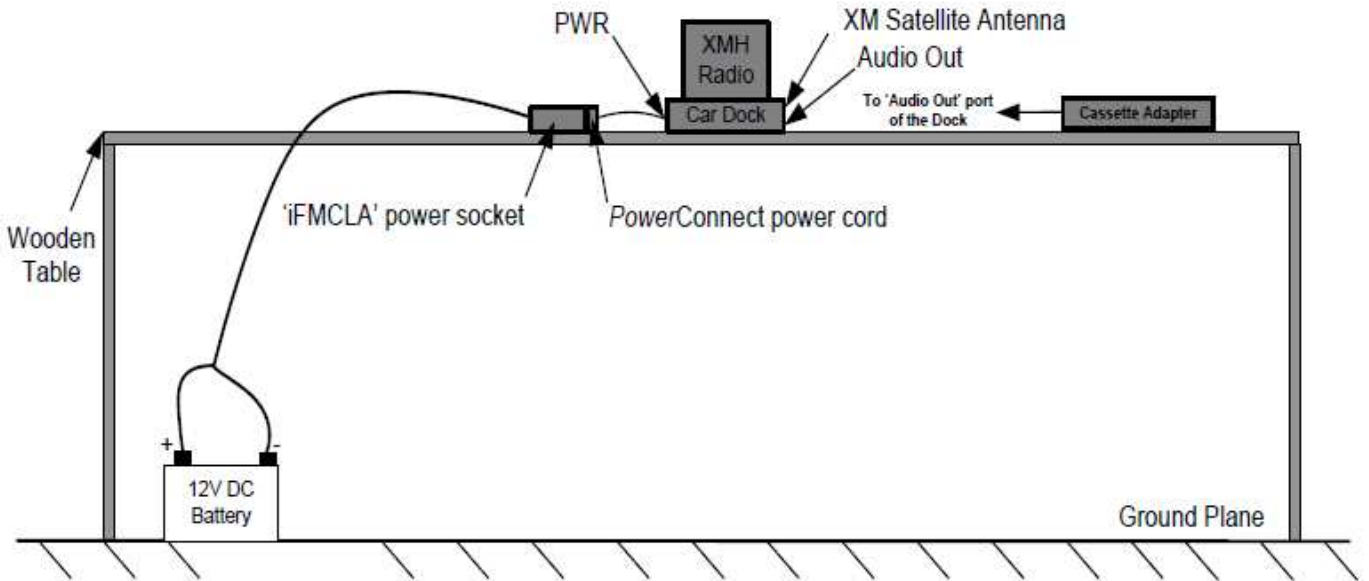
**4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)**

**Configuration Diagram – FM Direct Configuration**

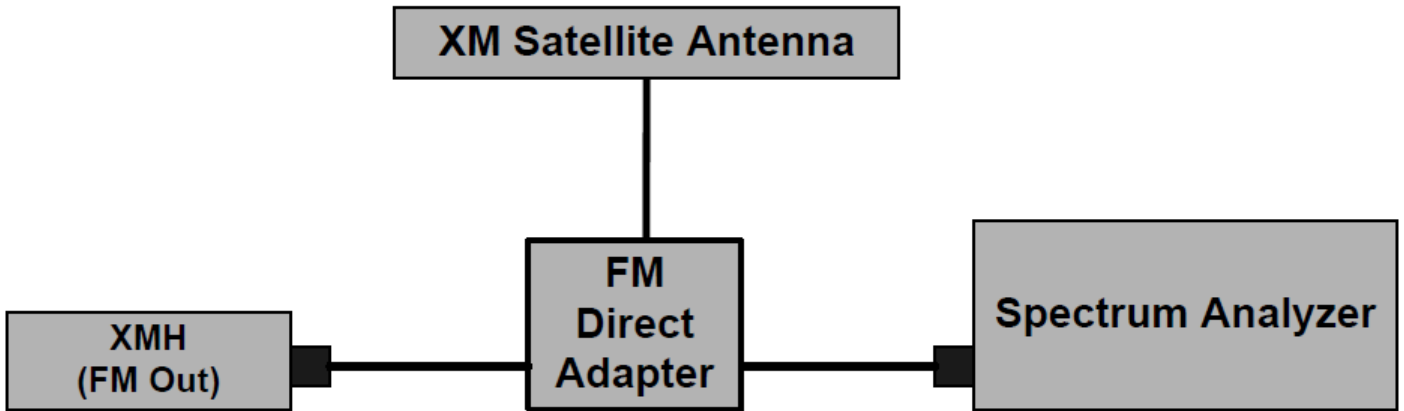


**4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)**

**Configuration Diagram – Cassette Adapter Configuration**

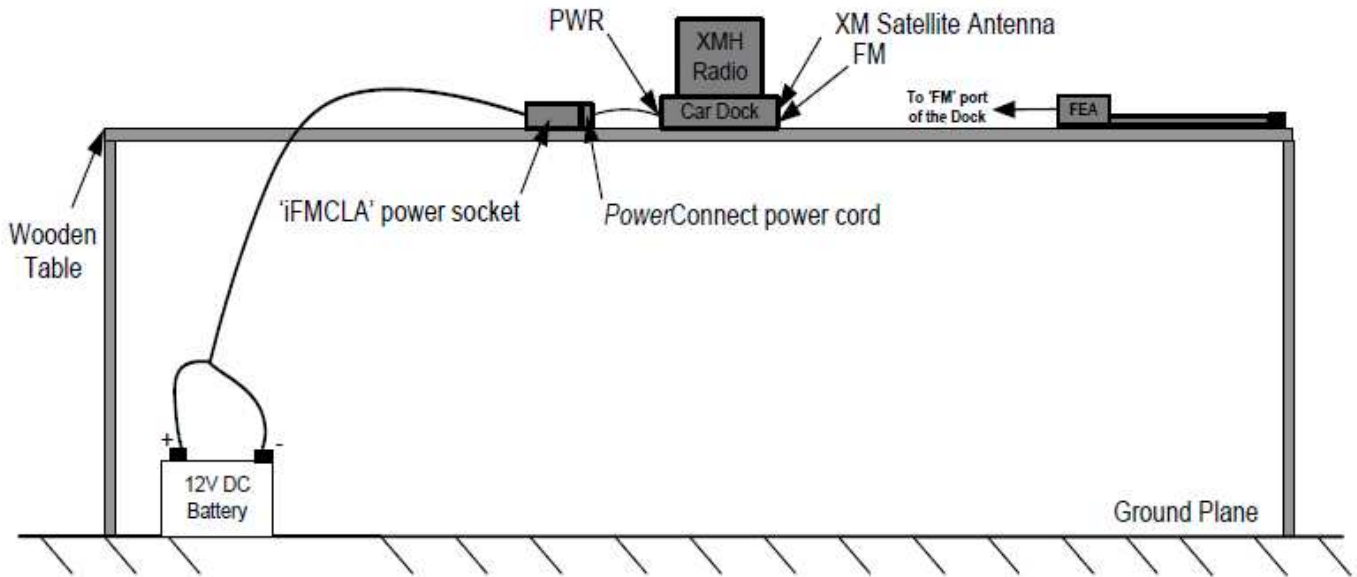


**Configuration Diagram – FM Direct OBW Configuration**

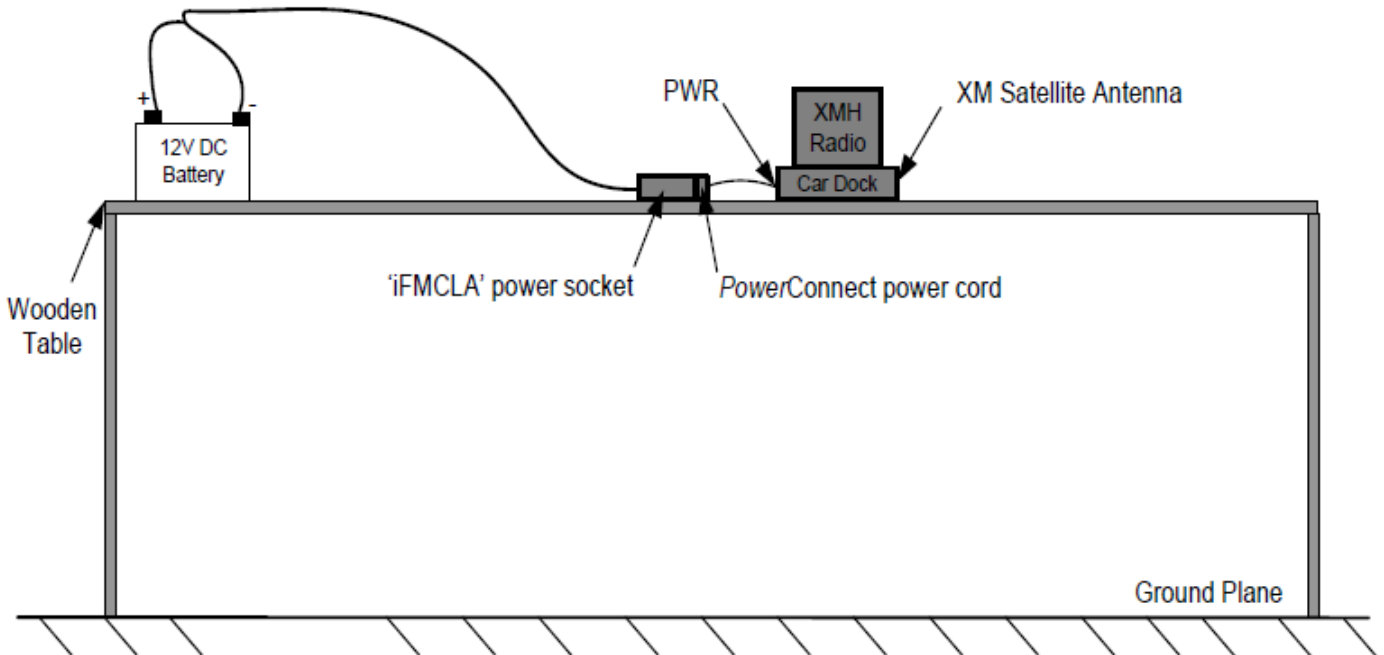


4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Configuration Diagram – FEA Configuration



Configuration Diagram – PowerConnect Configuration





## 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)	<b>Applicant</b>	Company Name:	Sirius XM Satellite Radio, Inc.
		Address:	1500 Eckington Pl.N.E. Washington, D.C. 20002
		Phone:	202-680-4288
		Contact Name:	Beejay Jolayemi
	<b>Manufacturer</b>	Company Name:	Same
		Address:	Same
		Phone:	Same
		Contact Name:	Same
2.1033(b)(2)	<b>Equipment</b>	FCC ID:	RS2SX1E
		EUT Model Number:	SX1E
		EUT Serial Number:	Not Labeled
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

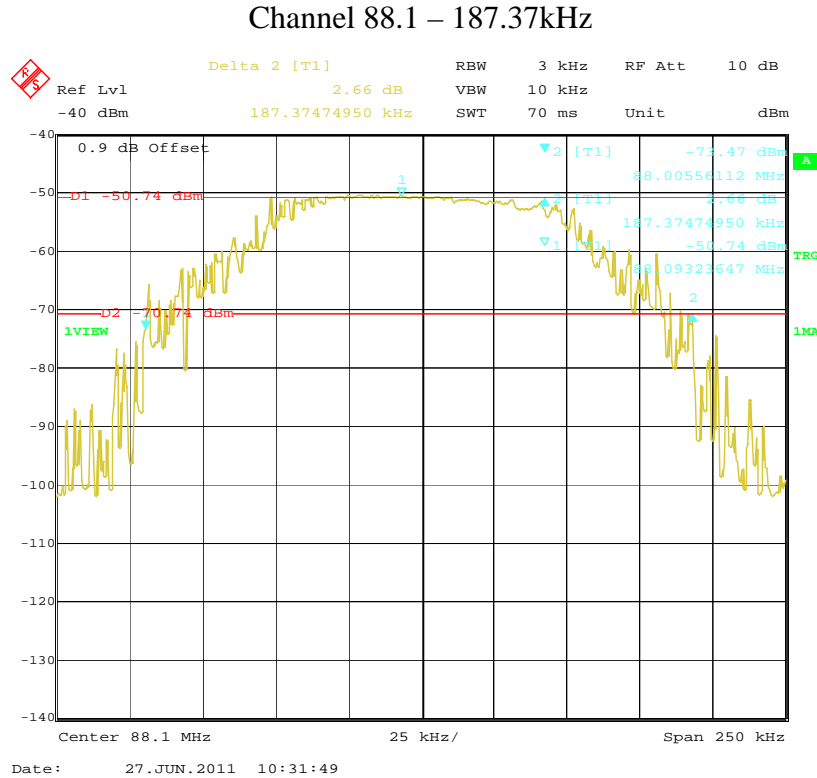
## 6.0 Occupied Bandwidth (FCC 15C - 15.239 (a))

### 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.

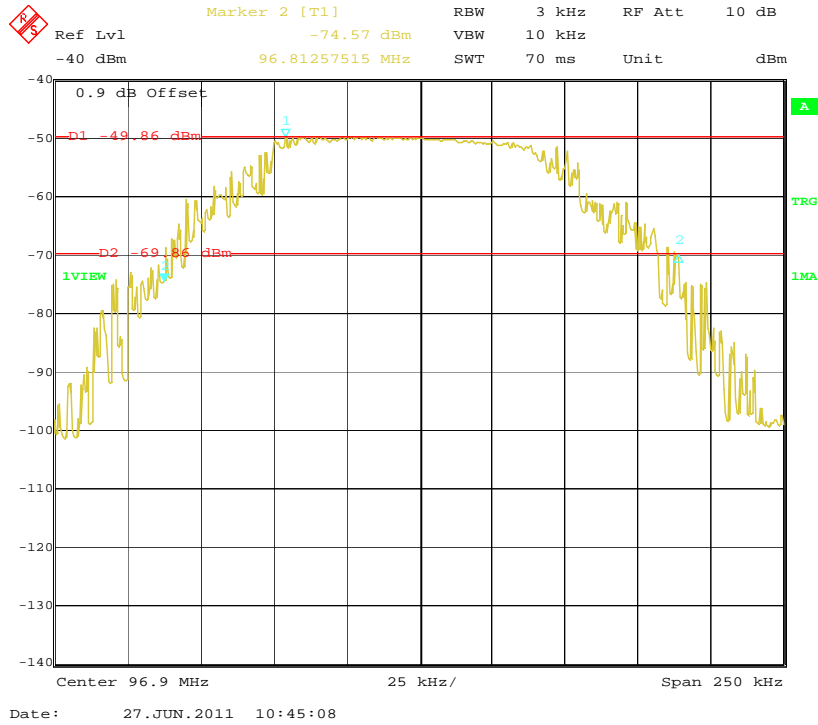
Test Procedure: ANSI C63.4: 2003, Section 13.1.7 and Annex H.6

**Results: The sample tested was found to Comply**



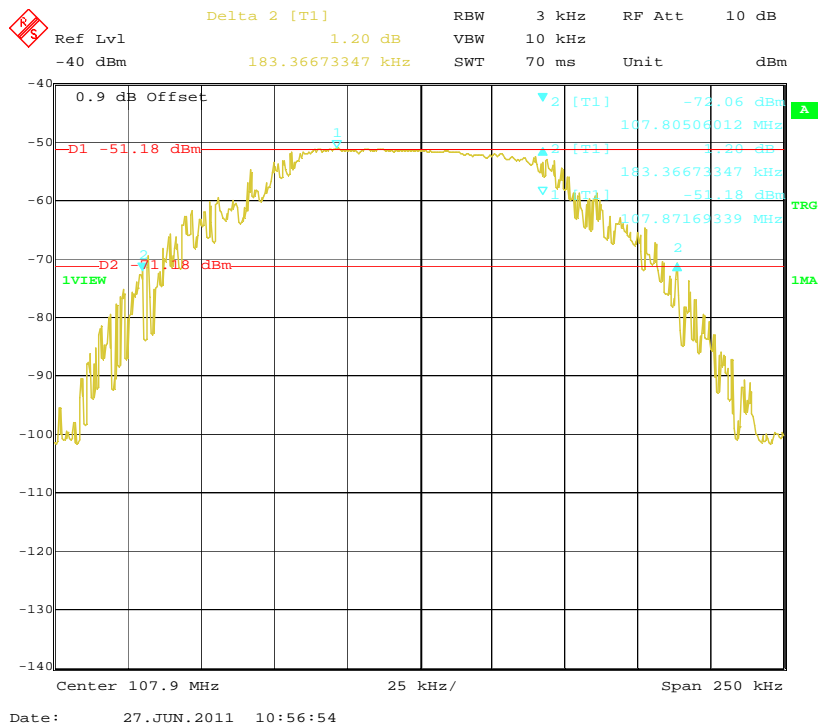
**Lower Channel – 88.1MHz**

Channel 96.9 – 178.35kHz



Middle Channel – 96.9MHz

Channel 107.9 – 183.36kHz



Upper Channel – 107.9MHz

### 7.0 Occupied Bandwidth (RSS-210 A2.8 OBW)

**Method:**

**TEST REQUIREMENT**

The occupied bandwidth shall not exceed 200 kHz.

**TEST PROCEDURE: RSS-GEN 4.06.1**

When an occupied bandwidth value 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.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

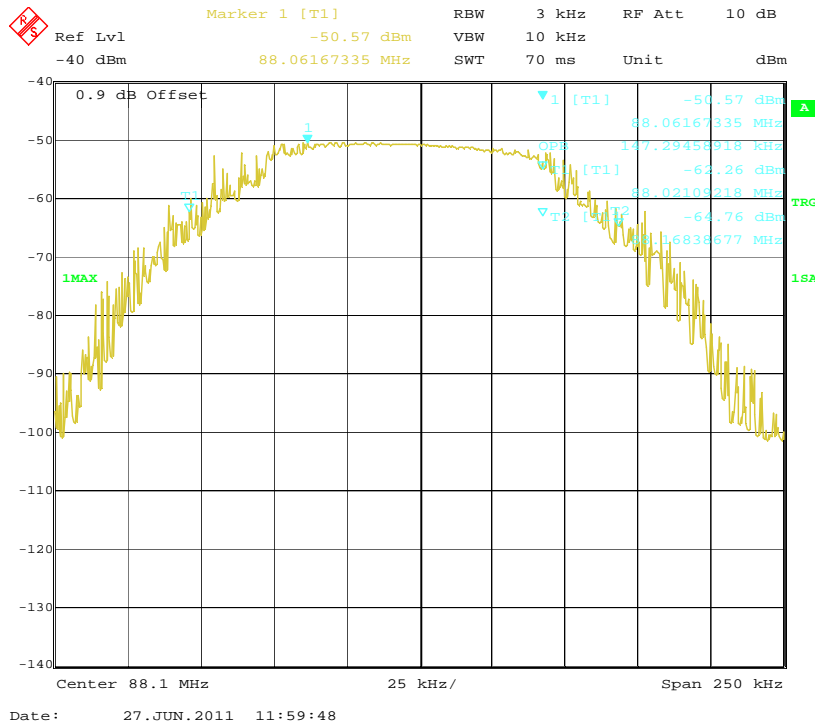
The span between the two recorded frequencies is the occupied bandwidth.

**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>). The test site number for Industry Canada is 2042J-1.

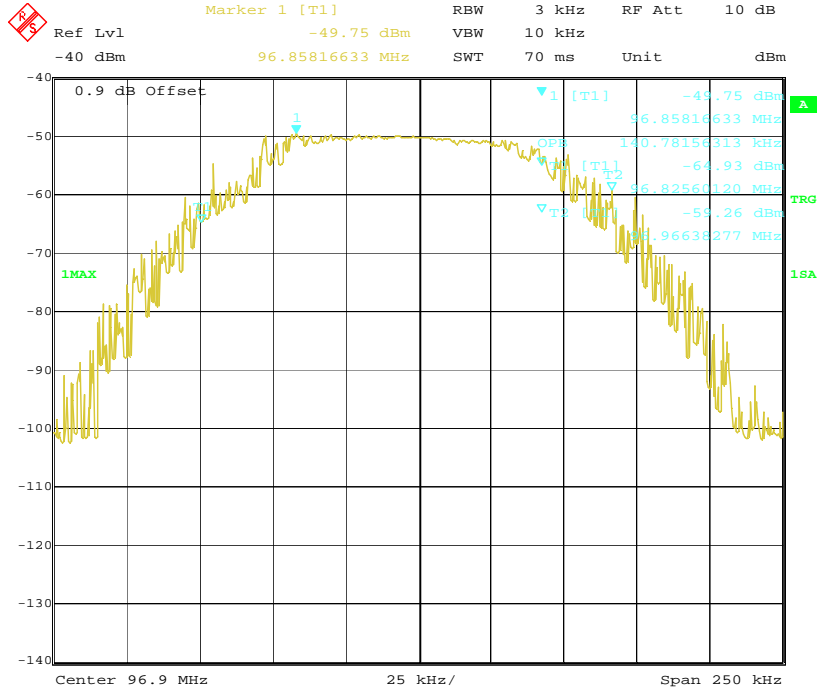
**Results: The sample tested was found to Comply**

Channel 88.1 – 147.29kHz (99% Power)



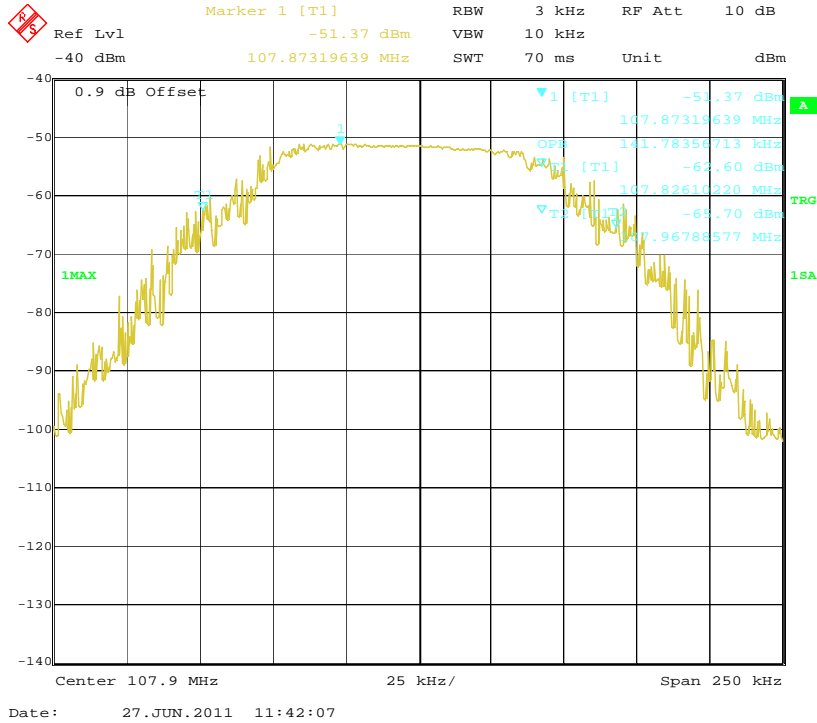
**Lower Channel – 88.1**

Channel 96.9 – 140.78kHz (99% Power)



Middle Channel – 96.9

Channel 107.9 – 141.78kHz (99% Power)



Upper Channel – 107.9

## 8.0 § 15.107(a) / RSS-Gen 7.2.2 Conducted Emissions – Home Cradle

### Method:

Equipment setup for conducted disturbance tests shall follow the guidelines of ANSI C63.4.

Measurements in the frequency range of 150kHz to 30 MHz shall be performed with a quasi-peak or average detector instrument that meets the requirements of Section One of CISPR 16. An AMN shall be used to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN defined in CISPR 16 shall be used.

In the frequency range of 150 kHz to 30 MHz, a resolution/video bandwidth of 9kHz/30kHz or greater shall be used.

The EUT shall be located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

If a flexible mains cord is provided by the manufacturer that is in excess of 1m, the excess cable shall be folded back and forth as far as possible to form a bundle not exceeding 0.4m in length.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance shall be measured between each current carrying conductor and the reference ground. Each measured values shall be reported.

If EUT is intended for tabletop use, the EUT shall be placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is be placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the floor standing EUT shall be placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material. The metal ground plane shall extend at least 0.5m beyond the boundaries of the EUT and had minimum dimensions of 2m by 2m.

### TEST SITE

The test site for conducted emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096. The VCCI Registration Number for this site is C-2818.

### 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.

150 kHz to 30 MHz: +/- 2.8 dB

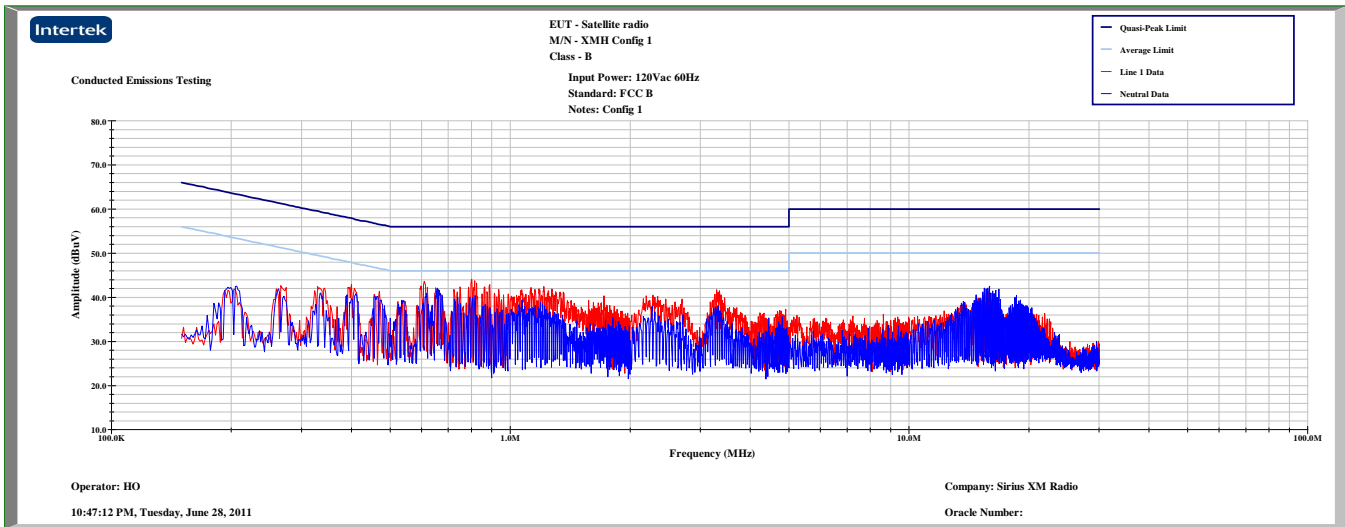
## Results: The sample tested was found to Comply.

### Specific Setup Details

- The SIRIUS XM EDGE is positioned in a vertical position with at the back edge of the wooden testing table.
- The FEA unit is connected to the SX1E's dock 'FM' port with its cable spread out all over the testing table.
- SIRIUS XM EDGE 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 SX1E's 'Antenna' port.
- The 'Audio' port of the SX1E is terminated with its 'Aux-In' audio cable.
- The FM Modulator menu should be used to enable the FM signal from the SX1E.
- The SIRIUS XM EDGE is configured to receive live **XM** programming service.
- The SIRIUS XM EDGE is configured for Max audio output level.

### 8.0 § 15.107(a) / RSS-Gen 7.2.2 Conducted Emissions – Home Cradle

Peak Plot – 150kHz-30MHz



Tabular Data

## 9.0 § 15.109(a) Unintentional Radiated Emissions – Home Cradle

### Method:

Measurements in the frequency range of 30 MHz to 1000 MHz shall be performed with a quasi-peak detector instrument that meets the requirements of Section One of CISPR 16. Above 1000 MHz, a peak detector shall be used. Peak values converted to average by applying the duty cycle correction factor, when applicable. When an average detector is used, it shall meet the requirements of Section One of CISPR 16. The measuring antenna shall correlate to a balanced dipole.

### Bandwidths:

30 MHz to 1000 MHz: 120 kHz RBW and 1 MHz VBW

Above 1000 MHz: 1 MHz RBW and 3 MHz VBW

Measurements of the radiated field are made with the antenna located at a distance of 3 or 10 meters from the EUT. The limit applied to the measurement shall be appropriate for the test distance. The test distance shall be indicated in the results section.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Exploratory tests should be carried out while varying the cable positions to determine the maximum or near-maximum emission level. During manipulation, cables shall not be placed under or on top of the system test components unless such placement is required by the inherent equipment design.

The antenna shall be adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth shall be varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) shall be varied during the measurements to find the maximum field-strength readings.

If the EUT is intended for tabletop use, it shall be placed on a table whose top is 0.8m above the ground plane. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the EUT was placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material.

Equipment setup for radiated disturbance tests shall follow the guidelines of ANSI C63.4.

### TEST SITE

The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096. It is a 10 meter semi-anechoic chamber manufactured by Panashield. Embedded in the floor is a 3 meter diameter turntable.

A2LA: 1455.01

IC: 2042J-1

VCCI Registration Number: R-2570

### 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

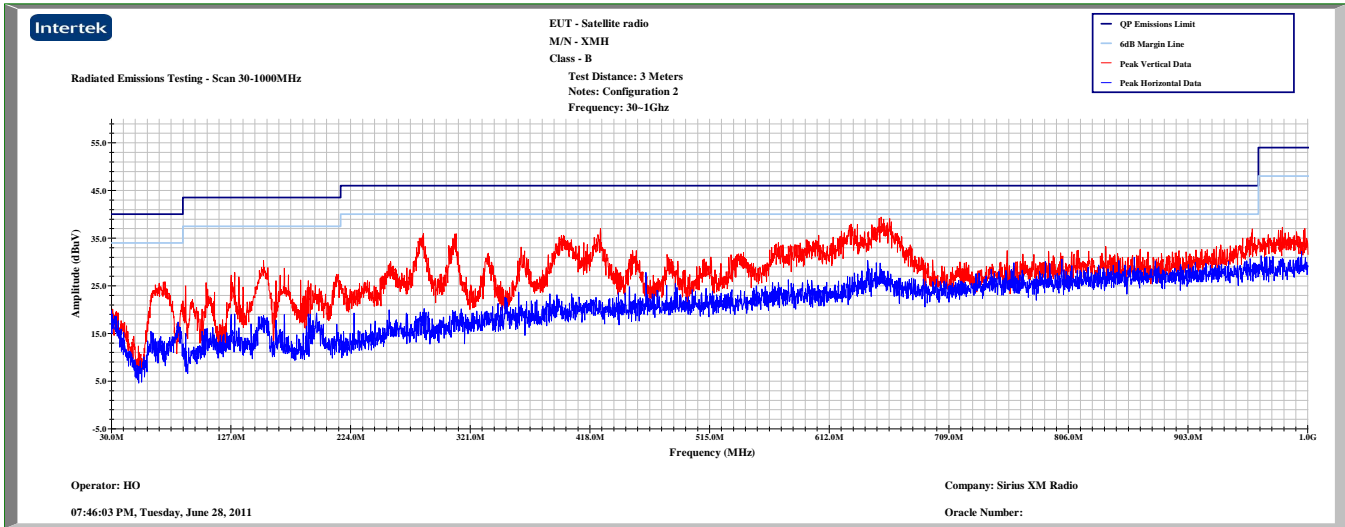
### Specific Setup Details

- Home cradle connected to Home XM Satellite Antenna
- Home cradle connected to speaker set with supplied RCA audio cables
- Home cradle powered by AC home plug adapter
- Receiver configured to receive live XM Satellite Programming
- Receiver configured for the Max audio output level

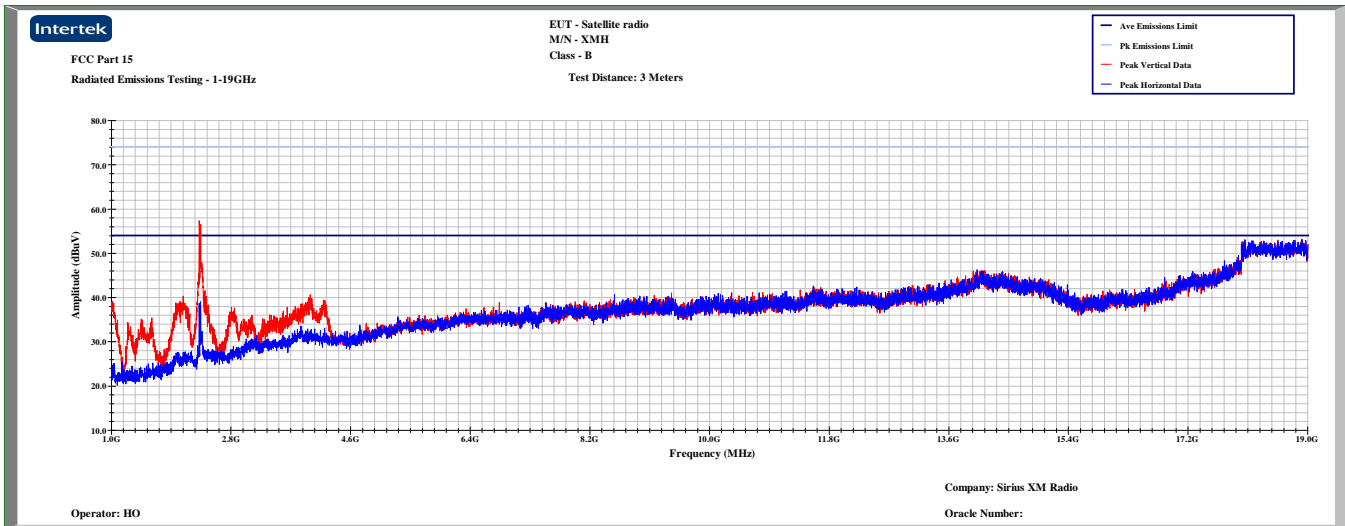


### 9.0 § 15.109(a) Unintentional Radiated Emissions – Home Cradle

#### Peak Plot – 30MHz-1000MHz



#### Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

## 9.0 § 15.109(a) Unintentional Radiated Emissions – Home Cradle

### Tabular Data

Date: 6/28/11

Test Distance (m): 3m

Frequency Range (MHz): 30-1000Mhz

Limit: FCC15 Class B-3m

Input power: 12Vdc

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
V	130.000	41.8	12.7	2.5	28.4	28.6	43.5	-14.9	QP/120/300
V	153.300	40.0	11.1	2.7	28.4	25.4	43.5	-18.1	QP/120/300
V	166.500	40.0	10.3	2.8	28.3	24.9	43.5	-18.6	QP/120/300
V	281.400	43.7	13.6	3.8	28.2	32.9	46.0	-13.1	QP/120/300
V	308.200	42.8	14.2	4.0	28.0	33.0	46.0	-13.0	QP/120/300
V	395.000	40.2	16.4	4.5	28.1	33.1	46.0	-12.9	QP/120/300
V	424.600	38.5	17.2	4.7	27.9	32.5	46.0	-13.5	QP/120/300
V	630.300	34.6	19.7	5.9	27.8	32.4	46.0	-13.6	QP/120/300
V	657.800	37.0	19.9	6.1	27.8	35.2	46.0	-10.8	QP/120/300
<b>Calculations</b>		G=C+D+E-F		I=G-H					

### 10.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FM Direct

**Method:**

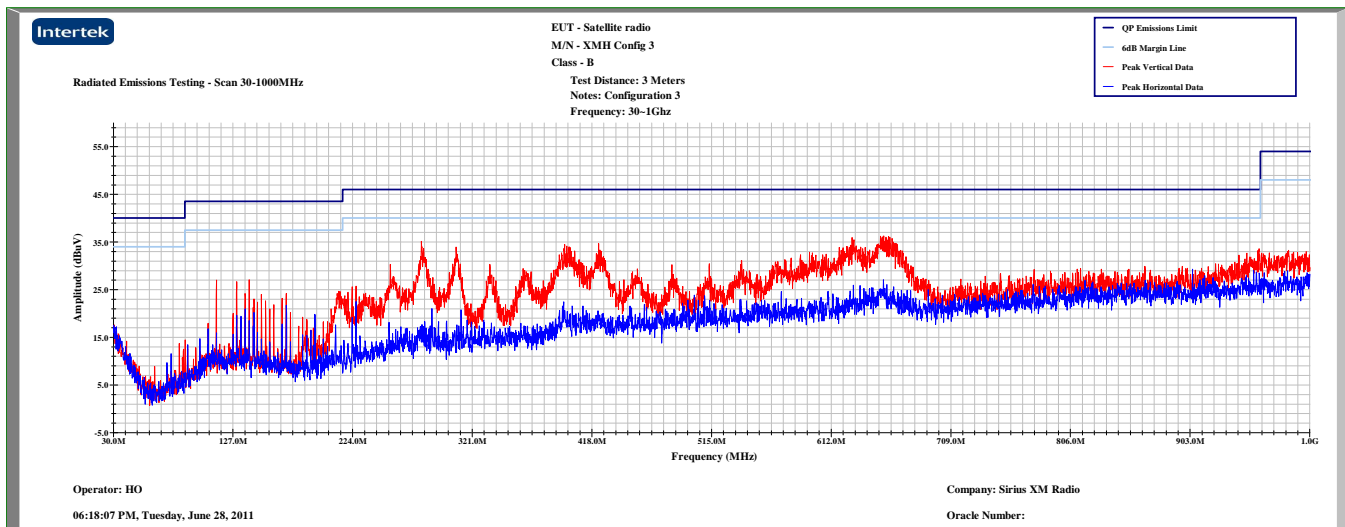
Testing was performed using the emissions test methods described in the previous section

**Results: The sample tested was found to Comply.**

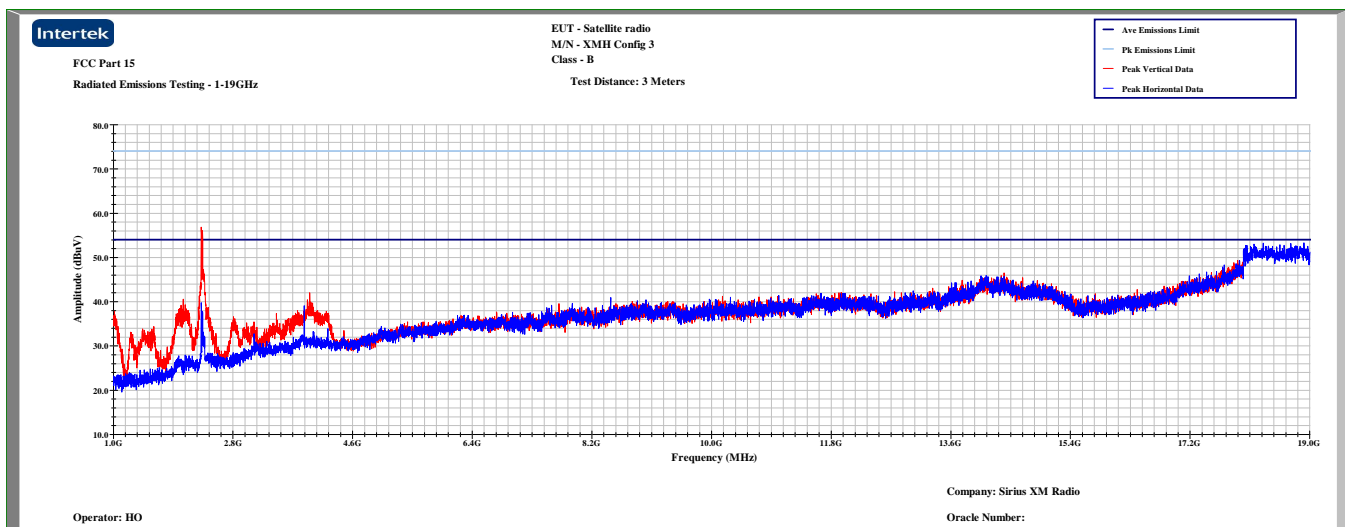
**Specific Setup Details**

- SIRIUS XM EDGE is powered by its 5V PowerConnect adapter via a 12V DC battery placed on the floor and an 'iFMCLA' power socket.
- XM satellite antenna is connected to the SIRIUS XM EDGE's 'Antenna' port.
- The 'Audio' port of the SIRIUS XM EDGE is terminated with its 'Aux-In' audio cable.
- The FM Modulator should be enabled via the menu button on the SIRIUS XM EDGE.
- FM Direct adapter is connected to the SIRIUS XM EDGE's 'FM' port.
- FM Direct adapter is connected to the vehicle's FM antenna (whip) if available.
- FM Direct adapter's vehicle radio port is terminated with a 75 Ohm load.
- FM vehicle antenna is mounted on a 3ft x 4ft ground plane.
- SIRIUS XM EDGE is configured to receive live **XM** programming service.
- SIRIUS XM EDGE is configured to produce Max audio level outputsyX is configured for Max audio level output.

**Peak Plot – 30MHz-1000MHz**



**Peak Plot – 1000MHz-19000MHz**



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**10.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FM Direct**

Tabular Data

Date: 6/28/11

Test Distance (m): 3M

Frequency Range (MHz): 30-1000Mhz

Limit: FCC15 Class B-3m

Input power: 12Vdc

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
V	113.300	43.2	12.6	2.3	28.3	29.9	43.5	-13.6	QP/120/300
V	140.000	43.0	12.0	2.6	28.4	29.1	43.5	-14.4	QP/120/300
V	255.700	37.5	13.6	3.6	28.3	26.3	46.0	-19.7	QP/120/300
V	280.600	44.5	13.6	3.8	28.2	33.7	46.0	-12.3	QP/120/300
V	308.200	42.4	14.2	4.0	28.0	32.6	46.0	-13.4	QP/120/300
V	396.100	40.5	16.5	4.5	28.1	33.5	46.0	-12.5	QP/120/300
V	425.500	39.0	17.2	4.7	27.9	33.0	46.0	-13.0	QP/120/300
V	627.700	35.8	19.7	5.9	27.8	33.6	46.0	-12.4	QP/120/300
V	658.500	38.4	19.9	6.1	27.8	36.7	46.0	-9.3	QP/120/300
<b>Calculations</b>		G=C+D+E-F		I=G-H					

## 11.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – Cassette Adapter

### Method:

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

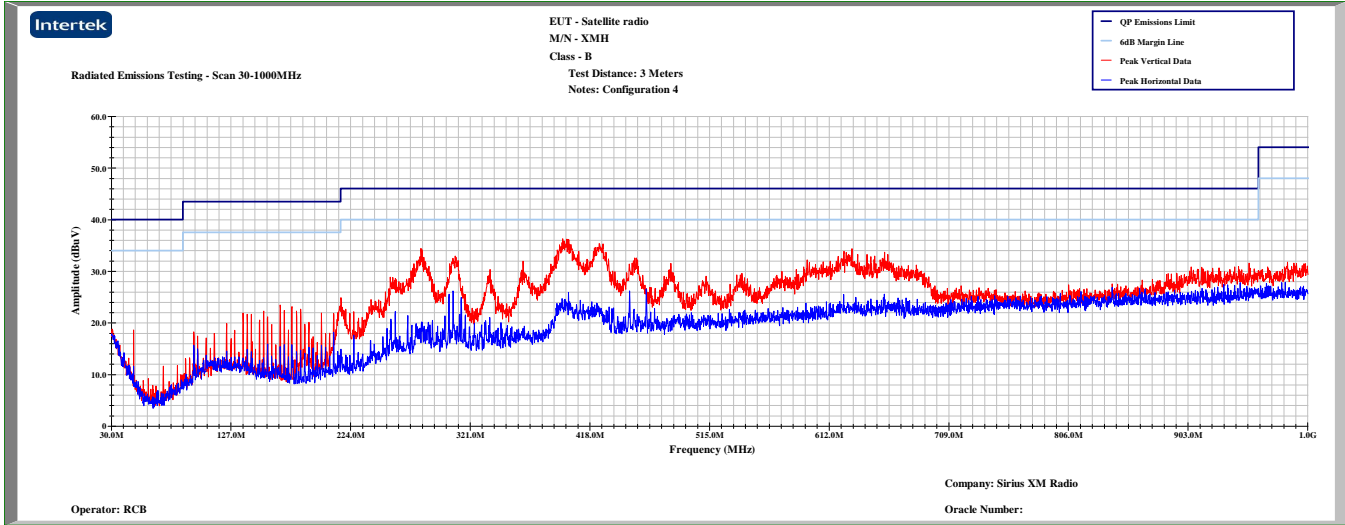
**Results: The sample tested was found to Comply.**

### Specific Setup Details

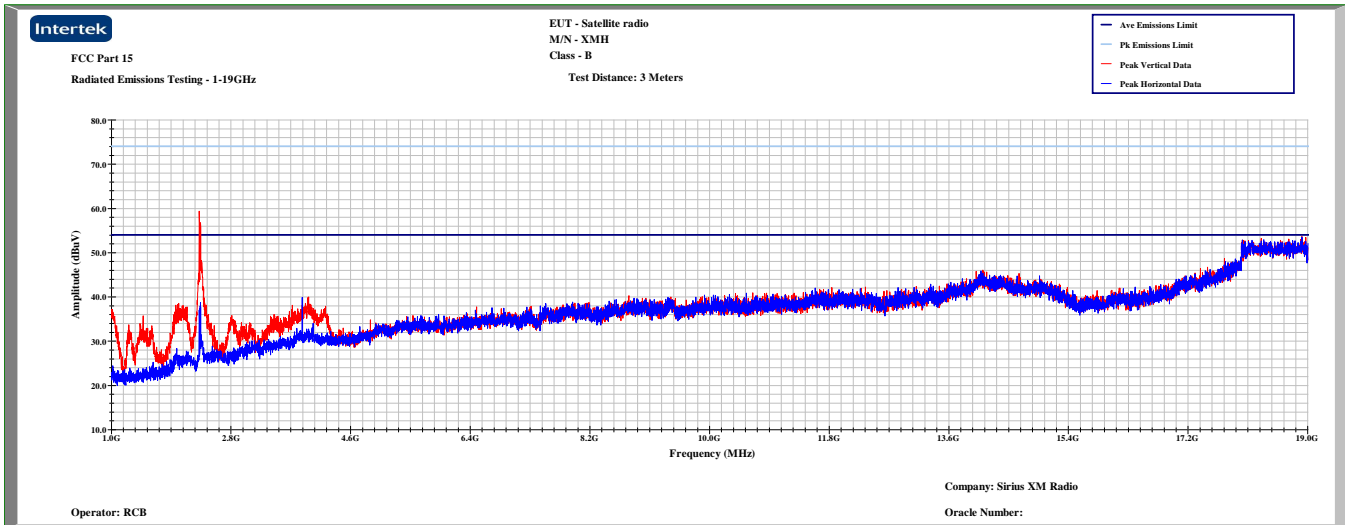
- SIRIUS XM EDGE is powered by its 5V PowerConnect adapter via a 12V DC battery placed on the floor and an 'iFMCLA' power socket.
- XM satellite antenna is connected to the SIRIUS XM EDGE's 'Antenna' port.
- SIRIUS XM EDGE is configured to receive live **XM** programming service.
- SIRIUS XM EDGE is configured for Max audio level outputs.
- SIRIUS XM EDGE's FM Modulator is disabled via the SIRIUS XM EDGE's menu button.
- SIRIUS XM EDGE is connected to the cassette adapter through its 'Audio' port.
- SIRIUS XM EDGE is configured to receive live **XM** programming service.
- SIRIUS XM EDGE is configured for Max audio level output.

### 11.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – Cassette Adapter

#### Peak Plot – 30MHz-1000MHz



#### Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**11.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – Cassette Adapter**

Tabular Data

Date: 06-27-2011

Test Distance (m): 3

Frequency Range (MHz): 30Mhz~1Ghz

Limit: 15\_239-3m

Input power: 12VDC

Modifications for compliance (y/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
V	281.000	42.0	13.6	3.8	27.8	31.6	46.0	-14.4	QP/120/300
V	399.000	40.1	16.6	4.6	27.7	33.6	46.0	-12.4	QP/120/300
V	428.000	38.4	17.2	4.8	27.7	32.7	46.0	-13.3	QP/120/300
V	630.000	33.1	19.7	6.0	27.6	31.2	46.0	-14.8	QP/120/300
<b>Calculations</b>		G=C+D+E-F		I=G-H					

## 12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit

### 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

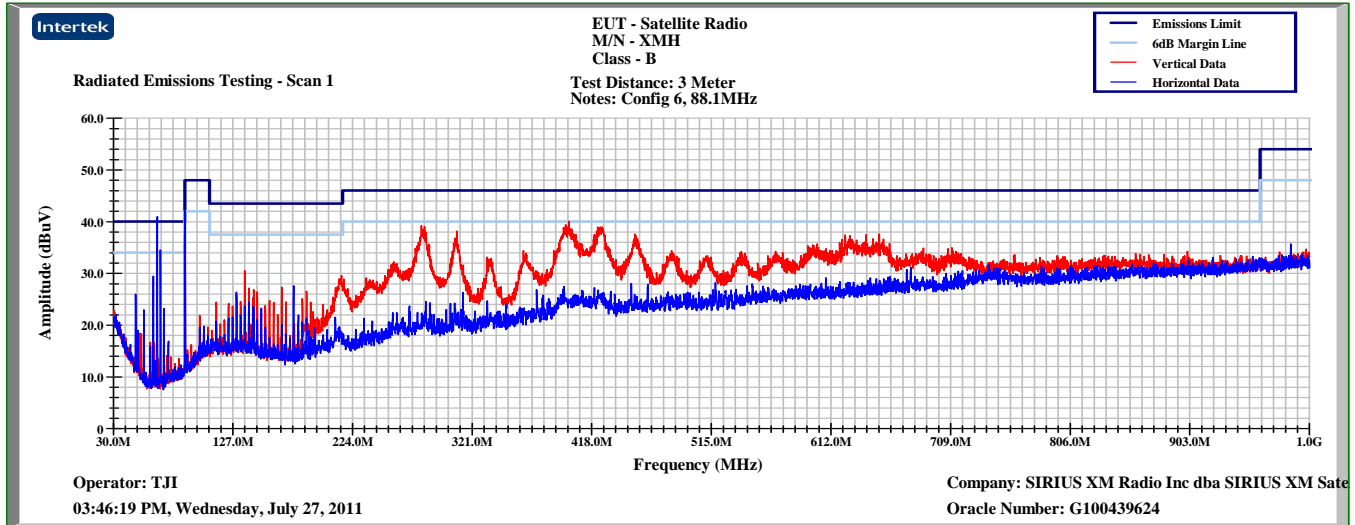
- The SIRIUS XM EDGE is positioned in a vertical position with at the back edge of the wooden testing table.
- The FEA unit is connected to the SIRIUS XM EDGE's dock 'FM' port with its cable spread out all over the testing table.
- SIRIUS XM EDGE is powered by its 5V PowerConnect adapter via a 12V DC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



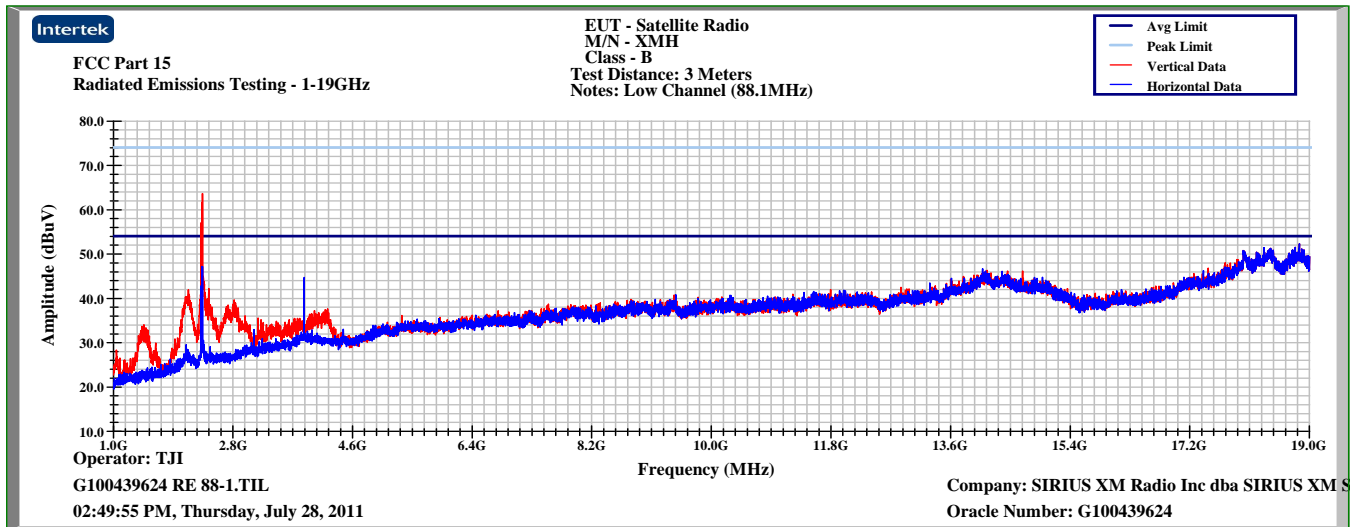
### 12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit

Frequency: 88.1MHz

Peak Plot – 30MHz-1000MHz



Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit**

Tabular Data

Frequency Range (MHz): 30MHz~1GHz

Test Distance (m): 3

Input power: 12VDC

Limit: FCC15 Class B-3m

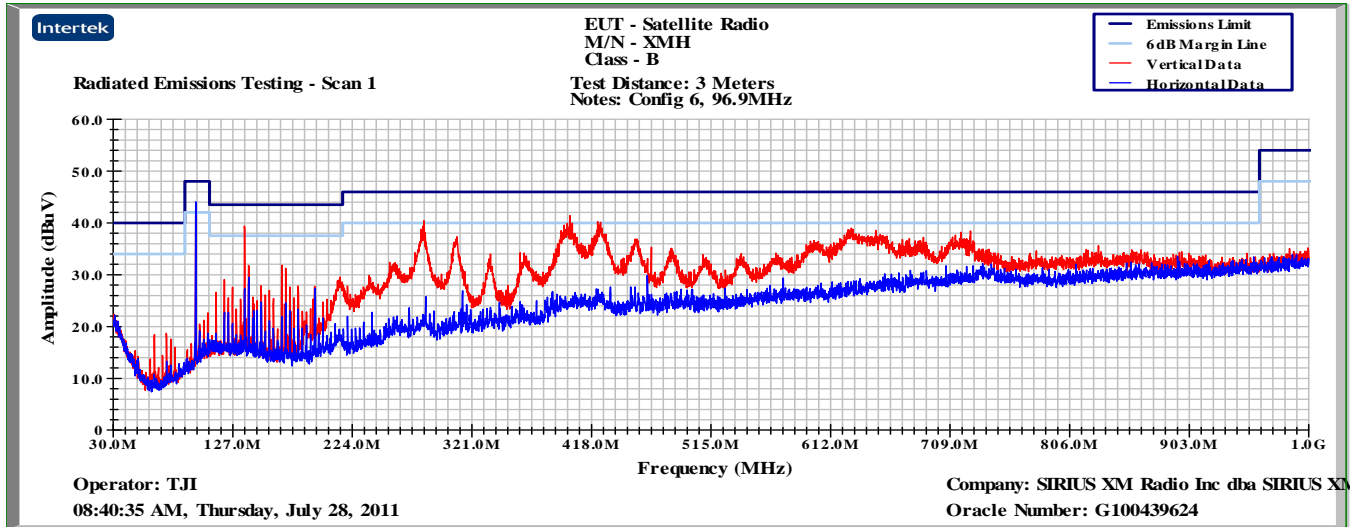
Modifications for compliance (y/n): n

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
<b>Config 6 - Tunned to 88.1MHz</b>									
v	88.100	58.2	8.9	1.9	28.4	40.6	48.0	-7.4	QP/120k/300k
h	88.100	59.2	9.9	1.9	28.4	42.7	48.0	-5.3	QP/120k/300k
h	64.000	26.2	6.0	1.7	28.5	5.5	40.0	-34.5	QP/120k/300k
v	281.100	44.7	13.6	3.5	28.2	33.6	46.0	-12.4	QP/120k/300k
v	308.100	41.8	14.2	3.6	28.0	31.6	46.0	-14.4	QP/120k/300k
v	397.350	41.3	16.5	4.2	28.0	34.0	46.0	-12.0	QP/120k/300k
v	424.750	40.3	17.2	4.4	27.9	33.9	46.0	-12.1	QP/120k/300k
v	453.750	37.4	17.3	4.5	28.0	31.2	46.0	-14.8	QP/120k/300k
v	628.200	33.9	19.7	5.5	27.8	31.2	46.0	-14.8	QP/120k/300k
<b>Calculations</b>		G=C+D+E-F		I=G-H					

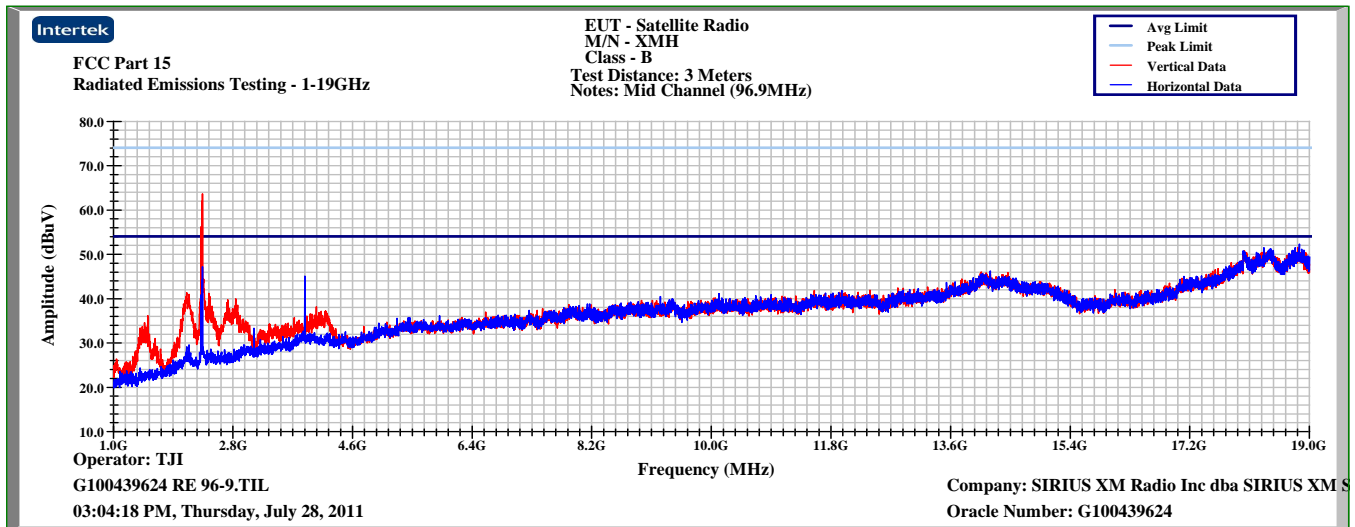
12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit

Frequency: 96.9MHz

Peak Plot – 30MHz-1000MHz



Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit**

Tabular Data

Frequency Range (MHz): 30MHz~1GHz

Test Distance (m): 3

Input power: 12VDC

Limit: 15\_239-3m

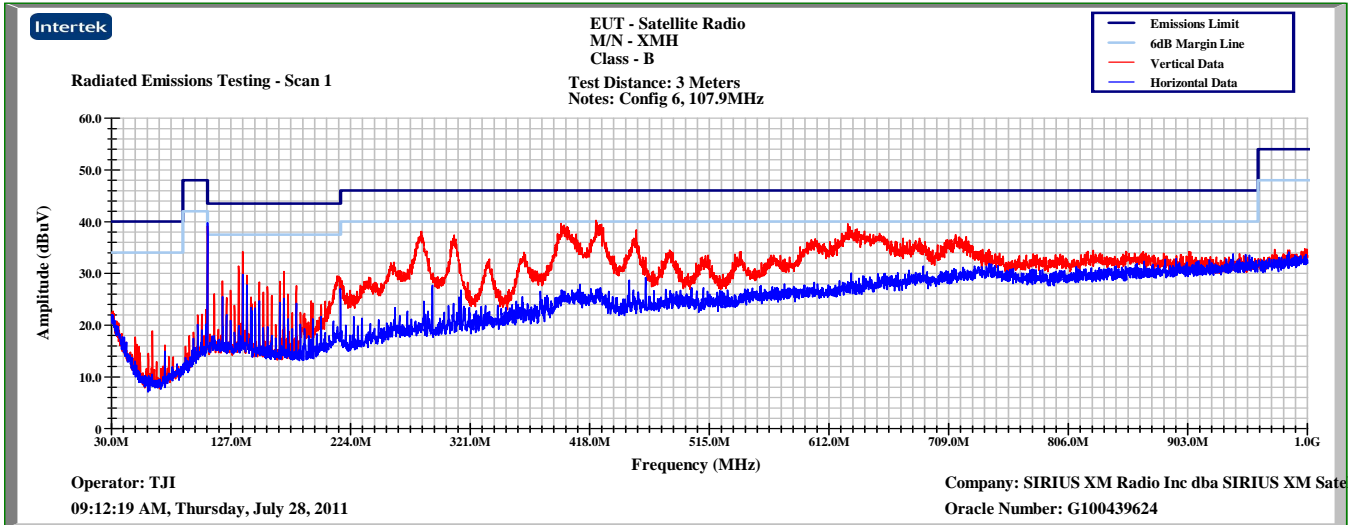
Modifications for compliance (y/n): n

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
<b>Config 6 - Tunned to 96.9MHz</b>									
v	96.900	58.2	10.4	2.0	28.4	42.2	48.0	-5.8	QP/120k/300k
h	96.900	59.7	11.8	2.0	28.4	45.1	48.0	-2.9	QP/120k/300k
v	136.660	52.6	12.2	2.3	28.4	38.7	43.5	-4.8	QP/120k/300k
v	281.100	44.0	13.6	3.5	28.2	32.9	46.0	-13.1	QP/120k/300k
v	307.950	41.5	14.2	3.6	28.0	31.3	46.0	-14.7	QP/120k/300k
v	397.500	40.4	16.6	4.2	28.0	33.1	46.0	-12.9	QP/120k/300k
v	425.600	40.2	17.2	4.4	27.9	33.8	46.0	-12.2	QP/120k/300k
v	627.500	36.1	19.7	5.5	27.8	33.4	46.0	-12.6	QP/120k/300k
<b>Calculations</b>		G=C+D+E-F		I=G-H					

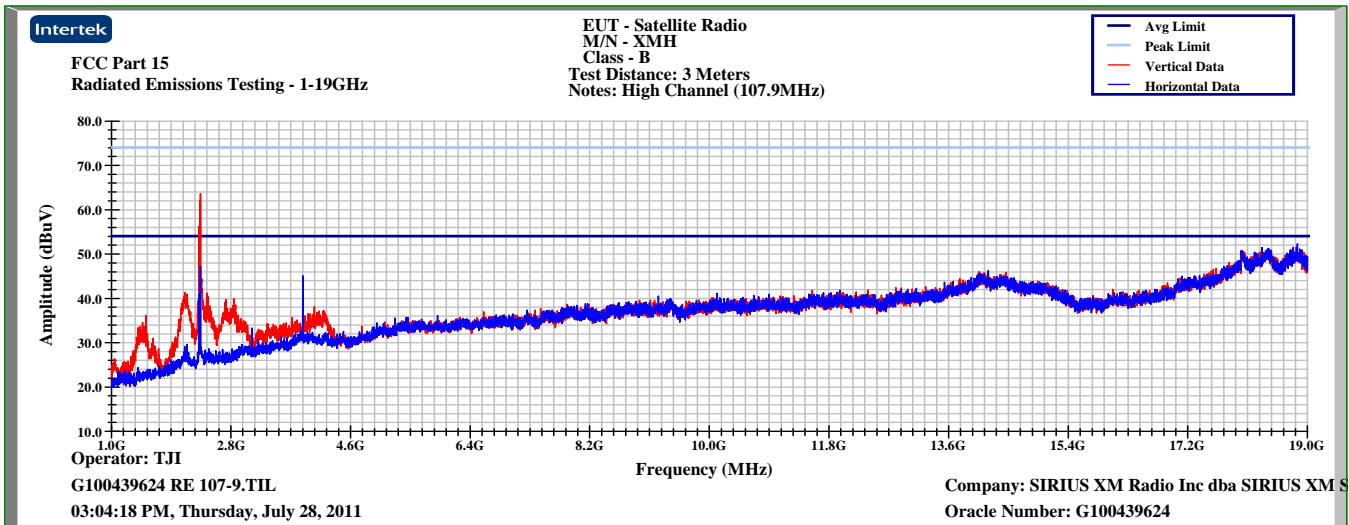
### 12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit

Frequency: 107.9MHz

Peak Plot – 30MHz-1000MHz



Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**12.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – FEA Unit**

Tabular Data

**Frequency Range (MHz):** 30MHz~1GHz

**Test Distance (m):** 3

**Input power:** 12VDC

**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
<b>Config 6 - Tunned to 107.9MHz</b>									
v	107.900	52.6	12.3	2.1	28.2	38.7	48.0	-9.3	QP/120k/300k
h	107.900	53.0	13.0	2.1	28.2	39.8	48.0	-8.2	QP/120k/300k
v	136.658	51.5	12.2	2.3	28.4	37.6	43.5	-5.9	QP/120k/300k
v	281.200	43.9	13.6	3.5	28.2	32.8	46.0	-13.2	QP/120k/300k
v	397.250	41.1	16.5	4.2	28.0	33.8	46.0	-12.2	QP/120k/300k
v	425.700	40.0	17.2	4.4	27.9	33.6	46.0	-12.4	QP/120k/300k
v	453.950	37.9	17.3	4.5	28.0	31.7	46.0	-14.3	QP/120k/300k
v	627.875	36.3	19.7	5.5	27.8	33.6	46.0	-12.4	QP/120k/300k
<b>Calculations</b>		G=C+D+E-F		I=G-H					

### **13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect**

**Method:**

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

**Results: The sample tested was found to Comply.**

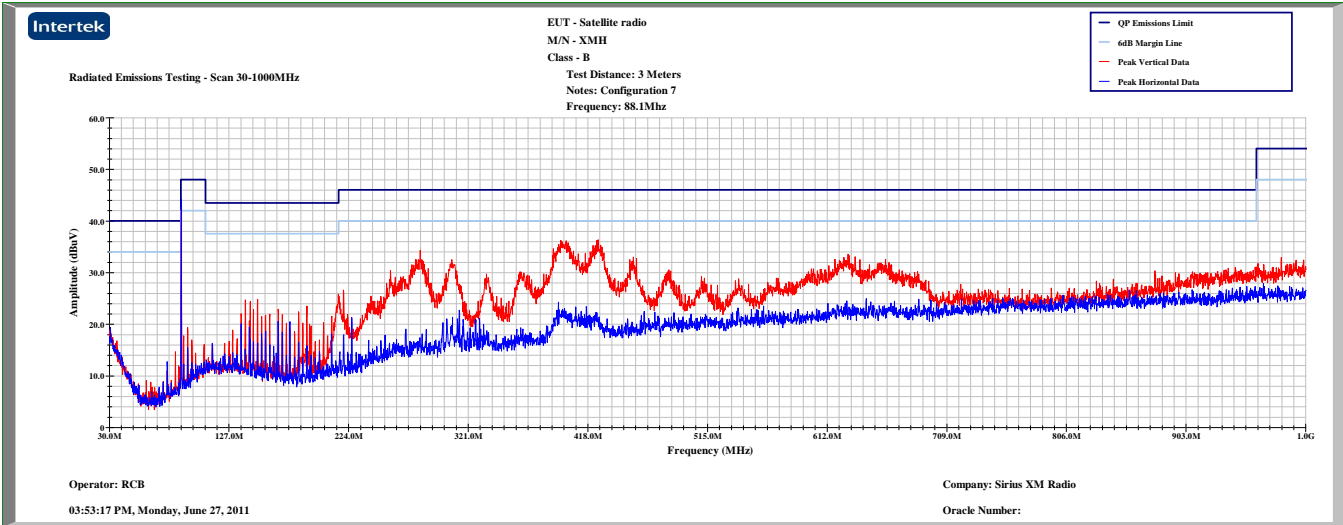
**Specific Setup Details**

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

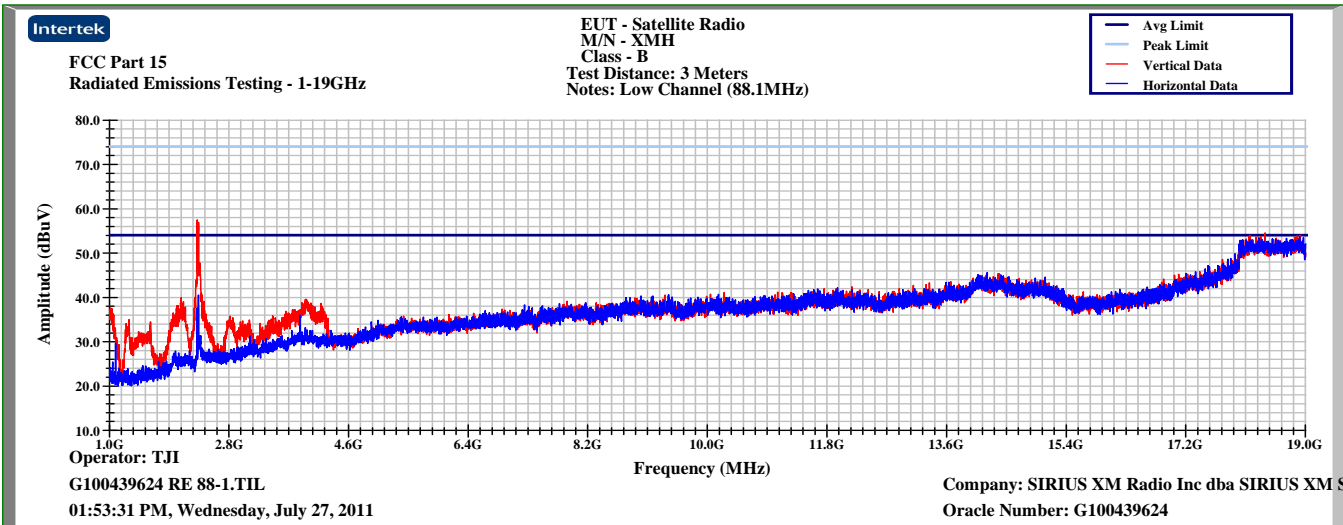
### 13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect

Frequency: 88.1MHz

Peak Plot – 30MHz-1000MHz



Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.



**13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect**

Tabular Data

Date: 02-27-2011

Test Distance (m): 3

Frequency Range (MHz): 30MHz~1GHz

Limit: 15\_239-3m

Input power: 12VDC

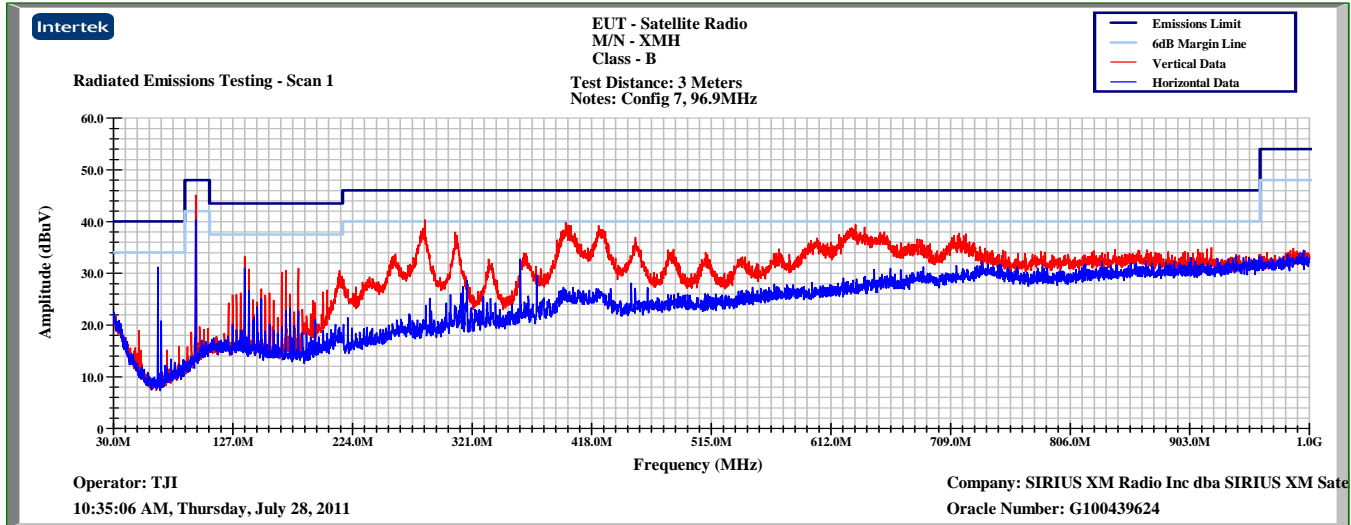
Modifications for compliance (y/n): n

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
H	88.100	63.5	9.9	2.1	28.0	47.6	48.0	-0.4	QP/120/300
V	88.100	60.0	8.9	2.1	28.0	43.1	48.0	-4.9	QP/120/300
V	281.000	40.6	13.6	3.8	27.8	30.2	46.0	-15.8	QP/120/300
V	396.000	41.3	16.5	4.6	27.7	34.6	46.0	-11.4	QP/120/300
V	426.000	40.0	17.2	4.8	27.7	34.3	46.0	-11.7	QP/120/300
V	628.000	35.3	19.7	6.0	27.6	33.4	46.0	-12.6	QP/120/300
<b>Calculations</b>		G=C+D+E-F			I=G-H				

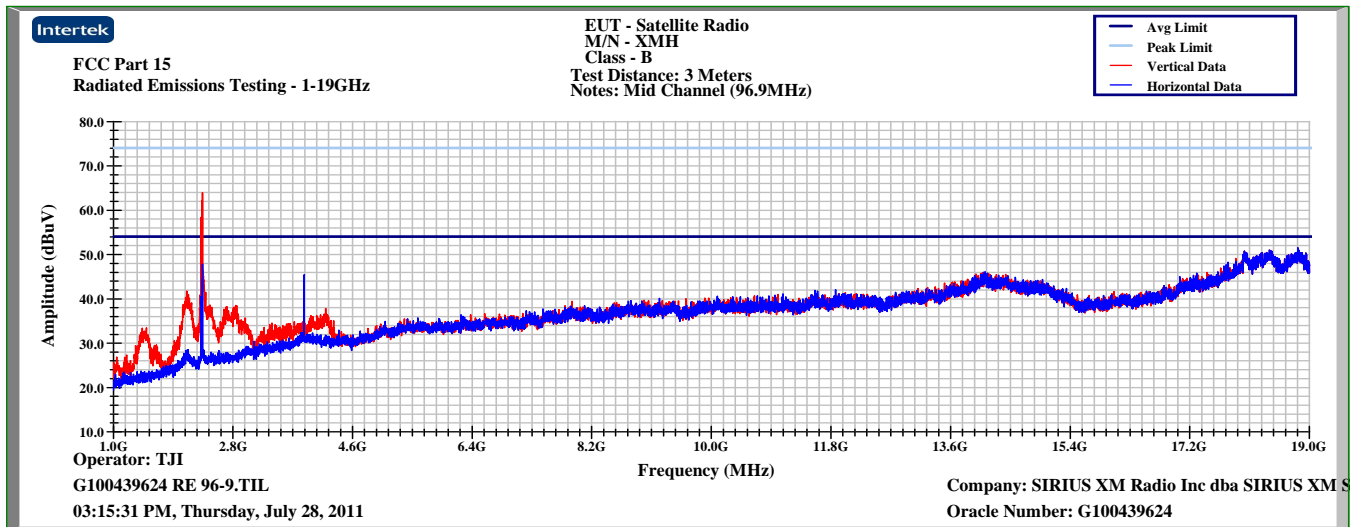
13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect

Frequency: 96.9MHz

Peak Plot – 30MHz-1000MHz



Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect**

Tabular Data

Frequency Range (MHz): 30Mhz~1GHz

Test Distance (m): 3

Input power: 12VDC

Limit: 15\_239-3m

Modifications for compliance (y/n): n

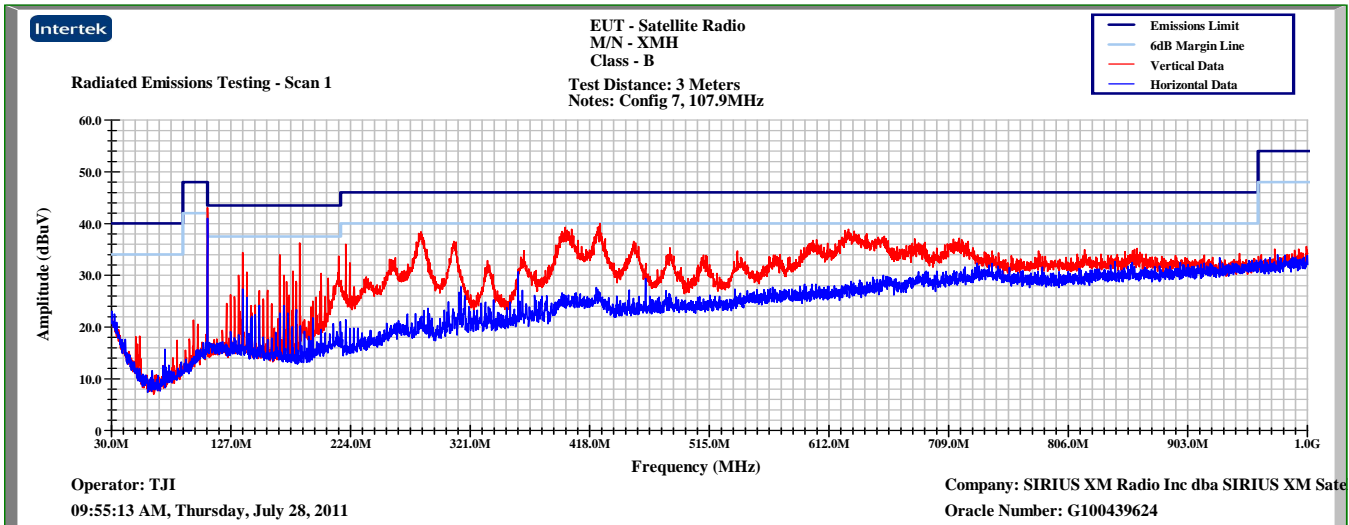
A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
<b>Config 7 - Tunned to 96.9MHz</b>									
v	96.900	60.3	10.5	2.0	28.4	44.4	48.0	-3.6	QP/120k/300k
h	96.900	56.9	11.8	2.0	28.4	42.3	48.0	-5.7	QP/120k/300k
h	65.850	21.7	6.0	1.7	28.5	0.9	40.0	-39.1	QP/120k/300k
v	136.675	50.7	12.2	2.3	28.4	36.8	43.5	-6.7	QP/120k/300k
v	281.000	43.6	13.6	3.5	28.2	32.5	46.0	-13.5	QP/120k/300k
v	397.625	40.9	16.6	4.2	28.0	33.6	46.0	-12.4	QP/120k/300k
v	424.800	40.3	17.2	4.4	27.9	33.9	46.0	-12.1	QP/120k/300k
v	628.125	35.8	19.7	5.5	27.8	33.1	46.0	-12.9	QP/120k/300k
<b>Calculations</b>		G=C+D+E-F			I=G-H				

NF = Noise Floor

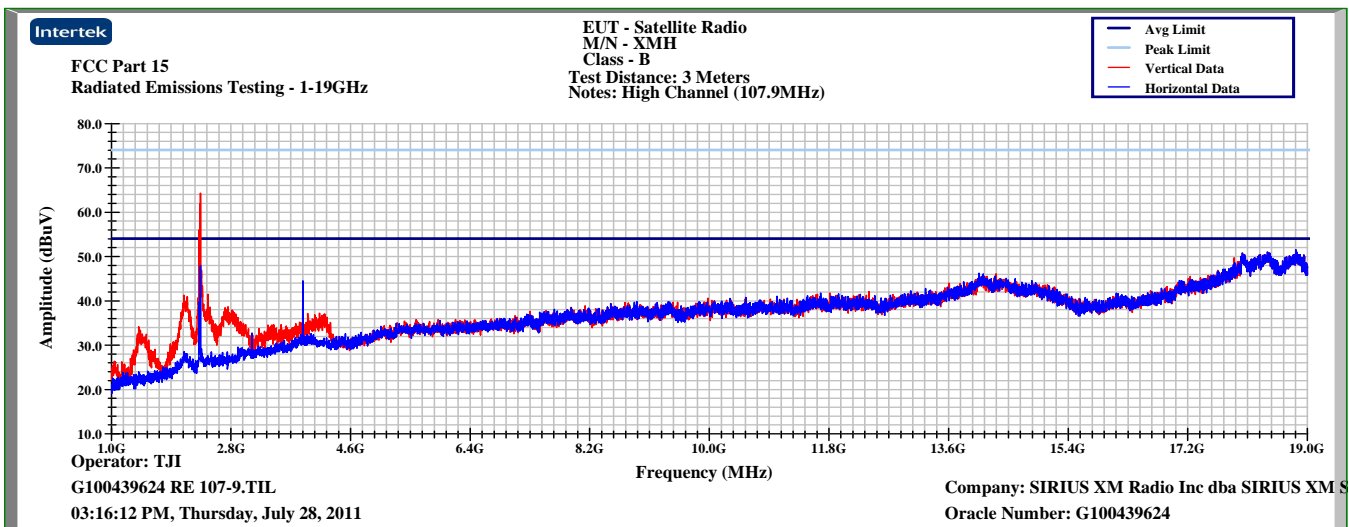
### 13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect

Frequency: 107.9MHz

Peak Plot – 30MHz-1000MHz



Peak Plot – 1000MHz-19000MHz



Note: Peaks above the limit between 2.2 and 2.5GHz are signals transmitted into the chamber with the satellite signal and are not related to the DUT.

**13.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b)) – PowerConnect**

Tabular Data

Frequency Range (MHz): 30Mhz~1GHz

Test Distance (m): 3

Input power: 12VDC

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
<b>Config 7 - Tunned to 107.9MHz</b>									
v	107.900	56.9	12.3	2.1	28.2	43.0	48.0	-5.0	QP/120k/300k
h	107.900	54.3	13.0	2.1	28.2	41.1	48.0	-6.9	QP/120k/300k
v	136.683	50.8	12.2	2.3	28.4	36.9	43.5	-6.6	QP/120k/300k
v	166.665	47.2	10.3	2.6	28.3	31.9	43.5	-11.6	QP/120k/300k
v	180.008	46.5	9.8	2.7	28.2	30.9	43.5	-12.6	QP/120k/300k
v	281.150	43.8	13.6	3.5	28.2	32.7	46.0	-13.3	QP/120k/300k
v	397.100	40.7	16.5	4.2	28.0	33.4	46.0	-12.6	QP/120k/300k
v	425.150	40.4	17.2	4.4	27.9	34.0	46.0	-12.0	QP/120k/300k
v	629.750	36.6	19.7	5.5	27.8	33.9	46.0	-12.1	QP/120k/300k
<b>Calculations</b>		G=C+D+E-F		I=G-H					

**14.0 Test Equipment List**

Description	Manufacturer	Model	Serial Number	Cal Due
Bilog Antenna	Chase	CBL6112A	2622	10/13/2011
Cable E205	Megaphase	TM18 NKNK 118	9053201 003	05/12/2012
Cable E206	Megaphase	TM18 NKNK 118	9053201 004	05/12/2012
Cable MP3	Megaphase	G919-NKNK-394	MP3	05/12/2012
Cable ST-3	Storm Products Co.	PR90-195-7MTR	09-07-601	08/19/2011
Cable TT4	Andrews	TT4	TT4	05/24/2012
EMI Receiver	Hewlett Packard	8546A	213109	10/26/2011
EMI Receiver RF Preselector	Hewlett Packard	85460A	213108	10/26/2011
Horn Antenna (1-18GHz)	EMCO	3115	9208-3919	05/07/2012
LISN	Fischer	FCC-LISN-50-50-M	2019	11/12/2011
Preamplifier, 10 MHz to 2000 MHz	Mini-Circuits	ZKL-2	D052005	08/16/2011
Preamplifier (1-18GHz)	Miteq	AMF-4D-001180-24-10P	1020106	10/04/2011
Spectrum Analyzer	Rohde & Schwartz	FSEK30	100253	10/22/2011

### 15.0 Revision History

Revision Level	Date	Report Number	Notes
Original issue	June 30, 2011	100439624ATL -001	--
1	July 28, 2011	100439624ATL-001	Pages 25-37. Data was added to configurations 6 and 7 to showing testing was done at low, middle and high channel. Updated Product name from XMH to Sirius XM Edge