



Engineering and Testing for EMC and Safety Compliance



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**Certificate of Compliance Report
FCC Part 15.239 / IC RSS-210 Certification**

Test Lab: Rhein Tech Laboratories, Inc. Phone:703-689-0368 360 Herndon Parkway Fax: 703-689-2056 Suite 1400 www.rheintech.com Herndon, VA 20170 Email: atcbinfo@rheintech.com		Applicant: XM Radio Inc. 1500 Eckington Place NE Washington DC 20002-2164 Contact: James Blitz	
FCC ID	RS2XVSAP1V1	Test Report Date	August 6, 2009
EUT	SkyDock	RTL Work Order Number	2009220
Model #	XVSAP1V1	RTL Quote Number	QRTL08-250
FCC Classification	Part 15 Low Power Transceiver, Rx Verified		
FCC Rule Part(s)	FCC Part 15 Subpart C (15.239)		
Industry Canada Standard	RSS-210 Issue 7 June 2007: Low Power License-Exempt Radio Communication Devices (All Frequency Bands)		
Receiver Information	Receiver was found to be compliant		
Frequency Range (MHz)	Output Power (W)	Frequency Tolerance	Emission Designator
88 – 108 MHz (FM Band)	N/A	N/A	N/A

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. Modifications made to the equipment during testing in order to achieve compliance with these standards are listed in the report.

Furthermore, there was no deviation from, additions to, or exclusions from the applicable part of FCC Part 15, Industry Canada RSS-210, and ANSI C63.4.

Signature: 

Date: August 6, 2009

Typed/Printed Name: Desmond A. Fraser

Position: President

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1 General Information

1.1 Scope

FCC Rules Part 15 Subpart C (15.239); Operation within the band 88 – 108 MHz.

1.2 Modifications

N/A

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Rhein Tech Laboratories (RTL), 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission and Industry Canada to perform AC line conducted and radiated emissions testing (ANSI C63.4 2003).

2 Product Information

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Sirius XM Radio SkyDock FM Transmitter, Model # XVSAP1V1, FCC ID: RS2XVSAP1V1**. The FM transmitter is located within the SkyDock housing which was inserted into the vehicle's cigarette lighter adapter socket and is only capable of FM transmissions in association with Apple's iPhone or iPod Touch and Sirius XM iPhone/iPod Touch app that facilitate the reception of Sirius XM satellite content using the iPhone or iPod Touch. The test data contained in this report pertains only to the emissions due to the FM band transmitter of the EUT.

2.2 Operation Mode

Sirius XM Radio SkyDock FM Transmitter was set to transmit in the FM band while receiving live satellite broadcast. The EUT was tested while receiving live satellite broadcast and playing iPod iTunes.

2.3 Test Configuration Descriptions

The **Sirius XM Radio SkyDock FM Transmitter** was tested in a total of four different configurations for unintentional and intentional emissions compliance to FCC rules and regulations and IC standards. Each test configuration is shown in the test information section.

3 Test Information

3.1 Test Justification

The EUT tested was the **Sirius XM Radio SkyDock with FM Transmitter, Model # XVSAP1V1, FCC ID: RS2XVSAP1V1**. The FM transmitter is located within the SkyDock housing and is only capable of FM transmission. The test data contained in this report pertains only to the emissions due to the FM band transmitter of the EUT. The test results relate only to the item that was tested. The test procedure document used for this report was Sirius XM Satellite Radio Documents: SkyDock; dated July 14, 2009.

3.2 Exercising the EUT

The EUT was tested with the FM modulator enabled while receiving live satellite broadcast from an iPod Touch docked in the EUT and inserted into the vehicle's cigarette lighter adapter socket. The satellite content was received directly by the iPod Touch while docked in the EUT in association with Apple's iPod Touch and Sirius XM iPhone/iPod Touch application that facilitate the reception of Sirius XM satellite content. The lowest and highest tuning frequencies, namely, 88.1MHz and 107.9 MHz were not used during testing due to very strong local ambient that prevented their use. The tuning range of the SkyDock was verified during testing, SkyDock's firmware prevents any Apple Apps from tuning outside the SkyDock's tuning range. There were no deviations from the test standard(s) and/or methods.

3.3 Test Result Summary

FCC Part Section	IC Section	Test Description	Test Limit	Pass/Fail
15.239(a)	RSS-210 (A2.8)	Bandwidth	< 200 kHz	Pass
15.239(b)	RSS-210 (A2.8)	In-band Emissions	<250 uV/m within permitted 200 kHz band	Pass
15.239(c) 15.209	RSS-210 (2.7)	Out-of-Band Emissions	Emissions outside of the specified band must meet the radiated limits detailed in 15.209 (RSS-210 table 3 limits)	Pass

3.4 Test System Details

The test sample was received on June 20, 2009. The FCC Identifiers for all equipment, plus descriptions of all cables used in the tested system, are shown in the table below.

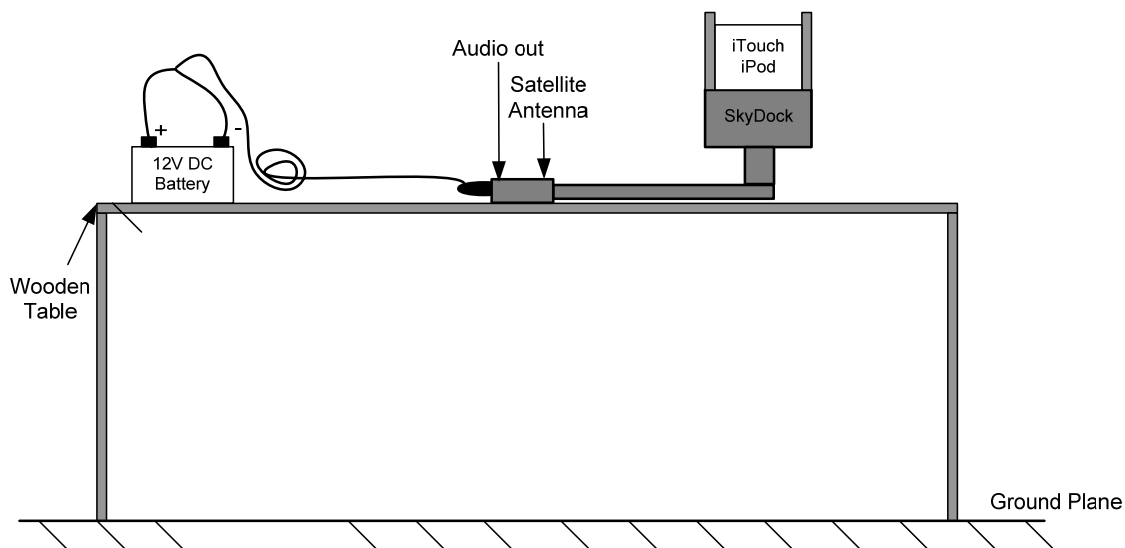
Table 3.4-1: Equipment under Test (EUT)

Part	Manufacturer	Model	Serial Number	Cable Description	RTL Bar Code
SkyDock	Sirius XM	SkyDock XVSAP1V1	P3MAIN UGB003R5	N/A	019118
iPod Touch	Apple	8 GB iPod Touch	300010084	N/A	019119
XM Antenna	Sirius XM	Satellite Antenna 11-ft	A232291	Shielded	019120
12V battery	Valucraft	N/A	N/A	N/A	N/A
Battery Power Adapter	Sirius XM	N/A	N/A	Unshielded	019122

4 Radiated Emissions – FCC 15.209, 15.239 / IC RSS-210

4.1 Radiated Emission Measurements Standalone Injected FM CLA - Test Configuration 1

The EUT was configured as shown in Test Configuration 1. The intentional radiated emissions were measured at a distance of three meters. The EUT was powered by a fully charged 12 Vdc car battery. The FM Modulator was enabled and the audio level set to the maximum audio level. The EUT was configured to receive live satellite broadcast. The cables were manipulated to produce the highest emission level. The EUT was tested using the following in-band frequencies: 89.1 MHz, 97.7 MHz and 106.3 MHz. Data was taken for both horizontal and vertical antenna polarizations with the worst case levels recorded. The test configuration is shown below.



Test Configuration 1: SkyDock with iPod Touch

4.1.1 In Band Radiated Emissions Test Data

Mode: Live Sirius XM Radio audio cable connected

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC Limit (dBuV/m)	FCC Margin (dB)	IC Limit (dBuV/m)	IC Margin (dB)	Pass/Fail
89.100	Qp	H	210	3.8	59.8	-22.9	36.9	48.0	-11.1	60.0	-23.1	Pass
89.100	Qp	V	45	1.0	63.7	-22.9	40.8	48.0	-7.2	60.0	-19.2	Pass
97.700	Qp	H	10	3.2	59.0	-20.8	38.2	48.0	-9.8	60.0	-21.8	Pass
97.700	Qp	V	280	1.0	63.3	-20.8	42.5	48.0	-5.5	60.0	-17.5	Pass
106.300	Qp	H	20	3.0	57.9	-19.6	38.3	48.0	-9.7	60.0	-21.7	Pass
106.300	Qp	V	345	1.0	62.5	-19.6	42.9	48.0	-5.1	60.0	-17.1	Pass

Mode: Playing iTunes Files

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC Limit (dBuV/m)	FCC Margin (dB)	IC Limit (dBuV/m)	IC Margin (dB)	Pass/Fail
89.100	Qp	H	195	3.8	59.5	-22.9	36.6	48.0	-11.4	60.0	-23.4	Pass
89.100	Qp	V	350	1.2	63.8	-22.9	40.9	48.0	-7.1	60.0	-19.1	Pass
97.700	Qp	H	5	3.2	57.9	-20.8	37.1	48.0	-10.9	60.0	-22.9	Pass
97.700	Qp	V	285	1.0	63.1	-20.8	42.3	48.0	-5.7	60.0	-17.7	Pass
106.300	Qp	H	350	3.0	57.3	-19.6	37.7	48.0	-10.3	60.0	-22.3	Pass
106.300	Qp	V	325	1.0	61.9	-19.6	42.3	48.0	-5.7	60.0	-17.7	Pass

Mode: Live Sirius XM Radio; no audio cable connected

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC Limit (dBuV/m)	FCC Margin (dB)	IC Limit (dBuV/m)	IC Margin (dB)	Pass/Fail
89.100	Qp	H	200	3.2	60.0	-22.9	37.1	48.0	-10.9	60.0	-22.9	Pass
89.100	Qp	V	55	1.0	64.2	-22.9	41.3	48.0	-6.7	60.0	-18.7	Pass
97.700	Qp	H	210	3.0	58.5	-20.8	37.7	48.0	-10.3	60.0	-22.3	Pass
97.700	Qp	V	330	1.0	64.2	-20.8	43.4	48.0	-4.6	60.0	-16.6	Pass
106.300	Qp	H	245	2.5	56.9	-19.6	37.3	48.0	-10.7	60.0	-22.7	Pass
106.300	Qp	V	345	1.0	62.9	-19.6	43.3	48.0	-4.7	60.0	-16.7	Pass

Note:

In band radiated emissions were checked and investigated for Live Sirius XM radio mode, as well as iTunes MP3 file mode, in order to determine if modulation input sources contributed to worst-case emission. The data in the above tables is evidence that different modulation sources would not contribute to worst-case out of band emissions. The output power of Silicon Lab's IC is independent of the input modulation drive; this was verified by the manufacturer of the SkyDock.

4.1.2 Out of Band Radiated Emissions Test Data Live Sirius XM Radio

Mode: 89.1 MHz

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Vehicle Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC/IC Limit (dBuV/m)	FCC/IC Margin (dB)	Pass/Fail
178.200	Qp	H	25	3.5	38.7	-20.5	18.2	43.5	-25.3	Pass
178.200	Qp	V	90	1.0	40.8	-20.5	20.3	43.5	-23.2	Pass
267.300	Qp	H	45	3.5	38.8	-16.9	21.9	46.0	-24.1	Pass
267.300	Qp	V	45	1.5	39.3	-16.9	22.4	46.0	-23.6	Pass
356.400	Qp	H	75	3.5	36.6	-14.2	22.4	46.0	-23.6	Pass
356.400	Qp	V	125	1.0	37.3	-14.2	23.1	46.0	-22.9	Pass
445.500	Qp	H	90	3.0	38.7	-11.9	26.8	46.0	-19.2	Pass
445.500	Qp	V	5	1.0	38.3	-11.9	26.4	46.0	-19.6	Pass
534.600	Qp	H	125	3.0	39.3	-9.6	29.7	46.0	-16.3	Pass
534.600	Qp	V	150	1.0	38.7	-9.6	29.1	46.0	-16.9	Pass
623.700	Qp	H	345	3.0	37.0	-8.4	28.6	46.0	-17.4	Pass
623.700	Qp	V	145	1.0	38.3	-8.4	29.9	46.0	-16.1	Pass
712.800	Qp	H	290	2.5	37.7	-6.8	30.9	46.0	-15.1	Pass
712.800	Qp	V	90	1.0	39.4	-6.8	32.6	46.0	-13.4	Pass
801.900	Qp	H	270	2.0	36.5	-5.3	31.2	46.0	-14.8	Pass
801.900	Qp	V	180	1.0	38.8	-5.3	33.5	46.0	-12.5	Pass
891.000	Qp	H	290	1.5	35.3	-4.4	30.9	46.0	-15.1	Pass
891.000	Qp	V	220	1.0	41.7	-4.4	37.3	46.0	-8.7	Pass

Mode: 97.7 MHz

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Vehicle Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC/IC Limit (dBuV/m)	FCC/IC Margin (dB)	Pass/Fail
195.415	Qp	H	170	3.2	41.8	-20.1	21.7	43.5	-21.8	Pass
195.415	Qp	V	120	1.0	45.8	-20.1	25.7	43.5	-17.8	Pass
293.115	Qp	H	270	2.5	37.3	-16.5	20.8	46.0	-25.2	Pass
293.115	Qp	V	100	1.0	37.6	-16.5	21.1	46.0	-24.9	Pass
390.815	Qp	H	150	3.0	39.1	-13.3	25.8	46.0	-20.2	Pass
390.815	Qp	V	355	1.0	38.6	-13.3	25.3	46.0	-20.7	Pass
488.515	Qp	H	75	2.5	37.6	-10.5	27.1	46.0	-18.9	Pass
488.515	Qp	V	345	1.0	37.7	-10.5	27.2	46.0	-18.8	Pass
586.215	Qp	H	355	2.0	42.1	-8.9	33.2	46.0	-12.8	Pass
586.215	Qp	V	145	1.0	37.8	-8.9	28.9	46.0	-17.1	Pass
683.915	Qp	H	45	2.0	36.4	-7.3	29.1	46.0	-16.9	Pass
683.915	Qp	V	270	1.0	37.0	-7.3	29.7	46.0	-16.3	Pass
781.615	Qp	H	290	1.5	35.6	-5.9	29.7	46.0	-16.3	Pass
781.615	Qp	V	180	1.2	36.6	-5.9	30.7	46.0	-15.3	Pass
879.315	Qp	H	290	1.5	37.5	-4.5	33.0	46.0	-13.0	Pass
879.315	Qp	V	140	1.0	35.6	-4.5	31.1	46.0	-14.9	Pass
977.015	Qp	H	300	1.5	37.1	-2.9	34.2	54.0	-19.8	Pass
977.015	Qp	V	25	1.0	36.0	-2.9	33.1	54.0	-20.9	Pass

Mode: 106.3 MHz

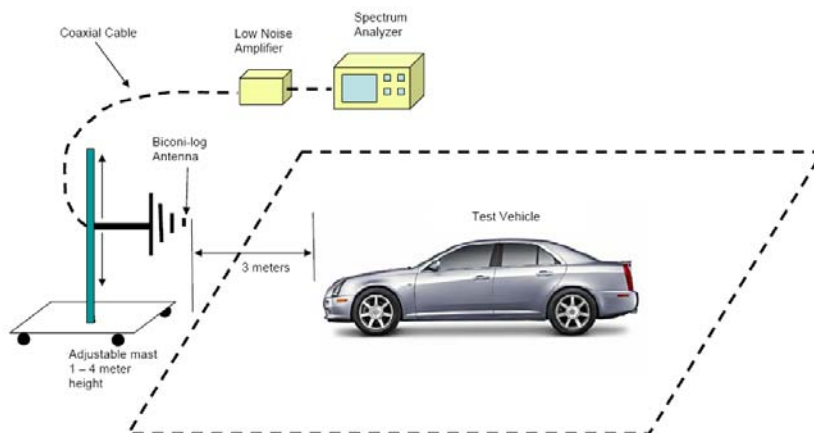
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Vehicle Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC/IC Limit (dBuV/m)	FCC/IC Margin (dB)	Pass/Fail
212.600	Qp	H	70	2.5	41.6	-20.4	21.2	43.5	-22.3	Pass
212.600	Qp	V	170	1.0	42.2	-21.8	20.4	43.5	-23.1	Pass
318.900	Qp	H	40	2.5	37.0	-15.3	21.7	46.0	-24.3	Pass
318.900	Qp	V	100	1.0	37.2	-15.3	21.9	46.0	-24.1	Pass
425.200	Qp	H	85	2.0	37.9	-12.0	25.9	46.0	-20.1	Pass
425.200	Qp	V	320	1.0	36.8	-12.0	24.8	46.0	-21.2	Pass
531.500	Qp	H	90	2.0	42.5	-9.7	32.8	46.0	-13.2	Pass
531.500	Qp	V	220	1.0	38.1	-9.7	28.4	46.0	-17.6	Pass
637.800	Qp	H	170	1.5	37.6	-8.4	29.2	46.0	-16.8	Pass
637.800	Qp	V	350	1.0	38.3	-8.4	29.9	46.0	-16.1	Pass
744.100	Qp	H	45	1.5	36.7	-6.2	30.5	46.0	-15.5	Pass
744.100	Qp	V	65	1.0	37.6	-6.2	31.4	46.0	-14.6	Pass
850.400	Qp	H	200	2.0	35.3	-4.7	30.6	46.0	-15.4	Pass
850.400	Qp	V	100	1.0	37.6	-4.7	32.9	46.0	-13.1	Pass
956.700	Qp	H	65	2.0	36.1	-3.3	32.8	46.0	-13.2	Pass
956.700	Qp	V	45	1.0	37.2	-3.3	33.9	46.0	-12.1	Pass
1063.000	Av	H	160	1.0	35.7	-2.1	33.6	54.0	-20.4	Pass
1063.000	Av	V	270	1.0	35.7	-2.1	33.6	54.0	-20.4	Pass

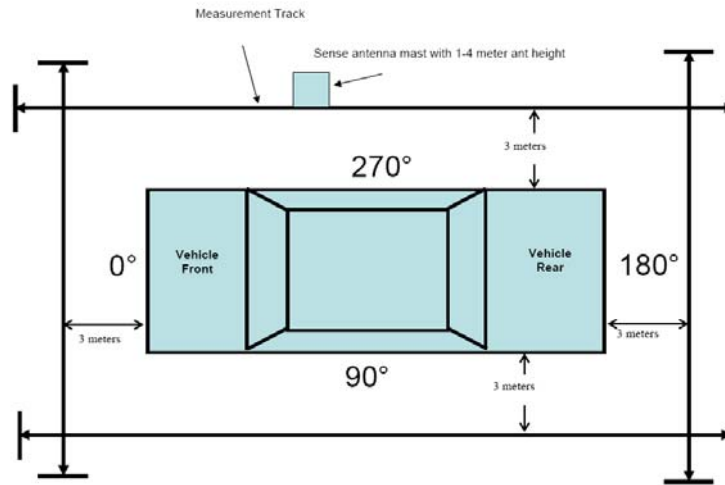
4.2 In-Band Radiated Emission Measurements – In-Situ Test Configuration 2

The SkyDock was installed in and powered by the cigarette lighter jack for the following three vehicles: (1) Nissan Sentra compact, (2) Subaru Outback wagon, and (3) Range Rover SUV. The XM antenna was connected to the SkyDock. The EUT was configured to receive live satellite broadcast signals and the audio level was set to maximum. The antenna mast was moved along the side of the vehicle under test to maximize the emission level. During the maximization process, a three meter distance was maintained. At the emission peak, the antenna height was adjusted from 1 to 4 meters to maximize the emission. The frequencies used were 89.1 MHz, 97.7 MHz and 106.3 MHz.

Testing was performed using both horizontal and vertical antenna polarities, with the highest level recorded. The data was recorded using a RBW of 120 kHz and a VBW of 300 kHz. The data was recorded using a Quasi Peak detector.

Each vehicle was tested on all four sides. The test configuration is shown below.





Test Configuration 2: SkyDock in Vehicle

4.2.1 Radiated Measurement Data for Nissan Sentra (15.239(b) / 15.209)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Vehicle Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC Limit (dBuV/m)	FCC Margin (dB)	IC Limit (dBuV/m)	IC Margin (dB)
89.100	Qp	H	90	4.0	56.7	-22.9	33.8	48.0	-14.2	60.0	-26.2
89.100	Qp	H	270	3.5	59.8	-22.9	36.9	48.0	-11.1	60.0	-23.1
89.100	Qp	H	0	2.0	56.8	-22.9	33.9	48.0	-14.1	60.0	-26.1
89.100	Qp	H	180	3.5	55.9	-22.9	33.0	48.0	-15.0	60.0	-27.0
89.100	Qp	V	90	3.0	55.8	-22.9	32.9	48.0	-15.1	60.0	-27.1
89.100	Qp	V	270	1.2	57.9	-22.9	35.0	48.0	-13.0	60.0	-25.0
89.100	Qp	V	0	1.2	62.4	-22.9	39.5	48.0	-8.5	60.0	-20.5
89.100	Qp	V	180	2.5	55.6	-22.9	32.7	48.0	-15.3	60.0	-27.3
97.700	Qp	H	90	4.0	56.3	-20.8	35.5	48.0	-12.5	60.0	-24.5
97.700	Qp	H	270	3.5	55.1	-20.8	34.3	48.0	-13.7	60.0	-25.7
97.700	Qp	H	0	3.5	56.0	-20.8	35.2	48.0	-12.8	60.0	-24.8
97.700	Qp	H	180	2.0	56.2	-20.8	35.4	48.0	-12.6	60.0	-24.6
97.700	Qp	V	90	3.0	59.6	-20.8	38.8	48.0	-9.2	60.0	-21.2
97.700	Qp	V	270	2.5	55.0	-20.8	34.2	48.0	-13.8	60.0	-25.8
97.700	Qp	V	0	1.5	57.8	-20.8	37.0	48.0	-11.0	60.0	-23.0
97.700	Qp	V	180	2.5	59.9	-20.8	39.1	48.0	-8.9	60.0	-20.9
106.300	Qp	H	90	4.0	53.6	-19.6	34.0	48.0	-14.0	60.0	-26.0
106.300	Qp	H	270	4.0	50.1	-19.6	30.5	48.0	-17.5	60.0	-29.5
106.300	Qp	H	0	3.0	54.6	-19.6	35.0	48.0	-13.0	60.0	-25.0
106.300	Qp	H	180	2.0	50.0	-19.6	30.4	48.0	-17.6	60.0	-29.6
106.300	Qp	V	90	2.5	58.3	-19.6	38.7	48.0	-9.3	60.0	-21.3
106.300	Qp	V	270	3.5	55.2	-19.6	35.6	48.0	-12.4	60.0	-24.4
106.300	Qp	V	0	3.0	53.0	-19.6	33.4	48.0	-14.6	60.0	-26.6
106.300	Qp	V	180	1.5	48.9	-19.6	29.3	48.0	-18.7	60.0	-30.7

NOTE: No out of band emissions were found.

4.2.2 Radiated Measurement Data for Subaru Outback (15.239(b) / 15.209)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC Limit (dBuV/m)	FCC Margin (dB)	IC Limit (dBuV/m)	IC Margin (dB)
89.100	Qp	H	270	3.0	48.0	-22.9	25.1	48.0	-22.9	60.0	-34.9
89.100	Qp	H	0	3.0	49.0	-22.9	26.1	48.0	-21.9	60.0	-33.9
89.100	Qp	H	180	2.0	45.0	-22.9	22.1	48.0	-25.9	60.0	-37.9
89.100	Qp	V	270	3.0	46.0	-22.9	23.1	48.0	-24.9	60.0	-36.9
89.100	Qp	V	0	1.5	48.5	-22.9	25.6	48.0	-22.4	60.0	-34.4
89.100	Qp	V	180	1.0	45.3	-22.9	22.4	48.0	-25.6	60.0	-37.6
89.103	Qp	H	90	4.0	50.3	-22.9	27.4	48.0	-20.6	60.0	-32.6
89.103	Qp	V	90	1.0	53.5	-22.9	30.6	48.0	-17.4	60.0	-29.4
97.700	Qp	H	90	3.5	42.2	-20.8	21.4	48.0	-26.6	60.0	-38.6
97.700	Qp	H	270	3.5	41.9	-20.8	21.1	48.0	-26.9	60.0	-38.9
97.700	Qp	H	0	3.0	34.3	-20.8	13.5	48.0	-34.5	60.0	-46.5
97.700	Qp	H	180	2.0	36.5	-20.8	15.7	48.0	-32.3	60.0	-44.3
97.700	Qp	V	90	1.0	45.1	-20.8	24.3	48.0	-23.7	60.0	-35.7
97.700	Qp	V	270	2.5	43.5	-20.8	22.7	48.0	-25.3	60.0	-37.3
97.700	Qp	V	0	1.5	40.8	-20.8	20.0	48.0	-28.0	60.0	-40.0
97.700	Qp	V	180	2.0	38.0	-20.8	17.2	48.0	-30.8	60.0	-42.8
106.300	Qp	H	90	3.5	51.8	-19.6	32.2	48.0	-15.8	60.0	-27.8
106.300	Qp	V	90	2.5	49.8	-19.6	30.2	48.0	-17.8	60.0	-29.8
106.300	Qp	H	270	2.5	50.3	-19.6	30.7	48.0	-17.3	60.0	-29.3
106.300	Qp	H	0	3.5	40.5	-19.6	20.9	48.0	-27.1	60.0	-39.1
106.300	Qp	H	180	3.0	39.0	-19.6	19.4	48.0	-28.6	60.0	-40.6
106.300	Qp	V	270	1.0	49.4	-19.6	29.8	48.0	-18.2	60.0	-30.2
106.300	Qp	V	0	1.5	40.4	-19.6	20.8	48.0	-27.2	60.0	-39.2
106.300	Qp	V	180	2.0	38.7	-19.6	19.1	48.0	-28.9	60.0	-40.9

NOTE: No out of band emissions were found.

4.2.3 Radiated Measurement Data for Range Rover SUV (15.239(b) / 15.209)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	FCC Limit (dBuV/m)	FCC Margin (dB)	IC Limit (dBuV/m)	IC Margin (dB)
89.100	Qp	H	90	2.0	56.3	-22.9	33.4	48.0	-14.6	60.0	-26.6
89.100	Qp	H	270	3.0	47.3	-22.9	24.4	48.0	-23.6	60.0	-35.6
89.100	Qp	H	0	4.0	45.6	-22.9	22.7	48.0	-25.3	60.0	-37.3
89.100	Qp	H	180	3.5	48.9	-22.9	26.0	48.0	-22.0	60.0	-34.0
89.100	Qp	V	90	3.0	56.0	-22.9	33.1	48.0	-14.9	60.0	-26.9
89.100	Qp	V	270	3.0	51.0	-22.9	28.1	48.0	-19.9	60.0	-31.9
89.100	Qp	V	0	2.0	45.8	-22.9	22.9	48.0	-25.1	60.0	-37.1
89.100	Qp	V	180	3.0	46.8	-22.9	23.9	48.0	-24.1	60.0	-36.1
97.700	Qp	H	90	2.5	59.7	-20.8	38.9	48.0	-9.1	60.0	-21.1
97.700	Qp	H	270	4.0	45.5	-20.8	24.7	48.0	-23.3	60.0	-35.3
97.700	Qp	H	0	3.5	41.2	-20.8	20.4	48.0	-27.6	60.0	-39.6
97.700	Qp	H	180	3.5	42.3	-20.8	21.5	48.0	-26.5	60.0	-38.5
97.700	Qp	V	90	2.0	56.8	-20.8	36.0	48.0	-12.0	60.0	-24.0
97.700	Qp	V	270	2.5	54.0	-20.8	33.2	48.0	-14.8	60.0	-26.8
97.700	Qp	V	0	2.0	41.2	-20.8	20.4	48.0	-27.6	60.0	-39.6
97.700	Qp	V	180	2.0	43.3	-20.8	22.5	48.0	-25.5	60.0	-37.5
106.300	Qp	H	90	2.0	49.1	-19.6	29.5	48.0	-18.5	60.0	-30.5
106.300	Qp	H	270	4.0	49.8	-19.6	30.2	48.0	-17.8	60.0	-29.8
106.300	Qp	H	0	3.0	43.8	-19.6	24.2	48.0	-23.8	60.0	-35.8
106.300	Qp	H	180	3.5	42.6	-19.6	23.0	48.0	-25.0	60.0	-37.0
106.300	Qp	V	90	1.5	55.2	-19.6	35.6	48.0	-12.4	60.0	-24.4
106.300	Qp	V	270	3.0	50.3	-19.6	30.7	48.0	-17.3	60.0	-29.3
106.300	Qp	V	0	2.0	43.9	-19.6	24.3	48.0	-23.7	60.0	-35.7
106.300	Qp	V	180	1.5	44.2	-19.6	24.6	48.0	-23.4	60.0	-35.4

NOTE: No out of band emissions were found.

5 Sample Calculations

5.1 Radiated Emissions Measurement Sample Calculation

$$\text{Limit} = 150 \mu\text{V}/\text{m} = 20 * \log (150\mu\text{V}/1\mu\text{V}) = 43.5 \text{ dB}\mu\text{V}/\text{m}$$

$$\text{Field Strength Level}_{(\text{dB}\mu\text{V}/\text{m})} = \text{Analyzer Level}_{(\text{dB}\mu\text{V})} + \text{Site Correction Factor}_{(\text{dB})}$$

Where:

$$\text{Site Correction Factor}_{(\text{dB})} = \text{Antenna Correction Factor}_{(\text{dB})} + \text{Cable Loss}_{(\text{dB})} - \text{Preamp Gain}_{(\text{dB})}$$

$$\text{Margin}_{(\text{dB})} = \text{Field Strength Level} - \text{Limit}$$

6 Conclusion

The data in this test report demonstrate that the **Sirius XM Radio SkyDock with FM Transmitter, Model # XVSAP1V1, FCC ID: RS2XVSAP1V1 / IC: 5697A-XVSAP1V1**, is in compliance with the requirements specified within FCC Section 15.239 and Annex A2 of RSS-210 of Industry Canada standard.

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